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| ASD ltr, 11 Jul 1977 |

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B-1 SYSTEMS APPROACH TO TRAINING
TECHNICAL MEMORANDUM SAT-2

BEHAVIORAL OBJECTIVES FOR THE PILOT,
COPILOT, AND OFFENSIVE SYSTEMS OPERATOR

VOLUME 2
JULY 1975

Distribution limited to U.S. Government Agencies only; test
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Wright-Patterson Air Force Base, Ohio, 45433.

PREPARED BY: John F. Mitchell
APPROVED BY: Robert C. Sugarmann
SAT Task Manager

William M. Hinton
APPROVED BY: D. Barry Dahm, Head
Environmental & Energy
Systems Department

Steven L. Johnson
APPROVED BY: Robert C. Kildner
Program Manager
B-1 Technical Support Program

CALSPAN CORPORATION
CONTRACT NO. F33657-75-C-0021

Calspan Corporation
Buffalo, New York 14221
Behavioral Objectives for the Pilot, Copilot and Offensive Systems Operator, Volume II.

John F. Mitchell, William M. Hinton, Jr., Steven L. Johnson

Calspan Corporation
P. O. Box 235
Buffalo, New York 14221

Aeronautical Systems Division
B-1 Systems Project Office
Wright-Patterson Air Force Base, OH 45433

Distribution limited to U.S. Government Agencies only: test and evaluation; July 1975. Other requests for this document must be referred to B-1 Systems Program Office, ASD/YHCD, Wright-Patterson Air Force Base, Ohio 45433.

The Systems Approach to Training (SAT) for the B-1 aircrew involves the transformation of task analysis data into complete and precise statements of all behaviors necessary to carry out the B-1 mission. The resulting Behavioral Objectives delineate the "who, what, how, when and how well" of each definable behavior. A compilation of behavioral objectives for the pilot, copilot and offensive system operator is contained in this report, preceded by a brief description of the procedures for their development.
PREFACE

This document is one of several technical memoranda which have been delivered to the B-1 Systems Project Office (B-1 SPO) in performance of the Systems Approach to Training (SAT) Task under Contract Number F33657-75-C-0021. Each of the separate SAT documents is listed below. Additional copies may be requested from: B-1 Systems Project Office, Data Configuration Division, Wright-Patterson Air Force Base, Ohio.

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B-1 Aircrew Behavioral Objectives

John F. Mitchell
William M. Hinton, Jr.
Steven L. Johnson

SUMMARY

The Systems Approach to Training (SAT) for the B-1 aircrew involves the transformation of task analysis data into complete and precise statements of all behaviors necessary to carry out the B-1 mission. The resulting Behavioral Objectives delineate the "who, what, how, when and how well" of each definable behavior. A compilation of behavioral objectives for the pilot, copilot and offensive system operator is contained in this report, preceded by a brief description of the procedures for their development.

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</table>
OBJECTIVE: CONFIGURE A/V GROUND REFUEL PANEL FOR REFUEL

CRITICALITY: 2  DIFFICULTY: 1

INITIAL CONDITIONS: 1. Fuel trucks or bladder tanks in position.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that with the tank fill valve switches on the GRP (Ground Refuel Panel) set to AUTO, the level control valves are automatically opened and closed by the A/V center-of-gravity management system.

2. Recall that the main tank fill valve switch on the GRP is normally set to OPEN during refueling operations.

3. Recall that with the fill control rotary selector on the GRP set to TOTAL, the fuel remaining in all A/V tanks is displayed on the upper digital quantity indicator.

4. Recall that when FUEL QUANTITY is set by the mode control rotary switch of the GRP, the quantity of fuel onboard the A/V can be read on the digital counter without energizing valves or pumps.

5. Recall that with the mode control rotary switch of the GRP set to FUEL QUANTITY, the POWER ON legend light is illuminated.

6. Recall that when the press-to-test feature of the CG FAIL legend light is exercised, it illuminates red.

7. Recall that when the press-to-test feature of the FILL V FAIL legend light is exercised, it illuminates flashing red.

ANCILLARY OBJECTIVES:

1. Recall that no AUTO position is provided for the main tank fill valve switch on the GRP because the main level control valve operation is not controlled by the center-of-gravity management system.
ANCILLARY OBJECTIVES: (continued.)

2. Recall that when TOTAL is selected with the fill control rotary selector, the identifier TOT will be displayed on the upper digital readout along with the fuel remaining in all A/V tanks.

OPERATOR: P/CP

TASK ELEMENTS:  
16.1.1.1  16.1.1.2  16.1.1.5
16.1.1.1.1  16.1.1.3  16.1.1.6
16.1.1.1.2  16.1.1.4
16.1.1.001.00*
SET TANK FILL VALVE SWS ON GROUND REFUEL PANEL TO "AUTO"*

16.1.1.001.01*
SET TANK FILL VALVE SWS FOR TK 1 TK 4 AND TK 2 TO "AUTO"*
A-V AND ICS = READY FOR REFUEL*
MODE CONTROL ROTARY SELECTOR = ESTABLISHED
SET
TK 4 LCV CONTROL SWITCH
TK 2 LCV CONTROL SWITCH

MODE CONTROL ROTARY SELECTOR = AUTO
AND TK 2 LCV CONTROL SWITCH = AUTO

16.1.1.001.02*
SET TANK FILL VALVE SWS FOR TK 3 WG AND ST BAY TO "AUTO"*
A-V AND ICS = READY FOR REFUEL*
SET
TK 3 LCV CONTROL SWITCH
WG LCV CONTROL SWITCH
ST BAY LCV CONTROL SWITCH

TK 3 LCV CONTROL SWITCH = AUTO
AND ST BAY LCV CONTROL SWITCH = AUTO

16.1.1.002.00*
SET MAIN TOGGLE SWITCH TO "OPEN" POSITION
TK 3 LCV CONTROL SWITCH = AUTO*
AND ST BAY LCV CONTROL SWITCH = AUTO

SET
MAIN LCV CONTROL SWITCH
MAIN LCV CONTROL SWITCH = OPEN

16.1.1.003.00*
SET FILL CONTROL ROTARY SELECTOR TO "TOTAL" POSITION
MAIN LCV CONTROL SWITCH = OPEN

SET
TANK SELECT ROTARY CONTROL
TANK SELECT ROTARY CONTROL = TOTAL

16.3
16.1.1.005.00

PUSH TO TEST CG FAIL LIGHT ON GROUND REFUEL PANEL

- POWER ON ADVISORY LIGHT = 'POWER ON'*
- CG FAIL LEGEND LIGHT = 'CG FAIL'**

16.1.1.006.00

PUSH TO TEST FILL VALVE FAIL LIGHT*

- POWER ON ADVISORY LIGHT = 'POWER ON'*
- LCV FAIL WARNING SWITCHLIGHT = 'FILL V FAIL'*
OBJECTIVE: DETERMINE FUEL QUANTITY ON BOARD

CRITICALITY: 1 DIFFICULTY: 1

INITIAL CONDITIONS: 1. A/V ground refuel panel configured for refueling.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that with the fill control rotary selector on the GRP set to MAIN, the fuel remaining in the left and right main tanks will be displayed on the upper and lower digital indicators, respectively.

2. Recall that with the fill control rotary selector on the GRP set to FUS 1 & 4, the fuel remaining in the fuselage 1 and 4 tanks will be displayed on the upper and lower digital indicators, respectively.

3. Recall that with the fill control rotary selector on the GRP set to FUS 2 & 3, the fuel remaining in the fuselage 2 and 3 tanks will be displayed on the upper and lower digital indicators, respectively.

4. Recall that with the fill control rotary selector on the GRP set to WG, the fuel remaining in the left and right wing tanks will be displayed on the upper and lower digital indicators, respectively.

ANCILLARY OBJECTIVES:

1. Recall that for each tank selected, the appropriate identifier (L, 1 or 2) will be displayed on the upper digital readout along with the fuel remaining.

2. Recall that for each tank selected, the appropriate identifier (R, 3 or 4) will be displayed on the lower digital readout along with the fuel remaining.

OPERATOR: P/CP

TASK ELEMENTS: 16.1.2.1  16.1.2.4
16.1.2.2  16.1.2.5
16.1.2.3

16.5
16.1.2.001.00*

VERIFY AND RECORD TOTAL FUEL QUANTITY ON A V

POWER CONTROL SWITCH = FUEL QUANTITY

CHECK

DIGITAL COUNTERS

DIGITAL COUNTERS = TBD TOT*

16.1.2.002.00*

SET FILL CONTROL SELECTOR TO MAIN AND RECORD FUEL IN L AND R*

DIGITAL COUNTERS

AND FUEL LOG = TBD TOT*

SET

TANK SELECT ROTARY CONTROL

TANK SELECT ROTARY CONTROL = MAIN*

AND LOWER DIGITAL COUNTERS = TBD R

16.1.2.003.00*

SET FILL CONTROL TO FUS 1 & 4 AND RECORD FUEL QUANTITIES*

FUEL LOG

AND FUEL LOG = L MAIN FUEL

SET

TANK SELECT ROTARY CONTROL

TANK SELECT ROTARY CONTROL = FUS 1 & 4*

AND LOWER DIGITAL COUNTERS = TBD 4

16.1.2.004.00*

SET FILL CONTROL TO FUS 2 & 3 AND RECORD FUEL QUANTITIES*

FUEL LOG

AND FUEL LOG = FUS 2 & 3*

SET

TANK SELECT ROTARY CONTROL

TANK SELECT ROTARY CONTROL = FUS 2 & 3*

AND LOWER DIGITAL COUNTERS = TBD 3

16.1.2.005.00*

SET FILL CONTROL TO WG AND RECORD FUEL QUANTITIES*

FUEL LOG

AND FUEL LOG = FUS 2 FUEL

SET

TANK SELECT ROTARY CONTROL

TANK SELECT ROTARY CONTROL = WG*

AND LOWER DIGITAL COUNTERS = TBD R
OBJECTIVE: SELECT FUEL QUANTITY TO BE UPLOADED

CRITICALITY: 2        DIFFICULTY: 1

INITIAL CONDITIONS: 1. A/V ground refuel panel configured for refueling.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that the thumbwheels TK 1, TK 4, TK 2 and TK 3 are used to select the desired quantities of fuel to be uploaded.

2. Recall that the desired quantities of fuel to be uploaded are displayed on the vertical scales above the respective thumbwheels.

3. Recall that the desired quantities of fuel to be uploaded are displayed on the digital readouts, when the fill control set test pushbutton is depressed.

ANCILLARY OBJECTIVES:

1. Recall that the actual fuel quantities are displayed on the digital readouts when the fill control set test pushbutton is released.

OPERATOR: P/CP

TASK ELEMENTS: 16.1.3.1 16.1.3.4 16.1.3.7
16.1.3.2 16.1.3.5 16.1.3.8
16.1.3.3 16.1.3.6 16.1.3.9
16.1.3.001.00*

**SET FILL CONTROL ROTARY SELECTOR TO *FUS 1 & 4* POSITION**

- **FUEL LOG** = WG L FUEL
- **FUEL LOG** = WG R FUEL

**SET**

- **TANK SELECT ROTARY CONTROL**
- **TANK SELECT ROTARY CONTROL** = FUS 1 & 4
- **AND LOWER DIGITAL COUNTERS**

16.1.3.002.00*

**ROTATE TK1 UP OR DOWN TO MOVE POINTER TO DESIRED AMT OF FUEL**

- **TANK SELECT ROTARY CONTROL** = FUS 1 & 4

**ROTATE**

- **TK 1 THUMBWHEEL**
- **TK 1 MOVING POINTER** = TBD*

16.1.3.003.00*

**ROTATE TK4 UP OR DOWN TO MOVE POINTER TO DESIRED AMT OF FUEL**

- **TANK SELECT ROTARY CONTROL** = FUS 1 & 4

**ROTATE**

- **TK 4 THUMBWHEEL**
- **TK 4 MOVING POINTER** = TBD*

16.1.3.004.00*

**PUSH FILL CONTROL SET TEST PB TO VERIFY FUEL QTY SELECTION**

- **TK1 MOVING POINTER** = TBD
- **AND TK4 MOVING POINTER** = TBD

**PUSH**

- **FILL CONTROL SET TEST PSHTBTN**
- **DIGITAL COUNTERS** = TBD 1*
- **AND LOWER DIGITAL COUNTERS** = TBD 4

16.1.3.005.00*

**SET FILL CONTROL ROTARY SELECTOR TO *FUS 2 & 3* POSITION**

- **DIGITAL COUNTERS** = TBD 1
- **AND LOWER DIGITAL COUNTERS** = TBD 4

**SET**

- **TANK SELECT ROTARY CONTROL**
- **TANK SELECT ROTARY CONTROL** = FUS 2 & 3*
- **AND LOWER DIGITAL COUNTERS** = TBD 3
16.1.3.006.00*
**ROTATE** TK2 UP OR DOWN TO MOVE POINTER TO DESIRED AMT. OF FUEL*

- TANK SELECT ROTARY CONTROL = FUS 2 & 3
- ROTATE
  - TK 2 THUMBWHEEL
  - TK2 MOVING POINTER = TBD*

16.1.3.007.00*
**ROTATE** TK3 UP OR DOWN TO MOVE POINTER TO DESIRED AMT. OF FUEL*

- TANK SELECT ROTARY CONTROL = FUS 2 & 3
- ROTATE
  - TK 3 THUMBWHEEL
  - TK3 MOVING POINTER = TBD*

16.1.3.008.00*
**PUSH** FILL CONTROL SET TEST PB TO VERIFY FUEL QTY SELECTION*

- TK2 MOVING POINTER = TBD
- AND TK3 MOVING POINTER = TBD
- PUSH FILL CONTROL SET TEST PSHBTN
  - DIGITAL COUNTERS = TBD 2*
  - AND LOWER DIGITAL COUNTERS = TBD 3

16.1.3.009.00*
**VERIFY** BY ICS THAT EACH MAN IS READY TO BEGIN REFUELING*

- DIGITAL COUNTERS = TBD 2
- AND LOWER DIGITAL COUNTERS = TBD 3
- COMMUNICATE PILOT ICS
  - AND CO-PILOT ICS
  - PILOT ICS = READY FOR REFUEL*
  - AND CO-PILOT ICS = READY FOR REFUEL
OBJECTIVE: MONITOR FUEL FLOW INTO A/V

CRITICALITY: 2
DIFFICULTY: 1

INITIAL CONDITIONS: 1. A/V ground refuel panel configured for refueling.
2. Fuel trucks ready to refuel A/V.

CONCURRENT TASKS:

INTERACTION TASKS: 1. Fuel truck operator monitors fuel flow into A/V.

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that with the mode control rotary selector set to REFUEL, power is applied to the GRP such that C/Ds are energized and refueling can be accomplished when flow is initiated at the fuel trucks.

2. Recall that with the fill control rotary selector on the GRP set to TOTAL, the fuel remaining in all A/V tanks is displayed on the upper digital quantity indicator.

3. Recall that the desired quantities of fuel to be uploaded are displayed on the digital readouts, when the fill control set test pushbutton is depressed.

ANCILLARY OBJECTIVES:

1. Recall that the POWER ON legend light is illuminated when the mode control rotary switch of the GRP is set to REFUEL.

2. Recall that when TOTAL is selected with the fill control rotary selector, the identifier TOT will be displayed on the upper digital readout along with the fuel remaining in all A/V tanks.

3. Recall that the actual fuel quantities are displayed on the digital readouts when the fill control set test pushbutton is released.

OPERATOR: P/CP

TASK ELEMENTS: 16.2.1.1 16.2.1.4
16.2.1.2 16.2.1.5
16.2.1.3
16.2.1.001.00*

**SET MODE CONTROL ROTARY SELECTOR TO *REFUEL* POSITION**

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<th>PILOT ICS AND CO-PILOT ICS</th>
<th>= READY FOR REFUEL = READY FOR REFUEL</th>
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**SET**

<table>
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<th>POWER CONTROL SWITCH</th>
<th>= REFUEL</th>
</tr>
</thead>
</table>

16.2.1.002.00*

**SET FILL CONTROL ROTARY SELECTOR TO *TOTAL* POSITION**

| POWER CONTROL SWITCH | = REFUEL* |

**SET**

<table>
<thead>
<tr>
<th>TANK SELECT ROTARY CONTROL</th>
<th>= TOTAL* = TBD TOT</th>
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</table>

AND DIGITAL COUNTERS

16.2.1.003.00*

**REQUEST FUEL TANK TRUCK OPERATOR TO START FUEL FLOW**

| POWER CONTROL SWITCH | = REFUEL |

**COMMUNICATE**

| PILOT ICS | = ACKNOWLEDGED* |

| GROUND OBSERVER ICS | = ACKNOWLEDGED* |

16.2.1.004.00*

**MONITOR FUEL GGY ON DIGITAL COUNTERS AT GROUND REFUEL PANEL**

| DIGITAL COUNTERS | = TBD TOT* |

**MONITOR-VISUAL**

| DIGITAL COUNTERS | = TBD TOT* |

| DIGITAL COUNTERS | = TBD TOT* |

16.2.1.005.00*

**PUSH FILL CONTROL SET TEST PB TO VERIFY FUEL PUMPED ONBOARD**

| DIGITAL COUNTERS | = TBD TOT* |

**PUSH**

| FILL CONTROL SET TEST PSBTN | = TBD TOT* |

| DIGITAL COUNTERS | = TBD TOT* |

16.11
OBJECTIVE: CONFIGURE A/V GROUND REFUEL PANEL TO TERMINATE REFUELING

CRITICALITY: 2   DIFFICULTY: 1

INITIAL CONDITIONS: 1. Desired fuel quantity uploaded in A/V.

CONCURRENT TASKS:

INTERACTION TASKS: 1. Fuel truck operator stops fuel flow.

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that with the tank fill valve switches on the GRP set to CLOSE, the level control valves are closed.

2. Recall that the main tank fill valve switch on the GRP is normally left in the open position.

3. Recall that when FUEL QUANTITY is set by the mode control rotary switch of the GRP, the quantity of fuel onboard the A/V can be read on the digital counter without energizing valves or pumps.

ANCILLARY OBJECTIVES:

1. Recall that with the mode control rotary switch of the GRP set to FUEL QUANTITY, the POWER ON legend light is illuminated.

OPERATOR: P/CP

TASK ELEMENTS: 16.2.2.1 16.2.2.2
16.2.2.1.1 16.2.2.3
16.2.2.1.2
16.2.2.001.00*
**SET TANK FILL VALVES SWS EXCEPT MAIN TANKS TO CLOSE POSITION**

DIGITAL COUNTERS = TBD TOT*

16.2.2.001.01*
**SET TANK FILL VALVE SWS FOR TK 1, TK 4 AND TK 2 TO 'AUTO'**

DIGITAL COUNTERS = TBD TOT

SET

MODE CONTROL ROTARY SELECTOR
TK 4 LCV CONTROL SWITCH
TK 2 LCV CONTROL SWITCH

MODE CONTROL ROTARY SELECTOR = CLOSE
AND TK 2 LCV CONTROL SWITCH = CLOSE

16.2.2.001.02*
**SET TANK FILL VALVE SWS FOR TK 3, WG AND ST BAY TO 'CLOSE'**

DIGITAL COUNTERS = TBD TOT

SET

TK 3 LCV CONTROL SWITCH
WG LCV CONTROL SWITCH
ST BAY LCV CONTROL SWITCH

TK 3 LCV CONTROL SWITCH = CLOSE
AND ST BAY LCV CONTROL SWITCH = CLOSE

16.2.2.002.00*
**CHECK THAT MAIN LEVER LOCK SWITCH IS IN OPEN POSITION**

TK 3 LCV CONTROL SWITCH = CLOSE
AND ST BAY LCV CONTROL SWITCH = CLOSE

CHECK

MAIN LCV CONTROL SWITCH

MAIN LCV CONTROL SWITCH = OPEN

16.2.2.003.00*
**SET MODE CONTROL ROTARY SELECTOR TO 'FUEL QUANTITY' POSITION**

MAIN LCV CONTROL SWITCH = OPEN

SET

POWER CONTROL SWITCH

POWER CONTROL SWITCH = FUEL QUANTITY

16.13
OBJECTIVE: VERIFY FUEL QUANTITY ON A/V 16.6

CRITICALITY: 1  DIFFICULTY: 1

INITIAL CONDITIONS: 1. Desired fuel quantity uploaded in A/V.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that with the fill control rotary selector on the GRP set to MAIN, the fuel remaining in the left and right main tanks will be displayed on the upper and lower digital counters, respectively.

2. Recall that with the fill control rotary selector on the GRP set to FUS 1 & 4, the fuel remaining in the fuselage 1 and 4 tanks will be displayed on the upper and lower digital indicators, respectively.

3. Recall that with the fill control rotary selector on the GRP set to FUS 2 & 3, the fuel remaining in the fuselage 2 and 3 tanks will be displayed on the upper and lower digital indicators, respectively.

4. Recall that with the fill control rotary selector on the GRP set to WG, the fuel remaining in the left and right wing tanks will be displayed on the upper and lower digital indicators, respectively.

5. Recall that with the mode control rotary selector set to OFF, control power to the ground refuel panel is not available.

ANCILLARY OBJECTIVES:

1. Recall that for each tank selected, the appropriate identifier (L, 1 or 2) will be displayed on the upper digital readout along with the fuel remaining.

2. Recall that for each tank selected, the appropriate identifier (R, 3 or 4) will be displayed on the lower digital readout along with the fuel remaining.

3. Recall that with the mode control rotary selector set to OFF, the POWER ON legend light will not be illuminated.
OPERATOR: P/CP

TASK ELEMENTS:
- 16.3.1.1
- 16.3.1.2
- 16.3.1.3
- 16.3.1.4
- 16.3.1.5
16.3.1.001.00*
SET FILL CONTROL SELECTOR TO MAIN AND RECORD FUEL IN L AND R

POWER CONTROL SWITCH = FUEL QUANTITY

SET
TANK SELECT ROTARY CONTROL
TANK SELECT ROTARY CONTROL = MAIN*
AND LOWER DIGITAL COUNTERS = TBD R

16.3.1.002.00*
SET FILL CONTROL TO FUS 1 & 4 AND RECORD FUEL QUANTITIES*

DIGITAL COUNTERS = TBD L
AND LOWER DIGITAL COUNTERS = TBD R

SET
TANK SELECT ROTARY CONTROL
TANK SELECT ROTARY CONTROL = FUS 1 & 4*
AND LOWER DIGITAL COUNTERS = TBD 4

16.3.1.003.00*
SET FILL CONTROL TO FUS 2 & 3 AND RECORD FUEL QUANTITIES*

DIGITAL COUNTERS = TBD 1
AND LOWER DIGITAL COUNTERS = TBD 4

SET
TANK SELECT ROTARY CONTROL
TANK SELECT ROTARY CONTROL = FUS 2 & 3*
AND LOWER DIGITAL COUNTERS = TBD 3

16.3.1.004.00*
SET FILL CONTROL TO WG AND RECORD FUEL QUANTITIES*

DIGITAL COUNTERS = TBD 2
AND LOWER DIGITAL COUNTERS = TBD 3

SET
TANK SELECT ROTARY CONTROL
TANK SELECT ROTARY CONTROL = WG*
AND LOWER DIGITAL COUNTERS = TBD R

16.3.1.005.00*
SET MODE CONTROL ROTARY SELECTOR TO "OFF" POSITION

FUEL LOG = CHECKED*

SET
POWER CONTROL SWITCH
POWER CONTROL SWITCH = OFF
AND POWER ON ADVISORY LIGHT = OFF
OBJECTIVE: SECURE A/V AFTER REFUELING OPERATION

CRITICALITY: 2    DIFFICULTY: 1

INITIAL CONDITIONS: 1. Desired fuel quantity uploaded and verified on A/V.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence

ENABLING OBJECTIVES:

1. Recall that servicing nozzles are disconnected and hoses removed before disconnecting grounding wires.

ANCILLARY OBJECTIVES:

1. Recall that the A/V grounding cables are disconnected and removed after all refueling operations are completed.

OPERATOR: P/CP

TASK ELEMENTS: 16.3.2.1  16.3.2.4
                    16.3.2.2  16.3.2.5
                    16.3.2.3
16.3.2.001.00*
CHECK THAT SERVICING NOZZLES & GROUNDING CABLES ARE STOWED

CHECK POWER CONTROL SWITCH = OFF
AND CHECKLIST = SEQUENCE

CHECK SERVICING NOZZLES
NOZZLE GROUNDING CABLES

SERVICING NOZZLES = STOWED
AND NOZZLE GROUNDING CABLES = STOWED

16.3.2.002.00*
CHECK THAT A-V SERVICING ADAPTER COVERS ARE REPLACED

CHECKLIST = SEQUENCE

CHECK A-V SERVICING ADAPTER COVERS
A-V SERVICING ADAPTER COVERS = REPLACED

16.3.2.003.00*
CHECK THAT GO INTERCOM CABLES ARE DISCONNECTED AND STOWED

CHECKLIST = SEQUENCE

CHECK GO INTERCOM CABLES
GO INTERCOM CABLES = DISCONNECTED
AND GO INTERCOM CABLES = STOWED

16.3.2.004.00*
CHECK THAT FUEL TANKER TRUCK CLEAR OF AIR VEHICLE

CHECKLIST = SEQUENCE

CHECK FUEL TRUCKS
FUEL TRUCKS = CLEAR OF A-V

16.3.2.005.00*
CHECK THAT AIR VEHICLE GROUNDING CABLES ARE DISCONNECTED

CHECKLIST = SEQUENCE

CHECK A-V GROUNDING CABLES
A-V GROUNDING CABLES = DISCONNECTED

16.18
OBJECTIVE: VERIFY A/V STATUS

CRITICALITY: 1
DIFFICULTY: 1

INITIAL CONDITIONS: 1. Refueling operations are completed.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that the fuel vertical tape indicators display the gross fuel quantity in the individual tanks.

2. Recall that the digital displays readout the total quantity in any selected pair of fuel tanks.

3. Recall that the total fuel quantity indicator displays the sum of all fuel shown on the fuel vertical tapes, plus any fuel in the stores bay.

4. Recall that the hydraulic pressure gage pointers should indicate at the 9 o'clock position for normal operation.

ANCILLARY OBJECTIVES:

1. Recall that a single selection of the fuel tank rotary switch causes simultaneous displays of sequence pair fuel tank quantities in the digital readouts.

2. Recall that if the hydraulic fluid level in systems 1 and 4 falls below 6 gallons or below 11 gallons in systems 2 and 3, the hydraulic caution light will illuminate.

3. Recall that if any of the systems pressure falls below 2150 PSI, the hydraulic caution light will illuminate.

OPERATOR: P/CP

TASK ELEMENTS: 16.4.1.1 16.4.1.1.2
16.4.1.1.1 16.4.1.1.3

16.19
16.4.1.001.00*

CHECK STATUS OF A-V IF CONDITIONS AND TIME PERMIT*

CHECKLIST = SEQUENCE*

16.4.1.001.01*

CHECK FUEL QUANTITY ONBOARD AIR VEHICLE

CHECKLIST = SEQUENCE*

CHECK

FUEL QUANTITY INDICATORS
SELECT QUANTITY DIGITAL READ
TOTAL FUEL QUANTITY INDICATOR

FULL QUANTITY INDICATORS = CHECKED*
AND TOTAL FUEL QUANTITY INDICATOR = CHECKED

16.4.1.001.02*

CHECK WINDSHIELD AND WINDOWS FOR CLEANLINESS

CHECKLIST = SEQUENCE

CHECK

WINDSCREEN
SIDE WINDOWS
UPPER WINDOWS

WINDSCREEN
AND UPPER WINDOWS

= CHECKED*
= CHECKED

16.4.1.001.03*

CHECK HYDRAULIC QUANTITY AND PRESSURE INDICATORS

CHECKLIST = SEQUENCE

CHECK

HYDRAULIC QUANTITY INDICATORS
HYDRAULIC PRESSURE INDICATORS

HYDRAULIC QUANTITY INDICATORS = TBD*
AND HYDRAULIC PRESSURE INDICATORS = TBD

16.20
OBJECTIVE: PERFORM WALK AROUND INSPECTION

CRITICALITY: 1 DIFFICULTY: 1

INITIAL CONDITIONS: 1. Refueling operations are completed

CONCURRENT TASKS:

INTERACTING TASKS: 1. OSO performs walk around inspection.
2. DSO performs walk around inspection.

PERFORMANCE LIMITS: 1. Proper sequence

ENABLING OBJECTIVES:

1. Recall that all control surfaces should have complete freedom of movement.
2. Recall that the A/V should be inspected for fluid leakage, battle damage, foreign materials, etc.
3. Recall that all doors, panels and covers should be inspected for damage and security.
4. Recall that all engine air inlet and exhaust ducts should be be inspected for fluid leakage, damage and foreign materials.

ANCILLARY OBJECTIVES:

OPERATOR: P/CP

TASK ELEMENTS: 16.4.1.2 16.4.1.6 16.4.1.9
16.4.1.3 16.4.1.7 16.4.1.10
16.4.1.5 16.4.1.8
16.4.1.002.00* VISUALLY INSPECT EXTERIOR OF FORWARD FUSELAGE*

CHECKLIST

A-V FORWARD FUSELAGE
A-V FORWARD FUSELAGE = INSPECTED*

16.4.1.003.00* VISUALLY INSPECT NOSE LANDING GEAR AND ASSOCIATED EQUIPMENT*

CHECKLIST

A-V NOSE LDG GEAR & EQUIPMENT
A-V NOSE LDG GEAR & EQUIPMENT = INSPECTED*

16.4.1.005.00* VISUALLY INSPECT GENERAL AREA OF FWD & INTMD FUS & WPNS BAYS*

A-V FORWARD FUSELAGE = INSPECTED

16.4.1.006.00* VISUALLY INSPECT LH & RH WING CARRY THRU AREAS AND WINGS*

A-V FWD & INTMD FUS & WPNS BAYS = INSPECTED

16.4.1.007.00* VISUALLY INSPECT ENGINE EXHAUST DUCTS*

A-V L & R WG CARRY THRU & WGS = INSPECTED

16.4.1.008.00* VISUALLY INSPECT EXTERIOR OF L AND R NACELLES*

A-V ENGINE EXHAUST DUCTS = INSPECTED

A-V L & R NACELLES EXTERIOR
A-V L & R NACELLES EXTERIOR = INSPECTED*
16.4.1.009.00* VISUALLY INSPECT ENGINE AIR INLET DUCTS*

    A-V L & R NACELLES EXTERIOR = INSPECTED
    A-V ENGINE AIR INLET DUCTS
    A-V ENGINE AIR INLET DUCTS = INSPECTED

16.4.1.010.00* VISUALLY INSPECT MLG AND ASSOCIATED EQUIPMENT*

    A-V ENGINE AIR INLET DUCTS = INSPECTED
    A-V MAIN LANDING GEAR
    A-V MAIN LANDING GEAR = INSPECTED*
OBJECTIVE: PERFORM WALK AROUND INSPECTION 16.10

CRITICALITY: 1  DIFFICULTY: 1

INITIAL CONDITIONS: 1. Refueling operations are completed.

CONCURRENT TASKS:

INTERACTION TASKS: 1. P/CP perform walk around inspection.
2. DSO performs walk around inspection.

PERFORMANCE LIMITS: 1. Proper sequence.

ENABLED OBJECTIVES:

1. Recall that all control surfaces should have complete freedom of movement.
2. Recall that the A/V should be inspected for fluid leakage, battle damage, foreign materials, etc.
3. Recall that all doors, panels and covers should be inspected for damage and security.
4. Recall that all engine air inlet and exhaust ducts should be inspected for fluid leakage, damage and foreign materials.

ANCILLARY OBJECTIVES:

OPERATOR: OSO

TASK ELEMENTS: 16.4.1.2  16.4.1.6  16.4.1.9
16.4.1.3  16.4.1.7
16.4.1.5  16.4.1.8
16.4.1.002.06*
**VISUALLY INSPECT EXTERIOR OF FORWARD FUSELAGE***

- **CHECKLIST** = **SEQUENCE**
- **INSPECT**
  - **A-V FORWARD FUSELAGE** = **INSPECTED***

16.4.1.003.0C*
**VISUALLY INSPECT NOSE LANDING GEAR AND ASSOCIATED EQUIPMENT***

- **CHECKLIST** = **SEQUENCE**
- **INSPECT**
  - **A-V NOSE LG GEAR & EQUIPMENT** = **INSPECTED***

16.4.1.005.0C*
**VISUALLY INSPECT GENERAL AREA OF FWD & INTMD FUS & WPNS BAYS***

- **INSPECT**
  - **A-V FORWARD FUSELAGE** = **INSPECTED**
  - **A-V FWD & INTMD FUS & WPNS BAYS** = **INSPECTED***

16.4.1.006.00*
**VISUALLY INSPECT LH & RH WING CARRY THRU AREAS AND WINGS***

- **INSPECT**
  - **A-V FWD & INTMD FUS & WPNS BAYS** = **INSPECTED**
  - **A-V L & R WG CARRY THRU & WGS** = **INSPECTED***

16.4.1.007.00*
**VISUALLY INSPECT ENGINE EXHAUST DUCTS***

- **INSPECT**
  - **A-V L & R WG CARRY THRU & WGS** = **INSPECTED**
  - **A-V ENGINE EXHAUST DUCTS** = **INSPECTED***

16.4.1.008.00*
**VISUALLY INSPECT EXTERIOR OF L AND R NACELLES***

- **INSPECT**
  - **A-V ENGINE EXHAUST DUCTS** = **INSPECTED**
  - **A-V L & R NACELLES EXTERIOR** = **INSPECTED***

16.25
VISUALLY INSPECT ENGINE AIR INLET DUCTS*

A-V L & R NACELLES EXTERIOR = INSPECTED

INSPECT

A-V ENGINE AIR INLET DUCTS

A-V ENGINE AIR INLET DUCTS = INSPECTED
EMERGENCY PROCEDURES

NOTE: Mission Segments end at 16. We have numbered the "Emergency Procedures" as 20.
OBJECTIVE: PERFORM INTERNAL ENGINE FIRE PROCEDURES 20.1

CRITICALITY: 2 DIFFICULTY: 2

INITIAL CONDITIONS: 1. Engine start switch placed in start position

CONCURRENT TASKS:

INTERACTION TASKS: 1. Ground observer gives engine fire signal

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.
2. Recall that the ADS couple switch is set to disengage only if the associated APU is not running.
3. Recall that setting the ADS couple switch to DISEN will decouple the APU from either ADG accessory drive train.
4. Recall that when the APU mode switches are set to START they are held in that position until ignition-start has taken place.
5. Recall that when the APU run light is on, the APU is up to adequate speed to accept a load.
6. Recall that when the environmental control switch on the APU control panel is set to ECS SPLY, the ECS is connected to a bleed air valve on the appropriate APU.
7. Recall that when an engine fire switchlight is depressed it latches mechanically in that position shutting off the respective engine firewall fuel valve and arming the corresponding fire extinguishing system.
8. Recall that engine motoring is permitted with the ignition switch in the off position.
9. Recall that when the alternate throttle switch is held in DECR, the engine throttle control system will decrease in proportion to the length of time that the position is maintained.
10. Recall that momentary selection of the engine start switch to START will allow the APU to dry motor the engine.
ENABLING OBJECTIVES: (continued)

11. Recall that releasing the engine start switch allows it to return to RUN.

12. Recall that the engine should be motored for a minimum of 30 seconds until the fire is out as verified by the ground crew.

13. Recall that releasing the alternate throttle switch to the maintained center position will hold the engine power setting.

14. Recall the procedures for abandoning the A/V on the ground.

ANCILLARY OBJECTIVES

1. Recall that the master (general) warning audio tone should sound if the fire is sensed by the fire detection loops in the engine/ADG compartment.

2. Recall that the tone will continue to sound until the situation has been corrected or either MSTR AUDIO CUTOUT button has been depressed.

3. Recall that selection of the engine start switch to OFF will drive the engine power lever to off independently of flight station throttle control lever position.

4. Recall that the APU mode switches will automatically move to the RUN position after ignition-start has taken place.

5. Recall that the APU run light will illuminate when an acceptable RPM is sensed.

6. Recall that the APU's will continue to run until one of the self-contained APU parameter sensors initiate an automatic shutdown or the switches are placed in OFF or the APU STOP switch in the wheel well is depressed.

7. Recall that switchlights on the left and right sides of the FIRE WARN & EXTGH panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.

8. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTGH panel will cause a depressed switchlight to return to its un-activated position.

9. Recall that once an alternate throttle switch has been actuated, the primary throttle control system can be re-engaged only by actuation of the NORM THROT RESET pushbutton.
20.1.1.001.00* SET ENGINE START SWITCH TO 'OFF'
WINDSCREEN = OBSERVED*
SET ENGINE START SWITCH 4
ENGINE START SWITCH 4 = OFF*

20.1.1.002.00* SET ADS COUPLE SWITCH TO 'DISEN'
CHECKLIST = SEQUENCE
SET ADS COUPLE SWITCH
L ADS COUPLE SWITCH = DISEN

20.1.1.003.00* SET APU MODE SW FOR REQD APU TO START AND RELEASE TO RUN
CHECKLIST = SEQUENCE
SET APU MODE SWITCH
L APU MODE SW AND L APU MODE SW = START*
AND L RUN LIGHT = RUN = ON - G

20.1.1.004.00* CHECK APPROPRIATE APU ECS SUPPLY SWITCH TO 'ECS SPLY'
CHECKLIST = SEQUENCE
CHECK ECS SUPPLY SW
L ECS SUPPLY SW = ECS SPLY

20.1.1.005.00* DEPRESS ENGINE FIRE SWITCHLIGHT FOR AFFECTED ENGINE
CHECKLIST = SEQUENCE*
DEPRESS ENGINE FIRE SWITCHLIGHT 4
ENGINE FIRE SWITCHLIGHT 4 = DEPRESSED

20.1.1.006.00* SET ENGINE IGNITION SWITCH TO 'OFF'
CHECKLIST = SEQUENCE
SET ENGINE IGNITION SWITCH
ENGINE IGNITION SWITCH = OFF
HOLD ALTERNATE THROTTLE SW FOR AFFECTED ENG IN DECR POSITION

CHECKLIST = SEQUENCE

HOLD

ALTERNATE THROTTLE SWITCH 4

ALTERNATE THROTTLE SWITCH 4 = DECR

SET ENG START SW TO START MOMENTARILY AND RELEASE TO RUN

CHECKLIST = SEQUENCE

SET

ENGINE START SWITCH 4

ENGINE START SWITCH 4 = START

AND ENGINE START SWITCH 4 = RUN

RELEASE ALTERNATE THROTTLE SWITCH ON AFFECTED ENGINE

CHECKLIST = SEQUENCE

RELEASE

ALTERNATE THROTTLE SWITCH 4

ALTERNATE THROTTLE SWITCH 4 = OFF*

SET ENGINE START SWITCH TO 'OFF'

CHECKLIST = SEQUENCE

SET

ENGINE START SWITCH 4

ENGINE START SWITCH 4 = OFF

ABANDON THE AIR VEHICLE

ABANDON

A-V CREW MODULE

A-V CREW MODULE = MANNED*
10. Recall that moving the engine start switch to START will cause the hydraulic pumps to be depressurized, the non-essential loads to be cut off, ECS bleed air supply valves to be closed and the ADG (Accessory Drive Gearbox) torque converter to be filled with oil.

OPERATOR: P/CP

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OBJECTIVE: PERFORM NACELLE FIRE-ENGINE PROCEDURES 20.2

CRITICALITY: 2 DIFFICULTY: 2

INITIAL CONDITIONS: 1. Engine fire switchlight illuminates
2. Master warning aural tone heard in headsets

CONCURRENT TASKS:

INTERACTION TASKS: 1. Ground observer confirms nacelle fire

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that when the air vehicle is on the ground and an ENG FIRE switchlight illuminates, the corresponding APU firewall fuel valve is automatically shut off.

2. Recall that when an engine fire switchlight is depressed it latches mechanically in that position shutting off the respective engine firewall fuel valve, and arming the corresponding fire extinguishing system.

3. Recall that the master (general) warning audio tone is heard when a fire is sensed by the fire detection loops in the engine/ADG compartments.

4. Recall that momentary selection of the appropriate AGENT DISCH switch to MAIN or RES will direct extinguishing agent from the main or reserve reservoir to the Engine/ADG compartment as determined by the actuated ENG FIRE switchlight.

5. Recall that the agent discharge light will illuminate when the extinguishing agent reservoir has been discharged.

6. Recall that selection of the engine start switch to OFF will drive the engine power lever to off independently of flight station throttle control lever position.

7. Recall that the reserve extinguishing agent should not be discharged until waiting approximately 30 seconds for the engine fire switchlight to go out.
ENABLING OBJECTIVES: (continued)

8. Recall that the brakes are locked in PARK by the actuation of the parking brake control switch after the toe operated brakes on the rudder pedals have been depressed.
9. Recall that the parking brake switchlight will illuminate PARKING when the parking brake is locked.
10. Recall the procedures for abandoning the A/V on the ground.

ANCILLARY OBJECTIVES:

1. Recall that switchlights on the left and right sides of the FIRE WARN & EXTG panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.
2. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTG panel will cause a depressed switchlight to return to its un-actuated position.
3. Recall that the master warning audio tone will continue to sound until the situation has been corrected or either MSTR AUDIO CUTOUT button has been depressed.
4. Recall that when an ENG FIRE switchlight is depressed and the appropriate AGENT DISCH switch is actuated, extinguishing agent will be directed simultaneously into the selected Engine and ADG compartments. Also, agent will be directed into the appropriate APU compartment if the depressed ENG FIRE switchlight is for an outboard engine.
5. Recall that the agent discharge light will be extinguished 15 to 30 seconds after illumination.
6. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.
7. Recall that the brakes will remain set until the toe operated brakes are depressed and then released.

OPERATOR: P/CP

TASK ELEMENTS: 20.1.2.1  20.1.2.2  20.1.2.3  20.1.2.4  20.1.2.5  20.1.2.6  20.1.2.7  20.1.2.8  20.1.2.9

20.7
20.1.2.001.00*
DEPRESS ENGINE FIRE SWITCHLIGHT FOR AFFECTED ENGINE

ENGINE FIRE SWITCHLIGHT 4 = 'ENG FIRE'
AND PILOT ICS = FIRE TUNE

DEPRESS
ENGINE FIRE SWITCHLIGHT 4
ENGINE FIRE SWITCHLIGHT 4 = DEPRESSED

20.1.2.002.00*
SET AGENT DISCH SWITCH TO MAIN FOR AFFECTED ENGINE*

CHECKLIST = SEQUENCE

SET
R AGENT DISCH SWITCH
R AGENT DISCH SWITCH = MAIN
AND R MAIN AGENT DISCHARGE LIGHT = 'MAIN AGENT DISC

20.1.2.003.00*
SET ENGINE START SWITCH TO OFF FOR AFFECTED ENGINE

CHECKLIST = SEQUENCE

SET
ENGINE START SWITCH 4
ENGINE START SWITCH 4 = OFF

20.1.2.004.00*
DEPRESS MASTER AUDIO CUTOUT PUSHBUTTON

CHECKLIST = SEQUENCE

DEPRESS
MSTR AUDIO CUTOUT
MSTR AUDIO CUTOUT = DEPRESSED

20.1.2.005.00*
ALERT TOWER OF EMERGENCY

CHECKLIST = SEQUENCE

TRANSMIT
COPILOTS UHF
COPILOTS UHF = ENGINE FIRE
20.1.2.006.06*

SET AGENT DISCH SWITCH TO RES FOR AFFECTED ENGINE

SET

ENGINE FIRE SWITCHLIGHT 4  = 'ENG FIRE'
R AGENT DISCH SWITCH
R AGENT DISCH SWITCH  = RES*
AND R RES AGENT DISCHARGE LIGHT  = 'RES AGENT DISCH'

20.1.2.007.00*

STOP THE AIR VEHICLE

STOP

ENGINE FIRE SWITCHLIGHT 4  = 'ENG FIRE'
A-V
A-V  = STOPPED*

20.1.2.008.00*

SET PARKING BRAKES ON AIR VEHICLE

SET

A-V  = STOPPED
PARKING BRAKE
PARKING BRAKE  = SET

20.1.2.009.00*

ABANDON THE AIR VEHICLE

ABANDON

PARKING BRAKE  = SET
A-V CREW MODULE
A-V CREW MODULE  = MANNED*

20.9
OBJECTIVE: PERFORM NACELLE FIRE-APU PROCEDURES

CRITICALITY: 2 DIFFICULTY: 2

INITIAL CONDITIONS: 1. Engine fire switchlight illuminates
                        2. Master warning aural tone heard in headsets

CONCURRENT TASKS:

INTERACTION TASKS: 1. Ground observer confirms nacelle fire

PERFORMANCE LIMITS: 1. Proper sequence
                       2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that when the air vehicle is on the ground and an APU FIRE switchlight illuminates, the corresponding APU firewall fuel valve will be commanded closed and the APU shut down sequence will be initiated.

2. Recall that when an APU fire switchlight is depressed it latches mechanically in that position shutting off the respective APU firewall fuel valve and arming the corresponding extinguishing system.

3. Recall that illumination of either APU switchlight also triggers a master aural tone in the crew headsets.

4. Recall that momentary selection of the appropriate AGENT DISCH switch to MAIN or RES will direct extinguishing agent from the main or reserve reservoir to the APU compartment as determined by the actuated APU FIRE switchlight.

5. Recall that the agent discharge light will illuminate when the extinguishing agent reservoir has been discharged.

6. Recall that actuation of the APU mode switch to OFF provides an electric signal to the APU control system to shut down the APU, but it leaves the inlet and exhaust doors open.

7. Recall that the reserve extinguishing agent should not be discharged until waiting approximately 30 seconds for the engine fire switchlight to go out.

8. Recall that the brakes are locked in PARK by the actuation of the parking brake control switch after the toe operated brakes on the rudder pedals have been depressed.
### ENABLING OBJECTIVES: (continued)

9. Recall that the parking brake switchlight will illuminate PARKING when the parking brake is locked.

10. Recall the procedures for abandoning the A/V on the ground.

### ANCILLARY OBJECTIVES:

1. Recall that switchlights on the left and right sides of the FIRE WARN & EXTG panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.

2. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTG panel will cause a depressed switchlight to return to its un-actuated position.

3. Recall that the master warning audio tone will continue to sound until the situation has been corrected or either MSTR AUDIO CUTOUT button has been depressed.

4. Recall that when an APU FIRE switchlight is depressed and the appropriate AGENT DISCH switch is actuated, extinguishing agent will be directed simultaneously into the APU compartment and the outboard Engine and ADG compartment next to the affected APU.

5. Recall that the agent discharge light will be extinguished 15 to 30 seconds after illumination.

6. Recall that the APU mode switch must be pulled out in order to reposition it to the OFF position.

7. Recall that the brakes will remain set until the toe operated brakes are depressed and then released.

### OPERATOR: P/CP

### TASK ELEMENTS:

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</table>
20.1.3.001.00*  DEPRESS APU FIRE SWITCHLIGHT FOR AFFECTED APU

DEPRESS

R APU FIRE SWITCHLIGHT = 'APU FIRE'
AND PILOT ICS = FIRE TONE
R APU FIRE SWITCHLIGHT = DEPRESSED

20.1.3.002.00*  SET AGENT DISCH SWITCH TO MAIN FOR AFFECTED APU*

CHECKLIST = SEQUENCE
SET
R AGENT DISCH SWITCH
R AGENT DISCH SWITCH = MAIN
AND R MAIN AGENT DISCHARGE LIGHT = 'MAIN AGENT DISC

20.1.3.003.00*  SET APU MODE SWITCH TO OFF FOR AFFECTED APU

CHECKLIST = SEQUENCE
SET
MODE SWITCHES
MODE SWITCHES = OFF*
AND R RUN LIGHT = OFF

20.1.3.004.00*  DEPRESS MASTER AUDIO CUTOUT PUSHBUTTON

CHECKLIST = SEQUENCE
DEPRESS
MSTR AUDIO CUTOUT
MSTR AUDIO CUTOUT = DEPRESSED

20.1.3.005.00*  ALERT TOWER OF EMERGENCY

CHECKLIST = SEQUENCE
TRANSMIT
COPILOTS UHF
COPILOTS UHF = NACELLE FIRE
20.1.3.006.00*

**SET AGENT DISCH SWITCH TO RES FOR AFFECTED APU**

- R APU FIRE SWITCHLIGHT = "APU FIRE"
- SET
- R AGENT DISCH SWITCH
- R AGENT DISCH SWITCH = "RES"
- AND R RES AGENT DISCHARGE LIGHT = "RES AGENT DISCH"

20.1.3.007.00*

**STOP THE AIR VEHICLE**

- R APU FIRE SWITCHLIGHT = "APU FIRE"
- STOP
- A-V
- A-V = STOPPED*

20.1.3.008.00*

**SET PARKING BRAKES ON AIR VEHICLE**

- A-V = STOPPED
- SET
- PARKING BRAKE
- PARKING BRAKE = SET

20.1.3.009.00*

**ABANDON THE AIR VEHICLE**

- PARKING BRAKE = SET
- ABANDON
- A-V CREW MODULE
- A-V CREW MODULE = MANNED*
OBJECTIVE: PERFORM FIRE DETECTION SYSTEM FAILURE PROCEDURES

CRITICALITY: 2 DIFFICULTY: 2

INITIAL CONDITIONS: 1. Fire detection light illuminates
2. Master caution switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that the FIRE DETR light will illuminate (flashing) when any of the six LOOP A or six LOOP B lights are illuminated.
2. Recall that by depressing either MASTER CAUTION switchlight both MASTER CAUTION lights are extinguished and the FIRE DETR light changes from flashing to steady.
3. Recall that illumination of either a LOOP A or LOOP B light indicates a failure in the fire detection system.
4. Recall that selection of the non-illuminated LOOP A or LOOP B switch position extinguishes the loop light, isolates the faulty fire detection system loop and enables the remaining loop to detect a fire.

ANCILLARY OBJECTIVES:

1. Recall that a fire must be sensed both by detector LOOPs A and B before the corresponding ENG FIRE switchlight will illuminate and the master warning aural tone will sound.
2. Recall that the LOOP A and LOOP B indicator lights are illuminated when the respective fire detection loop develops a short to ground.
3. Recall that during ground operation the master warning aural tone will sound over the crew headsets to alert the crew about loss of a fire detector loop.
4. Recall that the master warning audio tone will be silenced when the non-illuminated LOOP A or LOOP B selection has been made.
**OPERATOR:** P/CP  

**TASK ELEMENTS:**

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20.15
20.1.4.001.00* DEPRESS MASTER CAUTION SWITCHLIGHT
FIRE DETECTION LIGHT = 'FIRE DEPR'-FL
DEPRESS
MASTER CAUTION SWITCHLIGHT
MASTER CAUTION SWITCHLIGHT = OFF

20.1.4.002.00* DETERMINE WHICH FIRE DEPR LOOP LIGHTS ARE ILLUMINATED*
CHECKLIST = SEQUENCE

20.1.4.002.01* DETERMINE WHICH ENGINE FIRE DEPR LOOP LIGHTS ARE ILLUMINATED
CHECKLIST = SEQUENCE
DETERMINE
ENGINE LOOP A LIGHT 4
ENGINE LOOP 5 LIGHT 4
ENGINE LOOP A LIGHT 4 = ON

20.1.4.002.02* DETERMINE WHICH APU FIRE DEPR LOOP LIGHTS ARE ILLUMINATED
CHECKLIST = SEQUENCE
DETERMINE
APU LOOP A LIGHT
APU LOOP & LIGHT
APU LOOP A LIGHT = ON

20.1.4.003.00* POSITION AFFECTED DEPR SW TO THE NON-ILLUMINATED LOOP LIGHT*

20.1.4.003.01* POSITION AFFECTED DEPR SW TO THE NON-ILLUM ENG LOOP LIGHT*
ENGINE LOOP B LIGHT 4 = ON
POSITION
LOOP LOCKOUT SWITCH 4
LOOP LOCKOUT SWITCH 4 = LOOP A
20.1.4.003.02*  

**POSITION AFFECTED DETR SW TO THE NON-ILLUM ENG LOOP LIGHT**

- ENGINE LOOP A LIGHT 4 = ON
- LOOP LOCKOUT SWITCH 4
- LOOP LOCKOUT SWITCH 4 = LOOP B

20.1.4.003.03*  

**POSITION AFFECTED DETR SW TO THE NON-ILLUM APU LOOP LIGHT**

- APU LOOP B LIGHT = ON
- APU LOCKOUT SWITCHES
- APU LOCKOUT SWITCHES = LOOP A

20.1.4.003.04*  

**POSITION AFFECTED DETR SW TO THE NON-ILLUM APU LOOP LIGHT**

- APU LOOP A LIGHT = ON
- APU LOCKOUT SWITCHES
- APU LOCKOUT SWITCHES = LOOP B
OBJECTIVE: PERFORM EMERGENCY AIR VEHICLE BRAKING

CRITICALITY: 3 DIFFICULTY: 2

INITIAL CONDITIONS: 1. Normal braking is ineffective.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that when the emergency brake switch is set to EMERG, pressure from hydraulic accumulators power the dual braking system in addition to the regular hydraulic system.

2. Recall that the antiskid system is shut off when the emergency brake switch is set to the emergency position.

3. Recall that the antiskid light on the flight station caution panel will illuminate whenever the system is inoperative even though it has not malfunctioned.

4. Recall that the parking brake switchlight must be held depressed while the toe brakes are actuated.

ANCILLARY OBJECTIVES:

1. Recall that the accumulators for the emergency braking system provide at least 15 full brake applications independent of the air vehicle's hydraulic system.

2. Recall that the antiskid light also triggers both the pilot's and the copilot's Master Caution light.

3. Recall that the green light within the parking brake switchlight will illuminate when the parking brake is locked.

OPERATOR: P/CP

TASK ELEMENTS: 20.1.5.1 20.1.5.3
20.1.5.2 20.1.5.3.1
20.1.5.3.2

20.18
20.1.5.001.00*

RETARD THROTTLES TO IDLE
BRAKE CONTROL PANEL = TBD
ADJUST
THROTTLE LEVERS
THROTTLE LEVERS = IDLE*

20.1.5.002.00*

SET EMERGENCY BRAKE SWITCH TO 'EMERG'*
THROTTLE LEVERS = IDLE
SET
EMERGENCY BRAKE SWITCH
EMERGENCY BRAKE SWITCH = EMERG
AND ANTISKID CAUTION LIGHT = 'ANTISKID'*

20.1.5.003.00*

DEPRESS PARKING BRAKE SWITCHLIGHT AND TOE BRAKES

SET
PARKING BRAKE CONTROL SWITCHLT

20.1.5.003.01*

DEPRESS AND HOLD PARKING BRAKE SWITCHLIGHT

DEPRESS
EMERGENCY BRAKING = EFFECTIVE
PARKING BRAKE CONTROL SWITCHLT
PARKING BRAKE CONTROL SWITCHLT = 'PARKING'

20.1.5.003.02*

DEPRESS TOE BRAKES

DEPRESS
TOE BRAKES
TOE BRAKES = DEPRESSED*
OBJECTIVE: ABANDON AIR VEHICLE ON GROUND

CRITICALITY: 3 DIFFICULTY: 1

INITIAL CONDITIONS: 1. Contingencies (uncontrolled fire, etc.) that require the aircrew to leave the air vehicle.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence
                     2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that when an engine fire switchlight is depressed it latches mechanically in that position shutting off the respective engine firewall fuel valve and arming the corresponding fire extinguishing system.

2. Recall that a pause (approximately 1 second) must be observed between actuations of fire switchlights on each side of the FIRE WARN & EXTGH panel.

3. Recall that when the battery select switch is in OFF the batteries are removed from the d c busses.

4. Recall that the brakes are locked in PARK by the actuation of the parking brake control switch after the toe-operated brakes on the rudder pedals have been depressed.

5. Recall that the parking brake switchlight will illuminate PARKING when the parking brake is locked.

ANCILLARY OBJECTIVES:

1. Recall that switchlights on the left and right sides of the FIRE WARN & EXTGH panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.

2. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTGH panel will cause a depressed switchlight to return to its un-activated position.
ANCILLARY OBJECTIVES: (continued)

3. Recall that if a pause between actuations of fire switchlights on each side of the FIRE WARN & EXTGH panel is not observed, the fuel isolation/shutoff valves may not fully close.

4. Recall that if the fuel isolation/firewall shutoff valves are partially open, the engines will not shut down.

5. Recall that the fuel isolation/firewall shutoff valves may not fully close if the battery is moved to OFF without a pause after the last fire button is depressed.

6. Recall that a fuel isolation/firewall shutoff valve may not fully close if all ac power is lost after a fire button is depressed.

7. Recall that the brakes will remain set until the toe-operated brakes are depressed and then released.

OPERATOR: P/CP

TASK ELEMENTS: 20.1.6.1 20.1.6.4
                 20.1.6.2 20.1.6.5
                 20.1.6.3
DEPRESS ENG & APU FIRE SWITCHLIGHTS (6)*

A-V = STOPPED

DEPRESS
ENG FIRE SWITCHLIGHTS
L APU FIRE SWITCHLIGHT
R APU FIRE SWITCHLIGHT

ENG FIRE SWITCHLIGHTS = DEPRESSED
AND L APU FIRE SWITCHLIGHT = DEPRESSED
AND R APU FIRE SWITCHLIGHT = DEPRESSED

ALERT CREW USING ICS CALL BUTTON

CHECKLIST = SEQUENCE

COMMUNICATE
CALL SWITCH-COPilot ICS
CALL SWITCH-COPilot ICS = 'ABANDON A-V'

SET BATTERY SWITCH TO 'OFF'

CHECKLIST = SEQUENCE

SET
BATTERY SELECT SWITCH
BATTERY SELECT SWITCH = OFF

SET PARKING BRAKES

CHECKLIST = SEQUENCE

SET
PARKING BRAKE CONTROL SWITCHLT
PARKING BRAKE CONTROL SWITCHLT = ON

EXIT AIR VEHICLE

CHECKLIST = SEQUENCE

ABANDON
A-V CREW MODULE
A-V CREW MODULE = MANNELED
OBJECTIVE: ABORT TAKE OFF

CRITICALITY: 3  
DIFFICULTY: 1

INITIAL CONDITIONS: 1. Contingencies (acceleration check out of tolerance, etc.).

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence  
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that with the A/V on the ground all four spoilers on each wing will be extended when the speed brake switch on the #4 throttle is moved aft.

2. Recall that antiskid braking with full brake pedal deflection will give the most effective deceleration.

ANCILLARY OBJECTIVES:

1. Recall that all the spoiler indicators on the surface position display will show UP as soon as the spoilers move out of the fully retracted positions.

2. Recall that the control stick should be held full aft and centered while maximum braking is applied.

3. Recall that hot brakes will usually occur during any maximum braking abort on a dry or wet runway.

4. Recall that if a brake fire should occur, the A/V should be abandoned.

OPERATOR: P/CP

TASK ELEMENTS:  20.2.1.1  20.2.1.2  20.2.1.3  20.2.1.4  20.2.1.4
20.2.1.001.00*

**RETARD THROTTLES TO IDLE**

**ADJUST**

THROTTLE LEVERS

THROTTLE LEVERS = IDLE

20.2.1.002.00*

**EXTEND SPEED BRAKES**

**SET**

CHECKLIST

SPEED BRK CONTROL-PIL

SPEED BRK CONTROL-PIL = CUT

20.2.1.003.00*

**APPLY WHEEL BRAKES**

**DEPRESS**

CHECKLIST

TOE BRAKES

TOE BRAKES = DEPRESSED

20.2.1.004.00*

**NOTIFY TOWER AND REQUEST ASSISTANCE IF NEEDED**

**TRANSMIT**

CHECKLIST

COPILOTS UHF

COPILOTS UHF = ABORTING TAKEOFF*
OBJECTIVE: ABORT TAKE OFF-ENGINE FAILURE

CRITICALITY: 3 DIFFICULTY: 1

INITIAL CONDITIONS: 1. Loss of power on engine

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that with the A/V on the ground all four spoilers on each wing will be extended when the speed brake switch on the #4 throttle is moved aft.

2. Recall that antiskid braking with full brake deflection will give the most effective deceleration.

3. Recall that nosewheel steering should be used in maintaining directional control on the runway.

4. Recall that differential braking can be used for directional control, but with a consequent increase in stopping distance.

5. Recall that when an engine fire switchlight is depressed it latches mechanically in that position, shutting off the respective engine firewall fuel valve and arming the corresponding fire extinguishing system.

6. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.

ANCILLARY OBJECTIVES:

1. Recall that all the spoiler indicators on the surface position display will show up as soon as the spoilers move out of the fully retracted positions.

2. Recall that the control stick should be held full aft and centered while maximum braking is applied.

3. Recall that hot brakes will usually occur during any maximum braking abort on a dry or wet runway.
ANCILLARY OBJECTIVES: (continued)

4. Recall that if a brake fire should occur the A/V should be abandoned.

5. Recall that switchlights on the left and right sides of the FIRE WARN & EXTHG panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.

6. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTHG panel will cause a depressed switchlight to return to its un-activated position.

7. Recall that selection of the engine start switch to OFF will drive the engine power lever to off, independently of flight station throttle control lever position.

OPERATOR: P/CP

TASK ELEMENTS: 20.2.2.1 20.2.2.2 20.2.2.3 20.2.2.4 20.2.2.5 20.2.2.6 20.2.2.7
20.2.2.001.00*

Retard Throttles to Idle
Core RPM Indicator = TBD*
Throttle Levers
Throttle Levers = Idle

20.2.2.002.00*

Extend Speed Brakes
Checklist = Sequence
Set
Speed Brk Control-Pil
Speed Brk Control-Pil = Out

20.2.2.003.00*

Apply Wheel Brakes
Checklist = Sequence
Depress
Toe Brakes
Toe Brakes = Depressed

20.2.2.004.00*

Maintain Direction on Runway
Checklist = Sequence
Track
Rudder Pedals
A-V = Proper Track*

20.2.2.005.00*

Depress Eng Fire Switchlight on Affected Engine
Checklist = Sequence
Depress
Engine Fire Switchlight 4
Engine Fire Switchlight 4 = Depressed

20.2.2.006.00*

Set Engine Start-Run Switch to Off for Affected Engine
Checklist = Sequence
Set
Engine Start Switch 4
Engine Start Switch 4 = Off

20.27
NOTIFY TOWER AND REQUEST ASSISTANCE IF NEEDED

CHECKLIST = SEQUENCE

TRANSMIT
COPILOTS UHF
COPILOTS UHF = ABORTING TAKEOFF*
OBJECTIVE: CONTINUE TAKE-OFF ENGINE FAILURE

CRITICALITY: 3  DIFFICULTY: 3

INITIAL CONDITIONS: 1. Loss of power on engine

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Angle of attack-TBD (\(^{\circ}\) degs) during flap and slat retraction.
2. Vertical velocity-TBD (\(\pm\) ft/min) before landing gear retracted.
3. Airspeed-TBD (\(\pm\) kts) during flap and slat retraction.
4. Proper sequence.
5. Switches in proper positions.

ENABLING OBJECTIVES:

1. Coordinate control stick and rudder pedals to maintain directional control and recommended climb speed.

2. Recall speed before which landing gear must be retracted.

3. Recall wing flaps limit speeds at various settings.

4. Recall the maximum slats retraction speed.

5. Recall that the recommended climb speed will normally be maintained by adjusting the pitch attitude of the A/V, since the throttles will be set for maximum thrust.

6. Recall that when an engine fire switchlight is depressed, it latches mechanically in that position, shutting off the respective engine firewall fuel valve and arming the corresponding fire extinguishing system.

7. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.

8. Recall that when the fuel dump switch is set to DUMP, fuel will be jettisoned at each wingtip trailing edge.
ANCILLARY OBJECTIVES:

1. Recall that maximum thrust will be used for all normal take offs and so it will not be necessary to advance throttles when engine failure occurs.

2. Recall that wheel brakes should not be applied before or during landing gear retraction.

3. Recall that pitch attitude should be varied, so that 8.5 degrees angle-of-attack is not exceeded as the flaps are retracted.

4. Recall that maximum rudder authority will be reduced to 10 degrees after slat retraction.

5. Recall that if more than 10 degrees of rudder is being held as the slats retract, rudder limiting will not occur until the rudder deflection is reduced to less than 10 degrees.

6. Recall that switchlights on the left and right sides of the FIRE WARN & EXTGH panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.

7. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTGH panel will cause a depressed switchlight to return to its un-activated position.

8. Recall that selection of the engine start switch to OFF will drive the engine power lever to off independently of flight station throttle control lever position.

9. Recall that if the engine failure can definitely be determined to be non-mechanical in origin (inlet turbulence, icing, etc.) and the engine appears otherwise normal, an air start can be attempted.

10. Recall that the fuel jettison capability is provided by the fuel transfer system and dump valves and outlets.

11. Recall that fuel cannot be dumped from the main tanks.

12. Recall that manual dumping of fuel requires that the transfer pumps in the tank from which fuel is to be dumped, must be turned on and all other tanks turned off.

OPERATOR: P/CP

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20.30
20.2.3.001.00*

ADVANCE THROTTLES TO MAX POWER

CORE RPM INDICATOR = TBD*

ADJUST

THROTTLE LEVERS

THROTTLE LEVERS = MAX POWER

20.2.3.002.00*

MAINTAIN DIRECTIONAL CONTROL AND BEST CLIMB SPEED

CHECKLIST = SEQUENCE

TRACK

FLIGHT CONTROL STICK

RUDDER PEDALS

HORIZONTAL SITUATION INDICATOR = TBD

AND AIRSPEED-MACH NUMBER INDICATOR = TBD

20.2.3.003.00*

RAISE LANDING GEAR HANDLE WHEN AIR VEHICLE SAFELY AIRBORNE:

A-V = FLYING

RAISE

LANDING GEAR CONTROL

LANDING GEAR CONTROL = UP

AND GEAR WARNING LIGHT = OFF

20.2.3.004.00*

RAISE FLAPS AS REQUIRED

ANGLE-OF-ATTACK INDICATOR < 8.5*

RAISE

FLAP-SLAT CONTROL HANDLE

FLAP-SLAT CONTROL HANDLE = FLAP UP

20.2.3.005.00*

RAISE SLATS AS REQUIRED

CHECKLIST = SEQUENCE

RAISE

FLAP-SLAT CONTROL HANDLE

FLAP-SLAT CONTROL HANDLE = SLAT RET*
20.2.3.006.00*
ADJUST THROTTLES TO MAINTAIN BEST FAILED ENGINE CLIMB SPEED

CHECKLIST = SEQUENCE
THROTTLE LEVERS
THROTTLE LEVERS = TURB

20.2.3.007.00*
DEPRESS ENGINE FIRE SWITCHLIGHT ON FAILED ENGINE

CHECKLIST = SEQUENCE
DEPRESS #4 ENGINE FIRE SWITCHLIGHT
ENGINE-FIRE SWITCHLIGHT 4 = DEPRESSED

20.2.3.008.00*
SET ENGINE START-RUN SWITCH TO OFF ON FAILED ENGINE

CHECKLIST = SEQUENCE
SET ENGINE START SWITCH 4
ENGINE START SWITCH 4 = OFF

20.2.3.009.00*
DUMP FUEL AS REQUIRED

CHECKLIST = SEQUENCE
SET DUMP SWITCH
DUMP SWITCH = DUMP

20.2.3.010.00*
LAND AS SOON AS PRACTICAL

CHECKLIST = SEQUENCE
LAND A-V
A-V = LANDED

20.32
OBJECTIVE: ABORT TAKE OFF - ENGINE FIRE

CRITICALITY: 3  DIFFICULTY: 2

INITIAL CONDITIONS: 1. Engine fire switchlight illuminates

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that when an engine fire switchlight is depressed, it latches mechanically in that position, shutting off the respective engine firewall fuel valve and arming the corresponding fire extinguishing system.

2. Recall that momentary selection of the appropriate AGENT DISCH switch to MAIN or RES will direct extinguishing agent from the main or reserve reservoir to the Engine/ADG compartment as determined by the actuated ENG FIRE switchlight.

3. Recall that the agent discharge light will illuminate when the extinguishing agent reservoir has been discharged.

4. Recall that with the A/V on the ground, all four spoilers on each wing will be extended when the speed brake switch on the #4 throttle is moved aft.

5. Recall that antiskid braking with full brake pedal deflection will give the most effective deceleration.

6. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.

7. Recall that the master (general) warning audio tone is heard when a fire is sensed by the fire detection loops in the engine/ADG compartments.

8. Recall that the reserve extinguishing agent should not be discharged until waiting approximately 30 seconds for the engine fire switchlight to go out.

9. Recall that the A/V should be abandoned if fire persists, and is confirmed 30 seconds after reserve agent discharge.

10. Recall the procedures for abandoning the A/V on the ground.
ENABLING OBJECTIVES: (continued)

11. Recall that the engines and systems should be shutdown if the fire is extinguished.

12. Recall the shutdown procedures.

ANCILLARY OBJECTIVES:

1. Recall that switchlights on the left and right sides of the FIRE WARN & EXTGH panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.

2. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTGH panel will cause a depressed switchlight to return to its un-activated position.

3. Recall that when an ENG FIRE switchlight is depressed and the appropriate AGENT DISCH switch is actuated, extinguishing agent will be directed simultaneously into the selected Engine and ADG compartments. Also, agent will be directed into the appropriate APU compartment if the depressed ENG FIRE switchlight is for an outboard engine.

4. Recall that the agent discharge light will be extinguished 15 to 30 seconds after illumination.

5. Recall that all the spoiler indicators on the surface position display will show UP as soon as the spoilers move out of the fully retracted positions.

6. Recall that the control stick should be held full aft and centered while maximum braking is applied.

7. Recall that hot brakes will usually occur during any maximum braking abort, on a dry or wet runway.

8. Recall that if a brake fire should occur, the A/V should be abandoned.

9. Recall that selection of the engine start switch to OFF, will drive the engine power lever to off independently of flight station throttle control lever position.

10. Recall that the master warning audio tone will continue to sound until the situation has been corrected, or either MSTR AUDIO CUTOUT button has been depressed.

11. Recall that the parking brake should not be set after a maximum braking abort.
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20.2.4.001.00*  
**RETTARD THROTTLES TO IDLE**

ENGINE FIRE SWITCHLIGHT = 'ENG FIRE'

ADJUST

THROTTLE LEVERS

THROTTLE LEVERS = IDLE

20.2.4.002.00*  
**DEPRESS ENG FIRE SWITCHLIGHT ON AFFECTED ENGINE**

PILOT ICS  = 'SHUTDOWN 4'

DEPRESS

ENGINE FIRE SWITCHLIGHT 4

ENGINE FIRE SWITCHLIGHT 4 = DEPRESSED

20.2.4.003.00*  
**SET AGENT DISCH SWITCH TO MAIN FOR AFFECTED ENGINE**

PILOT ICS  = 'R AGENT DISCH'

SET

R AGENT DISCH SWITCH

R AGENT DISCH SWITCH = MAIN

AND R MAIN AGENT DISCHARGE LIGHT = 'MAIN AGENT DISC'

20.2.4.004.00*  
**EXTEND SPEED BRAKES**

CHECKLIST  = SEQUENCE

SET

SPEED BRK CONTROL-PIL

SPEED BRK CONTROL-PIL = OUT

20.2.4.005.00*  
**APPLY WHEEL BRAKES**

CHECKLIST  = SEQUENCE

DEPRESS

TOE BRAKES

TOE BRAKES = DEPRESSED
20.2.4.006.00*

**SET ENGINE START-RUN SWITCH TO OFF FOR AFFECTED ENGINE**

- **CHECKLIST**
  - ENGINE START SWITCH 4
  - ENGINE START SWITCH 4

20.2.4.007.00*

**DEPRESS MASTER AUDIO CUTOUT PUSHDOWN**

- **CHECKLIST**
  - DEPRESSED

20.2.4.008.00*

**NOTIFY TOWER OF EMERGENCY**

- **CHECKLIST**
  - ENG FIRE ON A-V

20.2.4.009.00*

**SET AGENT DISCH SWITCH TO RES FOR AFFECTED ENGINE**

- **CHECKLIST**
  - R AGENT DISCH SWITCH

20.2.4.010.00*

**ABANDON THE AIR VEHICLE**

- **CHECKLIST**
  - ENG FIRE ON A-V

20.2.4.011.00*

**SHUTDOWN THE AIR VEHICLE**

- **CHECKLIST**
  - ENG FIRE ON A-V
OBJECTIVE: CONTINUE TAKE OFF - ENGINE FIRE

CRITICALITY: 3    DIFFICULTY: 3

INITIAL CONDITIONS: 1. Engine fire switchlight illuminates

CONCURRENT TASKS:

INTERACTIONS:

PERFORMANCE LIMITS: 1. Angle of attack-TBD (° degs) during flap and slat retraction.
2. Vertical velocity-TBD (± ft/min) before landing gear retracted.
3. Airspeed-TBD (± kts) during flap and slat retraction.
4. Proper sequence.
5. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when an engine fire switchlight is depressed, it latches mechanically in that position, shutting off the respective engine firewall fuel valve and arming the corresponding fire extinguishing system.
2. Recall that momentary selection of the appropriate AGENT DISCH switch to MAIN or RES will direct extinguishing agent from the main or reserve reservoir to the Engine/ADG compartment as determined by the actuated ENG FIRE switchlight.
3. Recall that the agent discharge light will illuminate when the extinguishing agent reservoir has been discharged.
4. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.
5. Coordinate control stick and rudder pedals to maintain directional control and recommended climb speed.
6. Recall speed before which the landing gear must be retracted.
7. Recall wing flaps limit speeds at various settings.
8. Recall the maximum slats retraction speed.
9. Recall that the reserve extinguishing agent should not be discharged until after waiting approximately 30 seconds for the engine fire switchlight to go out.

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ENABLING OBJECTIVES: (continued)

10. Recall that when an engine bleed air switch is set to OFF, bleed air from the specific engine to the ECS (Environmental Control System) is shut off.

11. Recall that the crewmembers should eject from the A/V if fire is confirmed and continues.

12. Recall the procedures for ejecting from the A/V.

13. Recall that fuel should be dumped and the A/V landed as soon as possible, if the fire is extinguished.

14. Recall that when the fuel dump switch is set to DUMP, fuel will be jettisoned at each wingtip trailing edge.

ANCILLARY OBJECTIVES:

1. Recall that maximum thrust will be used for all normal take-offs and so it will not be necessary to advance throttles when an engine fire light is illuminated.

2. Recall that switchlights on the left and right sides of the FIRE WARN & EXTGH panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.

3. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTGH panel will cause a depressed switchlight to return to its un-activated position.

4. Recall that when an ENG FIRE switchlight is depressed and the appropriate AGENT DISCH switch is actuated, extinguishing agent will be directed simultaneously into the selected Engine and ADG compartments. Also, agent will be directed into the appropriate APU compartment, if the depressed ENG FIRE switchlight is for an outboard engine.

5. Recall that the agent discharge light will be extinguished 15 to 30 seconds after illumination.

6. Recall that selection of the engine start switch to OFF will drive the engine power lever to off independently of flight station throttle control lever position.

7. Recall that wheel brakes should not be applied before or during landing gear retraction.

8. Recall that pitch attitude should be varied so that 8.5 degrees angle-of-attack is not exceeded as the flaps are retracted.

9. Recall that maximum rudder authority will be reduced to 10 degrees after slat retraction.
ANCILLARY OBJECTIVES: (continued)

10. Recall that if more than 10 degrees is being held as the slats retract, rudder limiting will not occur until the rudder deflection is reduced to less than 10 degrees.

11. Recall that the bleed air system extracts high temperature and high pressure air from a port on the interstage of each engine.

12. Recall that the fuel jettison capability is provided by the fuel transfer system and dump valves and outlets.

13. Recall that fuel cannot be dumped from the main tanks.

14. Recall that manual dumping of fuel requires that the transfer pumps in the tank from which fuel is to be dumped, must be turned on and all other tanks turned off.

OPERATOR: P/CP

TASK ELEMENTS: 20.2.5.1 20.2.5.5 20.2.5.9 20.2.5.11.2 20.2.5.15
20.2.5.2 20.2.5.6 20.2.5.10 20.2.5.12
20.2.5.3 20.2.5.7 20.2.5.11 20.2.5.13
20.2.5.4 20.2.5.8 20.2.5.11.1 20.2.5.14
20.2.5.001.00*

**ADVANCE THROTTLES TO MAX POWER**

- Engine fire switchlight 4 = 'ENG FIRE'
- Adjust throttle levers
  - Throttle levers = max power

20.2.5.002.00*

**DEPRESS ENG FIRE SWITCHLIGHT ON AFFECTED ENGINE**

- Pilot ICS = 'SHUTDOWN 4'
- Depress engine fire switchlight 4
  - Engine fire switchlight 4 = depressed

20.2.5.003.00*

**SET AGENT DISCH SWITCH TO MAIN FOR AFFECTED ENGINE**

- Pilot ICS = 'R AGENT DISCH'
- Set
  - R agent disch switch
    - R agent disch switch = main
    - And R main agent discharge light = 'main agent disc'

20.2.5.004.00*

**SET ENGINE START-RUN SWITCH TO OFF FOR AFFECTED ENGINE**

- Checklist = sequence
- Set
  - Engine start switch 4
    - Engine start switch 4 = off

20.2.5.005.00*

**MAINTAIN RECOMMENDED BEST ENGINE-OUT CLIMB SPEED**

- Checklist = sequence
- Track
  - Flight control stick
  - Rudder pedals
  - Airspeed-mach number indicator = TBD
RAISE LANDING GEAR HANDLE
CHECKLIST = SEQUENCE
RAISE LANDING GEAR CONTROL
LANDING GEAR CONTROL = UP
AND GEAR WARNING LIGHT = OFF

RAISE FLAPS AS REQUIRED
ANGLE-OF-ATTACK INDICATOR < 8.5*
RAISE FLAP-SLAT CONTROL HANDLE
FLAP-SLAT CONTROL HANDLE = FLAP UP

RAISE SLATS AS REQUIRED
CHECKLIST = SEQUENCE
RAISE FLAP-SLAT CONTROL HANDLE
FLAP-SLAT CONTROL HANDLE = SLAT RET*

SET SAME AGENT DISCH SWITCH TO RES FOR AFFECTED ENGINE
ENGINE FIRE SWITCHLIGHT 4 = 'ENG FIRE'
SET R AGENT DISCH SWITCH
R AGENT DISCH SWITCH = RES*
AND R RES AGENT DISCHARGE LIGHT = 'RES AGENT DISCH'

SET ENG BLEED AIR SWITCH TO OFF FOR AFFECTED ENGINE
CHECKLIST = SEQUENCE
SET ENG BLEED AIR SWITCH 4
ENG BLEED AIR SWITCH 4 = OFF

DEPRESS PREPARE TO EJECT SWITCHLIGHT AND CALL ON ICS*
20.2.5.011.01* DEPRESS PREPARE TO EJECT SWITCHLIGHT

DEPRESS
PREPARE TO EJECT
PREPARE TO EJECT SWITCHLIGHT = *PREPARE TO EJECT*

20.2.5.011.02* COPILOT GIVES *PREPARE TO EJECT* COMMAND ON IGS

COMMUNICATE
CO-PILOT IGS
CO-PILOT IGS = *PREPARE TO EJECT*

20.2.5.012.00* COMPLETE *BEFORE EJECTION* CHECKLIST*

PERFORM
CHECKLIST = SEQUENCE
CHECKLIST = PERFORMED*

20.2.5.013.00* ALL CREW MEMBERS EJECT

PREPARE TO EJECT SWITCHLIGHT = *PREPARE TO EJECT*
AND CO-PILOT IGS = *PREPARE TO EJECT*
AND CHECKLIST = PERFORMED

PULL
EJECTION HANDLE
EJECTION HANDLE = PULLED

20.2.5.014.00* DUMP FUEL AS REQUIRED

SET
DUMP SWITCH
DUMP SWITCH = DUMP*

20.2.5.015.00* LAND AS SOON AS POSSIBLE

LAND
A-V
A-V = LANDED

20.43
OBJECTIVE: PERFORM LOSS OF CREW COMPARTMENT PRESSURE PROCEDURES

CRITICALITY: 3 DIFFICULTY: 1

INITIAL CONDITIONS: 1. Cabin over 10,000 feet caution lights illuminates

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that the CAB OVER 10,000 light is illuminated flashing when the cabin pressure is more than the equivalent of 10,000 feet.
2. Recall that the oxygen regulator is set to EMERG to counteract the possible effects of hypoxia.
3. Recall that with the crew air source mode switch in RAM, conditioned air is shut off and the cabin is provided with air from a ram air scoop, if the A/V is below 450 KIAS and the total temperature is below 49 degrees centigrade.
4. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights are extinguished and the CAB OVER 10,000 light changes from flashing to steady.
5. Recall how to check that the oxygen mask is properly secured.
6. Recall that the A/V should be landed as soon as practicable, if the cabin altitude remains above 10,000 feet.

ANCILLARY OBJECTIVES:

1. Recall that the illumination of the CAB OVER 10,000 light triggers the illumination of the MASTER CAUTION lights.
2. Recall that the ram air scoop will not retract and structural damage and avionics overheating can occur, if the A/V is accelerated above 450 KIAS and 49 degrees total temperature.
OPERATOR: P/CP

TASK ELEMENTS:

| 20.3.1.1 | 20.3.1.1.4 | 20.3.1.5 | 20.3.1.5.4 |
| 20.3.1.1.1 | 20.3.1.2 | 20.3.1.5.1 | 20.3.1.6 |
| 20.3.1.1.2 | 20.3.1.3 | 20.3.1.5.2 |
| 20.3.1.1.3 | 20.3.1.4 | 20.3.1.5.3 |

20.45
20.3.1.001.00*  SET OXYGEN REGULATOR KNOBS TO EMERG

20.3.1.001.01*  SET OXYGEN REGULATOR KNOB TO EMERG
CABIN OVER 10000 CAUTION LIGHT = *CAB OVER 10000*
SET DILUTER-PRESSURE DEMAND RGLTRP
DILUTER-PRESSURE DEMAND RGLTRP = EMERG

20.3.1.001.02*  SET OXYGEN REGULATOR KNOB TO EMERG
PILOT ICS = *CAB OVER 10000*
SET DILUTER-PRESSURE DEMAND-COP
DILUTER-PRESSURE DEMAND-COP = EMERG

20.3.1.001.03*  SET OXYGEN REGULATOR KNOB TO EMERG
PILOT ICS = *CAB OVER 10000*
SET DILUTER-PRESSURE DEMAND-DSO
DILUTER-PRESSURE DEMAND-DSO = EMERG

20.3.1.001.04*  SET OXYGEN REGULATOR KNOB TO EMERG
PILOT ICS = *CAB OVER 10000*
SET DILUTER-PRESSURE DEMAND-DSO
DILUTER-PRESSURE DEMAND-DSO = EMERG

20.3.1.002.00*  SET CREW RAM AIR SOURCE SWITCH TO RAM
CHECKLIST = SEQUENCE
SET CREW AIR SOURCE MODE SWITCH
CREW AIR SOURCE MODE SWITCH = RAM*
20.3.1.003.00*  
DESCEND A-V TO AVIONICS RAM AIR COOLING OPERATIONAL ENVELOPE

CHECKLIST = SEQUENCE

FLY
A-V
A-V = LOWER ALTITUDE*

20.3.1.004.00*  
DEPRESS MASTER CAUTION SWITCHLIGHT

CHECKLIST = SEQUENCE

DEPRESS
MASTER CAUTION SWITCHLIGHT
MASTER CAUTION SWITCHLIGHT = OFF

20.3.1.005.00*  
CREW MEMBER STATUS CHECKED

20.3.1.005.01*  
CREW MEMBER STATUS CHECKED

CHECK
OXYGEN MASK P
PILOT ICS = OXYGEN OKAY

20.3.1.005.02*  
CREW MEMBER STATUS CHECKED

CHECK
OXYGEN MASK C
CO-PILOT ICS = OXYGEN OKAY

20.3.1.005.03*  
CREW MEMBER STATUS CHECKED

CHECK
OXYGEN MASK O
OSO ICS = OXYGEN OKAY

20.47
20.3.1.005.005* CREW MEMBER STATUS CHECKED

CHECKLIST
OXYGEN MASK D
DSO ICS

= SEQUENCE

20.3.1.006.006* LAND AS SOON AS PRACTICABLE

CHECKLIST
LANDED

= SEQUENCE

LAND
A-V
A-V

= LANDED
OBJECTIVE: PERFORM CABIN OVERHEAT PROCEDURES

CRITICALITY: 3
DIFFICULTY: 1

INITIAL CONDITIONS: 1. Crew discomfort because of overheat.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when the crew temperature control knob is set to the full cold position, crew discomfort, because of cabin overheat should be lessened.

2. Recall that with the crew temperature mode switch in MAN, the crew compartment temperature will not be maintained at a specific temperature.

3. Recall that with the crew temperature mode switch in OFF, the heater control circuit is disabled.

4. Recall that with the crew air source switch in RAM, the source of conditioned air is shut off and the cabin is provided with air from a ram air scoop, if the air vehicle is within certain limits of altitude and speed.

5. Recall that with the stores air source switch in OFF, the flow of air from the stores coolant refrigeration package is cut off.

6. Recall that when an avionics air mode select switch is set to RAM, the specific avionics bay will not receive conditioned air from the air circulation loops.

7. Recall that the air vehicle should be landed as soon as possible, if the cabin overheat cannot be corrected.

ANCILLARY OBJECTIVES:

1. Recall that the crew temperature control knob operates in conjunction with the crew temperature mode switch.

2. Recall that the manual mode of the crew temperature control will probably require adjustments as the flight conditions change.
ANCILLARY OBJECTIVES: (continued.)

3. Recall that with the crew air source switch set in RAM, the air vehicle should be descended and decelerated, so it is within the avionics ram air cooling operational envelope.

4. Recall that the avionics air mode select switches should not be set to OFF when the air vehicle is in flight.

OPERATOR: P/CP

TASK ELEMENTS: 20.3.2.1 20.3.2.5
20.3.2.2 20.3.2.6
20.3.2.3 20.3.2.7
20.3.2.4
20.3.2.001.00*

**SET CREW TEMP CONTROL KNOB TO FULL COLD POSITION**

CREW STATION = HOT*

SET

CREW TEMP CONTROL

CREW TEMP CONTROL = COLD

20.3.2.002.00*

**SET CREW TEMP SWITCH TO MAN**

CREW STATION = HOT*

SET

CREW TEMP MODE SWITCH

CREW TEMP MODE SWITCH = MAN

20.3.2.003.00*

**SET CREW TEMP SWITCH TO OFF**

CREW STATION = HOT*

SET

CREW TEMP MODE SWITCH

CREW TEMP MODE SWITCH = OFF

20.3.2.004.00*

**SET CREW RAM AIR SOURCE MODE SWITCH TO RAM**

CHECKLIST = SEQUENCE

SET

CREW AIR SOURCE MODE SWITCH

CREW AIR SOURCE MODE SWITCH = RAM*

20.3.2.005.00*

**SET ST AIR SOURCE SWITCH TO OFF**

CREW STATION = HOT*

SET

ST AIR SOURCE CONTROL SWITCH

ST AIR SOURCE CONTROL SWITCH = OFF

20.3.2.006.00*

**SET INTMD AVIONICS AIR SOURCE SWITCH TO RAM**

CHECKLIST = SEQUENCE

SET

INTMD AVIONICS AIR SOURCE SW

INTMD AVIONICS AIR SOURCE SW = RAM*

20.51
LAND AS SOON AS PRACTICABLE

CHECKLIST

LAND
A-V
A-V

= SEQUENCE

= LANDED
OBJECTIVE: PERFORM CABIN TOO COLD PROCEDURES

CRITICALITY: 2 DIFFICULTY: 1

INITIAL CONDITIONS: 1. Crew discomfort because of cabin too cold.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when the crew temperature control knob is set to the full clockwise position, the temperature of the cabin air should increase.

2. Recall that the crew supply, cold air, foot warmer and side window outlets should be closed.

3. Recall that with the crew temperature mode switch in MAN, the crew compartment temperature will not be maintained at a specific temperature.

4. Recall that with the windshield mode select switch in ALTER DEFOG, a flow of engine bleed air is directed across the interior of both the pilot's and copilot's wind shield.

5. Recall that with the stores air source switch in OFF, the flow of air from the stores coolant refrigeration package is cut off.

6. Recall that with the crew air source switch in RAM, the source of conditioned air is shut off and the cabin is provided with air from a ram air scoop, if the air vehicle is within certain limits of altitude and speed.

7. Recall that when an avionics air mode select switch is set to RAM, the specific avionics bay will not receive conditioned air from the air circulation loops.

8. Recall that the air vehicle should be landed as soon as practical, if cabin temperature cannot be controlled.
ANCILLARY OBJECTIVES:

1. Recall that the crew temperature control knob operates in conjunction with the crew temperature mode switch.

2. Recall that all air outlets are adjustable for direction of flow.

3. Recall that all air outlets, with the exception of the foot and side window outlets, are adjustable for rate of flow.

4. Recall that the manual mode of the crew temperature control will probably require adjustments, as the flight conditions change.

5. Recall that with the windshield mode select switch in ALTER DEFOG, a stream of engine bleed air is provided, regardless of the windshield power switch position.

6. Recall that the ram air scoops must be extended within 5 minutes of turning the stores refrigeration unit off.

7. Recall that with the crew air source switch set in RAM, the air vehicle should be descended and decelerated, so it is within the avionics ram air cooling operational envelope.

8. Recall that the avionics air mode select switches should never be set to OFF, when the air vehicle is in flight.

OPERATOR: P/CP

TASK ELEMENTS: 20.3.3.1 20.3.3.5
                 20.3.3.2 20.3.3.6
                 20.3.3.3 20.3.3.7
                 20.3.3.4 20.3.3.8
20.3.3.001.00*
**SET CREW TEMP CONTROL KNOB TO HOT, FULL CW POSITION**

CREW STATION = COLD*

SET
CREW TEMP CONTROL
CREW TEMP CONTROL = HOT

20.3.3.002.00*
**CLOSE AIR OUTLETS**

CREW STATION = COLD

CLOSE
AIR OUTLETS
AIR OUTLETS = CLOSED

20.3.3.003.00*
**SET CREW TEMP SWITCH TO MAN**

CREW STATION = COLD*

SET
CREW TEMP MODE SWITCH
CREW TEMP MODE SWITCH = MAN

20.3.3.004.00*
**SET WINDSHIELD HEAT MODE SWITCH TO ALTER DEFOG**

CREW STATION = COLD*

SET
WINDSHIELD MODE SELECT SWITCH
WINDSHIELD MODE SELECT SWITCH = ALTER DEFOG

20.3.3.005.00*
**SET ST AIR SOURCE SWITCH TO OFF**

CREW STATION = COLD*

SET
ST AIR SOURCE CONTROL SWITCH
ST AIR SOURCE CONTROL SWITCH = OFF

20.3.3.006.00*
**SET CREW RAM AIR SOURCE MODE SWITCH TO RAM**

CHECKLIST = SEQUENCE

SET
CREW AIR SOURCE MODE SWITCH
CREW AIR SOURCE MODE SWITCH = RAM*
20.3.3.007.00*  
**SET INTMD AVIONICS AIR SOURCE SWITCH TO RAM**

**CHECKLIST**  
*SET*  
INTMD AVIONICS AIR SOURCE SW  
INTMD AVIONICS AIR SOURCE SW = RAM*

20.3.3.008.00*  
**LAND AS SOON AS PRACTICABLE**

**CHECKLIST**  
*LAND*  
A-V  
A-V = LANDED
OBJECTIVE: PERFORM AVIONICS COMPARTMENT OVERHEAT PROCEDURES 20.15

CRITICALITY: 3 DIFFICULTY: 1

INITIAL CONDITIONS: 1. One of the avionics compartment hot caution lights illuminates.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights are extinguished and the CREW COMPT AVIONICS HOT light changes from flashing to steady.

2. Recall what electrical equipment is considered to be non-essential.

3. Recall that the air vehicle should be decelerated and descended if in supersonic flight, to decrease total temperature.

4. Recall that when an avionics air mode select switch is set to RAM, the specific avionics bay will not receive conditioned air from the air circulation loops.

5. Recall that with the crew air source switch in RAM, the source of conditioned air is shut off and the cabin is provided with air from a ram air scoop, if the air vehicle is within certain limits of altitude and speed.

6. Recall that non-essential electrical equipment should be turned on, one at a time, while monitoring for overheat indications.

7. Recall that the air vehicle should be landed as soon as practical, if the overheat condition persists.
ANCILLARY OBJECTIVES:

1. Recall that the avionics air mode select switches should not be set to OFF, when the air vehicle is in flight.

2. Recall that with the crew air source switch set in RAM, the air vehicle should be flown within the avionics ram air cooling operational envelope.

OPERATOR: P/CP

TASK ELEMENTS: 20.3.4.1  20.3.4.2  20.3.4.3  20.3.4.4  20.3.4.5
20.3.4.001.00*

DEPRESS MASTER CAUTION SWITCHLIGHT
AVIONICS COMPARTMENTS OVERHEAT = CREW COMPT AVIO

DEPRESS
MASTER CAUTION SWITCHLIGHT
MASTER CAUTION SWITCHLIGHT = OFF

20.3.4.002.00*

SET ALL NON-ESSENTIAL ELECTRICAL EQUIPMENT TO OFF

CHECKLIST = SEQUENCE
SET ALL NON-ESSENTIAL ELECT EQUIP
ALL NON-ESSENTIAL ELECT EQUIP = OFF

20.3.4.003.00*

DECCELERATE AND DESCEND TO SUBSONIC CRUISE CONDITIONS*

CHECKLIST = SEQUENCE
FLY A-V
A-V = LOWER ALTITUDE

20.3.4.004.00*

SET AVIONICS AND CREW AIR SOURCE MODE SWITCH TO RAM

AVIONICS COMPARTMENTS OVERHEAT = CREW COMPT AVIO

SET
R CTL AVIONICS AIR MODE SELECT
CREW AIR SOURCE MODE SWITCH

R CTL AVIONICS AIR MODE SELECT = RAM
AND CREW AIR SOURCE MODE SWITCH = RAM

20.3.4.005.00*

TURN ON ELECTRICAL EQUIPMENT

AVIONICS COMPARTMENTS OVERHEAT = OFF*

SET
ALL NON-ESSENTIAL ELECT EQUIP
ALL NON-ESSENTIAL ELECT EQUIP = ON*
OBJECTIVE: PERFORM SMOKE OR FUMES IN CREW COMPARTMENT PROCEDURES

CRITICALITY: 3 DIFFICULTY: 2

INITIAL CONDITIONS: 1. Smoke visible in crew compartment.
2. Fumes detected in crew compartment.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper position.

ENABLING OBJECTIVES:

1. Recall that each crew member should connect his oxygen mask and set his oxygen regulator at 100 percent at the first evidence of smoke or fumes in the crew compartment.

2. Recall the proper manner for donning a smoke hood.

3. Recall that each engine bleed air switch should be set to OFF to isolate the source of smoke or fumes, if they are coming from the air outlets.

4. Recall that the bleed air switches for the engines that were not causing the smoke or fumes should be left ON to provide conditioned air for the ECS, etc.

5. Recall that the CAB OVER 10,000 light will illuminate flashing when the cabin pressure is more than the equivalent of 10,000 feet.

6. Recall that with the stores air source switch in OFF, the flow of air from the stores coolant refrigeration package is cut off.

7. Recall that with the crew air source switch in RAM, the source of conditioned air is shut off and the cabin is provided with air from a ram air scoop, if the air vehicle is within certain limits of altitude and speed.

8. Recall that when an avionics air mode select switch is set to RAM, the specific avionics bay will not receive conditioned air from the air circulation loops.

9. Recall what electrical equipment is considered to be non-essential.

10. Recall that non-essential electrical equipment should be turned on, one at a time and a check made for smoke or fumes until the source is determined.
ENABLING OBJECTIVES: (continued)

11. Recall that the air vehicle should be landed as soon as practical if the source of smoke or fumes can be determined and eliminated.

12. Recall that the air vehicle should be landed as soon as possible, if the source of smoke or fumes cannot be isolated and the smoke or fumes persist.

ANCILLARY OBJECTIVES:

1. Recall that the source of the smoke or fumes may be isolated to an engine by selectively closing each engine bleed air valve and waiting 30 seconds to allow time for a change to be detected.

2. Recall that illumination of the CAB OVER 10,000 light triggers the illumination of the MASTER CAUTION lights.

3. Recall that if all engine bleed air switches are turned off, total system pressure will decay and refrigeration packages will be inoperative.

4. Recall that the loss of bleed air duct pressurization may result in damage to the duct.

5. Recall that loss of pressurization in the crew compartment may cause the flight crew to experience hypoxia and decompression.

6. Recall that with the stores air source switch in OFF, the ram air scoops must be extended within 5 minutes to minimize equipment damage.

7. Recall that with the crew air source switch in RAM, the air vehicle should be descended and decelerated until it is within the avionics ram air cooling operational envelope.

8. Recall that the avionics air mode select switches should never be set to OFF when the air vehicle is in flight.

OPERATOR: P/CP

TASK ELEMENTS: 20.3.5.1 20.3.5.5 20.3.5.9 20.3.5.13
20.3.5.2 20.3.5.6 20.3.5.10 20.3.5.14
20.3.5.3 20.3.5.7 20.3.5.11 20.3.5.15
20.3.5.4 20.3.5.8 20.3.5.12
20.3.5.001.00*
ATTACH OXYGEN MASKS

ATTACH
OXYGEN MASKS

ATTACH OXYGEN MASKS = ON

20.3.5.002.00*
SET OXYGEN REGULATOR AT 100 PERCENT

SET
OXYGEN REGULATORS
OXYGEN REGULATORS = 100

20.3.5.003.00*
PUT ON SMOKE HOODS

PLACE
SMOKE HOODS
SMOKE HOODS = ON

20.3.5.004.00*
CHECK SOURCE OF SMOKE FROM AIR OUTLETS OR FROM CONSOLE

CHECK
AIR OUTLETS
CONSOLE

CHECKLIST = SEQUENCE
AIR OUTLETS = CHECKED

20.3.5.005.00*
SET ENG BLEED AIR SWITCH TO UFF

SET
ENG BLEED AIR SWITCH 4
ENG BLEED AIR SWITCH 4 = UFF
**20.3.5.006.00**

**CHECK ALL REMAINING ENG BLEED AIR SWITCHES ARE ON**

- ENG BLEED AIR SWITCH 4 \= OFF*

**CHECK**

- ENG BLEED AIR 1
- ENG BLEED AIR 2
- ENG BLEED AIR 3

- ENG BLEED AIR 1 \= ON*
- AND ENG BLEED AIR 2 \= ON
- AND ENG BLEED AIR 3 \= ON

**20.3.5.007.00**

**MONITOR AVIONICS COMPART OVERHEAT & CREW COMPART FOR DEPRESS**

**CHECKLIST** \= SEQUENCE

**MONITOR-VISUAL**

- AVIONICS COMPARTMENTS OVERHEAT
- CABIN OVER 10000 CAUTION LIGHT

- AVIONICS COMPARTMENTS OVERHEAT \= OFF*
- AND CABIN OVER 10000 CAUTION LIGHT \= OFF

**20.3.5.008.00**

**SET ST AIR SOURCE SWITCH TO OFF**

**CHECKLIST** \= SEQUENCE

**SET**

- ST AIR SOURCE CONTROL SWITCH

- ST AIR SOURCE CONTROL SWITCH \= OFF*

**20.3.5.009.00**

**SET CREW RAM AIR SOURCE MODE SWITCH TO RAM**

**CHECKLIST** \= SEQUENCE

**SET**

- CREW AIR SOURCE MODE SWITCH

- CREW AIR SOURCE MODE SWITCH \= RAM*

**20.3.5.010.00**

**SET INTMD AVIONICS AIR SOURCE SWITCH TO RAM**

**CHECKLIST** \= SEQUENCE

**SET**

- INTMD AVIONICS AIR SOURCE SW

- INTMD AVIONICS AIR SOURCE SW \= RAM
20.3.5.011.00*  LAND AS SOON AS PRACTICABLE
CHECKLIST = SEQUENCE
LAND
A-V
A-V = LANDED

20.3.5.012.00*  SET ALL NON-ESSENTIAL ELECTRICAL EQUIPMENT TO OFF
CHECKLIST = SEQUENCE
SET
ALL NON-ESSENTIAL ELECT EQUIP
ALL NON-ESSENTIAL ELECT EQUIP = OFF*

20.3.5.013.00*  TURN ON ELECTRICAL EQUIPMENT
CHECKLIST = SEQUENCE
SET
ALL NON-ESSENTIAL ELECT EQUIP
ALL NON-ESSENTIAL ELECT EQUIP = ON*

20.3.5.014.00*  LAND AS SOON AS PRACTICABLE
CHECKLIST = SEQUENCE
LAND
A-V
A-V = LANDED

20.3.5.015.00*  LAND AS SOON AS POSSIBLE IF SMOKE OR FUMES PERSIST
CHECKLIST = SEQUENCE
LAND
A-V
A-V = LANDED
OBJECTIVE: PERFORM BEFORE EJECTION PROCEDURES

CRITICALITY: 3   DIFFICULTY: 1

INITIAL CONDITIONS: 1. Catastrophic failure of air vehicle.

CONCURRENT TASKS:

INTERACTION TASKS: 1. OSO performs before ejection procedures.
                     2. DSO performs before ejection procedures.

PERFORMANCE LIMITS: 1. Proper sequence.

ENABLING OBJECTIVES:

1. Recall that when an ejection is made at airspeeds below 450 KIAS, fewer injuries will be sustained because of wind blast effects.
2. Recall that when the PREP TO EJECT switchlight is depressed, all four switchlights illuminate.
3. Recall that the master control knob on the IFF panel must be pulled outward to set it to EMER.
4. Recall that the restraint harness inertia reel is locked by pushing forward on the control handle.
5. Recall that the oxygen mask should be securely attached to the helmet, so that emergency oxygen will be available during the descent after ejection.
6. Recall how the armrests are set to the normal horizontal position.

ANCILLARY OBJECTIVES:

1. Recall that if time permits after the decision is made to eject, the air vehicle should be turned toward an area where injury or damage on the ground is least likely to occur.
2. Recall that the general audio alarm will be activated and an intermittent bell tone will sound over the intercom when the PREP TO EJECT switchlight is depressed.
ANCILLARY OBJECTIVES: (continued.)

3. Recall that the armrests of the ejection seats should be set in the horizontal position and each crew member should have his arms in place on them, to attenuate the high spinal "g" loads during ejection.

OPERATOR: P/CP

TASK ELEMENTS:

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20.3.6.001.00*  
**REDUCE AIRSPEED TO 450 KIAS OR LESS BEFORE EJECTION**

A-V = TBD*

FLY

A-V

ALTITUDE-VERTICAL VELOCITY IND < 450*

20.3.6.002.00*  
**DEPRESS PREPARE TO EJECT SWITCH**

CHECKLIST = SEQUENCE

DEPRESS

PREPARE TO EJECT

PREPARE TO EJECT = ON

20.3.6.003.00*  
**ADVISE CREWMEMBERS**

CHECKLIST = SEQUENCE

COMMUNICATE

PILOT ICS

PILOT ICS = PREPARE TO EJECT

20.3.6.004.00*  
**TRANSMIT MAYDAY**

CHECKLIST = SEQUENCE

TRANSMIT

PILOTS UHF

PILOTS UHF = MAYDAY

20.3.6.005.00*  
**SET IFF MASTER CONTROL KNOB**

CHECKLIST = SEQUENCE

SET

MASTER CONTROL SELECT SWITCH

MASTER CONTROL SELECT SWITCH = EMERG

20.3.6.006.00*  
**CHECK RESTRAINT HARNESS INERTIAL REEL CONTROL IS LOCKED**

CHECKLIST = SEQUENCE

CHECK

RESTR A SSY INERTIAL REEL

RESTR A SSY INERTIAL REEL = LOCKED

20.67
CHECK OXYGEN MASK AND FITTINGS

CHECKLIST = SEQUENCE

CHECK

OXYGEN MASK = CHECKED

OXYGEN MASK

20.3.6.008.0C*

CHECK SEAT ARMRESTS IN NORMAL HORIZONTAL POSITION

CHECKLIST = SEQUENCE

CHECK

SEAT ARMRESTS = NORM HORIZ POSN*

SEAT ARMRESTS
OBJECTIVE: PERFORM EJECTION  20.18

CRITICALITY: 3  DIFFICULTY: 1

INITIAL CONDITIONS: 1. Catastrophic failure of air vehicle.

CONCURRENT TASKS:

INTERACTION TASKS: 1. OSO performs ejection.
2. DSO performs ejection.

PERFORMANCE LIMITS:

ENABLING OBJECTIVES:

1. Recall that the ejection seat handle should be pulled and the trigger squeezed to eject the seat.

ANCILLARY OBJECTIVES:

1. Recall that injury could occur if the crew member is not in a firm upright position, with head against headrest and arms on seat armrests, when ejection is initiated.

OPERATOR: P/CP

TASK ELEMENTS: 20.3.7.1

20.69
UPL EJECTION HANDLE

SEAT ARMRESTS

EJECTION HANDLE

EJECTION HANDLE

= NORM HORIZ POSN

= PULLED*
OBJECTIVE: PERFORM THROTTLE SYSTEM MALFUNCTION PROCEDURES 20.19

CRITICALITY: 3 DIFFICULTY: 1

INITIAL CONDITIONS: 1. Engine fails to respond to throttle lever movement.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
   2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that depressing the normal throttle reset button should re-engage the normal throttle system.

2. Recall that actuation of the alternate throttle system to INC or DECR will increase or decrease the engine throttle setting in proportion to the time that the switch position is maintained.

ANCILLARY OBJECTIVES:

1. Recall that the normal throttle reset button permits reengagements of primary throttle control, subsequent to actuation of any of the alternate throttle switches.

2. Recall that actuation of an alternate throttle switch will disengage the respective engine primary throttle and increase, or decrease the power level setting of the engine.

3. Recall that if the throttle system fails to respond, engine operation can be continued at the existing power level at time of failure or engine may be shut down.

OPERATOR: P/CP

TASK ELEMENTS: 20.3.8.1
20.3.8.2
DEPRESS NORM THROT RESET PUSHBUTTON

POWER LEVEL INDICATOR-ENG #4  = TBD

DEPRESS

NORMAL THROTTLE RESET SWITCH-P

NORMAL THROTTLE RESET SWITCH-P = DEPRESSED
AND POWER LEVEL INDICATOR-ENG #4  = TBD

SELECT INC OR DECR WITH THE ALTR THROT SW FOR AFFECTED ENG

NORMAL THROTTLE RESET SWITCH-P = DEPRESSED
AND POWER LEVEL INDICATOR-ENG #4  = TBD

SELECT PIL ALT THROTTLE SWITCH 4

PIL ALT THROTTLE SWITCH 4 = INC*

OR PIL ALT THROTTLE SWITCH 4 = DECR

AND POWER LEVEL INDICATOR-ENG #4  = TBD
**OBJECTIVE:** PERFORM ENGINE FAILURE (NON-MECHANICAL) DURING FLIGHT PROCEDURES

**CRITICALITY:** 3  **DIFFICULTY:** 2

**INITIAL CONDITIONS:**
1. Loss of power on engine.

**CONCURRENT TASKS:**

**INTERACTION TASKS:**

**PERFORMANCE LIMITS:**
1. Airspeed-TBD (+ kts)
2. Altitude-TBD (- ft)
3. Proper sequence.
4. Switches in proper positions.

**ENABLING OBJECTIVES:**
1. Coordinate control stick and rudder pedals to maintain air vehicle attitude and airspeed within safe limits.
2. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.
3. Recall that power on the operating engines should be adjusted so as to maintain the recommended speed with one engine failed.
4. Recall that the air vehicle should be retrimmed and landed as soon as practical after engine failure.

**ANCILLARY OBJECTIVES:**
1. Recall that an air start may be attempted if the engine failure was non-mechanical in origin.
2. Recall that the throttle on the affected engine should be set to idle if engine shutdown is required.
3. Recall that selection of the engine start switch to OFF will drive the engine power lever to off independently of flight station throttle control lever position.
4. Recall that the engine fire button will perform the same function as turning the engine start switch to OFF, but damage may be done to the engine fuel pump and, thereby prevent subsequent engine start.
20.4.1.001.00*  
**MAINTAIN AIR VEHICLE ATTITUDE & AIRSPEED WITHIN SAFE LIMITS**

**FLY**

A-V

VSD = TBD

AND AIRSPEED-MACH NUMBER INDICATOR = TBD

20.4.1.002.00*  
**RETARD THROTTLE ON AFFECTED ENGINE TO IDLE**

CHECKLIST = SEQUENCE

ADJUST

THROTTLE LEVER 4

THROTTLE LEVER 4 = IDLE*

20.4.1.003.00*  
**SET ENGINE START SWITCH ON AFFECTED ENGINE TO OFF**

CHECKLIST = SEQUENCE

SET

ENGINE START SWITCH 4

ENGINE START SWITCH 4 = OFF*

20.4.1.004.00*  
**ADJUST POWER LEVEL**

CHECKLIST = SEQUENCE

ADJUST

THROTTLE LEVER 1

THROTTLE LEVER 2

THROTTLE LEVER 3

THROTTLE LEVER 1 = TBD

AND THROTTLE LEVER 2 = TBD

AND THROTTLE LEVER 3 = TBD

20.4.1.005.00*  
**REALIGN AIR VEHICLE TO MAINTAIN DESIRED FLIGHT ATTITUDE AND A-S**

CHECKLIST = SEQUENCE

ADJUST

CONTROL STICK TRIM SWITCH

YAW CONTROL TRIM SWITCH

FLIGHT CONTROL STICK

AND Rudder Pedals = NEUTRAL PRESSURE

= NEUTRAL PRESSURE

20.75
LAND AS SOON AS PRACTICABLE

CHECKLIST

LAND

A-V

A-V

= SEQUENCE

= LANDED
OBJECTIVE: PERFORM ENGINE FAILURE (MECHANICAL) DURING FLIGHT PROCEDURES

CRITICALITY: 3   DIFFICULTY: 2

INITIAL CONDITIONS: 1. Loss of power on engine.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Airspeed - TBD (+ kts)
2. Altitude - TBD
3. Proper sequence.
4. Switches in proper positions.

ENABLING OBJECTIVES:

1. Coordinate control stick and rudder pedals to maintain air vehicle attitude and airspeed within safe limits.
2. Recall that when an engine fire switchlight is depressed, it latches mechanically in that position, shutting off the respective engine firewall fuel valve and arming the corresponding fire extinguishing system.
3. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.
4. Recall that power on the operating engines should be adjusted so as to maintain the recommended speed with one engine failed.
5. Recall that the air vehicle should be retrimmed and landed as soon as practical, after engine failure.

ANCILLARY OBJECTIVES:

1. Recall that switchlights on the left and right sides of the FIRE WARN & EXTGH panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.
2. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTGH panel will cause a depressed switchlight to return to its un-activated position.
3. Recall that selection of the engine start switch to OFF will drive the engine power lever to off, independently of flight station throttle control lever position.
4. Recall that the throttle on the affected engine should be set to idle, if engine shutdown is required.
OPERATOR: P/CP

TASK ELEMENTS:

20.4.2.1  20.4.2.4  20.4.2.7
20.4.2.2  20.4.2.5
20.4.2.3  20.4.2.6
20.4.2.001.00*

**MAINTAIN AIR VEHICLE ATTITUDE & AIRSPEED WITHIN SAFE LIMITS**

**CORE RPM INDICATOR**

**FLY**

**A-V**

**VSD**

**AND AIRSPEED-MACH NUMBER INDICATOR** = TBD

20.4.2.002.00*

**DEPRESS ENGINE FIRE SWITCHLIGHT ON AFFECTED ENGINE**

**CHECKLIST**

**DEPRESS**

**ENGINE FIRE SWITCHLIGHT 4**

**ENGINE FIRE SWITCHLIGHT 4** = DEPRESSED*

20.4.2.003.00*

**RETARD THROTTLE ON AFFECTED ENGINE TO IDLE**

**CHECKLIST**

**ADJUST**

**THROTTLE LEVER 4**

**THROTTLE LEVER 4** = IDLE

20.4.2.004.00*

**SET ENGINE START SWITCH ON AFFECTED ENGINE TO OFF**

**CHECKLIST**

**SET**

**ENGINE START SWITCH 4**

**ENGINE START SWITCH 4** = OFF

20.4.2.005.00*

**ADJUST POWER LEVEL**

**CHECKLIST**

**ADJUST**

**THROTTLE LEVER 1**

**THROTTLE LEVER 2**

**THROTTLE LEVER 3**

**THROTTLE LEVER 1** = TBD

**THROTTLE LEVER 2** = TBD

**THROTTLE LEVER 3** = TBD

20.79
20.4.2.006.00*
**RETRIM A-V TO MAINTAIN DESIRED FLIGHT ATTITUDE AND AIRSPEED**

CHECKLIST = SEQUENCE

ADJUST

CONTROL STICK TRIM SWITCH

YAW CONTROL TRIM SWITCH

FLIGHT CONTROL STICK

AND RUDDER PEDALS = NEUTRAL PRESSURE

= NEUTRAL PRESSURE

20.4.2.007.00*

**LAND AS SOON AS PRACTICABLE**

CHECKLIST = SEQUENCE

LAND

A-V

A-V = LANDED
OBJECTIVE: PERFORM UNASSISTED (WINDMILLING) AIRSTART

CRITICALITY: 2    DIFFICULTY: 2

INITIAL CONDITIONS: 1. Loss of power on engine.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Airspeed - TBD (± kts)
                      2. Altitude - TBD (± ft)
                      3. Proper sequence
                      4. Switches in proper positions.

ENABLING OBJECTIVES:

1. Coordinate control stick and rudder pedals to maintain air vehicle attitude and airspeed within the windmilling airstart envelope.

2. Recall that moving the ignition switch to MAN activates a spark plug that fires continuously.

3. Recall that when a generator is set to RESET/OFF, it is electrically disconnected from the line.

4. Recall that momentary selection of the engine start switch to START will initiate the automatic engine start sequence.

5. Recall the normal range of the engine instruments during the starting sequence.

6. Recall that when the generator mode switch is set to ON, the generator is electrically connected to its respective bus.

7. Recall that with the engine ignition switch in AUTO, high energy ignition is provided automatically for engine starts at all flight conditions.

8. Recall that the engine power level should be set as desired when the engine instruments become stabilized after start.

9. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.
ANCILLARY OBJECTIVES:

1. Recall that maintaining stabilized flight and minimizing control movements reduces hydraulic loads during airstart attempts.

2. Recall that during unassisted multi-engine airstarts involving engine #4, it should be started first because it doesn't have the drag of a primary generator.

3. Recall that the manual position of the ignition switch supplements the automatic ignition system.

4. Recall that the removal of a generator causes the specific generator light, the ELEC amber light on the flight station caution panel and both master caution lights to illuminate.

5. Recall that the engine start switch should be used only if the engine was shutdown prior to the airstart attempt.

6. Recall that releasing the engine start switch allows it to return to RUN.

7. Recall that engine acceleration from ignition to 50 percent core RPM can take as long as 3.5 minutes.

8. Recall that engine light-off is confirmed by observing a rise in engine temperature.

9. Recall that the acceleration of the engine during the start sequence should be smooth.

10. Recall that the engine ignition switch is lever-locked in the AUTO position only.

11. Recall that engine start should be terminated, if the engine temperature rises beyond 760°C, if the engine hesitates or fails to continue toward idle, or if the oil pressure is not normal at stabilized idle.

12. Recall that if repeated unassisted windmilling airstart attempts (maximum of 3) are unsuccessful, an APU assisted airstart should be used.

13. Recall that selection of the engine start switch to OFF will drive the engine power lever to off, independently of flight station throttle control lever position.

OPERATOR: P/CP

TASK ELEMENTS:  
20.4.3.1  20.4.3.5  20.4.3.9  
20.4.3.2  20.4.3.6  20.4.3.10  
20.4.3.3  20.4.3.7  20.4.3.11  
20.4.3.4  20.4.3.8  20.4.3.12  

20.82
20.4.3.001.00*

**Maintain A-V Att & A-S within windmilling Airstart envelope**

- **Eng 1 Core RPM Indicator** = TBD*
- **FLY A-V**
- **VSD** = TBD
- **And Airspeed-Mach Number Indicator** = TBD

20.4.3.002.00*

**Move throttle on affected engine to idle**

- **Checklist** = Sequence
- **Adjust**
  - #1 throttle lever
  - #1 throttle lever = Idle

20.4.3.003.00*

**Set engine ignition switch to manual**

- **Checklist** = Sequence
- **Set**
  - Ignition switch
  - Ignition switch = Man
  - And engine ignition advisory light = 'Eng Ign'

20.4.3.004.00*

**Set generator on affected engine to reset-off**

- **Checklist** = Sequence
- **Set**
  - #1 generator mode switch
  - #1 generator mode switch = Reset-off*
  - And #1 generator caution light = '1 Gen *
  - And electrical caution light = 'Elec *

20.4.3.005.00*

**Set Eng start-run switch on affected engine to start**

- **Checklist** = Sequence
- **Set**
  - Engine 1 start switch
  - Engine 1 start switch = Start

20.83
20.4.3.006.00* MONITOR ENG TEMP AND CORE RPM DURING START

CHECKLIST = SEQUENCE

MONITOR- VISUAL

ENGINE 1 TEMP INDICATOR
ENG 1 CORE RPM INDICATOR

ENGINE 1 TEMP INDICATOR = TBD*
AND ENG 1 CORE RPM INDICATOR = TBD

20.4.3.007.00* SET GENERATOR ON AFFECTED ENGINE TO ON

CHECKLIST = SEQUENCE

SET

#1 GENERATOR MODE SWITCH

#1 GENERATOR MODE SWITCH = ON
AND #1 GENERATOR CAUTION LIGHT = OFF

20.4.3.008.00* SET ENGINE IGNITION SWITCH TO AUTO

CHECKLIST = SEQUENCE

SET

IGNITION SWITCH

IGNITION SWITCH = AUTO
AND ENGINE IGNITION ADVISORY LIGHT = OFF

20.4.3.009.00* SET POWER LEVEL ON AFFECTED ENGINE AS DESIRED

CHECKLIST = SEQUENCE

ADJUST

#1 THROTTLE LEVER

POWER LEVEL INDICATOR- ENG #1 = TBD

20.4.3.010.00* MOVE THROTTLE ON AFFECTED ENGINE TO IDLE

CHECKLIST = SEQUENCE

ADJUST

#1 THROTTLE LEVER

#1 THROTTLE LEVER = IDLE

20.84
20.4.3.011.00*  SET ENG START-RUN SWITCH ON AFFECTED ENGINE TO OFF*
CHECKLIST  = SEQUENCE
SET  ENGINE 1 START SWITCH
ENGINE 1 START SWITCH  = OFF

20.4.3.012.00*  SET ENG START-RUN SWITCH ON AFFECTED ENGINE TO START
CHECKLIST  = SEQUENCE
SET  ENGINE 1 START SWITCH
ENGINE 1 START SWITCH  = START*
OBJECTIVE: PERFORM APU-ASSISTED AIRSTART

CRITICALITY: 2  DIFFICULTY: 2

INITIAL CONDITIONS: 1. Loss of power on engine

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Airspeed - TBD (+ kts)
2. Altitude - TBD (- ft)
3. Proper sequence
4. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that an APU-assisted airstart should not be attempted, if the airspeed is above 350 KIAS.
2. Recall that moving the ignition switch to MAN activates a spark plug that fires continuously.
3. Recall that when a generator is set to RESET/OFF, it is electrically disconnected from the line.
4. Recall that when the APU mode switches are set to START they are held in that position until ignition-start has taken place.
5. Recall that when the APU run light is on, the APU is up to adequate speed to accept a load.
6. Recall that momentary selection of the engine start switch to START will initiate the automatic engine start sequence.
7. Recall the normal range of the engine instruments during the starting sequence.
8. Recall that when the generator mode switch is set to ON, the generator is electrically connected to its respective bus.
9. Recall that with the engine ignition switch in AUTO, high energy ignition is provided automatically for engine starts at all flight conditions.
10. Recall that the engine power level should be set as desired when the engine instruments become stabilized, after start.
ENABLING OBJECTIVES:  (continued)

11. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.

ANCILLARY OBJECTIVES:

1. Recall that operation of an APU at airspeeds in excess of 350 KIAS may result in APU exhaust door failure.

2. Recall that the manual position of the ignition switch supplements the automatic ignition system.

3. Recall that the removal of a generator causes the specific generator light, the ELEC amber light on the flight station caution panel and both master caution lights to illuminate.

4. Recall that the APU mode switches will automatically move to the RUN position after ignition-start has taken place.

5. Recall that the APU run light will illuminate when an acceptable RPM is sensed.

6. Recall that releasing the engine start switch allows it to return to RUN.

7. Recall that engine acceleration can take as long as 1 minute from ignition to 50 percent core RPM.

8. Recall that engine light-off is confirmed by observing a rise in engine temperature.

9. Recall that the acceleration of the engine during the start sequence should be smooth.

10. Recall that the engine ignition switch is lever-locked in the AUTO position only.

11. Recall that engine start should be terminated, if the engine temperature rises beyond 760°C, if the engine hesitates or fails to continue toward idle, or if the oil pressure is not normal at stabilized idle.

12. Recall that selection of the engine start switch to OFF will drive the engine power lever to off, independently of flight station throttle control lever position.

13. Recall that following termination of an airstart attempt, a re-attempt at airstarting may be made.

14. Recall that if an APU-assisted airstart attempt is unsuccessful due to an APU automatic overtemperature shutdown, an airstart should be attempted at a lower altitude.
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20.4.4.001.00*

REDUCE AIRSPEED BELOW 350 KIAS*

FLY

ENG 1 CORE RPM INDICATOR = TBD*
A-V
Airspeed-Mach Number Indicator < 350

20.4.4.002.00*

MOVE THROTTLE ON AFFECTED ENGINE TO IDLE

CHECKLIST = SEQUENCE

ADJUST

#1 THROTTLE LEVER = IDLE

20.4.4.003.00*

SET ENGINE IGNITION SWITCH TO MANUAL

CHECKLIST = SEQUENCE

SET

IGNITION SWITCH

IGNITION SWITCH = MAN
AND ENGINE IGNITION ADVISORY LIGHT = 'ENG IGN'

20.4.4.004.00*

SET GENERATOR ON AFFECTED ENGINE TO RESET-OFF

CHECKLIST = SEQUENCE

SET

#1 GENERATOR MODE SWITCH

#1 GENERATOR MODE SWITCH = RESET-OFF*
AND #1 GENERATOR CAUTION LIGHT = '1 GEN'
AND ELECTRICAL CAUTION LIGHT = 'ELEC'

20.4.4.005.00*

CHECK WING SWEEP HANDLE AT 45 DEGREES OR LESS

CHECKLIST = SEQUENCE

CHECK

PILOTS WING SWEEP HANDLE

WING SWEEP POSITION INDICATOR = 45
OR WING SWEEP POSITION INDICATOR < 45
20.4.4.006.00*  
SET APPLICABLE APU MODE SWITCH TO START

CHECKLIST = SEQUENCE

SET

LEFT APU MODE SWITCH

LEFT APU MODE SWITCH = START*
AND LEFT APU MODE SWITCH = RUN
AND LEFT RUN LIGHT = 'L RUN'

20.4.4.007.00*  
SET ENG START-RUN SWITCH ON AFFECTED ENGINE TO START

CHECKLIST = SEQUENCE

SET

ENGINE 1 START SWITCH

ENGINE 1 START SWITCH = START*

20.4.4.008.06*  
MONITOR ENG TEMP AND CORE RPM DURING START

CHECKLIST = SEQUENCE

MONITOR-VISUAL

ENGINE 1 TEMP INDICATOR
ENG 1 CORE RPM INDICATOR

ENGINE 1 TEMP INDICATOR = TBD*
AND ENG 1 CORE RPM INDICATOR = TBD

20.4.4.009.00*  
SET GENERATOR FOR AFFECTED ENGINE TO ON

CHECKLIST = SEQUENCE

SET

#1 GENERATOR MODE SWITCH

#1 GENERATOR MODE SWITCH = ON
AND #1 GENERATOR CAUTION LIGHT = OFF

20.4.4.010.00*  
SET ENGINE IGNITION SWITCH TO AUTO

CHECKLIST = SEQUENCE

SET

IGNITION SWITCH

IGNITION SWITCH = AUTO
AND ENGINE IGNITION ADVISORY LIGHT = OFF
20.4.4.011.00*  
*SET POWER LEVEL ON AFFECTED ENGINE AS DESIRED*

CHECKLIST = SEQUENCE

ADJUST
#1 THROTTLE LEVER
POWER LEVEL INDICATOR-ENG #1 = TBD

20.4.4.012.00*  
*SET APPLICABLE APU MODE SWITCH TO OFF*

CHECKLIST = SEQUENCE

SET
LEFT APU MODE SWITCH
LEFT APU MODE SWITCH = OFF
AND LEFT RUN LIGHT = OFF

20.4.4.013.00*  
*SET WING SWEEP HANDLE AS DESIRED*

CHECKLIST = SEQUENCE

SET
PILOTS WING SWEEP HANDLE
WING SWEEP POSITION INDICATOR = TBD

20.4.4.014.00*  
*MOVE THROTTLE ON AFFECTED ENGINE TO IDLE*

CHECKLIST = SEQUENCE

ADJUST
#1 THROTTLE LEVER
#1 THROTTLE LEVER = IDLE

20.4.4.015.00*  
*SET ENG START-RUN SWITCH ON AFFECTED ENGINE TO OFF*

CHECKLIST = SEQUENCE

SET
ENGINE 1 START SWITCH
ENGINE 1 START SWITCH = OFF

20.4.4.016.00*  
*SET ENG START-RUN SWITCH FOR AFFECTED ENGINE TO START*

CHECKLIST = SEQUENCE

SET
ENGINE 1 START SWITCH
ENGINE 1 START SWITCH = START*
OBJECTIVE: PERFORM ENGINE STALL PROCEDURES

CRITICALITY: 3 DIFFICULTY: 1

INITIAL CONDITIONS: 1. Loss of power on engine.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Airspeed - TBD (kts)
2. Altitude - TBD (ft)
3. Proper sequence
4. Switches in proper positions

ENABLING OBJECTIVES:

1. Coordinate control stick and rudder pedals to maintain air vehicle attitude and airspeed within safe limits.

2. Recall that the engine temperature tape will show loss of power as an increase in engine temperature.

3. Recall that the core RPM for the affected engine will surge upward and then fall to a level below the stabilized value.

4. Recall that moving the throttle on the affected engine to idle may assist in clearing the engine of the stalled condition.

5. Recall that the engine start switch must be pulled out in order to re-position it to the OFF position.

6. Recall that an air start should be attempted after the engine start/run switch has been set to OFF.

ANCILLARY OBJECTIVES:

1. Recall that the engine temperature tape will display exhaust gas temperature at levels below 750°C and turbine blade temperature above that value.

2. Recall that the caution light above each core RPM tape display will be energized when core RPM exceeds 107 percent.

3. Recall that some engine stalls may be self-clearing, as would be indicated by a rapid return to idle CORE RPM and normal operating procedures.

4. Recall that selection of the engine start switch to OFF will drive the engine power to off, independently of flight station throttle control lever position.
20.4.5.001.00*

**MAINTAIN A-V ATTITUDE AND AIRSPEED WITHIN SAFE LIMITS**

**FLY**

A-V

VSD

AND AIRSPEED-MACH NUMBER INDICATOR = TBD

20.4.5.002.00*

**MONITOR ENG TEMP TAPES**

**CHECKLIST**

= SEQUENCE

**MONITOR VISUAL**

ENGINE 4 TEMP INDICATOR

ENGINE 4 TEMP INDICATOR > TBD*

20.4.5.003.00*

**MONITOR CORE RPM TAPES**

**CHECKLIST**

= SEQUENCE

**MONITOR VISUAL**

CORE RPM INDICATOR

CORE RPM INDICATOR > TBD*

AND CORE RPM INDICATOR < TBD

20.4.5.004.00*

**MOVE THROTTLE ON AFFECTED ENGINE TO IDLE**

**CHECKLIST**

= SEQUENCE

**ADJUST**

#4 THROTTLE LEVER

#4 THROTTLE LEVER = IDLE

20.4.5.005.00*

**SET ENG START-RUN SWITCH ON STALLED ENGINE TO OFF**

**CHECKLIST**

= SEQUENCE

**SET**

ENGINE 4 START SWITCH

ENGINE 4 START SWITCH = OFF*

20.94
OBJECTIVE: PERFORM ENGINE FIRE DURING FLIGHT PROCEDURES

CRITICALITY: 3 DIFFICULTY: 2

INITIAL CONDITIONS: 1. Illumination of engine fire switchlight.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Airspeed - TBD († kts)
2. Altitude - TBD († ft)
3. Proper sequence.
4. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when an engine fire switchlight is depressed, it latches mechanically in that position, shutting off the respective engine firewall fuel valve, and arming the corresponding fire extinguishing system.

2. Recall that the master (general) warning audio tone is heard when a fire is sensed by the fire detection loops in the engine/ADG compartments.

3. Recall that momentary selection of the appropriate AGENT DISCH switch to MAIN or RES will direct extinguishing agent from the main, or reserve reservoir to the Engine/ADG compartment as determined by the actuated ENG FIRE switchlight.

4. Recall that the agent discharge light will illuminate when the extinguishing agent reservoir has been discharged.

5. Recall that selection of the engine start switch to OFF will drive the engine power lever to off independently of flight station throttle control lever position.

6. Coordinate control stick and rudder pedals to maintain air vehicle attitude and airspeed within safe limits.

7. Recall that the reserve extinguishing agent should not be discharged until waiting approximately 30 seconds for the engine fire switchlight to go out.

8. Recall that when the PREP TO EJECT switchlight is depressed, all four switchlights illuminate.
ENABLING OBJECTIVES: (continued)

9. Recall that the crewmembers should eject from the A/V if fire is confirmed and continues.

10. Recall the procedures for ejecting from the A/V.

11. Recall that the ejection seat handle should be pulled and the trigger squeezed to eject the seat.

12. Recall that power on the operating engines should be adjusted so as to maintain the recommended speed, with one engine failed.

13. Recall that when an engine bleed air switch is set to OFF, bleed air from the specific engine to the ECS (Environmental Control System) is shut off.

14. Recall that fuel should be dumped and the A/V landed as soon as possible, if the fire is extinguished.

15. Recall that when the fuel dump switch is set to DUMP, fuel will be jettisoned at each wingtip trailing edge.

ANCILLARY OBJECTIVES:

1. Recall that switchlights on the left and right sides of the FIRE WARN & EXTG panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.

2. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTG panel will cause a depressed switchlight to return to its un-actuated position.

3. Recall that no attempt should be made to restart an engine which has been shut down, due to a fire warning, until the cause has been determined and appropriate action taken.

4. Recall that the master warning audio tone will continue to sound until the situation has been corrected, or either MSTR AUDIO CUTOUT button has been depressed.

5. Recall that when an ENG FIRE switchlight is depressed and the appropriate AGENT DISCH switch is actuated, extinguishing agent will be directed simultaneously into the selected Engine and ADG compartments. Also, agent will be directed into the appropriate APU compartment, if the depressed ENG FIRE switchlight is for an outboard engine.

6. Recall that the agent discharge light will be extinguished 15 to 30 seconds after illumination.
ANCILLARY OBJECTIVES: (continued)

7. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.

8. Recall that when the PREP TO EJECT switchlight is depressed, all four switchlights illuminate.

9. Recall that the "Before Ejection" checklist should be accomplished, if time and/or conditions permit.

10. Recall that injury could occur if the crew member is not in a firm upright position, with head against headrest and arms on seat armrests, when ejection is initiated.

11. Recall that the bleed air system extracts high temperature and high pressure air from a port on the interstage of each engine.

12. Recall that the fuel jettison capability is provided by the fuel transfer system and dump valves and outlets.

13. Recall that fuel cannot be dumped from the main tanks.

14. Recall that manual dumping of fuel requires that the transfer pumps in the tank, from which fuel is to be dumped, must be turned on and all other tanks turned off.

OPERATOR: P/CP

TASK ELEMENTS:

| 20.4.6.1 | 20.4.6.2 | 20.4.6.3 | 20.4.6.4 |
| 20.4.6.5 | 20.4.6.6 | 20.4.6.7 | 20.4.6.8 |
| 20.4.6.9 | 20.4.6.10 | 20.4.6.11 | 20.4.6.12 |
| 20.4.6.13 | 20.4.6.14 | 20.4.6.15 | 20.4.6.16 |
DEPRESS ENGINE FIRE SWITCHLIGHT FOR AFFECTED ENGINE

ENGINE FIRE SWITCHLIGHT 4 = 'ENG FIRE'
AND PILOT ICS = FIRE TONE

DEPRESS
ENGINE FIRE SWITCHLIGHT 4
ENGINE FIRE SWITCHLIGHT 4 = DEPRESSED*

SET AGENT DISCH SWITCH TO MAIN FOR AFFECTED ENGINE

CHECKLIST = SEQUENCE
SET
R AGENT DISCH SWITCH
R AGENT DISCH SWITCH = MAIN*
AND R MAIN AGENT DISCHARGE LIGHT = *MAIN AGENT DISC

SET ENGINE START SWITCH TO OFF FOR AFFECTED ENGINE

CHECKLIST = SEQUENCE
SET
ENGINE START SWITCH 4
ENGINE START SWITCH 4 = OFF

MAINTAIN AIR VEHICLE ATTITUDE & AIRSPEED WITHIN SAFE LIMITS

CHECKLIST = SEQUENCE
FLY
A-V
VSD = TBD
AND AIRSPEED-MACH NUMBER INDICATOR= TBD

DEPRESS MASTER AUDIO CUTOUT PUSHBUTTON

CHECKLIST = SEQUENCE
DEPRESS
MSTR AUDIO CUTOUT
MSTR AUDIO CUTOUT = DEPRESSED*
20.4.6.006.00*
*SET SAME AGENT DISCH SWITCH TO RES FOR AFFECTED ENGINE*

**ENGINE FIRE SWITCHLIGHT 4** = 'ENG FIRE'*

**SET**
**R AGENT DISCH SWITCH**
**R AGENT DISCH SWITCH** = RES
**AND R RES AGENT DISCHARGE LIGHT** = 'RES AGENT DISCH'

20.4.6.007.00*
*DEPRESS PREPARE TO EJECT SWITCHLIGHT*

**ENGINE FIRE SWITCHLIGHT 4** = 'ENG FIRE'

**DEPRESS**
**PREPARE TO EJECT**
**PREPARE TO EJECT SWITCHLIGHT** = ON

20.4.6.008.00*
*ADVISE CREWMEMBERS OF DECISION TO EJECT*

**ENGINE FIRE SWITCHLIGHT 4** = 'ENG FIRE'

**COMMUNICATE**
**PILOT ICS**
**PILOT ICS** = PREPARE TO EJECT

20.4.6.009.00*
*COMPLETE 'BEFORE EJECTION' CHECKLIST*

**CHECKLIST** = SEQUENCE

**PERFORM**
**CHECKLIST**
**CHECKLIST** = PERFORMED *

20.4.6.010.00*
*ALL CREW MEMBERS EJECT*

**PREPARE TO EJECT SWITCHLIGHT** = ON
**AND PILOT ICS** = PREPARE TO EJECT
**AND CHECKLIST** = PERFORMED

**PULL**
**EJECTION HANDLE**
**EJECTION HANDLE** = PULLED*

20.99
20.4.6.011.00*  
ADJUST POWER LEVEL ON GOOD ENGINES AS DESIRED

ENGINE START SWITCH 4 = OFF*
AND RES AGENT DISCHARGE LIGHT = RES AGENT DISCH

ADJUST
THROTTLE LEVER 1
THROTTLE LEVER 2
THROTTLE LEVER 3

THROTTLE LEVER 1 = TBD
AND THROTTLE LEVER 2 = TBD
AND THROTTLE LEVER 3 = TBD

20.4.6.012.00*  
SET ENG BLEED AIR SWITCH TO OFF FOR AFFECTED ENGINE

CHECKLIST = SEQUENCE
SET
ENG BLEED AIR SWITCH 4
ENG BLEED AIR SWITCH 4 = OFF

20.4.6.013.00*  
DUMP FUEL AS REQUIRED

CHECKLIST = SEQUENCE
SET
DUMP SWITCH
DUMP SWITCH = DUMP

20.4.6.014.00*  
LAND AS SOON AS POSSIBLE

CHECKLIST = SEQUENCE
LAND
A-V
A-V = LANDED
OBJECTIVE: PERFORM APU FIRE DURING FLIGHT PROCEDURES

CRITICALITY: 3  DIFFICULTY: 2

INITIAL CONDITIONS: 1. Illumination of APU fire switchlight

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Airspeed - TBD ($\pm$ kts).
2. Altitude - TBD ($\pm$ ft).
3. Proper sequence.
4. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when an APU fire switchlight is depressed, it latches mechanically in that position, shutting off the respective APU firewall fuel valve and arming the corresponding extinguishing system.

2. Recall that illumination of either APU switchlight also triggers a master aural tone in the crew headsets.

3. Recall that momentary selection of the appropriate AGENT DISCH switch to MAIN or RES will direct extinguishing agent from the main or reserve reservoir to the APU compartment as determined by the actuated APU FIRE switchlight.

4. Recall that the agent discharge light will illuminate when the extinguishing agent reservoir has been discharged.

5. Recall that actuation of the APU mode switch to OFF provides an electric signal to the APU control system to shut down the APU, but it leaves the inlet and exhaust doors open.

6. Coordinate control stick and rudder pedals to maintain air vehicle attitude and airspeed within safe limits.

7. Recall that the reserve extinguishing agent should not be discharged until waiting approximately 30 seconds for the engine fire switchlight to go out.

8. Recall that the A/V should be landed as soon as practical if there is confirmation that the fire has been extinguished.
ENABLING OBJECTIVES: (continued)

9. Recall that when the PREP TO EJECT switchlight is depressed, all four switchlights illuminate.

10. Recall that the crewmembers should eject from the A/V if fire is confirmed and continues.

11. Recall the procedures for ejecting from the A/V.

12. Recall that the ejection seat handle should be pulled and the trigger squeezed to eject the seat.

ANCILLARY OBJECTIVES:

1. Recall that switchlights on the left and right sides of the FIRE WARN & EXTG panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.

2. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTG panel will cause a depressed switchlight to return to its un-actuated position.

3. Recall that the master warning audio tone will continue to sound until the situation has been corrected, or either MSTR AUDIO CUTOUT button has been depressed.

4. Recall that when an APU FIRE switchlight is depressed, and the appropriate AGENT DISCH switch is actuated, extinguishing agent will be directed simultaneously into the APU compartment and the outboard Engine and ADG compartment next to the affected APU.

5. Recall that the agent discharge light will be extinguished 15 to 30 seconds after illumination.

6. Recall that the APU mode switch must be pulled out in order to reposition it to the OFF position.

7. Recall that the general audio alarm will be activated, and an intermittent bell tone will sound over the intercom, when the PREP TO EJECT switchlight is depressed.

8. Recall that the "Before Ejection" checklist should be accomplished if time and/or conditions permit.

9. Recall that injury could occur if the crew member is not in a firm upright position, with head against headrest and arms on seat armrests, when ejection is initiated.
OPERATOR: P/CP

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20.4.7.001.00  DEPRESS APU FIRE SWITCHLIGHT FOR AFFECTED APU
                    R APU FIRE SWITCHLIGHT = 'APU FIRE'
                    AND PILOT ICS = FIRE TONE

DEPRESS
                    R APU FIRE SWITCHLIGHT
                    R APU FIRE SWITCHLIGHT = DEPRESSED*

20.4.7.002.00  SET AGENT DISCH SWITCH TO MAIN FOR AFFECTED APU

CHECKLIST = SEQUENCE

SET
                    R AGENT DISCH SWITCH
                    R AGENT DISCH SWITCH = MAIN*
                    AND R MAIN AGENT DISCHARGE LIGHT = 'MAIN AGENT DISC'

20.4.7.003.00  SET APU MODE SWITCH TO OFF FOR AFFECTED APU*

CHECKLIST = SEQUENCE

SET
                    MODE SWITCHES
                    MODE SWITCHES = OFF*
                    AND R RUN LIGHT = OFF

20.4.7.004.00  MAINTAIN AIR VEHICLE ATTITUDE & AIRSPEED WITHIN SAFE LIMITS

CHECKLIST = SEQUENCE

FLY
                    A-V
                    VSD = TBD
                    AND AIRSPEED-MACH NUMBER INDICATOR= TBD

20.4.7.005.00  DEPRESS MASTER AUDIO CUTOUT PUSHBUTTON

CHECKLIST = SEQUENCE

DEPRESS
                    MSTR AUDIO CUTOUT
                    MSTR AUDIO CUTOUT = DEPRESSED
20.4.7.006.00

SET SAME AGENT DISCH SWITCH TO RES FOR AFFECTED APU

R APU FIRE SWITCHLIGHT = *APU FIRE**

SET

R AGENT DISCH SWITCH

R AGENT DISCH SWITCH = RES

AND R RES AGENT DISCHARGE LIGHT = *RES AGENT DISCH

20.4.7.008.00

DEPRESS PREPARE TO EJECT SWITCHLIGHT

APU FIRE SWITCHLIGHT = *APU FIRE*

DEPRESS

PREPARE TO EJECT

PREPARE TO EJECT SWITCHLIGHT = ON

20.4.7.009.00

ADVISE CREWMEMBERS OF DECISION TO EJECT

APU FIRE SWITCHLIGHT = *APU FIRE*

COMMUNICATE

PILOT ICS

PILOT ICS = PREPARE TO EJECT

20.4.7.010.00

COMPLETE *BEFORE EJECTION* CHECKLIST*

CHECKLIST = SEQUENCE

PERFORM

CHECKLIST = PERFORMED*

20.4.7.011.00

ALL CREW MEMBERS EJECT

PREPARE TO EJECT SWITCHLIGHT = ON

AND PILOT ICS = PREPARE TO EJECT

AND CHECKLIST = PERFORMED

PULL

EJECTION HANDLE = PULLED*
OBJECTIVE: PERFORM LOW OIL PRESSURE/QUANTITY PROCEDURES

CRITICALITY: 2  DIFFICULTY: 1

INITIAL CONDITIONS: 1. Engine oil pressure/quantity caution light illuminates.
2. ENG legend light on flight station caution panel illuminates.
3. Both MASTER CAUTION switchlights illuminate.

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Airspeed - TBD (+ kts).
2. Altitude - TBD (- ft).
3. Proper sequence.
4. Switches in proper positions.

ENABLING OBJECTIVES:

1. Coordinate control stick and rudder pedals to maintain air vehicle attitude and airspeed, within safe limits.
2. Recall that by depressing either MASTER CAUTION switchlight both MASTER CAUTION lights and the ENG caution light will be extinguished, but the engine oil pressure/quantity will remain illuminated.
3. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.
4. Recall that power on the operating engines should be adjusted so as to maintain the recommended speed with one engine failed.
5. Recall that the air vehicle should be retrimmed and landed as soon as practical after an engine has been shut down.

ANCILLARY OBJECTIVES:

1. Recall that the oil pressure/quantity caution light will be energized when oil pressures falls below 10 PSI or oil quantity falls below 30 percent of reservoir capacity.
2. Recall that the throttle on the affected engine should be set to idle if the engine shutdown is required.
ANCILLARY OBJECTIVES: (continued)

3. Recall that selection of the engine start switch to OFF will drive the engine power lever to off independently of flight station throttle control lever position.

4. Recall that the engine fire button will perform the same function as turning the engine start switch to OFF, but damage may be done to the engine fuel pump and, thereby, prevent subsequent engine start.

OPERATOR: P/CP

TASK ELEMENTS: 20.4.8.1  20.4.8.5

20.4.8.2  20.4.8.6
20.4.8.3  20.4.8.7
20.4.8.4
20.4.8.001.00*

**MAINTAIN AIR VEHICLE ATTITUDE & AIRSPEED WITHIN SAFE LIMITS**

- #4 ENG OIL PRESS CAUTION LIGHT = ON
- AND ENGINE DIRECTOR CAUTION LIGHT = 'ENG'
- AND MASTER CAUTION SWITCHLIGHTS = ON

**FLY**

- VSD = TBD
- AND AIRSPEED-MACH NUMBER INDICATOR = TBD

20.4.8.002.00*

**DEPRESS MASTER CAUTION SWITCHLIGHT**

- ENGINE DIRECTOR CAUTION LIGHT = 'ENG'
- AND MASTER CAUTION SWITCHLIGHTS = ON
- AND #4 ENG OIL PRESS CAUTION LIGHT = ON

**DEPRESS**

- MASTER CAUTION SWITCHLIGHT-COP
- MASTER CAUTION SWITCHLIGHT-COP = OFF
- AND ENGINE DIRECTOR CAUTION LIGHT = OFF

20.4.8.003.00*

**THROTTLE ON AFFECTED ENGINE TO IDLE**

**CHECKLIST** = SEQUENCE

**ADJUST**

- #4 THROTTLE LEVER
- #4 THROTTLE LEVER = IDLE

20.4.8.004.00*

**SET ENG START-RUN SWITCH ON AFFECTED ENGINE TO OFF**

- #4 THROTTLE LEVER = IDLE

**SET**

- ENGINE 4 START SWITCH
- ENGINE 4 START SWITCH = OFF

20.4.8.005.00*

**ADJUST POWER LEVEL**

**CHECKLIST** = SEQUENCE

**ADJUST**

- #1 THROTTLE LEVER
- #2 THROTTLE LEVER
- #3 THROTTLE LEVER
- #1 THROTTLE LEVER = TBD
- AND #2 THROTTLE LEVER = TBD
- AND #3 THROTTLE LEVER = TBD
20.4.8.006.00*

**RETRIM A-V TO MAINTAIN DESIRED FLIGHT ATTITUDE AND AIRSPEED**

**CHECKLIST**

**ADJUST**

PLT TRIM SW (ON CTRL STICK)
PILGT YAW SWITCH

FLIGHT CONTROL STICK
AND RUDDER PEDALS

= SEQUENCE

= NEUTRAL PRESSURE
= NEUTRAL PRESSURE

20.4.8.007.00*

**LAND AS SOON AS PRACTICABLE**

**CHECKLIST**

**LAND**

A-V

A-V

= LANDED
OBJECTIVE: PERFORM EXCESSIVE ENGINE VIBRATION PROCEDURES

CRITICALITY: 3    DIFFICULTY: 1

INITIAL CONDITIONS: 1. VIB HIGH caution light illuminates.

2. Both MASTER CAUTION switchlights illuminate

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Airspeed - TBD (± kts)

2. Altitude - TBD (- ft)

3. Proper sequence

4. Switches in proper positions.

ENABLING OBJECTIVES:

1. Coordinate control stick and rudder pedals to maintain air vehicle attitude and airspeed within safe limits.

2. Recall that the throttle on the affected engine should be retarded to idle to see if the VIB HIGH caution light goes out.

3. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights will be extinguished and the VIB HIGH caution light will change from flashing to steady.

4. Recall that the engine start switch must be pulled out in order to reposition it to the OFF position.

5. Recall that power on the operating engines should be adjusted so as to maintain the recommended speed, with one engine failed.

6. Recall that the air vehicle should be retrimmed and landed as soon as practical after an engine has been shut down.

ANCILLARY OBJECTIVES:

1. Recall that the engine VIB HIGH caution light will be energized when measured vibration of the respective engine exceeds preset limits.

2. Recall that the throttle on the affected engine should be set to idle if engine shutdown is required.

3. Recall that selection of the engine start switch to OFF will drive the engine power lever to off, independently of flight station throttle control lever position.
ANCILLARY OBJECTIVES: (continued)

4. Recall that the engine fire button will perform the same function as turning the engine start switch to OFF, but damage may be done to the engine fuel pump and, thereby, prevent subsequent engine start.

OPERATOR: P/CP

TASK ELEMENTS: 20.4.9.1 20.4.9.5
20.4.9.2 20.4.9.6
20.4.9.3 20.4.9.7
20.4.9.4
20.4.9.001.00*  
MAINTAIN AIR VEHICLE ATTITUDE & AIRSPEED WITHIN SAFE LIMITS

VIB HIGH ANNUNCIATOR-ENG #4 = '4 VIB HIGH'
AND MASTER CAUTION SWITCHLIGHTS = ON

FLY
A-V
VSD = TBD
AND AIRSPEED-MACH NUMBER INDICATOR = TBD

20.4.9.002.00*  
THROTTLE ON AFFECTED ENGINE TO IDLE

CHECKLIST = SEQUENCE

ADJUST
#4 THROTTLE LEVER
#4 THROTTLE LEVER = IDLE*

20.4.9.003.00*  
DEPRESS MASTER CAUTION SWITCHLIGHT

VIB HIGH ANNUNCIATOR-ENG #4 = '4 VIB HIGH'
AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS
MASTER CAUTION SWITCHLIGHT-COP
MASTER CAUTION SWITCHLIGHT-COP = OFF*
AND VIB HIGH ANNUNCIATOR-ENG #4 = '4 VIB HIGH'

20.4.9.004.00*  
SET ENG START-RUN SWITCH ON AFFECTED ENGINE TO OFF

#4 THROTTLE LEVER = IDLE
AND VIB HIGH ANNUNCIATOR-ENG #4 = '4 VIB HIGH'

SET
ENGINE 4 START SWITCH
ENGINE 4 START SWITCH = OFF

20.4.9.005.00*  
ADJUST POWER LEVEL

CHECKLIST = SEQUENCE

ADJUST
#1 THROTTLE LEVER
#2 THROTTLE LEVER
#3 THROTTLE LEVER
#1 THROTTLE LEVER = TBD
AND #2 THROTTLE LEVER = TBD
AND #3 THROTTLE LEVER = TBD

20.112
20.4.9.006.00*

**RETRIM A–V TO MAINTAIN DESIRED FLIGHT ATTITUDE AND AIRSPEED**

CHECKLIST = SEQUENCE

| ADJUST | PLT TRIM SW (ON CONTR STICK) |
| PILOT YAW SWITCH |
| FLIGHT CONTROL STICK |
| AND RUDDER PEDALS |

= NEUTRAL PRESSURE |
= NEUTRAL PRESSURE

20.4.9.007.00*

**LAND AS SOON AS PRACTICABLE**

CHECKLIST = SEQUENCE

| LAND |
| A–V |
| A–V |

= LANDED
OBJECTIVE: PERFORM FUEL TANKS 1 AND 4 WILL NOT TRANSFER TO MAIN TANKS PROCEDURES

CRITICALITY: 3    DIFFICULTY: 2

INITIAL CONDITIONS: 1. Tanks 1 and 4 will not transfer to the main tanks.
2. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both
   MASTER CAUTION lights will be extinguished.

2. Recall that the open position is the normal operating position for
   the main fill valve switches.

3. Recall that the ballast tank isolation switch in the open position
   provides for manual control to feed ballast tanks fuel to the engines.

4. Recall that when a fill valve switch other than for the main tanks is
   in OPEN, the automatic fuel sequence is overridden.

5. Recall that when a transfer pump switch is set to ON, the selected
   tank's pumps are activated and the automatic fuel sequencing is overridden.

6. Recall that the rotary select tank switch is used to select the tank
   quantities to be read on the digital displays.

7. Recall that the fuel quantity in tanks 1 and 4 should decrease and the
   fuel quantity in the left and right main tanks should increase.

8. Recall that when a transfer pump switch is set to AUTO, the pump is turned
   on and off automatically to maintain proper positioning of the air vehicle's
   center of gravity.

9. Recall that when a fill valve switch is in AUTO, automatic control of the fill
   valve is provided, as required by the CG control of ballast tanks 1 and 4.

10. Recall that the ballast tank isolation switch is normally in AUTO, which
    provides automatic control of the isolation valve during aerial refueling,
    and transfer sequencing.
ANCILLARY OBJECTIVES:

1. Recall that the main fill valve switches provide for closing the fill valves in case of serious tank leakage, or to otherwise prevent fuel from transferring into the main tanks.

2. Recall that when the ballast tank isolation switch is in CLOSE, automatic control of the isolation valve is overridden and the forward and aft tanks are isolated from the engine feed fuel transfer system.

3. Recall that there are no controls for the boost pumps in the main tanks, because the pumps run continuously.

4. Recall that a single selection of the rotary tank switch simultaneously displays the sequence pair tank quantities in the digital readouts.

5. Recall that when a transfer pump switch is in AUTO, the pumps are turned off when the selected tanks are empty.

6. Recall that when a fill valve switch is in CL, fuel transfer into the selected tank is prevented and the auto control system is overridden.

OPERATOR: P/CP

TASK ELEMENTS:

20.5.1.1  20.5.1.5  20.5.1.9  20.5.1.13
20.5.1.2  20.5.1.6  20.5.1.10  20.5.1.14
20.5.1.3  20.5.1.7  20.5.1.11  20.5.1.15
20.5.1.4  20.5.1.8  20.5.1.12  20.5.1.16
20.5.1.001.00*  
**DEPRESS MASTER CAUTION SWITCHLIGHT**

#1 TANK TRANSFER SWITCH = TRANSFER*  
AND #4 TANK TRANSFER SWITCH = TRANSFER  
AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS  
MASTER CAUTION SWITCHLIGHT - CUP  
MASTER CAUTION SWITCHLIGHT - COP = OFF

20.5.1.002.00*  
**CHECK L AND R MAIN FILL VALVE SWITCHES ARE OPEN**

CHECKLIST = SEQUENCE

CHECK  
L MAIN FILL VALVE SWITCH  
R MAIN FILL VALVE SWITCH

L MAIN FILL VALVE SWITCH = OPEN  
AND R MAIN FILL VALVE SWITCH = OPEN

20.5.1.003.00*  
**SET BLST TK ISLN SWITCH TO OPEN**

CHECKLIST = SEQUENCE

SET  
BALLAST TANK ISOLATION SWITCH

BALLAST TANK ISOLATION SWITCH = OPEN

20.5.1.004.00*  
**SET TANKS NO. 2 AND NO. 3 FILL VALVE SWITCHES TO OPEN**

CHECKLIST = SEQUENCE

SET  
#2 FILL VALVE SWITCH  
#3 FILL VALVE SWITCH

#2 FILL VALVE SWITCH = OPEN  
AND #3 FILL VALVE SWITCH = OPEN

20.5.1.005.00*  
**SET TANK NO. 1 TRANSFER PUMP SWITCH TO ON**

CHECKLIST = SEQUENCE

SET  
#1 TANK TRANSFER SWITCH

#1 TANK TRANSFER SWITCH = ON
20.5.1.006.00* SET TANK NO. 2 TRANSFER PUMP SWITCH TO ON

CHECKLIST = SEQUENCE

SET
#2 TANK TRANSFER SWITCH
#2 TANK TRANSFER SWITCH = ON

20.5.1.007.00* SET TANK NO. 4 TRANSFER PUMP SWITCH TO ON

CHECKLIST = SEQUENCE

SET
#4 TANK TRANSFER SWITCH
#4 TANK TRANSFER SWITCH = ON

20.5.1.008.00* SET TANK NO. 3 TRANSFER PUMP SWITCH TO ON

CHECKLIST = SEQUENCE

SET
#3 TANK TRANSFER SWITCH
#3 TANK TRANSFER SWITCH = ON

20.5.1.009.00* SET SELECT TANK SWITCH TO MAIN TANKS

CHECKLIST = SEQUENCE

SET
SELECT TANK SWITCH
SELECT TANK SWITCH = MAIN

20.5.1.010.00* MONITOR FUEL QUANTITY IN FUEL TANKS NO. 1 AND NO. 4

CHECKLIST = SEQUENCE

MONITOR-VISUAL
FUS #1 QTY TAPE INDICATOR
FUS #4 QTY TAPE INDICATOR
FUS #1 QTY TAPE INDICATOR = TBD
AND FUS #4 QTY TAPE INDICATOR = TBD

20.5.1.011.00* SET TANK NO. 3 TRANSFER PUMP SWITCH TO AUTO

CHECKLIST = SEQUENCE

SET
#3 TANK TRANSFER SWITCH
#3 TANK TRANSFER SWITCH = AUTO
20.5.1.012.00* SET TANK NO. 4 TRANSFER PUMP SWITCH TO AUTO

CHECKLIST = SEQUENCE

SET
#4 TANK TRANSFER SWITCH
#4 TANK TRANSFER SWITCH = AUTO

20.5.1.013.00* SET TANK NO. 2 TRANSFER PUMP SWITCH TO AUTO

CHECKLIST = SEQUENCE

SET
#2 TANK TRANSFER SWITCH
#2 TANK TRANSFER SWITCH = AUTO

20.5.1.014.00* SET TANK NO. 1 TRANSFER PUMP SWITCH TO AUTO

CHECKLIST = SEQUENCE

SET
#1 TANK TRANSFER SWITCH
#1 TANK TRANSFER SWITCH = AUTO

20.5.1.015.00* SET TANKS NO. 2 AND NO. 3 FILL VALVE SWITCHES TO AUTO

CHECKLIST = SEQUENCE

SET
#2 FILL VALVE SWITCH
#3 FILL VALVE SWITCH
#2 FILL VALVE SWITCH = AUTO
AND #3 FILL VALVE SWITCH = AUTO

20.5.1.016.00* SET BALLIST TK ISLH SWITCH TO AUTO

CHECKLIST = SEQUENCE

SET
BALLAST TANK ISULATION SWITCH
BALLAST TANK ISULATION SWITCH = OPEN
OBJECTIVE: PERFORM FUEL COOLING LOOP RETURN FAILURE PROCEDURES

CRITICALITY: 2 DIFFICULTY: 1

INITIAL CONDITIONS: 1. Illumination of the FUEL CLG LOOP RTN caution light.
   2. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
   2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both
   MASTER CAUTION lights will be extinguished and the FUEL CLG LOOP RTN
   light changes from flashing to steady.

2. Recall that when the fuel cooling loop return switch is in OPEN, the
   relief valves in the cooling loop return lines to the main tanks are
   bypassed.

3. Recall that the OIL HOT caution lights may illuminate because of a
   fuel cooling loop return failure.

ANCILLARY OBJECTIVES:

1. Recall that the FUEL CLG LOOP RTN caution light illuminates when the
   fuel cooling loop return valve fails to open automatically, or when the
   fuel flow to any engine is below a preset valve.

2. Recall that the FUEL CLG LOOP RTN caution light goes out when the fuel
   cooling loop return switch is in the open position.

3. Recall that the Fuel CLG LOOP RTN caution light may go out if the engine
   power setting is increased to raise fuel flow.

4. Recall that if engine fuel flows above 1800 lbs per hour, the fuel cooling
   loop return switch should be placed in NORM.

5. Recall that the OIL HOT caution light will illuminate if the respective
   engine oil temperature exceeds 300F.

6. Recall that to reduce oil temperature on the affected engine, the throttle
   should be advanced to increase fuel flow through the oil fuel cooler.
ANCILLARY OBJECTIVES:  (continued)

7. Recall that if the OIL HOT caution light stays on for two minutes, the throttle should be retarded to idle and oil pressure monitored.

8. Recall that if the OIL HOT caution light stays on for ten seconds after the throttle has been set to idle, the engine should be shutdown.

OPERATOR:  P/CP

TASK ELEMENTS:  20.5.2.1
20.5.2.2
20.5.2.3
20.5.2.001.00*

**DEPRESS MASTER CAUTION SWITCHLIGHT**

FUEL COOLING LOOP RETURN LIGHT = FUEL CLG LOOP R*
AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS

MASTER CAUTION SWITCHLIGHT-COP

MASTER CAUTION SWITCHLIGHT-LOP = OFF
AND MASTER CAUTION SWITCHLIGHT-PIL = OFF

20.5.2.002.00*

**SET FUEL COOLING LOOP RETURN SWITCH TO OPEN**

CHECKLIST = SEQUENCE

SET

FUEL COOLING LOOP RETURN SW

FUEL COOLING LOOP RETURN SW = OPEN*

20.5.2.003.00*

**MONITOR OIL HOT CAUTION LIGHTS**

FUEL COOLING LOOP RETURN LIGHT = FUEL CLG LOOP R*

MONITOR-VISUAL

OIL HOT ANNUNCIATORS

OIL HOT ANNUNCIATORS = ON*
OBJECTIVE: PERFORM FUEL COOLING LOOP CROSSOVER FAILURE PROCEDURES

CRITICALITY: 2  DIFFICULTY: 1

INITIAL CONDITIONS:
1. Illumination of the Fuel CLG LOOP CRSVR caution light.
2. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS:
1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights will be extinguished and the FUEL CLG LOOP CRSVR light will change from flashing to steady.

2. Recall that when the fuel cooling loop crossover switch is in OPEN, either the left or right fuel cooling loops supplies cooling fuel flow to both loops.

3. Recall that the FUEL CLG LOOP RTN caution light goes out when the fuel cooling loop return switch is in the open position.

4. Recall that reducing airspeed below 370 KIAS allows the fuel cooling ram air scoops to remain open.

ANCILLARY OBJECTIVES:

1. Recall that the FUEL CLG LOOP CRSVR caution light illuminates when the pressure rise across either the left or right cooling loop fuel pumps falls below a preset level, and the fuel cooling loop crossover valve fails to open automatically.

2. Recall that the FUEL CLG LOOP CRSVR caution light goes out when the fuel cooling loop crossover switch is in the open position.

3. Recall that with the fuel cooling ram air scoops open, a fuel-to-air heat exchanger cools the fuel before returning it to the tank.
OPERATOR: P/CP

TASK ELEMENTS: 20.5.3.1  20.5.3.3
                 20.5.3.2  20.5.3.4
DEPRESS MASTER CAUTION SWITCHLIGHT

FUEL COOLING LOOP CROSSOVER LT= 'FUEL CLG LOOP C*' AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS MASTER CAUTION SWITCHLIGHT-COP

MASTER CAUTION SWITCHLIGHT-COP = OFF AND MASTER CAUTION SWITCHLIGHT-PIL = OFF

SET FUEL COOLING LOOP CROSSOVER SWITCH TO OPEN

CHECKLIST = SEQUENCE

SET COOLING FUEL LOOP CROSSOVER SW

COOLING FUEL LOOP CROSSOVER SW = OPEN

SET FUEL COOLING LOOP RETURN SWITCH TO OPEN

FUEL COOLING LOOP CROSSOVER LT= 'FUEL CLG LOOP C'

SET FUEL COOLING LOOP RETURN SW

FUEL COOLING LOOP RETURN SW = OPEN

REDUCE AIRSPEED BELOW 370 KIAS

CHECKLIST = SEQUENCE

FLY A-V

AIRSPEED-MACH NUMBER INDICATOR< 370
OBJECTIVE: PERFORM FUEL COOLING LOOP RAM AIR SCOOP SYSTEM FAILURE PROCEDURES

CRITICALITY: 2          DIFFICULTY: 1

INITIAL CONDITIONS: 1. Illumination of the FUEL CLG SCOOP caution light.
2. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights will be extinguished and the FUEL CLG SCOOP light will change from flashing to steady.

2. Recall that if airspeed is above 370 KIAS and the FUEL CLG SCOOP light illuminates, the scoop has failed open.

3. Recall that fuel flow should be increased to above 17,400 lbs per hour, if the airspeed is below 370 KIAS, and the FUEL CLG SCOOP light illuminates because the scoop has failed closed.

4. Recall that the air vehicle should be landed as soon as practical, if the fuel cooling scoop has failed closed.

ANCILLARY OBJECTIVES:

1. Recall that prolonged flying at fuel flows below 17,400 lbs per hour, per nacelle, with the fuel cooling scoop failed closed, may lead to high engine oil temperatures.

2. Recall that if the fuel cooling scoops remain open after take-off, abort the mission and return to base.

OPERATOR: P/CP

TASK ELEMENTS: 20.5.4.1  20.5.4.3
20.5.4.2  20.5.4.4

20.125
DEPRESS MASTER CAUTION SWITCHLIGHT

FUEL COOLING SCOOP \( C = \) *FUEL CLG SCOOP*
AND MASTER CAUTION SWITCHLIGHTS \( = \) ON

DEPRESS

MASTER CAUTION SWITCHLIGHT-CUP

MASTER CAUTION SWITCHLIGHT-CUP \( = \) OFF
AND MASTER CAUTION SWITCHLIGHT-PILOT \( = \) OFF

REDUCE AIRSPEED BELOW 370 KIAS*

CHECKLIST \( = \) SEQUENCE
FLY
A-V
AIRSPEED-MACH NUMBER INDICATOR \( < 370 \)

INCREASE FUEL FLOW TO ABOVE 17500 PER HOUR PER NACELLE*

CHECKLIST \( = \) SEQUENCE
ADJUST

#3 THROTTLE LEVER
#4 THROTTLE LEVER
FUEL FLOW INDICATOR-TAPE 3 \( > \) TBD*
AND FUEL FLOW INDICATOR-TAPE 4 \( > \) TBD

LAND AS SOON AS PRACTICAL*

CHECKLIST \( = \) SEQUENCE
LAND
A-V
A-V \( = \) LANDED
OBJECTIVE: PERFORM FUEL SYSTEM OPERATION DURING EMERGENCY GENERATOR OPERATION

CRITICALITY: 2  DIFFICULTY: 1

INITIAL CONDITIONS:
1. Generator off lights illuminate.
2. ELEC legend light on flight station caution panel illuminates.
3. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS:
1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:
1. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights and the ELEC caution light will be extinguished, but the generator off lights will remain illuminated.
2. Recall that when a transfer pump switch is set to AUTO, the pump is turned on and off automatically to maintain proper positioning of the air vehicle's center of gravity.
3. Recall that with a transfer pump switch in OFF, the selected tank's transfer pumps are deactivated.
4. Recall that when a fill valve switch is set to CL, fuel transfer into the selected tank is prevented.
5. Recall that when a transfer pump switch is set to ON, the selected tank's pumps are activated and the automatic fuel sequencing is overridden.

ANCILLARY OBJECTIVES:
1. Recall that when all the primary generators have failed, the three generator off lights will be illuminated.
2. Recall that when the emergency generator is on, the EMERG GEN ON light is illuminated.
3. Recall that with all primary generators off and the emergency generator on, only one fuel transfer pump will operate at a time.
ANCILLARY OBJECTIVES: (continued)

4. Recall that when a transfer pump switch is in AUTO, the pumps are turned off when the selected tanks are empty.

5. Recall that the fuel transfer pump switches are turned off if manual control of fuel transfer is desired.

6. Recall that when a fill valve switch is in CL, the auto fuel control system is overridden.

7. Recall that fuel may be transferred selectively, by manually positioning the selected tank fuel transfer pump switch on and when the transfer is complete, returning the switch to off.

8. Recall that only one fuel transfer pump can be on at any given time, or all transfer pumps will automatically shut off.

OPERATOR: P/CP

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</table>
20.5.5.001.00* **DEPRESS MASTER CAUTION SWITCHLIGHT**

- GENERATOR OFF LIGHTS = ON*
- AND ELECTRICAL CAUTION LIGHT = 'ELEC'
- AND MASTER CAUTION SWITCHLIGHTS = ON

**DEPRESS MASTER CAUTION SWITCHLIGHT-CUP**

- MASTER CAUTION SWITCHLIGHT-CUP = OFF
- AND MASTER CAUTION SWITCHLIGHT-PIL = OFF
- AND ELECTRICAL CAUTION LIGHT = OFF

20.5.5.002.00* **CHECK FUEL TRANSFER PUMP SWITCHES IN AUTO**

**CHECKLIST** = SEQUENCE

**CHECK**

- TRANSFER PUMP SWITCHES
- TRANSFER PUMP SWITCHES = AUTO*

20.5.5.003.00* **SET FUEL TRANSFER PUMP SWITCHES TO OFF**

**CHECKLIST** = SEQUENCE

**SET**

- TRANSFER PUMP SWITCHES
- TRANSFER PUMP SWITCHES = OFF*

20.5.5.004.00* **SET FUEL FILL VALVE SWITCHES TO CLOSED**

**CHECKLIST** = SEQUENCE

**SET**

- FILL VALVE SWITCHES
- FILL VALVE SWITCHES = CL

20.5.5.005.00* **SELECTIVELY SET TRANSFER PUMP SWITCH TO ON AND RETURN TO OFF**

**CHECKLIST** = SEQUENCE

**SET**

- #4 TANK TRANSFER SWITCH
- #4 TANK TRANSFER SWITCH = ON*
- AND #4 TANK TRANSFER SWITCH = OFF
OBJECTIVE: PERFORM SINGLE GENERATOR FAILURE PROCEDURES

CRITICALITY: 2    DIFFICULTY: 1

INITIAL CONDITIONS: 1. 1 GEN caution light illuminates.
2. ELEC legend light on flight station caution panel illuminates.
3. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights and the ELEC caution light will be extinguished, but the 1 GEN light will remain illuminated.

2. Recall that the RESET/OFF mode electrically disconnects the respective generator from the line, and resets the system for another attempt to reconnect the generator to the line.

3. Recall that the Voltage/Frequency rotary switch provides for the selection of a generator for a readout of voltage and frequency on adjacent gages.

4. Recall that flight should be continued in spite of the following failure conditions:
   a. any single generator,
   b. GEN No. 1 and BT No. 2,
   c. GEN No. 2 or 3 and BT No. 1.

5. Recall that the A/V should be landed as soon as practical, for the following failure situations:
   a. GEN No. 1 and BT No. 2,
   b. Both bus ties and GEN No. 1 or 2.
ENABLING OBJECTIVES: (continued)

6. Recall that the A/V should be landed as soon as possible, for the following failure situations:
   a. GEN No. 3 and BT No. 2,
   b. GEN No. 3 and both bus ties.

ANCILLARY OBJECTIVES:

1. Recall that the procedures for a single generator failure also apply when one or both bus ties fail, in addition to a single generator failure.
2. Recall that the generator should not be reset if the associated CSD light is illuminated.
3. Recall that the switch for a failed generator should not be returned to ON, until after a pause for a minimum of one second in the RESET/OFF position.
4. Recall that if after three attempts the generator will not reset, the failed generator switch should be turned to RESET/OFF.
5. Recall that the voltage and frequency readings are for phase "A" only.
6. Recall that no corrective action is possible in flight, for a bus tie separation.

OPERATOR: P/CP

TASK ELEMENTS: 20.6.1.1  20.6.1.4
                      20.6.1.2  20.6.1.5
                      20.6.1.3  20.6.1.6

20.131
20.6.1.001.00*

DEPRESS MASTER CAUTION SWITCHLIGHT

#1 GENERATOR CAUTION LIGHT = '1 GEN'*
AND ELECTRICAL CAUTION LIGHT = 'ELEC'
AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS MASTER CAUTION SWITCHLIGHT-CUP

MASTER CAUTION SWITCHLIGHT-CUP = OFF
AND MASTER CAUTION SWITCHLIGHT-PIL = OFF
AND ELECTRICAL CAUTION LIGHT = OFF

20.6.1.002.00*

SET SWITCH FOR FAILED GENERATOR UNIT TO RESET-OFF AND ON

#1 GENERATOR CAUTION LIGHT = '1 GEN'*
AND #1 CSD CAUTION LIGHT = '1 CSD'

SET

#1 GENERATOR MODE SWITCH

#1 GENERATOR MODE SWITCH = RESET-OFF*
AND #1 GENERATOR MODE SWITCH = ON
AND #1 GENERATOR CAUTION LIGHT = OFF

20.6.1.003.00*

SET VOLTAGE-FREQUENCY SELECTOR TO APPLICABLE GENERATOR

CHECKLIST = SEQUENCE

SET

VOLTAGE-FREQ SELECTOR SWITCH

VOLTAGE-FREQ SELECTOR SWITCH = 1 GEN*
AND VOLTAGE METER = TBD
AND FREQUENCY METER = TBD

20.6.1.004.00*

CONTINUE FLIGHT*

CHECKLIST = SEQUENCE

FLY

A-V

A-V = FLIGHT CONTINUED

20.6.1.005.00*

LAND AS SOON AS PRACTICAL*

CHECKLIST = SEQUENCE

LAND

A-V

A-V = LANDED

20.132
LAND AS SOON AS POSSIBLE*

CHECKLIST

A-V

A-V

= SEQUENCE

= LANDED

20.133
OBJECTIVE: PERFORM DOUBLE GENERATOR FAILURE PROCEDURES

CRITICALITY: 2 DIFFICULTY: 2

INITIAL CONDITIONS: 1. 1 GEN caution light illuminates.
2. 2 GEN caution light illuminates.
3. ELEC legend light on flight station caution panel illuminates.
4. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights and the ELEC caution light will be extinguished, but the 1 GEN and 2 GEN lights will remain illuminated.

2. Recall that when the emergency generator switch is turned to ON, the hydraulically-driven emergency generator is started and the essential bus is energized.

3. Recall that with the Voltage/Frequency rotary switch set to ESNTL, the voltage and frequency shown on adjacent gages is for the essential bus.

4. Recall that the RESET/OFF mode electrically disconnects the respective generator from the line, and resets the system for another attempt to reconnect the generator to the lines.

5. Recall that the emergency generator switch should be turned to AUTO when the generators have been reset successfully.

6. Recall that the A/V should be landed as soon as practical, for the following failure situations:
   a. Double generator,
   b. Any two generators and any one bus except the essential bus,
   c. GEN No. 1 and GEN No. 2 and BT No. 1.

7. Recall that the A/V should be landed as soon as possible, for the following failure situations:
   a. Any two generators and both bus ties,
   b. Both GEN No. 1 and 2 and BT No.2,
   c. Both GEN No. 2 and 3 and either bus tie.
ANCILLARY OBJECTIVES:

1. Recall that the procedures for a double generator failure also apply when either bus tie fails in addition to a double generator failure.

2. Recall that when the emergency generator switch is turned to ON, essential bus loads are transferred to the emergency generator and buses 1, 2, 3 and 4 are energized by the remaining primary generator.

3. Recall that the emergency generator advisory light is illuminated, whenever the emergency generator is energized.

4. Recall that the voltage and frequency readings are for phase "A" only.

5. Recall that the generator should not be reset, if the associated CSD light is illuminated.

6. Recall that the switch for a failed generator should not be returned to ON, until after a pause for a minimum of one second in the RESET/OFF position.

7. Recall that if after three attempts the generator will not reset, the failed generator switch should be turned to RESET/OFF.

8. Recall that with the emergency generator switch in AUTO automatic changeover to the emergency generator is provided upon loss of normal power on the essential bus.

OPERATOR: P/CP

TASK ELEMENTS:

20.6.2.1  20.6.2.4  20.6.2.5
20.6.2.2  20.6.2.4.1  20.6.2.6
20.6.2.3  20.6.2.4.2  20.6.2.7
    20.6.2.8
20.6.2.001.00*

DEPRESS MASTER CAUTION SWITCHLIGHT

ELECTRICAL CAUTION LIGHT = 'ELEC'*
AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS

MASTER CAUTION SWITCHLIGHT-COP

MASTER CAUTION SWITCHLIGHT-COP= OFF
AND MASTER CAUTION SWITCHLIGHT-PIL= OFF
AND ELECTRICAL CAUTION LIGHT = OFF

20.6.2.002.00*

SET EMERGENCY GENERATOR SWITCH TO ON

#1 GENERATOR CAUTION LIGHT = '1 GEN'
AND #2 GENERATOR CAUTION LIGHT = '2 GEN'

SET

EMERGENCY GENERATOR CONTROL SW

EMERGENCY GENERATOR CONTROL SW= ON*
AND EMERG GENERATOR ADVISORY LT = 'EMERG GEN UN'

20.6.2.003.00*

SET VOLTAGE-FREQUENCY SELECTOR TO THE ESSENTIAL BUS

CHECKLIST = SEQUENCE

SET

VOLTAGE-FREQ SELECTOR SWITCH

VOLTAGE-FREQ SELECTOR SWITCH = ESNTL BUS
AND VOLTAGE METER = TBD
AND FREQUENCY METER = TBD

20.6.2.004.00*

SET SWITCHES FOR FAILED GENERATORS TO RESET-OFF AND ON

SET

#1 GENERATOR MODE SWITCH
#2 GENERATOR MODE SWITCH

20.6.2.004.01*

SET SWITCH FOR #1 FAILED GENERATOR TO RESET-OFF AND ON

SET

#1 GENERATOR CAUTION LIGHT = '1 GEN'*
AND #1 CSD CAUTION LIGHT = '1 CSD'*

SET

#1 GENERATOR MODE SWITCH

#1 GENERATOR MODE SWITCH = RESET-OFF*
AND #1 GENERATOR MODE SWITCH = ON
AND #1 GENERATOR CAUTION LIGHT = OFF

20.136
20.6.2.004.02*

SET SWITCH FOR #2 FAILED GENERATOR TO RESET-OFF AND ON

#2 GENERATOR CAUTION LIGHT = #2 GEN
AND #2 CSO CAUTION LIGHT = #2 CSO

SET #2 GENERATOR MODE SWITCH

#2 GENERATOR MODE SWITCH = RESET-OFF
AND #2 GENERATOR MODE SWITCH = ON
AND #2 GENERATOR CAUTION LIGHT = OFF

20.6.2.005.00*

SET EMERGENCY GENERATOR SWITCH TO AUTO:

#1 GENERATOR CAUTION LIGHT = OFF
AND #2 GENERATOR CAUTION LIGHT = OFF

SET EMERGENCY GENERATOR CONTROL SW

EMERGENCY GENERATOR CONTROL SW = AUTO

20.6.2.006.00*

SET VOLTAGE-FREQUENCY SELECTOR TO THE ESSENTIAL BUS

#1 GENERATOR CAUTION LIGHT = #1 GEN
AND #2 GENERATOR CAUTION LIGHT = #2 GEN

SET VOLTAGE-FREQ SELECTOR SWITCH

VOLTAGE-FREQ SELECTOR SWITCH = ESNTL BUS
AND VOLTAGE METER = TBD
AND FREQUENCY METER = TBD

20.6.2.007.00*

LAND AS SOON AS PRACTICAL*

CHECKLIST = SEQUENCE

LAND A-V

A-V = LANDED

20.6.2.008.00*

LAND AS SOON AS POSSIBLE*

CHECKLIST = SEQUENCE

LAND A-V

A-V = LANDED

20.137
OBJECTIVE: PERFORM TRIPLE GENERATOR FAILURE PROCEDURES

CRITICALITY: 3  DIFFICULTY: 2

INITIAL CONDITIONS: 1. 1 GEN caution light illuminates.
2. 2 GEN caution light illuminates.
3. 3 GEN caution light illuminates.
4. ELEC legend light on flight station.
5. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights and the ELEC caution light will be extinguished, but the 1 GEN, 2 GEN and 3 GEN lights will remain illuminated.

2. Recall that when the emergency generator switch is turned to ON, the hydraulically-driven emergency generator is started and the essential bus is energized.

3. Recall that with the Voltage/Frequency rotary switch set to ESNTL, the voltage and frequency shown on adjacent gages is for the essential bus.

4. Recall that the RESET/OFF mode, electrically disconnects the respective generator from the line, and resets the system for another attempt to reconnect the generator to the lines.

5. Recall that the emergency generator switch should be turned to AUTO when the generators have been reset successfully.

6. Recall that the A/V should be landed, as soon as possible for the following failure situations:
   a. Triple generator,
   b. All three generators and both bus ties.
ANCILLARY OBJECTIVES:

1. Recall that the procedures for a triple generator failure also apply when both bus ties fail in addition to the triple generator failure.

2. Recall that when the emergency generator switch is turned to ON, essential loads are transferred to the emergency generator.

3. Recall that the emergency generator advisory light is illuminated whenever the emergency generator is energized.

4. Recall that the voltage and frequency readings are for phase "A" only.

5. Recall that the generator should not be reset if the associated CSD light is illuminated.

6. Recall that the switch for a failed generator should not be returned to ON until after a pause for a minimum of one second in the RESET/OFF position.

7. Recall that if after three attempts the generator will not reset, the failed generator switch should be turned to RESET/OFF.

8. Recall that with the emergency generator switch in AUTO, automatic changeover to the emergency generator is provided upon loss of normal power on the essential bus.

OPERATOR: P/CP

TASK ELEMENTS:

20.6.3.1  20.6.3.5
20.6.3.2  20.6.3.6
20.6.3.3  20.6.3.7
20.6.3.4
20.6.3.001.00*

DEPRESS MASTER CAUTION SWITCHLIGHT

ELECTRICAL CAUTION LIGHT = 'ELEC' *
AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS

MASTER CAUTION SWITCHLIGHT-COP

MASTER CAUTION SWITCHLIGHT-COP = OFF
AND MASTER CAUTION SWITCHLIGHT-PIL = OFF
AND ELECTRICAL CAUTION LIGHT = OFF

20.6.3.002.00*

SET EMERGENCY GENERATOR SWITCH TO ON

#1 GENERATOR CAUTION LIGHT = '1 GEN'
AND #2 GENERATOR CAUTION LIGHT = '2 GEN'
AND #3 GENERATOR CAUTION LIGHT = '3 GEN'

SET

EMERGENCY GENERATOR CONTROL SW

EMERGENCY GENERATOR CONTROL SW = ON*
AND EMERG GENERATOR ADVISORY LT = 'EMERG GEN LN'

20.6.3.003.00*

SET VOLTAGE-FREQUENCY SELECTOR TO THE ESSENTIAL BUS

CHECKLIST = SEQUENCE

SET

VOLTAGE-FREQ SELECTOR SWITCH

VOLTAGE-FREQ SELECTOR SWITCH = ESNTL BUS
AND VOLTAGE METER = TBD
AND FREQUENCY METER = TBD

20.6.3.004.00*

SET SWITCHES FOR FAILED GENERATORS TO RESET-OFF AND ON

GENERATOR OFF LIGHTS = ON*
AND CSD CAUTION LIGHTS = ON

SET

GENERATOR MODE SWITCHES

GENERATOR MODE SWITCHES = RESET-OFF*
AND GENERATOR MODE SWITCHES = ON
AND GENERATOR OFF LIGHTS = OFF
20.6.3.005.00* SET EMERGENCY GENERATOR SWITCH TO AUTO

GENERATOR OFF LIGHTS = OFF

EMERGENCY GENERATOR CONTROL SW

EMERGENCY GENERATOR CONTROL SW = AUTO*

20.6.3.006.00* SET VOLTAGE-FREQUENCY SELECTOR TO THE ESSENTIAL BUS

GENERATOR OFF LIGHTS = ON

VOLTAGE-FREQ SELECTOR SWITCH

VOLTAGE-FREQ SELECTOR SWITCH = ESNTL BUS

AND VOLTAGE METER = TBD

AND FREQUENCY METER = TBD

20.6.3.007.00* LAND AS SOON AS POSSIBLE*

CHECKLIST = SEQUENCE

LAND

A-V

A-V = LANDED
OBJECTIVE: PERFORM SINGLE BUS TIE FAILURE PROCEDURES

CRITICALITY: 1    DIFFICULTY: 1

INITIAL CONDITIONS: 1. TIE OPEN shown on either bus tie indicator.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS:

ENABLING OBJECTIVES:

1. Recall that flight should be continued with a single bus tie (BT No. 1 or 2) failure.

ANCILLARY OBJECTIVES:

1. Recall that no corrective action is possible in flight for a bus tie separation.

OPERATOR: P/CP

TASK ELEMENTS: 20.6.4.1
CONTINUE FLIGHT

LEFT BUS TIE EM INDICATOR = "TIE OPEN"
OR RIGHT BUS TIE EM INDICATOR = "TIE OPEN"

FLY

A-V

A-V = FLIGHT CONTINUED
OBJECTIVE: PERFORM BOTH BUS TIE FAILURE PROCEDURES

CRITICALITY: 2    DIFFICULTY: 1

INITIAL CONDITIONS: 1. TIE OPEN shown on left bus tie indicator.
                    2. TIE OPEN shown on right bus tie indicator.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS:

ENABLING OBJECTIVES

1. Recall that flight should be continued with both bus ties (BT No. 1 and 2) failed.

ANCILLARY OBJECTIVES:

1. Recall that no corrective action is possible in flight for bus tie separations.

OPERATOR: P/CP

TASK ELEMENTS: 20.6.5.1
CONTINUE FLIGHT

LEFT BUS TIE EM INDICATOR = "TIE OPEN**
AND RIGHT BUS TIE EM INDICATOR = "TIE OPEN"
OBJECTIVE: PERFORM BUS FAILURE PROCEDURES

CRITICALITY: 2  DIFFICULTY: 1

INITIAL CONDITIONS: 1. 1 BUS caution light illuminates.  
2. ELEC legend light on flight station caution panel illuminates.  
3. Both MASTER CAUTION switchlights illuminate.

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence  
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights and the ELEC caution light will be extinguished but the 1 BUS light will remain illuminated.

2. Recall that the Voltage/Frequency rotary switch provides for the selection of a bus for a readout of voltage and frequency on adjacent gages.

3. Recall that the A/V should be landed as soon as practical, for any one bus failure or for failures of any one bus and either bus tie.

4. Recall that the A/V should be landed as soon as possible for a double bus failure.

ANCILLARY OBJECTIVES:

1. Recall that the procedures for a single bus failure also apply when either bus tie separates, in addition to a single bus failure.

2. Recall that the procedures for a double bus failure are the same as for a single bus failure.

OPERATOR: P/CP

TASK ELEMENTS: 20.6.6.1  20.6.6.3  
20.6.6.2  20.6.6.4
20.6.6.001.00*  DEPRESS MASTER CAUTION SWITCHLIGHT

#1 BUS CAUTION LIGHT = '1 BUS'
AND ELECTRICAL CAUTION LIGHT = 'ELEC'
AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS MASTER CAUTION SWITCHLIGHT - COP
MASTER CAUTION SWITCHLIGHT - COP = OFF
AND MASTER CAUTION SWITCHLIGHT - PIL = OFF
AND ELECTRICAL CAUTION LIGHT = OFF

20.6.6.002.00*
SET VOLTAGE-FREQUENCY SELECTOR TO APPLICABLE BUS

CHECKLIST = SEQUENCE

SET VOLTAGE-FREQ SELECTOR SWITCH
VOLTAGE-FREQ SELECTOR SWITCH = 1 BUS
AND VOLTAGE METER = TBD
OR FREQUENCY METER = TBD

20.6.6.003.00*
LAND AS SOON AS PRACTICAL*

CHECKLIST = SEQUENCE

LAND
A-V
A-V = LANDED

20.6.6.004.00*
LAND AS SOON AS POSSIBLE*

CHECKLIST = SEQUENCE

LAND
A-V
A-V = LANDED
OBJECTIVE: PERFORM COMPLETE LOSS OF ELECTRICAL POWER PROCEDURES

CRITICALITY: 3   DIFFICULTY: 1

INITIAL CONDITIONS: 1. All lights inoperative.
                      2. All electrical powered instruments inoperative.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS:

ENABLING OBJECTIVES:

1. Recall that all crewmembers should eject when a complete loss of electrical power occurs.

ANCILLARY OBJECTIVES:

OPERATOR: P/CP

TASK ELEMENTS: 20.6.7.1
ALL CREWMEMBERS EJECT

ELECTRICAL CONTROL PANEL = TBD*

EJECTION HANDLE

EJECTION HANDLE = PULLED
OBJECTIVE: PERFORM HYDRAULIC PRESSURE & QUANTITY FAILURE PROCEDURES

CRITICALITY: 3 DIFFICULTY: 1

INITIAL CONDITIONS: 1. HYD legend light on flight station caution panel illuminates.
2. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights and the HYD caution light will be extinguished.
2. Recall that the A/V should be landed as soon as practical when one or two hydraulic systems become inoperative.
3. Recall that the A/V should be landed as soon as possible when three hydraulic systems become inoperative.
4. Recall that all crewmembers should eject from the A/V when the four hydraulic systems become inoperative.
5. Recall the procedures for ejecting from the A/V.

ANCILLARY OBJECTIVES:

1. Recall that if the hydraulic fluid level in systems 1 and 4 falls below 6 gallons or below 11 gallons in systems 2 and 3, the hydraulic caution light will illuminate.
2. Recall that if any of the systems pressures fall below 2150 PSI, the hydraulic caution light will illuminate.
3. Recall that the flight control system will be inoperative and controlled flight cannot be continued after the loss of four hydraulic systems.
ANCILLARY OBJECTIVES: (continued)

4. Recall that injury could occur if the crewmember is not in a firm, upright position with head against head rest and arms on seat armrests when ejection is initiated.

OPERATOR: P/CP

TASK ELEMENTS:

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DEPRESS MASTER CAUTION SWITCHLIGHT

HYDRAULIC LIGHT = "HYD"*
AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS MASTER CAUTION SWITCHLIGHT-COP

MASTER CAUTION SWITCHLIGHT-COP = OFF
AND MASTER CAUTION SWITCHLIGHT-PIL = OFF
AND HYDRAULIC LIGHT = OFF

LAND AS SOON AS PRACTICAL

#1 HYD QUANTITY INDICATOR "TBD*
OR #1 HYD PRESSURE INDICATOR "TBD

LAND

A-V
A-V
= LANDED

LAND AS SOON AS PRACTICAL

#1 HYD QUANTITY INDICATOR "TBD*
AND #2 HYD QUANTITY INDICATOR "TBD

LAND

A-V
A-V
= LANDED

LAND AS SOON AS POSSIBLE

#1 HYD QUANTITY INDICATOR "TBD*
AND #2 HYD QUANTITY INDICATOR "TBD
AND #3 HYD QUANTITY INDICATOR "TBD

LAND

A-V
A-V
= LANDED

DEPRESS PREPARE TO EJECT SWITCHLIGHT

HYDRAULIC QUANTITY INDICATORS = "TBD*
OR HYDRAULIC PRESSURE INDICATORS = "TBD

DEPRESS PREPARE TO EJECT
PREPARE TO EJECT SWITCHLIGHT = ON
20.7.1.006.00*

ADVISE CREWMEMBERS OF DECISION TO EJECT

HYDRAULIC QUANTITY INDICATORS = TBD
OR HYDRAULIC PRESSURE INDICATORS = TBD

COMMUNICATE

PILOT ICS

PILOT ICS

= PREPARE TO EJECT

20.7.1.007.00*

COMPLETE "BEFORE EJECTION" CHECKLIST*

CHECKLIST

= SEQUENCE

PERFORM

CHECKLIST

CHECKLIST

= PERFORMED*

20.7.1.008.00*

ALL CREWMEMBERS EJECT

PREPARE TO EJECT SWITCHLIGHT = ON
AND PILOT ICS = PREPARED TO EJECT
AND CHECKLIST = PERFORMED

PULL

EJECTION HANDLE

EJECTION HANDLE = PULLED*
OBJECTIVE: PERFORM LOSS OF HYDRAULIC SYSTEMS 2,3 AND 4 PROCEDURES

CRITICALITY: 3  DIFFICULTY: 1

INITIAL CONDITIONS: 1. HYD legend light on flight station caution panel illuminate
   2. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
   2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight, both MASTER CAUTION lights and the HYD caution light will be extinguished.

2. Recall that the flight control stick disconnect handle must be unlocked before it can be pulled.

3. Recall that when the flight control sticks are disconnected, the copilot can fly the A/V electrically through the SCAS.

ANCILLARY OBJECTIVES:

1. Recall that if the hydraulic fluid level in systems 1 and 4 falls below 6 gallons or below 11 gallons in systems 2 and 3, the hydraulic caution light will illuminate.

2. Recall that if any of the systems pressures fall below 2150 PSI, the hydraulic caution light will illuminate.

3. Recall that when Hydraulic Systems 2,3 and 4 have failed, the master cylinders are inoperative in both pitch and roll.

4. Recall that the SCAS is operative when Hydraulic Systems 2,3, and 4 have failed.

5. Recall that with the loss of three hydraulic systems, continued flight can be maintained only with extreme caution.
ANCILLARY OBJECTIVES: (continued)

6. Recall that with the loss of three hydraulic systems, a safe landing under favorable conditions can be achieved, but must be at the pilot's discretion.

7. Recall that with the loss of three hydraulic systems, only necessary maneuvers should be exercised and then with extreme caution.

OPERATOR: P/CP

TASK ELEMENTS: 20.7.2.1
20.7.2.2
20.7.2.3
20.7.2.001.00*

DEPRESS MASTER CAUTION SWITCHLIGHT

HYDRAULIC LIGHT = 'HYD''*
AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS
MASTER CAUTION SWITCHLIGHT-COP

MASTER CAUTION SWITCHLIGHT-COP = OFF
AND MASTER CAUTION SWITCHLIGHT-PIL = OFF
AND HYDRAULIC LIGHT = OFF

20.7.2.002.00*

PULL FLIGHT CONTROL STICK DISCONNECT HANDLE

#2 HYD QUANTITY INDICATOR = TBD*
AND #3 HYD QUANTITY INDICATOR = TBD
AND #4 HYD QUANTITY INDICATOR = TBD

PULL

FLT CONTR STICK DISCONNECT HNDL

FLT CONTR STICK DISCONNECT HNDL = PULLED

20.7.2.003.00*

MAINTAIN CONTROL OF A-V WITH COPILOT'S STICK THROUGH SCAS

FLT CONTR STICK DISCONNECT HNDL = PULLED

FLY

A-V

A-V = CONTROLLED*
OBJECTIVE: PERFORM SMCS FAILURE PROCEDURES

CRITICALITY: 2       DIFFICULTY: 1

INITIAL CONDITIONS: 1. SMCS legend light on flight station caution panel illuminated.
                      2. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
                      2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that by depressing either MASTER CAUTION switchlight both MASTER CAUTION lights will be extinguished and the SMCS legend light will change from flashing to steady.

2. Recall that the SMCS functions automatically when the SMCS switch is on.

ANCILLARY OBJECTIVES:

1. Recall that the SMCS caution light illuminates when an out-of-tolerance condition is detected.

2. Recall that the SMCS controllers are disengaged and the flight control vanes are automatically centered when an out-of-tolerance condition occurs.

3. Recall that if the SMCS caution light does not go out when the SMCS switch is moved to RESET, it should be turned off.

OPERATOR: P/CP

TASK ELEMENTS: 20.8.1.1
                20.8.1.2
                20.8.1.3

20.157
**20.8.1.001.00**

**DEPRESS MASTER CAUTION SWITCHLIGHT**

- SMCS CAUTION LIGHT = 'SMCS'-FLASHING*
- AND MASTER CAUTION SWITCHLIGHTS = ON

DEPRESS

- MASTER CAUTION SWITCHLIGHT-COP

- MASTER CAUTION SWITCHLIGHT-COP = OFF
- AND MASTER CAUTION SWITCHLIGHT-PIL = OFF
- AND SMCS CAUTION LIGHT = 'SMCS'-STEADY

**20.8.1.002.00**

**SET SMCS MODE SWITCH TO RESET MOMENTARILY AND RETURN TO ON**

- SMCS CAUTION LIGHT = 'SMCS'-STEADY

SET

- SMCS SWITCH

- SMCS SWITCH = RESET
- AND SMCS SWITCH = ON
- AND SMCS CAUTION LIGHT = 'SMCS'-STEADY

**20.8.1.003.00**

**SET SMCS MODE SWITCH TO OFF**

- SMCS CAUTION LIGHT = 'SMCS'-STEADY

SET

- SMCS SWITCH

- SMCS SWITCH = OFF*
OBJECTIVE: PERFORM PITCH TRIM NORMAL SYSTEM FAILURE PROCEDURES

CRITICALITY: 2  DIFFICULTY: 1

INITIAL CONDITIONS: 1. PITCH TRIM legend light on flight station caution panel illuminates.
   2. Both MASTER CAUTION switchlights illuminate.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Airspeed - TBD (+ kts)
   2. Attitude - TBD (- deg)
   3. Proper sequence.
   4. Switches in proper positions.

ENABLING OBJECTIVES:

1. Coordinate control stick and rudder pedals to maintain air vehicle attitude and airspeed within safe limits.

2. Recall that when the pitch trim switch is set to the ALTER mode, the pitch trim system functions the same as for the NORM mode but operating power is provided from an alternate source.

3. Recall that when the pitch trim switch is set to the STBY mode, the standby pitch trim system is activated through the SCAS.

4. Recall that selecting up or down on the standby pitch switch directs corresponding trim inputs to the pitch servos in proportion to the length of time held.

5. Recall that the A/V should be landed as soon as practical when the normal and alternate trim systems are inoperative.

ANCILLARY OBJECTIVES

1. Recall that moving the pitch trim power switch to ALTER and back to NORM is the primary method for attempting to reset the normal pitch trim system.
ANCILLARY OBJECTIVES:  (continued)

2. Recall that when the pitch trim power switch is set to ALTER, the pitch trim caution light will go out and will not illuminate again in case of a malfunction in the alternate power system.

3. Recall that there will be no indication that the alternate pitch trim system has failed other than no response from the stick pitch trim system.

4. Recall that when the pitch trim switch is set to STBY, the primary pitch trim actuator system is deactivated.

5. Recall that when the pitch trim switch is set to STBY, the stick pitch trim switches are no longer operative and the standby pitch switch on the flight control trim panel should be used.

OPERATOR:  P/CP

TASK ELEMENTS:  20.8.2.1  20.8.2.5
                     20.8.2.2  20.8.2.6
                     20.8.2.3  20.8.2.7
                     20.8.2.4
20.8.2.001.00*

**MAINTAIN AIR VEHICLE ATTITUDE & AIRSPEED WITHIN SAFE LIMITS**

- **FLY**
  - A-V
  - VSD
  - AIRSPEED-MACH NUMBER INDICATOR = TBD

20.8.2.002.00*

**DEPRESS MASTER CAUTION SWITCHLIGHT**

- **MASTER CAUTION SWITCHLIGHT** = OFF
- **PITCH TRIM CAUTION LIGHT** = ON

20.8.2.003.00*

**SET PITCH TRIM POWER SWITCH TO ALTER AND RETURN TO NORM**

- **PITCH TRIM CAUTION LIGHT** = OFF
- **PITCH TRIM SWITCH** = NORM

20.8.2.004.00*

**SET PITCH TRIM POWER SWITCH TO ALTER**

- **PITCH TRIM CAUTION LIGHT** = OFF
- **PITCH TRIM SWITCH** = STBY

20.8.2.005.00*

**SET PITCH TRIM POWER SWITCH TO STBY**

- **PLT TRIM SW (ON CONTR STICK)** = INOPERATIVE
- **CPLT TRIM SW (ON CONTR STICK)** = INOPERATIVE
- **PITCH TRIM SWITCH** = STBY

20.161
SELECT UP OR DOWN ON PILOT'S STBY PITCH SWITCH

PITCH TRIM SWITCH = STBY*

SELECT PILOT STBY PITCH SWITCH

PILOT STBY PITCH SWITCH = UP*
OR PILOT STBY PITCH SWITCH = DN
AND PILOT STBY PITCH SWITCH = OFF

20.8.2.007.00*

LAND AS SOON AS PRACTICABLE

CHECKLIST = SEQUENCE

FLY

A-V
A-V = LANDED
OBJECTIVE: PERFORM WING SWEEP RUNAWAY IN AFT DIRECTION PROCEDURES

CRITICALITY: 3
DIFFICULTY: 1

INITIAL CONDITIONS: 1. Wings continue to sweep in aft direction.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that moving the alternate wing sweep to FWD will drive the wings forward in proportion to the length of time the switch is held in that position.

2. Recall that when the alternate wing sweep switch is in HOLD, the wing is held in the position indicated by the sweep position pointer.

3. Recall that the A/V should be landed as soon as practical, after a malfunction has occurred in the wing sweep system.

ANCILLARY OBJECTIVES:

1. Recall that the procedures for wing sweep runaway in the aft direction, also apply for failure to sweep forward in the normal mode.

2. Recall that moving the alternate wing sweep to FWD activates a rate control system which can only drive the wings in one direction.

OPERATOR: P/CP

TASK ELEMENTS: 20.8.3.1
20.8.3.2
20.8.3.3
20.8.3.001.00*

CHECK WING SWEEP HANDLES AND POSITION INDICATOR

WING SWEEP POSITION INDICATOR = TBL*
OR WING SWEEP POSITION INDICATOR = TSD

CHECK

WING SWEEP HANDLES
WING SWEEP POSITION INDICATOR

WING SWEEP HANDLES = TBL*
AND WING SWEEP POSITION INDICATOR = TSD

20.9.3.002.00*

SET ALTERNATE WING SWEEP KNOB TO FWD AND HOLD. THEN RELEASE TO HOLD.

WING SWEEP POSITION INDICATOR = TBL

SET

ALTERNATE WING SWEEP SWITCH

ALTERNATE WING SWEEP SWITCH = FWD*
AND ALTERNATE WING SWEEP SWITCH = HLLC

20.8.3.003.00*

LAND AS SOON AS PRACTICAL

CHECKLIST = SEQUENCE

FLY

A-V

A-V = LANDED
OBJECTIVE: PERFORM WING SWEEP RUNAWAY IN FORWARD DIRECTION PROCEDURES

CRITICALITY: 2  DIFFICULTY: 1

INITIAL CONDITIONS: 1. Wings continue to sweep in forward direction.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when the alternate wing sweep switch is in HOLD, the wing is held in the position indicated by the sweep position pointer.
2. Recall that the A/V should be landed as soon as practical after a malfunction has occurred in the wing sweep system.

ANCILLARY OBJECTIVES:

1. Recall that the wings cannot be swept aft with the alternate wing sweep system.

OPERATOR: P/CP

TASK ELEMENTS: 20.8.4.1
20.8.4.2
20.8.4.3
20.8.4.001.00*

**CHECK WING SWEEP HANDLES AND POSITION INDICATORS**

- Wing sweep position indicator \( \equiv \) TBD* OR wing sweep position indicator \( \equiv \) TBD

**CHECK**

- Wing sweep handles
- Wing sweep position indicator

- Wing sweep handles \( \equiv \) TBD*
- And wing sweep position indicator \( \equiv \) TBD

20.8.4.002.00*

**SET ALTERNATE WING SWEEP KNOB TO HOLD**

- Wing sweep position indicator \( \equiv \) TBD

**SET**

- Alternate wing sweep switch

- Alternate wing sweep switch \( \equiv \) HOLD*

20.8.4.003.00*

**LAND AS SOON AS PRACTICAL**

**CHECKLIST** \( \equiv \) SEQUENCE

**FLY**

- A–V

- A–V \( \equiv \) LANDED
OBJECTIVE: PERFORM WING WILL NOT MAINTAIN FULL FORWARD SWEEP PROCEDURES

CRITICALITY: 2   DIFFICULTY: 1

INITIAL CONDITIONS: 1. Wings continue to sweep in aft direction.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that moving the alternate wing sweep to FWD will drive the wings forward in proportion to the length of time the switch is held in that position.

2. Recall that when the alternate wing sweep switch is in HOLD, the wing is held in the position indicated by the sweep position pointer.

3. Recall that the A/V should be landed as soon as possible if the wing will not maintain full forward sweep.

ANCILLARY OBJECTIVES:

1. Recall that moving the alternate wing sweep to FWD activates a rate control system which can only drive the wings in one direction.

OPERATOR: P/CP

TASK ELEMENTS: 20.8.5.1
20.8.5.2
SET ALTERNATE WING SWEEP TO FWD AND HOLD FOR DURATION OF FLIGHT

WING SWEEP POSITION INDICATOR = TBD*

SET

ALTERNATE WING SWEEP SWITCH

ALTERNATE WING SWEEP SWITCH = FWD*

LAND AS SOON AS POSSIBLE

CHECKLIST = SEQUENCE

FLY

A-V

A-V = LANDED
OBJECTIVE: PERFORM LANDING WITH THREE-ENGINES-INOPERATIVE

CRITICALITY: 2  DIFFICULTY: 2

INITIAL CONDITIONS: 1. Loss of power on three engines.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Angle of attack - TBD (+ degs).
2. Airspeed - TBD (+ kts).
4. Proper sequence.
5. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when the fuel dump switch is set to DUMP, fuel will be jettisoned at each wing tip trailing edge.

2. Recall that the wing sweep handles should be set forward of 45 degrees so that the approach can be made at a normal airspeed.

3. Recall that the wing sweep handles should be set at 20 degrees maximum to minimize touchdown speed.

4. Recall that additional hydraulic power can be provided with the APUs running.

5. Recall that the RESET/OFF mode electrically disconnects the respective generator from the line, and resets the system for another attempt to reconnect the generator to the line.

6. Recall that movement of the FLAP/SLAT handle 10 degrees to the gate detent will extend the slats and leave the flaps full up.

7. Recall that to by-pass the gate detent, a small finger-operated lever on the control handle must be raised.

8. Recall that movement of the FLAP/SLAT control handle off of the gate detent provides flap extension proportional to handle position.

9. Recall that the flap position indicator ranges from UP to full DOWN, which corresponds to zero and 40 degrees of flap travel.
ENABLING OBJECTIVES: (continued.)

10. Recall that the landing gear is lowered by pushing a small spring-loaded lever and then applying a downward force.

11. Recall that flying the approach at normal speed, plus 25 knots, will enhance the flying characteristics of the A/V.

12. Recall that the A/V should be landed as soon as possible to minimize the time the A/V is flying with three-engines-inoperative and the possibility of the remaining engine failing.

ANCILLARY OBJECTIVES:

1. Recall that the fuel jettison capability is provided by the fuel transfer system and dump valves and outlets.

2. Recall that fuel cannot be dumped from the main tanks.

3. Recall that manual dumping of fuel requires that the transfer pumps in the tank from which fuel is to be dumped must be turned on and all other tanks turned off.

4. Recall that a generator switch should not be returned to ON until after a pause for a minimum of one second in the RESET/OFF position.

5. Recall that slats can be extended and retracted at any wing sweep.

6. Recall that the barberpole on the slats position indicator is displayed when the slats are in transit or if there is a malfunction in the slat indicating system.

7. Recall that the flap position indicator gradations are provided at each one-quarter position.

8. Recall that the down position of the landing gear handle is heavily detented but not locked.

9. Recall that the DN position of the landing gear handle initiates (via EMUX) the electrical commands to the hydraulic system to open the gear doors, unlock, and extend and lock the gear in the down position and close main gear doors.

10. Recall that the red lights in the landing gear handle will illuminate when the gear is in transit. They will go out as soon as the landing gear is locked. If not out within 15 seconds, or within 30 seconds in cold weather, a landing gear malfunction is indicated.

11. Recall that three green advisory lights illuminate when each landing gear is down and locked.
**OPERATOR:** P/CP

**TASK ELEMENTS:**

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20.9.1.001.00*

**SET FUEL DUMP SWITCH TO DUMP**

- ENG 2 CORE RPM INDICATOR
- ENG 3 CORE RPM INDICATOR
- ENG 4 CORE RPM INDICATOR

**SET**

- DUMP SWITCH

**AND GROSS WT DIGITAL COUNTER**

20.9.1.002.00*

**SET WING SWEEP HANDLES FORWARD OF 45 DEGREES**

**CHECKLIST**

**SET WING SWEEP HANDLES**

**WING SWEEP HANDLES**

- < 45

**AND WING SWEEP POSITION INDICATOR**

20.9.1.003.00*

**CHECK BOTH APUS ARE RUNNING**

**CHECK**

- LEFT RUN LIGHT
- RIGHT RUN LIGHT

**LEFT RUN LIGHT**

- = 'L RUN'

**AND RIGHT RUN LIGHT**

- = 'R RUN'

20.9.1.004.00*

**SET SWITCHES FOR GENERATORS TO RESET-OFF AND ON**

**CHECKLIST**

**SET**

- GENERATOR MODE SWITCHES
- AND GENERATOR OFF LIGHTS

20.9.1.005.00*

**CHECK CENTER-OF-GRAVITY IS WITHIN LANDING LIMITS**

**CHECKLIST**

**CHECK**

- CG LIMITS CAUTION LIGHT

- = OFF

20.172
20.9.1.006.00*

**SET WING SWEEP HANDLES AT 20 DEGREES MAXIMUM**

**CHECKLIST**

**SET WING SWEEP HANDLES**

**WING SWEEP HANDLES**

= **20**

**OR WING SWEEP HANDLES**

< **2**

**AND WING SWEEP POSITION INDICATOR**

= **TBD**

---

20.9.1.007.00*

**EXTEND WING SLATS AND FLAPS FOR LANDING**

**CHECKLIST**

**SET FLAP-SLAT CONTROL HANDLE**

**FLAP-SLAT CONTROL HANDLE**

= **TBD**

**AND SLATS POSITION INDICATOR**

= **TBD**

**AND FLAP POSITION INDICATOR**

= **TBD**

---

20.9.1.008.00*

**SET LANDING GEAR CONTROL HANDLE TO DOWN**

**CHECKLIST**

**SET PRIMARY LANDING GEAR CONTROL**

**PRIMARY LANDING GEAR CONTROL**

= **DN**

**AND GEAR WARNING LIGHTS**

= **OFF**

---

20.9.1.009.00*

**FLY THE APPROACH AT NORMAL SPEED PLUS 25 KIAS**

**CHECKLIST**

**FLY**

**A-V**

**AIRSPEED-MACH NUMBER INDICATOR**

= **TBD**

---

20.9.1.010.00*

**LAND AS SOON AS POSSIBLE**

**CHECKLIST**

**FLY**

**A-V**

**A-V**

= **LANDED**

20.173
OBJECTIVE: PERFORM LANDING GEAR MALFUNCTION PROCEDURES

CRITICALITY: 3 DIFFICULTY: 2

INITIAL CONDITIONS: 1. Landing gear warning light illuminated.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that an airspeed of 250 KIAS should not be exceeded with one or more landing gears down.

2. Recall that depressing the hydraulic quantity indicator test pushbutton will drive the indicator pointers counter-clockwise.

3. Recall that the hydraulic pressure gage pointers should indicate at the 9 o'clock position for normal operation.

4. Recall that the alternate landing gear system is actuated by pulling out on the alternate landing gear toggle lever and moving it to DN.

5. Recall that if the alternate landing gear system is used because of a malfunctioned nose gear, airspeed should be increased to assist in locking the landing gear.

6. Recall that if the alternate landing gear system is used because of a malfunctioned main landing gear, airspeed should be decreased to minimum controllable.

7. Recall that the A/V should be landed as soon as practical after the alternate landing gear system has been used.

ANCILLARY OBJECTIVES:

1. Recall that a landing gear malfunction may be indicated with the warning light in the gear handle illuminated and/or the landing gear downlock indication lights not illuminated.
ANCILLARY OBJECTIVES: (continued)

2. Recall that the lack of counter-clockwise motion during testing of the hydraulic quantity gages denotes a faulty indicator.

3. Recall that if the hydraulic fluid level in systems 1 and 4 falls below 6 gallons, or below 11 gallons in systems 2 and 3, the hydraulic caution light will illuminate.

4. Recall that if any of the systems pressures fall below 2150 PSI, the hydraulic caution light will illuminate.

5. Recall that actuation of the alternate landing gear system de-activates the normal landing gear control.

6. Recall that airspeed should not exceed 340 KIAS in attempting to lock the nose gear in the down position.

7. Recall that the minimum airspeed for controlling the A/V should be consistent with the existing configuration and gross weight.

8. Recall that if the A/V is yawed to assist in locking a main landing gear, the yaw limits for the A/V configuration and gross weight must be observed.

OPERATOR: P/CP

TASK ELEMENTS: 20.9.2.1 20.9.2.4 20.9.2.7
20.9.2.2 20.9.2.5 20.9.2.8
20.9.2.3 20.9.2.6 20.9.2.9
20.9.2.001.00*  CHECK AIRSPEED IS BELOW 250 KIAS
GEAR WARNING LIGHT = ON*
OR GEAR WARNING LIGHTS = ON
AND GEAR WARNING LIGHTS = ON
CHECK
AIRSPEED-MACH NUMBER INDICATOR
AIRSPEED-MACH NUMBER INDICATOR < 250*

20.9.2.002.00*  CHECK HYDRAULIC SYSTEMS PRESSURE
CHECKLIST = SEQUENCE
CHECK
HYDRAULIC PRESSURE INDICATORS
HYDRAULIC PRESSURE INDICATORS = TBD

20.9.2.003.00*  OBTAIN VISUAL CONFIRMATION OF LUG GR BY CHASE PLANE OR TOWER
CHECKLIST = SEQUENCE
MONITOR-VISUAL
WINDSCREEN
LANDING GEAR CONTROL PANEL = DOWN

20.9.2.004.00*  CHECK AIRSPEED IS BELOW 190 KIAS
CHECKLIST = SEQUENCE
CHECK
AIRSPEED-MACH NUMBER INDICATOR
AIRSPEED-MACH NUMBER INDICATOR < 190

20.9.2.005.00*  SET ALTERNATE LANDING GEAR CONTROL SWITCH TO THE DOWN POSN
CHECKLIST = SEQUENCE
SET
ALTERNATE LANDING GEAR CONTROL
ALTERNATE LANDING GEAR CONTROL = ON
AND NOSE GEAR ADVISORY LIGHT = 'NOSE'
20.9.2.006.00* INCREASE AIRSPEED AS REQUIRED TO LOCK NOSE GEAR

FLY

A-V

NOSE GEAR ADVISORY LIGHT

Airspeed-Mach Number Indicator = TBD

AND NOSE GEAR ADVISORY LIGHT = *NOSE*

20.9.2.007.00* REDUCE AIRSPEED TO MINIMUM FOR CONTROLLING THE AIR VEHICLE

FLY

A-V

LEFT GEAR ADVISORY LIGHT = *L*

OR RIGHT GEAR ADVISORY LIGHT = *R*

20.9.2.008.00* YAW A-V IN DIRECTION OF MAIN GEAR THAT IS NOT ON & LOCKED

FLY

A-V

CHECKLIST = SEQUENCE

A-V

AND LEFT GEAR ADVISORY LIGHT = *L*

AND RIGHT GEAR ADVISORY LIGHT = *R*

20.9.2.009.00* LAND AS SOON AS PRACTICAL

FLY

A-V

NOSE GEAR ADVISORY LIGHT = *NOSE*

AND LEFT GEAR ADVISORY LIGHT = *L*

AND RIGHT GEAR ADVISORY LIGHT = *R*

A-V

= LANDED

20.177
OBJECTIVE: PERFORM LANDING WITH ANY GEAR RETRACTED OR UNLOCKED

CRITICALITY: 3 DIFFICULTY: 2

INITIAL CONDITIONS: 1. Both nose and main gear are retracted, or
2. Both main gear are retracted, or
3. The nose gear is retracted.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Angle of attack - TBD (° degs).
2. Airspeed - TBD (° kts).
4. Proper sequence.
5. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that the A/V should be "belly landed" if none of the landing gears can be extended.

2. Recall that the A/V should be landed with a minimum sink rate if the nose gear is down and locked but both main gear are retracted.

3. Recall that the airspeed should be decreased below 190 KIAS prior to actuating the alternate landing gear system if either main landing gear is retracted.

4. Recall that the alternate landing gear system is actuated by pulling out on the alternate landing gear toggle lever and moving it to DN.

5. Recall that if the alternate landing gear system is used because of a malfunctioned main landing gear, airspeed should be decreased to minimum controllable.

6. Recall that the extended main landing gear should be retracted if the faulty main landing gear cannot be extended with the primary or alternate landing gear system.

7. Recall that the A/V should be "belly landed" when all the landing gear have been retracted.

8. Recall that a touch-and-go landing should be performed on the extended main landing gear if it will not retract.
ENABLING OBJECTIVES: (continued)

9. Coordinate control stick and rudder pedals to maintain directional control while keeping wingtip high during touchdown.

10. Recall that the A/V should be landed with a minimum sink rate if both main landing gear are down and locked but the nose gear is retracted.

11. Recall that the A/V should be landed as soon as practical when a landing gear malfunction has been rectified, with all three landing gear down and locked.

ANCILLARY OBJECTIVES:

1. Recall that actuation of the alternate landing gear system deactivates the normal landing gear control.

2. Recall that the minimum airspeed for controlling the A/V should be consistent with the existing configuration and gross weight.

3. Recall that if the A/V is yawed to assist in locking a main landing gear, the yaw limits for the A/V configuration and gross weight must be observed.

4. Recall that the wingtip should be kept high after touchdown by using opposite braking and nosewheel steering when landing with the nose gear and one main landing gear extended.

OPERATOR: P/CP

TASK ELEMENTS: 20.9.3.1 20.9.3.5 20.9.3.9
20.9.3.2 20.9.3.6 20.9.3.10
20.9.3.3 20.9.3.7 20.9.3.11
20.9.3.4 20.9.3.8 20.9.3.12
BELLY LAND AIR VEHICLE

NOSE GEAR ADVISORY LIGHT \( \rightarrow 'NOSE' \)
AND LEFT GEAR ADVISORY LIGHT \( \rightarrow 'L' \)
AND RIGHT GEAR ADVISORY LIGHT \( \rightarrow 'R' \)

FLY A-V

A-V = BELLY LANDED*

FLY A STRAIGHT-IN PATTERN AND TOUCHDOWN AT MINIMUM SINK RATE

NOSE GEAR ADVISORY LIGHT \( \rightarrow 'NOSE' \)
AND LEFT GEAR ADVISORY LIGHT \( \rightarrow 'L' \)
AND RIGHT GEAR ADVISORY LIGHT \( \rightarrow 'R' \)

FLY A-V

A-V = LANDED*

CHECK AIRSPEED IS BELOW 190 KIAS

NOSE GEAR ADVISORY LIGHT \( \rightarrow 'NOSE' \)
AND LEFT GEAR ADVISORY LIGHT \( \rightarrow 'L' \)
OR RIGHT GEAR ADVISORY LIGHT \( \rightarrow 'R' \)

CHECK AIRSPEED-MACH NUMBER INDICATOR

AIRSPEED-MACH NUMBER INDICATOR < 190

SET ALTERNATE LANDING GEAR CONTROL SWITCH TO THE DOWN POSN

CHECKLIST = SEQUENCE

SET ALTERNATE LANDING GEAR CONTROL

ALTERNATE LANDING GEAR CONTROL = DN*
AND LEFT GEAR ADVISORY LIGHT \( \rightarrow 'L' \)
OR RIGHT GEAR ADVISORY LIGHT \( \rightarrow 'R' \)

REDUCE AIRSPEED TO MINIMUM FOR CONTROLLING THE AIR VEHICLE*

LEFT GEAR ADVISORY LIGHT \( \rightarrow 'L' \)
OR RIGHT GEAR ADVISORY LIGHT \( \rightarrow 'R' \)

FLY A-V

AIRSPEED-MACH NUMBER INDICATOR = TBD

20.180
20.9.3.006.00*  
**YAW A-V IN DIRECTION OF MAIN GEAR THAT IS NOT ON & LOCKED**

CHECKLIST = SEQUENCE

**FLY**

A-V

A-V = YAWED*

AND LEFT GEAR ADVISORY LIGHT = \( ^L \)

OR RIGHT GEAR ADVISORY LIGHT = \( ^R \)

20.9.3.007.00*  
**SET LANDING GEAR CONTROL TO THE UP POSITION**

CHECKLIST = SEQUENCE

**SET**

PRIMARY LANDING GEAR CONTROL = UP*

AND GEAR WARNING LIGHTS = OFF

20.9.3.008.00*  
**BELLY LAND AIR VEHICLE**

PRIMARY LANDING GEAR CONTROL = UP*

AND GEAR WARNING LIGHTS = OFF

**FLY**

A-V

A-V = BELLY LANDED

20.9.3.009.00*  
**FLY TOUCH-AND-GO LANDING ON EXTENDED GEAR**

NOSE GEAR ADVISORY LIGHT = \( ^*NOSE^* \)

AND LEFT GEAR ADVISORY LIGHT = \( ^L \)

OR RIGHT GEAR ADVISORY LIGHT = \( ^R \)

**FLY**

A-V

A-V = T & G PERFORMED*

AND LEFT GEAR ADVISORY LIGHT = \( ^L \)

OR RIGHT GEAR ADVISORY LIGHT = \( ^R \)

20.9.3.010.00*  
**FLY A STRAIGHT-IN PATTERN AND TO KEEPING WINGTIP HIGH**

LEFT GEAR ADVISORY LIGHT = \( ^L \)

OR RIGHT GEAR ADVISORY LIGHT = \( ^R \)

**FLY**

A-V

A-V = LANDED*
20.9.3.011.00*

FLY A STRAIGHT-IN PATTERN AND TOUCHDOWN AT MINIMUM SINK RATE

NOSE GEAR ADVISORY LIGHT = 'NOSE'
AND LEFT GEAR ADVISORY LIGHT = 'L'
AND RIGHT GEAR ADVISORY LIGHT = 'R'

FLY
A-V
A-V
= LANDED

20.9.3.012.00*

LAND AS SOON AS PRACTICAL

NOSE GEAR ADVISORY LIGHT = 'NOSE'
AND LEFT GEAR ADVISORY LIGHT = 'L'
AND RIGHT GEAR ADVISORY LIGHT = 'R'

FLY
A-V
A-V
= LANDED
OBJECTIVE: PERFORM NOSEWHEEL STEERING SYSTEM FAILURE PROCEDURES

CRITICALITY: 2 DIFFICULTY: 2

INITIAL CONDITIONS: 1. A/V. cannot be steered with nosewheel steering system.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that the nosewheel steering caution light illuminates when the steering system automatically disengages.

2. Recall that holding the nosewheel steering switch in the engage position overrides the failsafe lockout circuit and holds the steering engaged.

3. Recall that differential braking should be used to steer the A/V after landing if the nosewheel steering system is inoperative.

4. Recall that the nosewheel steering switch should be held in the disengage position if directional control is lost.

5. Recall that if the Ready/NWS light is out, the copilot's nosewheel steering switch should be held in the disengage position.

ANCILLARY OBJECTIVES:

1. Recall that the READY/STEER annunciator light will illuminate when nose gear steering is engaged, the nose gear load switch is made, and hydraulic power is available for steering.

OPERATOR: P/CP

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20.183
20.9.4.001.00* CHECK NOSEWHEEL STEERING CAUTION LIGHT

A-V = STEERED*

MUNITOR-VISUAL
NOSEWHEEL STEERING CAUTION LT
NOSEWHEEL STEERING CAUTION LT = "NWS"

20.9.4.002.00* MOVE NOSEWHEEL STEERING ENGAGE SWITCH TO ENGAGE AND HOLD

NOSEWHEEL STEERING CAUTION LT = "NWS"

DEPRESS
STEER ENGAGE-DISENGAGE SWITCH
STEER ENGAGE-DISENGAGE SWITCH = ENGAGE*
AND A-V = STEERED

20.9.4.003.00* USE DIFFERENTIAL BRAKING AND STOP THE AIR VEHICLE

A-V = STEERED*

TRACK
A-V
A-V = DIFF BRAKED
AND A-V = ALIGNED ON RNWY

20.9.4.004.00* DEPRESS NOSEWHEEL STEERING ENGAGE SWITCH TO DISENG AND HOLD

A-V = ALIGNED ON RNWY

DEPRESS
STEER ENGAGE-DISENGAGE SWITCH
STEER ENGAGE-DISENGAGE SWITCH = DISENG*

20.9.4.005.00* USE DIFFERENTIAL BRAKING AS REQUIRED

STEER ENGAGE-DISENGAGE SWITCH = DISENG*

TRACK
A-V
A-V = DIFF BRAKED
20.9.4.006.00*

CHECK THAT READY-NWS LIGHT IS OUT

CHECKLIST = SEQUENCE

CHECK

READY-NWS ADVISORY LIGHT

READY-NWS ADVISORY LIGHT = 'READY-STEER'

20.9.4.007.00*

DEPRESS COPILOT NWS ENGAGE SWITCH TO DISENGAGE AND HOLD

READY-NWS ADVISORY LIGHT = 'READY-STEER'

DEPRESS

STEER ENGAGE-DISENGAGE SWITCH

STEER ENGAGE-DISENGAGE SWITCH = DISENG*

20.9.4.008.00*

USE DIFFERENTIAL BRAKING AS REQUIRED AND STOP THE AIR-VEH

STEER ENGAGE-DISENGAGE SWITCH = DISENG*

STOP

A-V

A-V = DIFF BRAKED

AND A-V = STOPPED

20.9.4.009.00*

DEPRESS NOSEWHEEL STEERING SWITCH TO ENGAGE AND HOLD

NOSEWHEEL STEERING CAUTION LT = 'NWS'

DEPRESS

STEER ENGAGE-DISENGAGE SWITCH

STEER ENGAGE-DISENGAGE SWITCH = ENGAGE*

20.9.4.010.00*

USE DIFFERENTIAL BRAKING AND STOP THE AIR VEHICLE

STEER ENGAGE-DISENGAGE SWITCH = ENGAGE*

STOP

A-V

A-V = DIFF BRAKED

AND A-V = STOPPED

20.185
OBJECTIVE: PERFORM ANTISKID SYSTEM FAILURE PROCEDURES

CRITICALITY: 2  DIFFICULTY: 2

INITIAL CONDITIONS: 1. Antiskid caution light is illuminated.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that the antiskid caution light illuminates when a malfunction is automatically sensed in the antiskid system.
2. Recall that the antiskid caution light illuminates when the emergency brake system is activated.
3. Recall that the A/V should be braked cautiously after touchdown, since antiskid protection may not be available on one or more wheels.

ANCILLARY OBJECTIVES:

1. Recall that the antiskid caution light should not illuminate after the landing gear has been extended.
2. Recall that illumination of the antiskid light cautions the pilot of loss of skid protection on one or more wheels.
3. Recall that the antiskid caution light also illuminates when the parking brake system remains in the park mode after an unpark command has been initiated.
4. Recall that the antiskid light triggers both MASTER CAUTION lights.
5. Recall that very light braking should be used initially, increasing to moderate as the A/V slows.
OPERATOR: P/CP

TASK ELEMENTS:
20.9.5.1
20.9.5.2
20.9.5.3

20.187
20.9.5.001.00*
CHECK ANTISKID SWITCH IS ON
ANTISKID CAUTION LIGHT = 'ANTISKID'*
CHECK
ANTISKID TEST SWITCH = ON
ANTISKID TEST SWITCH = ON
AND ANTISKID CAUTION LIGHT = 'ANTISKID'

20.9.5.002.00*
CHECK EMERGENCY BRAKE SWITCH IS OFF
ANTISKID CAUTION LIGHT = 'ANTISKID'
CHECK
EMERGENCY BRAKE SWITCH = OFF

20.9.5.003.00*
LAND AIR VEHICLE AND BRAKE CAUTIOUSLY
ANTISKID CAUTION LIGHT = 'ANTISKID'
FLY
A-V
A-V = LANDED*
AND A-V = BRAKED
OBJECTIVE: PERFORM NOSE GEAR TIRE FAILURE LANDING

CRITICALITY: 2 DIFFICULTY: 2

INITIAL CONDITIONS: 1. Nose gear tire failed.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Proper sequence.
2. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when the fuel dump switch is set to DUMP, fuel will be jettisoned at each wingtip trailing edge.
2. Recall that when the CG is at the maximum aft position, the nose gear can be held off the runway until a lower airspeed has been attained.
3. Recall that the CG set mode select switch is active when the cruise mode select switch is in SET.
4. Recall that less damage will be sustained to the nose gear strut and supporting structure if the nose gear can be held off the runway as long as possible.
5. Recall that holding the nosewheel steering switch in the engage position overrides the failsafe lockout circuit and holds the steering engaged.
6. Recall that differential braking should be used to steer the A/V after landing if the nosewheel steering system is inoperative.

ANCILLARY OBJECTIVES:

1. Recall that the fuel jettison capability is provided by the fuel transfer system and dump valves and outlets.
2. Recall that fuel cannot be dumped from the main tanks.
3. Recall that manual dumping of fuel requires that the transfer pumps in the tank from which fuel is to be dumped must be turned on and all other tanks turned off.
ANCILLARY OBJECTIVES: (continued)

4. Recall that the CG LIMITS caution light will illuminate when the CG exceeds either the forward or aft limits.

5. Recall that a normal approach and touchdown should be made for a nose gear tire failure.

6. Recall that as the nose gear touches down, the nosewheel steering engage switch should be placed at steer engage and held in that position.

7. Recall that the READY/STEER annunciator light will illuminate when nose gear steering is engaged, the nose gear load switch is made, and hydraulic power is available for steering.

8. Recall that wheel braking should be minimum consistent with the remaining runway distance to help minimize damage to the nosewheel strut.

9. Recall that after clearing the active runway, the A/V should be stopped and not taxied.

OPERATOR: P/CP

TASK ELEMENTS:

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20.9.6.001.00*

SET FUEL DUMP SWITCH TO DUMP
NOSE GEAR TIRE = FAILED
SET DUMP SWITCH
DUMP SWITCH = DUMP*
AND GROSS WT DIGITAL COUNTER = TBD

20.9.6.002.00*

SET CG MODE SELECT SW TO MAXIMUM AFT ALLOWABLE POSITION
CHECKLIST = SEQUENCE
SET MODE 2 MAC SELECTOR SW
SET MODE 2 MAC SELECTOR SW = TBD*
AND PERCENT MAC INDICATOR = TBD

20.9.6.003.00*

LAND A-V AND HOLD NOSE GEAR OFF RUNWAY AS LONG AS POSSIBLE
CHECKLIST = SEQUENCE
FLY A-V
A-V = LANDED*

20.9.6.004.00*

DEPRESS NOSEWHEEL STEERING ENGAGE SWITCH TO ENGAGE AND HOLD
CHECKLIST = SEQUENCE
DEPRESS STEER ENGAGE-DISENGAGE SWITCH
STEER ENGAGE-DISENGAGE SWITCH = ENGAGE*

20.9.6.005.00*

USE NOSEWHEEL STEERING AND DIFFERENTIAL BRAKING
STEER ENGAGE-DISENGAGE SWITCH = ENGAGE*
TRACK A-V
A-V = NW STEERED*
AND A-V = DIFF BRAKED
OBJECTIVE: PERFORM MAIN GEAR TIRE FAILURE LANDING

CRITICALITY: 3    DIFFICULTY: 2

INITIAL CONDITIONS: 1. Main gear tire failed.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Runway alignment - TBD (± ft).
2. Proper sequence.
3. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when the fuel dump switch is set to DUMP, fuel will be jettisoned at each wingtip trailing edge.
2. Recall that a normal approach should be made, but the touchdown should be made holding opposite stick to minimize weight on the landing gear with the failed tire.

ANCILLARY OBJECTIVES:

1. Recall that the fuel jettison capability is provided by the fuel transfer system and dump valves and outlets.
2. Recall that fuel cannot be dumped from the main tanks.
3. Recall that manual dumping of fuel requires that the transfer pumps in the tank from which fuel is to be dumped must be turned on and all other tanks turned off.
4. Recall that after touchdown, the nose gear should be lowered to the runway as soon as practical, and nosewheel steering used to keep A/V on the runway.
5. Recall that after clearing the active runway, the A/V should be stopped and not taxied.

OPERATOR: P/CP

TASK ELEMENTS: 20.9.7.1
20.9.7.2
20.9.7.001.00*  SET FUEL DUMP SWITCH TO DUMP

MAIN GEAR TIRE = FAILED
OR MAIN GEAR TIRES = FAILED

SET

DUMP SWITCH

DUMP SWITCH = DUMP*
AND GROSS WT DIGITAL COUNTER = TBD

20.9.7.002.00*  USE NORMAL APPROACH & LAND A-V BUT DO NOT DEPLOY SPD BRAKES

CHECKLIST = SEQUENCE

FLY

A-V

A-V = LANDED*
AND SPOILER INDICATORS = 'UP'*
OBJECTIVE: PERFORM BELLY LANDING

CRITICALITY: 3  DIFFICULTY: 2

INITIAL CONDITIONS: 1. All three landing gears are retracted.

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Angle of attack - TBD (° degs).
2. Airspeed - TBD (± kts).
4. Proper sequence.
5. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when the fuel dump switch is set to DUMP, fuel will be jettisoned at each wingtip trailing edge.

2. Recall that when an APU fire switchlight is depressed, it latches mechanically in that position, shutting off the respective APU firewall fuel valve and arming the corresponding extinguishing system.

3. Recall that the touchdown angle should be kept to a minimum to lessen pitchdown at nacelle contact.

4. Recall that when an engine fire switchlight is depressed, it latches mechanically in that position, shutting off the respective engine firewall fuel valve and arming the corresponding fire extinguishing system.

5. Recall that when the battery switch is set to OFF, the batteries are removed from the dc busses.

6. Recall that each window and escape hatch is removed by lifting the cover guard, actuating the "press-to-release" safety lock and pulling the handle to its maximum extension.

7. Recall that escape ropes should be used when abandoning the A/V through the window and escape hatches.

20.194
ANCILLARY OBJECTIVES:

1. Recall that the fuel jettison capability is provided by the fuel transfer system and dump valves and outlets.

2. Recall that fuel cannot be dumped from the main tanks.

3. Recall that manual dumping of fuel requires that the transfer pumps in the tank from which fuel is to be dumped, must be turned on and all other tanks turned off.

4. Recall that fuel should be dumped to reduce A/V weight and touchdown speed.

5. Recall that both APU fire buttons should be depressed prior to landing.

6. Recall that switchlights on the left and right sides of the FIRE WARN & EXTGH panel are interlocked, respectively, so that only one of the switches on either side will remain depressed at the same time.

7. Recall that operation of any of the three switchlights on either side of the FIRE WARN & EXTGH panel will cause a depressed switchlight to return to its un-activated position.

8. Recall that the fire buttons on either side of the test switch must be pushed one at a time with a pause between each button activation or the fuel shutoff valves may not fully close.

9. Recall that external controls are provided for each window and escape hatch to permit emergency ingress for rescue operations.

OPERATOR: P/CP

TASK ELEMENTS:

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20.195
20.9.8.001.00*

**SET FUEL DUMP SWITCH TO DUMP**

NOSE GEAR ADVISORY LIGHT
AND LEFT GEAR ADVISORY LIGHT
AND RIGHT GEAR ADVISORY LIGHT

**SET**

DUMP SWITCH
DUMP SWITCH
AND GROSS WT DIGITAL COUNTER

20.9.8.002.00*

**DEPRESS APU FIRE SWITCHES**

CHECKLIST
DEPRESS
APU FIRE SWITCH LIGHTS
APU FIRE SWITCH LIGHTS
AND LEFT RUN LIGHT
AND RIGHT RUN LIGHT

20.9.8.003.00*

**SET THE ENGINES IGNITION SWITCH TO OFF**

CHECKLIST
SET
IGNITION SWITCH
IGNITION SWITCH

20.9.8.004.00*

**FLY A STRAIGHT-IN PATTERN AND TOUCHDOWN AT MINIMUM SINK RATE**

CHECKLIST
FLY
A-V
A-V

20.9.8.005.00*

**DEPRESS ENGINE FIRE SWITCH LIGHTS AFTER TOUCHDOWN**

A-V
DEPRESS
ENGINE FIRE SWITCH LIGHTS
ENGINE FIRE SWITCH LIGHTS
20.9.8.006.00*  SET GENERATOR SWITCHES TO OFF
CHECKLIST = SEQUENCE
SET GENERATOR MODE SWITCHES
EMERGENCY GENERATOR CONTROL SW
GENERATOR MODE SWITCHES = OFF
AND EMERGENCY GENERATOR CONTROL SW = OFF

20.9.8.007.00*  SET BATTERY SWITCH TO OFF
CHECKLIST = SEQUENCE
SET BATTERY SELECT SWITCH
BATTERY SELECT SWITCH = OFF

20.9.8.008.00*  PULL WINDOW AND ESCAPE HATCH SEVERANCE HANDLES AS REQUIRED
CHECKLIST = SEQUENCE
PULL
LEFT WINDOW SEVERANCE HANDLE
RIGHT WINDOW SEVERANCE HANDLE
ESCAPE HATCH SEVERANCE HANDLE
LEFT WINDOW SEVERANCE HANDLE = PULLED*
AND RIGHT WINDOW SEVERANCE HANDLE = PULLED
AND ESCAPE HATCH SEVERANCE HANDLE = PULLED

20.9.8.009.00*  ABANDON THE AIR VEHICLE
CHECKLIST = SEQUENCE
ABANDON
A-V CREW MODULE
A-V CREW MODULE = MANNED
OBJECTIVE: PERFORM DITCHING OF THE AIR VEHICLE

CRITICALITY: 3
DIFFICULTY: 3

INITIAL CONDITIONS: 1. A/V in emergency configuration.
2. Water landing is unavoidable

CONCURRENT TASKS:

INTERACTION TASKS:

PERFORMANCE LIMITS: 1. Angle of attack [TBD (° degs)].
2. Airspeed - TBD (- kts).
4. Proper sequence.
5. Switches in proper positions.

ENABLING OBJECTIVES:

1. Recall that when the fuel dump switch is set to DUMP, fuel will be jettisoned at each wingtip trailing edge.

2. Calculate the optimum wing sweep angle for ditching.

3. Recall that movement of the FLAP/SLAT handle 10 degrees to the gate detent will extend the slats and leave the flaps full up.

4. Recall that to by-pass the gate detent, a small finger-operated lever on the control handle must be raised.

5. Recall that movement of the FLAP/SLAT control handle off of the gate detent provides flap extension proportional to handle position.

6. Recall that the flap position indicator ranges from UP to full DOWN, which corresponds to zero and 40 degrees of flap travel.

7. Recall that each window and escape hatch is removed by lifting the cover guard, actuating the "press-to-release" safety lock, and pulling the handle to its maximum extension.

8. Recall that escape ropes should be used when abandoning the A/V through the window and escape hatches.
ANCILLARY OBJECTIVES:

1. Recall that the fuel jettison capability is provided by the fuel transfer system and dump valves and outlets.

2. Recall that fuel cannot be dumped from the main tanks.

3. Recall that manual dumping of fuel requires that the transfer pumps in the tank from which fuel is to be dumped must be turned on and all other tanks turned off.

4. Recall that fuel should be dumped to reduce A/V weight and touchdown speed.

5. Recall that slats can be extended and retracted at any wing sweep.

6. Recall that the barberpole on the slats position indicator is displayed when the slats are in transit or if there is a malfunction in the slat indicating system.

7. Recall that the flap position indicator gradations are provided at each one-quarter position.

8. Recall that the recommended configuration for ditching is with the landing gear retracted and the flaps/slats set as for a normal landing.

9. Recall that the A/V should not be flared but a constant angle-of-attack maintained to touchdown.

10. Recall that external controls are provided for each window and escape hatch to permit emergency ingress for rescue operations.

OPERATOR: P/CP

TASK ELEMENTS:

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20.199
20.9.9.001.00* ALERT CREW USING ICS CALL BUTTON

A-V = EMERG CONFIG*

COMMUNICATE

CALL SWITCH—PILOT ICS

CALL SWITCH—PILOT ICS = 'DITCHING A-V'

20.9.9.002.00* SET FUEL DUMP SWITCH TO DUMP

CHECKLIST = SEQUENCE

SET

DUMP SWITCH

DUMP SWITCH AND GROSS WT DIGITAL COUNTER = DUMP*

= TBD

20.9.9.003.00* CHECK OXYGEN MASKS ON AND OXYGEN REGULATORS AT 100 PER CENT

CHECKLIST = SEQUENCE

CHECK

OXYGEN MASK

OXYGEN REGULATOR

OXYGEN MASK AND OXYGEN REGULATOR = CHECKED

= 100

20.9.9.004.00* SET WING SWEEP HANDLES TO OPTIMUM ANGLE FOR PITCHING

CHECKLIST = SEQUENCE

SET

WING SWEEP HANDLES

WING SWEEP POSITION INDICATOR = TBD

20.9.9.005.00* EXTEND SLATS BY POSITIONING HANDLE TO 1ST DETENT*

CHECKLIST = SEQUENCE

EXTEND

FLAP-SLAT CONTROL HANDLE

FLAP-SLAT CONTROL HANDLE AND SLATS POSITION INDICATOR = SLAT EXD

= 'EXD*
20.9.9.006.00*  
**EXTEND FLAPS BY RELEASING LOCK LEVER UNDER HANDLE TOP**

CHECKLIST  =  SEQUENCE

EXTEND

FLAP-SLAT CONTROL HANDLE

FLAP-SLAT CONTROL HANDLE  =  TBD*

AND FLAP POSITION INDICATOR  =  TBD

20.9.9.007.00*  
**CHECK LANDING GEAR HANDLE IS UP**

CHECKLIST  =  SEQUENCE

CHECK

PRIMARY LANDING GEAR CONTROL

PRIMARY LANDING GEAR CONTROL  =  UP

20.9.9.008.00*  
**ESTABLISH AN ANGLE OF ATTACK FOR MINIMUM SINK RATE**

CHECKLIST  =  SEQUENCE

FLY

A-V

ANGLE-OF-ATTACK INDICATOR  =  TBD

20.9.9.009.00*  
**NOTIFY CREW 5 SECONDS BEFORE IMPACT OF IMPACT WARNING**

CHECKLIST  =  SEQUENCE

COMMUNICATE

PILOT ICS

PILOT ICS  =  "BRACE FOR IMPACT"

20.9.9.010.00*  
**MAINTAIN CONSTANT ANGLE OF ATTACK TO TOUCHDOWN**

CHECKLIST  =  SEQUENCE

FLY

A-V

ANGLE-OF-ATTACK INDICATOR  =  TBD*
20.9.9.011.00*

**PULL WINDOW AND ESCAPE HATCH SEVERANCE HANDLES AS REQUIRED**

**CHECKLIST**

- PULL
  - LEFT WINDOW SEVERANCE HANDLE
  - RIGHT WINDOW SEVERANCE HANDLE
  - ESCAPE HATCH SEVERANCE HANDLE
  - LEFT WINDOW SEVERANCE HANDLE = PULLED*
  - AND RIGHT WINDOW SEVERANCE HANDLE = PULLED
  - AND ESCAPE HATCH SEVERANCE HANDLE = PULLED

20.9.9.012.00*

**ABANDON THE AIR VEHICLE**

**CHECKLIST**

- ABANDON
  - A-V CREW MODULE
  - A-V CREW MODULE
  - A-V CREW MODULE = MANNED