



HB-F-4E-DCS-CL-1-3

***F-4 PHANTOM II
CHECKLISTS AND PROCEDURES***

***** SIMULATION USE ONLY *****

FOR USE IN DCS F-4E BY HEATBLUR

***COMPILED FROM DECLASSIFIED MATERIALS AND
THE HEATBLUR MANUAL.***

BY DOTBMP

FOR PUBLIC RELEASE - FOR DCS USE ONLY



UPDATES

RELEASE 1.0 - MAY 9 2024 - INITIAL RELEASE

RELEASE 1.1 - MAY 10 2024 - FIXED FORMATTING AND ORDER OF CONTENT

RELEASE 1.2 - MAY 14 2024 - FIXED FORMATTING, SPELLING MISTAKES

RELEASE 1.3 - MAY 19 2024 - BOMBING TABLES ADDED WITH INFORMATION PROVIDED DIRECTLY FROM HEATBLUR. MULTIPLE NEW PAGES IN WEAPONS SECTION NOW INCLUDING BOMBING TABLES AND INFORMATION. THANK YOU HEATBLUR FOR THIS INFORMATION EARLY!

IF YOU FIND PROBLEMS OR MISTAKES PLEASE CONTACT ME ON DISCORD, SAME NAME, OR PING ME ON HEATBLUR DISCORD.



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PILOT – BEFORE INTERIOR INSPECTION

STEP—SYSTEM—ACTION

1. Lower ejection handle guard UP
2. Generator switches OFF
3. AN/ALE-40 flare select switch NORMAL
4. Internal wing dump switch NORM
5. Throttles OFF
6. External stores emergency release CHECK NO YELLOW
..... SHOWING INSIDE CIRCULAR GUARD
7. Landing gear handle IN AND DOWN
8. Missile jettison selector OFF
9. Armament switches OFF/SAFE
10. Pitot Heat OFF
11. Battery CHECK

To determine battery relay, closure turn on Engine Master switch and check for proper positioning of gear and slats flaps position indicators.

12. Engine Master switches OFF
13. Formation lights OFF
14. Emergency attitude reference circuit breaker IN
15. UHF radio OFF
16. Reference system selector STBY
17. Publications and flight data CHECK
18. Gun Camera magazine INSTALL
19. Gun Camera dust cover STOW(with 780 equipment)
20. External Power REQUEST ON
21. External Power CHECK ON
22. Generator switches EXT ON
23. Transformer-rectifier CHECK

****ON BATTERY START, MUST WAIT UNTIL ENGINE ON****

Both transformer-rectifiers are operating if the landing gear indicators indicate gear down with the Engine master switches OFF and the generator switches in EXT.



PILOT – INTERIOR INSPECTION

STEP—SYSTEM—ACTION

1. Rudder Pedals ADJUST
2. Ejection Seat height ADJUST
ON BATTERY START, MUST WAIT UNTIL ENGINE ON
3. Stick grip and boot CHECK
Check stick grip firmly attached to stick and boot in place with no tears.
4. Auxiliary armament control panel SET
 - a. Gyro switch NORM
 - b. Aural tone control knob LOW
 - c. Boarding steps position indicator PROTRUDING
5. Slats override switch NORM
6. Intercom control panel SET
 - a. Volume control AS DESIRED
 - b. Amplifier select knob NORM
 - c. Function selector switch HOT MIC
7. ALE-40 flares switch NORMAL
8. Fuel control panel SET
 - a. Internal wing transfer switch NORMAL
 - b. Internal wing dump switch NORM
 - c. Refuel select switch ALL TANKS
 - d. External transfer switch AS REQUIRED
 - e. Air refuel switch RETRACT
9. Stab Aug switches OFF
10. Boost Pumps CHECK
ON BATTERY START, MUST WAIT UNTIL ENGINE ON

Actuate left boost pump check switch observe that the left boost pump pressure indicator reads 30 ± 5 PSI. Allow 3 seconds after release of the left switch, then repeat with right boost pump. Ensure that the test switches return to NORMAL

11. VOR/ILS panel SET
 - a. Volume control knob AS DESIRED
 - b. Marker volume knob AS DESIRED
 - c. Frequency AS DESIRED
 - d. VOR/MKR test switch TEST
ON BATTERY START, MUST WAIT UNTIL ENGINE ON
12. Slats/Flaps switch AS REQUIRED
Slats/Flaps switch should correspond with indicators
13. Emergency Slats/Flaps handle FORWARD

****CONTINUED ON NEXT PAGE****



PILOT – INTERIOR INSPECTION (CONTINUED)

STEP—SYSTEM—ACTION

14. Drag Chute control handleDOWN AND SECURE
15. Speed brake switch IN
16. Throttle friction lever SET DESIRED
17. Comm Antenna Select switch.....UPR
Anti-skid may malfunction while transmitting on the lower antenna due to electromagnetic interference.
18. Engine Anti-icing switch NORMAL
19. Anti-skid CHECK
ON BATTERY START, MUST WAIT UNTIL ENGINE ON
 - a. Anti-Skid switch on..... LIGHT OFF
 - b. Emergency quick release lever DEPRESS/LIGHT ON
..... AND RELEASE LIGHT OFF
 - c. Anti-skid switch off..... LIGHT ON
20. ARI circuit breaker IN
21. Landing and Taxi lights switch OFF
22. Slats/flaps position indicator.....SELECTED POSITION
23. Landing gear position indicators GEAR DOWN INDICATION
24. Emergency brake control handle..... IN AND SECURE
25. Canopy emergency jettison handleFORWARD
26. Multiple weapons control panel..... SET
 - a. Master Arm switch SAFE
 - b. Delivery mode knob..... OFF
 - c. Weapon select knob..... C
 - d. Radar missile power switch..... OFF
 - e. Selective jettison knob OFF
 - f. Interlock switch..... IN
 - g. CL TK light.....ON IF CENTERLINE TANK IS INSTALLED
27. Accelerometer..... SET
28. Flight Instrument light control AS REQUIRED
29. Clock.....WIND AND SET
30. Optical sight reticle CHECK
31. Film magazine/dust coverSECURE
32. ADI CHECK AND SET
ON BATTERY START, MUST WAIT UNTIL ENGINE ON
 - a. Rotate pitch trim knob to check travel.....(-10°+5° min)
 - b. Align horizon bar level with miniature Aircraft SET

CONTINUED ON NEXT PAGE



PILOT – INTERIOR INSPECTION (CONTINUED)

STEP	SYSTEM	ACTION
33.	Emergency attitude indicator.....	CHECK
	a. Cage and do not lock.....	
	b. Align miniature aircraft level with horizon bar.....	SET
34.	Navigation function selector panel.....	SET
	a. Bearing distance selector switch	AS DESIRED
	b. Mode selector knob.....	AS DESIRED
35.	Fire warning lights	TEST
36.	Canopy manual unlock handle.....	FORWARD
37.	Arresting hook handle	UP
38.	Communication-Navigation control panel.....	SET
	a. Communication frequency control knobs	AS REQUIRED
	b. Communication channel control knob.....	AS REQUIRED
	c. Mode select switch.....	AS REQUIRED
	d. Communication volume control knob.....	AS DESIRED
	e. Auxiliary channel control knob	AS REQUIRED
	f. Auxiliary volume control knob	AS REQUIRED
	g. COMM-AUX pushbutton.....	TR+G-ADF
	h. Navigation volume control knobs.....	AS REQUIRED
	i. TACAN function selector knob.....	OFF
	j. Communication command button	AS DESIRED
	k. Navigation command button.....	AS DESIRED
39.	Emergency vent knob	IN
40.	Rain removal switch.....	OFF
41.	Pitot heat.....	CHECK
	ON BATTERY START, MUST WAIT UNTIL ENGINE ON	
	REQUIRES GROUND CREW TO PERFORM CHECK	
42.	Defog-footheat control handle.....	AS DESIRED
43.	IFF Mode IV function switch.....	AS DESIRED
44.	IFF Master control knob	OFF
45.	Circuit breakers	CHECK
46.	Temperature control panel.....	SET
	a. Temperature control knob	AS DESIRED
	b. Mode selector switch	AUTO
47.	DCU-94/A bomb control monitor panel.....	SET
	a. Station selector switches	AFT
	b. Master release lock switch.....	AFT
	c. Option selector knob	OFF

****CONTINUED ON NEXT PAGE****



PILOT – INTERIOR INSPECTION (CONTINUED)

STEP—SYSTEM—ACTION

48. Cockpit lights control knob AS REQUIRED
 - a. White floodlight switch OFF
 - b. Instrument panel lights control knob AS REQUIRED
 - c. Console lights control knob AS REQUIRED
 - d. Standby compass light switch AS REQUIRED
 - e. Console floodlight switch AS REQUIRED
 - f. Indexer lights control knob AS REQUIRED
49. Warning and Indicator lights TEST
 ON BATTERY START, MUST WAIT UNTIL ENGINE ON
50. Instrument flood lights OFF
51. Aural stall warning volume AS DESIRED
52. Compass control panel SET
 - a. Latitude compensator SET
 - b. Mode control knob SLAVED
 - c. Synchronization indicator CHECK
53. Exterior lights control panel SET
 - a. Fuselage lights switch AS REQUIRED
 - b. Wings light switch AS REQUIRED
 - c. Tail lights switch AS REQUIRED
 - d. Exterior lights flasher switch AS REQUIRED
 - e. Formation lights control knob AS REQUIRED
54. Instrument lights intensity control panel SET
55. Intercom system CHECK
56. Oxygen quantity guage CHECK
 ON BATTERY START, MUST WAIT UNTIL ENGINE ON
 Check quantity sufficient, OFF flag not visible, OXYGEN LOW light extinguished. Press oxygen test button and check OXYGEN LOW light and MASTER CAUTION light illuminate at 1 litre. Notify rear crewmember, if applicable that test is in progress.
57. Oxygen supply system CHECK AND SET



BOTH – BEFORE STARTING ENGINES

STEP—SYSTEM—ACTION

1. Seat pins..... CHECK REMOVED AND STOWED
2. Fore and aft area..... CLEAR
3. Fire guard POSTED
4. Throttles..... OFF

PILOT – STARTING ENGINES

STEP—SYSTEM—ACTION

1. External Air source..... **GC** CONNECT RIGHT
2. Engine Master switches ON
3. External airflow **GC** ON
4. At 10% RPM SET
 - a. Right Ignition button PRESS AND HOLD
 - b. Right Throttle..... HALF THEN IDLE
5. At Lightoff (EGT INCR) SET
 - a. Right Ignition button RELEASE
6. At 45% RPM SET
 - a. External airflow **GC** STOP
7. Check Parameters CHECK
 - a. Exhaust Gas Temperature 220 - 420°C
 - b. Fuel Flow Indicator 800 - 1400 pph
 - c. Idle RPM..... 65 ± 1%
 - d. Right Boost Pump..... 30 ± 5 PSI
 - e. Oil Pressure..... 12 - 50 PSI
 - f. Hydraulic Pressure WITHIN LIMITS
8. Right Generator ON
9. Spoiler Actuator **GC** CHECK (LEFT)
10. Air Refueling door **GC** CHECK
11. Left Engine START PER STEPS 1-8
12. Right Generator CYCLE OFF/ON
13. Bus Tie open light..... OUT
14. External Air **GC** DISCONNECT
15. External Power..... **GC** DISCONNECT
16. Interior Check COMPLETE

Checks marked with **GC** require the ground crew to perform the check. Use the crew chief menu.



BEFORE TAXI

STEP	SYSTEM	ACTION
1.	COMM & NAV equipment	ON AND CHECK
2.	IFF	STANDBY
3.	Radar Altimeter	ON AND CHECK
4.	Altimeter & SPC	SET AND CHECK
5.	Speed Brakes	**GC** CHECK
6.	Slats & Flaps	**GC** CHECK
7.	Flight Controls	**GC** CHECK
8.	Slats & Flaps	NORM
9.	ARI Disengage	**GC** CHECK
10.	STAB AUG switches	**GC** ENGAGE AND CHECK
11.	Reference SYS select	PRIM (INS in NAV)
12.	Compass Mode control knob	SYNC
13.	AFCS	CHECK (if required)
14.	STAB AUG switches	DISENGAGE
15.	Trim	**GC** CHECK AND SET
16.	Slats & Flaps	**GC** OUT AND DOWN
17.	Optical Sight	STBY/CAGE
18.	Pneumatic pressure	CHECK
19.	IFF	CHECK
20.	Radar Altimeter	CHECK AND SET
21.	Wheel chocks	**GC** REMOVE

CAUTION: Do not move aircraft with INS in ALIGN mode.

Checks marked with **GC** require the ground crew to perform the check. Use the crew chief menu.

TAXIING

STEP	SYSTEM	ACTION
1.	Wheel Brakes	TEST
2.	Nose Gear Steering	ENGAGE AND CHECK
3.	(P-WSO) Flight instruments	CHECK
4.	(P-WSO) Oxygen diluter	AS REQUIRED

CAUTION: Taxi with canopies fully open or closed. Maintain speed below 60 knots to prevent damage. Keep adequate distance between aircraft in formation taxi to prevent damage.

CAUTION: While taxiing during high gross weight conditions, the turning radius should be increased to relieve excessive side loads on the main landing gear struts, wheels, and tires.



BEFORE TAKEOFF

STEP—SYSTEM—ACTION

1. OPTICAL SIGHTCHECK
2. INTERNAL WING TRANSFER..... NORMAL
3. **STAB AUG SWITCHES ENGAGE**
4. FLIGHT CONTROLS UNRESTRICTED (WSO CONFIRM)
5. SLATS & FLAPS.....CHECK OUT AND DOWN
6. ANTI-ICE AS REQUIRED
7. STAB TRIM CHECK 1-3 UNITS NOSE DOWN
8. FUEL QUANTITY CHECK
9. **(P-WSO) CANOPIES CLOSE AND CHECK (WSO THEN PILOT)**
10. WARNING LIGHTS TEST
11. DEFOG & TEMPERATURE AS REQUIRED
12. (WSO) COMMAND SELECTOR AS BRIEFED
13. **(P-WSO) EJECTION SEATS ARM**

AFTER RUNWAY LINE-UP

STEP—SYSTEM—ACTION

1. EXTERNAL TRANSFER.....AS DESIRED
2. **ANTI-SKID ON AND LIGHT OUT**
3. COMPASS HEADING CHECK
4. **PITOT HEAT ON**
5. IFF AS REQUIRED
6. (P-WSO) CIRCUIT BREAKERS CHECK IN
7. WARNING LIGHTS CHECK

TAKE-OFF TYPES/CONDITIONS

NORMAL TAKEOFF - The slats out-flaps down position is recommended for all takeoffs.

NO-FLAP TAKEOFF - No-flap takeoffs are not recommended. However, if it is determined that no-flap takeoffs must be performed to satisfy mission requirements, aircrews should be aware that takeoff roll and airspeed will be increased and: the takeoff attitude will be slightly steeper.

MINIMUM RUNWAY/HEAVY GROSS WEIGHT TAKEOFF - aircraft over 55,500 pounds. **Proceedure on next page.**



NORMAL TAKEOFF

STEP	SYSTEM	ACTION
1.	Wheel brakes.....	APPLY
2.	Throttle	85% RPM MAX
3.	Engine gauges	CHECK
	a. Exhaust gas temperature.....	450°C
	b. Fuel flow	4000 pph
	c. Nozzles.....	1/4
	d. Oil pressure.....	30-40 psi
4.	Wheel brakes.....	RELEASE
5.	Throttle	MIL
6.	Engine gauges	CHECK
7.	Throttle	AFTERBURNER (IF DESIRED)
8.	Nose gear steering.....	DISENGAGE AT 70 kn
9.	Stick.....	MOVE AFT at 80 kn
10.	Pitch attitude.....	MAINTAIN 10° to 12°
11.	Trim.....	AS REQUIRED

CAUTION: Rapid full aft movement of the stick between takeoff airspeed and 30 knots below takeoff airspeed may result in the stabilator hitting the runway with the possibility of stabilator actuator damage.

AFTER TAKEOFF

STEP	SYSTEM	ACTION
1.	Gear	UP
2.	Slats & Flaps	NORM(180 kn MIN)

MINIMUM RUNWAY TAKEOFF

It is recommended all minimum run/heavy gross weight takeoffs be made with afterburner.

During the takeoff-run, full aft stick must be applied prior to reaching 80 knots. As the aircraft starts to rotate, the stick should be adjusted to maintain 10° to 12° pitch attitude for aircraft fly-off.

Extended ground run increases risk of main landing gear failure.

Nose wheel liftoff speed and takeoff speed is increased, and aborted takeoff will require more distance.



CRUISE

STEP—SYSTEM—ACTION

1. (P-WSO) AltimetersSET
 CHECK STANDBY
RESET
 COMPARE
2. Radar Altimeter AS REQUIRED
3. (WSO) Command selectorAS BRIEFED
4. (P-WSO) Ops CheckCHECK
 - a. Oxygen quantity/pressure/blinkerCHECK
 - b. Cockpit pressureCHECK
 - c. Fuel quantity/transfer switchesCHECK
 - d. STBY compassCHECK
 - e. Circuit breakersCHECK IN
4. Anti-ice switch AS REQUIRED

DESCENT/BEFORE LANDING

STEP—SYSTEM—ACTION

1. Defog & TemperatureAS DESIRED
2. ALE-40 Flares/Norm switch NORMAL
3. **STAB AUG switches** **ENGAGED**
4. COMM Antenna select switch UPR
5. **Landing/Taxi light** **LANDING**
6. Armament switchesOFF/SAFE/STOW
7. Sight STBY/CAGE
8. Radar & BARO altimeterSET
9. Fuel CHECK



IN PATTERN (BELOW 210 KIAS)

STEP—SYSTEM—ACTION

1. GearDOWN
2. Slats & Flaps OUT AND DOWN
3. Hydraulic pressure CHECK
4. Warning lightsCHECK
5. Anti-skid ON AND LIGHT OUT

MISSED APPROACH

STEP—SYSTEM—ACTION

1. ThrottlesMILITARY OR AB
2. Gear UP
3. Slats & Flaps.....NORM (180 KIAS MIN)
4. Throttles AS REQUIRED



AFTER LANDING

STEP	SYSTEM	ACTION
1.	Drag Chute.....	DEPLOY
2.	Wheel brake (below 70 knots).....	ENGAGE
3.	Anti Skid (below 30 knots).....	OFF
4.	Cockpit pressure	CHECK
5.	Ejection Handle.....	SAFE
6.	Landing/Taxi Light.....	AS REQUIRED
7.	Slats & Flaps.....	NORM
8.	Drag Chute.....	JETTISON
9.	Mode 4 Sel	HOLD
10.	ECM/ALE/RWR/APX-76.....	OFF
11.	Radar/CW power.....	OFF
12.	STAB AUG switches.....	OFF
13.	Internal wing dump	NORMAL
14.	VOR/ILS control panel	OFF
15.	Engine Anti-Ice.....	NORMAL
16.	Radar Altimeter	OFF
17.	STAB trim	1-3 units NOSE DOWN
18.	Reference Sel switch	STBY
19.	Rain removal.....	OFF
20.	Pitot Heat	OFF
21.	IFF	OFF
22.	Temperature	FULL HOT
23.	Defog handle	DEFOG
24.	TACAN	OFF
25.	Formation lights.....	OFF
26.	Sight shutter	CLOSED



PILOT – ENGINE SHUTDOWN

STEP—SYSTEM—ACTION

1. Wheels **GC** CHOCKED
2. UHF Radio OFF
3. Ejection Seat RAISE
4. Defog/footheat FULL AFT
5. Temperature 12 O'CLOCK POSITION
6. Air Refuel switch EXTEND if AAR was done
7. **Right Throttle** **OFF**
8. AVTR Tape REMOVE
9. Spoiler Actuator **GC** CHECK RIGHT
11. **Left Throttle** **OFF**
12. **Engine Master switches** **OFF**

CREW – BEFORE LEAVING COCKPIT

STEP—SYSTEM—ACTION

1. (P-WSO) All Switches and Controls OFF
2. (P-WSO) Oxygen Diluter 100%



WSO – BEFORE ELECTRICAL POWER

STEP	SYSTEM	ACTION
1.	AN/ALE-40 Chaff Dispenser	OFF
2.	Throttles.....	AFT
3.	UHF radio.....	OFF
4.	AVTR Switch	OFF
5.	Radar power	OFF
6.	DSCG.....	OFF
7.	ECM equipment	OFF
8.	INS	OFF
9.	Nuclear store consent switch	SAFE
10.	Nav computer.....	OFF
11.	Battery bypass switch	OFF
12.	Circuit breaker panels	CHECK
13.	Publications and flight data	CHECK

WSO – AFTER ELECTRICAL POWER

STEP	SYSTEM	ACTION
1.	Instrument ground power switch.....	ACTUATE
2.	Navigation Computer	SET
	a. NAV Comp Mode.....	STBY
	b. Wind Counters.....	SET
	c. Variation Counter	SET
	d. POS Update Switch	NORM
	e. Present POS Counter	SET
	f. Target Counters.....	SET FOR TGT 2
	g. NAV Comp Mode.....	RESET
	h. NAV Comp Mode.....	STBY
	i. Target Counters.....	SET FOR TGT1
3.	INS Alignment	AS DESIRED

To avoid electrical power interruption which could result in an INS NO-GO indication, ensure INS is not in the ALIGN mode when the generator switches are placed to ON. If a power interruption does occur, switch the power control knob to OFF. When power is restored, go from OFF to ALIGN pausing momentarily at STBY.



WSO – INS FULL GYROCOMPASS ALIGNMENT

Time depends on ambient temperature and BATH alignment accuracy.

STEP	SYSTEM	ACTION
1.	NAV Comp Mode	STBY
2.	INS Power Knob	STBY
3.	Gyro Heat Up	WAIT
a.	HEAT Light	OUT
4.	INS Power Knob	ALIGN
5.	Alignment	WAIT
a.	ALIGN Light.....	FLASHING
6.	INS Power Knob	NAV
7.	INS Light	OUT

WSO – INS FAST BATH ALIGNMENT

Takes roughly 2 minutes 15 seconds.

STEP	SYSTEM	ACTION
1.	NAV Comp Mode	STBY
2.	INS Power Knob	STBY
3.	INS Power Knob	ALIGN
4.	Alignment	WAIT
a.	HEAT Light	IGNORE
b.	ALIGN Light.....	STEADY
5.	INS Power Knob	NAV
6.	INS Light	OUT

WSO – INS STORED HEADING ALIGNMENT

Takes roughly 2 minutes 15 seconds.

STEP	SYSTEM	ACTION
1.	NAV Comp Mode	STBY
2.	Align Mode Switch.....	HDG MEM
3.	INS Power Knob	ALIGN
4.	Alignment	Wait
a.	HEAT Light	IGNORE
b.	ALIGN Light.....	FLASHING
5.	INS Power KNOB.....	NAV
6.	INS Light	OUT
7.	Align Mode Switch.....	GYRO COMP



WSO – INTERIOR CHECK

STEP	SYSTEM	ACTION
1.	Rudder pedals	ADJUST
2.	Ejection seat height	ADJUST
3.	Stick grip and boot.....	CHECK
4.	Communication-Navigation control Panel	SET
	a. Communication frequency and control knkobs	AS REQ
	b. Communication channel control knob	AS REQ
	c. Mode Select Switch	AS REQUIRED
	d. Communication Volume control knob.....	AS DESIRED
	e. Auxiliary channel control knob	AS REQUIRED
	f. Auxiliary volume control knob	AS DESIRED
	g. COMM-AUX Pushbutton	TR + G - ADF
	h. Navigation volume control knobs.....	AS REQUIRED
	i. TACAN function selector knob.....	OFF
	j. Communication command button	AS DESIRED
	k. Navigation command button.....	AS DESIRED
5.	VOR/ILS/marker beacon volume	AS DESIRED
6.	Emergency slats flaps handle	FORWARD
7.	Intercom control panel.....	SET
	a. Volume control	AS DESIRED
	b. Amplifier select knob	NORM
	c. Function selector switch.....	HOT MIC
8.	Emergency gear handle.....	IN AND SECURE
9.	Emergency brake handle	IN AND SECURE
10.	Slats flaps position indicators	GEAR DOWN INDICATION
11.	Canopy emergency jettison handle	FORWARD
12.	Radar scope	SECURE
13.	Attitude indicator	CHECK AND SET
	ON BATTERY START, MUST WAIT UNTIL ENGINE ON	
	a. Rotate pitch trim knob to check travel (-10° to +5°)	
	b. Set horizon bar level with miniature aircraft	
14.	Clock.....	WIND AND SET
15.	Accelerometer.....	SET
16.	Navigation function selector switch	AS DESIRED
17.	Digital display indicator lamp button.....	PRESS
18.	Navigational computer set control lamp button.....	PRESS
19.	KY-29 power selector knob	OFF
20.	KY-28 mode selector	P

****CONTINUED ON NEXT PAGE****



WSO – INTERIOR CHECK (CONTINUED)

STEP	SYSTEM	ACTION
21.	Canopy manual unlock handle	FORWARD
22.	Aural tone	AS REQUIRED
23.	Cockpit lights control knob	AS REQUIRED
a.	White floodlight switch	OFF
b.	Instrument panel lights control knob	AS REQUIRED
c.	Console lights control knob	AS REQUIRED
d.	Standby compass light switch	AS REQUIRED
e.	Console floodlight switch	AS REQUIRED
f.	Indexer lights control knob	AS REQUIRED
24.	Warning and indicator lights	TEST
ON BATTERY START, MUST WAIT UNTIL ENGINE ON		
25.	Intercom system	CHECK
26.	Oxygen quantity gauge	CHECK
ON BATTERY START, MUST WAIT UNTIL ENGINE ON		
27.	Oxygen supply system	CHECK AND SET

If a battery start is to be made, those checks requiring electrical power will have to be performed after the engines have been started.

BOTH – BEFORE STARTING ENGINES

STEP	SYSTEM	ACTION
1.	Seat pins	CHECK REMOVED AND STOWED
2.	Fore and Aft Area	CLEAR
3.	Fire Guard	POSTED
4.	Throttles	OFF

WSO – BEFORE TAXI

STEP	SYSTEM	ACTION
1.	Interior Check	COMPLETE
2.	COMM & NAV equipment	ON AND CHECK
3.	Target Designator	POWER ON AND STOWED
4.	Radar BIT checks	INITIATE
5.	WRCS BIT checks	INITIATE
6.	NAV Computer mode	AS DESIRED
7.	Altimeter & SPC	SET AND CHECK

CAUTION: Do not move the aircraft with INS in ALIGN mode.



WSO – ENGINE SHUTDOWN

STEP	SYSTEM	ACTION
1.	UHF Radio.....	OFF
2.	Ejection Seats.....	RAISE
3.	INS	OFF
4.	NAV Computer	OFF
5.	Target Designator (if equipped)	OFF

CREW – BEFORE LEAVING COCKPIT

STEP	SYSTEM	ACTION
1.	(P-WSO) All Switches and Controls	OFF
2.	(P-WSO) Oxygen Diluter.....	100%



WEAPONS SYSTEMS



AIM-7E TUNEUP

STEP—SYSTEM—ACTION

1. Radar Missile power switch CW ON
 - a. RDR tuned lights STEADY FOR 4 MINUTES
2. Radar Missile power switch STBY
 - a. RDR tuned lights OFF

AIM-7F TUNEUP

STEP—SYSTEM—ACTION

1. Radar Missile power switch CW OFF FOR 1 MINUTE
2. Radar Missile power switch CW ON
 - a. RDR tuned lights ON
3. Radar Missile power switch STBY
 - a. RDR tuned lights..... REMAIN ON

WSO - AIM-7 MISSILE LAUNCH

STEP—SYSTEM—ACTION

1. Radar power OPR
2. Radar Mode RDR, MAP-B, OR BST
3. Polar switch LIN OR CIR 1
4. Aspect knob AS REQUIRED
5. Maneuver switch AS REQUIRED
6. STAB switch AS REQUIRED

**PILOT – AIM – 7 MISSILE LAUNCH****STEP—SYSTEM—ACTION**

1. Radar Missile power switch CW ON
 - a. RDR tuned lights ON
2. Missile interlock switch..... AS REQUIRED
3. Sight Mode A/A
4. Guns/Missile switch..... RADAR
 - a. Head-up Radar light ON
5. MASTER ARM..... ON
 - a. Head-up ARM light ON
6. Target LockonACCOMPLISH
For ACM Mode:
 - a. CAGE button PRESS
 - b. Align target on Boresight
 - c. Nosewheel steering button..PRESS TO ACCOMPLISH CAA LOCK
7. In-range Shoot lights ON
8. Shoot lights ON
9. Trigger SQUEEZE AND RELEASE



AIM-9 MISSILE DEPLOYMENT

STEP—SYSTEM—ACTION

1. Sight Mode A/A
 2. Guns/Missile switch HEAT
 - a. Head-up HEAT light ON
 3. Missile Aural Tone ADJUST
 4. MASTER ARM ARM
 - a. Head-up ARM light ON
 5. Uncage Seeker
 - a. ARR button PRESS AND HOLD
- NOTE: Seeker is only uncaged while ARR button is pressed and held**
6. SHOOT lights FLASHING
 7. Trigger SQUEEZE AND RELEASE

AIM-9 MISSILE DEPLOYMENT ACM

STEP—SYSTEM—ACTION

1. Sight Mode A/A
 2. Guns/Missile switch HEAT
 - a. Head-up HEAT light ON
 3. Missile Aural tone ADJUST
 4. MASTER ARM ARM
 - a. Head-up ARM light ON
 5. Accomplish Radar Lock
 - a. CAGE button PRESS
 - b. Align target in Boresight
 - c. Nosewheel steering button PRESS TO ACCOMPLISH CAA LOCK
 6. Uncage Seeker
 - a. ARR button PRESS AND HOLD
- NOTE: Seeker is only uncaged while ARR button is pressed and held**
7. SHOOT lights FLASHING
 8. Trigger SQUEEZE AND RELEASE



M61A1 NOSE GUN AND SUU-23

STEP—SYSTEM—ACTION

1. Sight mode A/G OR A/A AS REQUIRED
2. Reticle Depression knob..... SET (A/G ONLY)
3. Rate switch..... HIGH/LOW
4. Delivery mode knob..... OFF
5. Weapon select knob..... NOT TV OR ARM
6. Station select buttons GUN
For Gun Pods:
 - a. Station select buttons.....SELECT STATIONS
7. For A/A:
 - a. Guns/missile switch GUN
8. TriggerSQUEEZE

ROCKETS FIRING

STEP—SYSTEM—ACTION

1. Delivery mode selector knobDIRECT
2. Sight mode selector knob.....A/G
3. Reticle Depression knob.....SET
4. Weapon Selector knob RKTS AND DISP
5. AWRU QTY SINGLE OR RIPPLE
6. Station Select buttons SELECT STATIONS
7. MASTER ARM ARM
8. PICKLE/Weapon Release buttonDEPRESS



BOTH – AGM-45 MISSILE TUNEUP

STEP	SYSTEM	ACTION
1.	(WSO) INS mode	NAV
2.	(P) SIGHT mode	A/G
3.	(WSO) Bombing timer	SET
	a. Pullup timer	SET
4.	(WSO) Release angle	SET
	a. Low angle (LOFT)	SET
5.	(WSO) WRCS inputs	SET
	a. Target altitude	SET
	b. Release advance	SET
6.	Delivery mode	SET
	a. WRCS mode	AGM-45
	b. AN/AJB-7 mode	LOFT
	c. Direct mode	DIRECT
7.	Master arm	SAFE
8.	Wpeaon select	ARM
9.	Station select buttons	SELECT STATION
10.	REJECT switch	SET
	a. WRCS mode	DF REJ
	b. LOFT mode	NORM

AGM-45 MISSILE LAUNCH

STEP	SYSTEM	ACTION
1.	Master ARM switch	ARM
2.	ADI vertical director pointer	NULL
3.	PICKLE/ Weapon Release button	PRESS



BOTH – AGM-65 MISSILE TUNEUP

STEP	SYSTEM	ACTION
1.	Optical Sight.....	SET
	a. Sight mode.....	A/G
	b. Reticle depression	45 MILS
2.	Weapon select knob.....	TV
3.	Delivery mode knob.....	DIRECT
4.	Station select button.....	SELECT STATION
	(3-MINUTE WARMUP)	WAIT
5.	(WSO) DSCG Scope mode	TV OR STBY
6.	(P) Weapon Video (PULL TRIGGER).....	ON

PILOT – AGM-65 MISSILE LAUNCH

STEP	SYSTEM	ACTION
1.	Pipper Position	OVER TARGET
2.	ARR button	PRESS AND HOLD
3.	SEEKER	SLEW OVER TGT
4.	ARR Button	RELEASE TO LOCK TGT
5.	(P or WSO) PICKLE/Weapon Release button	PRESS AND HOLD
6.	FOR NEXT MISSILE	REPEAT STEP 2 - 5

WSO – AGM-65 MISSILE LAUNCH

STEP	SYSTEM	ACTION
1.	Action switch.....	HALF ACTION
2.	SEEKER	SLEW OVER TGT
3.	Action switch.....	FA/RELEASE TO LOCK TGT
4.	(P or WSO) PICKLE/Weapon Release button	PRESS AND HOLD
5.	FOR NEXT MISSILE	REPEAT STEP 2 - 5



PILOT – AGM – 12 MISSILE LAUNCH

STEP	SYSTEM	ACTION
1.	Optical Sight	SET
2.	Weapon Select knob	AGM-12
3.	Delivery Mode knob	DIRECT
3.	Station Select button	SELECT STATION
4.	Pipper Position	OVER TARGET
5.	PICKLE/Weapon Release button	PRESS AND HOLD
6.	(BOTH) After launch of missile	
	GUIDE TO TARGET WITH HAND SLEW CONTROL	



BOTH – GBU-8/AGM-62 TUNE-UP

STEP	SYSTEM	ACTION
1.	Optical Sight	SET
	a. Sight mode	A/G
	b. Reticle depression	20 MILS
2.	Weapon Select knob	TV
3.	Delivery Mode knob	DIRECT
4.	Station Select button	SELECT STATION (3-Minute warm up)
5.	(WSO) DSCG Scope Mode	TV OR STBY
6.	(P) Weapon Video	ON

BOTH – GBU-8/AGM-62 LAUNCH

STEP	SYSTEM	ACTION
1.	Pipper Position	OVER TARGET
2.	TRIGGER	FIRST STAGE AND HOLD TILL RELEASE
3.	PICKLE/Weapon Release button .	PRESS AND HOLD TILL RELEASE
4.	For next Missile	REPEAT STEPS 2 TO 3



BOMB DELIVERY – DIRECT MODE

STEP	SYSTEM	ACTION
1.	Optical Sight	SET
	a. Sight mode	A/G
	b. Reticle depression knob.....	SET
2.	Delivery Mode knob	DIRECT
3.	Weapon Select.....	BOMBS
4.	AWRU	SET
	a. Interval controls.....	SET
	b. Quantity knob	SET
5.	NOSE/TAIL Arm switch	AS REQ
6.	Station Select buttons.....	SELECT STATIONS
7.	Master Arm.....	ARM
8.	PICKLE/Weapon Release button.....	PRESS

**MK82 LDGP**

MK82 531lbs, 2.4 Drag Index, Low drag general purpose bomb.

Fuzing M 904 Nose, M905 Tail, M1A1 Fuze Extender

SAFE ESCAPE**Minimum Release Alt**

0-800'

4 sec

6 sec

0-300' (4G Pull)

15-1200'

0-370

820

20-1500'

15-1500

2500

30-2000'

20-1840

3010

45-3200'

30-2500

3980

45-5230

5230

Employment:

Carriage 550kts / 1.1M, +5/-1G - 500kts Max for Fuze Extenders

Jettison 175-550kts / 1.1M
175-450kts / 1.1M
250-475

Stations 2, 8
Station 5 (Centerline)
with slats extended

Release 175-550kts / 1.1M, +5G (475 with Fuze Extenders)
Max release 500kts with slats extended

Dive toss with Fuze Extenders, do not use more than 3G's

Use minimum .1 intervalometer for Ripple Release of FF's



MK82 LDGP DROP TABLES

MK 82 LDGP (SINGLE 450 KCAS)

DEG	MILS/CB	WIND	APEX	REL	AOD	BOMB RG	REC ALT	IPP
45 HADB	140+.7/1.03	1.4/18.0	13.1	8.0	1900	6104	5.1	16
45 DB	108+.7/1.02	1.5/12.4	11.6	5.0	950	4075	2.3	30
30 DB	142+.8/1.02	1.2/12.9	8.0	4.0	1700	5217	2.7	38
30 DB	122+.8/1.01	1.2/10.3	7.5	3.0	1100	4088	1.7	46
20 LALD	160+.8/1.02	1.0/12.9	5.5	3.0	2700	5545	2.3	51
20 LALD	128+.8/1.01	1.0/9.5	5.0	2.0	1500	4006	1.4	45
10 LALD	200+.9/1.02	0.7/16.5	3.2	2.5	5800	6656	2.3	--
10 LAD	149+.9/1.01	0.7/10.6	2.7	1.5	3800	4702	1.3	--

MK 82 LDGP (SINGLE 500 KCAS)

45 HADB	121+.5/1.05	1.3/17.1	13.1	8.0	1700	6309	4.6	25
45 DB	95+.5/1.03	1.3/12.4	11.8	5.5	950	4570	2.2	32
30 DB	131+.6/1.03	1.1/13.5	8.3	4.5	1850	5958	2.9	48
30 DB	113+.6/1.03	1.1/11.0	7.8	3.5	1250	4812	2.0	42
20 LALD	150+.7/1.03	0.9/13.8	5.7	3.5	3050	6528	2.7	34
20 LALD	107+.7/1.02	0.8/8.9	5.0	2.0	1350	4174	1.2	42
10 LALD	169+.7/1.03	0.6/14.5	3.2	2.5	6250	7124	2.3	10
10 LALD	127+.7/1.02	0.6/10.2	2.7	1.5	3500	4998	1.3	32

NOTES:

1. ± 2.5 Mils/1000' PA. ± 2.5 Mils/10° C.
2. Add 1 Mil/bomb for ripple release than 6 bombs.
3. Add 1 Mil for the following: EA 2 MK-82, EA 2 AIM-7/9.
4. Where two release altitudes appear for a given dive angle, the higher altitude allows 6 sec fuze arming, the lower altitude allows 4 sec arming.
5. Top of frag envelop is 2520' at 9 sec. A minimum of 20 sec between passes, recovery above 2520' or flight path with a minimum of 3100' lateral separation should be used to clear frag pattern.



MK 82 (SNAKEYE I) HIGH DRAG (SINGLE 450 KCAS)

MK 82 LDGP (SINGLE 450 KCAS)

DEG	MILS/CB	WIND	APEX	REL	AOD	BOMB RG	REC ALT	IPP
20 LALD	199+.8/3.02	2.1/6.5	4.7	1.5	1600	2542	1.0	
10 LALD	131+.9/2.13	1.0/2.9	2.3	0.6	1600	2028	0.4	
LEVEL	149+.9/1.01	0.7/10.6	2.7	1.5	3800	4702	1.3	

MK 82 LDGP (SINGLE 500 KCAS)

DEG	INT	MILS/CB	WIND	APEX	REL	AOD	BOMB RG	PATTN LGTH	REC ALT
20 LALD	.14	234+.8/3.02	2.3/8.8	5.0	2.0	2400	3136	468	1.2
10 LALD	.14	142+.9/2.13	1.0/3.8	2.4	0.8	1950	2591	462	2.3
LEVEL	.14	109+.9	0.4/2.4		0.2		1916	532	1.3

NOTES:

1. ± 2.0 Mils/1000' PA. ± 2.50 Mils/10 ° C.
2. Add 3.5 Mils/bomb for ripple release of less than 6 bombs.
3. Add 1 Mil for the following: EA2 MK-92SE, EA 2 AIM-7/9.
4. Fuze arming: M-904 4.0 sec, FMU-54 2.5 sec. For cockpit selectable high/low drag, the above delivered are compatible with these settings. If any delivery parameters are to be used, consult and comply with the appropriate warnings and notes in the -34-1-1.
5. Since certain MK-82SE ripple release configurations require a minimum intervalometer setting of 0.14 sec, all releases herein are planned for 0.14 sec.
6. Top of frag envelop is 2520' at 9 sec. A minimum of 25 sec between passes or flight paths with a minimum of 3100' lateral separation should be used to clear frag pattern.
7. For straight ahead recovery on level high drag delivery, release altitude must not exceed 250' AGL. This altitude restriction does not apply if the release is single or salvo and an immediate 4G pullup or 4G 60° climbing turn is made.



MK84

- MK84 LGB 2052lbs, 4.6 Drag Index, Gives laser terminal guidance capability. Weapon flies ballistically until seaker head captures coded laser illumination.
- MK84 EO 2296lbs, 6.0 Drag Index, Gives standoff capability and TV guided accurate weapon impact.
- Fuzing FMU 26 Nose, M 905 Tail

SAFE ESCAPE

Minimum Release Alt

10° - 1200'

4 sec

6 sec

15° - 1500'

0° - 290'

620'

20° - 1900'

15° - 1240'

2010'

30° - 2500'

20° - 1550'

2460'

45° - 3300'

30° - 2130'

3310'

45° - 3340'

5230'

Employment:

Carriage 650kts / 1.4M, +3G, 0G or 550kts / .95M, +5G, -1G

Jettison 175-550kts / .95M (EO) 175-650kts / 1.4M (LGB)

Release 175-650kts / 1.4M



MK84 LDGP DROP TABLES

MK84 LDGP (SINGLE 450KCAS)

DEG	MILS/CB	WIND	APEX	REL	AOD	BOMB RG	REC ALT	IPP
45 HADB	142+.7/1.10	1.4/17.8	13.1	8.1	1950	6082	5.1	23
45 DB	111+.7/1.13	1.5/12.2	11.5	5.1	950	4050	2.3	24
30 DB	144+.8/1.09	1.2/12.7	8.0	4.1	1750	5191	2.7	32
30 DB	125+.8/1.11	1.2/10.2	7.5	3.1	1150	4061	1.7	32
20 LALD	165+.8/1.08	1.0/12.8	5.5	3.0	2800	5487	2.3	37
20 LALD	148+.8/1.09	1.0/11.1	5.3	2.5	2100	4765	1.8	36
10 LALD	198+.9/1.07	0.7/14.8	3.5	2.5	6600	6628	2.3	43
10 LALD	178+.9/1.08	0.7/12.8	3.0	2.0	5800	5695	1.8	42

MK 84 LDGP (SINGLE 500 KCAS)

45 HADB	121+.5/1.10	1.3/16.7	13.1	8.2	1750	6295	4.6	22
45 DB	97+.5/1.14	1.3/12.2	11.8	5.7	950	4547	2.2	22
30 DB	133+.6/1.09	1.1/13.2	8.3	4.6	1900	5847	2.9	31
30 DB	115+.6/1.11	1.1/10.8	7.8	3.6	1300	4786	2.0	28
20 LALD	152+.7/1.08	0.9/13.5	5.8	3.5	3100	6502	2.7	37
20 LALD	125+.7/1.10	0.8/10.5	5.3	2.5	1900	4985	1.7	34
10 LALD	170+.7/1.08	0.6/14.2	3.5	2.5	6300	7249	2.3	39
10 LALD	153+.7/1.09	0.6/12.3	3.0	2.0	5300	6083	1.8	40

NOTES:

1. ± 2.25 MILS/1000' PA. ± 2.25 MILS/10° C.
2. Add 1 Mil for the following: EA 2 MK84, EA 2 AIM-7/9.
3. Where two release altitudes appear for a given dive angle, the higher altitude allows 6 sec fuze arming, the lower altitude allows 4 sec arming.
4. Max load for MK84 is 3 bombs, 1 EA stations 1, 5, and 9.
5. Top of frag envelop is 2820' at 9 sec. A minimum of 20 sec between passes, recovery above 2820' or flight path with a minimum of 3400' lateral separation should be used to clear frag pattern.



MK20 ROCKEYE

MK20 (Rockeye) 476lbs, 2.9 Drag Index, 247 MK 118 anti-tank bombs will penetrate 7.5" of armor.

Fuzing Bombs arm .5 sec after cluster opening and detonate upon impact.

MK 339 Mechanical time fuze with 1.2, 4.0, 6.0 Set by armament crews (fuze may be set from 1.2 to 50 sec in .1 sec increments if desired).

Employment:

Carriage 550kts / 1.1M, +5G, -1G or 650kts / 1.3M, +3G, 0G

Jettison	175-450kts / 1.1M	Station 5
	175-550kts / 1.1M	Stations 2,8
	250-475kts / 1.1M	Station 2, 8 with slats extended

Release 175-550kts / 1.1M, +4G or 175-650kts / 1.2, +3G

If 1.2 Fuze: Safe Escape
0° - 800'
0° - 400' (4G pull after release)
10° - 900'

Primary Fuze 12. Sec (Nose)

Secondary Fuze 4.0 sec (Nose and Tail)
Tail only will result in dud



MK20 MODS 2, 3, 4 ROCKEYE II (SINGLE 450 KCAS)

MK84 LDGP (SINGLE 450KCAS)

DEG	FUZE FUNCT	MILS	WIND	APEX	REL	AOD	BOMB RG	REC ALT	IPP
45 HADB	4.0	190+.7	2.8/24.4	12.1	6.0	1850	6082	3.2	46
30 DB	4.0	169+.8	1.8/16.2	7.8	3.5	1750	4050	3.2	45
20 DB	4.0	140+.8	1.2/11.1	5.0	2.0	1600	5191	1.4	40
20 DB	1.2	143+.8	1.5/10.0	4.7	1.5	1150	4061	0.8	52
10 LAB	1.2	166+.8	1.1/10.8	3.0	1.0	2700	5487	0.8	61
LEVEL	1.2	0.2/3.5	0.5/3.5	---	0.4	----	4765	---	--

MK20 MODS 2, 3, 4 ROCKEYE II (SINGLE 500 KCAS)

45 HADB	4.0	160+.5	2.5/22.8	12.1	6.0	1650	4366	2.7	41
30 DB	4.0	142+.6	1.6/15.0	7.8	3.5	1550	4531	2.0	39
20 DB	4.0	118+.7	1.0/10.3	5.0	2.0	1450	4059	1.2	37
20 DB	1.2	121+.7	1.4/9.5	4.7	1.5	1050	2820	0.6	49
10 LAB	1.2	145+.7	1.0/10.5	3.0	1.0	2550	3138	0.7	60
LEVEL	1.2	143+.7	0.4/3.8	---	0.4	----	3050	---	--

NOTES:

1. ± 2.25 Mils/1000' PA. ± 2.25 Mils/10° C.
2. Add 1 Mil for the following: EA 2 MK20, EA 2 AIM-7/9.
3. Due to the possibility of an intact (claim shell failure to open), high order detonation, a 4G wings level pull up should be made on the 10° delivery. 300' is the minimum altitude for a level delivery with a straight ahead recovery. A 4G recovery lowers this minimum to 200' AGL.



MK20 CBU

CBU 52	770lbs, 4.6 Drag Index, 217 BLU 51 A/B bombs, used against material targets.
CBU 58	840lbs, 4.6 Drag Index, 650 BLU 63 B bombs used, against personel and light materiel targets.
CBU 71	840lbs, 4.6 Drag Index, 650 BLU 86 B bombs used against personnel and light materiel targets, has a time delay fuze for random detonation.
Fuzing	FMU 56/ FMU 26

Minimum Release Alt

0° - 2020'
15° - 2800'
30° - 3530'
45° - 4150'

Employment:

Carriage	550kts / 1.1M, +5G, -1G or 600kts / 1.3M, +3G, 0G	
Jettison	175-500kts / 1.3M	Stations 2,8
	250-475kts / 1.3M	Stations 2,8 with slats extended
	300-500kts / 1.1M	Station 5
Release	175-550kts / .9M, +4G	
	500kts Max with slats extended	



CBU52B DROP TABLES

CBU52B (RIPPLE 3 450 KCAS)

DEG	HOB	MILS/CB	WIND	BASE	REL	AOD	BOMB RG	REC ALT	IPP
45 HADB	1800	153+.7/1.31	1.8/22.4	14.5	8.0	2100	5928	4.9	26
30 DB	1800	169+.8/1.47	1.7/21.8	10.5	5.5	3150	6406	4.0	38
15 LAB	1800	269+.8/1.53	1.4/25.9	7.0	4.5	8500	7977	4.0	51
15 LAB	1500	236+.8/-----	1.3/22.6	6.5	4.0	7000	7716	3.5	45
LEVEL	1800	365+.9/-----	1.0/11.5	---	4.0	-----	10821	---	---
LEVEL	1500	348+.9/-----	0.9/9.5	---	3.5	-----	10109	---	---
LEVEL	1100	296+.9/-----	0.8/6.8	---	2.5	-----	8700	---	---

CBU52B (RIPPLE 3 500 KCAS)

45 HADB	1800	141+.5/1.38	1.7/22.4	15.0	8.5	2050	6452	4.8	24
30 DB	1800	170+.6/1.55	1.5/21.0	10.5	5.5	2800	6698	3.7	36
15 LAB	1800	237+.7/1.62	1.3/28.3	7.0	4.5	7500	8400	3.9	46
15 LAB	1500	215+.7/-----	1.2/23.4	6.5	4.0	6800	8073	3.4	40
LEVEL	1800	328+.7/-----	0.8/10.5	---	4.0	-----	12278	---	---
LEVEL	1500	304+.7/-----	0.7/8.5	---	3.5	-----	11672	---	---
LEVEL	1100	276+.7/-----	0.7/7.3	---	2.5	-----	9321	---	---

NOTES:

1. ± 2.25 Mils/1000' PA. ± 2.25 Mils/10° C.
2. Add 1.5 Mils/bomb for ripple releases of less then 6 CBU's.
3. Add 1 Mil for the following: EA 2 AIM-7/9.
4. Deliveries are for FMU-56B/B, D/B set at listed HOB. Safe SEP will be sat at 3 sec. ECM switch will be "OFF" unless briefed otherwise by weapons officer.
5. Max loading on TER is shoulder stations only, or outboard shoulder and bottom station. Max loading on centerline MER is all aft stations and forward shoulder stations.
6. 45 deg HADB min alt is based on threat. All other "Min alt" are min. Pickle alt for the functioning on the FMU-56 fuze. Up to 12 CBU's may be rippled in a pass. If more then 6 are to be rippled, increase the pickle alt by 200' for 15°, 400' for 30°.



CBU52B DROP TABLES

CBU52B (RIPPLE 6 450 KCAS)

DEG	HOB	MILS/CB	WIND	BASE	REL	AOD	BOMB RG	PATTN LGTH	REC ALT	IPP
45 HADB	1800	150+.7/1.31	1.8/22.1	14.5	8.0	2050	5978	170	4.6	25
30 DB	1800	191+.8/1.47	1.7/21.6	10.5	5.5	3100	6473	223	3.9	39
15 LAB	1800	259+.8/1.54	1.4/25.9	7.0	4.5	8500	8031	348	3.9	50
15 LAB	1500	234+.8/-----	1.3/22.6	6.5	4.0	7000	7804	345	3.4	43
LEVEL	1800	360+.9/-----	1.0/11.5	---	4.0	-----	10991	568	---	---
LEVEL	1500	343+.9/-----	0.9/9.5	---	3.5	-----	10276	556	---	---
LEVEL	1100	291+.9/-----	0.8/6.8	---	2.5	-----	8867	556	---	---

CBU52B (RIPPLE 6 500 KCAS)

45 HADB	1800	138+.5/1.38	1.6/22.1	15.0	8.5	2000	6506	181	4.6	24
30 DB	1800	165+.6/1.47	1.5/20.3	10.3	5.5	2800	6768	231	3.5	34
15 LAB	1800	259+.7/1.54	1.2/25.5	7.0	4.5	7500	8510	368	3.8	44
15 LAB	1500	234+.8/-----	1.2/23.4	6.5	4.0	6800	8181	360	3.3	38
LEVEL	1800	360+.9/-----	0.8/10.5	---	4.0	-----	12462	615	---	---
LEVEL	1500	343+.9/-----	0.7/8.5	---	3.5	-----	11856	615	---	---
LEVEL	1100	291+.9/-----	0.7/7.3	---	2.5	-----	9501	603	---	---

NOTES:

1. ± 2.25 Mils/1000' PA. ± 2.5 Mils/10° C.
2. Add 1.5 Mils/bomb for ripple releases of less then 6 CBU's.
3. Add 1 Mil for the following: EA 2 AIM-7/9.
4. Deliveries are for FMU-56B/B, D/B set at listed HOB. Safe SEP will be sat at 3 sec. ECM switch will be "OFF" unless briefed otherwise by weapons officer.
5. Max loading on TER is shoulder stations only, or outboard shoulder and bottom station. Max loading on centerline MER is all aft stations and forward shoulder stations.
6. 45 deg HADB min alt is based on threat. All other "Min alt" are min. Pickle alt for the functioning on the FMU-56 fuze. Up to 12 CBU's may be rippled in a pass. If more then 6 are to be rippled, increase the pickle alt by 200' for 15°, 400' for 30°.



BOMB DELIVERY – DIVE TOSS AND DIVE LAYDOWN

STEP—SYSTEM—ACTION

- 1. Sight mode..... A/G
- 2. Delivery Mode knob DT/DL
- 3. HSI Mode switches NAV COMP
- 4. (WSO) Radar Mode AIR-GRD
- 5. (WSO) Radar Range 5 OR 10 nm
- 6. (WSO) Radar Power OPR
- 7. (WSO) Antenna STAB switch..... NOR
- 8. (WSO)(DT ONLY) WRCS Drag Coeff.....SET
- 9. (WSO)(DT ONLY) WRCS Release Range.....SET
- 10. (WSO) WRCS Release AdvanceSET AS DESIRED
- 11. Weapon Select knob..... BOMBS
- 12. AWRUSET
 - a. Interval controls.....SET
 - b. Quantity knob.....SET
- 13. NOSE/TAIL Arm switch AS REQUIRED
- 14. Station Select buttons..... SELECT STATIONS
- 15. Master Arm switch ARM

DIVE ON TARGET (DIVE TOSS ONLY)

STEP—SYSTEM—ACTION

- 1. (WSO) Reciever Gain MIN
- 2. (WSO) Lock on TGT CALL OUT
- 3. PICKLE/Weapon Release..... PRESS AND HOLD TILL RELEASE



DIVE TOSS – CB

GBU-10

REL ANGLE	TAS	R 5000	R 7500	R 10k	R 15k	R 20k
-15	400	1.03	1.04	1.05	1.06	1.07
-15	500	1.04	1.06	1.07	1.09	1.11
-15	600	1.06	1.09	1.11	1.15	1.18
-30	400	1.03	1.04	1.06	1.07	1.09
-30	500	1.05	1.07	1.08	1.12	1.14
-30	600	1.07	1.10	1.13	1.18	1.22
-45	400	1.03	1.05	1.06	1.09	1.11
-45	500	1.05	1.07	1.09	1.13	1.17
-45	600	1.07	1.11	1.14	1.19	1.24
-60	40	1.03	1.05	1.07	1.10	1.12
-60	500	1.05	1.07	1.10	1.14	1.18
-60	60	1.08	1.11	1.14	1.20	1.26

GBU-12

-15	400	1.04	1.05	1.06	1.08	1.09
-15	500	1.05	1.07	1.08	1.11	1.13
-15	600	1.07	1.10	1.12	1.17	1.20
-30	400	1.04	1.06	1.07	1.10	1.12
-30	500	1.06	1.08	1.10	1.14	1.17
-30	600	1.08	1.11	1.14	1.20	1.24
-45	400	1.04	1.06	1.08	1.11	1.14
-45	500	1.06	1.08	1.11	1.15	1.19
-45	600	1.08	1.12	1.15	1.22	1.27
-60	400	1.05	1.06	1.08	1.12	1.15
-60	500	1.06	1.09	1.11	1.16	1.21
-60	600	1.09	1.12	1.16	1.22	1.28

NOTES:

1. R = Slant range in ft.



DIVE TOSS – CB

M-117

REL ANGLE	TAS	R 5000	R 7500	R 10k	R 15k	R 20k
-15	400	1.02	1.02	1.03	1.04	1.04
-15	500	1.02	1.03	1.03	1.05	1.06
-15	600	1.04	1.05	1.06	1.08	1.10
-30	400	1.02	1.03	1.03	1.06	1.08
-30	500	1.02	1.03	1.04	1.12	1.14
-30	600	1.04	1.06	1.07	1.10	1.13
-45	400	1.02	1.03	1.04	1.05	1.06
-45	500	1.02	1.04	1.05	1.07	1.09
-45	600	1.04	1.06	1.08	1.12	1.15
-60	400	1.02	1.03	1.04	1.05	1.07
-60	500	1.03	1.04	1.05	1.08	1.10
-60	600	1.04	1.06	1.08	1.12	1.16

MK 20

-15	400	1.03	1.04	1.05	1.06	1.07
-15	500	1.04	1.06	1.07	1.10	1.12
-15	600	1.07	1.10	1.12	1.16	1.19
-30	400	1.03	1.05	1.06	1.08	1.10
-30	500	1.05	1.07	1.09	1.12	1.15
-30	600	1.08	1.11	1.14	1.19	1.23
-45	400	1.03	1.05	1.06	1.09	1.12
-45	500	1.05	1.07	1.10	1.14	1.18
-45	600	1.08	1.12	1.15	1.21	1.26
-60	400	1.04	1.05	1.07	1.10	1.13
-60	500	1.05	1.08	1.10	1.15	1.20
-60	600	1.08	1.12	1.15	1.22	1.27

NOTES:

1. R = Slant range in ft.



DIVE TOSS – CB

MK 82 SNAKEYE

REL ANGLE	TAS	R 5000	HD	R 7500	HD	R 10k	HD	R 15k	HD	R 20k
-15	400	1.01	3.58	1.02	4.75	1.02	5.87	1.03	8.00	1.03
-15	500	1.02	4.19	1.02	5.73	1.03	7.19	1.04	9.96	1.04
-15	600	1.03	4.79	1.04	6.74	1.05	8.58	1.06	---	1.08
-30	400	1.02	4.72	1.02	6.82	1.03	8.88	1.03	---	1.04
-30	500	1.02	5.49	1.03	8.19	1.03	---	1.14	---	1.14
-30	600	1.03	6.25	1.04	9.61	1.06	---	1.08	---	1.10
-45	400	1.02	5.61	1.02	8.57	1.03	---	1.04	---	1.05
-45	500	1.02	6.47	1.03	---	1.04	---	1.05	---	1.07
-45	600	1.03	7.31	1.05	---	1.06	---	1.09	---	1.11
-60	400	1.02	6.29	1.02	9.91	1.03	---	1.04	---	1.05
-60	500	1.02	7.20	1.03	---	1.04	---	1.06	---	1.08
-60	600	1.03	8.06	1.05	---	1.06	---	1.09	---	1.12

MK 82 AIR

REL ANGLE	TAS	R 5000	HD	R 7500	HD	R 10k	HD	R 15k	HD	R 20k
-15	400	1.01	3.70	1.02	4.93	1.02	6.11	1.03	8.36	1.03
-15	500	1.02	4.34	1.02	5.96	1.03	7.50	1.04	---	1.05
-15	600	1.03	4.99	1.04	7.03	1.05	8.97	1.07	---	1.08
-30	400	1.02	4.91	1.02	7.13	1.03	9.31	1.04	---	1.04
-30	500	1.02	5.74	1.03	8.60	1.03	---	1.14	---	1.14
-30	600	1.03	6.56	1.04	---	1.06	---	1.08	---	1.10
-45	400	1.02	5.88	1.02	9.00	1.03	---	1.04	---	1.05
-45	500	1.02	6.80	1.03	---	1.04	---	1.06	---	1.07
-45	600	1.03	7.71	1.05	---	1.06	---	1.09	---	1.11
-60	400	1.02	6.61	1.02	---	1.03	---	1.04	---	1.05
-60	500	1.02	7.60	1.03	---	1.04	---	1.06	---	1.08
-60	600	1.03	8.54	-1.05	---	1.07	---	1.10	---	1.12

NOTES:

1. R = Slant range in ft.
2. HD = High drag bombs



DIVE TOSS – CB

MK 82

REL ANGLE	TAS	R 5000	R 7500	R 10k	R 15k	R 20k
-15	400	1.01	1.02	1.02	1.03	1.03
-15	500	1.02	1.03	1.03	1.04	1.05
-15	600	1.03	1.04	1.05	1.07	1.09
-30	400	1.01	1.02	1.03	1.03	1.04
-30	500	1.02	1.03	1.04	1.06	1.07
-30	600	1.03	1.05	1.06	1.09	1.11
-45	400	1.02	1.02	1.03	1.04	1.05
-45	500	1.02	1.03	1.04	1.06	1.08
-45	600	1.04	1.05	1.07	1.09	1.12
-60	400	1.02	1.02	1.03	1.05	1.06
-60	500	1.02	1.04	1.05	1.06	1.09
-60	600	1.04	1.05	1.07	1.10	1.12

SUU-30H

REL ANGLE	TAS	R 5000	R 7500	R 10k	R 15k	R 20k
-15	400	1.02	1.03	1.04	1.05	1.06
-15	500	1.04	1.05	1.06	1.08	1.10
-15	600	1.06	1.08	1.10	1.14	1.16
-30	400	1.03	1.04	1.05	1.07	1.08
-30	500	1.04	1.06	1.07	1.10	1.13
-30	600	1.07	1.09	1.12	1.16	1.20
-45	400	1.03	1.04	1.05	1.08	1.10
-45	500	1.04	1.06	1.08	1.12	1.15
-45	600	1.07	1.10	1.13	1.18	1.22
-60	400	1.03	1.04	1.06	1.09	1.11
-60	500	1.05	1.07	1.09	1.13	1.17
-60	600	1.07	1.10	1.13	1.19	1.23

NOTES:

1. R = Slant range in ft.



BOMB DELIVERY – LAYDOWN

STEP	SYSTEM	ACTION
1.	Sight mode.....	A/G
2.	Delivery Mode knob	LAYDOWN(L)
3.	Reticle Depression knob.....	SET(IF REQ)
4.	HSI Mode switches	NAV COMP
5.	(WSO) WRCS Target Range.....	SET
	a. Set the distance from IP to TGT	
6.	(WSO) WRCS Release Range	SET
7.	(WSO) WRCS Release Advance	SET(IF REQ)
8.	Weapon Select knob.....	BOMBS
9.	AWRU	SET
	a. Interval controls.....	SET
	b. Quantity knob	SET
10.	NOSE/TAIL Arm switch	SET
11.	Station Select buttons	SELECT STATIONS
12.	Master Arm switch	ARM
13.	PICKLE/Weapon Release switch .	PRESS AND HOLD TILL RELEASE



BOMB DELIVERY – LOFT

STEP	SYSTEM	ACTION
1.	(WSO) Activate switch	NORMAL
2.	(WSO) Low Angle knob	SET
3.	(WSO) Pullup Timer	SET
4.	(WSO) Release Timer	SET ZERO
5.	Delivery Mode knob	LOFT
6.	Weapon Select knob	BOMBS
7.	AWRU	SET
	a. Interval controls	SET
	b. Quantity knob	SET
8.	NOSE/TAIL Arm switch	AS REQ
9.	Station select buttons	SELECT STATIONS
10.	Master Arm switch	ARM

OVER IP

STEP	SYSTEM	ACTION
1.	PICKLE/Weapon Release switch	PRESS AND HOLD
2.	At Pull-up Point.....	INITIATE PULL-UP
3.	PICKLE/Weapon Release switch	RELEASE



BOMB DELIVERY

LABS, TGT FIND AND OFFSET

STEP	SYSTEM	ACTION
1.	Sight Mode knob	A/G
2.	Delivery Mode knob	OFFSET BOMB or TGT FIND
3.	(WSO) Target find switch	HOLD
4.	Navigation mode knob	NAV COMP
5.	HSI mode switches	NAV COMP
6.	(WSO) INS mode knob	NAV
7.	(WSO) Navigation mode selector switch	NAV COMP
8.	(WSO) WRCS input counters	SET
	a. Target distance N/S	100-foot increments
	b. Target distance W/W	100-foot increments
	c. IP altitude MSL	100-foot increments
	MUST BE LOWER THEN AIRCRAFTS CURRENT ALTITUDE	
	d. Release range..10-foot or 100-foot increments (OFFSET BOMB)	
	e. Release range..... LABS pullup range, 10-foot or 100-foot incr.	
	f. Release advance	Milliseconds (OFFSET BOMB if req)
9.	Weapon Select knob	BOMBS (OFFSET BOMB)
10.	AWRU	SET
	a. Interval controls	SET
	b. Quantity knob	SET
11.	NOSE/TAIL Arm switch	ON (AS REQ)
12.	Station select	LOADED STATION(S)
13.	Master Arm switch	ARM
14.	(WSO) Dual timers	SET
	a. Pullup timer	T1
	b. Release timer	T2
15.	(WSO) Release gyro	SET
	a. Low angle	(LOFT) - DEG



BOMB DELIVERY

(WSO) BEFORE BOMB RUN

STEP—SYSTEM—ACTION

1. (WSO) Radar Power OPR
2. (WSO) Radar mode MAP PPI
3. (WSO) Antenna stab switch..... NOR
4. (WSO) Cursor intensity ADJUST
5. (WSO) Antenna elevation ADJUST
6. (WSO) Scan switch.....WIDE
7. (WSO) Scan switch.....WIDE

BOMB RUN – OFFSET RADAR IP

STEP—SYSTEM—ACTION

1. (WSO) Operate along track cntrl POS RNG CURSOR OVR RIP
 2. (WSO) Operate cross track cntrl..... POS RNG CURSOR OVR RIP
 3. (WSO) Freeze button PUSH ON
 4. (WSO) Target insert button PUSH ON
- Steering instruments display steering commands when the target insert button is pushed ON, and the cursor intersection wipp position over the target location and track the target. If the target is on the scope, set the target elevation on the ALT RANGE counter and touch up the cursors over the target.
5. PICKLE/Weapon Release btn.... PRESS AND HOLD (OFFSET BOMB)
 - a. At bomb releass, pullup light ON
 - b. When station is empty, station ARM light OFF

BOMB RUN – VISUAL IP FLYOVER

STEP—SYSTEM—ACTION

1. (WSO) When over IP
 - a. Freeze button PUSH ON
 - b. Target insert button PUSH ON
2. PICKLE/Weapon Rel btn..... PRESS AND HOLD (OFFSET BOMB)
 - a. At bomb release pullup light ON
 - b. When a station is empty, station ARM light..... OFF



BOMB DELIVERY

BOMB RUN LABS/TGT FIND

STEP—SYSTEM—ACTION

1. Delivery mode knob LABS
Bomb run LABS/TGT find as REQUIRED select the planned delivery mode.

NOTE: with the target find switch on HOLD, the delivery mode selector may be positioned to any LABS mode without losing WRCS function.

2. (WSO) Align track and cross track controls..... AS REQUIRED
3. (WSO) Freeze button PUSH ON
4. (WSO) Target Insert button PUSH ON
5. (WSO) After target insert, activate switch..... ON
Select the ON position only after steering instruments have transitioned to the target.
6. At warning tone (T 1 start) INITIATE PULLUP
7. PICKLE/Weapon Release btn..... PRESS AND HOLD



KY-28 PRELAUNCH

STEP—SYSTEM—ACTION

1. KY-28 Power OFF and mode set to P
2. Code Setting DCS Comms Menu
3. UHF Radio ON
4. Mode Switch P
5. Power knob ON
6. Ground test TEST TRANSMIT UNENCRYPTED
7. Mode switch C
8. Alarm Check KY-28 SELF TESTS
2 Seconds of unbroken 1200 Hz Tone, followed by 1200 Hz tone interrupted at a 2.3 Hz rate
9. Clear Interrupted Tone MIC button to UHF
 - a. Successful test will result in Interrupt tone stopping and radio in standby mode.
 - b. Failure will have the interrupt tone return after pressing MIC button to UHF.
 - c. Alarm check failure requires the KY-28 to be turned off
Power knob OFF
Mode switch P
11. Cipher Radio Communications Test PRESS UHF TO TRANSMIT
a. Unclear communications requires disable the KY-28
12. To resume Plain communication
Mode Switch P

****NOTE**** Ground crew must set encryption key on the ground

****NOTE**** An inflight check can be completed following the same steps

KY-28 ZEROIZE

If ZEROIZE is pressed at any point in time, the encryption keys will be removed. This is irreversible in flight.



WSO – PAVE SPIKE OPERATIONS

STEP	SYSTEM	ACTION
1.	Ensure aircraft power	AC bus and Main DC bus
2.	Ensure CB's are not pulled	No. 4 CB Panel, WSO left wall
3.	(WSO) Power on button.....	PRESS AND CONFIRM LAMP LIT Located on WSO, Target Designator set control
4.	BIT 1	CONFIRM MALF NOT LIT
5.	Video Select switch.....	ASQ-153 WSO, main panel
6.	(BOTH) DSCG Mode	TV
7.	Un-stow	PRESS STOW BUTTON a. WAIT 5 seconds and confirm lamp OFF
8.	Confirm DSCG on and displaying pod camera feed.	



EMERGENCY PROCEDURES

INFLIGHT EMERGENCY - INFLIGHT EMERGENCY - INFLIGHT EMERGENCY - INFLIGHT EMERGENCY - INFLIGHT EMERGENCY



OUT-OF-CONTROL-RECOVERY

- | STEP | SYSTEM | ACTION |
|------|--------------------------|--|
| 1. | STICK | FORWARD |
| 2. | AILERONS AND RUDDER..... | NEUTRAL |
| 3. | IF NOT RECOVERED | MAINTAIN FULL FORWARD STICK
..... AND DEPLOY DRAG CHUTE |
| 4. | Throttles..... | IDLE (unless low altitude) |

UPRIGHT SPIN

- | STEP | SYSTEM | ACTION |
|------|--|------------------------------|
| 1. | STICK | MAINTAIN FULL FORWARD |
| 2. | AILERONS | FULL WITH SPIN (TURN NEEDLE) |
| 3. | AIRCRAFT UNLOADED..... | AILERONS NEUTRAL |
| 4. | If out of control at or below 10,000ft AGL | EJECT |





DOUBLE ENGINE FAILURE

STEP	SYSTEM	ACTION
------	--------	--------

- | | | |
|----|---------------------------------|----------|
| 1. | Either engine..... | AIRSTART |
| 2. | Reference system selector | STBY |

**** IF NEITHER ENGINE STARTS ****

- | | | |
|---|--------------------------------|----------|
| 3. | Fuel status..... | CHECK |
| 4. | Engine master switches | CHECK ON |
| 5. | Either throttle..... | OFF |
| 6. | Other engine..... | AIRSTART |
| 7. | Remaining engine | AIRSTART |
| 8. | If neither engine starts | CHECK |
| a. Hold boost pump check switches in CHECK position while pulling left and right main fuel control circuit breakers (H3, J1, No. 2 Panel) | | |
| b. Re attempt AIRSTART | | |

**** IF NEITHER ENGINE CAN BE STARTED ****

9. EJECT

DOUBLE ENGINE FAILURE

DOUBLE ENGINE FAILURE

DOUBLE ENGINE FAILURE

DOUBLE ENGINE FAILURE



ENGINE FIRE OR OVERHEAT DURING FLIGHT

STEP—SYSTEM—ACTION

1. Throttle bad engine..... IDLE
2. If warning light goes out, Fire test button..... PRESS
3. If all FIRE/OVERHEAT lights come on when button is pressed
..... **LAND AS SOON AS POSSIBLE**

IF WARNING LIGHT ON, DETECTION SYSTEM INOP, TRAILING VAPOR,
OR FIRE CONFIRMED:

4. Maintain 300knots minimum, anticipate utility hydraulics failure..
Avoid turns into bad engine
5. Generator bad engine OFF
6. Throttle bad engine..... OFF
7. Master switch bad engine..... OFF
8. Air refuel switch EXTEND
9. If fire persists EJECT
10. If fire ceases..... LAND AS SOON AS POSSIBLE

****CAUTION**** Do not attempt to restart the bad engine. If fire ceases, and
a landing is to be attempted, make a single engine landing.



COMPRESSOR STALL

STEP	SYSTEM	ACTION
------	--------	--------

1.	Throttles.....	IDLE
----	----------------	------

****IF STALL DOES NOT CLEAR****

2.	Generator switch	OFF
3.	Throttle	OFF
4.	Inlet ramps	CHECK FULLY RETRACTED
5.	Ignition button	HOLD PRESSED
6.	Throttle	IDLE
7.	RPM, EGT, oil pressure & fuel flow	MONITOR
8.	Generator switch	ON

GLIDE DISTANCE

With both engines failed, the aircraft will glide approximately 6 nautical miles for each 5000 feet AGL. The recommended glide airspeed for maximum range with both engines out is 215 knots. This speed will allow the windmilling engines to maintain power control hydraulic pressures within safe limits but may not be optimum for airstart.

EJECTION

At ground level with wings level, canopy closed, and no sink rate, ejection may be initiated between 9 and 550 knots if neither crewmember's boarding weight is over 247 pounds. Boarding weight includes the crewmember and all of their personal equipment with which they board the aircraft. If either crewmember's boarding weight is over 247 pounds, the minimum ejection airspeed is 50knots.

Initiate ejection below 450 knots if possible. Although the seat is qualified to 600 knots, ejection above 450 knots exposes the crew member to forces which can cause serious injury. If airspeed is over 550 knots, minimum ejection altitude is 50 feet. In controlled level flight, eject above 2000 feet AGL if possible. If out-of-control at or below 10,000 feet AGL, eject.



SINGLE-ENGINE OUT LANDING

STEP—SYSTEM—ACTION

1. Reduce the airplane gross weight to minimum practical.
2. Inlet ramp on good engine CHECK FULLY RETRACTED
3. All unessential electrical equipment..... OFF
5. Make fully configured 17 unit AOA approach

DOUBLE-ENGINE LANDING

STEP—SYSTEM—ACTION

1. EJECT EJECT

EMERGENCY LANDING PATTERN

To use when single engine out, or a malfunction could lead to a loss of power. The primary objective is to land the aircraft safely in the first attempt with the least amount of risk. Due to many factors such as height of emergency or runway length there can not be a single standard pattern. It may be best to have a straight in approach, or to enter downwind or base leg, or make a complete 360° overhead pattern. Because of the many variables the pilot's evaluation of all factors and their judgement will determine the exact type of landing that will be used.

Here are some guidelines:

- Reduce gross weight to minimum practical
- Maintain minimum 230 knots (250 single engine)
- Avoid abrupt, steep or hard turns, or large or abrupt power changes.
- If possible, long straight in final approach should be planned and used. Landing configuration when on final
- Air refuel switch to EXTEND prior to landing to depressurize the fuel tanks.



WARNING AND INDICATOR LIGHTS

LIGHT	CAUSE	CORRECTIVE ACTION/REMARKS
Speedbrake out	Speedbrakes not closed	Info only
Autopilot pitch trim	Autopilot pitch trim is malfunctioning (other than momentary)	Stick - Grasp firmly autopilot - disengage
Oxygen low	Quantity is 1 liter or less	Descend to safe altitude
Cabin turb overspeed	Turbine pressure/temp. Too high	Reduce thrust and speed. If light stays on: Emergence vent knob - Pull
R or L aux air door	Door(s) out of phase with gear handle	Carry out emergency procedures
R or L anti-ice On	Normal if switch on	If switch off: Reduce airspeed if light goes out, accelerate and disregard light. If light stays on: Remain at reduced speed.
Pitch aug off	Pitch stab aug not engaged	Do not exceed 300 knots below 10,000 feet
Static corr off	Spc inoperative	- CADC switch - reset corr. If light stays on: - CADC Switch - CORR OFF - Use AS and ALT CoRR DATA
Radar cni cool off	Equipment cooling turbine	Reduce airspeed, wait 15 seconds reset - PUSH if light stays on: Remain at reduced airspeed
Autopilot disengage	Autopilot is not engaged	Info only
Check fuel filters	Fuel filter(s) are clogged	Note in form 781
Hook down	Hook is unlocked	Info only
Inertial nav sys out	Ins malfunction	Reference system selector - STBY
LH gen OUT RH Gen OUT	Gen off the line	Carry out emergency procedures
Bus tie open	Gen. Are out of frequency phase, or faulted csd underspeed switch	Carry out emergency procedures



WARNING AND INDICATOR LIGHTS

LIGHT	CAUSE	CORRECTIVE ACTION/REMARKS
Anti-skid inoperative	Anti-skid has malfunctioned	Carry out emergency procedures disregard momentary light
DC BUS	Main 28vDC Bus disconnected from ESS28DC Bus because of low voltage on 28VDC	Check DC operated equipment Cycle generators simultaneously (Day VMC Only) land as soon as practical
APU	PC-1 press below 1000 psi	1F pc-2 System normal: APU reject switch - as Desired
Tank 7 fuel	Cell 7 transfer valve failed to open	Cell 7 fuel not available only fuel read on tape is available
Slats in	Slats override switch at in position	Info only