

WELCOME TO TECHNICAL ORDER 00-105E-9, 1 FEBRUARY 2006, REVISION 11.

THIS IS SEGMENT 11 COVERING CHAPTER 8 FROM THE QF-4 TO F-16.

TO NAVIGATE

CLICK ON THE
BOOKMARKS AND
CLICK ON THE (+)
SYMBOLS, THEN
CLICK ON SUBJECT
LINKS TO GO TO
SPECIFIC VIEWS
IN THIS SEGMENT.



CONTINUE

NOTICE

CONTACT

**TO GO DIRECTLY TO THE TECHNICAL ORDER,
CLICK ON THE CONTINUE BUTTON.**

**TO SEE THE SEGMENT INFORMATION CHANGE NOTICE,
CLICK ON THE NOTICE BUTTON.**



**TO CONTACT THE TECHNICAL CONTENT MANAGER ,
CLICK ON THE CONTACT BUTTON.**

TECHNICAL ORDER 00-105E-9 TECHNICAL CONTENT MANAGER



WRITTEN CORRESPONDENCE:

HQ AFCESA/CEXF

ATTN: Fire and Emergency Services Egress Manager

139 Barnes Drive Suite 1

Tyndall AFB, Florida 32403-5319

E-MAIL: HQAFCESA.CEXF@tyndall.af.mil

INTERNET: HQ AFCESA Fire and Emergency Services PUBLIC WEB PAGE:

<http://www.afcesa.af.mil/CEX/cexf/index.asp>

Safety Supplements: http://www.afcesa.af.mil/CEX/cexf/_firemgt.asp

PHONE: (850) 283-6150

DSN 523-6150

FAX: (850) 283-6383

DSN 523-6383

For technical order improvements, correcting procedures, and other inquiries, please use the above media most convenient.

SEGMENT 11 INFORMATION CHANGE NOTICE

This page is provided to notify the user of any informational changes made to Technical Order 00-105E-9 in this Segment and the current Revision. Informational changes will be referenced in the Adobe Reader's Bookmark tool as a designator symbol illustrated as a <[C]> for quick reference to the right of the affected aircraft. The user shall insure the most current information contained in this TO is used for his operation. Retaining out of date rescue information can negatively affect the user's operability and outcome of emergencies. If the user prints out pages his unit requires, the user shall print the affected page(s), remove and destroy the existing page(s), and insert the newly printed page(s) in the binder provided for that purpose. A Master of this TO shall be retained in the unit's library for reference, future printing requirements and inspections.

<u>CHAPTER</u>	<u>AIRCRAFT</u>	<u>PAGE</u>	<u>EXPLANATION OF CHANGE</u>
8	QF-4	ALL	File updated incorporating Safety Supplement -7, dated 15 September 2005. Added paint scheme and dimensions page.
8	F-5	ALL	File update. Paint scheme and dimensions page added.
8	F-15	ALL	File updated.
8	F-16	ALL	File updated. Emphasis on engine shutdown options. Incorporates Safety Supplement - 6, dated 12 September 2005.

NOTE

Chapter 8 contains emergency rescue and mishap response information for the following aircraft:

USAF	QF-4
USAF	F-5E/F
USAF	F-15
USAF	F-16
USAF	F/A-22A
USAF	QF-106
USAF	F-117A

CHAPTER 8
U.S. AIR FORCE
FIGHTER
AEROSPACE EMERGENCY RESCUE
AND MISHAP RESPONSE INFORMATION

8-1. INTRODUCTION AND USE.

8-2. This section contains emergency rescue and mishap response information illustrations in alpha-numerical order relative to type and model of aircraft. This arrangement of illustrations is maintained from Chapter 4 throughout the remainder of the publication.

8-3. GENERAL ARRANGEMENT.

8-4. Aircraft type designation has been positioned in the upper right corner of the horizontal illustration for rapid identification. Additional aids to rapid orientation are:

a. Recent technological advances in aviation have caused concern for the modern firefighter. Aircraft hazards, cabin configurations, airframe materials, and any other information that would be helpful in fighting fires, the locating and rescue of personnel will be added as the information becomes available.

b. Suggested special tools/equipment are listed in the upper left corner, on the Aircraft/Entry page of each listed aircraft.

c. Procedural steps covering emergency/normal entrances, cut-ins, engine/APU shutdown, safetying ejection/escape systems, and aircrew extraction are outlined on the left side of each page with coordinated illustrations on the right.

d. Illustrations located on right side of pages are coordinated with text by numerals and small letters depicting both paragraph and subparagraph on the page.

e. Each illustration is consistently colored and/or pattern keyed to highlight essential emergency rescue information.

f. Details are pulled directly from the illustration to highlight an area, thus eliminating unnecessary searching for desired information.

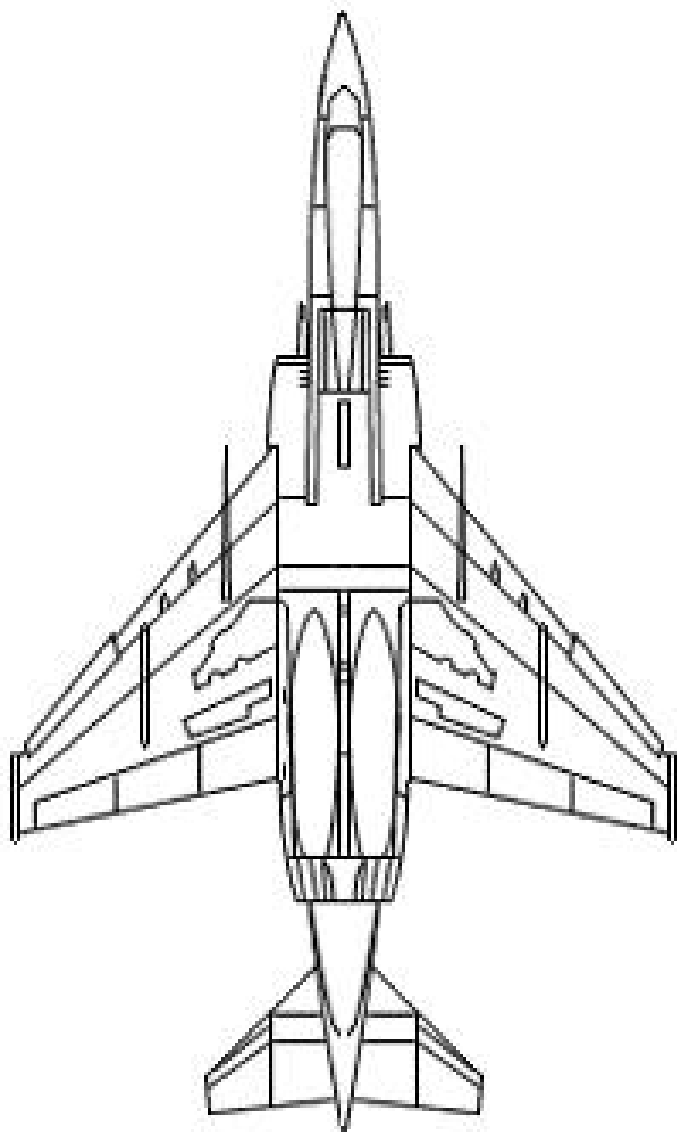
AIRCRAFT PAINT SCHEME

QF-4



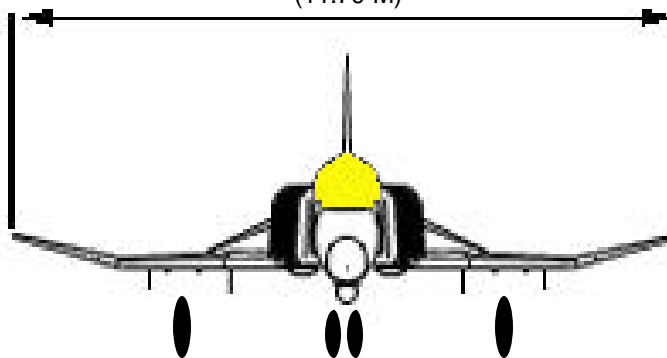
AIRCRAFT DIMENSIONS

QF-4

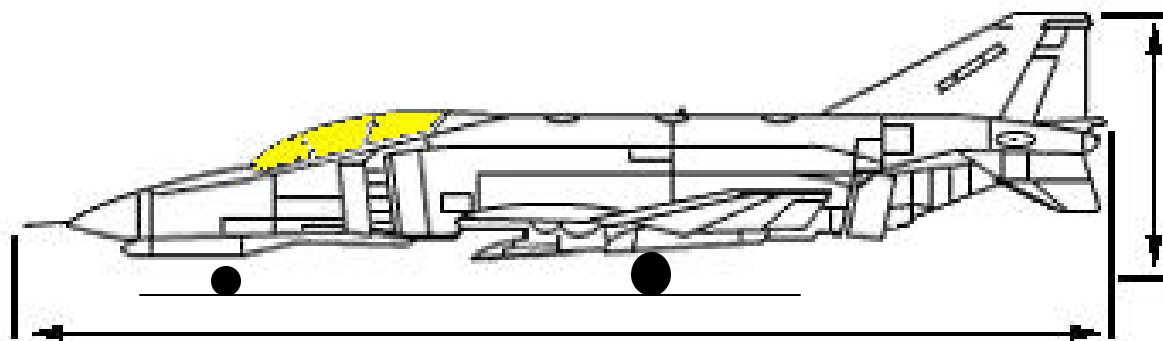


BOTTOM VIEW

WING SPAN
38' 5"
(11.70 M)



HEIGHT
16' 3"
(4.96M)

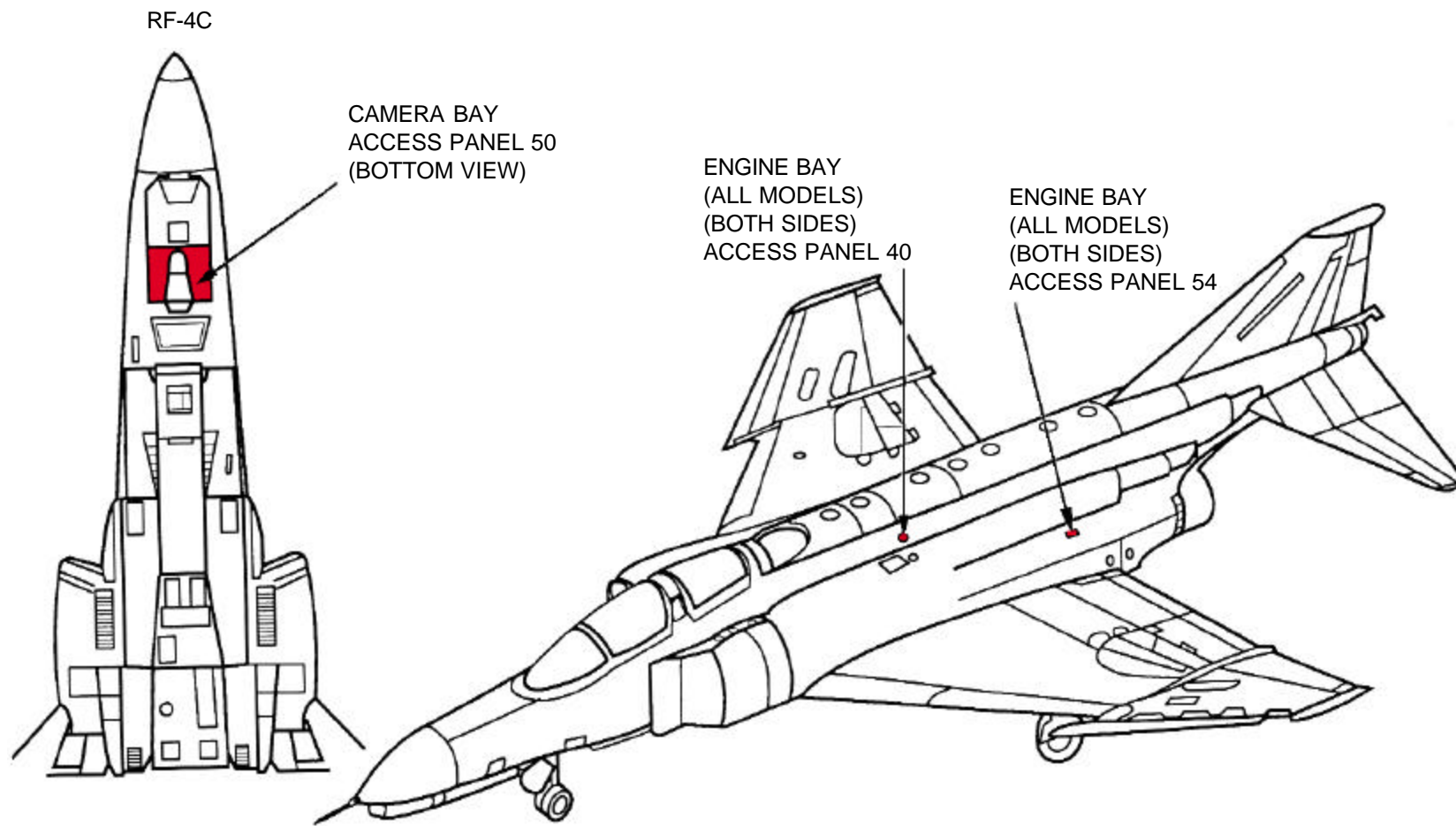


LENGTH
62' 11"
(19.20M)

AIRCRAFT SKIN PENETRATION POINTS

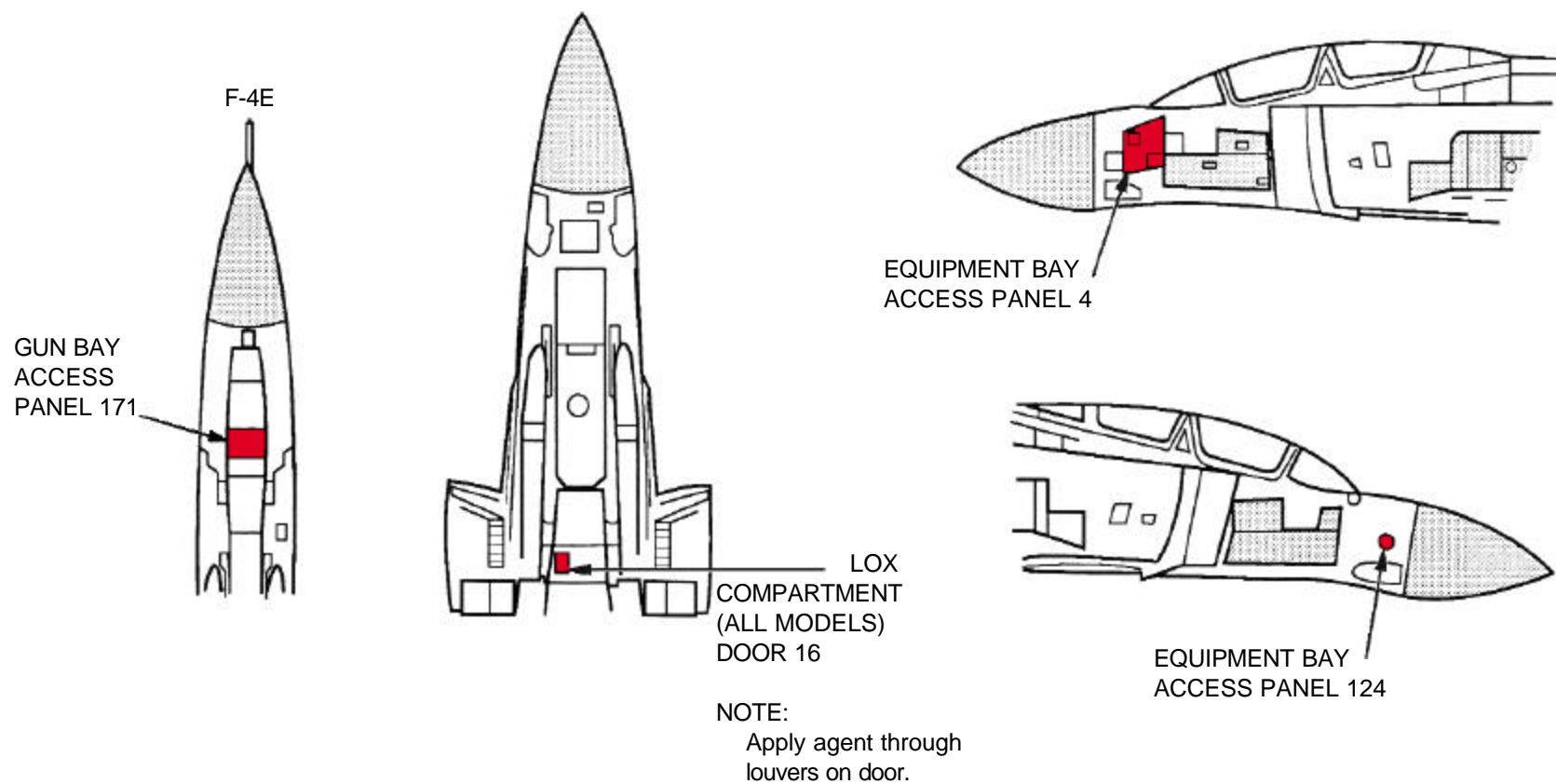
QF-4**NOTE:**

The QF-4 is an unmanned/radio controlled version of the F-4 aircraft. It can also be flown by an aircrew when required. This aircraft carries a self destruct explosive mechanism for a radio controlled destruction if the aircraft becomes uncontrollable in the air or on the ground. Fire fighters are to only standby and keep personnel out of the self destruct and fire/explosive area.



AIRCRAFT SKIN PENETRATION POINTS-Continued

QF-4



SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Fire Drill II
Rescue Ladders (2)

CONVENTIONAL AND NUCLEAR
ARMAMENT UP TO 2,000 POUNDS

NOTE:

Armament on F-4C,
D, and E models.

PHOTOFLASH
CARTRIDGES
(RF-4 ONLY)

QF-4

AIRCRAFT ENTRY - ALL MODELS

WARNING

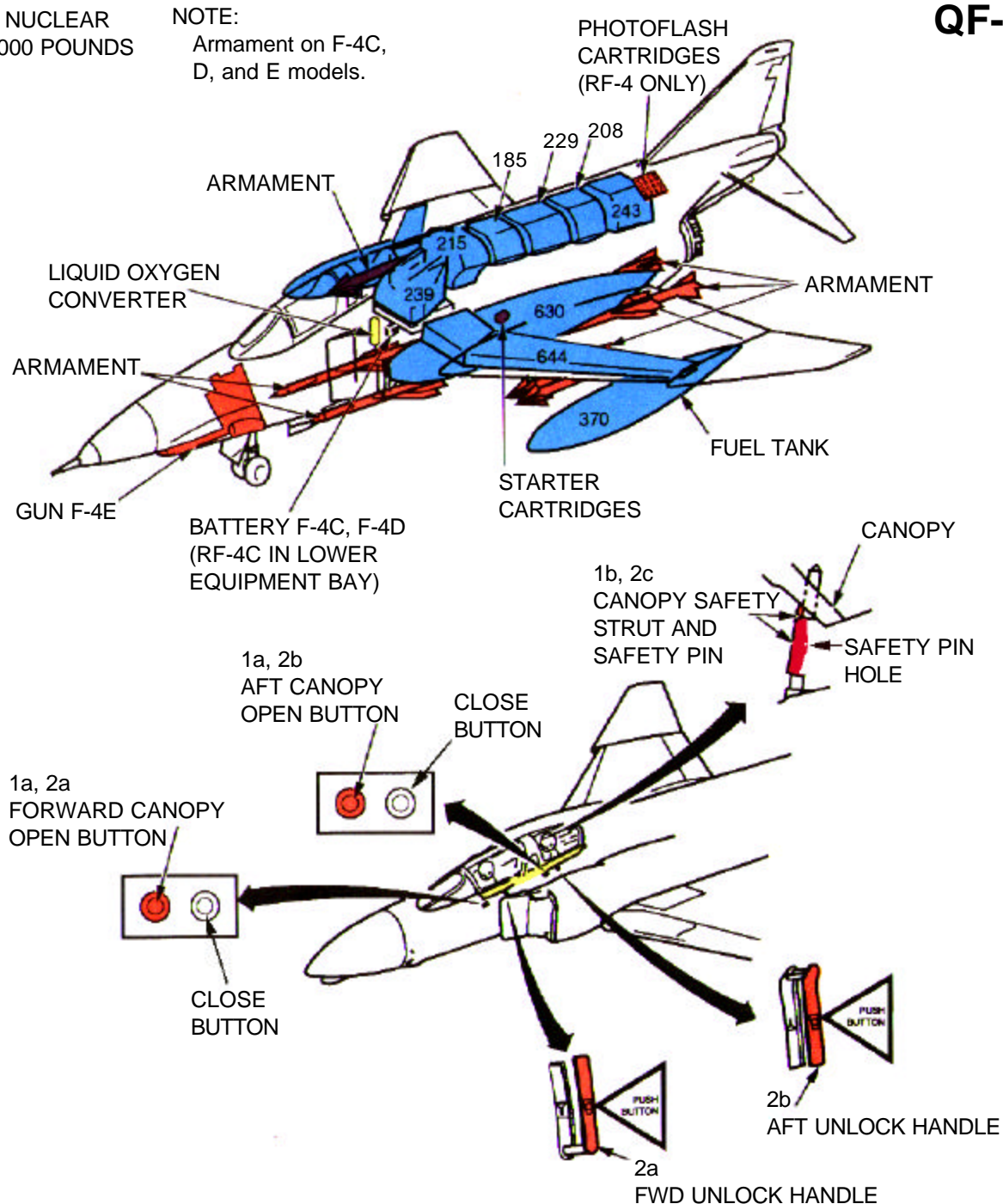
When bird strike damage to cockpit areas has occurred, check for foreign object damage to seat mounted initiator linkage. Opening canopy with items lodged between canopy actuator and seat firing mechanism may cause seat ejection resulting in death or serious injury.

1. NORMAL ENTRY

- Push canopy open buttons, located left side of fuselage, to unlock both canopies. Canopies will raise pneumatically.
- Install canopy hold open safety struts on canopy actuator pistons and install safety pins through pin holes on aft of strut to secure strut to the canopy actuator.

2. MANUAL ENTRY

- Push forward canopy open button and handle release button on manual release handle, located left side of fuselage, and turn handle counterclockwise to open position.
- Push aft canopy open button and handle release button on manual release handle, located left side of fuselage, and turn handle clockwise to open canopy.
- Lift and hold canopies open manually and install safety struts on canopy actuator pistons and install safety pins.



AIRCRAFT ENTRY-Continued

QF-4

3. EMERGENCY ENTRY

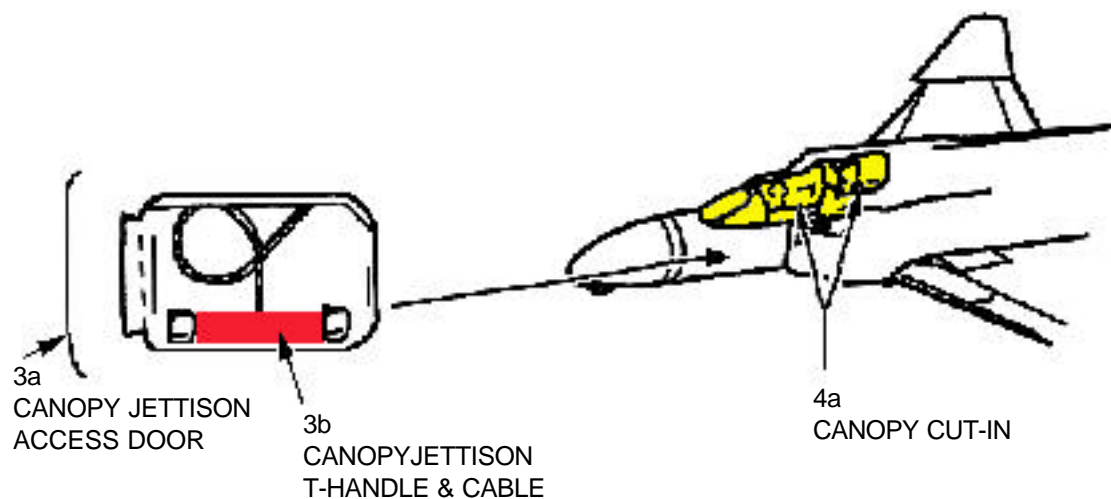
WARNING

Do not attempt to jettison canopies with left engine running or aft canopy open. If left engine is running, access must be gained over left wing to the cockpits, avoiding intake and exhaust areas. Ensure that no F.O.D. exists around top charge firing mechanism and its yellow trip rod. Open canopies normally or manually then retard throttles to idle position. If engines are not running and aft canopy is not open then use steps 3a and 3b.

- a. Press button to open access door, located on left side of fuselage forward of left intake, and remove T-handle.
- b. Pull T-handle to full cable length by walking towards nose of aircraft, then sharply pull T-handle to jettison canopies. Canopies will be jettisoned up and aft of aircraft.

4. CUT-IN

- a. Cut canopy along canopy frame on all four sides for each canopy with power rescue saw.



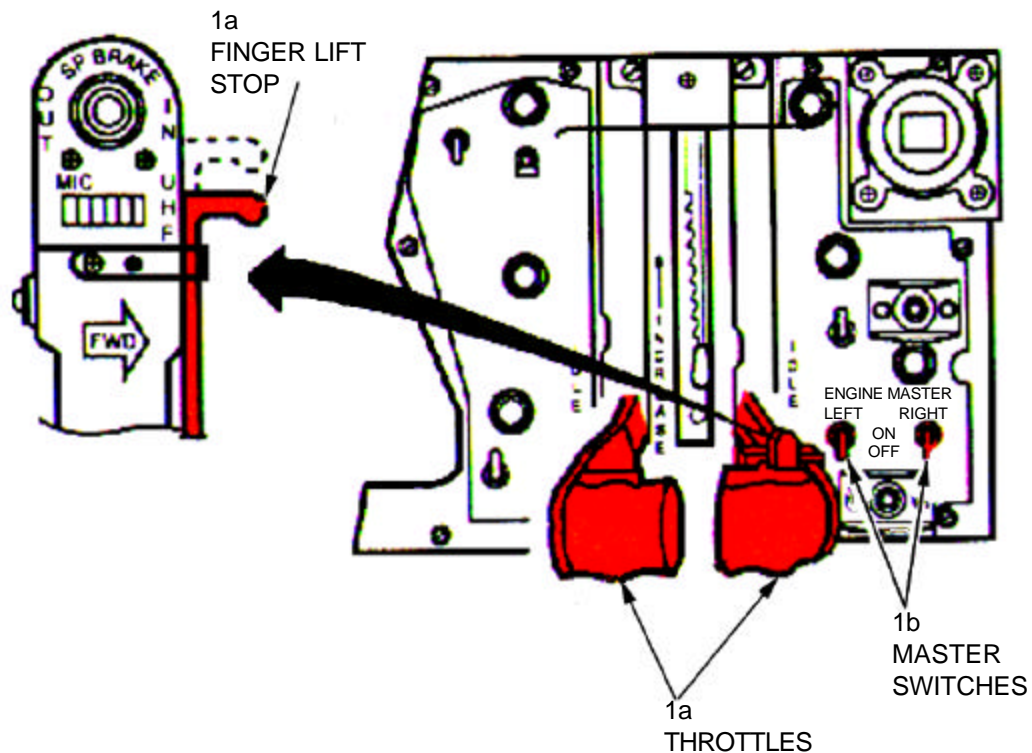
ENGINE SHUTDOWN

1. ENGINE SHUTDOWN

NOTE:

Engines can ONLY be shutdown from front cockpit. If throttles are jammed, engine can be shutdown by placing master switches to the OFF position.

- a. Raise finger lift stop and move throttles, located on left console, aft to OFF position.
- b. Lift master switches, located on left console, up and move aft to OFF position.



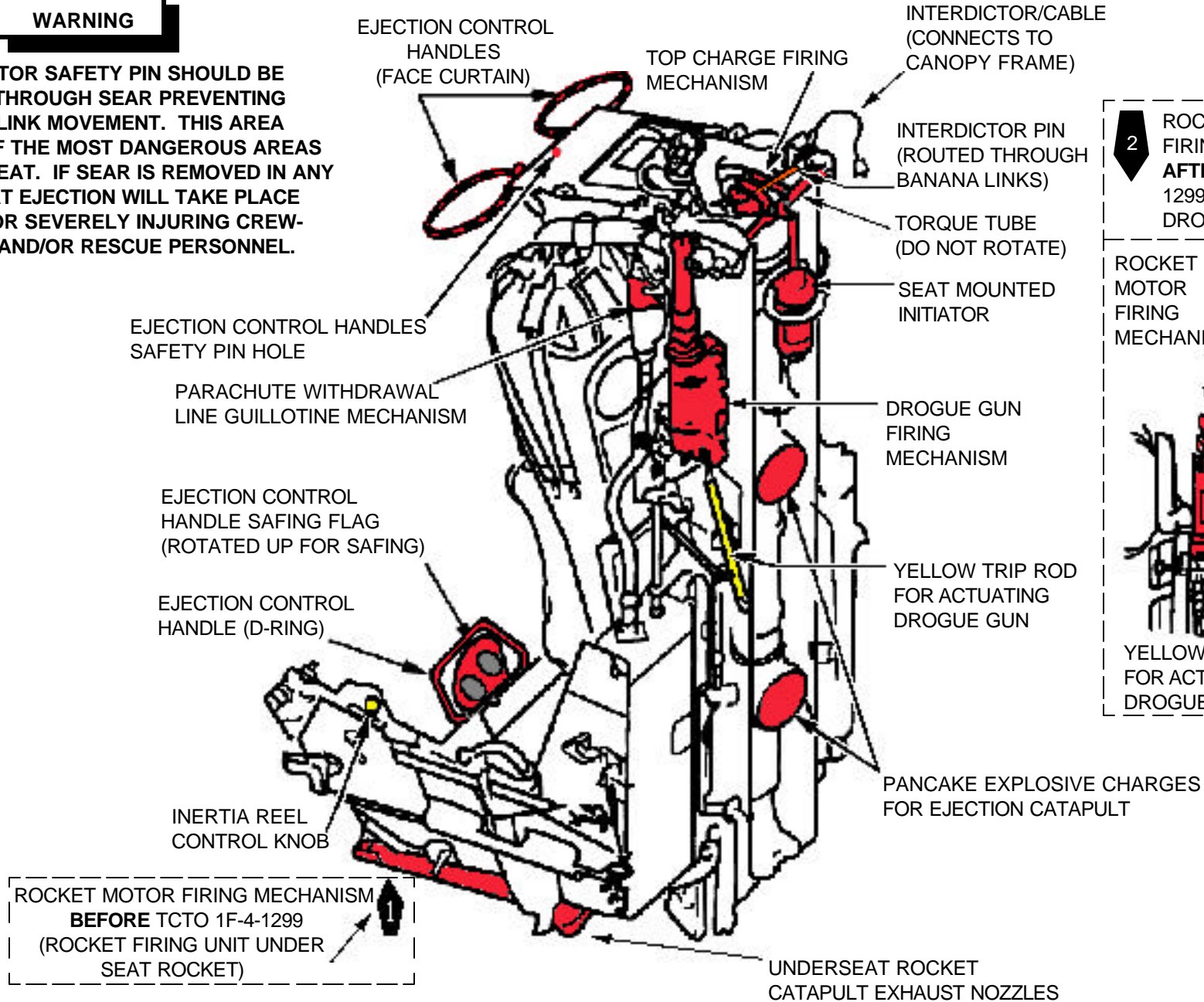
SAFETYING EJECTION SYSTEM

COMMON VIEW FOR BOTH SEATS

QF-4

WARNING

INTERDICTOR SAFETY PIN SHOULD BE ROUTED THROUGH SEAR PREVENTING BANANA LINK MOVEMENT. THIS AREA IS ONE OF THE MOST DANGEROUS AREAS OF THE SEAT. IF SEAR IS REMOVED IN ANY WAY, SEAT EJECTION WILL TAKE PLACE KILLING OR SEVERELY INJURING CREWMEMBER AND/OR RESCUE PERSONNEL.



SAFETYING EJECTION SYSTEM AND AIRCREW EXTRACTION

1. SAFETYING EJECTION SEAT

WARNING

If canopies have been jettisoned or interdictor safety pin assembly is not installed in the catapult's top charge firing mechanism sear, a safety pin must be installed through the firing mechanism sear to prevent firing of the top charge by movement of any mechanical mechanism on the top of the seat. Failure to do so and inadvertent sear removal will result in death or injury to crewmember and rescue crew in the trajectory of the seat.

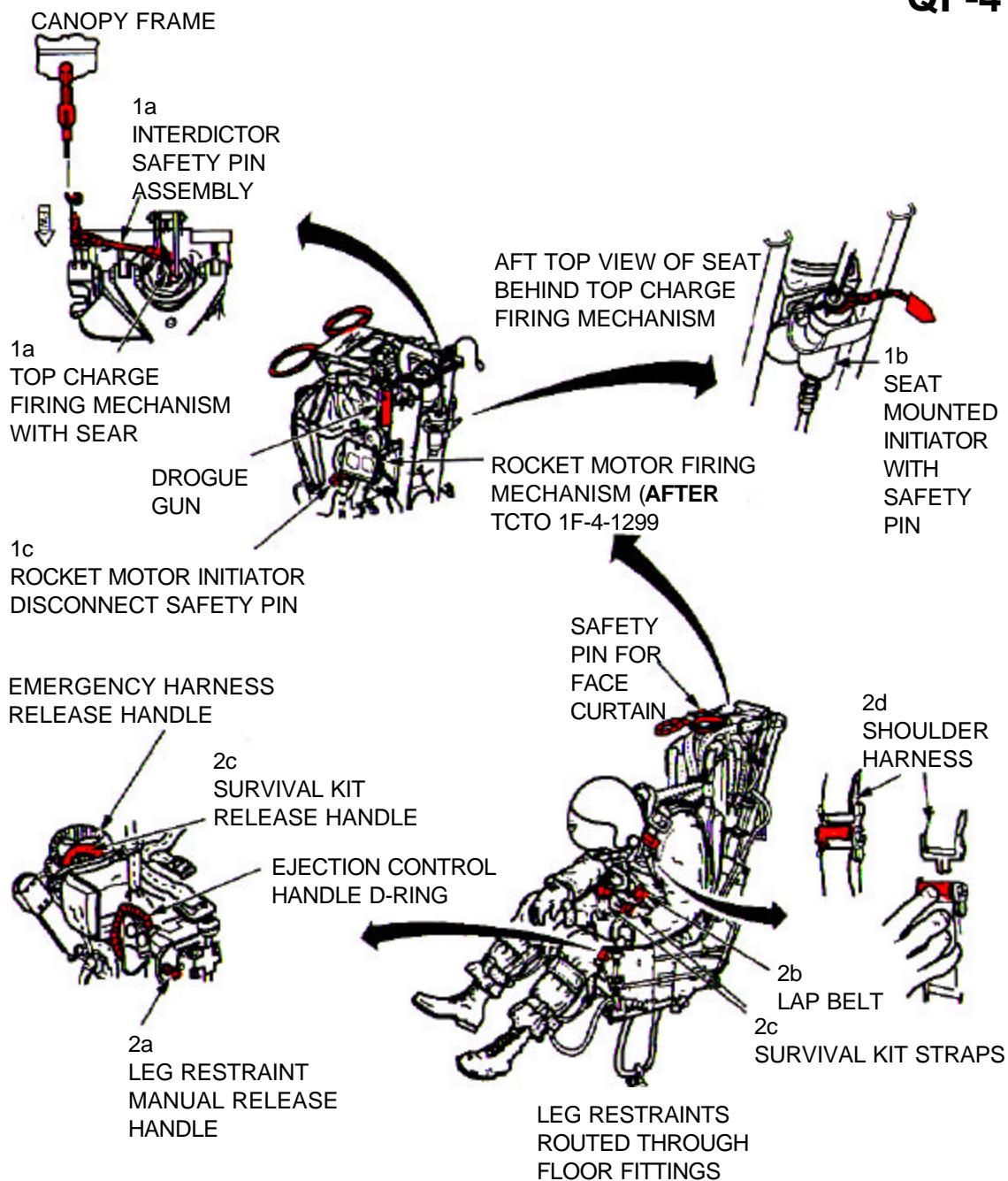
- a. Ensure interdictor safety pin assembly is installed through both ejection seats' catapult top charge firing mechanism sear.
- b. Install safety pin in the seat mounted initiator, located behind top of seat and catapult.
- c. Disconnect Rocket Motor initiator hose by pulling out initiator hose safety pin.

2. AIRCREW EXTRACTION

- a. Raise leg restraint manual release handle, located on left forward side of seat bucket.
- b. Release lap belt by pulling up on release lever.
- c. Pull yellow survival kit handle, located next to crewmember(s) right leg, up and aft until it separates from kit, or release left and right survival kit buckles.
- d. Release left and right shoulder harness straps.

WARNING

To prevent possible injury to crewmember(s) use emergency harness release handle as last resort. When used, parachute restraints are released and will push crewmember forward.



QF-4

AIRCRAFT PAINT SCHEME

F-5



AIRCRAFT DIMENSIONS

F-5A "Freedom Fighter":

WING SPAN 25 FT 3 IN

HEIGHT 13 FT 2 IN

LENGTH 47 FT 2 IN

WING AREA 170 SQ FT

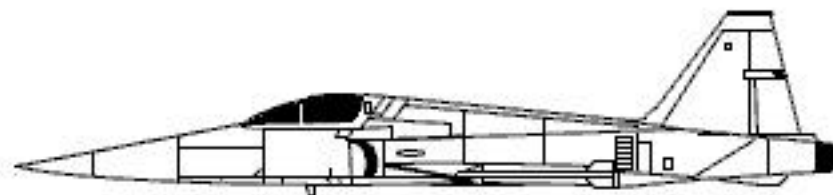
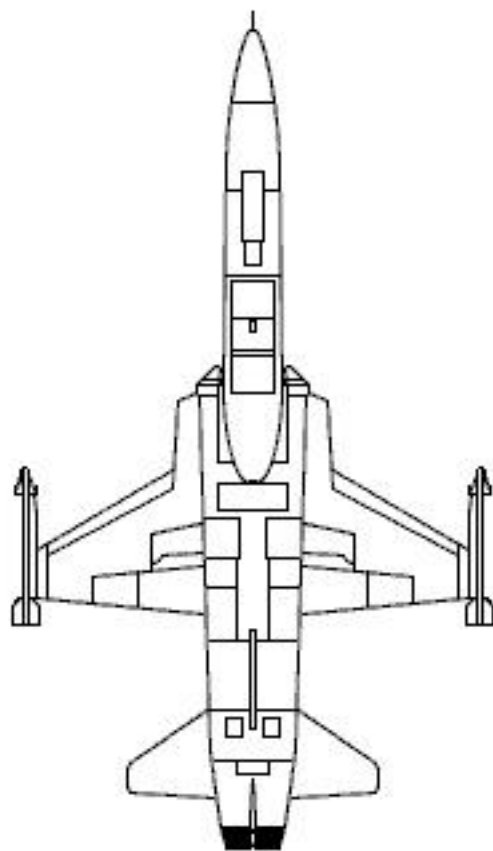
F-5E "Tiger II":

WING SPAN 26 FT 8 IN

HEIGHT 13 FT 4 IN

LENGTH 48 FT 2 IN

WING AREA 186 SQ FT

**F-5**

AIRCRAFT SKIN PENETRATION POINTS AND HAZARD AREAS

WARNING

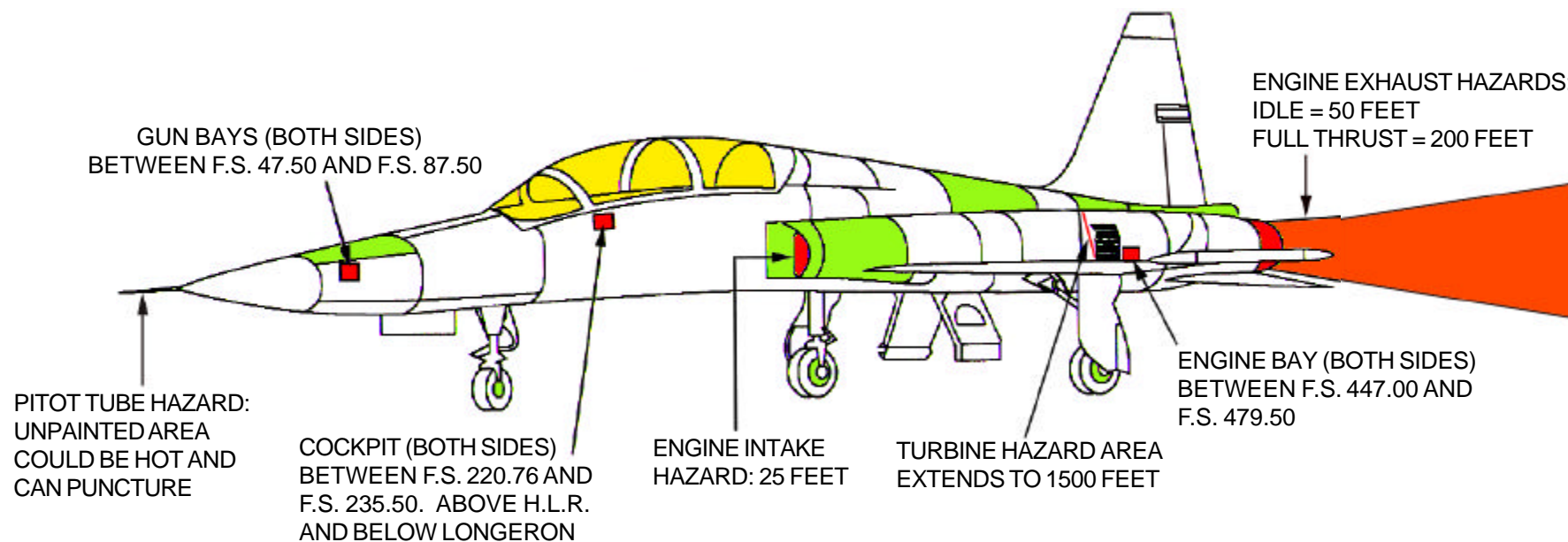
Magnesium fires should be fought
with dry chemical and not water.
Water usage will spread fire.



PLEXIGLASS
- WINDSHIELD AND CANOPIES



MAGNEZIUM
- WHEELS
- AFT OF NOSE CONE
- COCKPIT
- INTAKE COVERINGS
- CENTER OF FUSLAGE
- FORWARD ENGINE AREA
- AREA AROUND VERTICAL STABILIZER



SPECIAL TOOLS/EQUIPMENT

Disarming Tool
Power Rescue Saw
Fire Drill II

1. NORMAL ENTRY

- a. Push two thumb latches to open door, located on left side of fuselage.
- b. Pull handle out until engaged and rotate clockwise to unlock and raise canopy. Give canopy assistance while rotating handle.

NOTE:

Canopies are secure when raised to full open position.

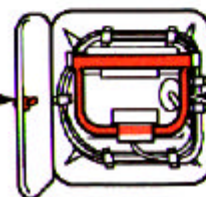
2. EMERGENCY ENTRY

- a. Push thumb latch on canopy jettison access door, located left and right side of forward fuselage, to open.
- b. Pull canopy jettison D-handle, located on left and right side of fuselage, approximately 6 feet to jettison canopy.

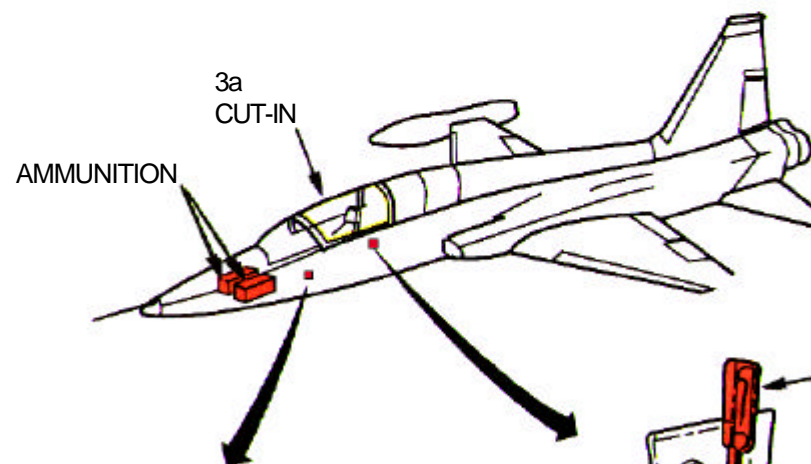
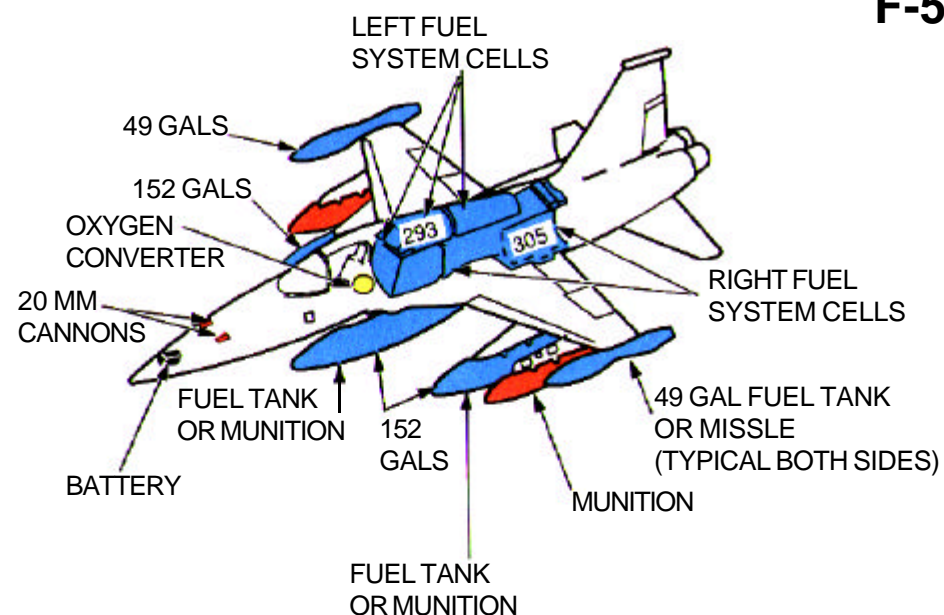
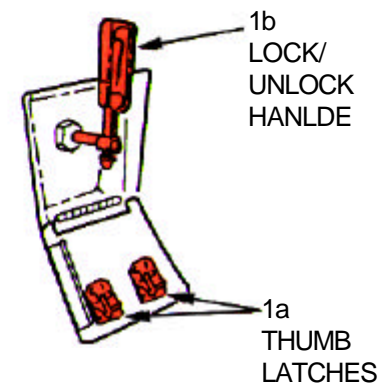
3. CUT-IN

- a. Cut canopy along canopy frame on all four sides with power rescue saw.

2a
CANOPY JETTISON
ACCESS DOOR
THUMB LATCH



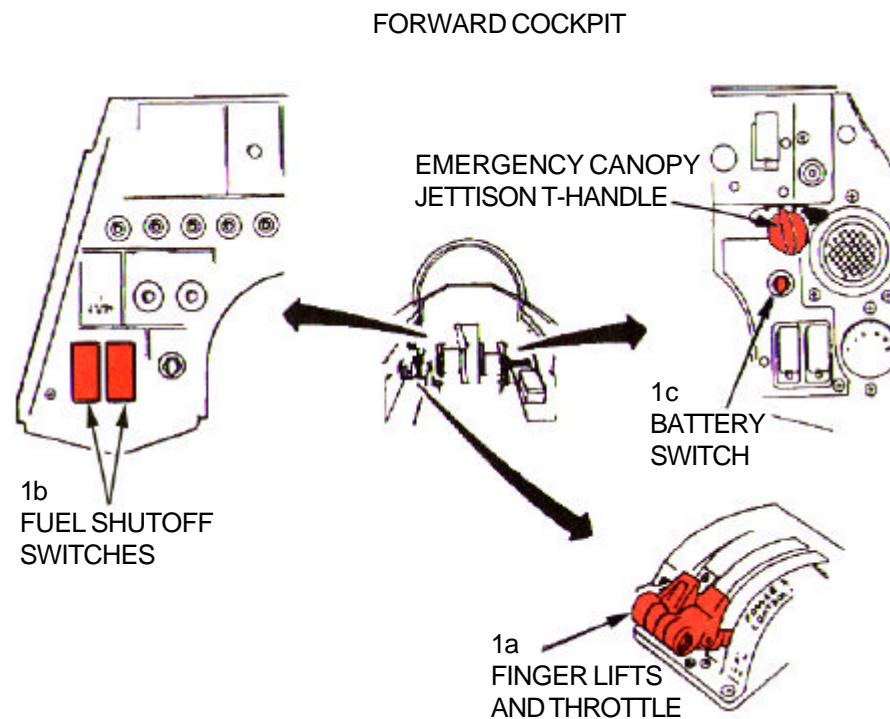
2b
CANOPY
JETTISON
D-HANDLE



ENGINE SHUTDOWN

1. ENGINE SHUTDOWN

- a. Raise finger lift and retard throttle, located on left console panel in the forward cockpit, to full aft OFF position.
- b. Lift the two red guards and place fuel shutoff switches, located on left vertical panel in the forward cockpit, to the CLOSED position.
- c. Place battery switch, located on right vertical control panel in the forward cockpit, to OFF position.



SAFETYING EJECTION SYSTEM AND AIRCREW EXTRACTION

1. NORMAL SAFETYING EJECTION SEAT

- a. Insert seat safety pin in right ejection seat leg brace to prevent inadvertent ejection.

NOTE:

Flight status safety pins are stored in container mounted on left forward console.

2. EMERGENCY SAFETYING EJECTION SEAT

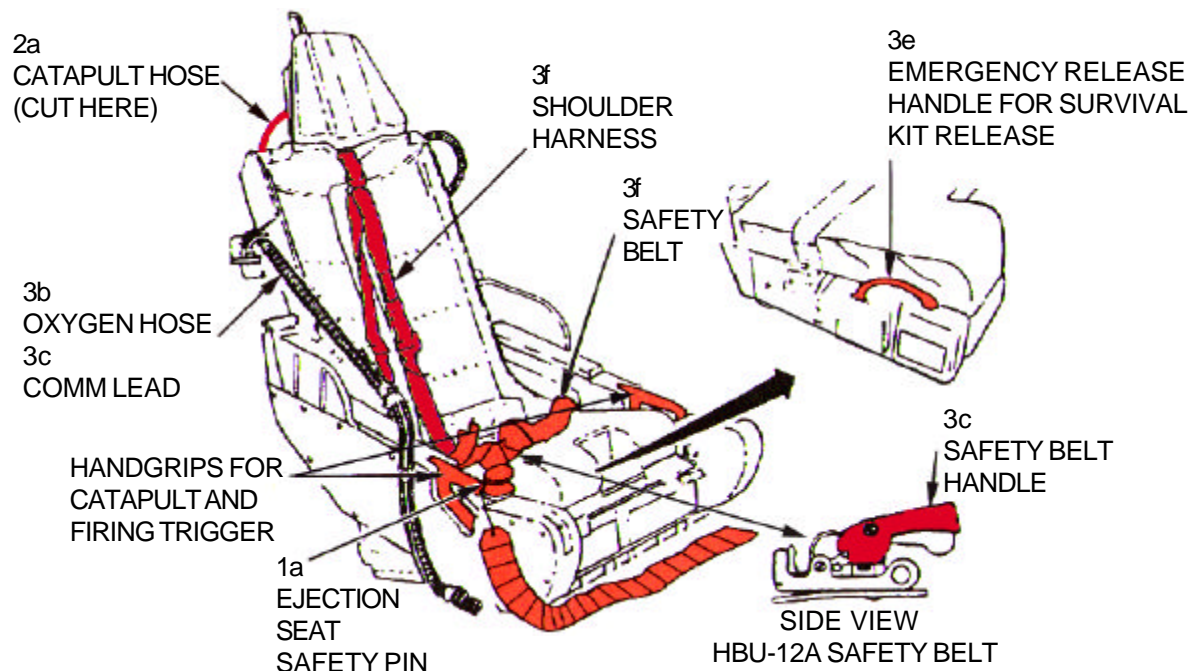
- a. Cut catapult hose, located right side and aft of headrest. (Hose will be yellow color coded.)

NOTE:

Disarming tool initiator head opening must be 90 degrees to the handle.

3. AIRCREW EXTRACTION

- a. Disconnect crewmember's mask at side clip.
- b. Disconnect normal and emergency oxygen hoses on right side of seat.
- c. Disconnect communication lead on oxygen hose.
- d. Disconnect G suit hose on left side of seat.
- e. Pull up on emergency release handle, located next to crewmember's right leg, to separate crewmember from survival kit.
- f. Rotate safety belt knob and remove shoulder harness from crewmember(s).
- g. On HBU-12A lap belt, squeeze together the black and silver grips of the handle and lift up. Separate belt. Remove stow gold key behind parachute harness. Remove shoulder harness/negative "G" restraint strap loop ends.
- h. Pull legs up and extract crewmember over left side.



TYPICAL EJECTION SEAT
FORWARD AND AFT COCKPITS

SAFETYING EJECTION SYSTEM AND AIRCREW EXTRACTION FOR ALL F-5F

1. NORMAL SAFETYING EJECTION SEAT

- a. Insert seat safety pin in right ejection seat leg brace to prevent inadvertent ejection.

2. EMERGENCY SAFETYING EJECTION SEAT

- a. Cut catapult hose, located right side and aft of headrest.

NOTE:

Disarming tool initiator head opening must be 90 degrees to the handle.

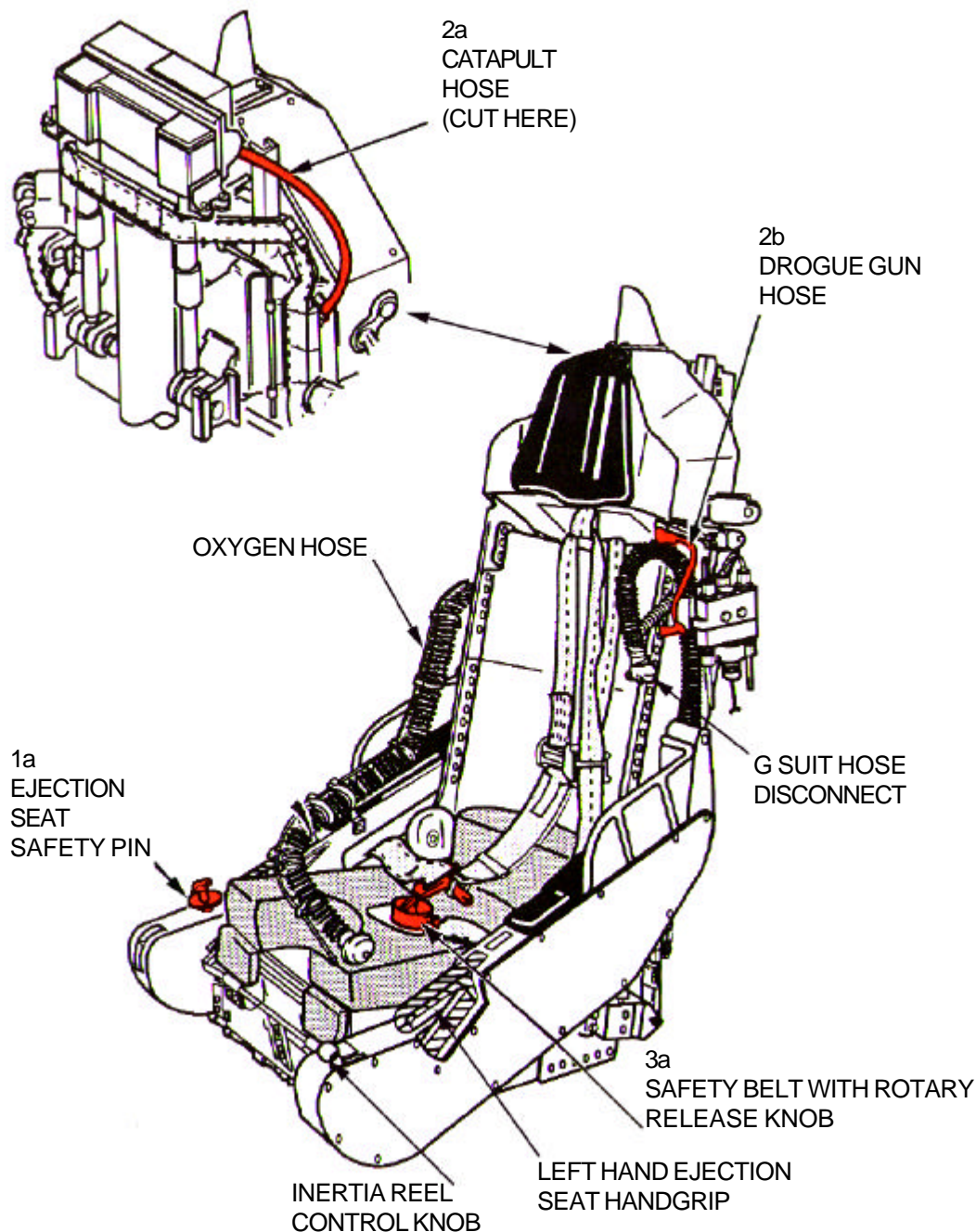
- b. Cut Drogue Gun ballistic hose on top left side of seat.

3. AIRCREW EXTRACTION

NOTE:

Apply all extraction steps from page F-5.4.
Safety belt release will differ. See step below.

- a. Rotate rotary release knob to release safety belt and then remove shoulder harness from crewmember(s).



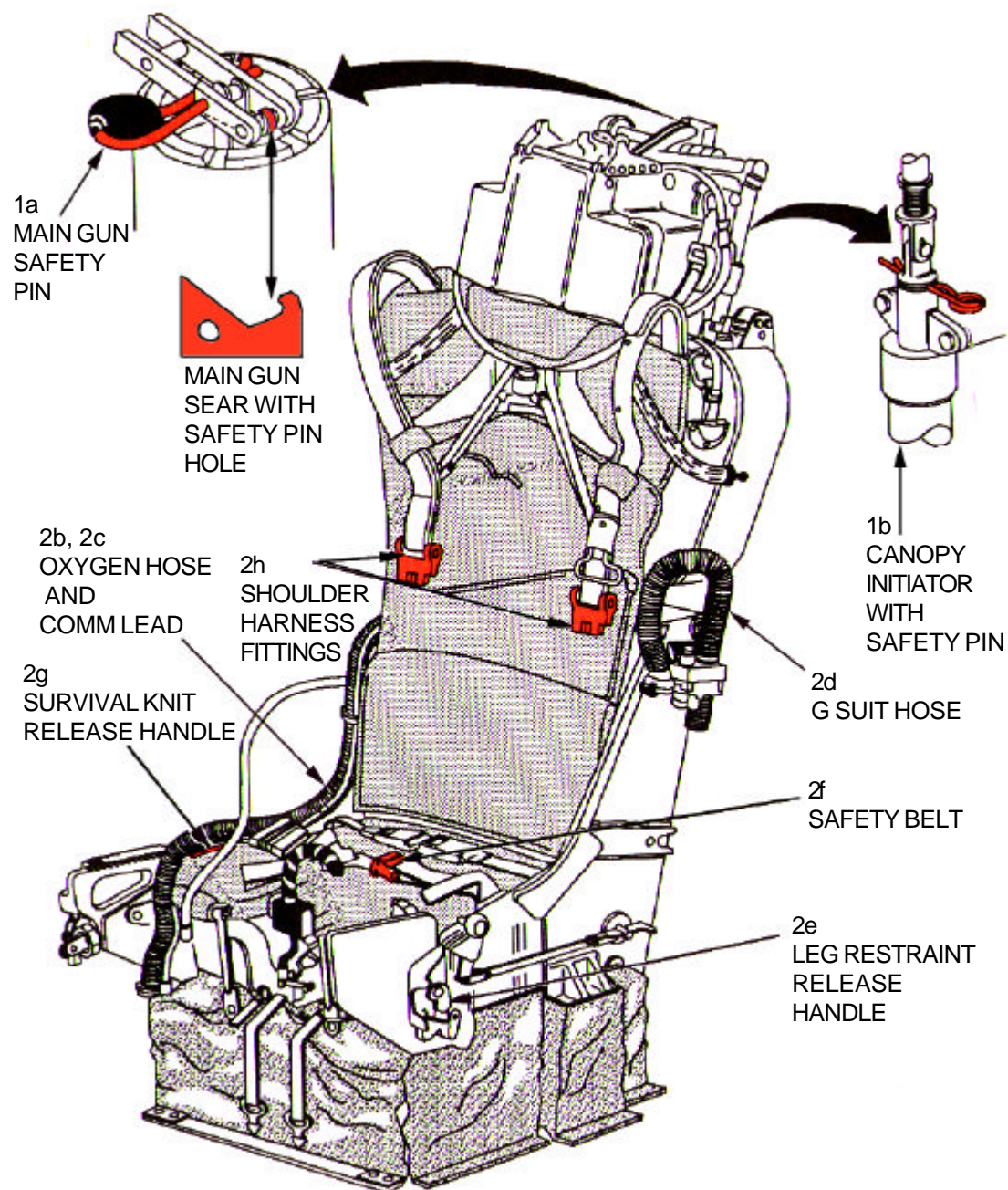
SAFETYING EJECTION SYSTEM AND AIRCREW EXTRACTION FOR F-5E/F

1. SAFETYING EJECTION SEAT

- a. Insert safety pin in Main Gun Sear, located on top of seat.
- b. Insert safety pin in canopy initiator if canopy has not been jettisoned.

2. AIRCREW EXTRACTION

- a. Disconnect crewmember's mask at side clip.
- b. Disconnect normal and emergency oxygen hoses on right side of seat.
- c. Disconnect communication lead on oxygen hose.
- d. Disconnect G suit hose on left side of seat.
- e. Raise leg restraint manual release handle, located on forward outboard left side of seat bucket.
- f. Release safety belt by pulling up on release lever.
- g. Pull survival kit release yellow handle, located on the right forward portion of the survival kit.
- h. Release left and right shoulder harness straps by disconnecting thumb tabs.
- i. Pull legs up and extract crewmember over left side.



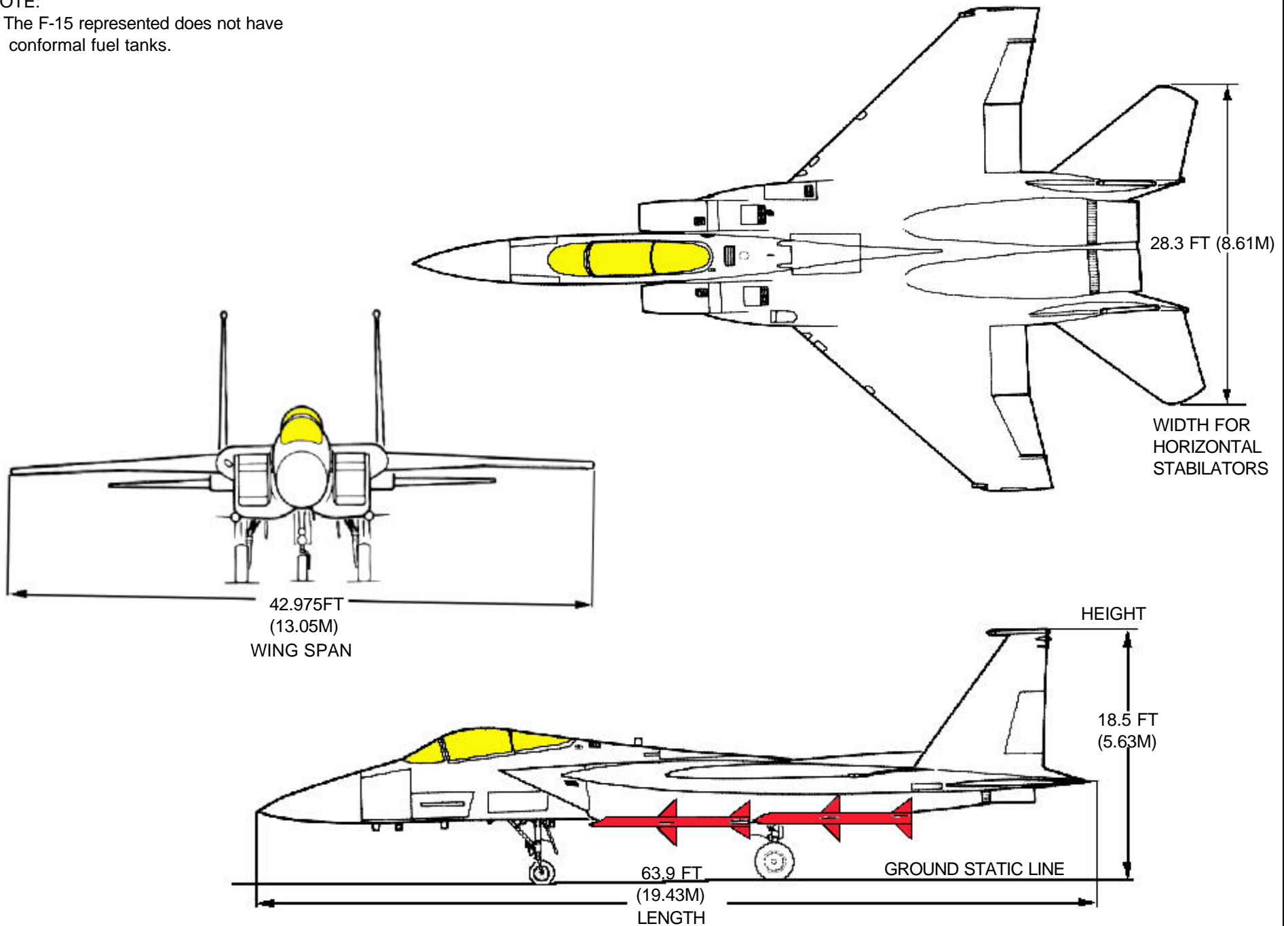
AIRCRAFT PAINT SCHEMES



AIRCRAFT DIMENSIONS

NOTE:

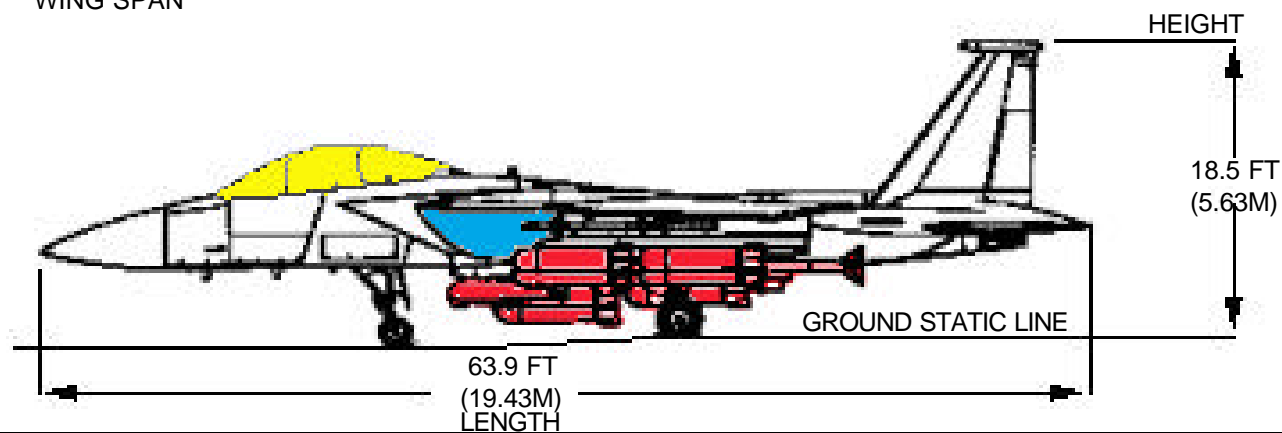
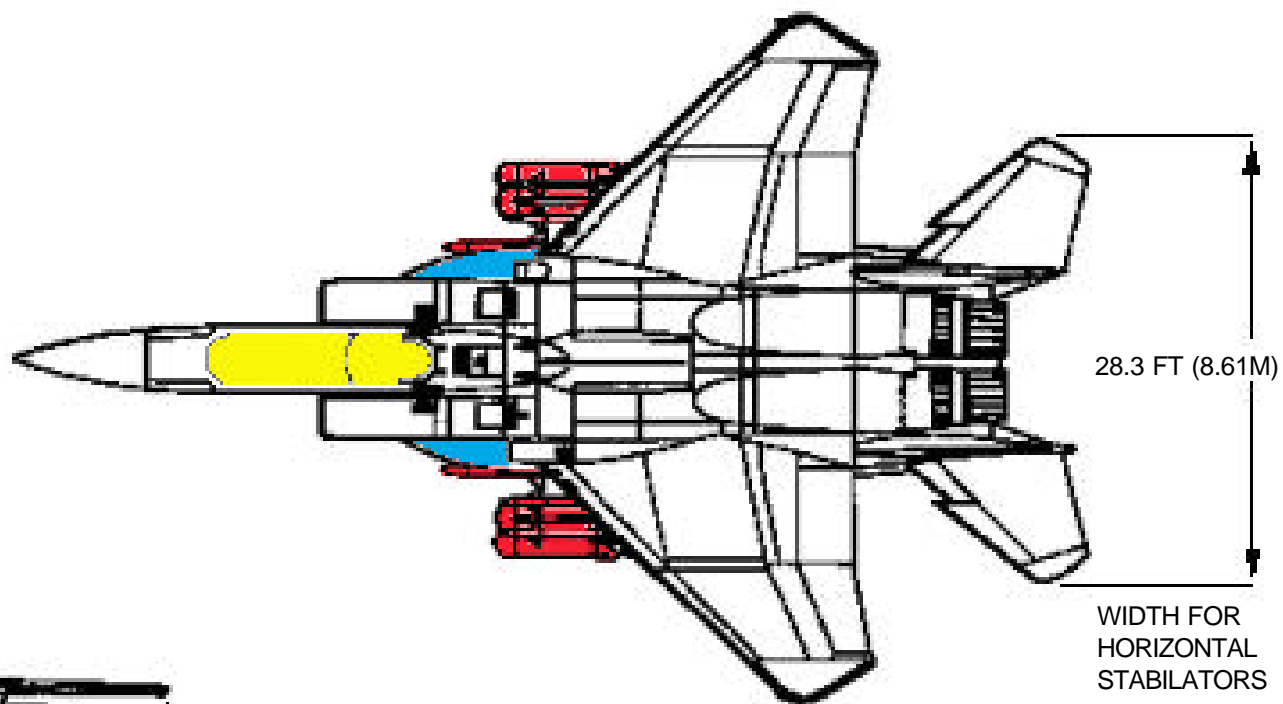
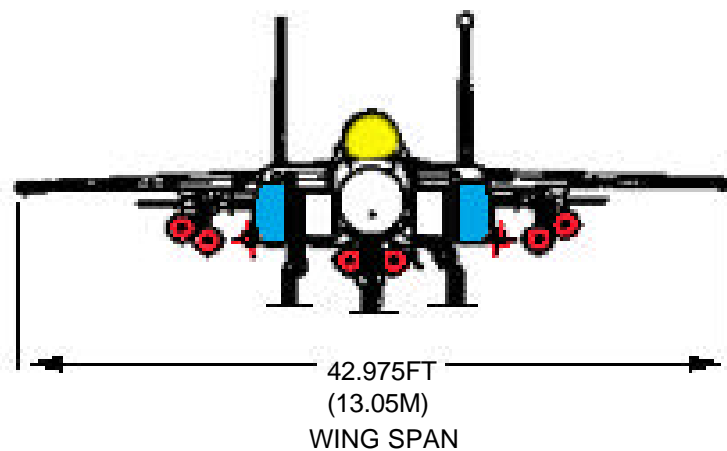
The F-15 represented does not have conformal fuel tanks.

F-15

AIRCRAFT DIMENSIONS-Continued

NOTE:

The F-15 represented does have conformal fuel tanks (in blue).

F-15

GROUND FIRE ACCESS POINTS

1. GROUND FIRE ACCESS POINTS

NOTE:

Fire access doors are located in the right and left engine side compartments, the Jet Fuel Starter (JFS), and Airframe Mounted Accessory Drive (AMAD) areas. Engine and JFS doors are opened by striking sharply with a fist or by a push of about 45 pounds. The AMAD door contains louvers through which extinguishing agent may be applied.

NOTE:

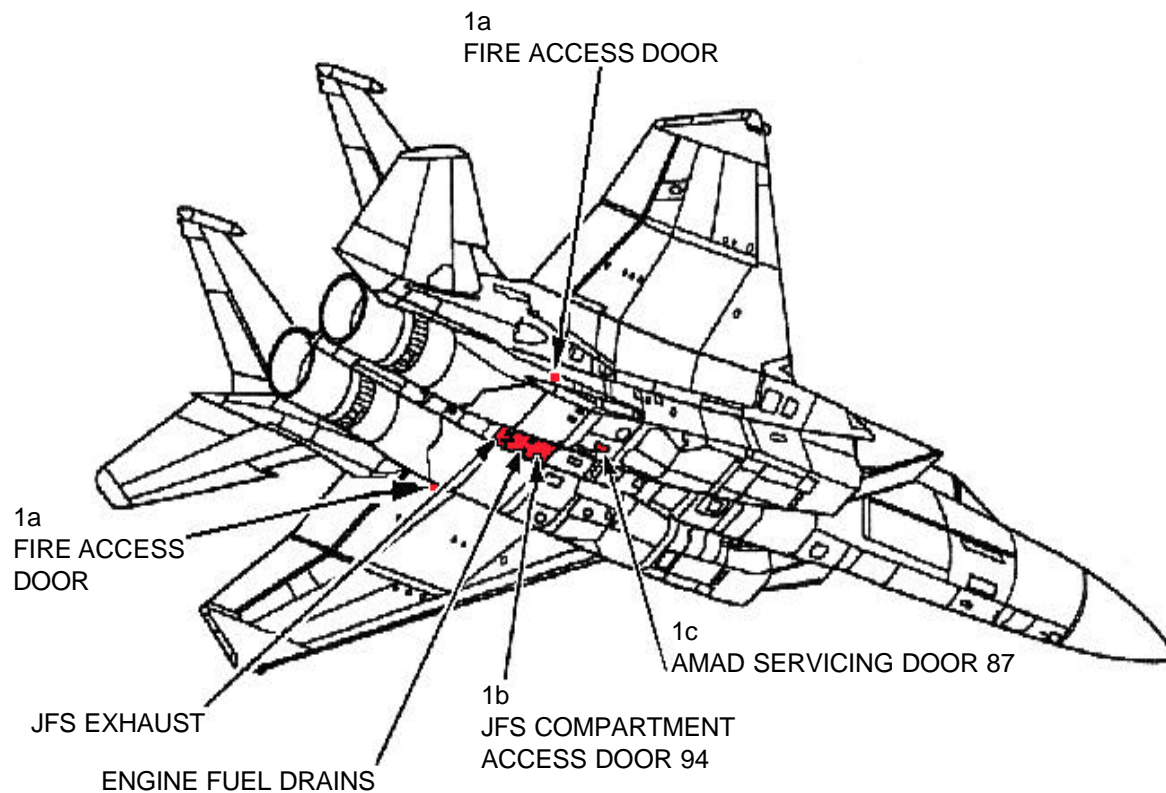
Push buttons and a switch on the fire control panel are located on the upper left side of the pilot's instrument panel. Agent discharge location is selected by first button pushed. Button stays in approximately 1/8 inch when pushed. In event that incorrect button is pushed, push again restoring button to normal position. Then push correct button. Move agent discharge switch up to discharge position. One engine or JFS must be operating to provide power to discharge the Halon 1301 extinguishing agent (6.6 pounds).

- a. The engine fire access doors are located about 6 feet aft of each main landing gear on the sides of the engine compartments.
- b. The JFS fire door is located at the aft end of the JFS.

CAUTION

Beware of the engine fuel drains and JFS exhaust areas.

- c. The AMAD servicing door is located just inboard and aft of the right main landing gear.



AIRCRAFT HAZARDS

1. Armament Fwd Fire Zone - 1000 FT.
2. Cannon Fwd Fire Zone - 1000 FT.
3. Radar - 300 ft. personnel - 500 FT.
4. Engine Air Intakes - 25 FT.

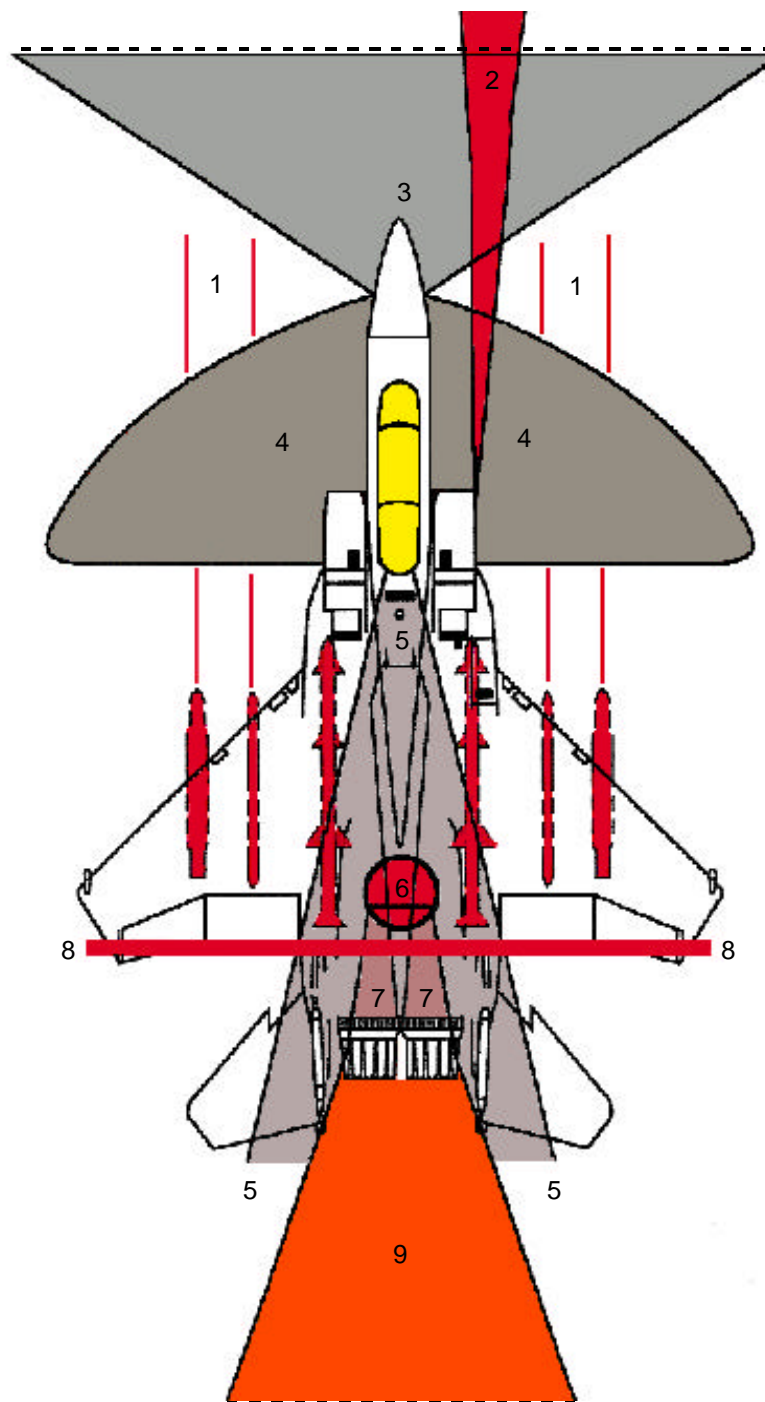
CAUTION

Danger zone can extend as far as 5 feet aft of the air inlet at high power settings.

5. Canopy Jettison Envelope - 50 FT.
6. Jet Fuel Starter (JFS) Intake - 4 FT.
7. JFS Exhaust at Idle or Engagement - Aft along the centerline to the engine tail cones. Temperature: 1000 +/- 180 degrees. RMP does not matter.
8. Turbine Blade Failure - 300 FT.
9. Engine Exhaust -
 - Idle RPM 0 - 25 FT: 200 degrees
 - At 80% 0 - 40 FT: 200 degrees
 - At MIL 0 - 15 FT: 800 degrees
 - At MAX 0 - 20 FT: 3000 degrees
 - Velocity: Above 1000 MPH at the tailpipe.

WARNING

10. F-15E model - LANTIRN Pod - Avoid contact during an aircraft mishap! Contains Thorium at the window assembly.
 - Radiation poison through ingestion, inhalation, and absorption through an open wound.
 - Contains Americium - 241 at the Laser Trans/ Receiver can result in radiation poison through ingestion and inhalation.



AIRCRAFT HAZARDS-Continued

F-15

WARNING

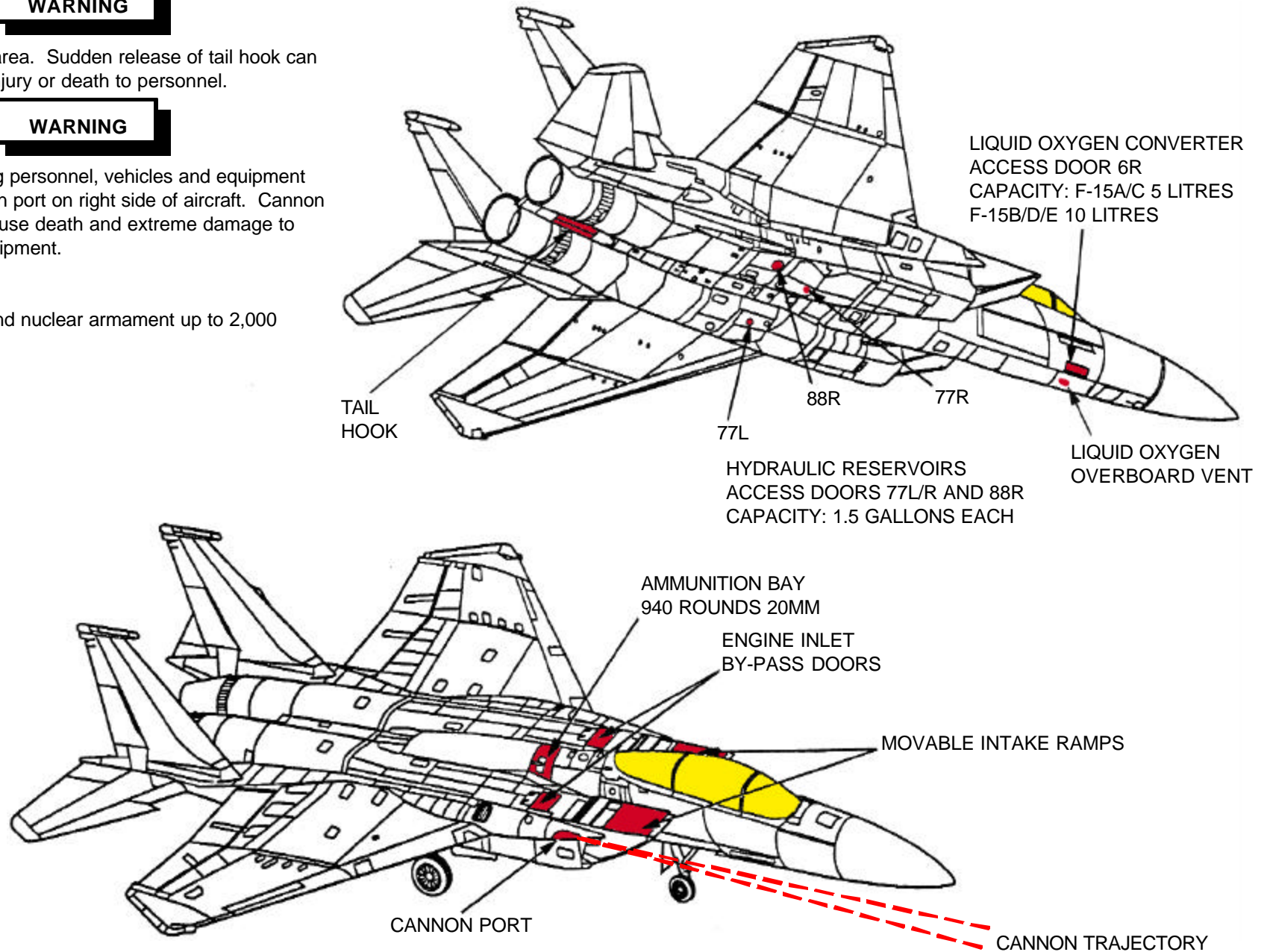
Avoid tail hook area. Sudden release of tail hook can cause serious injury or death to personnel.

WARNING

Avoid positioning personnel, vehicles and equipment forward of cannon port on right side of aircraft. Cannon operation can cause death and extreme damage to vehicles and equipment.




NOTE:

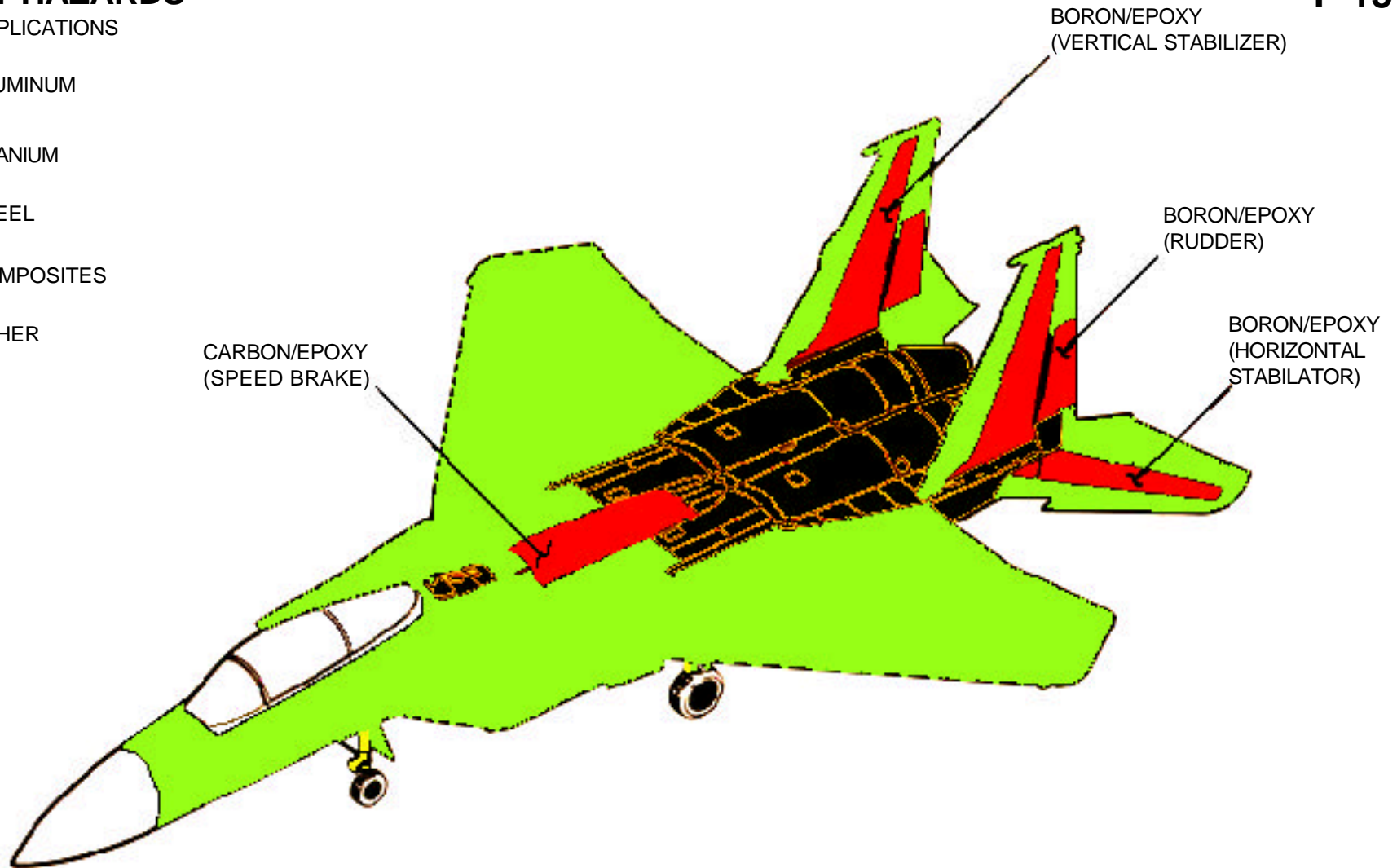
Conventional and nuclear armament up to 2,000 pounds.



AIRCRAFT HAZARDS








COMPOSITE APPLICATIONS

	ALUMINUM
	TITANIUM
	STEEL
	COMPOSITES
	OTHER

**F-15**

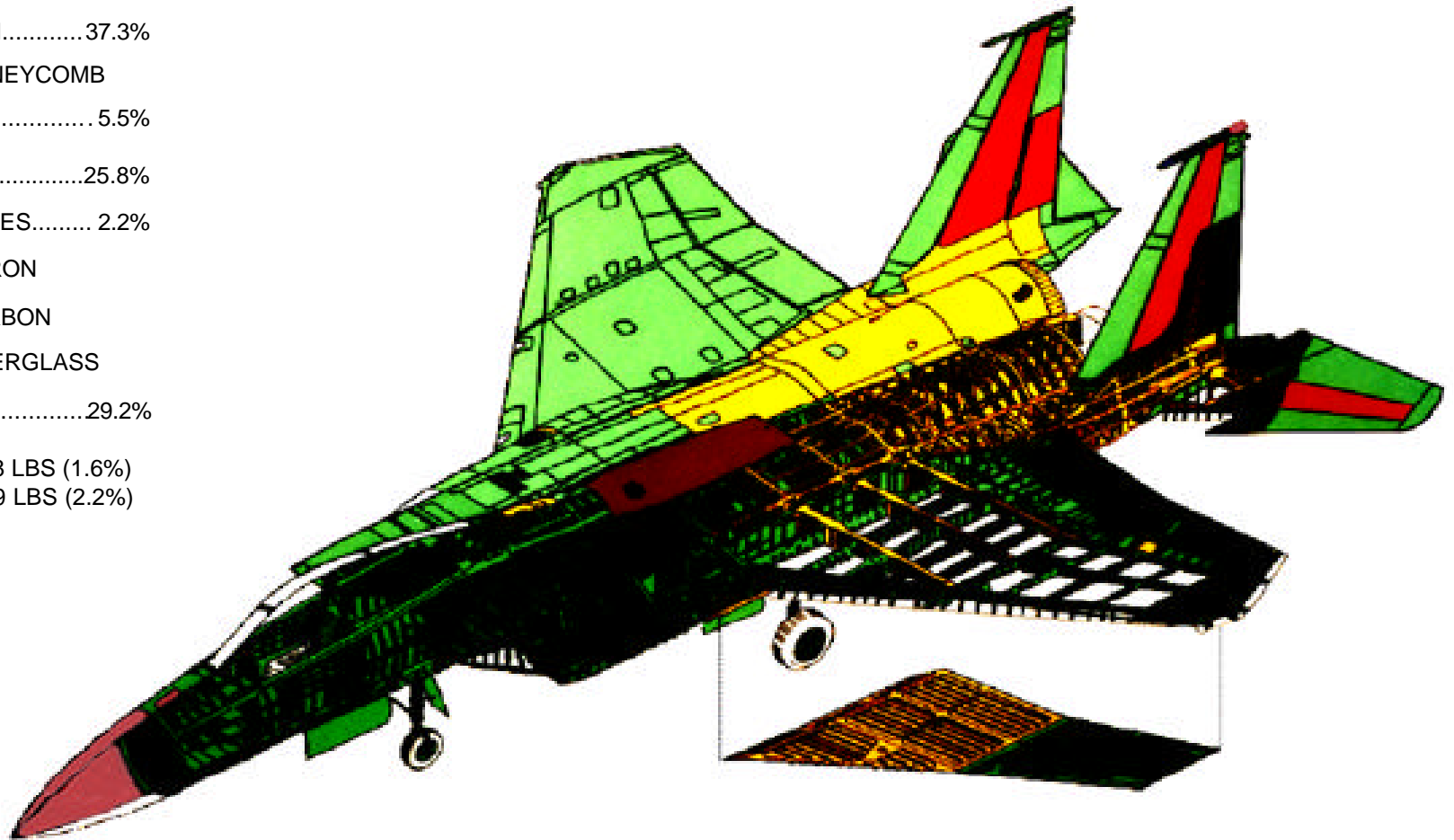
AIRCRAFT HAZARDS-Continued

COMPOSITE/MATERIAL DISTRIBUTION

	ALUMINUM.....	37.3%
	HONEYCOMB	
	STEEL.....	5.5%
	TITANIUM.....	25.8%
	COMPOSITES.....	2.2%
	BORON	
	CARBON	
	FIBERGLASS	
	OTHER.....	29.2%

F-15A = 458 LBS (1.6%)

F-15E = 689 LBS (2.2%)



F-15

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw Pri-Ax Dearming Tool Fire Drill II
 1/2 Inch Drive Socket Wrench or Breaker Bar
 Safety Pin P/N C114767-1
 Battery Powered Drill or Speed Handle with # 14 Apex

AIRCRAFT ENTRY

CAUTION

Engine vari-ramps operate in a declined position while engines are running and will automatically return to a horizontal (up) position upon engine shutdown.

1. NORMAL ENTRY

- a. Push handle release button on normal control handle, located on the left side of fuselage, allowing the handle to spring out.
- b. Rotate handle fully clockwise to UP position.
- c. Install canopy ground safety lock to brace canopy open.

2. MANUAL ENTRY

- a. Ensure normal control handle is out and rotated fully clockwise to UP position.
- b. F-15A/C aircraft (single seat): insert 1/2 inch drive socket wrench or breaker bar into manual unlock mechanism, located below the forward leading edge of the canopy, and rotate clockwise. Manually lift canopy and install canopy ground safety lock to brace canopy open.
- c. F-15B/D/E aircraft (two seat): adjust and pin canopy ground safety lock and force canopy aft approximately 1.5 to 2 inches and lift canopy. Install canopy ground safety lock to brace canopy open.

NOTE:

The canopy on two seat aircraft will require at least two people to lift and hold. If nose gear is down and fwd wheel well is accessible, with 1/2 inch tool, locate hand pump, insert tool and pump to raise canopy hydraulically.

CONFORMAL FUEL TANK
 (RT/LT SIDES - 750 GALS EACH)

CONFORMAL FUEL TANK
 VENT/FIRE ACCESS

20 MM CANNON

LIQUID
 OXYGEN
 CONVERTER

MISSILES (FUSELAGE MOUNTED)
 MAY ALSO BE CARRIED ON WING
 STATIONS

HAND PUMP
 (INSIDE FWD
 WHEEL WELL
 F-15B/D/E ONLY)

2b
 MANUAL UNLOCK
 SOCKET
 (F-15A/C ONLY)

2a
 NORMAL
 CONTROL
 HANDLE

1a
 NORMAL CONTROL
 HANDLE RELEASE
 BUTTON

AIRCRAFT ENTRY-Continued

3. EMERGENCY ENTRY

- a. Press button to open door 9, located on left side of fuselage forward of the engine air inlet, and remove canopy jettison T-handle.

NOTE:

Insure canopy jettison safety pin is removed from canopy jettison initiator before attempting canopy jettison.

- b. Grasp canopy jettison T-handle and extend canopy jettison cable to full length (approximately 8 feet). Stand forward of door 9 to avoid falling canopy.

WARNING

Avoid canopy impact area during jettison. See page F-15.3 item 5. Impact with personnel can injure or cause death.

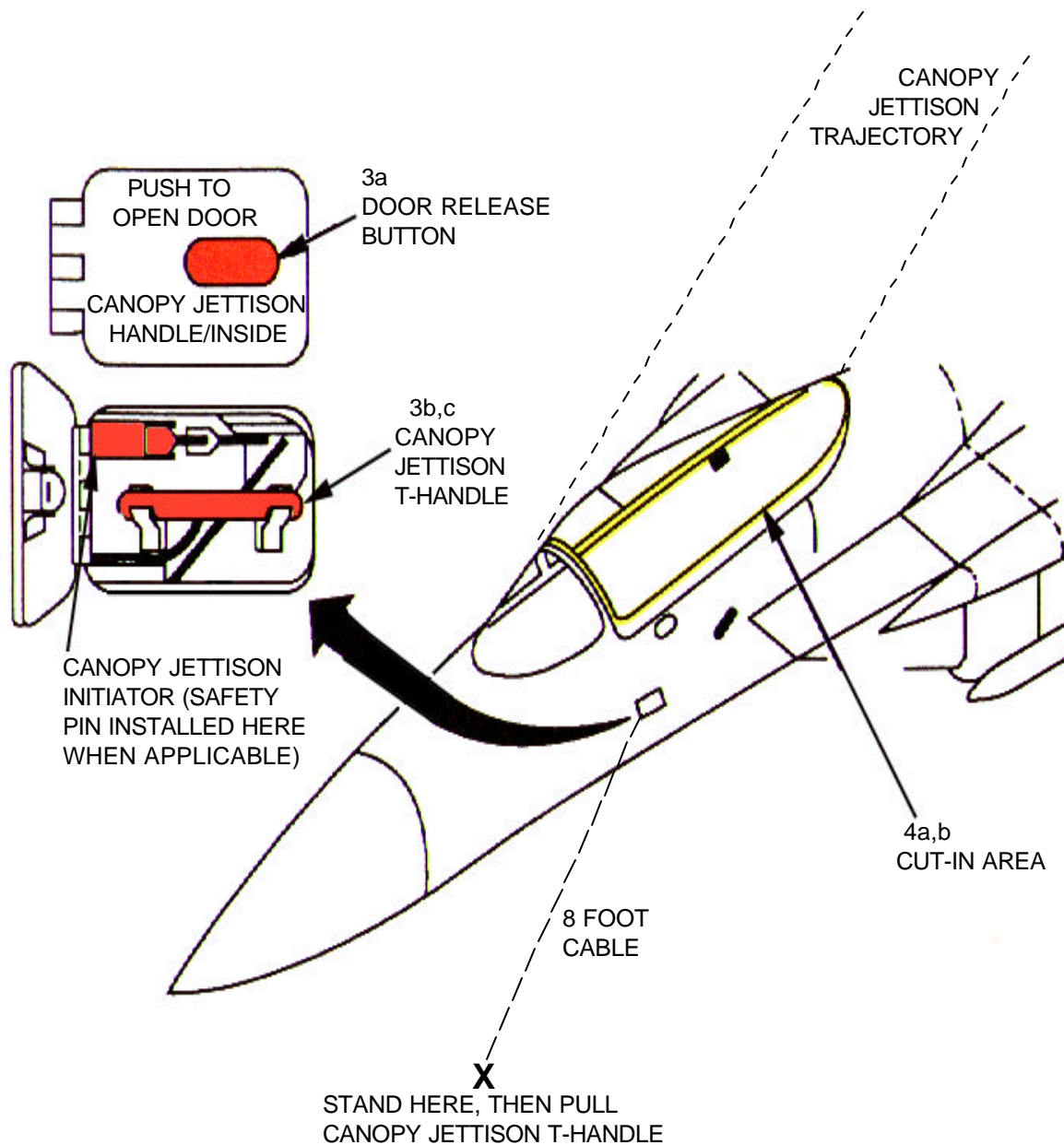
- c. Pull firmly and sharply on T-handle to jettison canopy.

NOTE:

Due to the strength of the canopy transparency, all sides of the canopy must be cut to reach the crewmember(s).

4. CUT-IN

- a. Cut through the canopy transparency, using a power rescue saw with a carbide tipped blade, along the canopy frame.
- b. Make 4 complete cuts and lift transparency up and away from cut-in area.



ENGINE SHUTDOWN

1. ENGINE SHUTDOWN

NOTES:

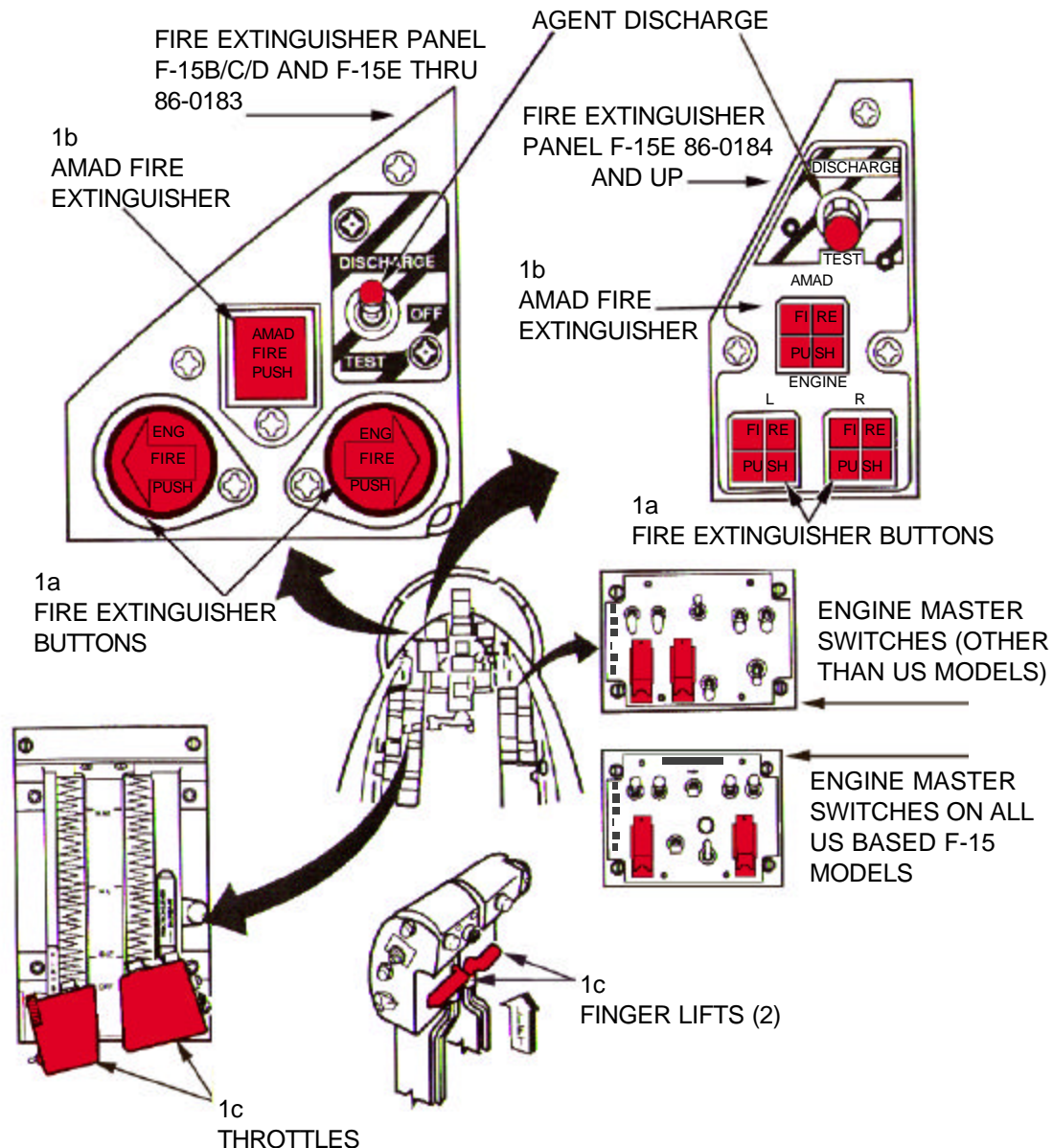
Complete engine shutdown can be accomplished from only the front cockpit only. However, if over the left wing access to cockpit is used, the engines can be positioned to idle from the rear cockpit (two seat aircraft only) reducing the danger of intake suction.

- On F-15E 86-0184 and up, guard must be lifted before pressing fire extinguisher buttons.
 - Operation of Main Engine fire buttons automatically closes the engine fuel shutoff valves and eliminates the need to position the engine master switches to OFF. The engine master switches are separated on all F-15 models. Engine master switches are positioned side-by-side on F-15s other than US based models.
 - One engine must be operating to provide 28 volt DC power for operation of the Main Engine fire extinguisher system.
- a. Depress the left and right engine fire extinguisher buttons in the front cockpit located on the upper left side of the pilot's instrument panel. This action closes the engine fuel shutoff and bleed air.

NOTE:

The jet fuel starter (JFS) must be running to provide 28 volt DC power for operation of the AMAD fire extinguisher system.

- b. In event JFS is running (during engine start) push AMAD fire buttons located on the upper left side of pilot's instrument panel. This closes the JFS fuel shut-off relay.
- c. Raise finger lifts on throttles and pull back to below IDLE. Release finger lifts and move throttles to OFF.



EXTERNAL LEFT ENGINE SHUTDOWN

F-15

1. EXTERNAL LEFT ENGINE SHUTDOWN

WARNING

READ THE FOLLOWING WARNINGS AND NOTES TO DETERMINE F-15 ENGINE VERSION FOR THIS PROCEDURE. To prevent death or injury, be careful when cutting near left engine fuel/oil lines. Do not insert cutting blade more than two inches into panel to prevent potential fuel/oil line rupture.

NOTES:

- External left engine shutdown procedures will be used only if engine shutdown from the cockpit is unsuccessful or impractical. If conditions warrant, the left engine may be shutdown using the following external methods.
- The throttle linkage for F-15s are connected to three different engine fuel controls: (1) The Unified Fuel Control (UFC) for Pratt-Whitney (PW) F100-PW-100 engine, (2) Main Fuel Control (MFC) for PW F100-PW-220/-220E, and (3) MFC for PW F100-PW-229 engine.

WARNING

Approximately 1 pint of hot fuel will drain over board from the P&D valve, located forward of the -100/220 engine's UFC.

NOTE:

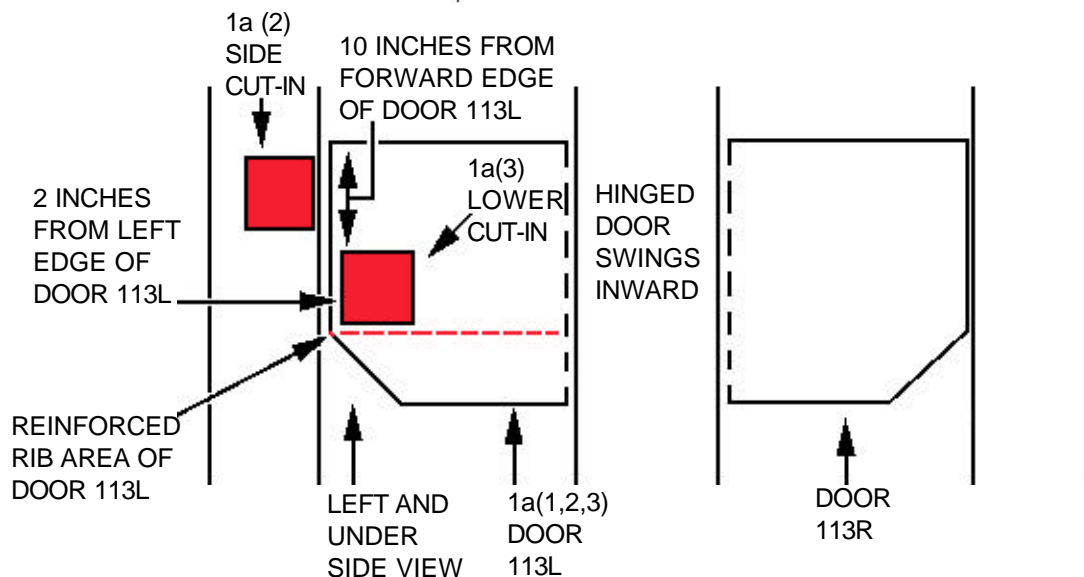
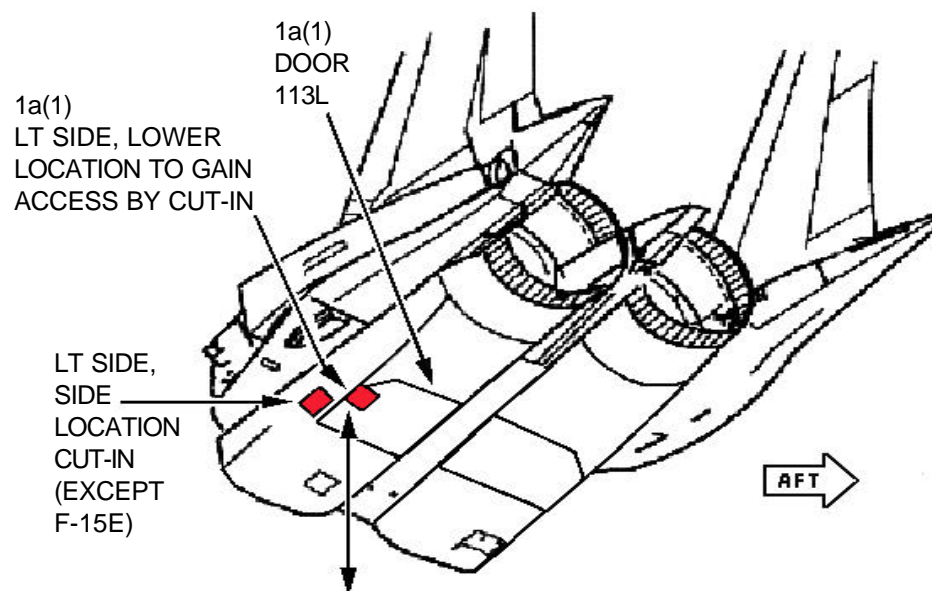
On engine shutdown for the F100-PW-229 MFC fuel flow is cut off immediately and stores the residual fuel. No fuel will be drained over board.

NOTE:

F-15E left engine cut-in area is blocked due to conformal fuel tank installation. Use Door 113L procedures for access.

a. To gain access to the UFC or MFC and throttle shaft:

- By opening door 113L, remove screws with a # 14 apex with adapter, using a speed handle or a battery powered drill. (Door is hinged and will open toward centerline.) If time does not allow removal of screws, follow the next step for cutting in.



EXTERNAL LEFT ENGINE SHUTDOWN-Continued

1. EXTERNAL LEFT ENGINE SHUTDOWN - Continued

WARNING

Do not insert cutting blade more than **TWO INCHES** into panel to prevent potential fuel/oil line rupture. Be careful with cut edges, metal will be razor sharp.

- (2) Cut/break hole through fuselage on left side adjacent to panel 113L between the formers making no more than a 1/4 inch deep cut. Cut just below the rivet line. This will place access slightly forward of left engine throttle allowing proper space for step 1b.

- (3) Cut/break hole through lower cut-in on door 113L. This cut should be 10 inches from forward edge of 113L. This will place access under left engine throttle allowing proper space for step 1b. (Use panel corner as guide.)

CAUTION

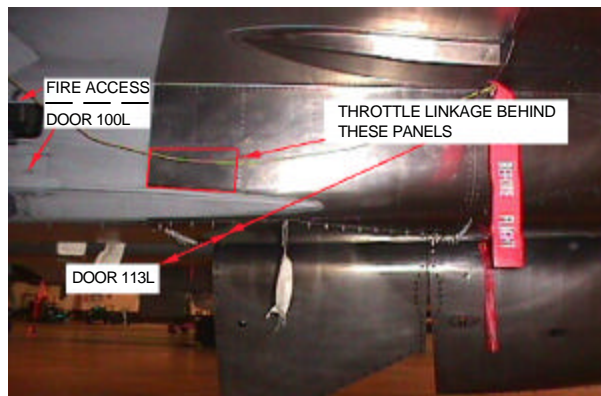
Do not cut beyond this point. It is critical that the aircraft structure does not get cut or damaged.

- b. Press the two quick disconnect pins on the spline shaft and pull the spline shaft off the engine throttle.

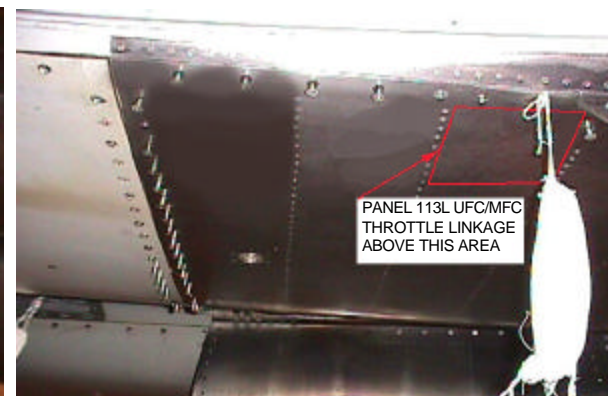
NOTE:

This action isolates throttle linkage from cockpit controls. If linkage is not separated and spline shaft is rotated, finger tabs on cockpit controls can not be overcome and engine will continue to run at idle rpm.

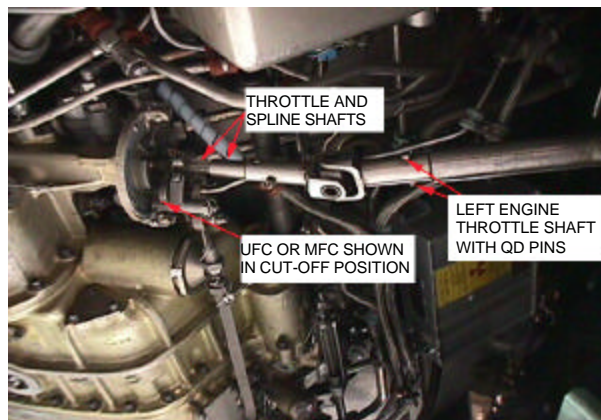
- c. Turn engine throttle spline shaft counterclockwise to cut-off detent position and hold until engine operation ceases. This is easily rotated as there is no resistance or spring action.
- d. Gain entrance to cockpit and shutdown right engine. Refer to page F-15.11.



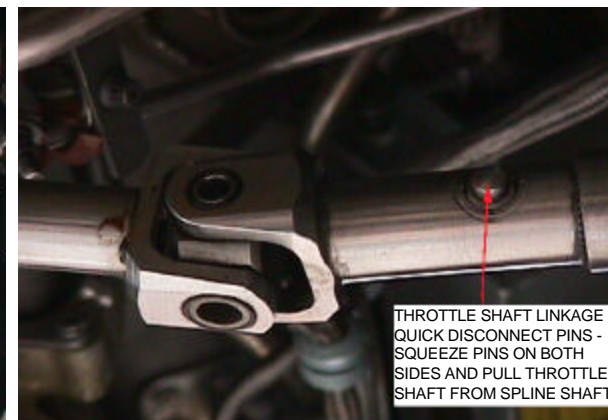
1a(2) LEFT ENGINE CUT-IN AREAS



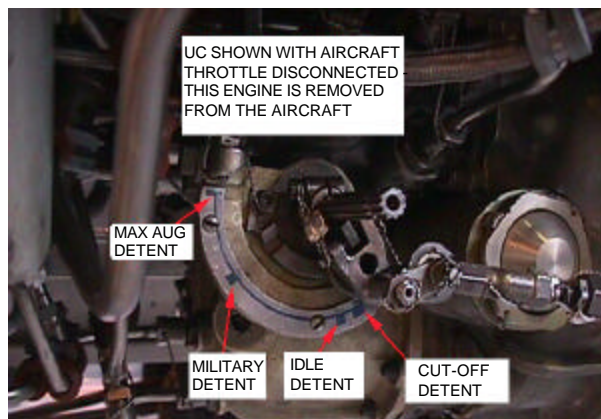
1a(3) LEFT ENGINE DOOR 113L



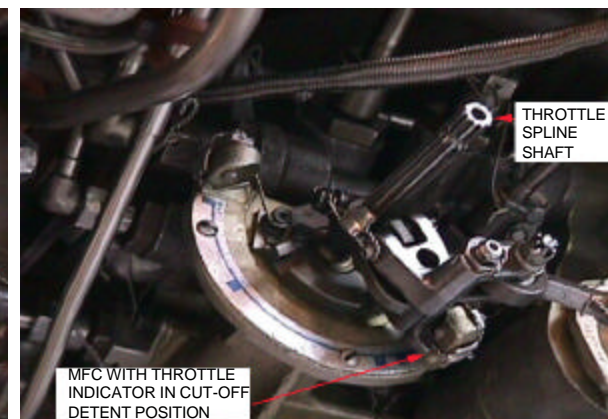
1b LEFT ENGINE THROTTLE SHAFT



1b LEFT ENGINE THROTTLE SHAFT QD PINS



1c LEFT ENGINE THROTTLE POSITIONS



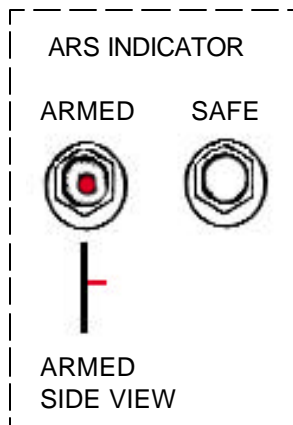
1c THROTTLE CUT-OFF DETENT POSITION

EJECTION SEAT INDICATOR

1. EJECTION SEAT INDICATOR

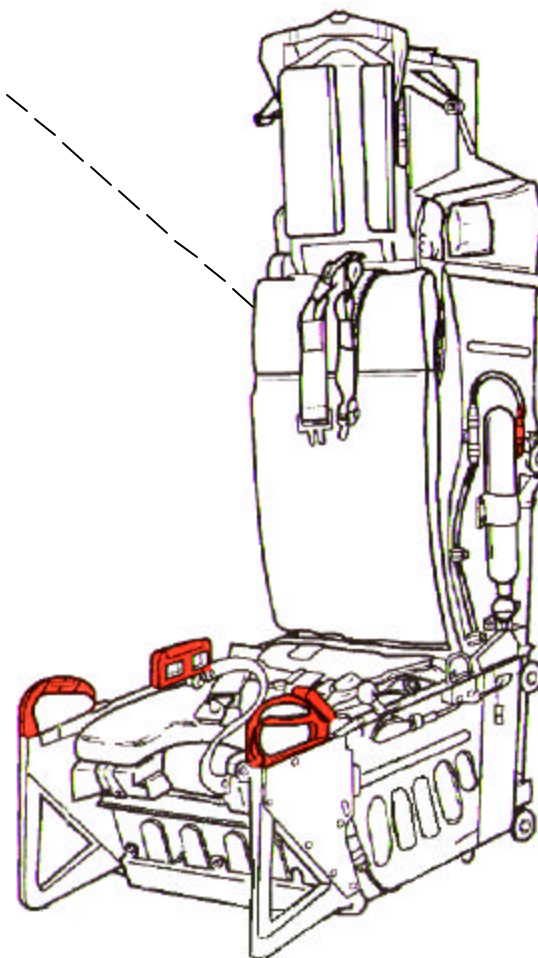
WARNING

A Seat Armed Indicator located on the upper right side of the seat can indicate WHITE for OK and RED for SEAT ARMED. This indicates that the Advanced Recovery Sequencer (ARS) battery condition is serviceable or expended. If expended, the white sealant will be punctured by a protruding red pin. If this is a recent condition, it will take two hours for the seat to be considered safe to work around or remove. Electrical battery power is required to energize the recovery sequencer circuits for the numerous explosives on the seat. Use extreme caution and judgement in this case. If time permits, call the local Egress Shop before proceeding. If emergency exists and time does not allow inspection by the Egress Shop, sever all exposed ballistic lines including top of seat for the rocket catapult.



NOTE:

Do not touch indicator sealant when checking condition. Frequent touching wears off sealant exposing tip of red pin indicating a false ARMED ARS condition.



SAFETYING EJECTION SEAT

WARNING

The seat is armed regardless of canopy position. Jettisoning the aircraft canopy automatically arms the ACES II ejection seat. On two seat aircraft, both seats must be safetied before either can be considered safe. Prior to entering the cockpit, locate the FIRED WARNING INDICATOR on seat bulkhead left side near canopy sill. A red spiral indicator will indicate system actuation or system malfunction if seat(s) are still in aircraft. Use EXTREME CAUTION under these circumstances; system can still actuate!

1. NORMAL SAFETYING of EJECTION SEAT(S)

- a. Rotate Ground Safety Lever, located left side of seat directly aft of the left Ejection Control Handle, UP and Forward.

NOTE:

The Ejection Control Handle safety pin can ONLY be installed from the forward inboard side of the left handle.

- b. Install safety pin in left Ejection Control Handle.
- c. Install safety pin in the Emergency Manual Chute Handle, located on the right side of the seat. If Ejection Control Handle and Emergency Manual Chute Handle Pin are connected by one safety streamer, route Emergency Manual Chute Handle under aircrew's legs, otherwise extraction will cause entanglement with streamer.

2. EMERGENCY SAFETYING of EJECTION SEAT(S) AFTER CANOPY JETTISON

WARNING

Rotating the Ground Safety Lever in this situation does not adequately prevent the possibility of inadvertent ejection.

- a. Rotate Ground Safety Lever, located left side of seat directly aft of the left Ejection Control Handle, UP and Forward.
- b. Insert safety pin in left Ejection Control Handle.
- c. Cut ballistic hoses on left and right sides of seat(s), above disconnects, to prevent ballistic gas from actuating ejection devices, with ballistic hose cutting tool.

EMERGENCY MANUAL CHUTE HANDLE

1c
SAFETY PIN WITH STREAMER

EMERGENCY MANUAL CHUTE HANDLE

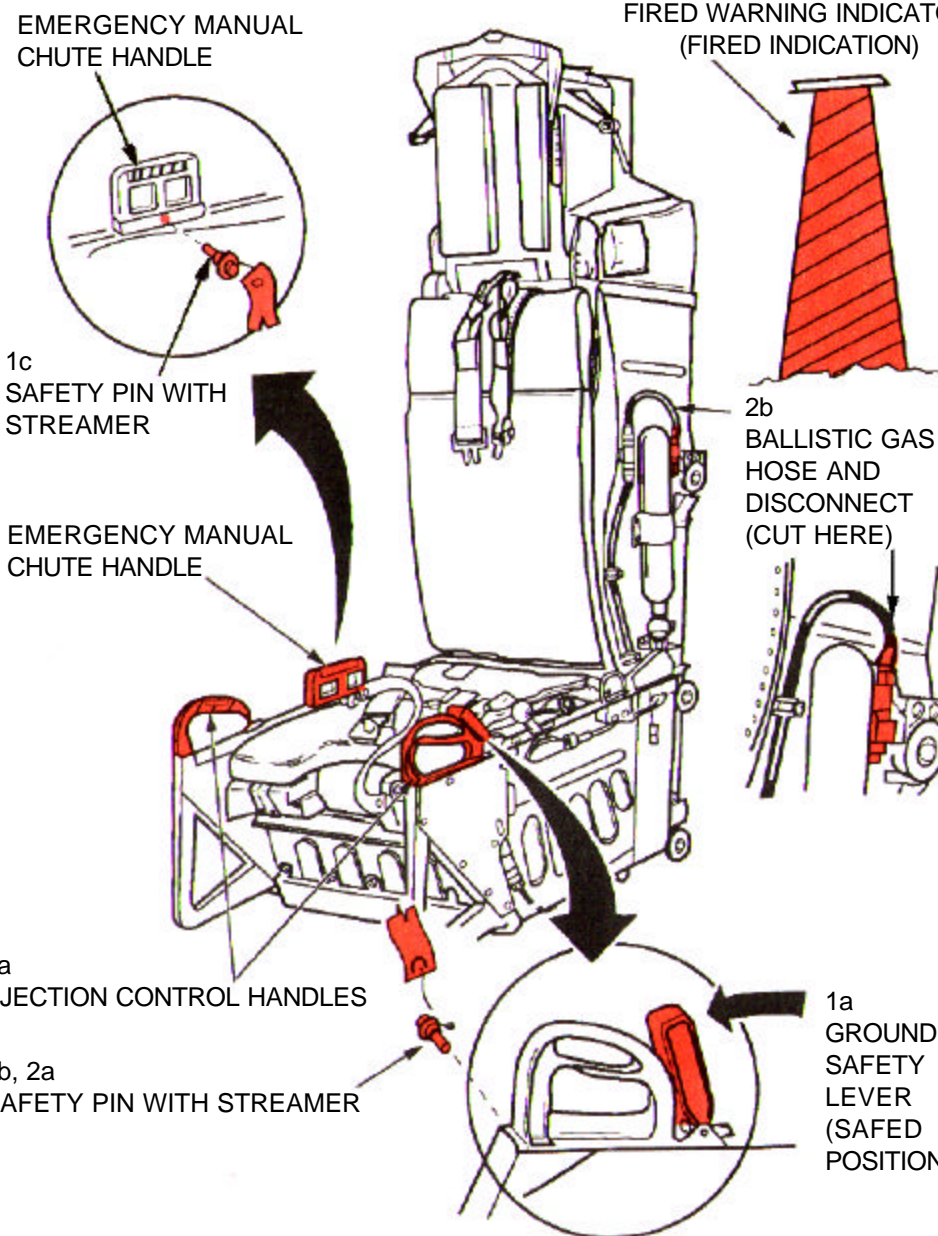
FIRED WARNING INDICATOR (FIRED INDICATION)

2b
BALLISTIC GAS HOSE AND DISCONNECT (CUT HERE)

1a
EJECTION CONTROL HANDLES

1b, 2a
SAFETY PIN WITH STREAMER

1a
GROUND SAFETY LEVER (SAFED POSITION)



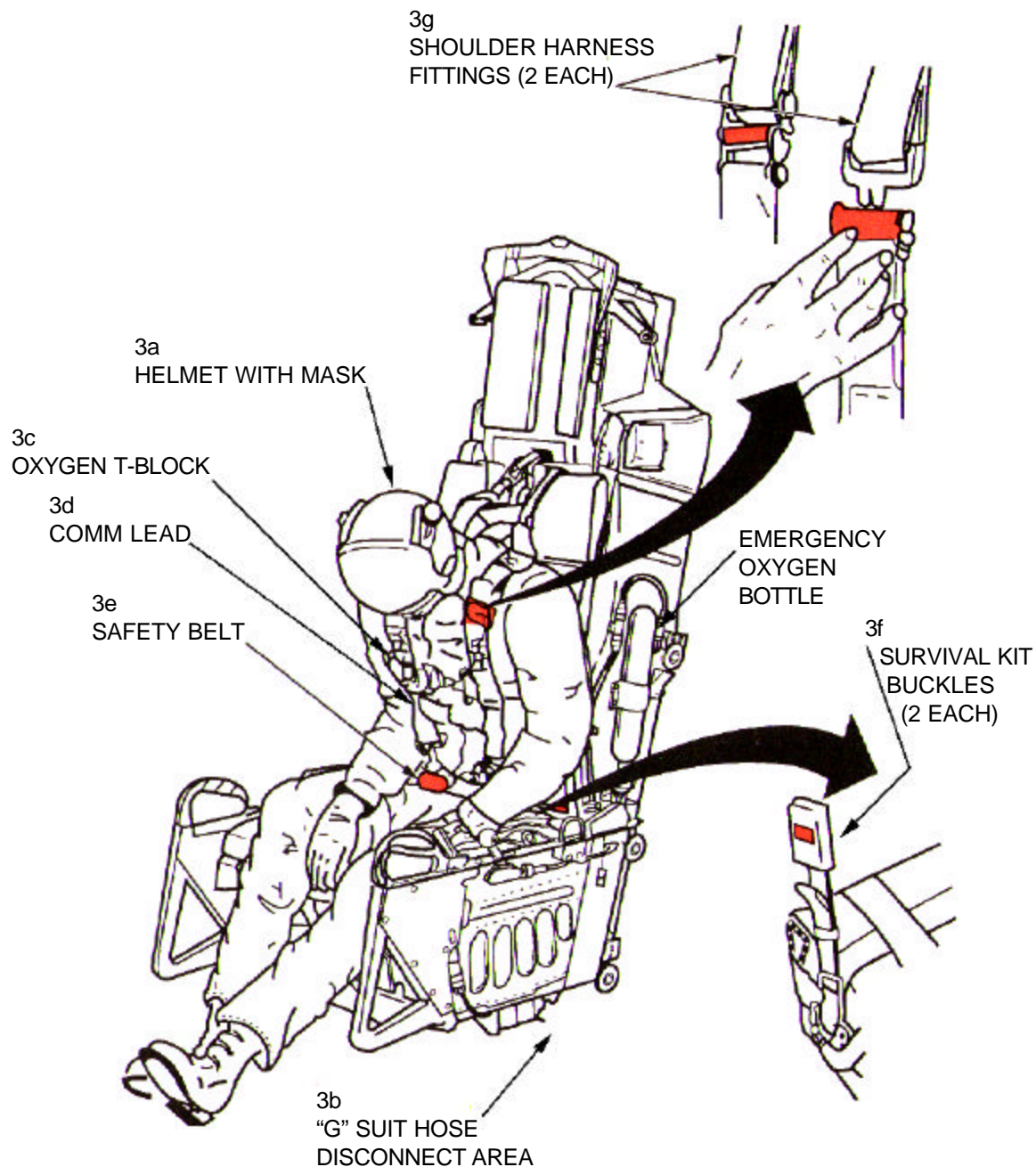
AIRCREW EXTRACTION

1. AIRCREW EXTRACTION

NOTE:

Pulling the Emergency Manual Chute Handle
WILL NOT release crewmember.

- a. Unsnap crewmember's mask from helmet on both sides.
- b. Release G suit hose on lower left hand side of seat.
- c. Release oxygen hose and oxygen T block on right hand side of seat. This also disconnects emergency oxygen.
- d. Release communication lead on right hand side of seat.
- e. Release safety belt by lifting cover and pulling release bar.
- f. Release left and right survival kit buckles by depressing PUSH TO RELEASE button on each buckle.
- g. Release left and right shoulder harness fittings by lifting cover and pulling release bar on each fitting.
- h. Extract crewmember over the rescue or left side of the cockpit. Insure that Ejection Control Handles, Ejection Safety Pin, and Ejection Safety Lever are not moved during extraction.



AIRCRAFT PAINT SCHEME

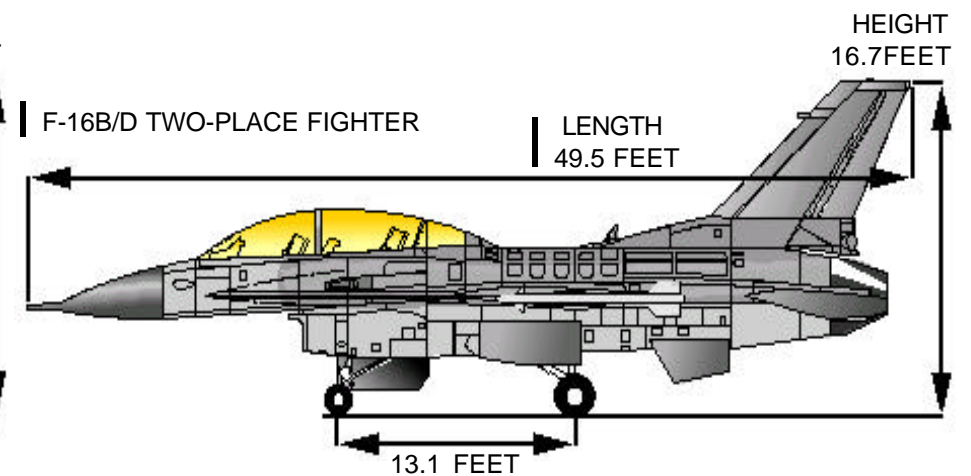
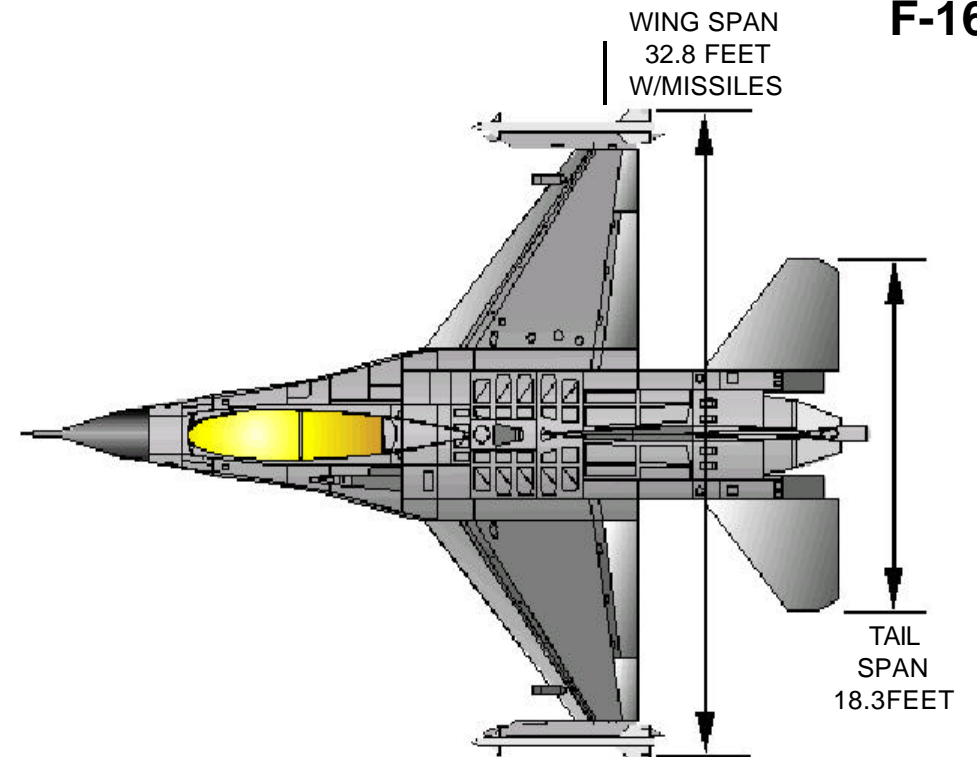
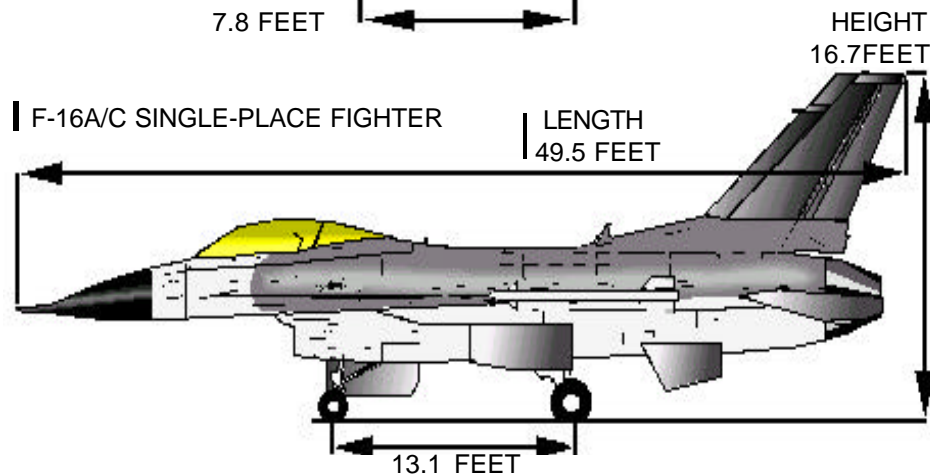
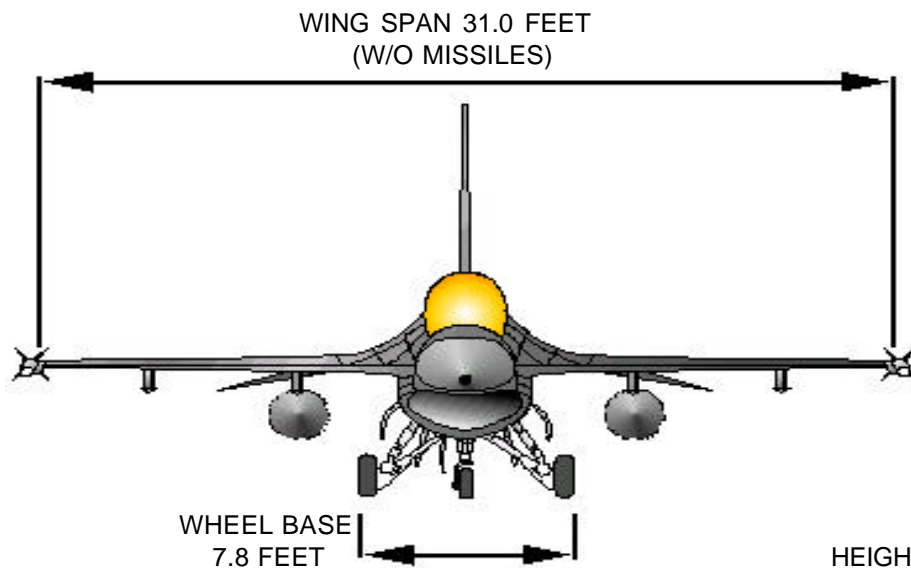


AIRCRAFT DIMENSIONS

CHARACTERISTICS:

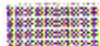


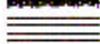
WING AREA - 300 SQ.FT

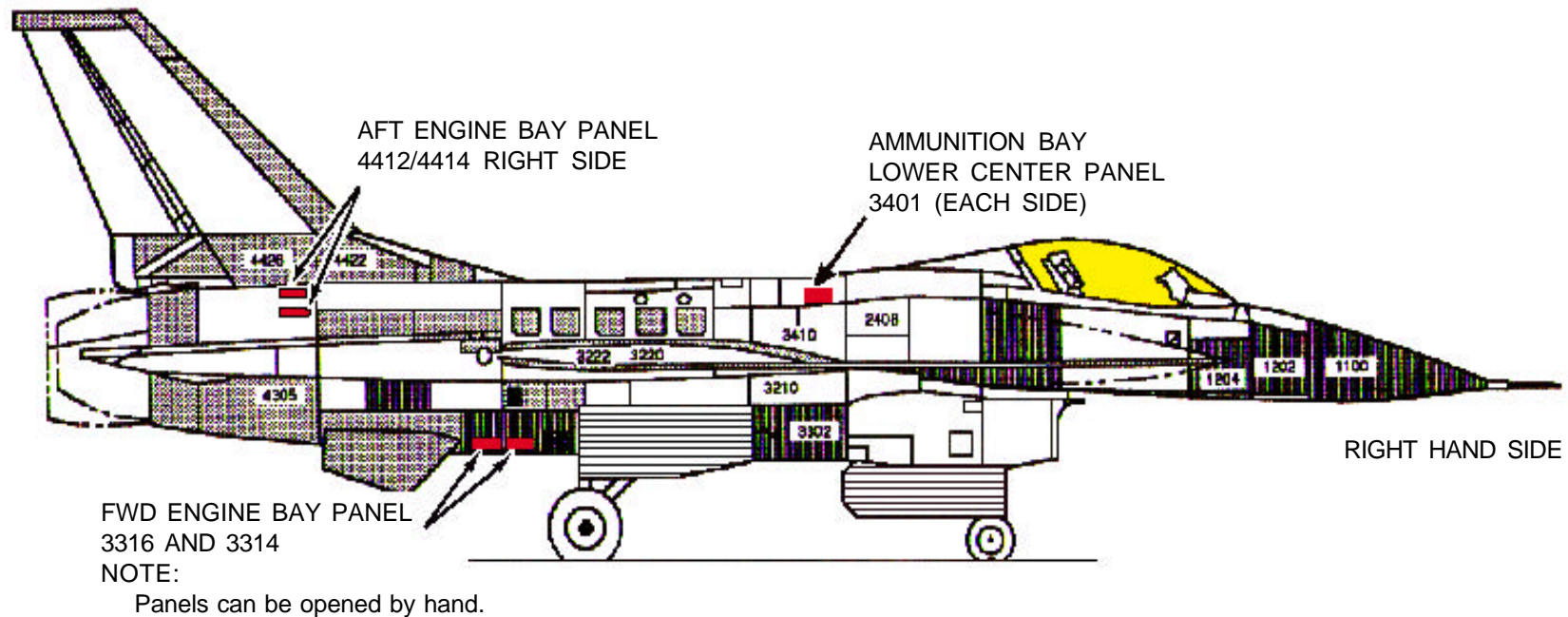
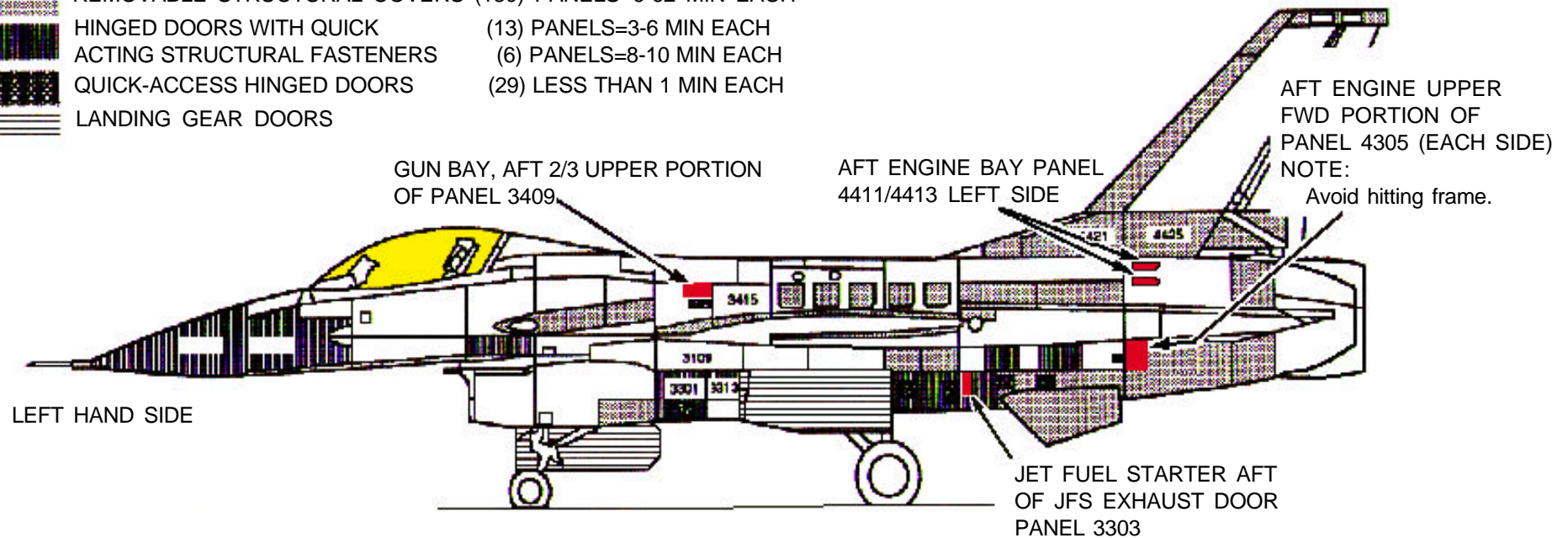
LEADING EDGE SWEEP 40 DEGREES



F-16


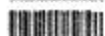
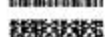

AIRCRAFT SKIN PENETRATION POINTS AND FIRE ACCESS LOCATIONS

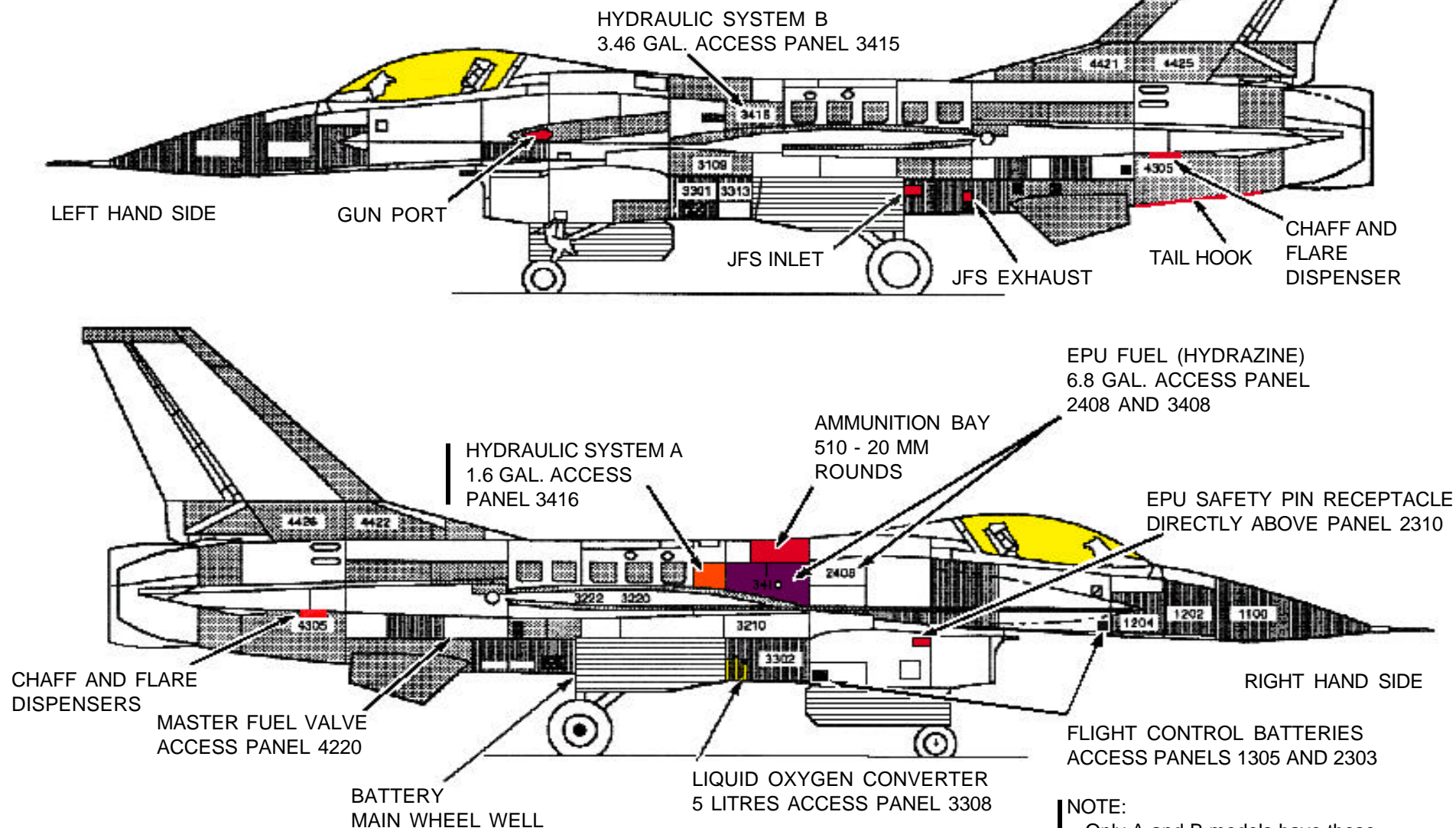
- | | |
|---|--|
|  | REMOVABLE STRUCTURAL COVERS (180) PANELS=6-62 MIN EACH |
|  | HINGED DOORS WITH QUICK ACTING STRUCTURAL FASTENERS (13) PANELS=3-6 MIN EACH |
|  | QUICK-ACCESS HINGED DOORS (6) PANELS=8-10 MIN EACH |
|  | LANDING GEAR DOORS (29) LESS THAN 1 MIN EACH |



AIRCRAFT HAZARDS AND ACCESS PANELS

F-16

- | | |
|---|--|
|  | REMOVABLE STRUCTURAL COVERS (180) PANELS=6-62 MIN EACH |
|  | HINGED DOORS WITH QUICK ACTING STRUCTURAL FASTENERS (13) PANELS=3-6 MIN EACH |
|  | QUICK-ACCESS HINGED DOORS (6) PANELS=8-10 MIN EACH |
|  | QUICK-ACCESS HINGED DOORS (29) LESS THAN 1 MIN EACH |
| | LANDING GEAR DOORS |



NOTE:

Only A and B models have these flight control batteries.

EPU FUEL-H-70 HYDRAZINE HAZARD

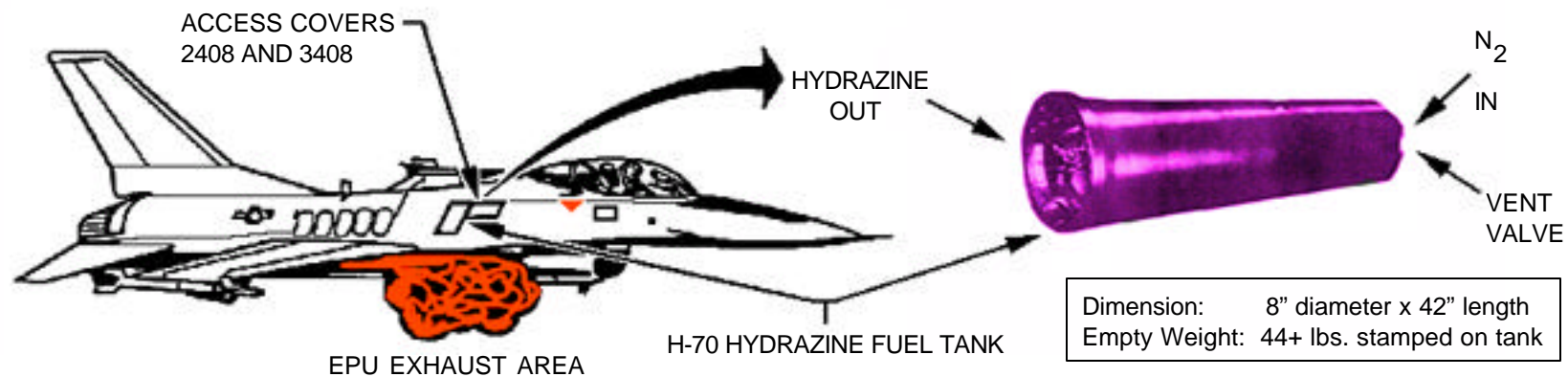
F-16

WARNING

AIRCRAFT CRASH OR EMERGENCY LANDING MAY RESULT IN HYDRAZINE SPILL OR VAPORS, RESCUE PERSONNEL WHO MAY BE EXPOSED SHALL WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE GARMENTS - FACE MASK AND PLASTIC OR RUBBER GLOVES AS A MINIMUM. SPILLED HYDRAZINE SHOULD BE DILUTED WITH EQUAL AMOUNTS OF WATER SPRAY TO RENDER NONFLAMMABLE.

CAUTION

IF EPU IS OPERATING IN THE HYDRAZINE MODE, SELF - CONTAINED BREATHING APPARATUS SHOULD BE WORN BY RESCUE PERSONNEL IN THE IMMEDIATE VICINITY OF AIRCRAFT AND DURING EMERGENCY CANOPY ENTRANCE. THE AMMONIA CONSTITUENT OF EPU EXHAUST MAY CAUSE IRRITATION OF EYES, NOSE AND THROAT.



GENERAL INFORMATION:

- F-16 Emergency Power Unit (EPU) Uses 70% Hydrazine and 30% Water Blend (H-70) as Fuel.
- Exhaust Gases from EPU Turbine are 40% Ammonia, 17% Nitrogen, 15% Hydrogen and 28% Water.
- EPU Operation Results in Noise Similar to a high pitched whine.
- Fire Hazards of Hydrazine are Similar to JP-4.
- Odor (Ammonia) Threshold is 2 to 3 ppm.
- OSHA Hydrazine Exposure Limit is 1.0 ppm Average Over an 8 Hour Period.
- ACGIH Hydrazine Exposure Limit is 0.01 ppm Average Over an 8 Hour Period; Excursion Up to 0.3 ppm are Permitted, Provided 0.01 ppm Average for 8 Hours is Not Exceeded.
- For additional information, refer to TO 1F-16A/C-2-49GS-00-1, Section IV, H-70 Fuel Spill Management and Neutralization.

WING FUEL TANKS

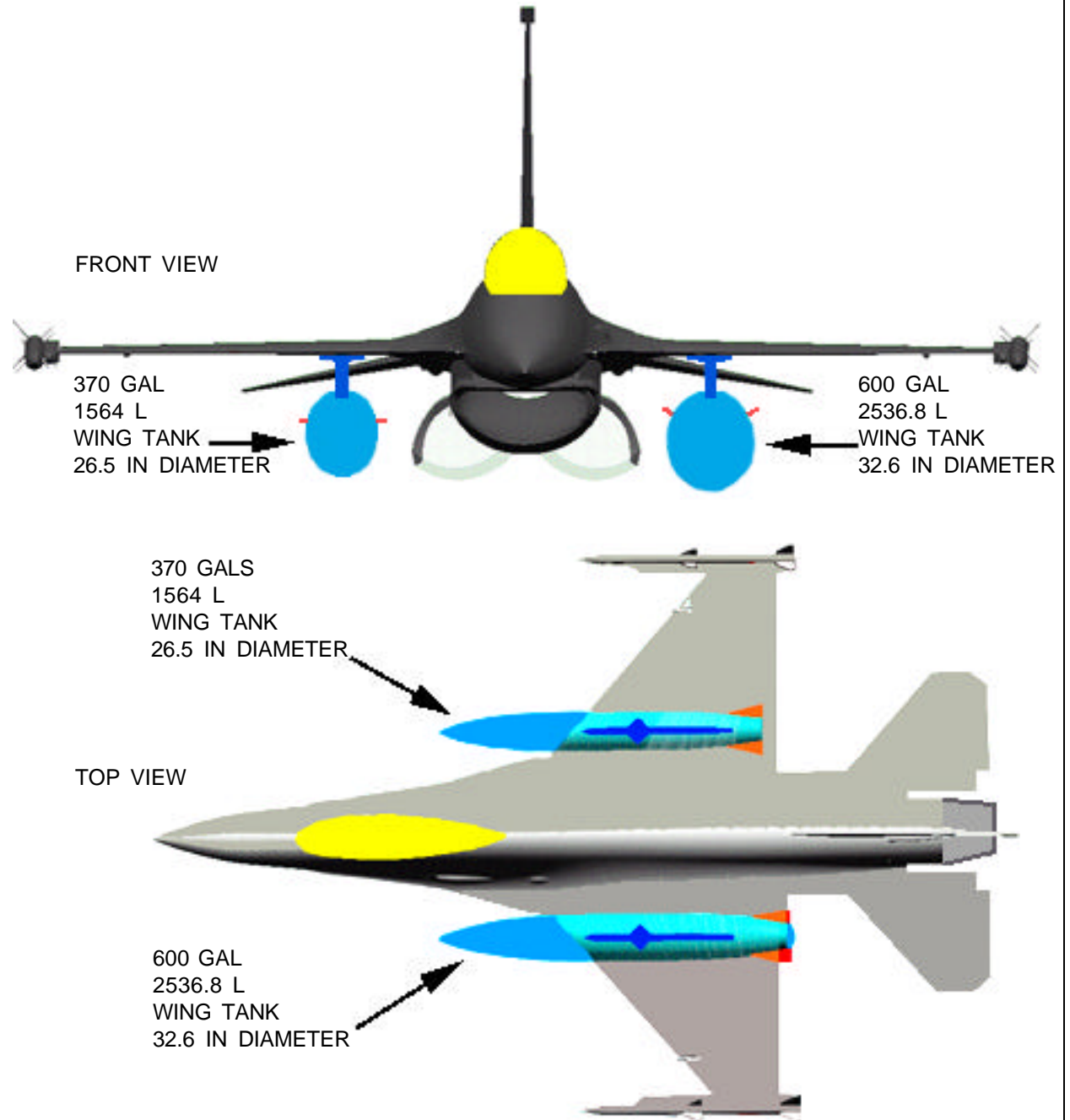
NOTE:

Larger capacity wing tanks are being added to F-16 aircraft slated for foreign sales and a possible configuration for the USAF. These aircraft may be flown in the U.S. as well as abroad, therefore this information is required for rescue and response crews.

1. WING MOUNTED FUEL TANKS

NOTE:

Each side can either carry the standard 370 gallon (1564 litres) or 600 gallon (2536.8 litres) under wing fuel tank.



CONFORMAL FUEL TANKS

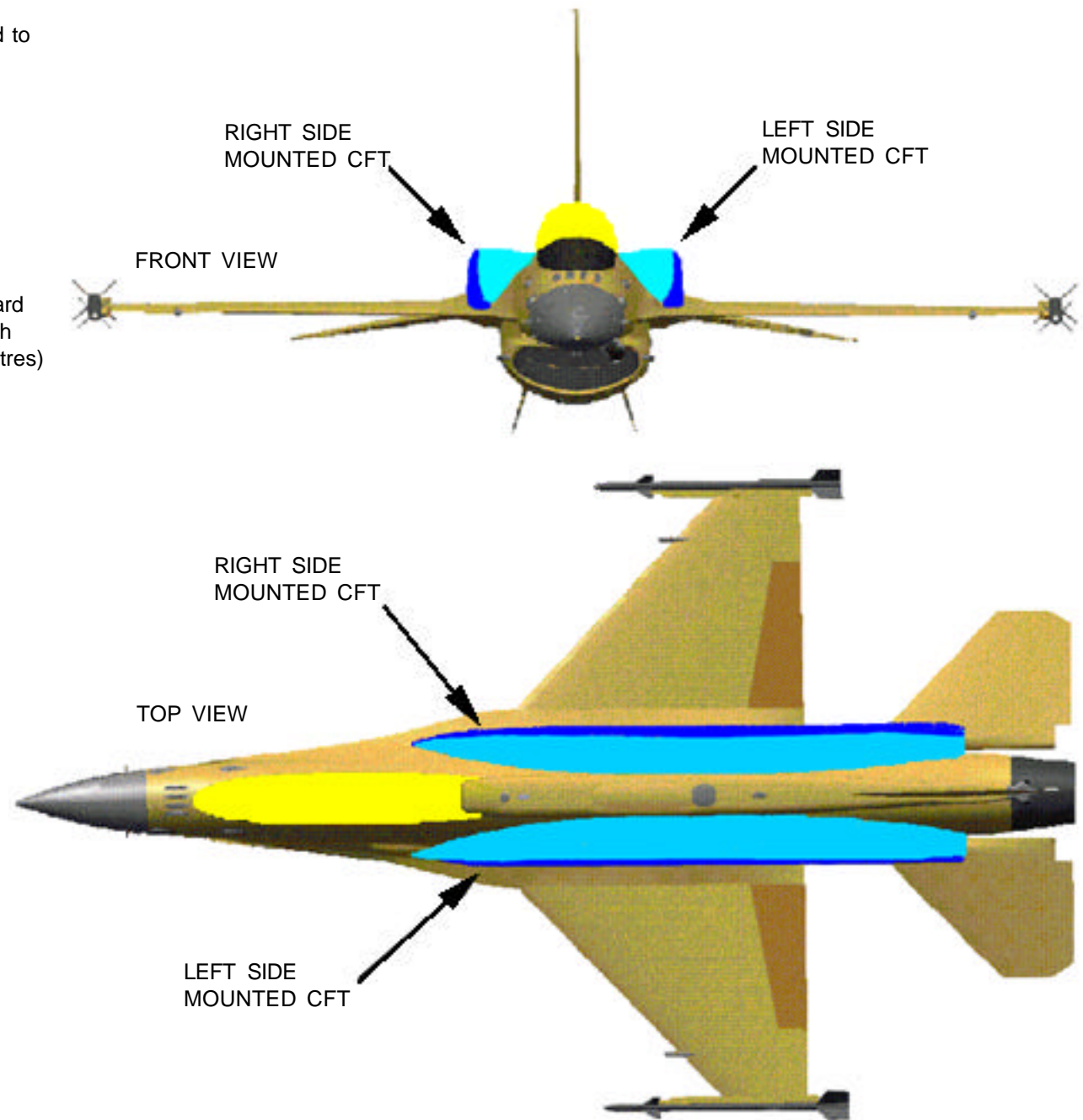
NOTE:








Side mounted conformal tanks are being added to F-16 aircraft slated for foreign sales and a possible configuration for the USAF. These aircraft may be flown in the U.S. as well as abroad, therefore this information is required for rescue and response crews.

1. SIDE MOUNTED CONFORMAL FUEL TANKS

NOTE:

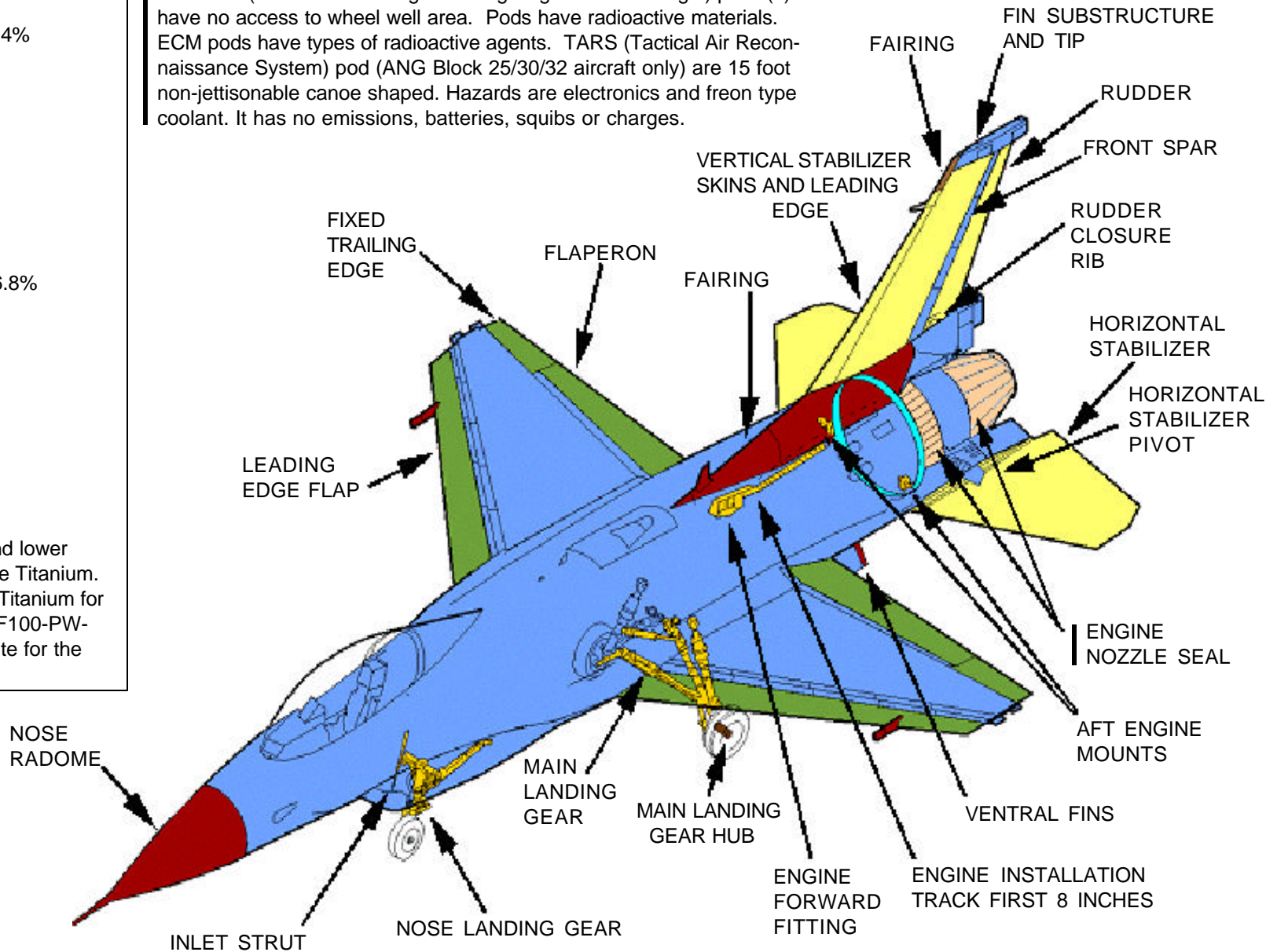
Each upper fuselage side is made up of a forward and aft conformal fuel tank (CFT) section. Each side holds approximately 220 gallons (930.16 litres) or 1500 pounds. Total CFT fuel is 440 gallons (1860.32 litres) or 3000 pounds.



- | | |
|---|-------------------------------|
|  | ALUMINUM - 78.4% |
|  | STEEL - 11.0% |
|  | TITANIUM - 0.8% |
|  | COMPOSITE - 3.0% |
|  | FIBERGLASS - 6.8% |
|  | M300 STEEL - 6.8% |
|  | BONDED FULL DEPTH CORE - 6.8% |

Engine heat shield and lower wing attach fittings are Titanium. The engine nozzle is Titanium for GE engines and the F100-PW-200/220 and composite for the F100-PW-229.

LANTIRN (Low Altitude Navigation/Targeting Infrared for Night) pods (2) have no access to wheel well area. Pods have radioactive materials. ECM pods have types of radioactive agents. TARS (Tactical Air Reconnaissance System) pod (ANG Block 25/30/32 aircraft only) are 15 foot non-jettisonable canoe shaped. Hazards are electronics and freon type coolant. It has no emissions, batteries, squibs or charges.



AIRFRAME MATERIALS-Continued

COMPOSITE WEIGHTS

NOTE:

Use the legend on page F-16.7 for composites color coding.

Various type versions of the F-16 use 171-222 pounds of composite materials for the skins of the horizontal tails, vertical fin and rudder, as well as certain structure inside the vertical fin.

F-16A/B: Small Tail 171 lbs

F-16A/B: Big Tail 222.6 lbs

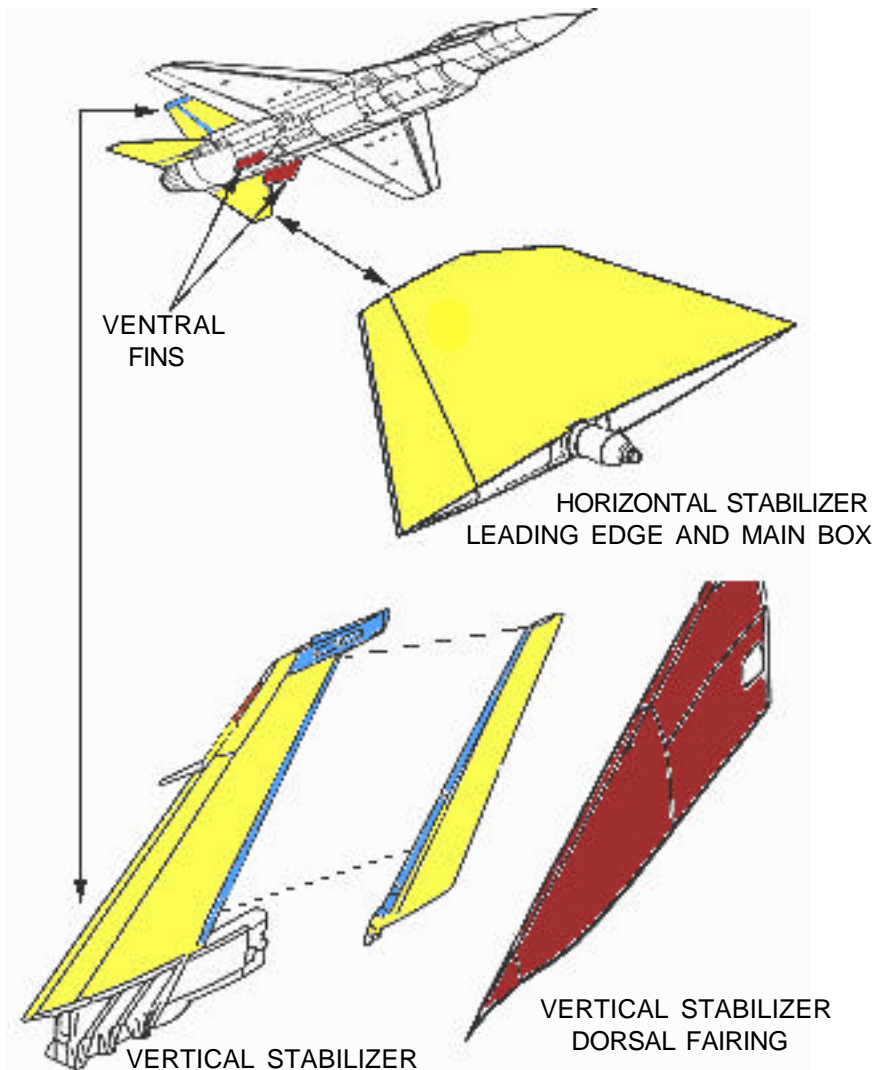
F-16C/D: 222.3 lbs

F-16 C/D COMPOSITE MATERIALS LOCATION AND DESCRIPTION

Composite materials are in the ventral fins, vertical and horizontal stabilizers and radome. Because of redesigns, expect to find other miscellaneous aircraft parts made out of composite materials. The C/D ventral fin is a bonded assembly that incorporates a fiberglass epoxy sandwich laminate in the aft region. The core is an organic material. The horizontal stabilizer consists of two basic structures, the main box and the leading edge assembly. The main box is skinned with a carbon fiber epoxy laminate. The laminate's surface layer is a glass woven fabric. Underneath the fabric layer are layers of unidirectional carbon fiber/epoxy tape. Each tape layer has a specific fiber orientation. This will be obvious when looking at an impact-damaged piece. There may be woven fabrics dispersed among the tape layers. The laminate is bonded to a corrugated aluminum surface. There is a layer of fiberglass between the aluminum surface and the carbon fiber layer.

The leading edge is a sandwiched composite. The skin is a carbon fiber epoxy laminate bonded to an aluminum honeycomb core. A carbon fiber epoxy channel section is used as an aft closure beam bonded to the sandwiched laminate. A fiberglass wedge is used as a leading edge closure capped with stainless steel.

The radome is a glass/epoxy filament wound composite with a surface layer of a woven glass fabric. The F-16 radome fiber directions are longitudinal and circumferential. The fin box of the vertical tail is skinned with carbon fiber epoxy laminate. The lower fin leading edge is a carbon fiber/epoxy sandwich laminate. The rudder contains a carbon fiber / epoxy sandwich laminate. The core is an aluminum honeycomb material. The vertical tail dorsal fairing skin is fiberglass.



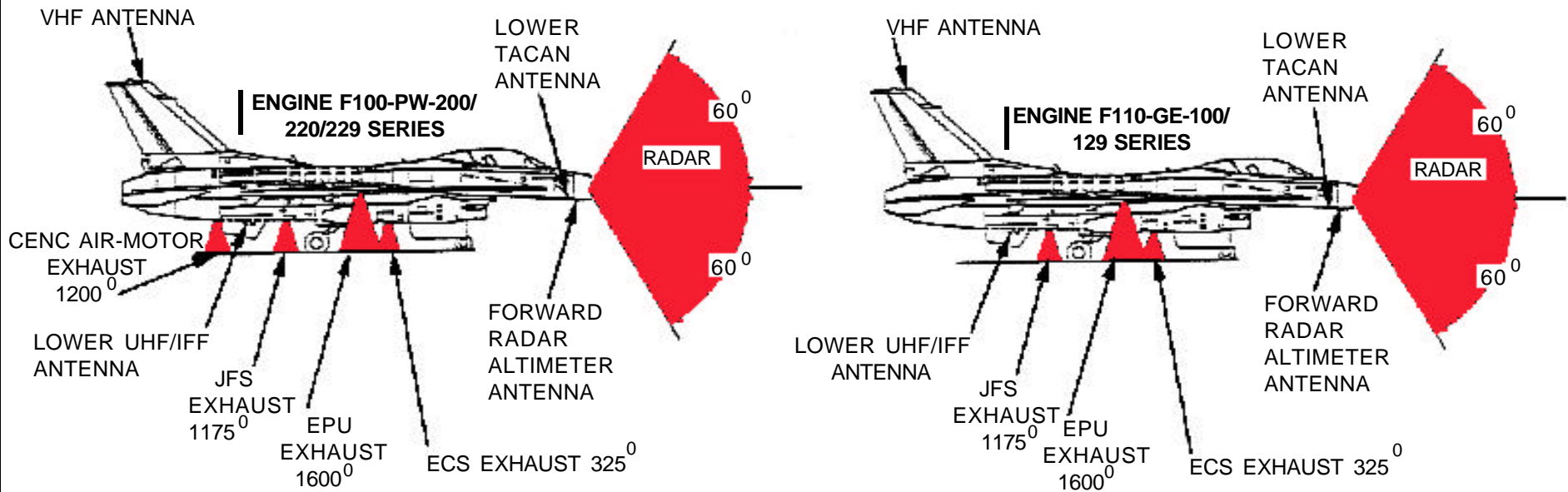
AIRCRAFT DANGER AREAS

RADIATION AND ANTENNAS

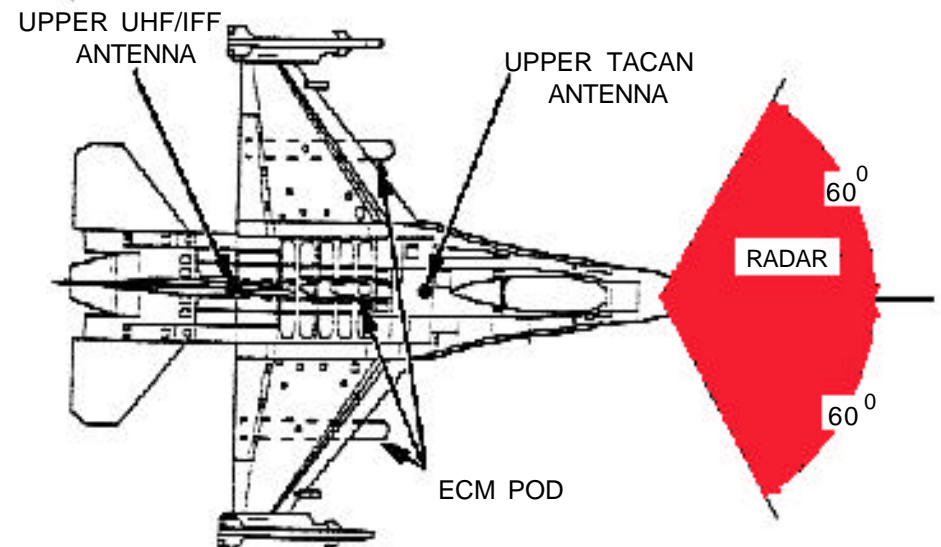
NOTE:

- Distance from radar disc to forward tip of radome = 5 feet.
- ECM pods radiate in a fan pattern fore and aft.

F-16



COMMON TO BOTH ENGINES



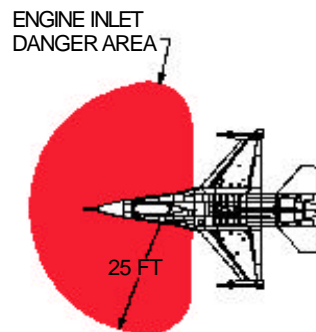
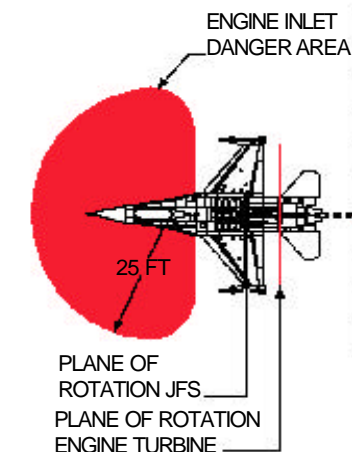
OPERATING TRANSMITTERS	MINIMUM SAFE DISTANCE FROM ANTENNAS IN FEET		
	VOLATILE FLUIDS	PERSONNEL	EED
UPPER AND LOWER UHF/IFF	—	2	—
UPPER AND LOWER TACAN	—	1	—
VHF	—	1	—
RADAR ALTIMER	—	1	—
FIRE CONTROL RADAR	30	120	120
AN/ALQ-119	—	6	6
AN/ALQ-131	—	15	15
AN/ALQ-176	—	6	6
AN/ALQ-184	—	31	6
AN/ALQ-188	—	6	6
QRC-80-01	—	6	6

AIRCRAFT DANGER AREAS-Continued

ENGINE THRUSTS FOR F110-GE-100/129

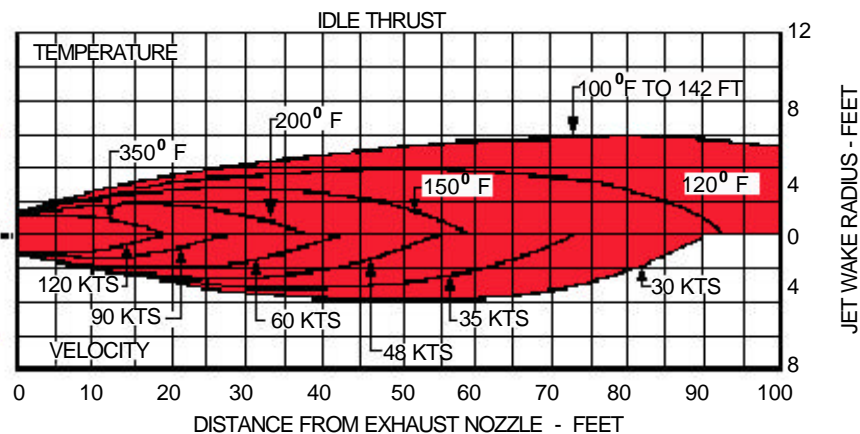
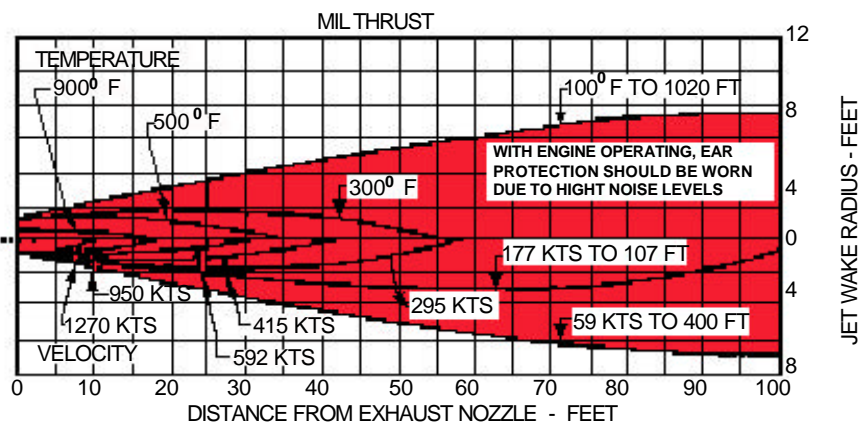
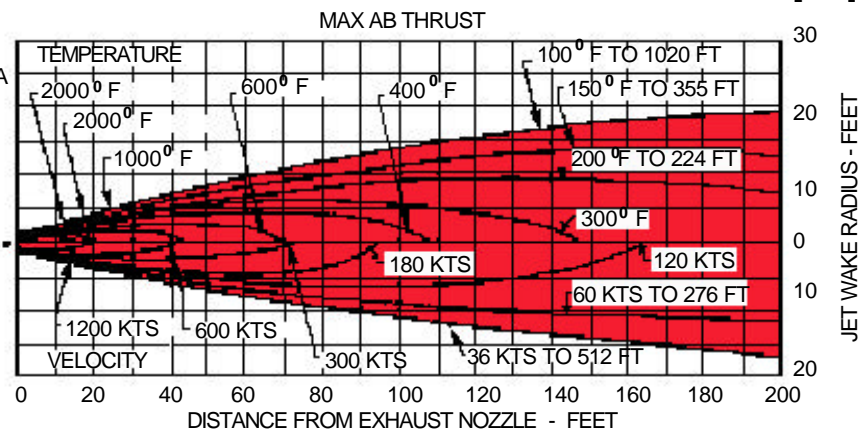
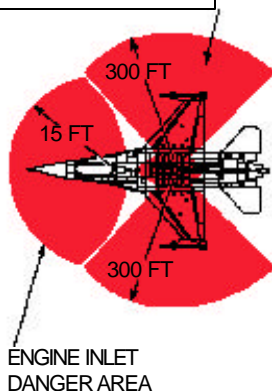
CAUTION

The safe distance to maintain around engine intakes is 25 feet regardless of thrust.



TIRES AND HOT BRAKES

Avoid inflated MLG tire side area within 300 feet for 45-60 minutes after aircraft has stopped. If required, approach from the front or rear only.



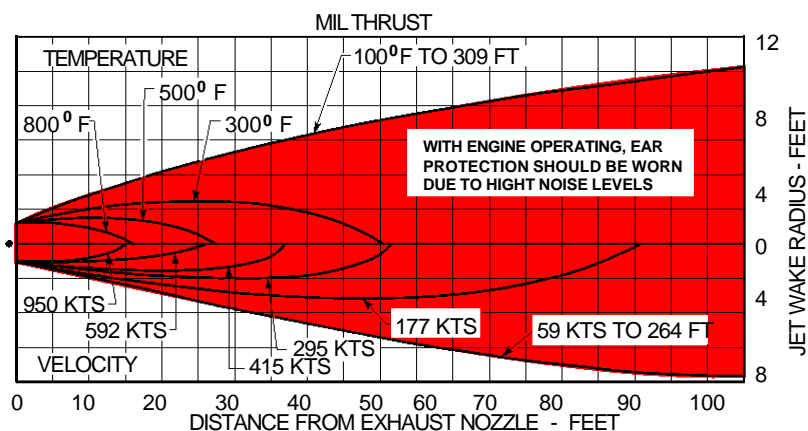
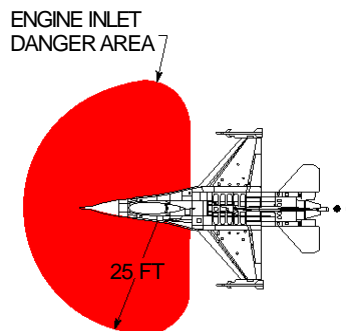
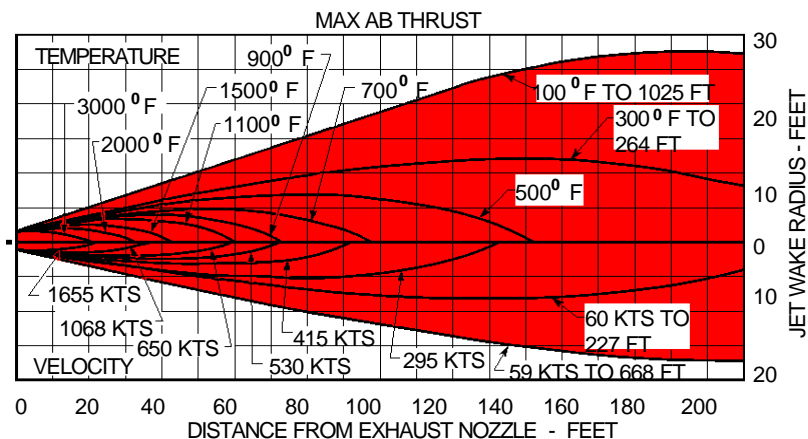
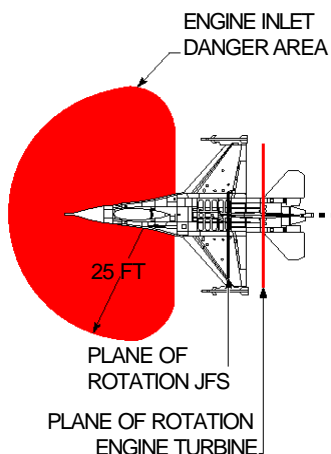
F-16

AIRCRAFT DANGER AREAS-Continued

ENGINE THRUSTS FOR F100-PW-200/220

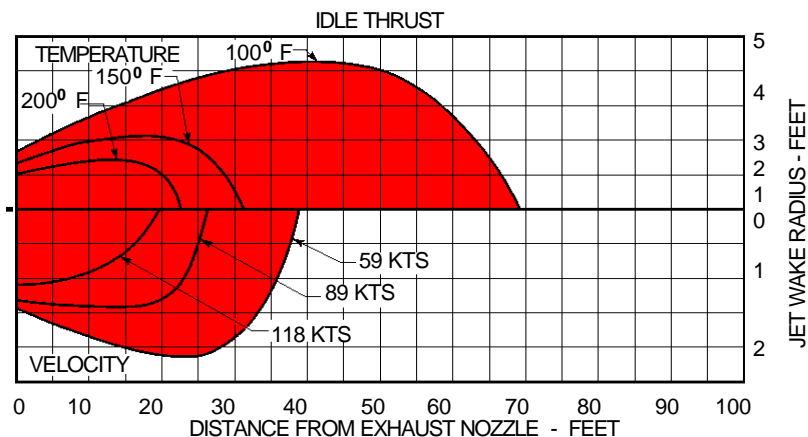
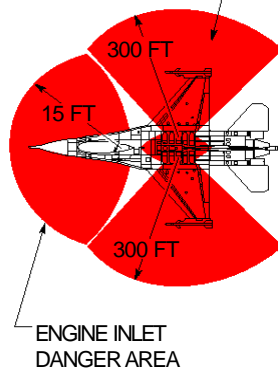
CAUTION

The safe distance to maintain around engine intakes is 25 feet regardless of thrust.



TIRES AND HOT BRAKES

Avoid inflated MLG tire side area within 300 feet for 45-60 minutes after aircraft has stopped. If required, approach from the front or rear only.

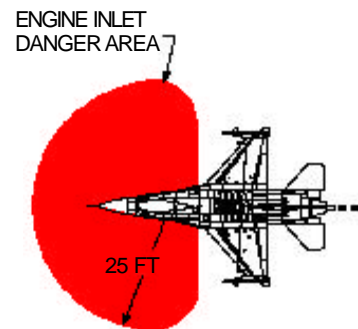
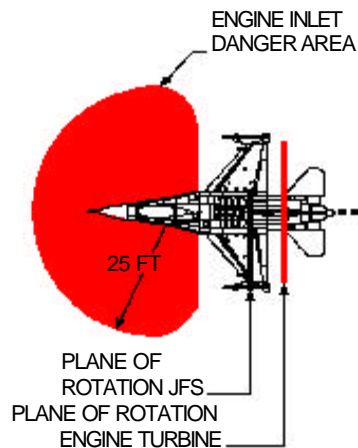


AIRCRAFT DANGER AREAS-Continued

ENGINE THRUSTS FOR F100-PW-229

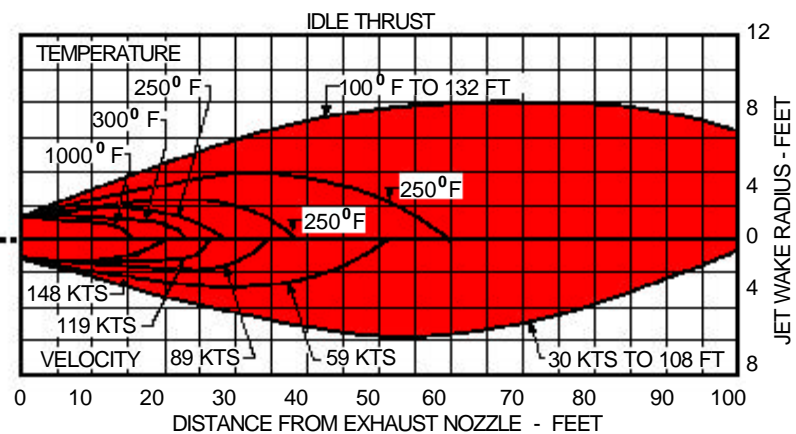
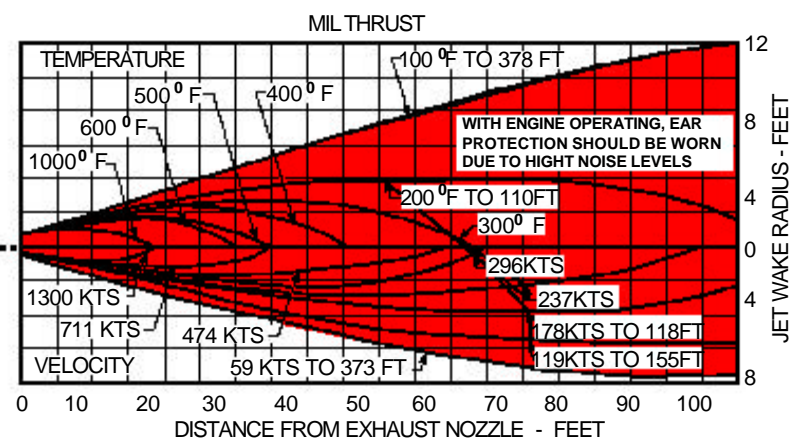
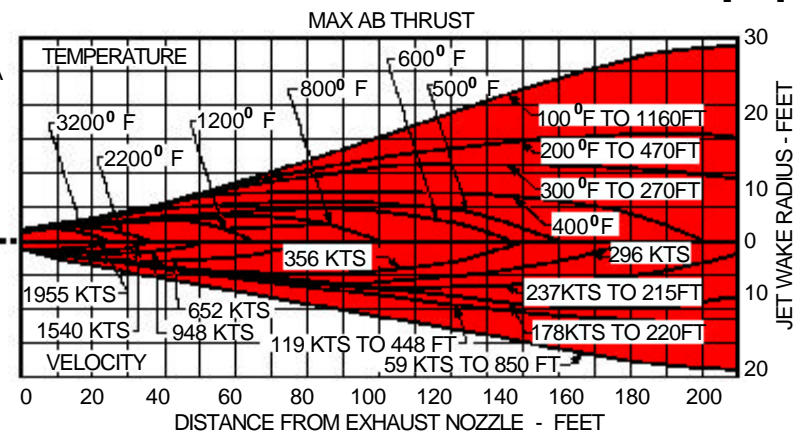
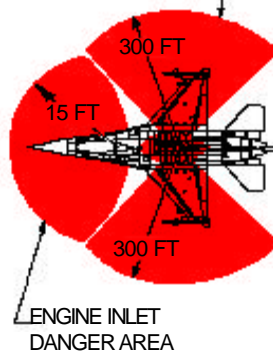
CAUTION

The safe distance to maintain around engine intakes is 25 feet regardless of thrust.



TIRES AND HOT BRAKES

Avoid inflated MLG tire side area within 300 feet for 45-60 minutes after aircraft has stopped. If required, approach from the front or rear only.



SPECIAL TOOL

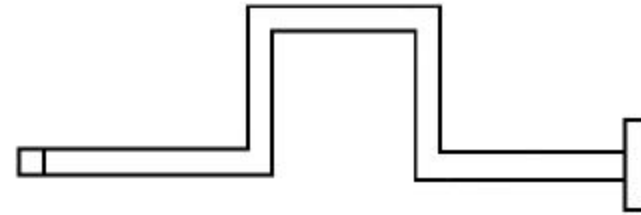
LOCAL MANUFACTURED TOOL

NOTE:

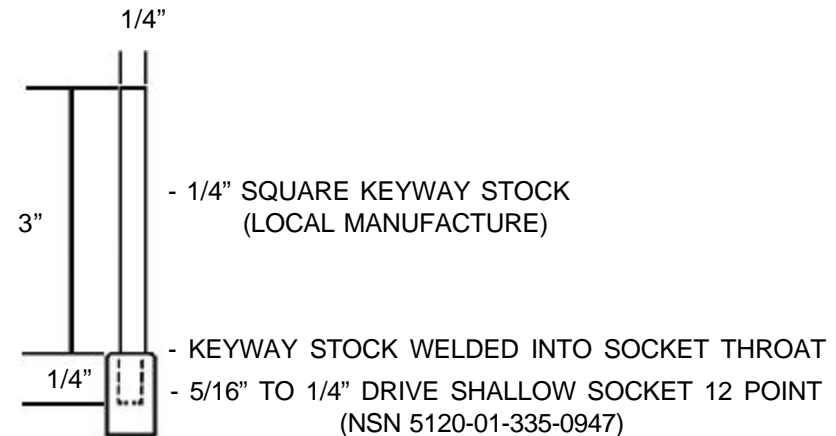
This tool can be locally manufactured with 1/4" keyway stock for the 1/4" plug removal on the left side fuselage. The 1/4" keystock will prevent wearing out the plug head and accelerate the rescue process. See page F-16.10 steps 2a and 3a for application. Attach this tool to a socket wrench or speed handle. A substitute tool for the socket wrench or speed handle can be a cordless drill.

WARNING

DO NOT USE A POWERED DRILL TO OPEN THE CANOPY! The canopy mechanisms are not engineered for rapid opening and a malfunction can occur resulting in a possible falling canopy and failed rescue!



TYPICAL 1/4" DRIVE SPEED HANDLE FOR SPECIAL TOOL



SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw w/ Carbide Tipped Toothed Cutting Blade
 Speed Handle -1/4 In. Drive Socket Drive
 1/4 In. Drive Apex Holder w/ 9/64 Inch Apex
 2 each Safety/Gun Pins P/N NAS1333C3C151D or Equivalent
 0.149 to 0.125 Diameter Drill Rod at least 8 In.
 Cordless Drill Fire Drill II Wire Cutters/Dikes
 Portable Engine Shutdown Box

AIRCRAFT ENTRY

CAUTION

Entry procedures vary if engine is running. Pilot maybe active or incapacitated and condition of aircraft is uncertain. Refer to either normal or emergency procedures.

WARNING

DO NOT PIN NOSE GEAR OR THE EPU UNTIL ENGINE IS SHUTDOWN! PERSONNEL IN THIS AREA ARE IN THE ENGINE INTAKE DANGER ZONE AND THE SAFETY PINS AND STREAMERS ARE CONSIDERED F.O.D. HAZARDS.

WARNING

FOR AN ACTIVATED EPU

The EPU is no longer required to be safed after EPU activation and/or until engine is shutdown. The EPU contains 6.8 gallons of hydrazine fuel. Personnel will not approach engine intake closer than five feet from either side or rear and maintain a safe distance of 25 feet from front intake when engine is running. Safety pinning an activated EPU unnecessarily places firefighters/rescue personnel in imminent danger working near the engine intake. Disregarding this **WARNING** could result in **injury or death** to rescue personnel and possible engine F.O.D. with the EPU safety pin assembly. (See Danger Zones on pages 11 thru 13.)

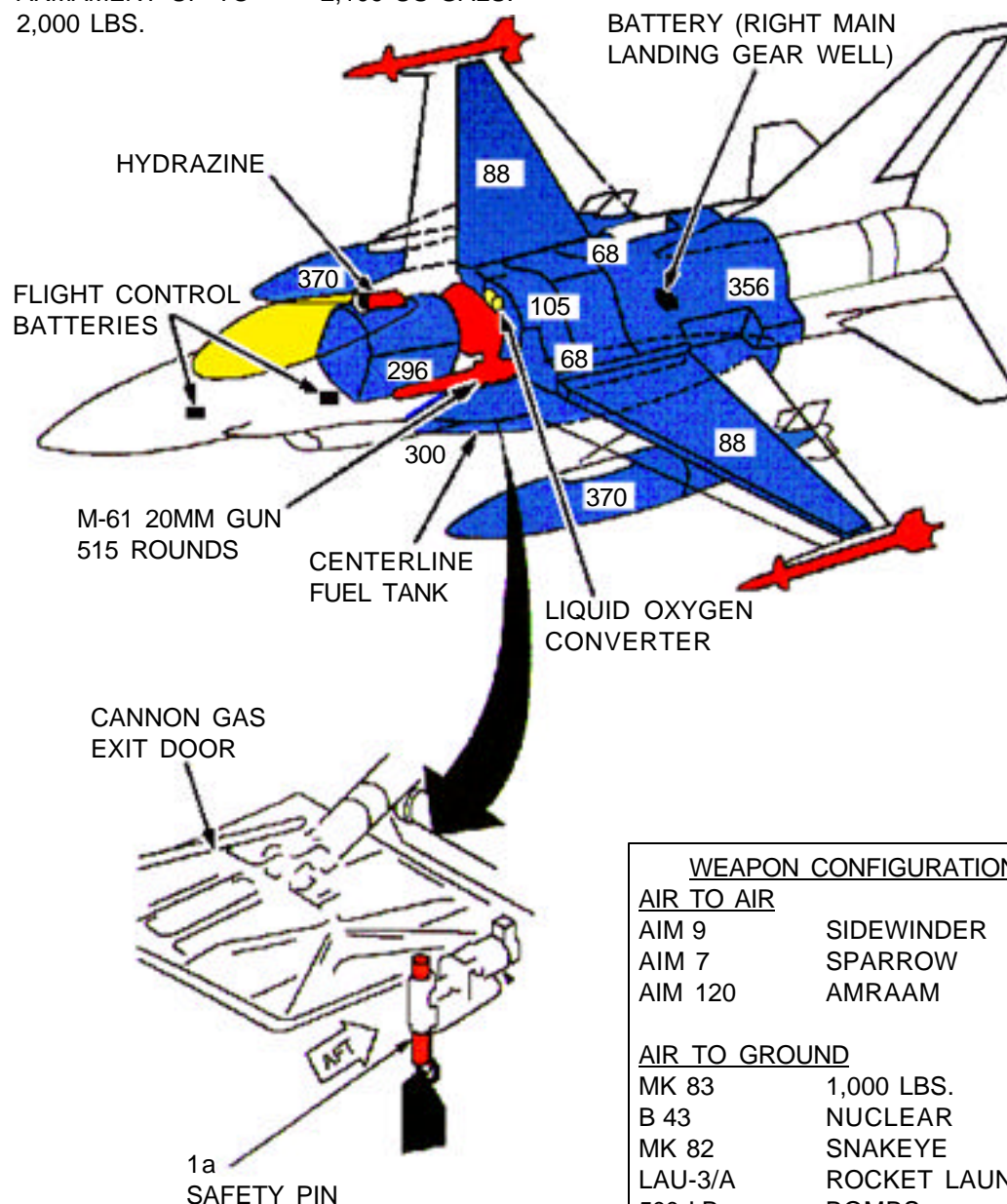
1. GUN SAFETYING

- a. **Avoid placing hand inside gun safe compartment.**
 From the outside only, install gun safety pin in receptacle underneath the left strake, aft of canopy external switch access door and outboard of exit door No. 3105.

CONVENTIONAL
 ARMAMENT UP TO
 2,000 LBS.

TOTAL FUEL
 2,109 US GALS.

F-16



WEAPON CONFIGURATIONS

AIR TO AIR

AIM 9	SIDEWINDER
AIM 7	SPARROW
AIM 120	AMRAAM

AIR TO GROUND

MK 83	1,000 LBS.
B 43	NUCLEAR
MK 82	SNAKEYE
LAU-3/A	ROCKET LAUNCHER
500 LB	BOMBS
PAVEWAY	LASER GUIDED BOMBS
AGM-78	A.R.M.
AGM-65	MAVERICKS

AIRCRAFT ENTRY-Continued

2. NORMAL ENTRY

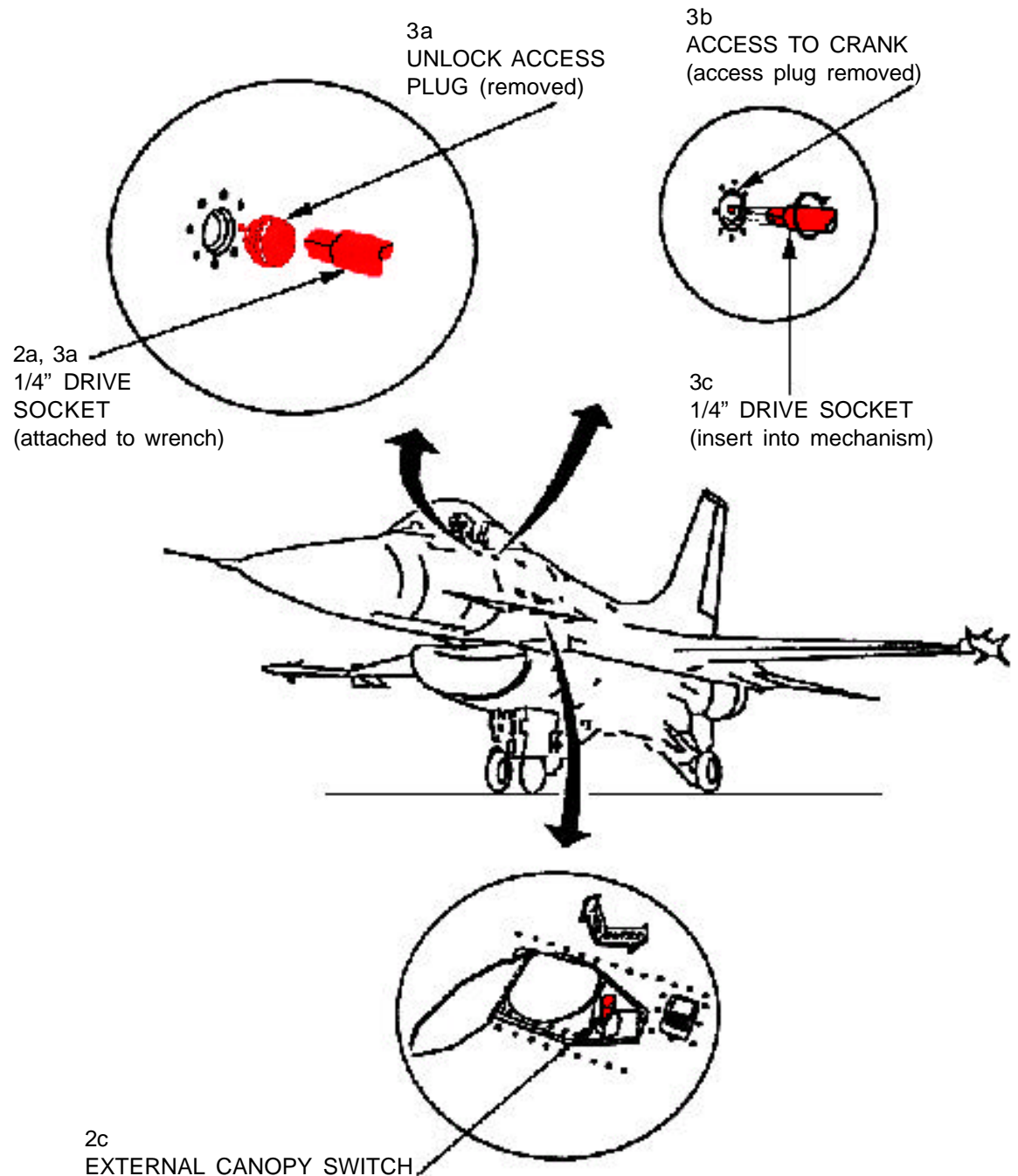
NOTE:

If canopy is not locked from the inside, move the external canopy switch, located at left wing strake at door 2105, to the UP position to open canopy.

- Use a 1/4 inch dr. socket wrench or speed handle to remove unlock access plug, located left side of fuselage. Use cordless drill to remove plug if stripped.
- Insert at least a 0.149 to 0.125 inch diameter drill rod into crank insert opening and push inboard to unlock canopy.
- Access door 2105, depress thumb catch and move the external canopy switch to the UP position to open canopy.

3. MANUAL ENTRY

- Use a 1/4 inch dr. socket wrench or speed handle to remove unlock access plug, located left side of fuselage. Use cordless drill to remove plug if stripped.
- Insert at least a 1/8 inch diameter drill rod into opening and push inboard to unlock canopy.
- Insure that canopy unlock handle is raised to unlock position. Insert 1/4 inch dr. socket wrench or speed handle into crank insert opening mechanism located left side of fuselage aft of unlock access plug.
- Rotate canopy opening mechanism clockwise 52 revolutions to fully open a single seat F-16A/C canopy or 87 revolutions on a two seat F-16B/D.



AIRCRAFT ENTRY-Continued

4. EMERGENCY ENTRY

WARNING

- If the canopy is restrained by debris or jammed by crash damage, do not jettison the canopy. Attempted jettison may result in a portion of the canopy rocket exhaust entering the cockpit. This exhaust may expose the crewmembers to a toxic gas, heat, and blast hazard.
 - Flames, heat, and blast from the canopy jettison rocket exhaust nozzles will extend to the pavement and could ignite flammable fluids and vapors.
- a. Open canopy emergency release door, located on each side of fuselage below canopy. Only one canopy release door needs to be opened to jettison the canopy. Only one thumb latch per door is installed and only one thumb latch needs to be pushed.
 - b. Extend jettison handle to full length (approximately 6 feet) and pull to jettison canopy.

5. CUT-IN

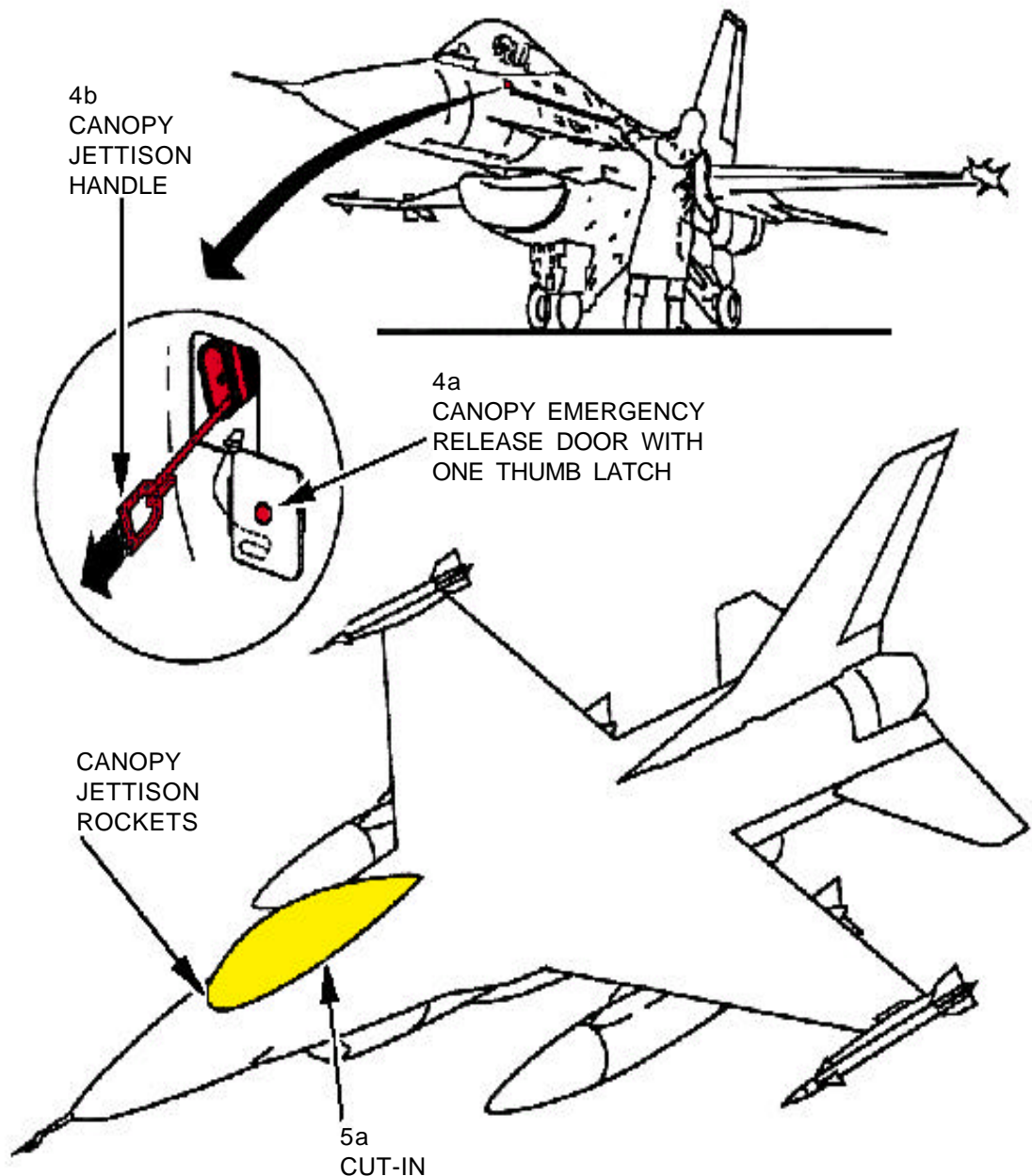
NOTE:

Due to the strength of the canopy transparency, all sides of the canopy must be cut to reach the crewmember(s).

WARNING

Extreme caution must be taken during the cutting operation to avoid hitting the canopy jettison rockets and other ballistic components mounted in or near the canopy frame.

- a. Cut through the canopy transparency using a power rescue saw with a carbide tipped, toothed cutting blade. On a F-16B/D, the aft seat transparency material is thinner and easier to cut.



EMERGENCY ENGINE SHUTDOWN #1

NOTE:

Use the appropriate shutdown procedures #1 - 4 to fit the emergency.

1. INCAPACITATED PILOT OR UNMANNED COCKPIT OR EJECTED SEAT(S) WITH UNIMPEDED ENTRY TO COCKPIT

- a. Enter cockpit and move throttle, located on left console (fwd cockpit only on F-16 two seat models) while tilting throttle grip upward/outboard and squeezing throttle cutoff release trigger to proceed from IDLE to OFF position. (The throttle of F-16 two seat models cannot be positioned to OFF in rear cockpit.)

NOTE:

F-16A/C also has a fuel master switch, located on the fuel control panel just aft of the throttle and two seat models have a fuel master switch in rear cockpit.

- b. If the engine fails to shutdown, place fuel master switch, located on fuel control panel directly aft of the throttle to OFF position.
- c. Place the EPU switch, forward of the fuel control panel, to OFF position.

NOTE:

Some F-16s may have the MFSOV safety wired open. Safety wire on the MFSOV must be cut and removed to allow the MFSOV to close electrically when the fuel master switch is placed in the OFF position.

- d. Place main power/battery switch, located forward of fuel master switch, to OFF position.
- e. Disconnect aircraft battery, located in the right main wheel well, if accessible. See page F-16.15.

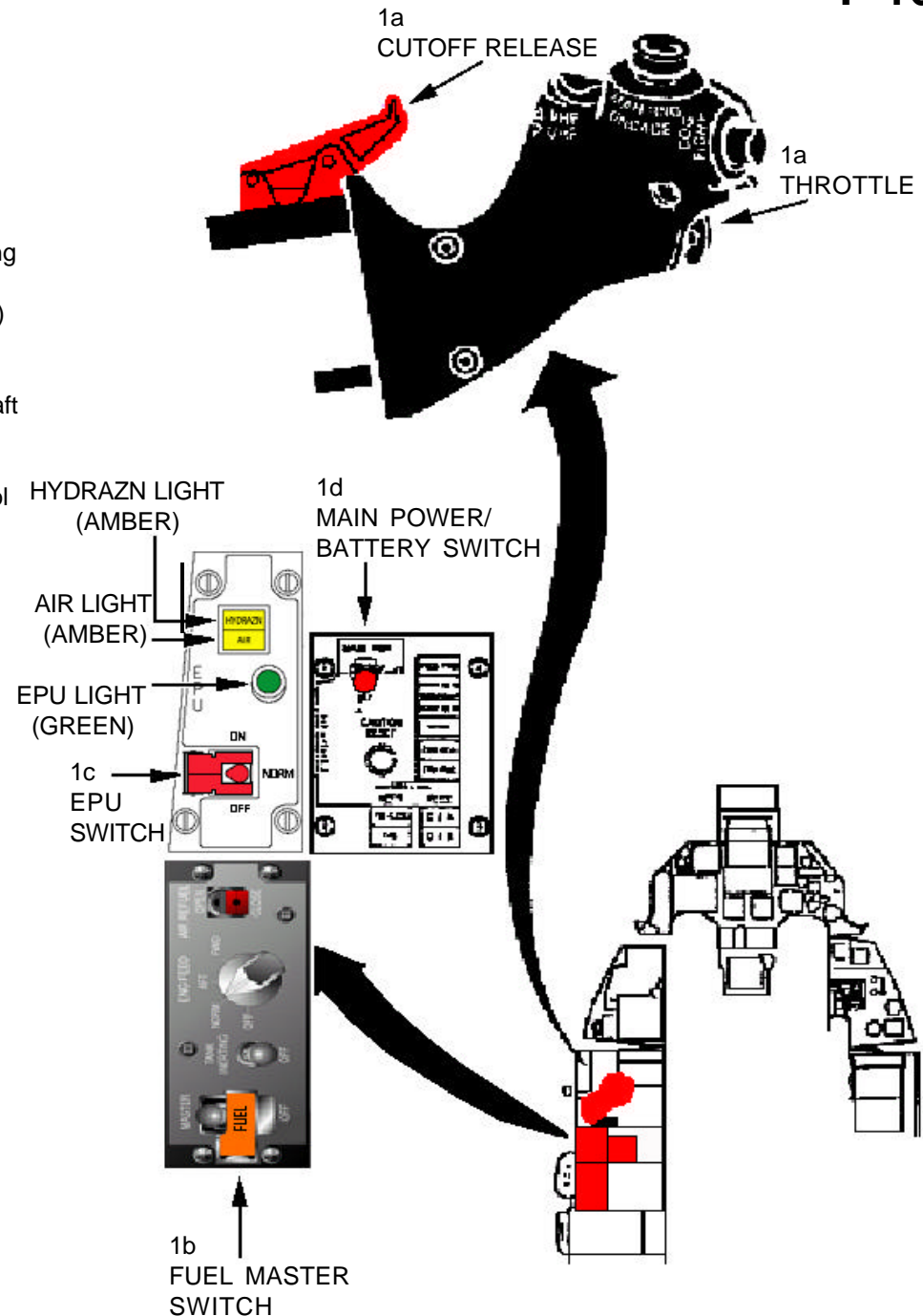
NOTE:

If the EPU fires during the emergency ground rescue sequence, reduced electric and hydraulic demands will permit hydrazine quantity to support approximately 15 minutes of EPU operation if EPU safety pin is not installed.

- f. After engine shutdown, install the EPU safety pin (pin installation terminates/prevents EPU operation). (See page F-16.20.)

NOTE:

Without weight on wheels, battery power can only be removed by disconnecting the single electrical connection from the battery.



EMERGENCY ENGINE SHUTDOWN #2

2. INCAPACITATED PILOT OR UNMANNED COCKPIT OR EJECTED SEAT(S) WITH IMPEDED ENTRY TO COCKPIT

WARNING

When the EPU is operating, hydraulic and electric power will be available to move flight control surfaces. Review existing danger areas on pages F-16.10 - F-16.13 to prevent injury or death to personnel working under extreme emergency conditions.

- a. Be aware the EPU may activate during engine shutdown. See page F-16.20.
- b. Gain access to the MFSOV, located under panel 4220 at the right wing root below the flap hinge.

NOTE:

If panel 4220 is not accessible, perform applicable Aircraft Entry or Emergency Entry procedures on pages F-16.16 and F-16.17 and then proceed to next page.

- c. Depress the thumb latch on panel 4220 and lower panel for access to MFSOV.
- d. Disconnect the cannon plug or manually cut (with insulated dikes) the harness to MFSOV to remove electrical power.

NOTE:

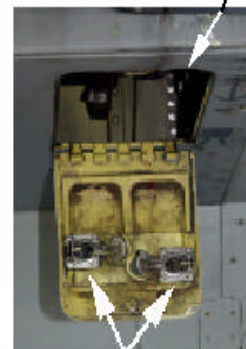
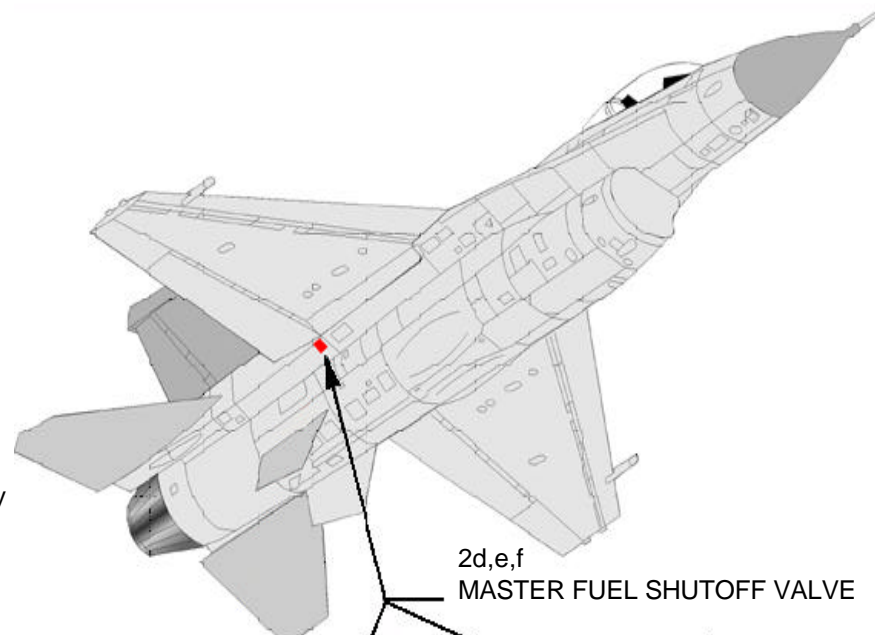
Failure to remove electrical power will not allow shutdown using the MFSOV lever.

- e. Check for and, if installed, cut the safety wire located on MFSOV lever.

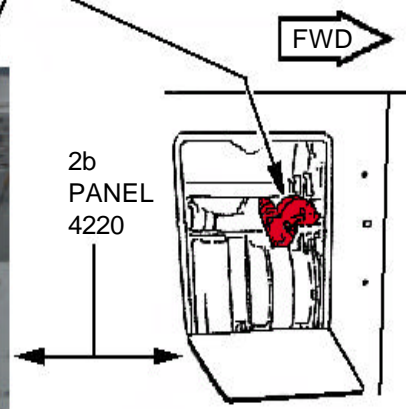
WARNING

Beware of possible movement of flight control surfaces and/or aircraft when MFSOV lever is moved to the CLOSE position. At high RPM, holding lever may prove difficult. The degree of closure may be sufficient to reduce RPMs allowing cockpit access to the fuel master switch.

- f. Push inboard, maintain forward pressure on MFSOV lever and hold. If lever can be held in CLOSE position, shutdown should occur in less than 1 minute. Shutdown time depends on engine type and power setting.



2c
THUMB LATCH
SIDE VIEW



VIEW LOOKING UP

EMERGENCY ENGINE SHUTDOWN #3

3. ACTIVATED EPU - PILOT ACTIVE

CAUTION

Unless weight is on wheels, the EPU will start up when the engine is shutdown. Chock left main landing gear, beware of hazards and moving flight control surfaces around running aircraft. **Manually operating the MFSOV will be understood as a last resort.**

NOTE:

Pilot action is required for the following steps: a - c only. Remaining steps are performed by rescue crew.

- Confirm EPU switch is in the OFF position.
- Confirm the throttle is in the OFF position.
- Confirm main power/battery switch is in OFF position.
- After engine has stopped, install EPU safety pin in EPU pin receptacle, located on lower right inlet skin just above access panel 2310, approximately 3.5 feet aft of engine inlet lip engaging the EPU ground safety switch. (If the EPU fires during the emergency ground rescue sequence, reduced electric and hydraulic demands will permit hydrazine quantity to support approximately 15 minutes of EPU operation if EPU safety pin is not installed.)

NOTE:

If conditions make installation of the EPU safety pin impossible or impractical, disconnecting the battery in right main wheel well will prevent startup of EPU.

- If the engine fails to shutdown, gain access to the MFSOV (Main Fuel Shut Off Valve), located under panel 4220 at the right wing root below the flap hinge.
- Depress the thumb releases on panel 4220 and lower panel for access to MFSOV.

NOTE:

Failure to remove electrical power will not allow shutdown using the MFSOV lever.

- Disconnect the cannon plug or manually cut (with insulated dikes) the harness to MFSOV to remove electrical power.
- Check for and if installed, cut safety wire located on MFSOV lever.

NOTE:

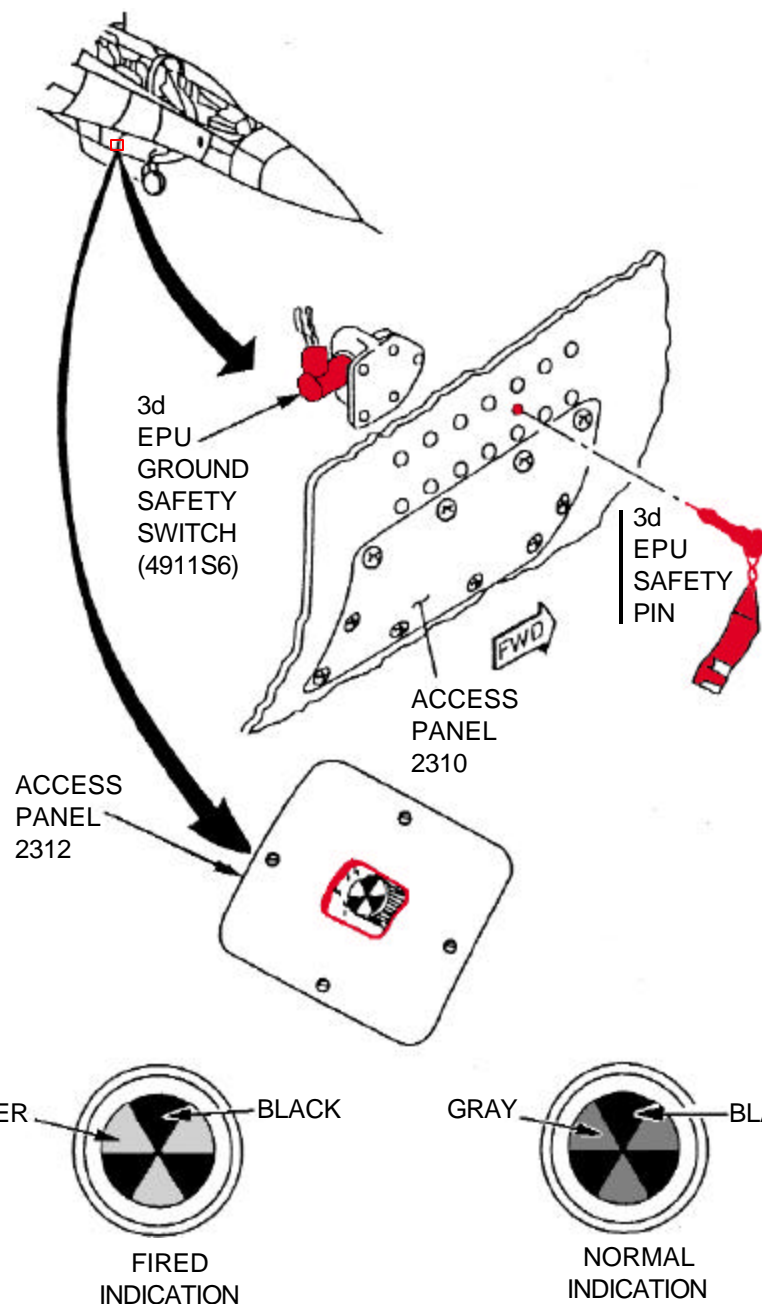
At high RPM, holding MFSOV lever may prove difficult. The degree of closure may be sufficient to reduce RPMs allowing cockpit access to the fuel master switch.

- Push inboard and maintain forward pressure on MFSOV lever. If lever can be held in close position, shutdown should occur in less than 1 minute.

NOTE:

Without weight-on wheels, battery power can only be removed by disconnecting the electrical connections from the battery.

- Disconnect battery, located in right main wheel well, if accessible.



EMERGENCY ENGINE SHUTDOWN #4

4. EMERGENCY ENGINE SHUTDOWN WITH PORTABLE BOX

NOTE:

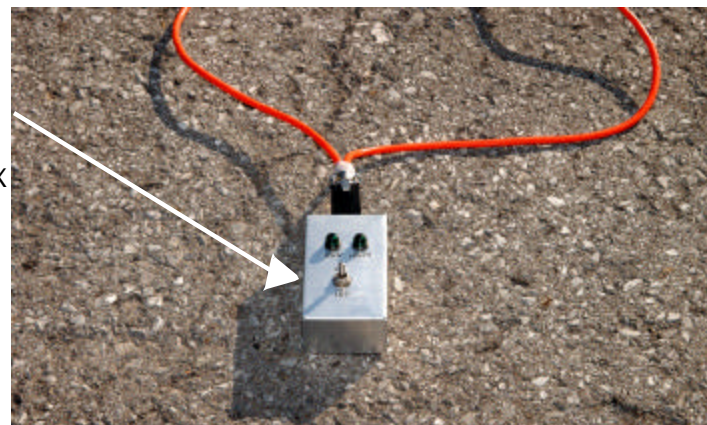
If time permits and a last resort situation occurs, use this device to quickly and safely shutdown the F-16 engine regardless of engine RPM. The portable engine shutdown switch box has one ON/OFF switch and two indicator lights. The upper left indicator light will illuminate when the 28 volt power source is available. The upper right indicator light will illuminate when the fuel valve is CLOSED. There are two 25 foot long leads connected directly to the box and a separate short lead for the fuel valve connector. Time to close MFSOV is 2 - 4 seconds and time until engine starts to shut down is up to 45 seconds as fuel in engine feed line is consumed. Less total time occurs at higher RPMs.

WARNING

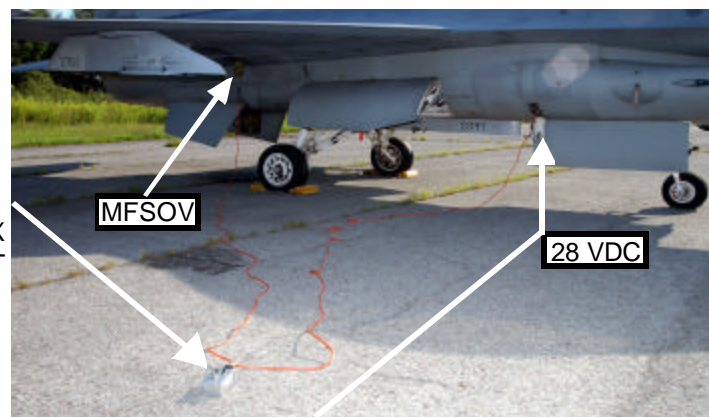
Engine intake hazards must be observed. Under no circumstances shall the EPU be safety pinned in the intake danger zone. The EPU will activate during the emergency engine shutdown operation. Insure that full PPE is worn during this situation.

- Prior to operation and connecting to the aircraft, the ON/OFF switch on the portable engine shutdown box must be in the OFF position before installing wire leads and operating.
- Approach aircraft right side. Place portable engine shutdown box forward of right wing before connecting box to aircraft.
- Use a suitable external 28 VDC power source or approach and open the 28 volt power access door, located at the aft end of the nose landing gear door on the fuselage. There are three canon plug connections inside the access panel. Connect the left box lead, labeled "28 VDC" to the 28 volt power source at the right canon plug connection.

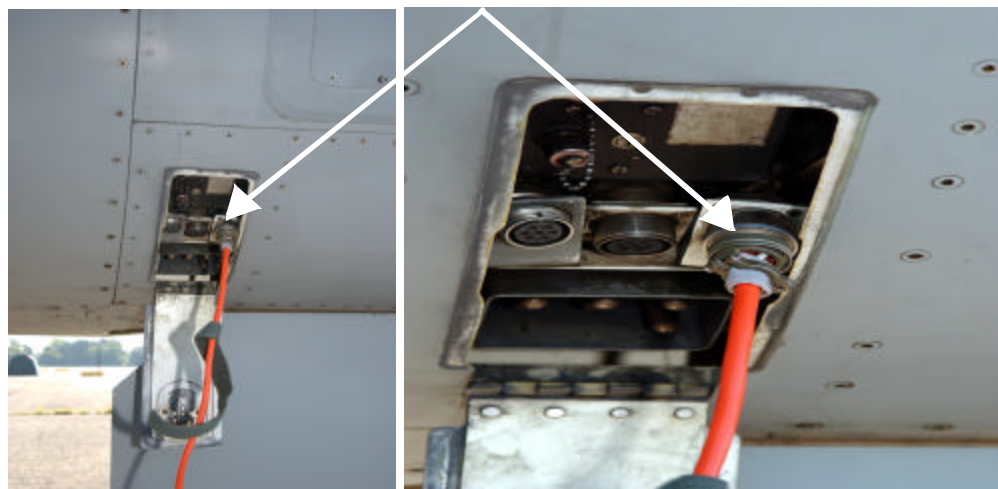
4a
PORTABLE
ENGINE
SHUTDOWN
SWITCH BOX



4b
PORTABLE
ENGINE
SHUTDOWN
SWITCH BOX
AT AIRCRAFT
RIGHT SIDE



4c
28 VDC ACCESS DOOR AND CONNECTION

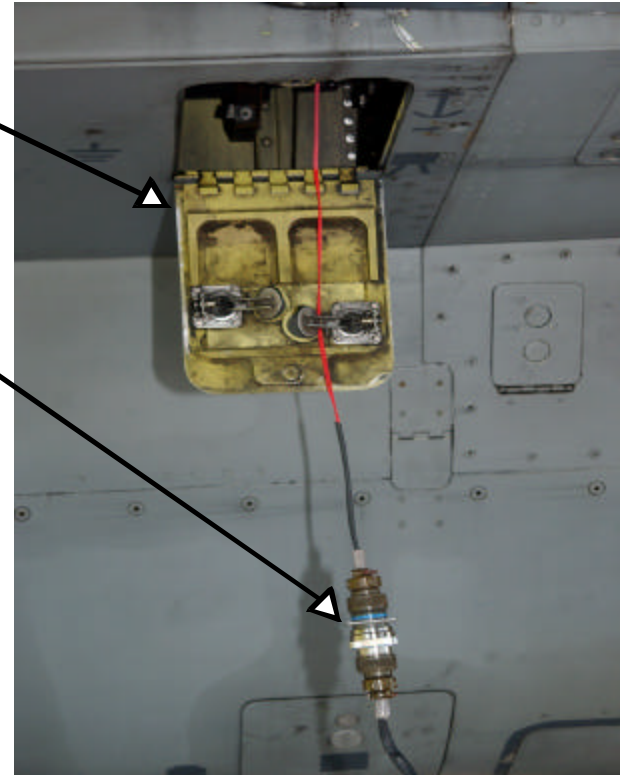


EMERGENCY ENGINE SHUTDOWN #4 - Continued

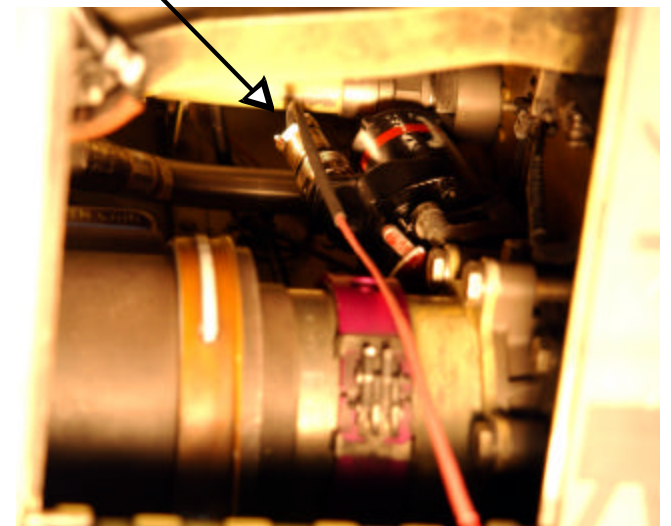
4. EMERGENCY ENGINE SHUTDOWN WITH PORTABLE BOX- Continued

- d. Approach and open the fuel valve access door, located at the aft end of the right main landing gear door on the fuselage. There is one canon plug and the fuel valve located inside the access door. Disconnect the fuel valve canon plug and connect the short lead to the fuel valve at the 3 o'clock position (looking down from the top). Then connect the short lead to the right box lead, labeled "MFSOV".
- e. Place the ON/OFF switch to the ON position. When the switch is placed to the ON position, the fuel valve indicator will illuminate indicating the fuel valve is now Closed.
- f. The engine will now wind down to total shutdown allowing aircrew rescue and extraction.

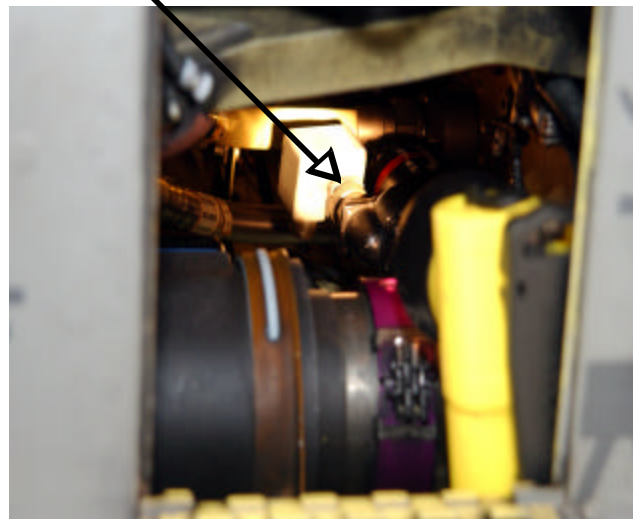
4d
MAIN FUEL SHUTOFF
VALVE ACCESS DOOR
WITH SHORT LEAD
CONNECTED TO MFSOV
AND PORTABLE BOX
CANON PLUG



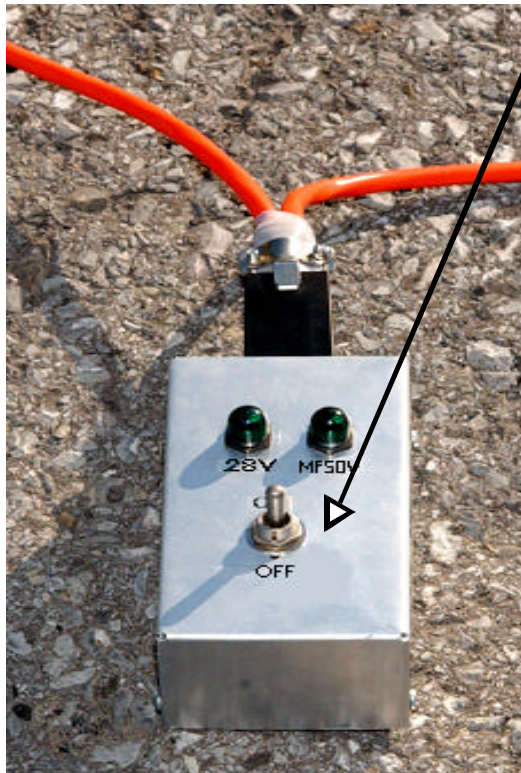
4d
MFSOV AFTER CANON PLUG INSTALLATION



4d
MFSOV BEFORE CANON PLUG REMOVAL



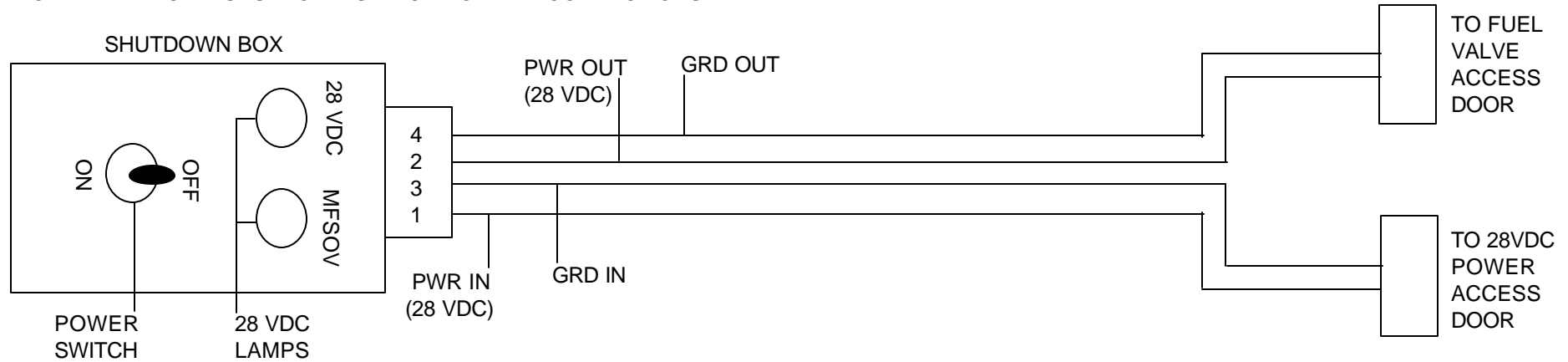
4e
ON/OFF SWITCH



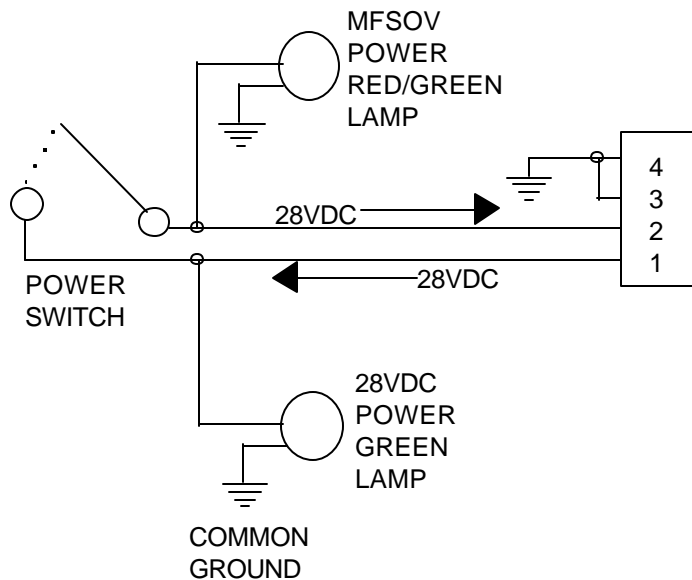
PORTABLE ENGINE SHUTDOWN BOX CONNECTIONS, SCHEMATIC AND EQUIPMENT LIST

F-16

1. PORTABLE ENGINE SHUTDOWN SWITCH BOX AND CONNECTIONS



2. PORTABLE ENGINE SHUTDOWN SWITCH SCHEMATIC



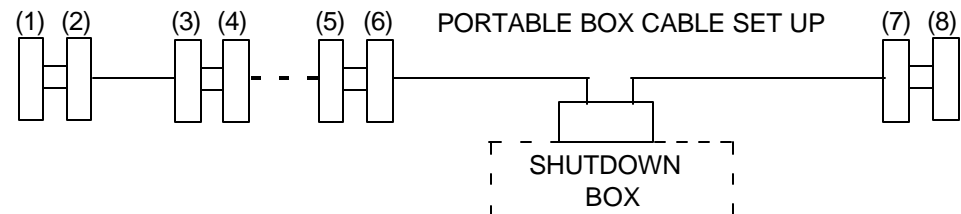
3. EQUIPMENT LIST FOR PORTABLE ENGINE SHUTDOWN BOX

Short MFSOV Cable: (1) Connector, MS3476L10-6S, 5935-01-077-5856, \$15.51
 (2) Cable Clamp Assy, G8252-10NF, 5985-01-230-8341, \$10.09
 (3) Backshell, S1724C16-34, 5935-01-230-4151, \$7.75
 (4) Connector, MS3472W16-26P, 5935-00-079-5369 \$?

Long MFSOV Cable: (5) Connector, MS3476L16-26S, 5935-01-106-3899, \$21.65
 (6) Backshell, S1724C16-34, 5935-01-230-4151, \$7.75

Long 28 VDC Cable: (7) Backshell, M85049/52-1-16W, 5935-01-171-1966, \$2.66
 (8) Connector, M83723/76R1624N, 5935-01-169-9966, \$19.07

Local Manufacture: 1 each Test Box
 2 each 16 Gauge Cables @ 25 Feet in Length
 2 each 28 Volt Lamp
 1 each Power Switch

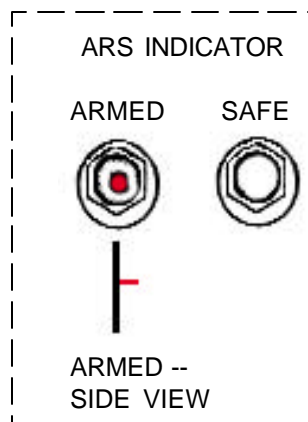


EJECTION SEAT INDICATOR

1. EJECTION SEAT INDICATOR

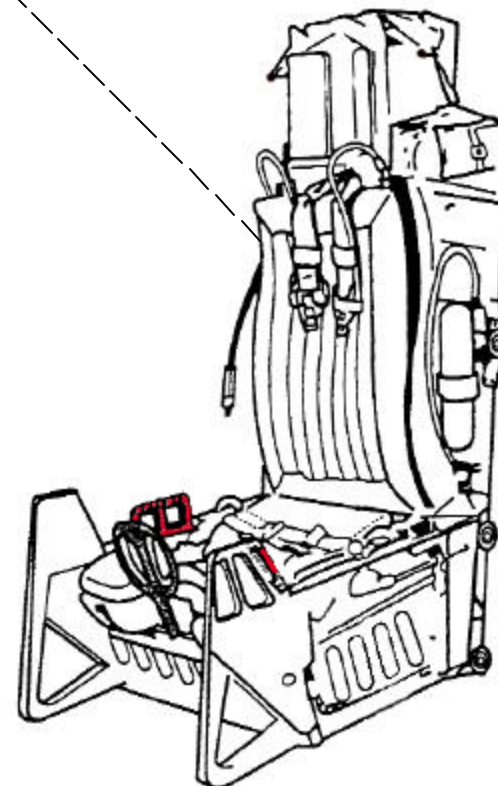
WARNING

A Seat Armed Indicator located on the upper right side of the seat can indicate WHITE for OK and RED for SEAT ARMED. This indicates that the Advanced Recovery Sequencer (ARS) battery condition is serviceable or expended. If expended, the white sealant will be punctured by a protruding red pin. If this is a recent condition, it will take two hours for the seat to be considered safe to work around or remove. Electrical battery power is required to energize the recovery sequencer circuits for the numerous explosives on the seat. Use extreme caution and judgement in this case. If time permits, call the local Egress Shop before proceeding. If emergency exists and time does not allow inspection by the Egress Shop, sever all exposed ballistic lines including top of seat for the rocket catapult.



NOTE:

Do not touch indicator sealant when checking condition. Frequent touching wears off sealant exposing tip of red pin indicating a false ARMED ARS condition.



SAFETYING EJECTION SEAT

WARNING

The seat is armed regardless of canopy position. Jettisoning the aircraft canopy prepares the ACES II ejection seat for ejection. Seat(s) can eject whether canopy is opened or closed. On two seat aircraft, both seats must be safetied before either can be considered safe. Extreme caution must be used not to inadvertently move the Ground Safety Lever from the SAFE position during aircrew extraction. DO NOT USE PITOTS FOR HANDHOLD DURING ANY TIME OF THE OPERATION.

1. NORMAL SAFETYING EJECTION SEAT

NOTE:

The Ground Safety Lever Safety Pin can be installed regardless of seat position.

- a. Rotate Ground Safety Lever, located on left side of seat, UP and FORWARD, and install safety pin in pin receptacle at base of lever near pivot point. Pin faces forward. If safety pin can not be installed, tape or tie Ground Safety Lever in UP position to prevent arming during extraction.
- b. Install Safety Pin in the Emergency Manual Chute Handle. If Ground Safety Pin and Emergency Manual Chute Pin are connected by one safety streamer, route Emergency Manual Chute Handle safety pin under aircrew's legs, otherwise extraction will cause entanglement with streamer.

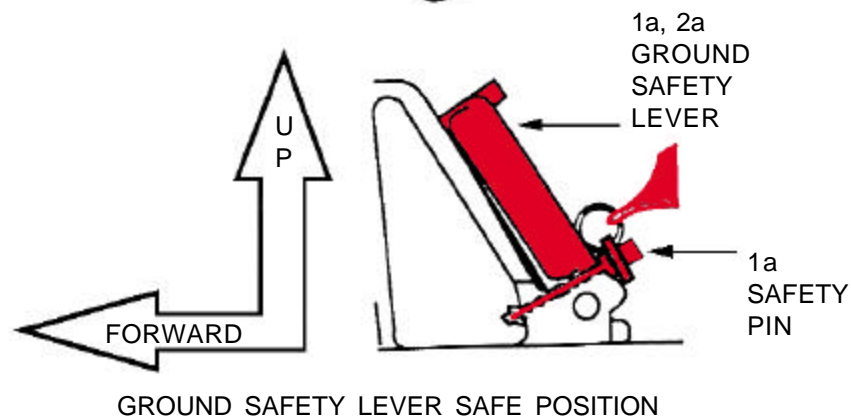
2. EMERGENCY SAFETYING EJECTION SEAT

- a. Rotate Ground Safety Lever, located on left side of seat, UP and FORWARD.
- b. Insure Ground Safety Lever does not rotate downward and arm seat during extraction or movement of aircrew.

EMERGENCY MANUAL
CHUTE HANDLE

PITOT
TUBES

1b
SAFETY PIN



AIRCREW EXTRACTION

3. AIRCREW EXTRACTION

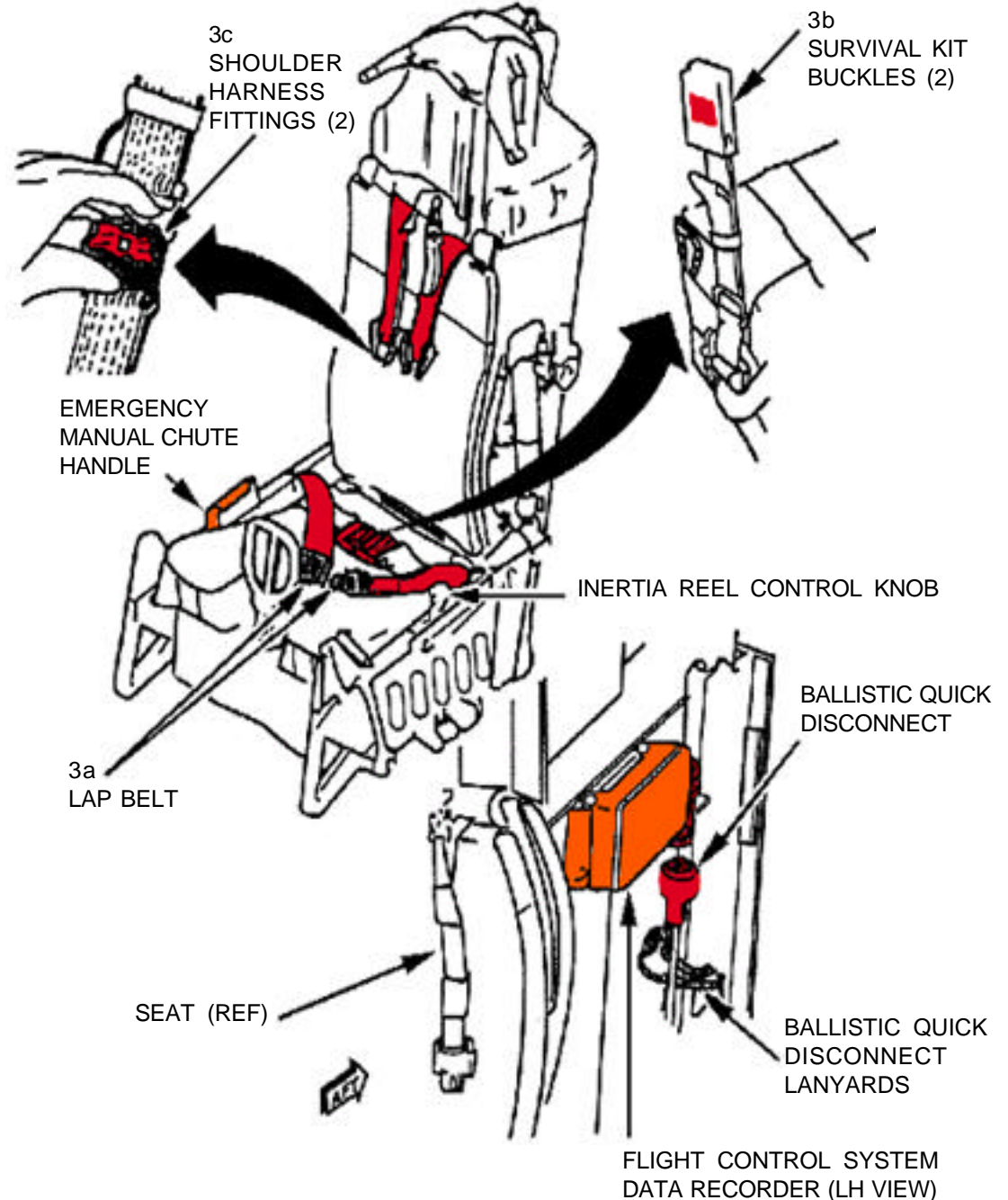
NOTE:

Use of Emergency Manual Chute Handle **DOES NOT** release aircrew restraints.

- Release lap belt by squeezing latch and release bar simultaneously.
- Release left and right survival kit buckles by depressing PUSH TO RELEASE button on each buckle.
- Release left and right shoulder harness fittings by squeezing latch and release bar simultaneously for each fitting. (See pg F-16.23 for additional information.)

NOTE:

- If the aircraft has collapsed landing gear or is in a gear up configuration and if time permits after rescue is complete, disconnect the electrical harness from the Flight Data Recorder, located on the left upper portion of the seat (front seat only on F-16B aircraft.) Grasp the lanyards attached to the connector and pull sharply downward. This will preserve recorded data of the mishap.
- The "G" suit hose located to the left side of the seat is directional in its separation at the disconnect. Pull straight down with a 12 to 70 pound pull force. If an offset direction is taken to disconnect hose from aircrew member, disconnect will not occur.



AIRCREW EXTRACTION-Continued

3. AIRCREW EXTRACTION - Continued

NOTE:

The shoulder harness fittings encountered may be different than the fitting mentioned on page F-16.22. Fittings may be a First or Second generation Koch or a Frost.

- d. Release left and right Frost shoulder harness fittings by squeezing latch and release bar simultaneously for each fitting as depicted on page F-16.22.
- e. Release left and right First Generation Koch shoulder harness fittings by rotating and holding safety cover downward, then pushing thumb catch upward to release straps.
- f. Release left and right Second Generation Koch shoulder harness fittings by lifting the safety cover, access the release bar, then rotate release bar downward to release straps.
- g. The chest and leg strap ejector snap is released by pushing the small catch of the ejector snap hook inward to release straps.

