CC-177 EGRESS TRAINING

SOURCE: T.O. 1C-17A-1

OVERVIEW

- AIRCRAFT DIAGRAM
- GROUND/AIRBORNE EXITS
- EMERGENCY SIGNALS
- EXITS
  - CLEARVIEW WINDOWS
  - MAINTENANCE/DITCHING HATCH
  - CREW ENTRY DOOR
  - FORWARD EMERGENCY ESCAPE DOOR
  - PARATROOP DOORS
  - RAMP/DOOR
  - RAMP BLOWDOWN
  - FEDS

OVERVIEW

- Escape Ropes
- Escape Ladders
- Crash Axes and Chop out Areas

EMERGENCY EXITS

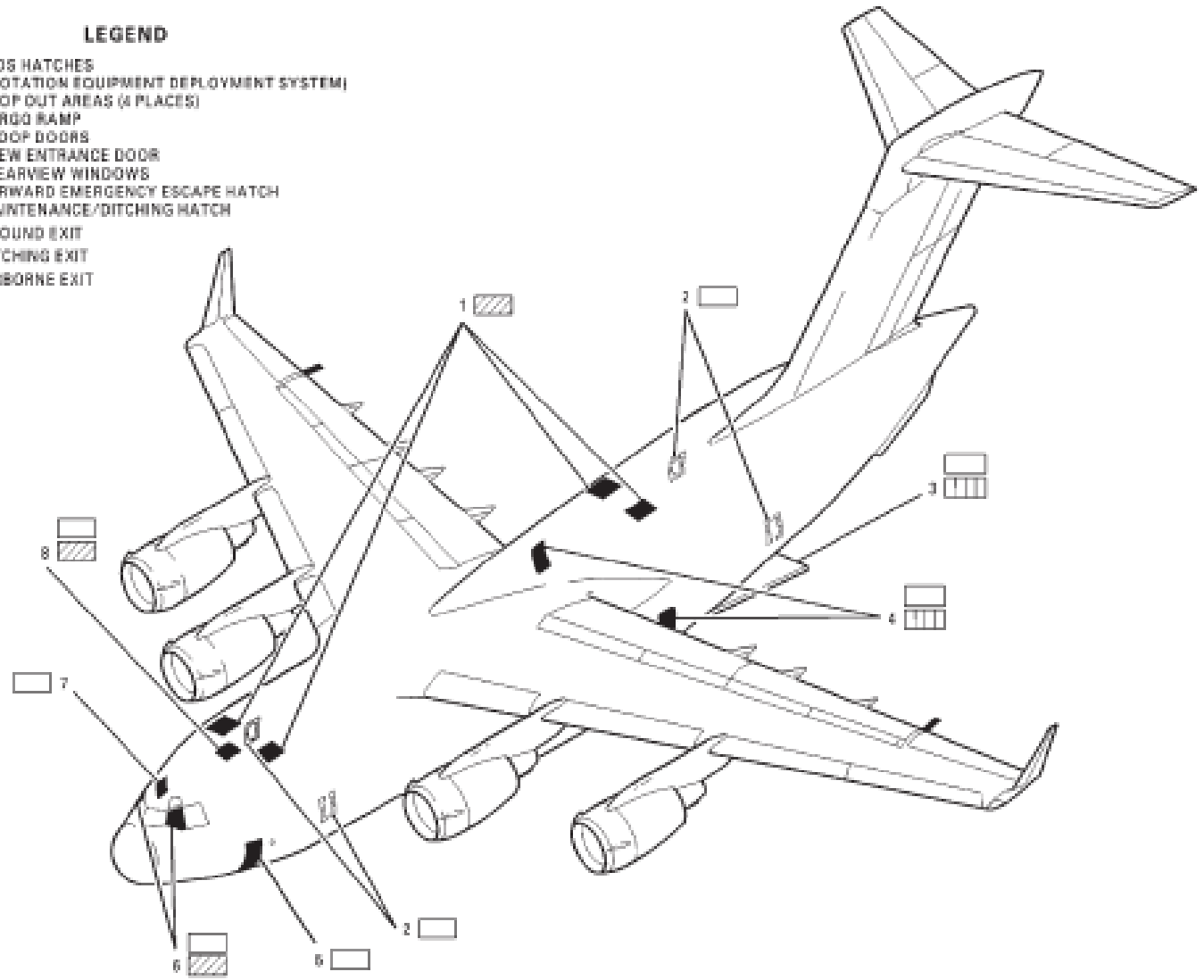
- GROUND
  - 8 (2) Clearview/M/D Hatch/Crew Entry/Fwd Escape Door/(2) Paratroop Door/Ramp/Door
- IN-FLIGHT
  - 3 (2) Paratroop Door (Secondary) Ramp/Door (Primary)
- DITCHING
  - 7 (2) Clearview/M/D Hatch/(4) FEDS Hatches

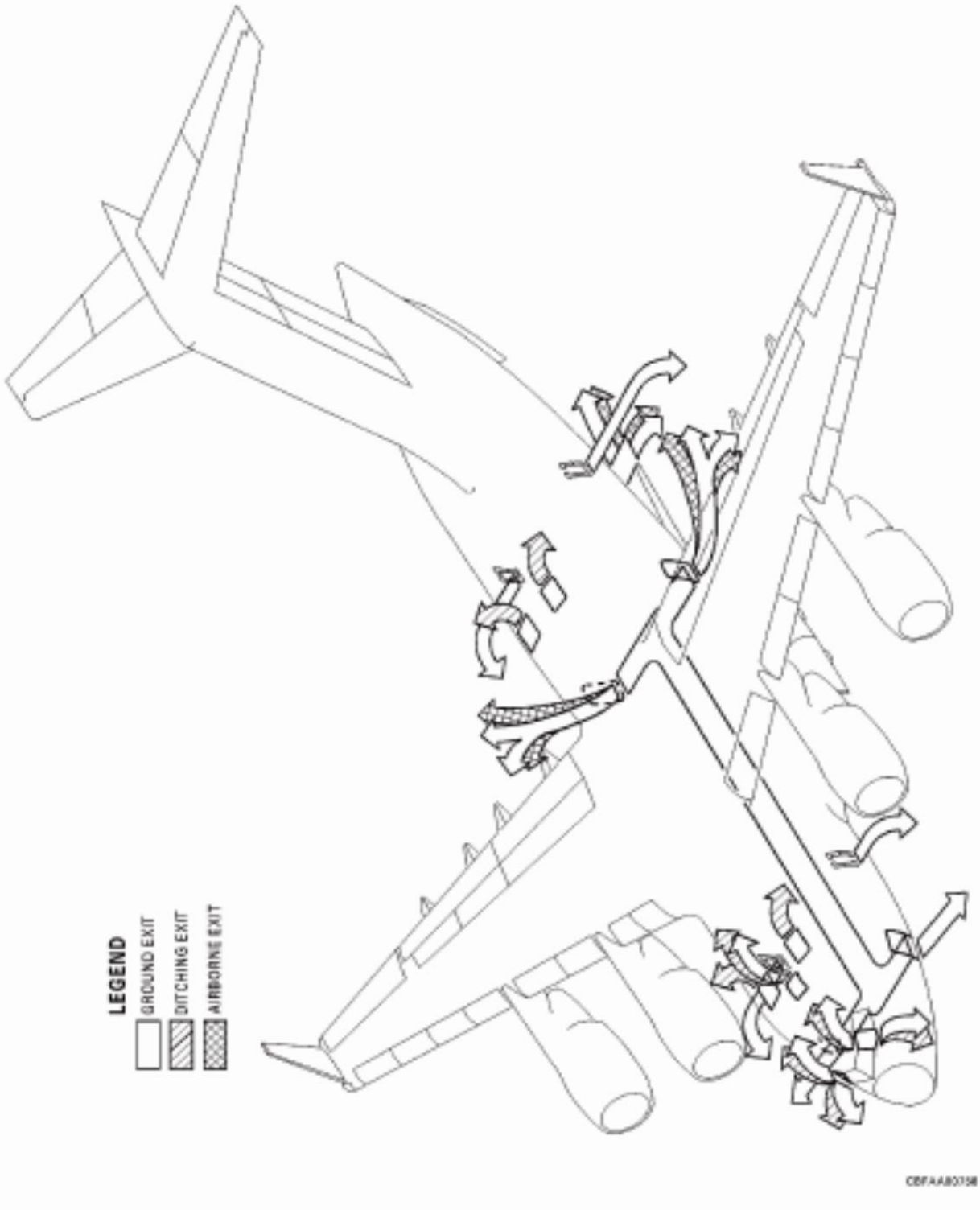
EMERGENCY EXITS

LEGEND

1. FEDS HATCHES (FLOTATION EQUIPMENT DEPLOYMENT SYSTEM)
2. CHOP OUT AREAS (4 PLACES)
3. CARGO RAMP
4. TROOP DOORS
5. CREW ENTRANCE DOOR
6. CLEARVIEW WINDOWS
7. FORWARD EMERGENCY ESCAPE HATCH
8. MAINTENANCE/DITCHING HATCH

GROUND EXIT
DITCHING EXIT
AIRBORNE EXIT




LEGEND
GROUND EXIT
DITCHING EXIT
AIRBORNE EXIT
CBFAAB0158

3-27. When an emergency arises, crew and passengers should be notified of the nature of the emergency and intended action. The following warning bell signals (using the Bailout Alarm System), are used when abandoning the aircraft or during a crash landing/ditching:

- Ground evacuation - One long sustained ring.
- Ditching or crash landing immediately after takeoff - One long sustained ring.
- Prepare for ditching or crash landing - Six short rings.
- Brace for impact - One long sustained ring.
- Prepare to bail out - Three short rings.
- Bail out - One long sustained ring.
- For immediate bailout, the pilot sounds the warning bell and transmits "BAIL OUT, BAIL OUT, BAIL OUT" over the PA system.

1-2154. CLEARVIEW WINDOWS

1-2155. The pilot's and copilot's sliding clearview windows are opened from inside the aircraft and can be used as emergency exits (Figure 1-298). To open the window, first depress and move the window lock latch handle aft to unlock. Then push the crank handle outboard to engage, and rotate to open the window. To close the window, engage the crank handle and rotate until the window is closed. Depress and move the lock latch handle forward to lock. A knotted descent rope is stowed near each window for emergency egress.

NOTE

When the sun visor is installed, move the visor to its aft stop prior to opening the clearview window. This will preclude any riding condition or interference between the visor and the clearview window molding.

PILOT'S CLEARVIEW WINDOWS

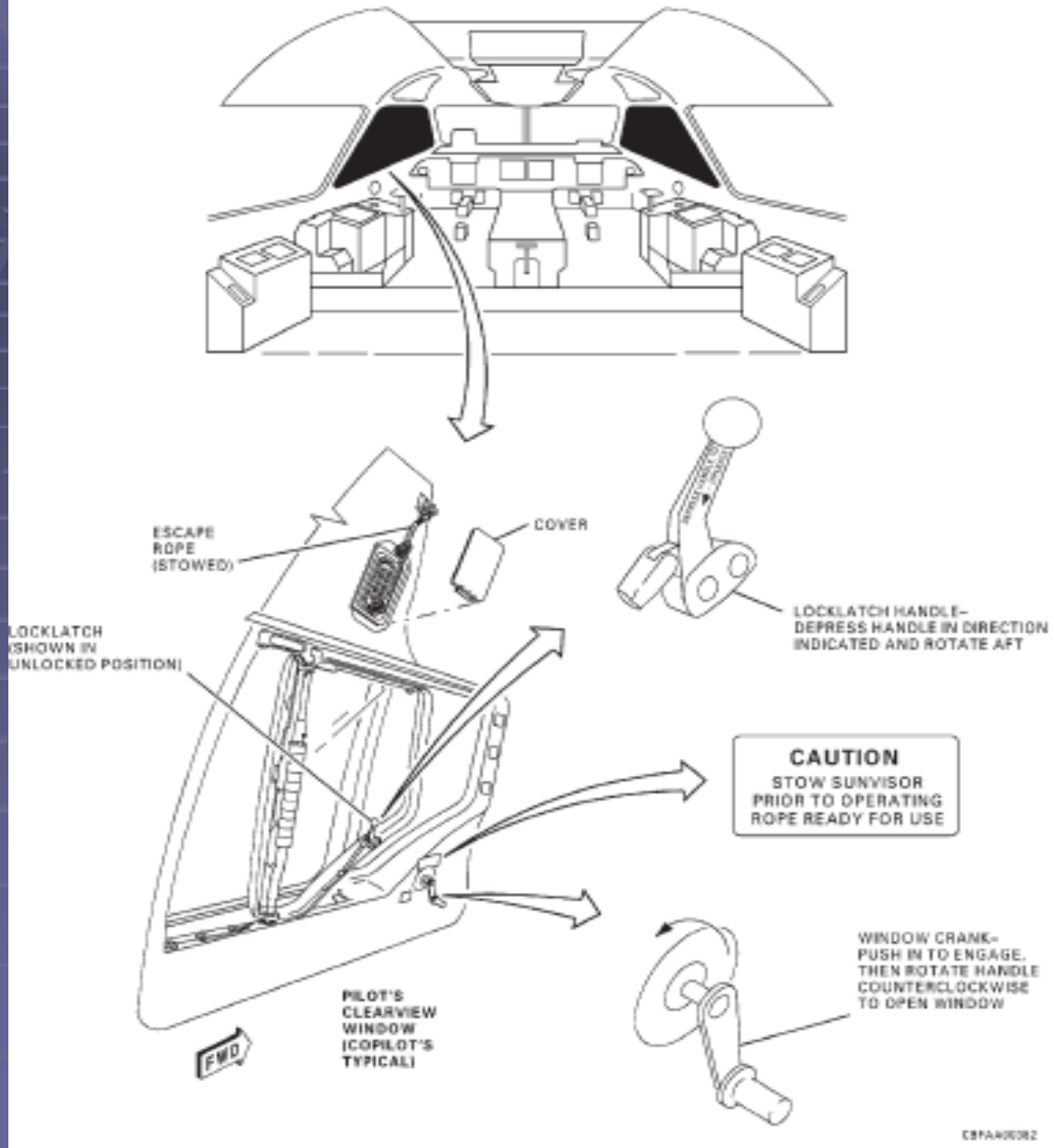


Figure 1-208.

FORWARD EMERGENCY ESCAPE DOOR AND MAINTENANCE DITCHING HATCH OPERATION

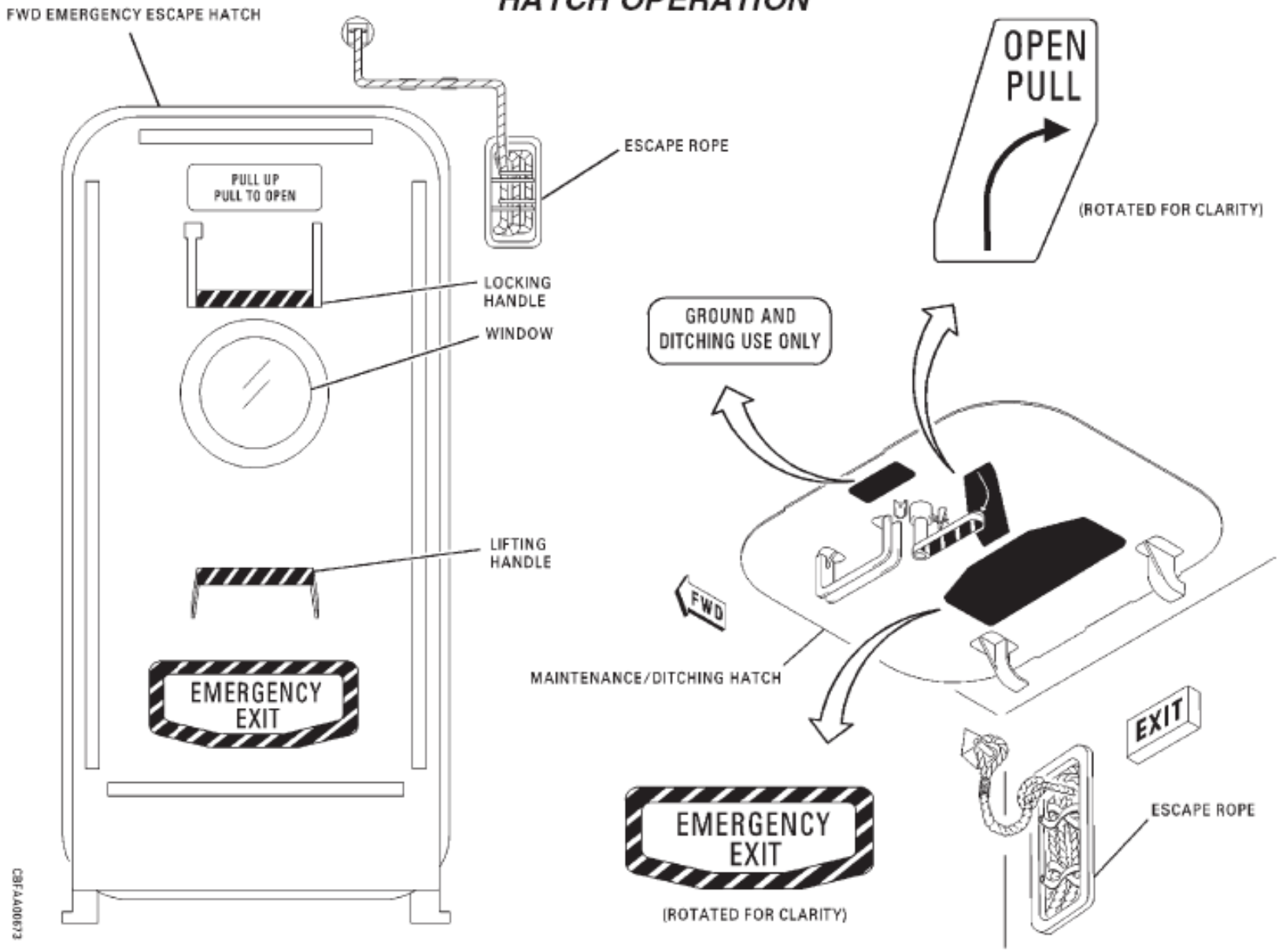
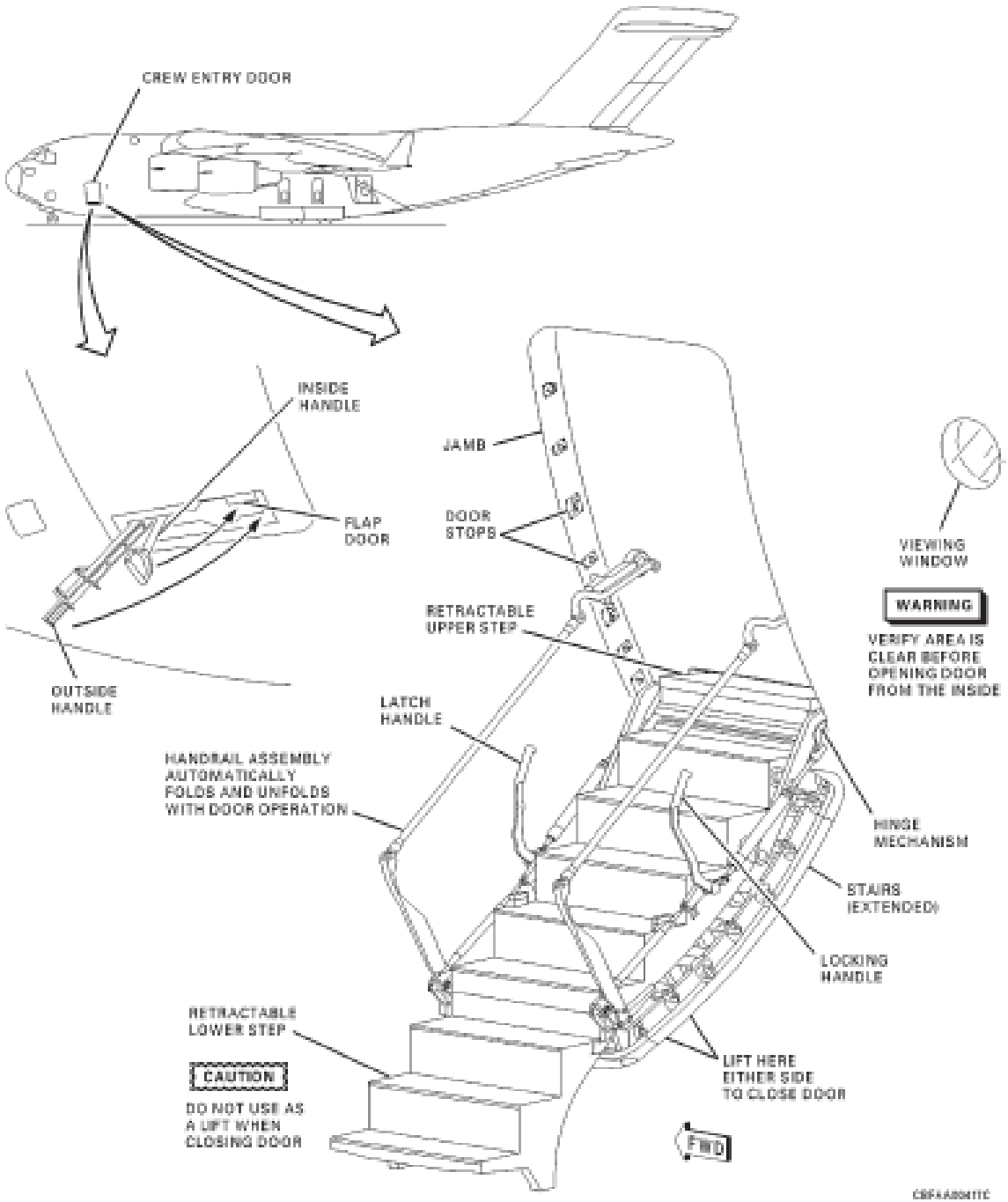


Figure 3-4.

1-2146. CREW ENTRY DOOR

1-2147. The crew entry door is a manually operated door that provides access to the forward cargo area and the cockpit stairway (Figure 1-296). The door is on the left side of the aircraft. The door opening is 44 inches wide and 74 inches high; however because of the internal stairway, the useful opening is approximately 36 inches wide, and 60 inches high. The door opens outward from the top and is hinged at the bottom. The door is designed using counterbalance mechanisms to enable one person to open or close the door. The door has integral stairs, folding handrails, a locking mechanism, a latching mechanism, hydraulic damper, and indicating circuitry. To seal the door from the outside, place a boxcar seal through the bottom slot on the door structure and around the outside handle. To lock the door, place a padlock through the upper hole of the inside (black) handle, then through the door structure.

CREW ENTRY DOOR



TO OPEN:

WARNING

- Verify cabin pressure gage reads in the SAFE (green) range prior to opening the crew entry door.

- When cabin pressure gage is inoperative, ensure an additional exit is open prior to opening the crew entry door.

- To prevent personnel injury or damage to the door when opening from inside, visually clear

the outside area beneath the door using the viewing window adjacent to the door.

NOTE

If the gage is in the SAFE (green) range and the aircraft is not fully depressurized when opening the crew door, the door will move quickly out until the dampener stops the door.

1. To unlock - Lift the (blue) lock handle.

2. To open - Lift the (green) latch handle to full up.

CAUTION

Ensure the LATCH HANDLE is fully up prior to pushing the door open. Failure to comply could cause damage to the door.

3. Push the door out using the handrails until the step rests on the ground.

Emphasize use of hands instead of feet while closing/opening the crew entry door.

Verify cabin pressure gage reads in the SAFE (green) range prior to opening the crew entry door.

WARNING

-When cabin pressure gage is inoperative, ensure an additional exit is open prior to opening the crew entry door.

-To prevent personnel injury or damage to the door when opening from inside, visually clear the outside area beneath the door using the viewing window adjacent to the door.

- While the engines are operating, monitor activities in the immediate vicinity of the crew entry door.

CAUTION

Ensure the UNLATCH HANDLE is fully up and locked prior to pushing the door open.

1-2161. FORWARD EMERGENCY ESCAPE DOOR

1-2162. A manually operated emergency escape door (Figure 1-319) is located on the forward right side of the cargo compartment aft of the forward loadmaster's station. This plug type door is completely removed from the aircraft when opened. The door is 26 inches wide and 55 inches high. The door can be opened externally or internally by pulling the operating handle which allows the door to open inward. To close the door, position the door into the brackets attached to the fuselage floor, push the door outward, push down on the spring locking mechanism, and push the operating handle outward. This will allow the door to move into the pressure seal and the six ditching pins to engage. The engagement of the ditching pins is visible from inside the aircraft. An overcenter spring holds the door in the locked position. A descent rope is stowed near the upper right side of the exit door. Annunciators illuminate on the forward loadmaster door status panel R FWD EMERG and an EMERG EXIT message appears on the WAP when the door is unlocked.

FORWARD EMERGENCY ESCAPE DOOR AND MAINTENANCE DITCHING HATCH OPERATION

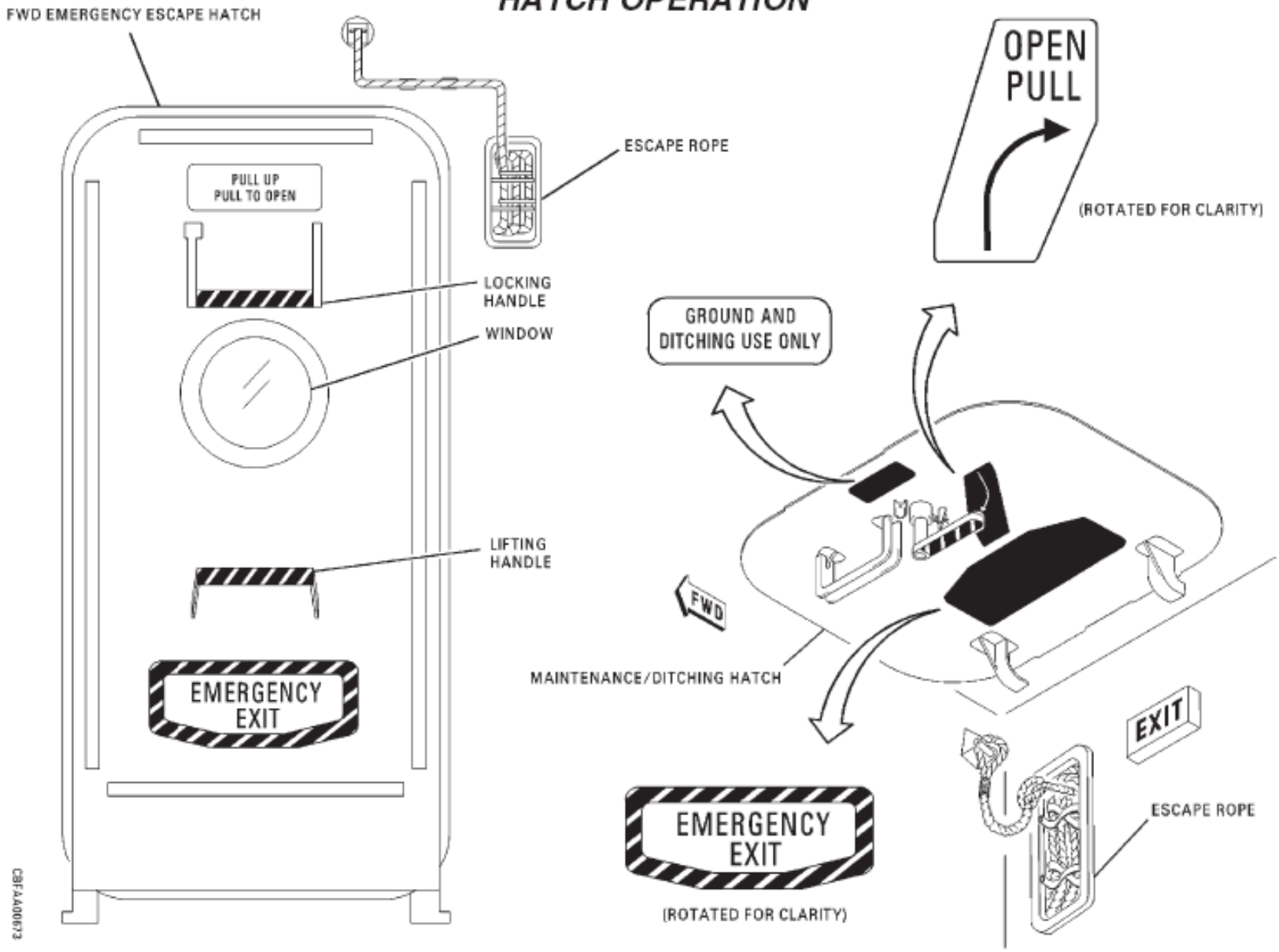


Figure 3-4.


GROUND USE ONLY


PULL UP
PULL TO OPEN

TROOP DOOR OPERATING INSTRUCTIONS

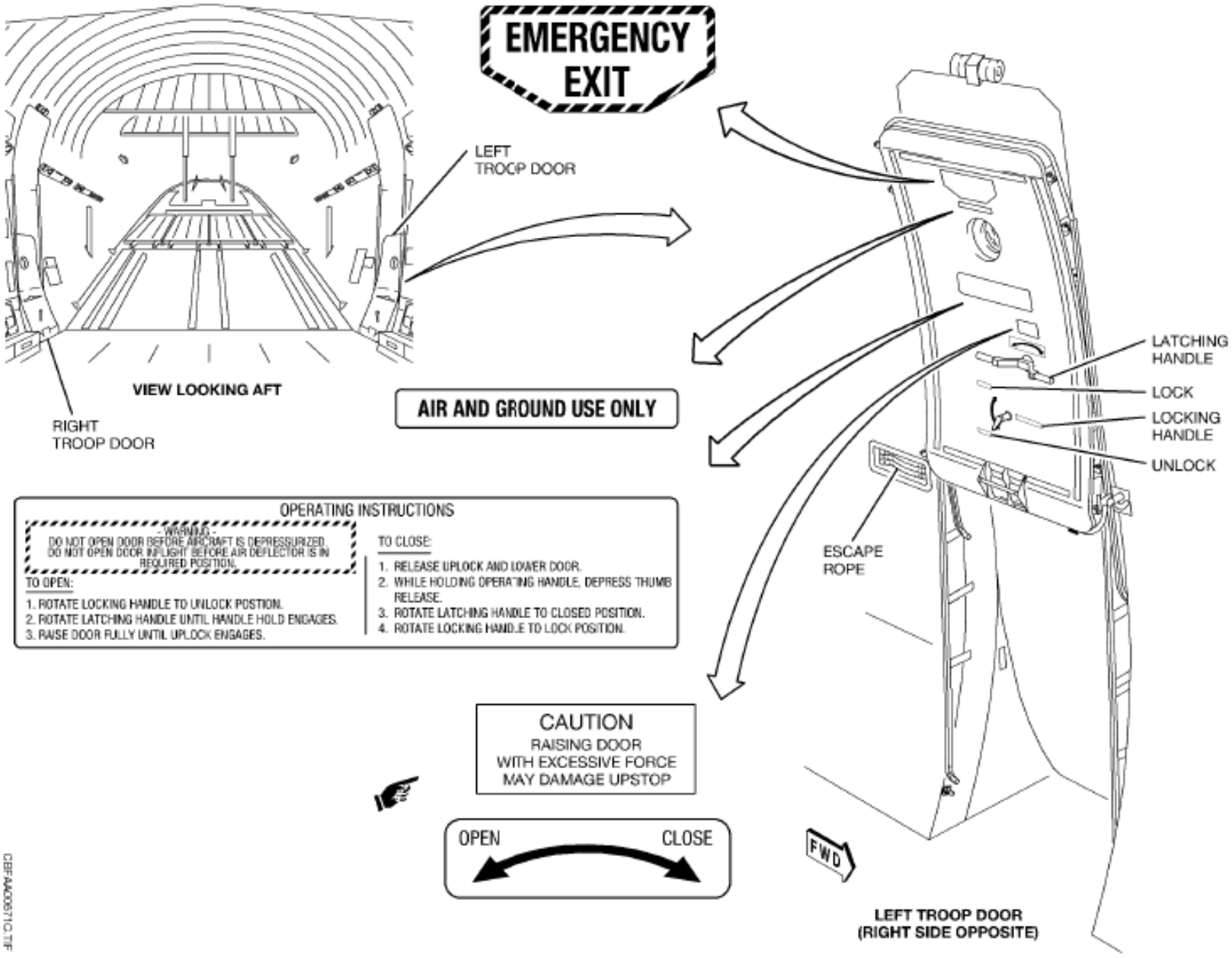


Figure 3-5.

CBFAA00671C.TIF


EMERGENCY
EXIT
AIR AND GROUND USE ONLY
1100
1110
1120
1130
COMPARTMENT
1074
CLOSE
OPEN
LOCK
LOCKING HANDLE
AD 19
1080
AD 20
1120
1140

1-2165. To open the door from inside the aircraft, rotate the door locking handle down to the unlock position. Rotate the door operating handle. This moves the door inboard on the tracks away from the jamb stops. Lift door to the full open position. The door will be held in the up position by the spring latch/uplock mechanism. The uplock will keep the door open in the event of cable or counterbalance failure or in an emergency landing.

CAUTION

Raising door with excessive force may damage the upstops.


AIR AND GROUND USE ONLY
OPERATING INSTRUCTIONS
CAUTION
CLOSE
OPEN
LOCK
LOCKING HANDLE


CLOSE


1100
1120

Troop doors are second in order of preference for bailout. Cargo/Ramp is primary

WARNING

Under level flight, bail out at least 2,000 feet above the terrain whenever possible.

CARGO RAMP AND DOOR

- Ramp Blowdown
- Ramp/Door Operations

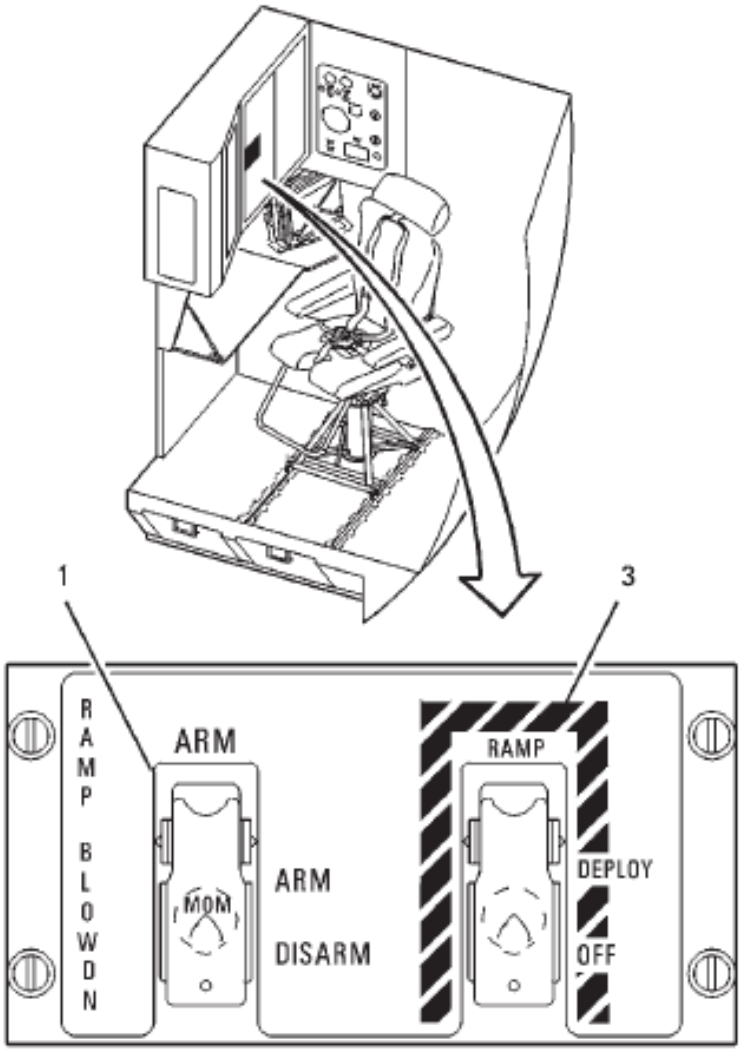
1-2184. Ramp Blowdown

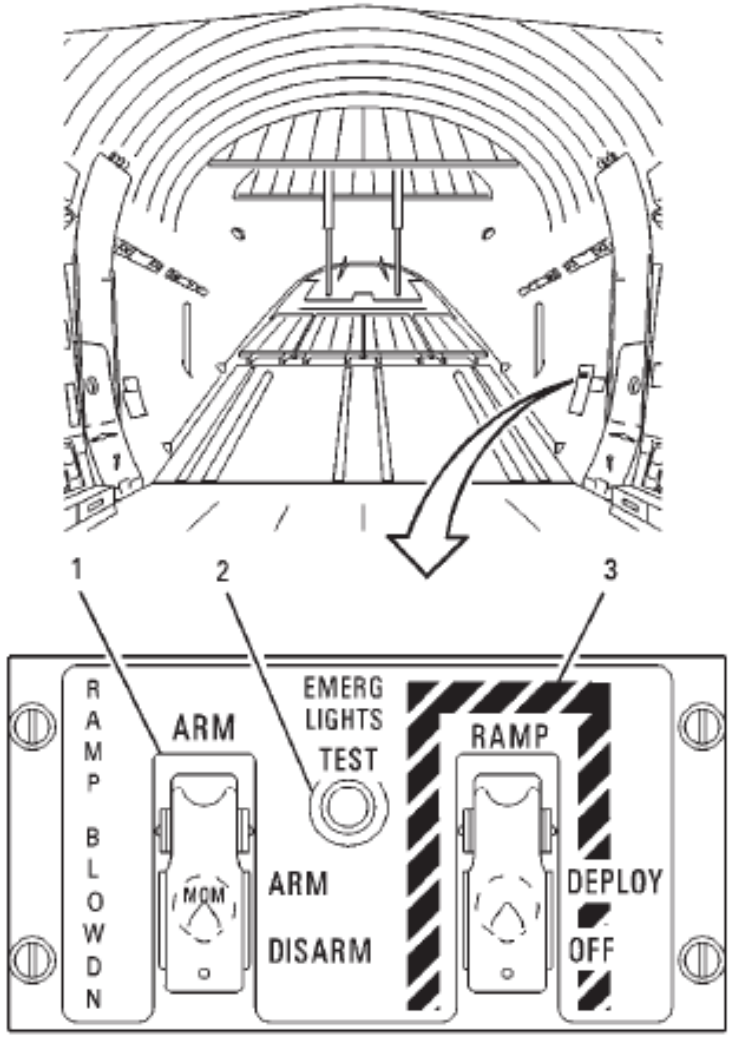
1-2185. In the event of a ground emergency evacuation, the ramp may be lowered using the ramp blowdown system. The ramp blowdown feature bypasses the normal ramp circuitry and valves. The system consists of an Emergency Egress Sequencer (EES), emergency battery, emergency hydraulic accumulator, and emergency lighting. These components are independent of other aircraft systems, and function only when ramp blowdown is used. Two ramp blowdown control panels are located in the cargo compartment, one at the aft loadmaster station, left side, and one at the forward loadmaster station (Figure 1-328). The emergency battery is charged by DC Bus 1.

CAUTION

Damage to the cargo door may occur during ramp blowdown with the ramp toes installed.

RAMP BLOWDOWN PANELS





CBFAA00625A

CAUTION

Damage to the cargo door may occur during ramp blowdown with the ramp toes installed.

From the RAMP BLOWDN Control panel located at the forward or aft loadmaster's station.

1. ARM/DISARM Switch — ARM (LM)

   Lift the guard and move the switch to the ARM position. The switch is spring-loaded and must be held in the ARM position while accomplishing step 2.

2. DEPLOY/OFF Switch — DEPLOY (LM

   Lift the guard and move the switch to the DEPLOY position. Observe the RAMP BYPASS light illuminates on the forward or aft loadmaster's panel.

NOTE

During the deployment sequence, if the RAMP switch is moved to the OFF position, the deployment sequence will stop.

3. ARM/DISARM Switch — DISARM (LM

NOTE

1-2187. Ramp blowdown may not function if the weight on the ramp exceeds 20,750 pounds. When aeromedical patients are on board, the outboard ramp toes shall be stowed on the cargo door to provide sufficient space for exiting the aft end of the ramp. When aeromedical patients are on board, cargo loaded on the ramp is restricted to two pallets in the ADS rail system, or floor loaded cargo positioned so it does not restrict evacuation routes. For ramp blowdown sequence procedures refer to Section III, Ramp Blowdown Procedures.

ACTUATOR AC

ACTUATOR AC

ACTUATOR DC

1 2 3 4 5 6 7 8 9 10

HYDRAULIC POWER

CARGO DOOR & RAMP

EMERGENCY
CARGO DOOR
RELEASE

1.REMOVE PIN FROM HANDLE.

2.PULL EMERGENCY HANDLE.


ALT WARN HORN
ARM
OFF
RAMP BLOWDN
ARM
EMERG LIGHTS TEST
ARM
DISARM
RAMP
DEPLOY
OFF


LIGHTS
JUMP PLATFORM
OFF
JUMP SIGNAL
DIM
CARGO WINCH
SPEED
OFF
MODE
HIGH
OFF
LOW
OUT
IN
REMOTE ORIDE
NORM
LIGHTS
ANN
DIM/BRT
TEST
PANEL
OFF
PANEL FLOOD
OFF
ORIDE
WHITE
NORM
CARGO OVERHEAD
INCANDESCENT INTENSITY
DIM
BRT
IR INTENSITY
DIM
BRT
CARGO DOOR
ON
OFF
STAGING
ON
OFF
AFT LOG PALLETS
RAMP
9 PALLET POS
8 PALLET POS
CARGO FLOOR
7 PALLET POS
LOCK
LIP
LOCK
ENGAGE
REL
RETR
68277 ASSY
17P2E1075-1
MFRSZ008
INC
MIC
EM CON
CALL
PA
ICS
MDST
T 7
R 5
HOT MIC
XMIT
LVL
RAMP
AFT
FWD
AFT CONTROL
HYDRAULIC POWER
ELECT PWR
POWER AVAIL
2 SYS
3 SYS
2 AUX PUMP ON
XFER PUMP ON
3 AUX PUMP ON
2 SYS EMERG BACKUP
ON
OFF
CARGO DOOR & RAMP
DOOR NOT LOCKED
TROOP DOOR
DOOR/ RAMP OPEN
DOOR OPEN
RAMP ADJ UP
CLOSE
CLOSE
DOWN
ADS
DROGUE DEPLOY
LEFT
RIGHT
TOW PLATE
DROGUE JETT
RESET
TROOP
ARM
DISARM
RAMP TOES
UP
DOWN
CDS
CDS
ARM
DISARM
GATE SELECT
SAFE
BACKUP
REL

1. Electrical and Hydraulic Power — Established

Establish electrical and hydraulic power at the forward or aft loadmaster control panel, left side. Use the AUX system No. 2, No. 3 and XFER pumps.

3. DOOR/RAMP Switch — OPEN

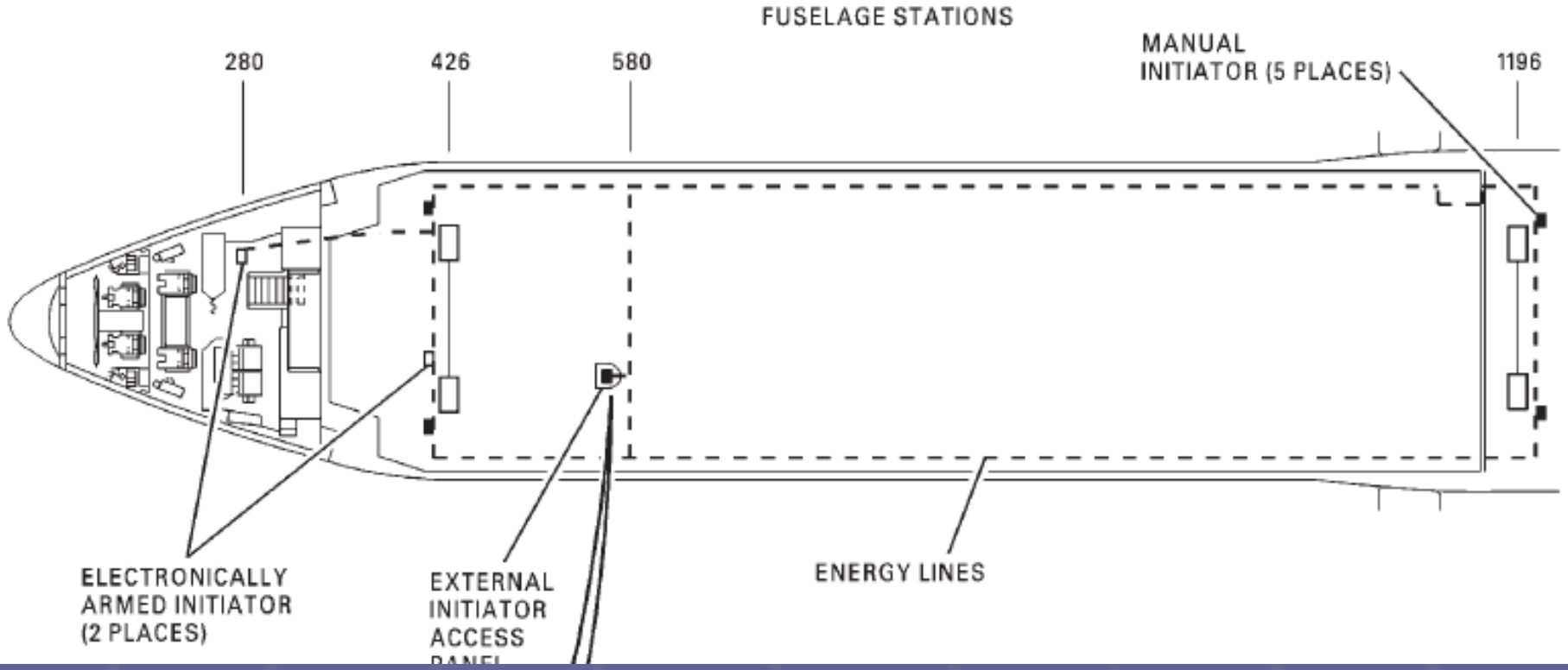
Position and hold the DOOR/RAMP toggle switch to the OPEN position until opening sequence is complete. When using the Loadmaster Forward Control Panel, push and hold the DOOR/RAMP OPEN pushbutton until the opening sequence is complete.


HYDRAULIC POWER
CARGO DOOR & RAMP
ADS
JOHN KOLONTOUR

FLOTATION EQUIPMENT DEPLOYMENT SYSTEM(FEDS)

- LOCATION
  - 4 Overhead Hatches (3 Installed)
- INITIATOR HANDLES/LOCATION/OPERATION
  - 7 Locations
  - MD/Hatch
  - Fwd LM Station
  - 4 FEDS Hatches
  - Leading Edge Left Wing Root (Exterior)
  - Pull Quick Release Pin/Turn 90 Degrees/Pull Downward
- RAFTS
  - 3 46 Man (69 Overflow)

EXTERNAL INITIATOR HANDLE ACCESS AND INTERNAL FEDS INITIATORS



1-2331. FLOTATION EQUIPMENT DEPLOYMENT SYSTEM

1-2332. The Flotation Equipment Deployment System (FEDS) is a ditching egress system incorporating life rafts. When activated, the FEDS pyrotechnically severs the upper fuselage skin of the cargo compartment and ejects the skin outwards, producing four hatch openings. Once the hatch openings are cut, a life raft (with survival pack) is ejected through three of the four openings. The left aft opening has provisions for, but is not equipped with, a raft. Each raft automatically inflates after ejection. The rafts remain attached to the aircraft with a tether at the openings (Figure 1-370). Access from the floor or ramp of the cargo compartment to the openings is by semirigid ladders contained in a canvas wrap below each hatch (Figure 1-373). The FEDS is activated by the flight crew after the aircraft is ditched.

1-2333. The FEDS is activated by the detonation of an explosive charge called an initiator (Figure 1-371). The detonation is transmitted to the hatch cutting charges and life raft retractors by energy transmission lines. The system has a total of seven initiators. The initiators are located as follows:

- (1) Maintenance/ditching hatch (M/D) area, right side, M/D hatch jamb; hatch may be opened from outside the aircraft to allow external access (FS 411).

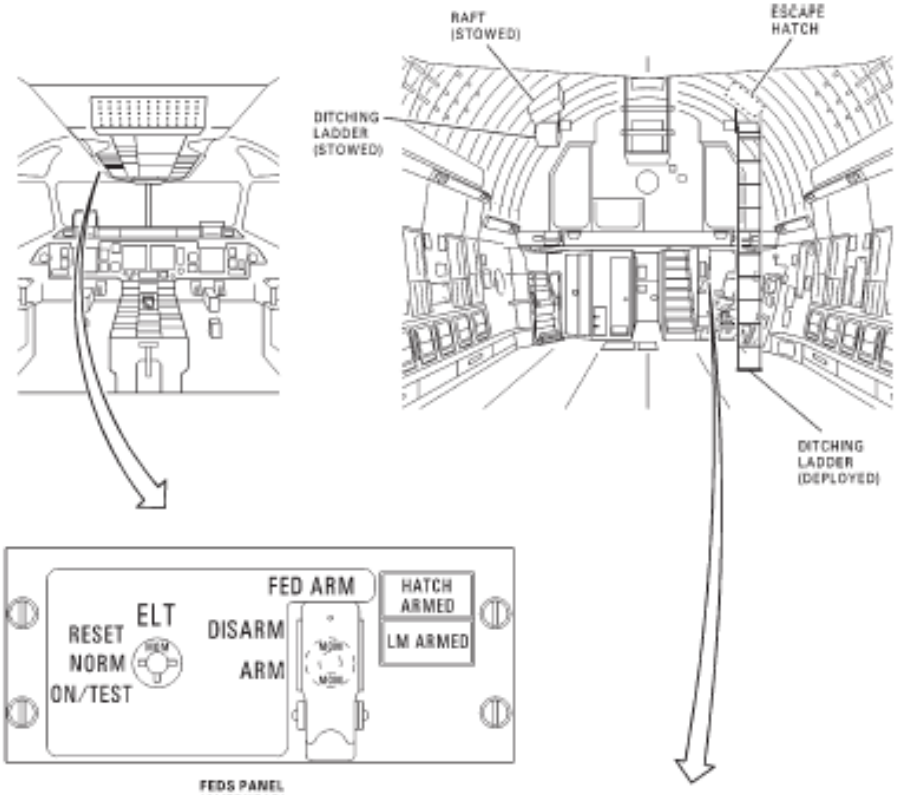
NOTE

SECOMPI The HMSA may be installed in place of the maintenance/ditching hatch. The modified hatch weighs approximately 40 pounds, and is not hinged. The hatch cannot be opened from outside the aircraft.

- (1) Forward outboard corner of the forward loadmaster station ceiling panel (FS 280).
- (4) FEDS hatch openings, fuselage frame member bordering each life raft assembly. Forward hatches at left and right sides (FS 426). Aft hatches at left and right sides (FS 1196).
- (1) Upper leading edge of left wing root fairing, accessible through an external latch cover, outboard of FS 580.

1-2334. The initiator is fired by pulling the quick release pin, turning the handle 90 degrees, and pulling downward.

FEDS PANEL


RAFT
(STOWED)
ESCAPE
HATCH
DITCHING
LADDER
(STOWED)
DITCHING
LADDER
(DEPLOYED)
FED ARM
HATCH
ARMED
LM ARMED
ELT
RESET
NORM
ON/TEST
DISARM
ARM
FEDS PANEL
(OVERHEAD)
HATCH
ARMED
FED ARM
LM ARMED
ARM
DISARM
FEDS PANEL
(FWD LOADMASTER STATION)

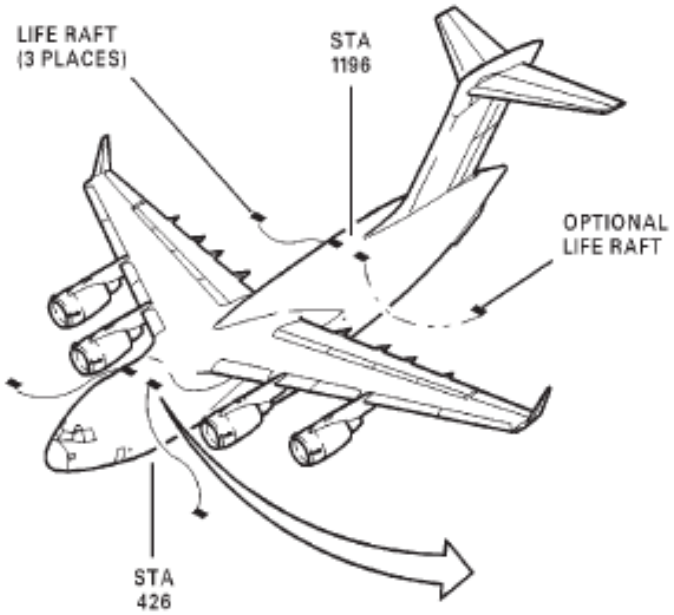

FEDS INITIA
ELECTRICALLY ARMED
SEE T.O. 1C-17A-2-95JG-20-1
WARNING
EXPLOSIVE

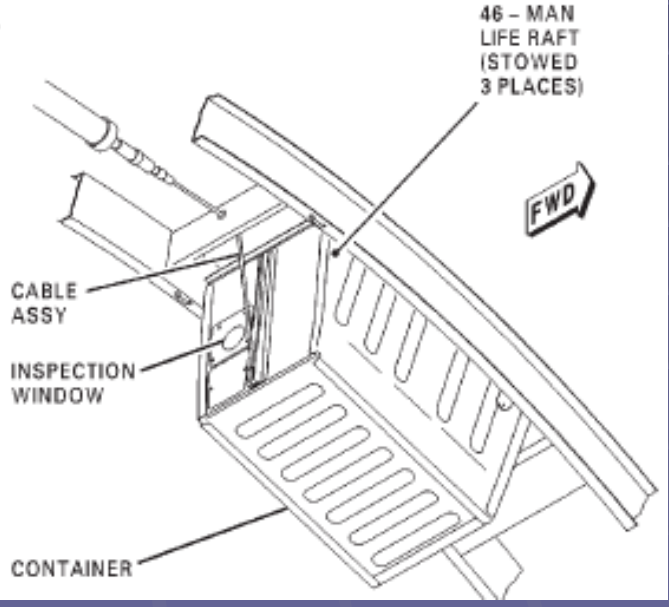
1-2335. The quick release pins on the M/D hatch and forward loadmaster station initiator handles are solenoid guarded. The solenoid guards are released when either of two FED ARM toggle switches is positioned to ARM. One switch is located on the pilot's side of the overhead panel, and another at the forward loadmaster station panel (Figure 1-372). The FED ARM switch is a three position momentary toggle switch spring loaded to the neutral position.

1-2336. If either the pilot's or loadmaster's FED ARM switch is in ARM, all four FEDS hatches can be deployed from either the M/D or the forward loadmaster station initiator handles. Two amber annunciator lights on the FED ARM panels illuminate when the initiators are armed. The annunciators are labeled HATCH ARMED and LM ARMED. Failure of a light to illuminate indicates a failure of the latching solenoid to release. Should this occur, only the illuminated location initiator handle will fire the system. The other five initiator handles do not require system arming.

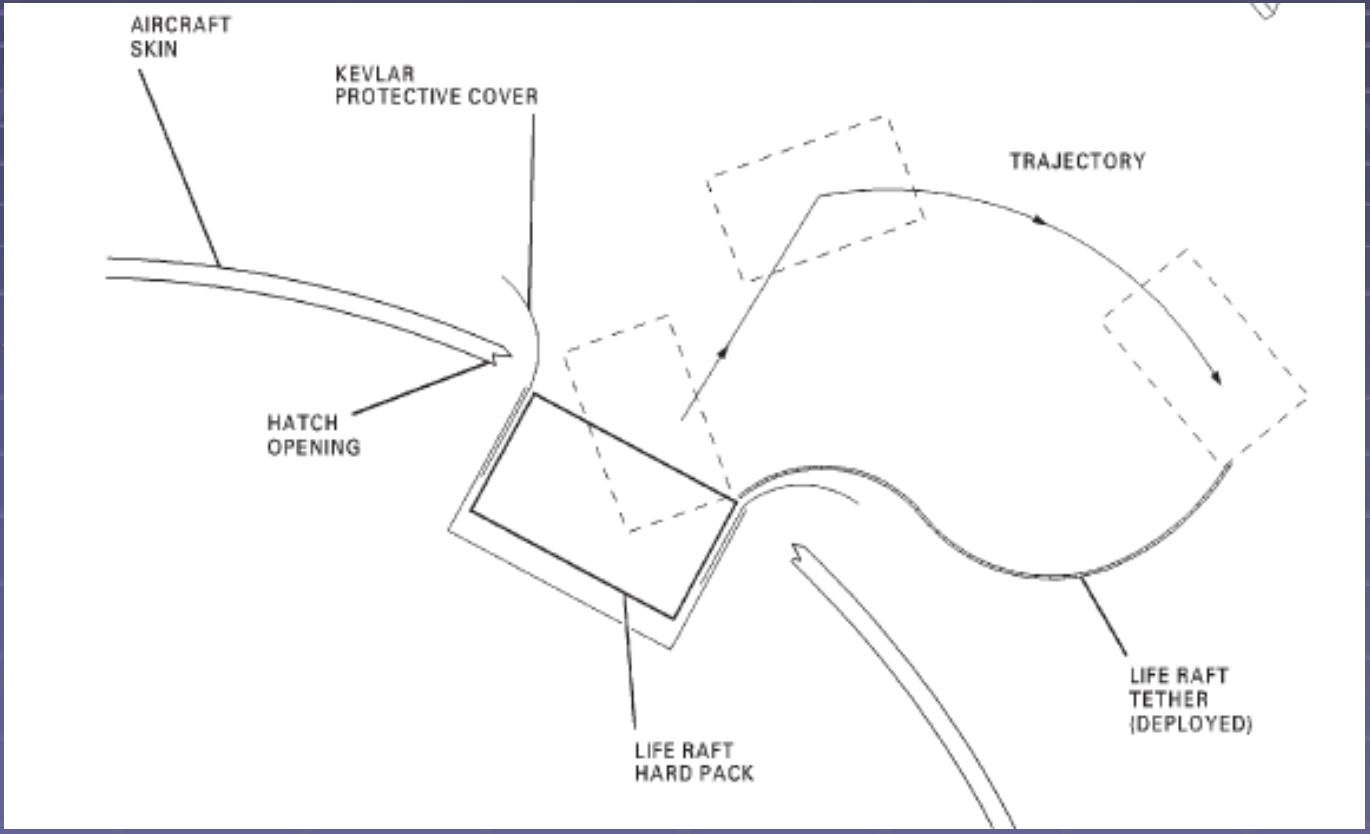
1-2337. If possible, the two solenoid guarded initiators should be fired first. However, actuation of any initiator handle fires all cutting charges, deploying the entire system. The energy transmission lines between the initiators are a closed loop system increasing the reliability of the FEDS. Even if the left side and right lines are cut, each pair of initiators can be fired from any combination of one forward and one aft initiator firing the whole system.

LIFE RAFT DEPLOYMENT



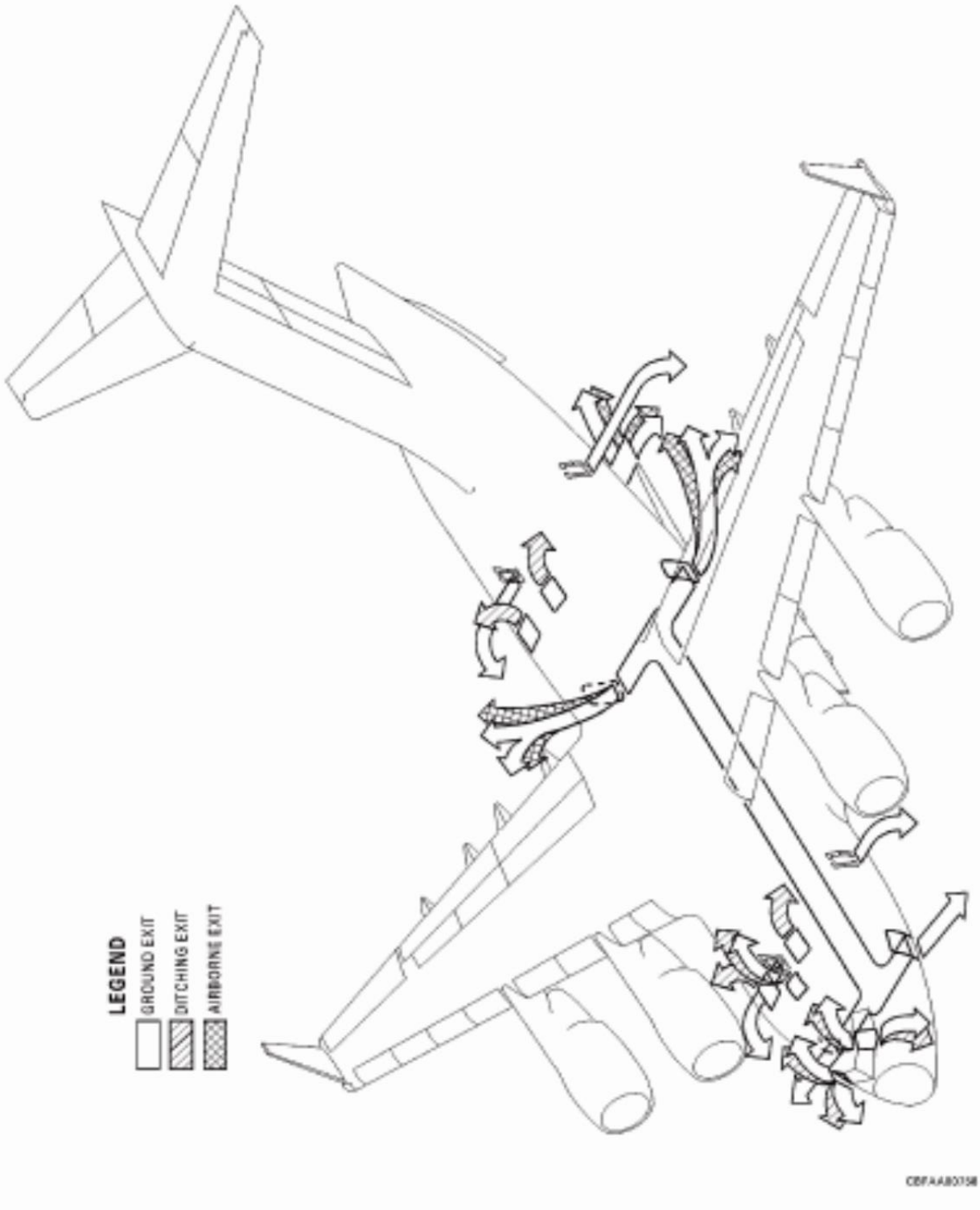


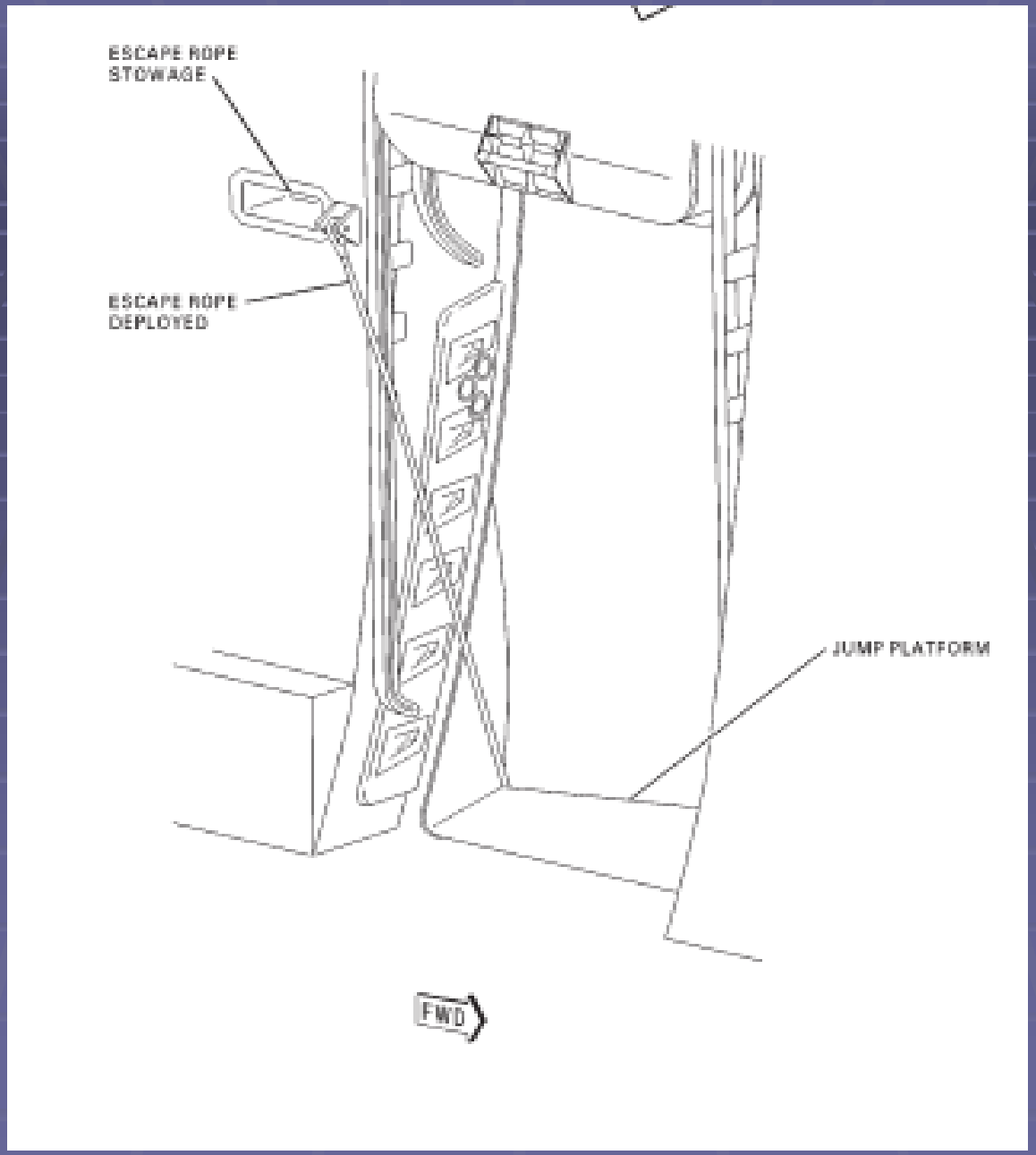

EXIT


AIRCRAFT
SKIN
KEVLAR
PROTECTIVE COVER
TRAJECTORY
HATCH
OPENING
LIFE RAFT
TETHER
(DEPLOYED)
LIFE RAFT
HARD PACK

ESCAPE ROPES

- Location (10)
  - (2) Cockpit
  - M/D Hatch
  - Right Forward Escape Door
  - (2) Paratroop Door
  - (4) FEDS Hatches


LEGEND
GROUND EXIT
DITCHING EXIT
AIRBORNE EXIT
CBFAAB0158

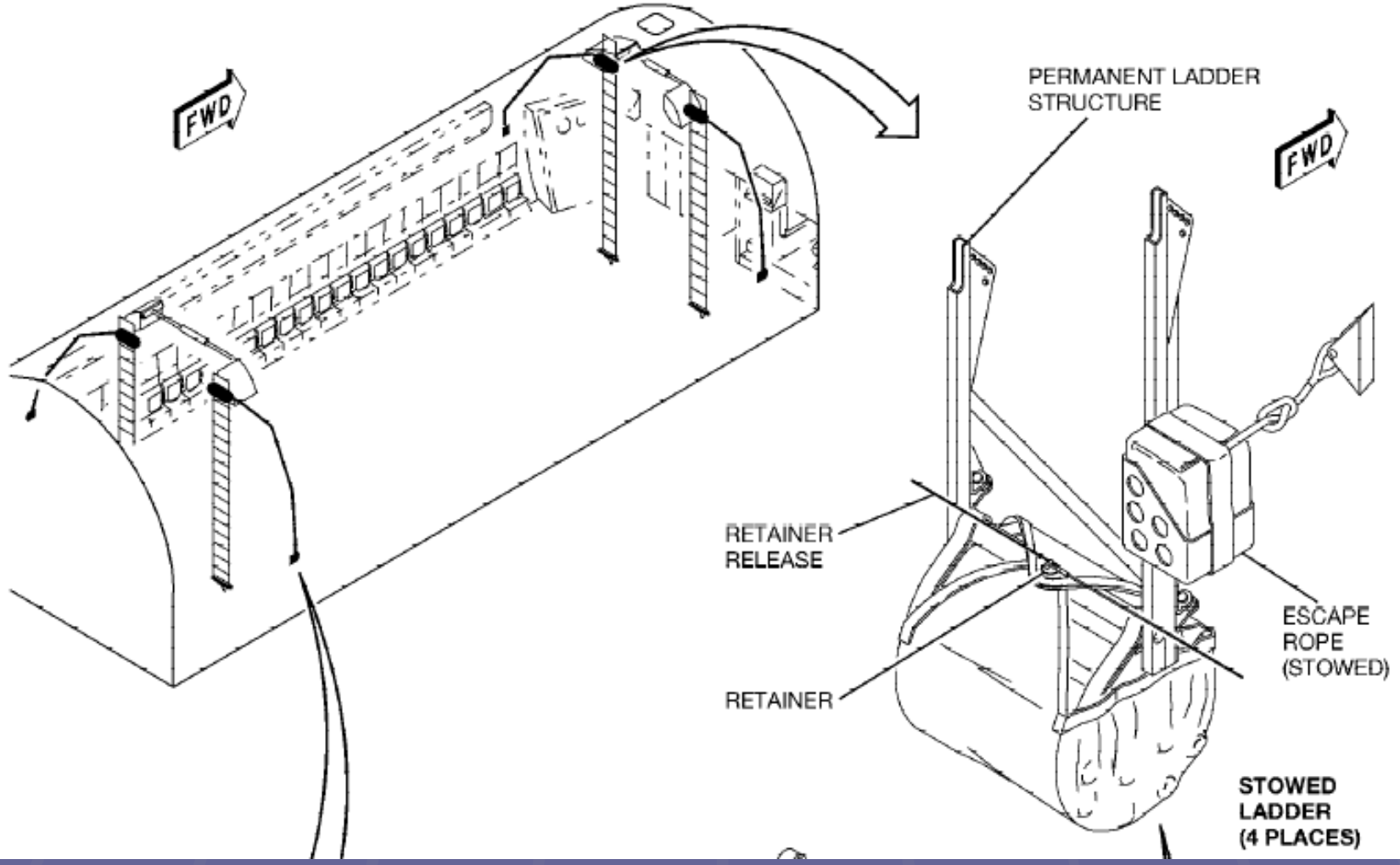

ESCAPE ROPE
STOWAGE
ESCAPE ROPE
DEPLOYED
JUMP PLATFORM
FWD

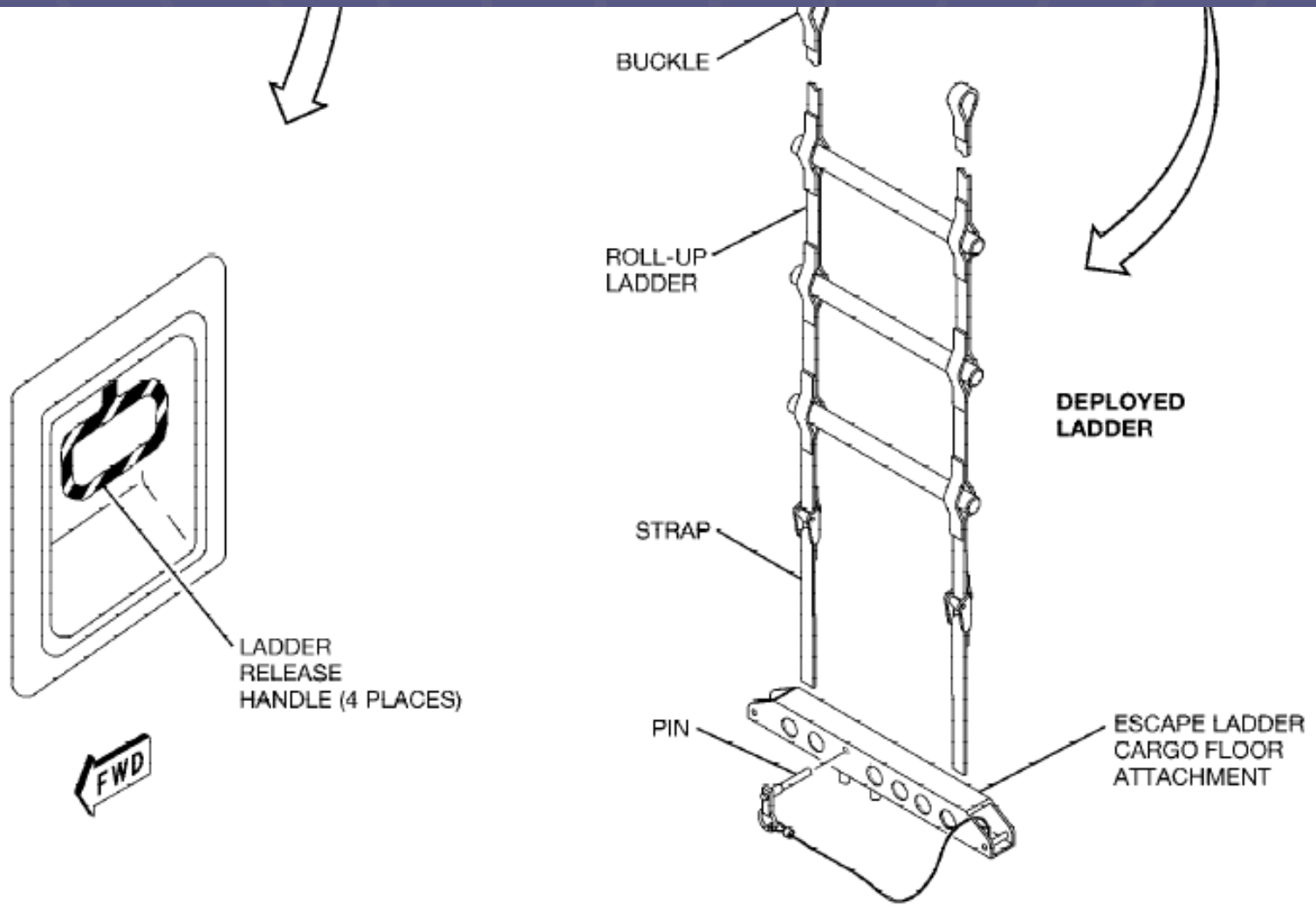
ESCAPE LADDERS

- (4) Available
- Location
  - FEDS Hatches

1-2341. There are four semirigid escape ladders, one stowed at each FEDS hatch area. These ladders are stowed in canvas wrap containers approximately one foot below each hatch. Pulling down on a release handle on the fuselage side wall directly below each ladder will release a securing pin on the wrap allowing the ladder to freefall to the cargo/ramp floor. The ladders are made of metal tube rungs connected with webbing material and are permanently attached, at one end, to the life raft assembly support structure. An attachment bar used to attach the ladder to the cargo floor/ramp tiedown ring is on the other end. The attachment of the FEDS ladder to the cargo floor is designed for one person operation. When exiting through the aft hatches, the individual faces aft. When exiting through the forward hatches, the individual faces forward.

ESCAPE LADDERS




BUCKLE
ROLL-UP LADDER
DEPLOYED LADDER
STRAP
PIN
ESCAPE LADDER CARGO FLOOR ATTACHMENT
LADDER RELEASE HANDLE (4 PLACES)
FWD


EXIT


DITCHING LADDER
PULL HANDLE TO DEPLOY
1250
AD 22
1238
STOWAGE

CRASH AXES & CHOP OUT AREAS

1-2357. CRASH AXES AND CHOP OUT AREAS

1-2358. There are two crash axes on the aircraft. One crash axe is mounted on the aft side of the right EPC, in the crew rest area. The cargo compartment crash axe is located at FS 524, right side, attached to the chopout location nearest the forward loadmaster station. There are four clearly marked chop out areas in the cargo compartment (Figure 1-375).

EMERGENCY EQUIPMENT LOCATIONS

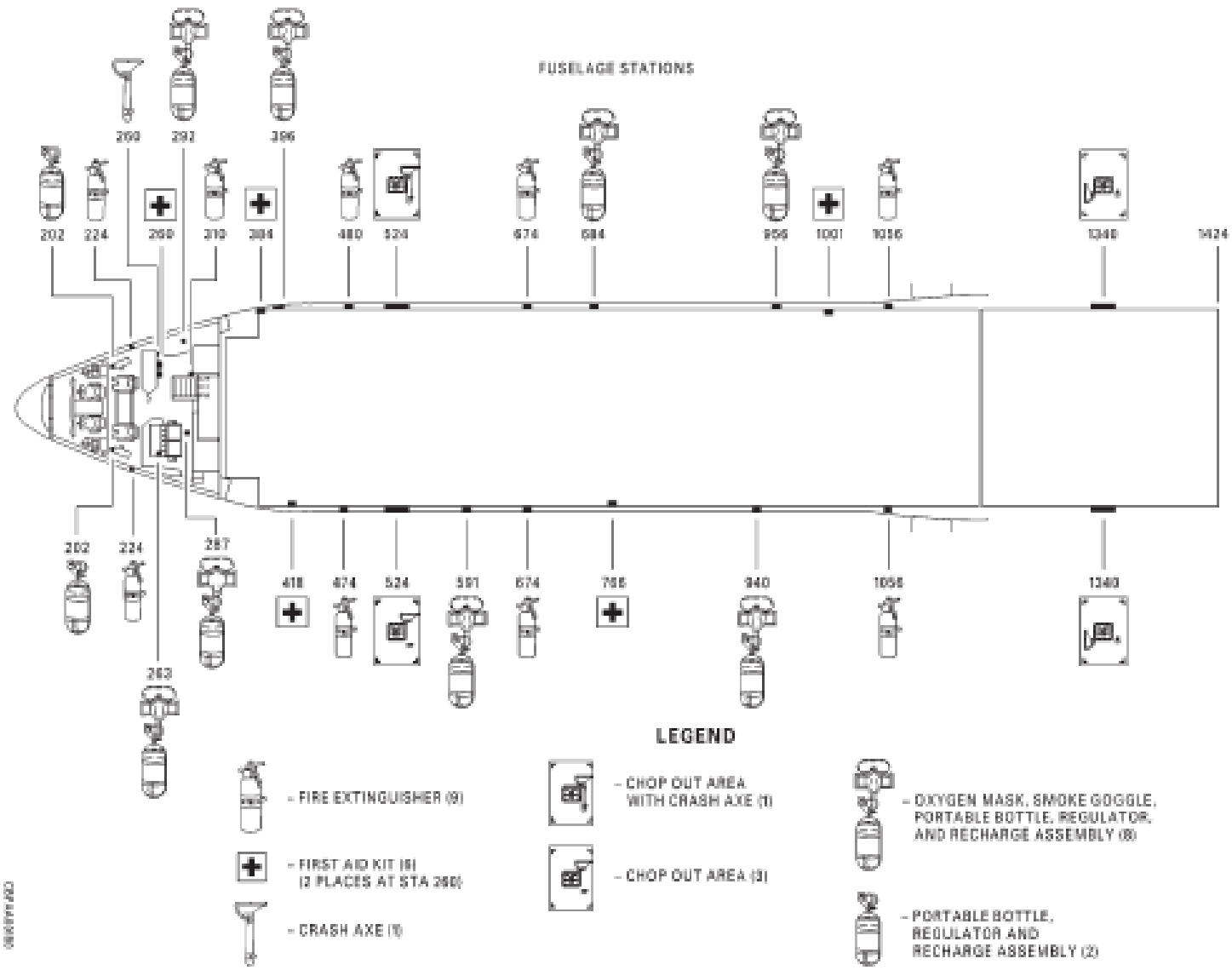


Figure 1-133

QUESTIONS???