

NATOPS U.S. NAVY AIRCRAFT EMERGENCY RESCUE INFORMATION MANUAL

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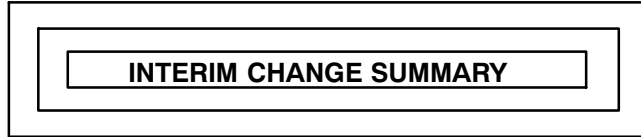
LETTER OF PROMULGATION

1. The Naval Air Training and Operating Procedures Standardization (NATOPS) Program is a positive approach toward improving combat readiness and achieving a substantial reduction in the aircraft mishap rate. Standardization, based on professional knowledge and experience, provides the basis for development of an efficient and sound operational procedure. The standardization program is not planned to stifle individual initiative, but rather to aid the Commanding Officer in increasing the unit's combat potential without reducing command prestige or responsibility.
2. This manual standardizes ground and flight procedures but does not include tactical doctrine. Compliance with the stipulated manual requirements and procedures is mandatory except as authorized herein. In order to remain effective, NATOPS must be dynamic and stimulate rather than suppress individual thinking. Since aviation is a continuing, progressive profession, it is both desirable and necessary that new ideas and new techniques be expeditiously evaluated and incorporated if proven to be sound. To this end, Commanding Officers of aviation units are authorized to modify procedures contained herein, in accordance with the waiver provisions established by OPNAV Instruction 3710.7, for the purpose of assessing new ideas prior to initiating recommendations for permanent changes. This manual is prepared and kept current by the users in order to achieve maximum readiness and safety in the most efficient and economical manner. Should conflict exist between the training and operating procedures found in this manual and those found in other publications, this manual will govern.
3. Checklists and other pertinent extracts from this publication necessary to normal operations and training should be made and carried for use in naval aircraft.
4. Per NAVAIRINST 13034.1 series, this flight clearance product provides NAVAIR airworthiness certification subsequent to design engineering review. It does not authorize aircraft system modification, nor does it satisfy NAVAIR requirements for configuration management. Refer to OPNAVINST 4790.2 series for policy guidance on configuration management and modification authority.

A handwritten signature in black ink, appearing to read "D. E. Gaddis". The signature is written in a cursive style with a large initial "D" and "G".

D. E. GADDIS
 Rear Admiral, United States Navy
 By direction of
 Commander, Naval Air Systems Command

Interim Change Summary



The following Interim Changes have been cancelled or previously incorporated into this manual.

INTERIM CHANGE NUMBER(S)	REMARKS/PURPOSE
1	Previously Incorporated

The following Interim Changes have been incorporated into this Change/Revision.

INTERIM CHANGE NUMBER(S)	REMARKS/PURPOSE

Interim Changes Outstanding — To be maintained by the custodian of this manual.

INTERIM CHANGE NUMBER	ORIGINATOR/DATE (or DATE/TIME GROUP)	PAGES AFFECTED	REMARKS/PURPOSE

LIST OF EFFECTIVE PAGES

Effective Pages	Page Numbers
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Original	3 (Reverse Blank)
Original	5 (Reverse Blank)
Original	7 (Reverse Blank)
Original	9 (Reverse Blank)
Original	11 thru 17 (Reverse Blank)
Original	19 thru 25 (Reverse Blank)
Original	1-1 thru 1-4
Original	2-1 thru 2-8
Original	3-1 thru 3-27 (Reverse Blank)

Effective Pages	Page Numbers
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List of Abbreviations and Acronyms

A

APP. Auxiliary Power Plant

APU. Auxiliary Power Unit

ARFF. Aircraft Rescue and Fire Fighting

ATO. Airborne Tactical Operator (SH-60 aircrewmembers)

C

CBRNE. Chemical, Biological, Radiological, Nuclear Explosives

CCID. Crash Crew Information Diagram

COTAC. Copilot Tactical Coordinator (S-3 aircraft)

D

DFIRS. Deployable Flight Incident Recorder Set (F/A-18 aircraft)

DS2. Decontamination Solution Number 2 (a CBR solution)

E

ECMO1. Electronic Countermeasures Officer 1 (EA-6B aircrewmembers)

F

FLSC. Flexible Linear-Shaped Charge (F/A-18 aircraft)

FOD. Foreign Object Debris

G

GTS. Gas Turbine Starter (AV-8 aircraft)

H

HE-GG. High Explosive-to-Gas Generator (MV-22B aircraft)

HE-LE. High Explosive-to-Low Explosive (MV-22B aircraft)

HTH. Calcium Hypochlorite (a CBR solution)

J

JHMCS. Joint Helmet Mounted Cueing System (F/A-18 aircraft)

L

LH. Left-hand

LOX. Liquid Oxygen

M

MDC. Mild Detonating Cord

MIM. Maintenance Information Manual

MRT. Maximum Rated Thrust

N

NLG. Nose Landing Gear

O

OBOGS. Onboard Oxygen Generation System

P

P-HE. Primer-to-High Explosive (MV-22B aircraft)

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R

RH. Right-hand

S

SEAWARS. Automatic Sea Water Actuated Release System

SMDC. Shielded Mild Detonating Cord (T-45 aircraft)

SOB. Souls on Board

SS3. Sensor Station 3 Operator (P-3 aircrewmen)
C-1

STB. Super Tropical Bleach (a CBR solution)

T

TO. Technical Order

TLX. Thin Line Explosive (MV-22B aircraft)

T/C/M/S. Type/Class/Model/Series

PREFACE

SCOPE

NATOPS manuals are issued by the authority of the Chief of Naval Operations and under the direction of the Commander, Naval Air Systems Command in conjunction with the Naval Air Training and Operating Procedures Standardization (NATOPS) program. NATOPS publications provide the best available operating instructions for most circumstances. However, no manual can cover every situation or be a substitute for sound judgment; operational situations may require modification of the procedures contained therein. Read these publications from cover to cover. It is your responsibility to have a complete knowledge of their contents.

Note

See Chapter 1 for more information on the scope and purpose of this manual, and for any special requirements or procedures that compliment those contained in this preface.

DETERMINING THE CURRENT VERSION OF THIS PUBLICATION

The current versions of NATOPS publications are listed in the NATOPS Status Report which is available online at <https://airworthiness.navair.navy.mil>. Upon receiving a copy of a NATOPS, consult the NATOPS Status Report to determine its current configuration (through the latest revision, change, and interim change). Before using this publication, users shall ensure that they have the current version of it.

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Note

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KEEPING THIS PUBLICATION CURRENT

To be effective, NATOPS publications must be kept current through an active manual change program. Corrections, additions to, deletions from, and suggestions for improvement of contents should be submitted as NATOPS change recommendations as soon as possible after discovery. Suggestions for improvement should avoid vague and generalized language and shall be worded as specifically as possible. Detailed standards for NATOPS publications are found in MIL-DTL-85025B(AS), which is available online at <https://airworthiness.navair.navy.mil>. Change recommendations may be submitted by anyone in accordance with OPNAVINST 3710.7-series. All users are encouraged to contribute to the currency, accuracy, and usefulness of this and other NATOPS publications by submitting timely change recommendations for these publications.

SUBMITTING CHANGE RECOMMENDATIONS

Types of Change Recommendations

Change recommendations should be submitted as URGENT, PRIORITY or ROUTINE. *Urgent and Priority change recommendations are changes that cannot be allowed to wait for implementation until after the next review conference.* These usually involve safety-of-flight matters. Some priority change recommendations may be upgraded to URGENT by NAVAIR (AIR-4.OP), Program Class Desk or the NATOPS Model Manager following receipt and initial review.

Submitting Change Recommendations to NATOPS Publications

While each type of change recommendation is processed and approved differently, the preferred means of submitting all of them is through the Airworthiness Issues Resolution System (AIRS) which may be accessed online at <https://airworthiness.navair.navy.mil>, or on SIPRNET at <https://airworthiness.navair.navy.smil.mil> for classified or otherwise sensitive change recommendations. AIRS provides the fastest and most efficient means of processing and resolving NATOPS change recommendations. It expedites distribution of the URGENT and PRIORITY change recommendations to those who need to act on them and compiles the ROUTINE change recommendations into their respective review conference agenda packages.

In the event that a worldwide web connection to AIRS is not available, PRIORITY change recommendations may be submitted via Naval message in accordance with OPNAVINST 3710.7-series. When AIRS is not accessible, ROUTINE change recommendations may be submitted on a NATOPS/Tactical Change Recommendation (Form OPNAV 3710/6), a copy of which is contained within the preface of this manual. The completed change recommendations forms for changes to this manual should be sent by U.S. Mail to the NATOPS Model Manager of this publication at:

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ISSUING UPDATES TO NATOPS PUBLICATIONS

Interim Changes

Approved NATOPS urgent and priority change recommendations are issued via Naval messages and may involve making pen-and-ink entries and/or replacing pages. Copies of interim change messages and their replacement pages are posted on the NATEC website at www.natec.navy.mil, <https://airworthiness.navair.navy.mil>, or <https://airworthiness.navair.navy.smil.mil> for viewing and downloading. Interim change replacement pages are always issued in electronic format and are not distributed in paper format except under unusual circumstances. Following the incorporation of an interim change into this publication, its entry should be recorded on the Interim Change Summary page within this publication.

Revisions, Changes and Errata

Routine change recommendations are compiled into a conference agenda and held for review at the next NATOPS review conference for this publication. Change recommendations approved by the review conference are published by the NATOPS Model Manager in a review conference report and then incorporated into a revision or change to this manual, copies of which are mailed on paper and/or electronic media to users that have a listed requirement for it in the NATEC ADRL system database. Copies of most unclassified publications are also posted on the NATEC and Airworthiness websites. When printing errors are found in publications, errata may also be prepared and posted and/or distributed in electronic or paper form in the same manner as for revisions and changes. After incorporating a change or errata into this publication, you should page check and record its entry on the Record of Changes page within this publication.

CHANGE SYMBOLS

Revised text is indicated by a black vertical line in the right margin of the page, like the one printed next to this paragraph. The change symbol shows where there has been a change. The change might be material added or information restated. A change symbol in the margin by the chapter number and title indicates a new or completely revised chapter. Change symbols are not normally used to mark the locations of deleted information.

SPECIAL TERMINOLOGY IN NATOPS PUBLICATIONS

The following special terminology and meanings apply to the contents of this and other NATOPS publications:

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OPNAV 3710/6 (4-90) S/N 0107-LF-009-7900

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(a) Your Change Recommendation Dated _____

Your change recommendation dated _____ is acknowledged. It will be held for action of the review conference planned for _____ to be held at _____

Your change recommendation is reclassified URGENT and forwarded for approval to _____ by my DTG _____

/S/ _____ MODEL MANAGER	_____ AIRCRAFT
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Warnings, Cautions, and Notes

The following definitions apply to WARNINGS, CAUTIONS, and Notes:



WARNING

An operating procedure, practice, or condition, etc., that may result in injury or death, if not carefully observed or followed.



CAUTION

An operating procedure, practice, or condition, etc., that may result in damage to equipment if not carefully observed or followed.

Note

An operating procedure, practice, or condition, etc., that is essential to emphasize.

Requirement For Compliance

1. “Shall” is used only when application of a procedure is mandatory.
2. “Should” is used only when application of a procedure is recommended.
3. “May” and “need not” are used only when application of a procedure is optional.
4. “Will” is used only to indicate futurity, and never to indicate any degree of requirement for applicability of a procedure.

Requirement For Landing Aircraft

1. Land immediately is self-explanatory. (Applicable to helicopters and other VTOL aircraft.)
2. Land as soon as possible means land at the first landing site at which a safe landing may be made.
3. Land as soon as practical means extended flight is not recommended. The landing and duration of flight is at the discretion of the pilot in command.

CHAPTER 1

Introduction

1.1 PURPOSE

This manual contains essential information and procedures for use by Aircraft Rescue and Firefighting (ARFF) personnel when rescuing occupants from crashed or disabled naval aircraft. It has been organized for ready reference by rescue teams and is intended to serve both as an operational guide and a training manual for rescue personnel.

1.2 SCOPE

This publication has been prepared for use by crash crew members and their supervisors engaged in aircraft rescue operations. It is intended for use as a ready reference during actual rescue operations. It provides detailed information about aircraft hazards, danger areas, procedures for aircraft entry, engine shutdown, ejection seat safing, aircrew and passenger release and extraction, and other actions important to aircraft rescue and firefighting personnel.

1.3 CONTENTS

[Chapter 1](#) of this manual contains [ARFF](#) crewmember selection criteria, training and qualification requirements, and waiver procedures; and assigns responsibilities for maintaining this publication. [Chapter 2](#) lists the elements of information to be addressed in each aircraft and ejection seat Crash Crew Information Diagram (CCID). [Chapter 3](#) contains general aircraft rescue procedures, and a compilation of the ejection seat and aircraft-related warnings that appear throughout this manual. [Chapter 4](#) addresses the various ejection seat systems in use in Naval aircraft and contains ejection seat CCIDs for each of them. [Appendixes A through G](#) are organized by aircraft mission category and include an Aircraft Systems and Crash Crew Information Diagram Summary and a [CCID](#) set for each naval aircraft in general use. [Appendix H](#) lists other aircraft publications that contain more detailed aircraft equipment, rescue, firefighting, and escape-related information and procedures. [Appendix I](#) is a place holder for the NATOPS Test Question Bank.

1.4 RESCUE CREWMEMBER DUTY ASSIGNMENTS

The primary duty of the rescue team is to affect the successful rescue of personnel from burning and/or crashed aircraft. Efficient use of time immediately following an aircraft crash or emergency may be critical to a successful rescue. Since ARFF team members must be available for immediate response when such an emergency occurs, no other duties shall be assigned to them during flight operations.

1.5 RESCUE CREWMEMBER SELECTION CRITERIA

When an aircraft mishap occurs, information available may be limited. The type/model/series (T/M/S) of the aircraft involved, the exact number of souls on board, and the hazards that exist may not yet be available. Firefighting, rescue, first aid, hazardous waste containment, and area cleanup efforts may be happening at the same time. Until it is established that there are no further hazards and potential for loss of life, such as through an ordnance cookoff, rescue must be accomplished concurrent with other on-scene emergency functions. Decisions must be made on the scene by the crash officer, scene leader, and rescue personnel. Each aircraft incident will present its own particular problems. For these reasons, rescue team members should be as familiar as possible with all potential emergency aircraft and familiar with the special equipment and tools that will be needed, where those equipments and tools will be found, and the rescue procedures for the particular T/M/S aircraft.

Selection of rescue team members should be made in view of the following circumstances. Important personal prerequisites for assignment to duties as a rescue team member include alertness, courage, dedication, agility, physical strength, and the ability to be a meticulous team member. The rescue team should consist of experienced and highly trained personnel. Each member shall be cross-trained and qualified to perform the functions of the other members of the team.

1.6 TRAINING

An important aspect in training rescue personnel is aircraft familiarization. Frequent visits to aircraft are a must for rescue teams. By taking advantage of occasions when aircraft unit personnel and equipment are available for training, the rescue teams can become proficient through actual experience. Particular attention should be paid to the normal and emergency entrances, aircraft danger areas, location of personnel, engine shutdown procedures, ejection seat safety, and any other factors that could prevent/delay rescue. Drills involving personnel rescue from various aircraft shall be conducted frequently in order to maintain a high state of readiness.

By systematically studying this manual and its related references, and by drilling frequently, team members can be prepared to professionally conduct rescue operations.

1.7 OTHER RELATED PUBLICATIONS

1.7.1 Complementary Publications

The following publication directly complements the information presented in this manual.

1. NAVAIR 00-80R-14 — NATOPS U. S. Navy Aircraft Fire Fighting and Rescue Manual is the primary manual for aircraft firefighting and rescue doctrine and procedures.
2. NAVAIR 00-80R-19 — NATOPS U. S. Navy Aircraft Crash and Salvage Operations (Afloat) Manual. Manual's organization and content is similar to that of this manual, but presents information and procedures for CV and LHA/LHD shipboard crash and salvage situations.
3. NAVAIR 00-80R-20 — NATOPS U. S. Navy Aircraft Crash and Salvage Operations (Ashore) Manual. Manual's organization and content is similar to that of this manual, but presents information and procedures for use in land-based crash and salvage situations.

1.7.2 Other NATOPS Publications

The following NATOPS publications contain general information that will be needed or may be useful during crash and salvage situations.

1. NAVAIR 00-80T-105 — CV NATOPS Manual. Contains responsibilities, relationships and procedures for preparing for and conducting flight operations aboard CVs.
2. NAVAIR 00-80T-106 — LHA/LHD NATOPS Manual. Contains responsibilities, relationships and procedures for preparing for and conducting flight operations aboard LHA and LHD class ships.
3. NAVAIR 00-80T-109 — NATOPS Aircraft Refueling Manual. Among other subjects contained in this manual, includes procedures for defueling aircraft.
4. NAVAIR 00-80T-113 — NATOPS Aircraft Signals Manual. Includes standard signals for de-arming and moving aircraft
5. NAVAIR 00-80T-115 — U.S. Marine Corps Expeditionary Airfields and Marine Corps Air Stations NATOPS Manual. Includes aircraft rescue, firefighting organization and requirements and organizational relationships for U.S. Marine Corps expeditionary airfields and Marine Corps Air Stations.

6. NAVAIR 00-80T-120 — CV Flight/Hangar Deck NATOPS Manual. Contains responsibilities, relationships and procedures for the movement, support and security of aircraft aboard CVs.
7. NAVAIR 00-80T-121 — NATOPS Chemical, Biological Defense Manual. Contains information and procedures for use in decontaminating aircrew and aircraft that have been exposed to chemical and biological agents.
8. NAVAIR 00-80T-122 — Helicopter Operating Procedures for Air-Capable Ships NATOPS Manual. Contains responsibilities, relationships and procedures for preparing for and conducting flight operations aboard air-capable ships.

1.7.3 Other Crash and Salvage-Related Publications

See [Appendix H](#) for a list of references that contain additional information relevant to rescue situations.

1.8 RESPONSIBILITIES

1.8.1 NATOPS Advisory Group

NATOPS Advisory Group member relationships, responsibilities and procedures are contained in OPNAVINST 3710.7-series. The following are the members of the NATOPS Advisory Group for this manual:

NATOPS ADVISORY GROUP MEMBER	NATOPS COORDINATOR/REP (CODE)
Commander, Naval Air Systems Command	COMNAVAIRSYSCOM (4.0P/PMA-251B2)
Commander, Naval Air Forces, San Diego	COMNAVAIRFOR San Diego (N73, N40C)
Commander, Naval Air Force, Norfolk	COMNAVAIRFOR Norfolk (N73)
Commander, Naval Surface Force San Diego	COMAFLOATRAGRU Pacific San Diego CA (N88)
Commander, Naval Surface Force Norfolk	COMAFLOATRAGRU Atlantic Norfolk VA (N88)
Commandant of the Marine Corps	CMC ASL (UC)
Commander, Navy Installations Command	CNIC (N30)
Chief of Naval Air Training/Commander Naval Education and Training	NATTC Pensacola (00) (40)
Commander, Naval Safety Center	COMNAVSAFECEN (114A/11)
Commander, Naval Sea Systems Command	COMNAVSEASYSKOM (03G/03Y6)
Commanding General, Training and Education Command	CG TECOM (ATB C4610)
Commanding General, U.S. Marine Forces Command	COMMARFORCOM (UC)
Commanding General, U.S. Marine Force Pacific	COMMARFORPAC (UC)
Commanding General, Installations EAST	CG MCI EAST (UC)
Commanding General, Installations WEST	CG MCI WEST (UC)
Commanding General, Marine Forces Reserve	COMMARFORRES (UC)
Commander, Naval Air Force Reserve	COMNAVAIRFORES (N01P)
Commandant, U. S. Coast Guard	COMCOGUARD (CG-11)

In accordance with OPNAVINST 3710.7-series, each commander shall designate his NATOPS Advisory Group representative in writing and forward copies of this correspondence to NAVAIR (AIR-4.0P) and PMA-251 on each occasion when a new representative is assigned.

NAVAIR 00-80R-14-1

1.8.2 NATOPS Cognizant Command

Commander, Naval Air Systems Command is designated as the NATOPS Cognizant Command and is responsible for the contents and maintenance of this manual in accordance with OPNAVINST 3710.7-series.

1.8.3 NATOPS Model Manager

The Model Manager shall review the NAVAIR 00-80R-14-1 NATOPS U. S. Navy Aircraft Emergency Rescue Information Manual to ensure that it contains the latest approved operating procedures and make appropriate recommendations to the COG Command on all matters concerning this NATOPS manual.

1.8.4 Program Manager

Performs administrative responsibilities for the NATOPS program and is given written authority to act on behalf of the Model Manager in NATOPS-related matters also in the maintenance of the NAVAIR 00-80R-14-1 NATOPS U.S. Navy Aircraft Emergency Rescue Information Manual and acts as the Model Manager's single point of contact for all NATOPS related issues.

1.9 WAIVERS

Commands listed below may grant waivers to the provisions of this manual in order to develop new procedures or when compliance is impractical. Because this instruction promulgates specific guidance and policy of Commander Naval Air Forces (CNAF), waivers to these provisions shall not be granted except in cases where specific waiver authority has been authorized. Waivers shall always indicate the purpose for which granted and the time limitations for the waiver. When a waiver must be continually renewed, it is generally an indication that the particular procedure, requirement, or limitation should be revised. Where the need arises, special instructions or waivers will be promulgated by the CNAF. Waivers may be issued as indicated in the following table:

ACTIVITY	ISSUED TO
Commander, Naval Air Systems Command	COMNAVAIRSYSCOM (4.0P/PMA-251B2)
CNAF	All Commands/Activities
CMC	All Marine Corps Commands/Activities
COMMARFORPAC	MARFORPAC
COMMARFORCOM	MARFORCOM
COMMARFORRES	MARFORRES
COMNAVAIRFORES	NAVAIRFORES
NETC	TRACOM
COMNAVAIRSYSCOM	All NAVAIR HQ Activities
Fleet and Fleet Type Commanders	Fleet Commands
COMMANDANT USCG	All USCG Activities
CNIC	All CNIC Navy Shore Installations

A copy of all waivers shall be forwarded to CNAF, the cognizant OPNAV sponsor (if applicable), COMNAVSAFECEN (Code 11), and to NAVAIR (PMA-251).

CHAPTER 2

Crash Crew Information Diagram (CCID) Format and Content

2.1 PURPOSE

This chapter establishes what information should be contained in the two types of aircraft and ejection seat CCIDs and how it is organized.

2.2 SCOPE

This manual is comprised primarily of CCIDs which contain the pertinent rescue procedures for each naval aircraft and ejection seat. They have been prepared for most current naval aircraft and are intended for reference during actual aircraft rescues. CCIDs contain formatted text with warnings and diagrams prepared for ready use in emergency situations where occupants lives may be in the balance, incorrect actions must be avoided, and rescuers may have limited time to achieve a successful rescue. Crash crewmen and their supervisors should be thoroughly familiar with all information contained within an aircraft's CCID before taking a major role in an actual rescue operation involving that aircraft. CCIDs also lend themselves to familiarizing rescue personnel with, and providing a training vehicle for, the essential information pertaining to each ejection seat and aircraft.

2.3 GENERAL

The CCIDs include the following information:

1. Page Layout. The CCIDs in this manual contain emergency rescue information, procedures and illustrations which are placed into an alphanumeric order by type, model and series of aircraft or model and series of ejection seat. Procedures and most textual information appears on the left-hand side of each page, while an illustration related to the text appears on the right-hand side of the corresponding page. Aircraft and ejection seat designations have been positioned in the upper and lower right corners of each page for rapid information identification.
2. Categories of essential information. The essential information elements presented for each aircraft are organized into standard categories which are presented in a standard sequence. The standard categories for aircraft CCIDs differ substantially from and are more extensive than those for ejection seats. Because of these differences, the specific essential information categories for each will be addressed separately in the paragraphs that follow. Information categories are numbered by a standard category numbering system. Non-applicable categories will not appear when the information that they would contain is not applicable to a particular aircraft.
3. Layout of Illustrations. The illustrations on the right-hand side of each page show the aircraft or equipment that the text on the left-hand side is addressing. Portions of the illustrations are circled and highlighted as call-outs. Each callout is marked with the number of the subparagraph on the left-hand side that addresses the item referred to in the particular callout.

2.4 AIRCRAFT CCIDS

Aircraft CCIDs (see [Figure 2-1](#)) address the special equipment and procedures required for safely approaching and entering the aircraft to release and extract aircrew and passengers. These CCIDs, published in [Appendixes A through F](#), are organized by aircraft designation and include an Aircraft Systems and CCID Summary and a CCID set for each aircraft in general naval use.

Note

- Aircraft CCIDs do not contain ejection seat safing procedures.
- Each aircraft CCID contains only subjective text and illustrations that are applicable to that particular aircraft series.

2.4.1 Aircraft CCID Essential Information Categories

The essential information for each aircraft is presented in the following standard categories (see [Figure 2-1](#)):

1. Applicable aircraft version
2. Special tools and equipment
3. General aircraft information
4. Airframe material
5. Aircraft danger areas
6. Aircraft entry methods
7. Canopy safety
8. Engine shutdown
9. Battery
10. Normal crew release procedures
11. Emergency crew release procedures.

Note

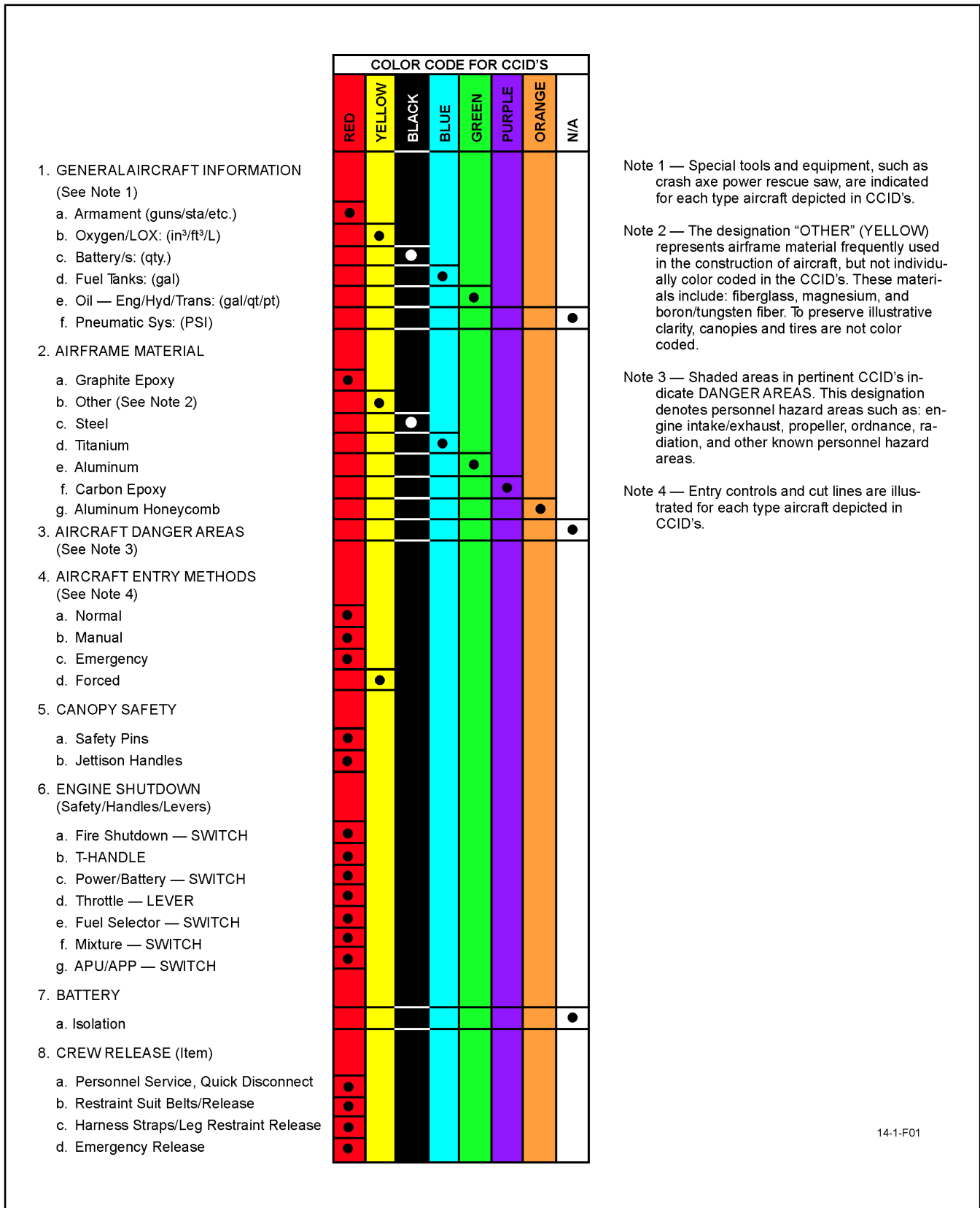
CCID items retain the item numbers listed above. If an item is not applicable to a particular aircraft, that item number will not appear in the aircraft CCID.

2.4.2 Aircraft CCID Color Codes

The colors on CCIDs are used to draw attention to the particular area or item and are not intended to signify the actual color of the aircraft part or item. See [Figure 2-1](#) for color codes and applications.

2.5 EJECTION SEAT CCIDS

Ejection seat CCIDs address the general information about the ejection seat and provide the procedures required for safing them in order to extract the aircrew members. The CCIDs for ejection seats are contained in [Chapter 4](#) and are organized by aircraft and seat designation.



Note 1 — Special tools and equipment, such as crash axe power rescue saw, are indicated for each type aircraft depicted in CCID's.

Note 2 — The designation "OTHER" (YELLOW) represents airframe material frequently used in the construction of aircraft, but not individually color coded in the CCID's. These materials include: fiberglass, magnesium, and boron/tungsten fiber. To preserve illustrative clarity, canopies and tires are not color coded.

Note 3 — Shaded areas in pertinent CCID's indicate DANGER AREAS. This designation denotes personnel hazard areas such as: engine intake/exhaust, propeller, ordnance, radiation, and other known personnel hazard areas.

Note 4 — Entry controls and cut lines are illustrated for each type aircraft depicted in CCID's.

14-1-F01

Figure 2-1. CCID Essential Information Elements and Color Code

Note

- Ejection seat CCIDs do not contain crew release procedures.
- Each ejection seat CCID contains only subjective text and illustrations that are applicable to that particular ejection seat.

2.5.1 Ejection Seat CCID Essential Information Categories

The essential information for each ejection seat is presented in the following standard categories and sequence (See [Figure 2-1](#)):

1. General ejection seat information:
 - a. Seat basic structure information
 - b. Seat basic components
 - c. A general warning about the lethality of ejection seats
2. Ejection seat safing procedures
 - a. Normal: Should be used when ample time is available for safing seats and crew removal.
 - b. Emergency: Should be used whenever immediate crew removal is necessary due to imminent hazards.

2.5.2 Ejection Seat CCID Color Codes

As with the aircraft CCIDs, red is used to highlight all ejection seat safing devices. In addition, cut zones for emergency safing are also shown in red.

2.6 CCID SUMMARIES AND OTHER INFORMATION

CCID system summaries are data tables that include the aircraft's capacity of fuel, lubricants, fluids, stores, personnel and other substances carried onboard the aircraft that are important to ARFF personnel from a firefighting or hazard point of view. A table has been prepared for each aircraft designation type and appears at the beginning of each [Appendix A](#) through [G](#).

[Appendix H](#) lists other aircraft publications that contain more detailed aircraft equipment, rescue, firefighting, and escape-related information and procedures.

When an aircraft crashes, it is too late to make a study of available charts, tables, and other materials. Personnel assigned to rescue teams must be knowledgeable of such things as airframe material, fuel and oil capacities, type and location of armament, oxygen systems, ejection seats where installed, and souls on board (SOB).

It is extremely important for crash rescue crews to know the exact number of crewmembers and passengers on board each type aircraft (see [Figures 2-2](#) and [2-3](#)). To prevent the possibility of overlooking any crewmember or passenger, rescue personnel must always assume that a crashed aircraft has maximum number of occupants on board until proven otherwise.

2.7 CURRENCY OF CCID INFORMATION

The CCIDs in this manual are prepared for the standard aircraft configurations described in their NATOPS flight manuals. Applicable aircraft Type/Class/Model/Series (T/C/M/S) version(s) are shown at the beginning of each CCID. Most USN and USMC aircraft are configured to the fleet standard configuration for which that aircraft's NATOPS flight manual has been prepared. However, while the intent is that each aircraft should conform to its fleet standard configurations, there are some aircraft flying that do not conform to the fleet standard configuration criteria. Earliest versions of the aircraft may not be modified to the standard, a few selected aircraft may contain authorized modifications, and latest configuration information may not yet be reflected in the NATOPS manuals. The Crash and Salvage Officer, Fire Chief, and rescue crewmembers should remain alert during rescues and always be prepared to find variances from the crash crew information contained in this manual. They should maintain liaison with local aircraft custodians to identify any CCID variances for aircraft that they are likely to support.

TYPE	NAME	AIRFRAME MATERIALS	FUEL (GAL)		OIL (GAL)		OXYGEN		PNEU SYS		GUN	ORDNANCE		PYROTECHNICS	BTRY	EJECT SYS	S.O.B.
			INT	EXT	ENG	HYD	LOX	BOTTLE	GAS	AIR		FWD FIRE	FREE FALL				
AV-8B TAV-8B	HARRIER	ALUMINUM STEEL CARBON EPOXY TITANIUM FIBERGLASS	1141	1200 (4 tanks x 300)	5.5	7.5	NONE	SEAT PAN (1)	N ₂ 3000 PSI	NONE	25MM	MISSILES ROCKETS	BOMBS MINES	PYLON EJECTOR CAR- TRIDGES (7) STA. CHAFF/FLARES CAN- OPY EJECTION SEAT	1	AV-8B (STEN- CEL SJU-4A)	AV-8B (1)
C-2	GREYHOUND	ALUMINUM STEEL FIBERGLASS	1824	NONE	36	19.8	20L	2 PORT	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	SIGNAL FLARES	1	NONE	30
C-9	SKYTRAIN II	ALUMINUM STEEL FIBERGLASS	5929	NONE	10	15	35L	24.6 IN ³ SYS	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	SIGNAL FLARES	2	NONE	97
C/KC-130 F/R/T/J	HERCULES	ALUMINUM STEEL FIBERGLASS	6826	2810	48	29.6	25L LOX C/KC-13 OT/J only	(4) PORT	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	SIGNAL FLARES	2	NONE	100
C-20D/G	GULFSTREAM III/IV	ALUMINUM STEEL GRAPHITE EPOXY	4134	NONE	3.8	6.7	NONE	(2) 77 FT ³ (2) 115 FT ³	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	NONE	2	NONE	C-20D (21) C-20G (30)
E-2C	HAWKEYE	ALUMINUM STEEL FIBERGLASS	1824	NONE	16	20	10L	PORT (1) BAIL OUT BOTTLES (5)	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	FLARES	1	NONE	5
E-6	MERCURY	ALUMINUM STEEL FIBERGLASS	24.000	NONE	60.5	72	75L	18	N ₂ 1200 PSI	NONE	NONE	NONE	NONE	SIGNAL FLARES	4	NONE	24
EA-6B	PROWLER	ALUMINUM STEEL FIBERGLASS	2300	1500	3.9	18.6	(3) 10L	SEAT PAN (4)	N ₂ 3000 PSI	NONE	NONE	MISSILES	NONE	PYLON EJECTOR CARTRIDGES (5) STA. CHAFF/FLARES	1	MARTIN-BAKE R MK GRUEA-7	4
EA-18G	GROWLER	ALUMINUM ALUMINUM HONEY-COMB STEEL TITANIUM CARBON EPOXY	2054	1440 (3 tanks x 480 gal)	2.6	16	OBOGS	SEAT PAN (2)	3000 PSI	5000 PSI	NONE	HARM AARGM AIM-120	NONE	PYLON EJECTOR CARTRIDGES (9) STA. CHAFF/FLARES CANOPY EJECTION SEATS DIRFS PYROTECHNIC DOORS TLX	1	MARTIN-BAKE R SJU-17(V) SERIES	2
F-5E/F	TIGER II	ALUMINUM STEEL MAGNESIUM FIBERGLASS	698	825	2	3.5	5L	SEAT PAN (2)	NONE	3000 PSI	20MM CANNO N	MISSILES ROCKETS	NONE	PYLON EJECTOR CARTRIDGES(5) STA. CANOPIES EJECTION SEATS	1	NORTHROP M38	F-5E(1) F-5F(2)
F/A-18 A/B/C/D	HORNET	ALUMINUM STEEL GPH EPOXY MAGNESIUM TITANIUM FIBERGLASS	F/A-18 A/ C: 589; F/A-18 B/ D: 1487	990	6.5	10	10L	SEAT PAN (1)	N ₂ 3000 PSI	NONE	20MM	MISSILES ROCKETS	BOMBS MINES	PYLON EJECTOR CARTRIDGES (9) STA. CHAFF/FLARES CANOPY EJECTION SEATS	2	MARTIN-BAKE R SJU-5/A, F/A-18 A/B/C/D; SJU-6/A, F/A-18 B/C/D; SJU-17(V) SERIES	F/A-18 A/C (1) F/A-18 B/D (2)

Figure 2-2. Fixed-Wing Aircraft Systems and CCIDs Summary (Sheet 1 of 2)

TYPE	NAME	AIRFRAME MATERIALS	FUEL (GAL)		OIL (GAL)		OXYGEN		PNEU SYS		GUN	ORDNANCE		PYROTECHNICS	BTRY	EJECT SYS	S.O.B.
			INT	EXT	ENG	HYD	LOX	BOTTLE	GAS	AIR		FWD FIRE	FREE FALL				
F/A-18E F/A-18F	SUPER HORNET	ALUMINUM ALUMINUM HONEYCOMB STEEL TITANIUM CARBON EPOXY	2162 (E) 2024 (F)	2400 (5 TANKS x480 GAL)	4.5	16	OBOGS	SEAT PAN (1)	3000 PSI	5000 PSI	20MM	MISSILES ROCKETS	BOMBS MINES	PYLON EJECTOR CARTRIDGES (11) STA. DECOYS CANOPY EJECTION SEATS DFIRS PYROTECHNIC DOORS TLX	1	MARTIN-BAKE R F/A-18E/F SJU-17(V) SERIES	F/A-18E (1) F/A-18F (2)
P-3	ORION	ALUMINUM STEEL FIBERGLASS	9200	NONE	40	46	NONE	(3) FIXED (7) PORT	N ₂ 3000 PSI	NONE	NONE	MISSILES ROCKETS	BOMBS MINES SONOBU OY	PYLON EJECTOR CARTRIDGES (18) STA. CHAFF/FLARES	1	NONE	AB-18 C-23 E-27
S-3	VIKING	ALUMINUM STEEL FIBERGLASS MAGNESIUM	1933	530	4.8	7.2	10L	SEAT PAN (4)	NONE	NONE	NONE	MISSILES ROCKETS	BOMBS MINES SONOBU OY	PYLON EJECTOR CARTRIDGES (6) STA. CHAFF/FLARES CANOPIES EJECTION SEATS	0	ESCAPAC 1E-1	4
T-2	BUCKEYE	ALUMINUM STEEL FIBERGLASS	487	204	2	1	10L	SEAT PAN (2)	3200 PSI*	NONE	50 CAL POD	MISSILES ROCKETS	BOMBS	PYLON EJECTOR CARTRIDGES (2) STA. CANOPY EJECTION SEATS	2	NORTH AMER LS-1A	2
T-6	TEXAN II	ALUMINUM STEEL FIBERGLASS	165	NONE	18.5 QTS	5 QTS	OBOGS	SEAT PAN (2)			NONE	NONE	NONE	PYLON EJECTOR CARTRIDGES (2) STA. CANOPY EJECTION SEATS	2	MKUS16LA EJECTION SEAT	2
T-34C	TURBO MENTOR	ALUMINUM STEEL FIBERGLASS	130	NONE	4.4	1 PT	NONE	NONE	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	NONE	1	NONE	2
T-38	TALON	ALUMINUM STEEL MAGNESIUM FIBERGLASS	598	275	2	3.5	5L	NONE	NONE	3000 PSI	NONE	NONE	NONE	PYLON EJECTOR CARTRIDGES (2) STA. CANOPY EJECTION SEATS	1	NORTHROP M38	2
T-39	SABRE- LINER	ALUMINUM STEEL FIBERGLASS	1087	NONE	4.0	2.0	NONE	77.9FT3 (2) 11FT ³	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	NONE	2	NONE	D8 G9 N6
T-44	KING AIR	ALUMINUM STEEL FIBERGLASS	388	NONE	2.3	1 PT	NONE	49 FT3	NONE	NONE	NONE	NONE	NONE	NONE	1	NONE	7
T-45A	GOSHAWK	ALUMINUM STEEL ACRYLIC TITANIUM FIBERGLASS CARBON COMPOSITES	432	0	3.7	4.3	OBOGS	SEAT PAN (2)	N ₂ 1300 PSI	0	NONE	ROCKETS	PRAC BOMBS	PYLON EJECTOR CARTRIDGES (2) STA CANOPY EJECTION SEATS	2	MB SJU-17(V) SERIES	2
U/RC-12	SUPER KING AIR	ALUMINUM STEEL FIBERGLASS	544	NONE	6	1 PT (B) 3.5 GAL (F/M)	NONE	49 IN ³	NONE	NONE	NONE	NONE	NONE	NONE	1	NONE	10
UC-26	METROLINER	ALUMINUM STEEL FIBERGLASS	648	NONE	8	TBD	NONE	2 AFT/FORW ARD 1850 IN SYS	NONE	NONE	NONE	NONE	NONE	NONE	2	NONE	20

*Fuselage tank if installed adds - 3587 gal to internal fuel.

Figure 2-2. Fixed-Wing Aircraft Systems and CCIDs Summary (Sheet 2)

TYPE	NAME	AIRFRAME MATERIALS	FUEL (GAL)		OIL (GAL)		OXYGEN		PNEU SYS		GUN	ORDNANCE		PYROTECHNICS	BTRY	EJEC SYS	SOB
			INT	EXT	ENG	HYD	LOX	BOTTL	GAS	AIR		FWD FIRE	FREE FALL				
MV-22B	OSPREY	ALUMINUM TITANIUM STEEL CARBON-EPOXY COMPOSITES GLASS-EPOXY COMPOSITES	1448	NONE	3.0	4.3	NONE	400L	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	CHAFF/FLARES ESCAPE WINDOWS/HATCHES	1	NONE	27
AH-1	SEA COBRA	ALUMINUM STEEL TITANIUM FIBERGLASS	304	(2) 100 OR (2) 75	3.7	3.4	NONE	NONE	N ₂ 3000 PSI	NONE	20 MM	MISSIL ES ROCK ETS	NONE	PYLON EJECTOR CARTRIDGES(4)STA. CHAFF/FLARES CANOPIES	2	NONE	2
AH-1Z	SUPER COBRA	ALUMINUM STEEL TITANIUM FIBERGLASS	403	(2) 100 OR (2) 75	14 QT	10.8 QT	NONE	NONE	N ₂ 3000 PSI	NONE	20 MM	MISSIL ES ROCK ETS	NONE	PYLON EJECTOR CARTRIDGES(4)STA. CHAFF/FLARES CANOPIES	1	NONE	2
UH-1/ HH-1	IROQUOI S/ HUEY	ALUMINUM STEEL FIBERGLASS	212	NONE	3.3	3	NONE	NONE	N ₂ 1500 PSI	NONE	GAV-2 B/A M-60 50 CAL	NONE	NONE	CHAFF/FLARES	1	NONE	15
UH-1Y	IROQUOI S/ HUEY	ALUMINUM STEEL CARBON FIBER	385	(2) 77	14 QT	10.8	NONE	NONE	N ₂ 3000 PSI	NONE	GAV-2 B/A M-60 50 CAL	MISSIL ES ROCK ETS	NONE	CHAFF/FLARES	1	NONE	12
H-3	SEA KING	ALUMINUM STEEL TITANIUM FIBERGLASS	831	(2) 110	18.6	2	NONE	NONE	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	SMOKE MARKERS	1	NONE	5
H-46	SEA KNIGHT	ALUMINUM STEEL TITANIUM FIBERGLASS	380 HH-46 D AUX 729	NONE	13 E	5.8 E	(2) 295 IN ³ (CH-46 E)	NONE	N ₂ 3000 PSI	NONE	(2) 50 CAL OR (2) M-60	NONE	NONE	CHAFF/FLARES (CH-46E)	1	NONE	28
H-53D	SEA STALLIO N	ALUMINUM STEEL TITANIUM FIBERGLASS	638	1300	8	6.5	NONE	NONE	N ₂ 3000 PSI	NONE	(2) 50 CAL	NONE	NONE	(2) EXT FUEL TANK EJECTOR CARTRIDGES CHAFF/FLARES	0	NONE	41
H-53E	SUPER SEA STALLIO N/SEA DRAGO N	ALUMINUM STEEL GPH EPOXY TITANIUM FIBERGLASS KEVLAR	MH-53 3212 CH-53 977	CH-53 1300	11.7	MH-53 9.3 CH-53 6.5	NONE	NONE	N ₂ 3000 PSI	NONE	(2) 50 CAL	NONE	NONE	PYLON EJECTOR CARTRIDGES (4) STA CHAFF/FLARES UTILITY HOIST CART. SINGLE PT CARGO HOOK CART	MH-53 3 CH-53 1	NONE	58
TH-57	SEA RANGER	ALUMINUM STEEL FIBERGLASS	91	NONE	5.5 QTS	1.0 PT	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	TH-57 B 1 TH-57 C 2	NONE	5

Figure 2-3. Tilt-Rotor and Helicopter Aircraft Systems and Crash Crew Information Diagram Summary

CHAPTER 3**Aircraft Rescue Procedures****3.1 GENERAL**

The introduction of high-performance aircraft into military use has resulted in aircraft design changes that affect the rescue of personnel under emergency conditions. Many changes and modifications have resulted from the continuing research to improve personnel escape and survival equipment. Rescue personnel must keep abreast of these changes as they occur so they may safely and rapidly perform their duties of rescuing disabled personnel. Lack of knowledge could result in serious injury to the aircrew as well as rescue personnel. Of necessity, this chapter is general in nature and does not include procedures or modifications for each aircraft. Familiarization with each type aircraft that rescue personnel may encounter must be gained from the study of aircraft CCIDS, airframe manuals, NATOPS flight manuals, and training on actual equipment during procedural drills. Organization, procedures, equipment, and training are devoted to one cause: the rescue of personnel.

3.2 APPROACHING CRASHED AIRCRAFT

If the aircraft is on fire, a rescue path must be made by the firefighters prior to approaching the aircraft. At the direction of the crash officer, fire chief, or scene leader, the rescue team(s) consisting of at least two firefighters per team will move into the aircraft to effect the rescue.

3.3 AIRCRAFT DANGER AREAS

As the rescue team approaches the aircraft, there are numerous danger areas of which they must be aware during the approach. These areas include the following.

3.3.1 Engines Running

1. Intake — Suction may ingest personnel and equipment.
2. Exhaust — Heat and force may spread fire or injure personnel.
3. Propellers — Hazard to personnel, propeller blast may spread fire or fuel.
4. Rotor blades — Hazard to personnel, blast may spread fire or fuel.

3.3.2 Armament

1. Missiles — Exhaust and forward firing zone.
2. Guns — Location of guns and ammunition boxes.
3. Pyrotechnics — Location of flares and other explosives.

3.3.3 Tires

1. Blow-out danger areas.

3.3.4 Radiation

1. Location of electromagnetic zones.

3.3.5 Fire

1. Aircraft — Class fire (e.g., fuel, metal, etc.).
2. Ground — Class fire, reflash dangers.

3.3.6 Composite Material

Refer to NAVAIR 00-80R-14 paragraph 6.7.

WARNING

Carbon/graphite and boron/tungsten fibers can become airborne as a result of fires or a crash/explosion scenario which may fragment sections of a composite aircraft.

3.4 ENTRY AND EXIT POINTS

Aircraft, rescue, and firefighting (ARFF) personnel must be familiar with the following entry and exit aircraft points.

3.4.1 Doors

Depending upon type of aircraft, doors may be located on either side of the fuselage or in the rear of the aircraft. Doors may open to the side, up or down, and from the interior or exterior of the aircraft. In many cases, an emergency release is provided in the interior at the hinge side of the door. The release location is normally indicated and the pull handle is painted red. Pulling the handle will withdraw the pins from the hinge side. If conditions permit, enter the aircraft through the normal access doors as this provides the most effective and expeditious manner into the aircraft for rescue of personnel.

3.4.2 Hatches

Hatch locations vary according to type of aircraft and may be located on the sides, bottom, or top of the fuselage. Hatches designed for normal personnel access are hinged and may be opened internally or externally. Hatches designed for emergency escape from the interior of the aircraft are generally secured internally with quick-opening compression devices around the circumference. When released from the inside or outside of the aircraft, the complete hatch is removed. Hatch locations and the means of opening them for specific aircraft may be found in this manual.

WARNING

All escape windows and emergency escape hatches in the MV-22 aircraft are lined with **TLX** pyrotechnics and in actual rescue situations are to be blown clear of the aircraft by the aircrew or rescue personnel.

3.4.3 Canopies

Canopies include a metal frame- work with a transparent material covering provided to enclose the cockpit and afford protection and visibility to the pilot or aircrew. The canopy system includes the canopy, plus all of the components used in opening and closing for normal entrance and exit, as well as those used for jettisoning the canopy during an

emergency. Three types of canopies: the clamshell, the hinge type, and sliding type are commonly used on naval aircraft (see **Figure 3-1**). The clamshell canopy is hinged aft and opens upward at the forward end. The hinged type is hinged at the top or side and opens upward from the side. The sliding canopy rests on tracks on the fuselage and opens and closes by a sliding motion. The sliding-type canopy offers the greatest ease in rescue of personnel as the rescue person is not restricted in the removal of crewmembers. Emphasis must be placed on drills for removal of personnel from aircraft utilizing clamshell and hinged canopies to assure that rescue persons are thoroughly familiar with emergency removal techniques and restrictions of the canopies.

3.4.4 Normal Canopy Opening

Aircraft manufacturers use various methods of actuating the canopy. Normal opening and closing may be accomplished pneumatically (compressed air), electrically, manually, or hydraulically. In the event of malfunction or mechanical damage to the electrical, pneumatic, or hydraulic systems, a secondary method may be employed by opening the canopy manually. Normally, when the clamshell canopy is opened manually, it must be physically held or propped open. The clamshell canopies on some type aircraft can be locked open with a canopy lock, preventing the canopy from being closed by accidental actuation of the canopy closing controls. On some aircraft, opening the canopy is accomplished by a handle provided on the exterior of the aircraft that will permit the rescue men to jettison the canopy. Jettisoning a canopy by firefighters should be accomplished only when the canopy cannot be opened by the normal or manual systems.

WARNING

Do not jettison canopy with fuel in the cockpit area as fire or explosion may result.

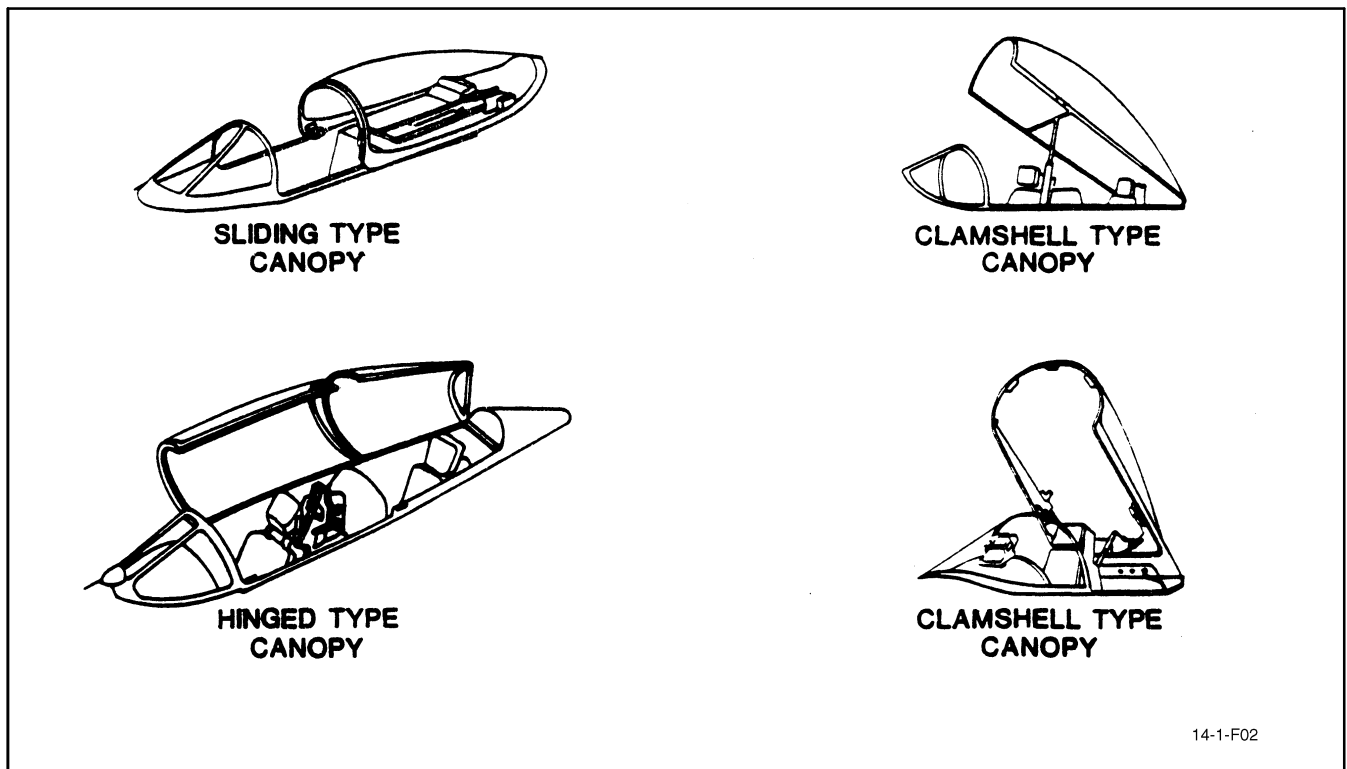


Figure 3-1. Types of Canopies

WARNING

Keep clear of canopy during jettison and be familiar with its trajectory.

Normal, manual, and forcible entry procedures pertaining to canopies are contained in the individual aircraft sections of this manual.

3.4.5 Emergency Entry

If because of structural or other damage normal access cannot be made, emergency entry method may be used. Canopies and escape doors and hatches are equipped with emergency jettison or release mechanisms. The locations and means of opening accesses for specific aircraft are included in the appropriate CCIDs.

3.4.6 Forcible Entry**3.4.6.1 Transparent Acrylic Plastic**

When emergency entry into the cockpit area cannot be made by the normal or manual means or by jettisoning, it will be necessary to gain entry into acrylic plastic-covered areas by forcible means. If the aircraft configuration contains large acrylic plastic areas suitable for entry and rescue, forcible entry should be conducted through these areas. Under normal conditions, acrylic plastic, when struck with an instrument, will shatter and may be chopped or knocked out. Application of carbon dioxide (CO₂) on the surface will embrittle the plastic and permit easier breakage. The contour blade hand axe, carried in the crash rescue tool kit, is the most satisfactory tool for cutting acrylic plastic. Approved methods include chopping along the canopy frame with a serrated axe or cutting with a portable power saw (see [Figures 3-2 and 3-3](#)).

WARNING

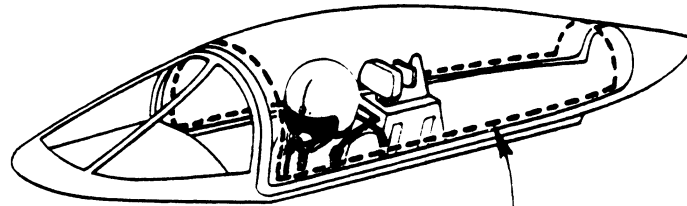
Extreme caution must be exercised when cutting through the canopy to avoid crew injury or striking the ejection seat firing mechanism.

Note

Acrylic plastic may be more easily shattered if first deluged with CO₂ and then struck with a crash axe.

3.4.6.2 Forcible Entry Into Fuselage Areas

Entry through the fuselage presents the most difficult problem in making a forcible entry into an aircraft. ARFF personnel conducting forcible entry must have a thorough knowledge of the interior of the aircraft. They should be very familiar with bulkhead locations, fuel tank locations, equipment inside the aircraft, and the areas where forcible entry will present the least obstacle to cut and gain entry. ARFF personnel must not be dependent upon aircraft markings as they could be eliminated during an incident. During aircraft familiarization, ARFF personnel must study these areas and become familiar with their locations for all types of aircraft. When initiating forcible entry, the plan is to gain the largest opening as quickly as possible. On large aircraft, an outline of cutting areas is stenciled on the fuselage. The power saw, equipped with metal cutting blade, is the most satisfactory tool for forcible entry. [Figure 3-3](#) shows the portable power saw used to cut through a fuselage. If the aircraft is relatively thin-skinned, three cuts may be made and then the area cut may be bent down and outward from the aircraft. If the aircraft fuselage is of thicker



▶ USE POWER RESCUE SAW TO CUT ALONG LINE UNTIL PLASTIC CAN BE GRASPED AND BROKEN AWAY.

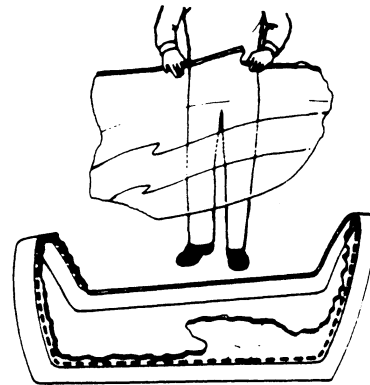
▶ IF PLASTIC CANNOT BE BROKEN FREE, CONTINUE CUTTING WITH POWER RESCUE SAW AROUND CANOPY.

WARNING

WATCH FOR FRAGMENTATION AND JAGGED EDGES. EDGES ARE VERY SHARP. FRAGMENTATION CHARACTERISTICS DIFFER IN TYPE AND CONSTRUCTION OF ACRYLIC PLASTIC.



▶ FORCIBLE ENTRY INTO PLASTIC CANOPY USING POWER RESCUE SAW.



▶ FORCIBLE ENTRY INTO PLASTIC CANOPY USING AXE.

▶ LINE DENOTES AREA CUT. PLASTIC WAS THEN GRASPED AND BROKEN FREE. NOTE THE LARGE SECTION REMOVED AND THE ABSENCE OF SHATTERING.

14-1-F03

Figure 3-2. Forcible Entry Into Plastic Canopies (Axe and Power Rescue Saw)

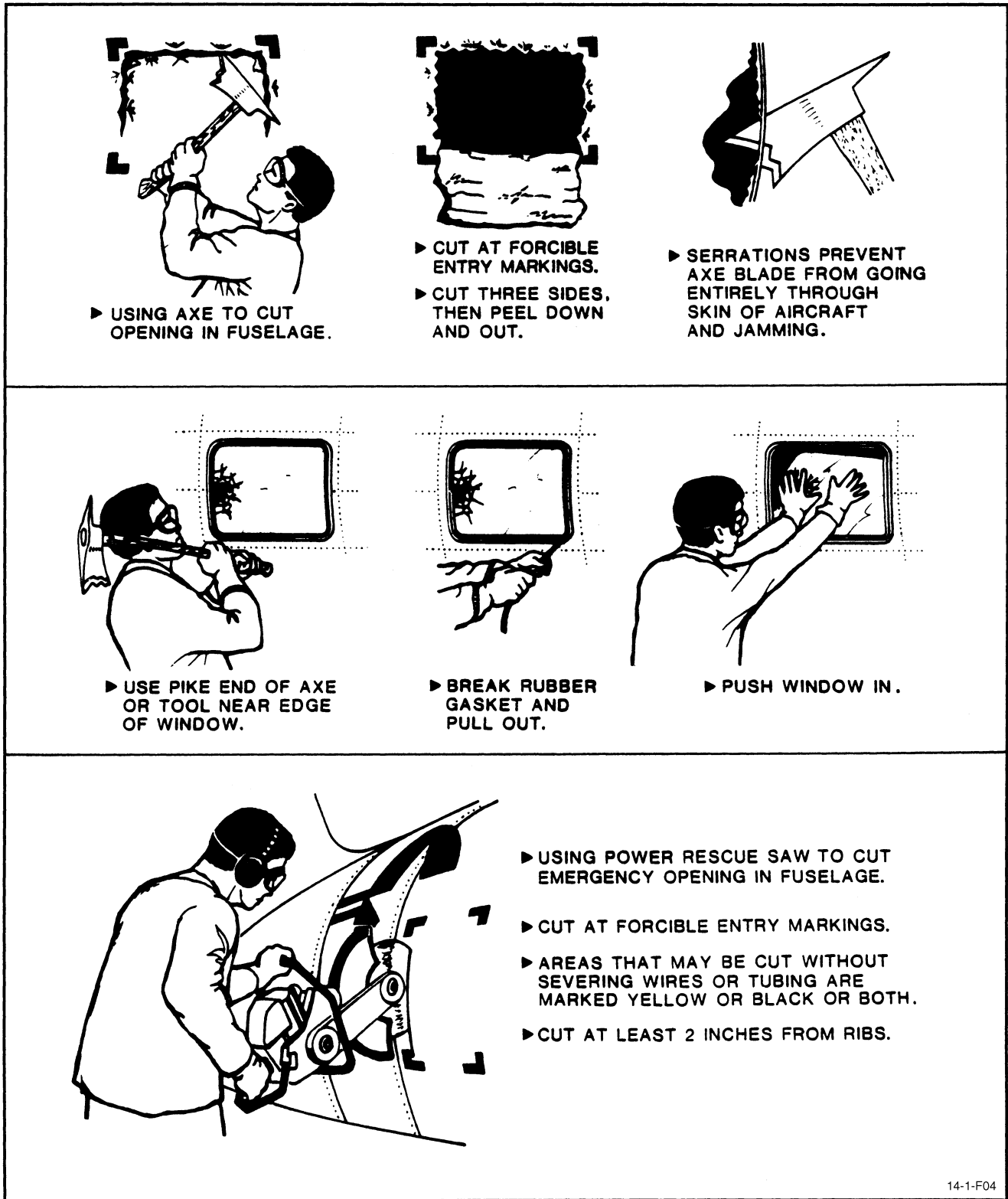


Figure 3-3. Forcible Entry Into Fuselage (Axe and Power Rescue Saw)

material, four sides must be cut. When cutting through an aircraft, particularly when utilizing the power saw, there is danger of sparks from the cutting operation igniting fuel vapors. Adequate fire prevention measures must be taken and standby protection should always be at hand.

WARNING

- Flammable vapors may be present where the portable power saw is to be used to cut away any part of the aircraft. Therefore, the immediate working area shall be covered with AFFF prior to the cutting operations.
- ARFF personnel should be familiar with forcible entry points for all aircraft as specified in the CCIDS.

3.5 AIRCREW RESCUE SEQUENCE

A standard sequence of rescue procedures is presented as a guide for rescue personnel to utilize while rescuing aircrew personnel from aircraft involved in a mishap. This sequence is based on a general concept and should be followed as such. Rescue personnel are recommended to use the following sequence when extracting aircrew personnel from aircraft involved in a mishap.

1. Safe Ejection Seat
2. Shutdown Engine
3. Removal of Face/Oxygen Mask
4. Removal of Seat Restraint Equipment.

WARNING

- Aircraft mishaps occur in a variety of ways and the order of procedures in the sequence may be modified to prevent injuries or fatalities of rescue personnel.
- If conducting a rescue, and when the situation dictates, the ejection seat should be made safe prior to the shutdown of the engines to prevent accidental firing of the ejection seat.

3.5.1 Ejection Seat Safety Information

Of utmost concern to rescue personnel is the prevention of inadvertent firing of the ejection seat(s) during rescue operation.

WARNING

All Navy and Marine Corps ejection seat aircraft with multiple crewmembers currently have a command ejection capability whereby any crewmember can initiate the ejection of all of the crewmembers. Inadvertent firing of an ejection seat during rescue operations may result in serious injury or death.

On most U.S. Air Force aircraft the seat-firing mechanism is located on the armrest. If the seat does not have a face curtain, “beware” of the armrest.

WARNING

Most U.S. Air Force aircraft utilize a handle similar in appearance to the emergency harness release handle on the seat armrest, which will fire the canopy and eject the seat.

The method to safe the ejection seat varies with the manufacturer and model modifications to the seat. All seats have ground safety features that will render the seat safe for rescue of personnel. Unless the necessary safety precautions are followed prior to removing the aircrew, clothing or feet can become entangled in the lower firing handle or armrest firing mechanism and fire the seat. Safety of the ejection seat is a simple task for those rescue personnel familiar with the safe features. Location and operation of ejection seat safety devices is covered in [Chapter 4](#), Ejection Seat Familiarization.

WARNING

When rescuing personnel from propeller-driven aircraft, rescue personnel should face in the direction of the propellers if they are still turning.

3.5.1.1 Ejection Seat Warnings

WARNING

All aircraft equipped with ejection seats require rescue personnel to safe all seats to avoid possibility of inadvertant ejection.

1. EA-6B, S-3B, and T-2C

WARNING

When removing personnel from ejection seats, rescue personnel shall exercise care to avoid entangling crewmembers or themselves in lower seat ejection handle or use face curtain handle as a support or handhold.

2. S-3

WARNING

The ejection seat has an NES-12 ballistic parachute. Do not use the harness release handle to free crewmember from seat.

3. F/A-18A/B/C/D/E/F, EA-18G and T-45A/C

WARNING

If ejection control handle is not fully seated, safety pin cannot be installed and SAFE/ARMED handle cannot be rotated to the fully locked position. An unsafe seat exists if the entire word SAFE is not visible on the SAFE/ARMED handle. If the ejection seat is not in a safe condition, initiation may occur if the ejection control handle is pulled. Proper procedures for resetting the handle must be followed.

5. AV-8B and TAV-8B

WARNING

- The ground safety control handle must be in the FULL UP and LOCKED position to positively safety the seat. The seat will remain armed with the handle in any other position.
- When removing personnel from ejection seats, rescue personnel shall exercise care to avoid entanglement of crewmembers and themselves in the seat ejection control handle.

3.5.2 Engine Shutdown

Rescue personnel must be knowledgeable of aircraft engine shutdown procedures. Engines must be shut down immediately upon gaining entry to the cockpit to preclude the possibility of personnel injury and equipment damage. Personnel should be familiar with the location of the master switches and handles used in the shutdown of each aircraft. The study of CCID information in this manual, together with organized training using actual equipment, should provide the team members with the ability to safely shut down aircraft engine(s) in emergency situations.

WARNING

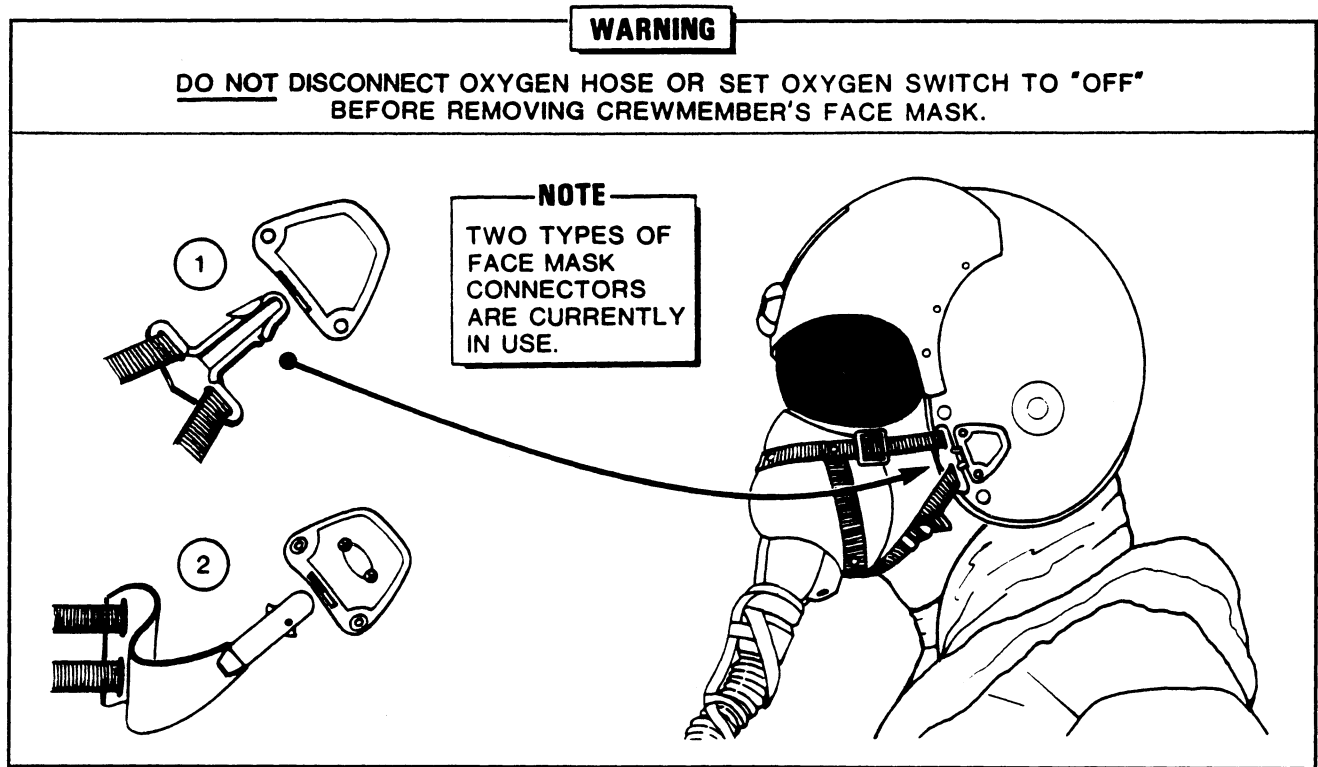
If conducting a rescue, the ejection seat shall be made safe prior to the shutdown of the engines to prevent accidental firing of the ejection seat.

3.5.3 Removal of Face/Oxygen Mask

Rescue personnel must act expeditiously during the rescue of aircrew during a ground mishap. The removal of the oxygen face masks and hoses should be accomplished as soon as the cockpit environment has been made safe during the Aircrew Rescue Sequence. (see [Figures 3-4](#) and [3-5](#)). Specific instructions on individual aircraft crewmember oxygen facilities are contained in [Appendices A](#) through [F](#) of this manual.

3.5.3.1 Special Mission Aircrew Equipment MCK-0 through MCK-5 Series Mask Aircrewman, CBR Protective Respirator and Tactical Ventilator

The above-the-neck portion of the A/P22P-9(V) protective assembly, the respirator assembly, is composed of the MCK-0 through MCK-5 series mask, the CQK-2/P tactical ventilator and the A/P375-1 intercom set.



14-1-F05

Figure 3-4. Face Mask Connectors

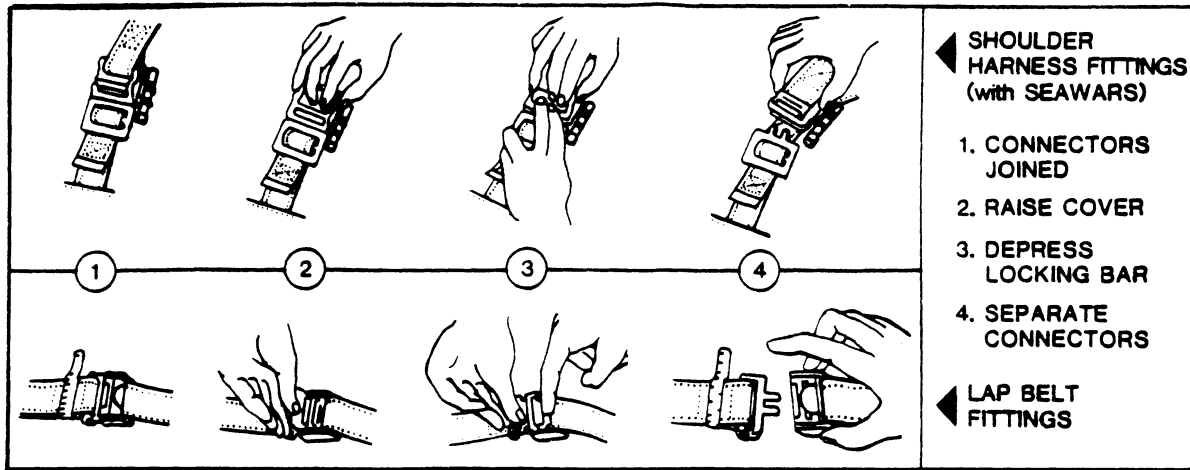
The respirator assembly is designed to provide aircrewmembers with the necessary head, eye, and respiratory protection to guard against the toxic and lethal effects of nuclear fallout and chemical and biological agents. The assembly provides physiological protection (above-the-neck) to the aircrewmembers during inflight and ground operations, and fits beneath standard-issue helmets and protective equipment with a minimum of interference.

The CQK-2/P tactical ventilator is designed for use with the MCK-0 through 5 mask and provides the aircrewmembers with a blown filtered air supply. With alternative special attachments, these devices may also be attached to the on-board oxygen system of fixed-wing aircraft.

The respirator assembly (above-the-neck portion) of the CBR protective assembly contains over 21 components. To eliminate the possibility of a crewmember suffocating from lack of oxygen because of a damaged system or other obstruction to the air passage, rescue personnel must be familiar with and act expeditiously during an aircraft ground emergency mishap, when the CBR protective assembly is utilized. As soon as aircraft crewmembers are reached, rescue personnel should immediately initiate action (as necessary) to:

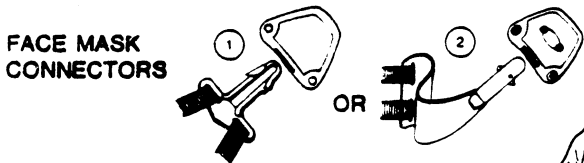
1. Remove faceplate (rip away) from MCK-mask (fixed-wing only).
2. Disconnect anti-drown connector on face piece by rotating counterclockwise shearing “shear screw” and detaching from snout face piece (all models).
3. Disconnect RIED valve on inlet air hose at the bayonet union plug or tactical ventilator air hose coupling (all models).

These three immediate action steps or other expedient methods (cutting through the hose/mask) situation dependent, will facilitate normal breathing until such time as the respirator can be removed see [Figures 3-6, 3-7, 3-8, and 3-9](#).



WARNING

DO NOT DISCONNECT OXYGEN HOSE OR SET OXYGEN SWITCH TO "OFF" BEFORE REMOVING CREWMEMBER'S FACE MASK.

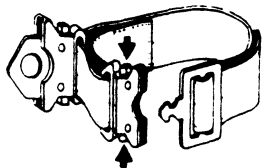


LOOSEN VISOR LOCK-NUT TO RAISE VISOR.

- NOTE -

THE ANTI-G SUIT HOSE AUTOMATICALLY RELEASES FROM CONSOLE WHEN CREWMEMBER IS LIFTED.

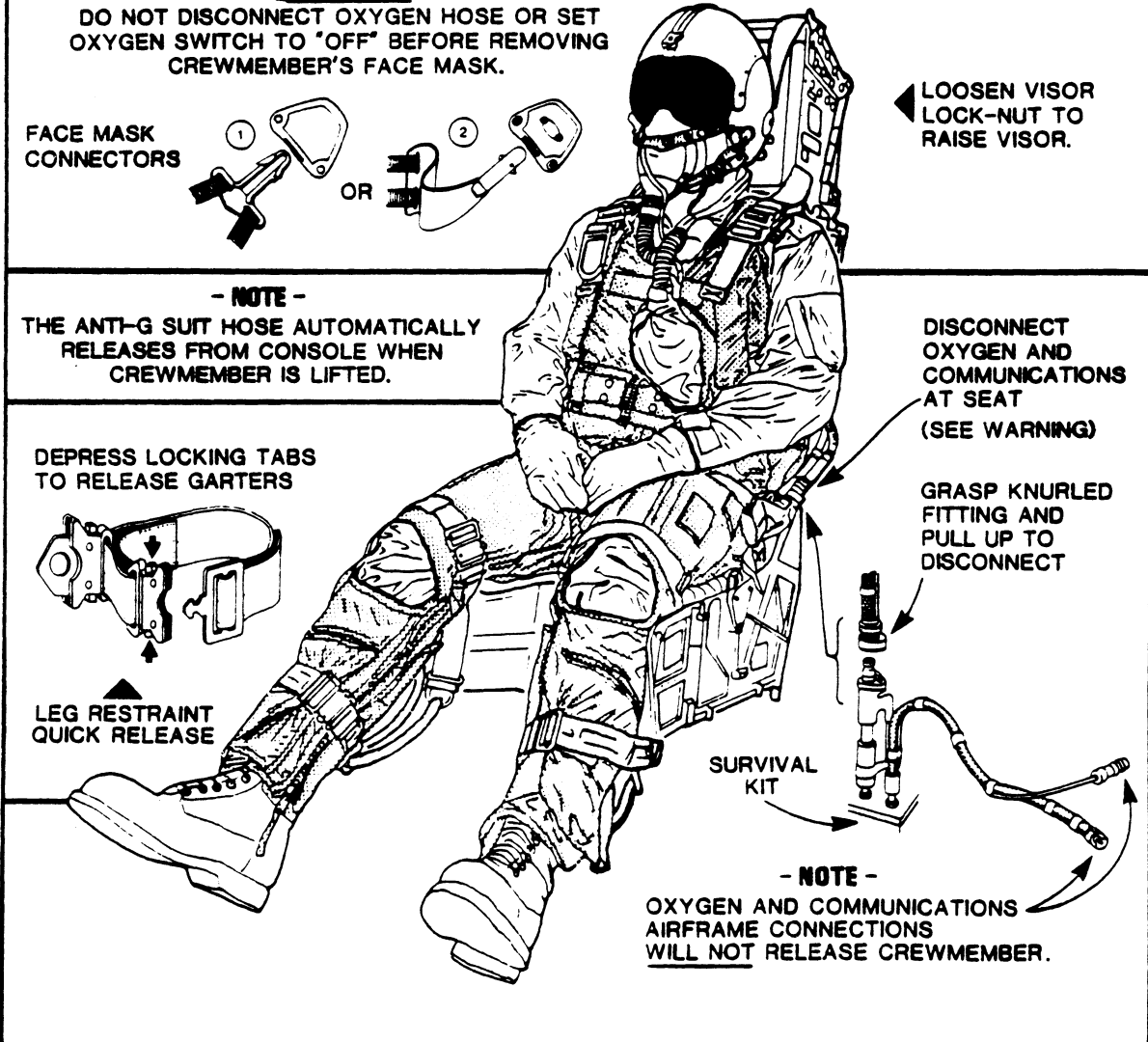
DEPRESS LOCKING TABS TO RELEASE GARTERS



LEG RESTRAINT QUICK RELEASE

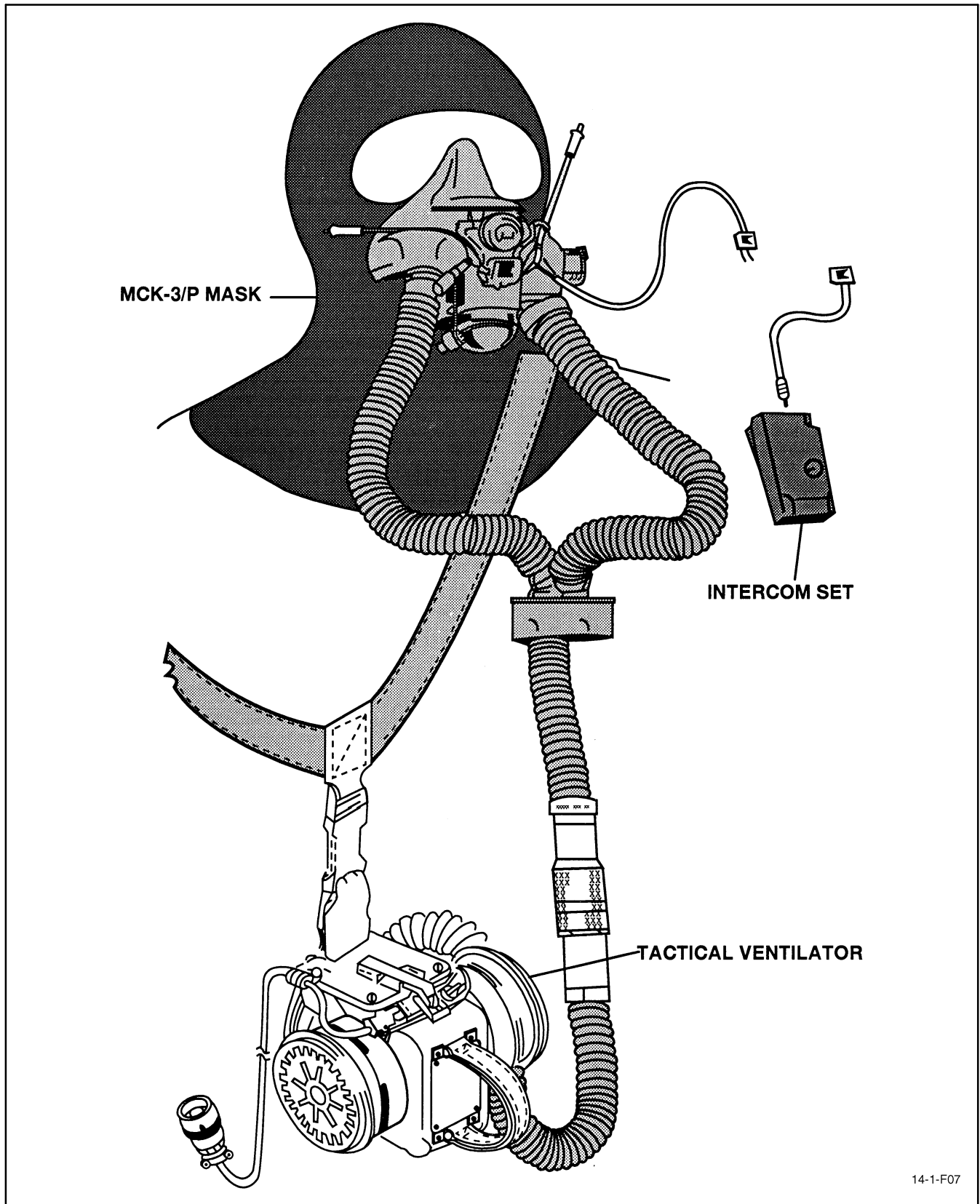
DISCONNECT OXYGEN AND COMMUNICATIONS AT SEAT (SEE WARNING)

GRASP KNURLED FITTING AND PULL UP TO DISCONNECT



14-1-F06

Figure 3-5. Crew Release



14-1-F07

Figure 3-6. Respirator Assembly (A/P 22P-9(V) Protective Assembly — Above-the-Neck-Portion)

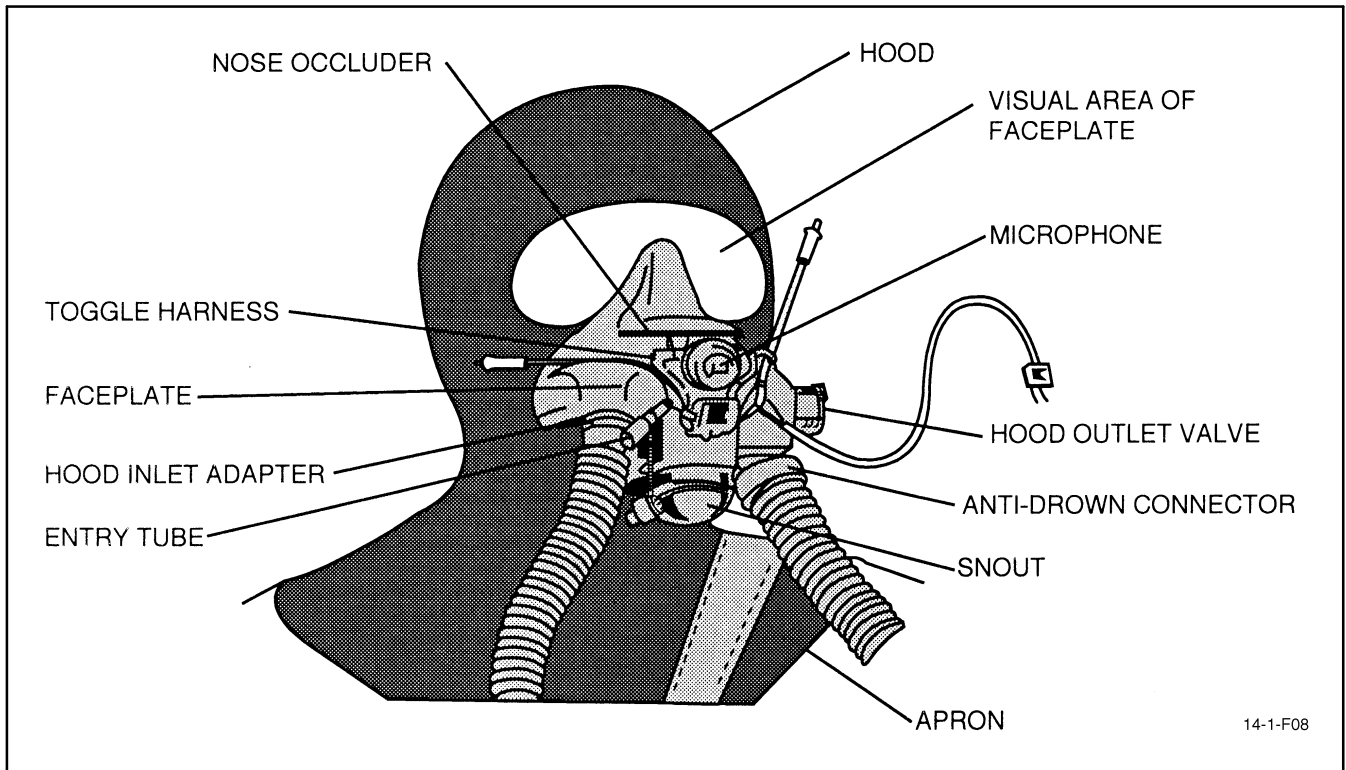


Figure 3-7. MCK-3/P Mask

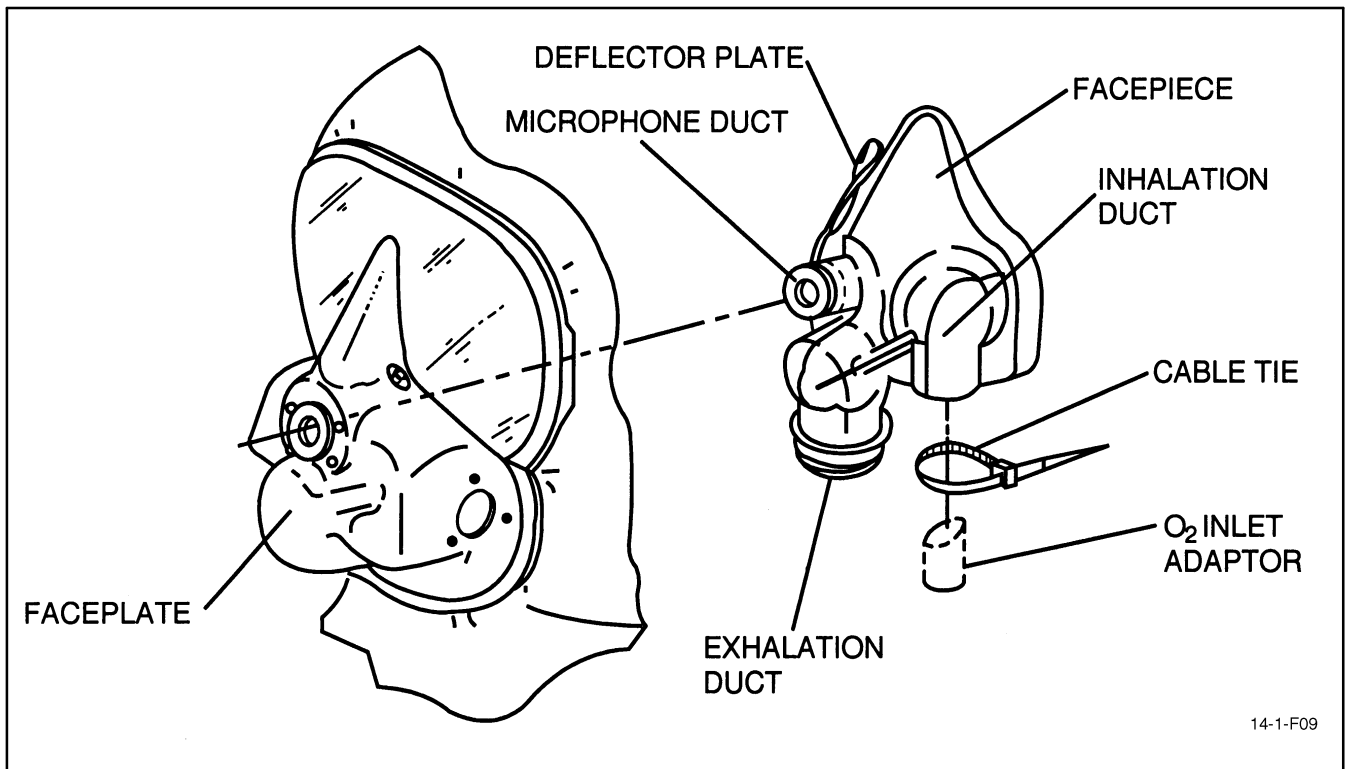


Figure 3-8. Facepiece

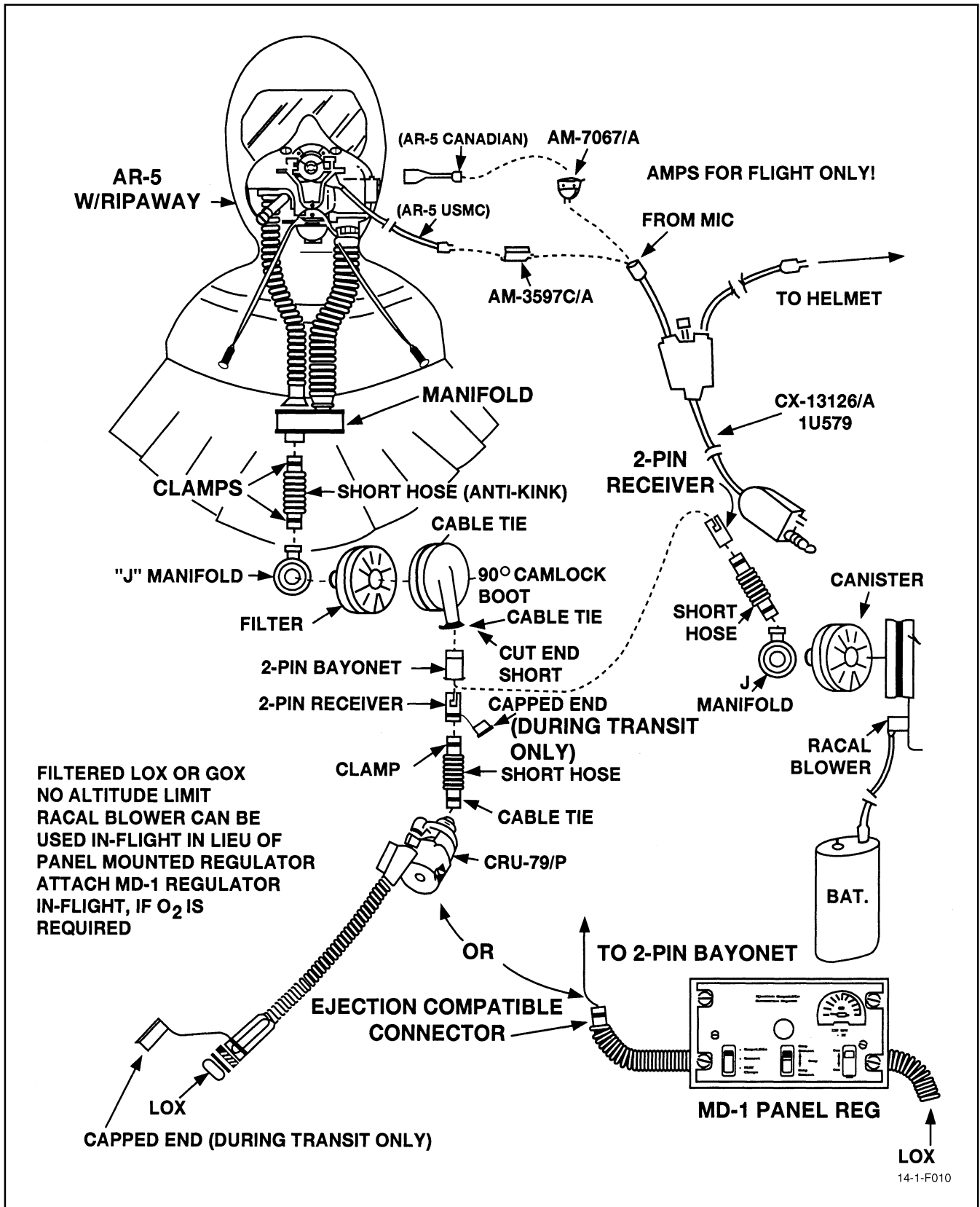


Figure 3-9. MK-2A Flight Mode

WARNING

Any rescue personnel handling suspected contaminated items shall wear protective equipment. Failure to wear proper protective clothing may result in contamination, disability, serious injury, or death.

Check aircrewman with M-8/M-9 paper for contamination prior to assuming he/she is uncontaminated, or ensure a qualified CBR technician is available to conduct decontamination procedures.

WARNING

- M-9/M-9A I detector paper dye may cause cancer. Very little is used during the inspection process, therefore the risk is small. Rescue personnel shall always wear protective gloves when exposed to detector paper. Do not use detector paper without utilizing proper personnel protection equipment.
- DS2 (Decontamination Solution Number 2) ignites spontaneously on contact with STB (supertropical bleach) and HTH (calcium hypochlorite). All of these solutions are utilized in the decontamination process as CBR decontaminates with decontamination equipment.
- **DS2** is combustible. Spraying DS2 onto heated surfaces above 168°F will cause the DS2 to ignite. The decontamination apparatus, portable DS2 1-1/2 quart ABC-MIL is a combustible liquid with a flashpoint of 160°F. This device should not be confused with a portable fire extinguisher.

3.5.4 Personnel Restraints

Seat restraints may range from a simple lap belt in transport aircraft to shoulder harnesses and lap belt system and the more sophisticated systems employed in high-performance aircraft (see [Figure 3-5](#)).

WARNING

The ejection seat is armed at all times during flight and should be considered armed until safed.

3.5.4.1 Seat Restraint Equipment

To restrain personnel in their seats, three systems are employed as follows.

3.5.4.1.1 Lap Belt

The lap belt fastens across the lap; when secured, it restrains the person in the seat.

3.5.4.1.2 Lap Belt and Shoulder Harness Combination

The lap belt and shoulder harness combination provides a lap belt and two shoulder harness straps, one over each shoulder. The shoulder harness straps fit into the lap belt securing fitting. Addition of the shoulder harness straps prevents the upper part of the body from being thrown forward in the event of a crash. To release lap belt and shoulder harness straps, pull harness release handle upward. The lap belt and shoulder harness straps will be released.

3.5.4.1.3 Integrated Torso Harness

The standard military parachute harness can be removed by releasing three ejector release fittings. One fitting snaps across the chest of the wearer, and one snaps across each leg at the thigh. When leg and chest straps are unhooked, the harness and all attached gear can be slipped off the shoulder of the wearer (see [Figure 3-5](#)). Koch release fittings are used in the integrated torso harness systems (see [Figure 3-10](#)).

3.5.4.2 Torso Harness Suit and Torso Harness

The integrated torso harness is designed for use in military aircraft with integrated parachute and restraint harness systems. In comparison with the standard restraint (“lap belt and shoulder harness”) and the parachute harness system, the integrated system improves comfort, mobility, and retention, provides better donning and removal features, and reduces the number of fittings used to release the parachute and accomplish seat separation (see [Figures 3-5](#) and [3-11](#)).

3.5.4.3 Personal Services Connections

Depending on the aircraft manufacturer, the personal services connections will vary in type, method of disconnect, and location of connections. Personal services connections must be included in all aircraft familiarization training programs as these services must be disconnected prior to removal of crewmembers from their seats. These connections include the oxygen, supply hose and communications leads (see [Figure 3-5](#)).

3.5.4.4 Leg Retention Devices

Leg retention devices are incorporated on some types of ejection seats. These devices prevent removal of personnel in rescue operations unless the retention devices are released. The leg restraint devices may be released by manually actuating the leg restraint release lever, manually releasing the fittings on the straps, or cutting the leg restraining straps (see [Figure 3-12](#)).

3.5.4.5 Emergency Harness Release

On aircraft utilizing certain types of ejection seats, an emergency harness release system is incorporated in the seat to release the crewmember from his seat. The emergency release handle is generally located on the right side of the seat. By pulling this handle, most devices employed to restrain the crewmember in the seat are released. Although the manual actuation of the emergency harness release system frees the crewmember from the seat, he will still be wearing his parachute and survival kit. The parachute and survival kit weight is between 30 and 65 pounds, which adds to the difficulty of personnel rescue.

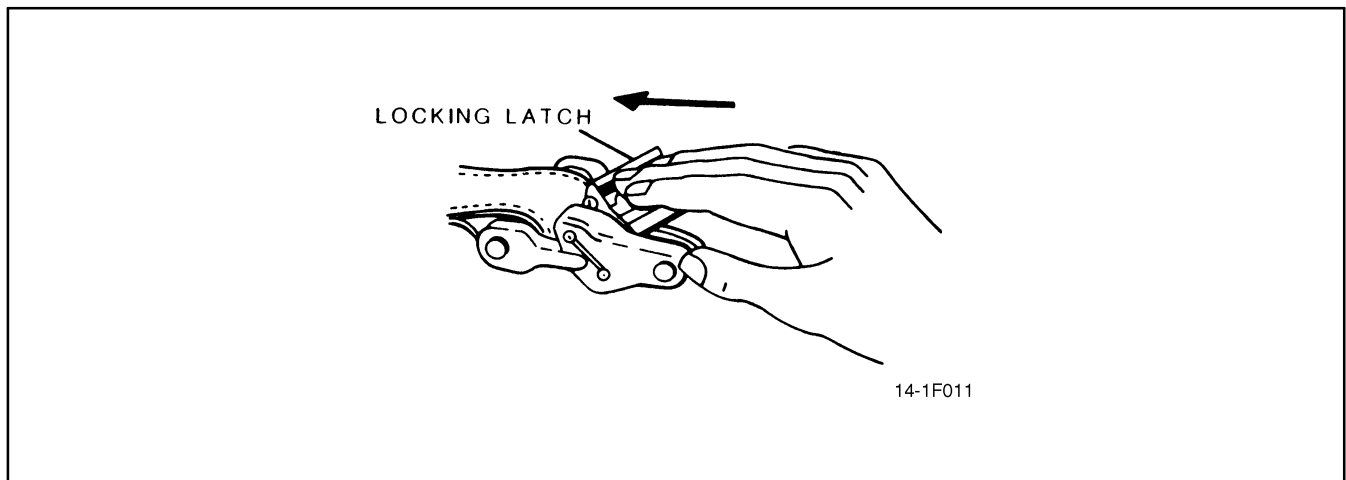


Figure 3-10. Koch Release Fitting

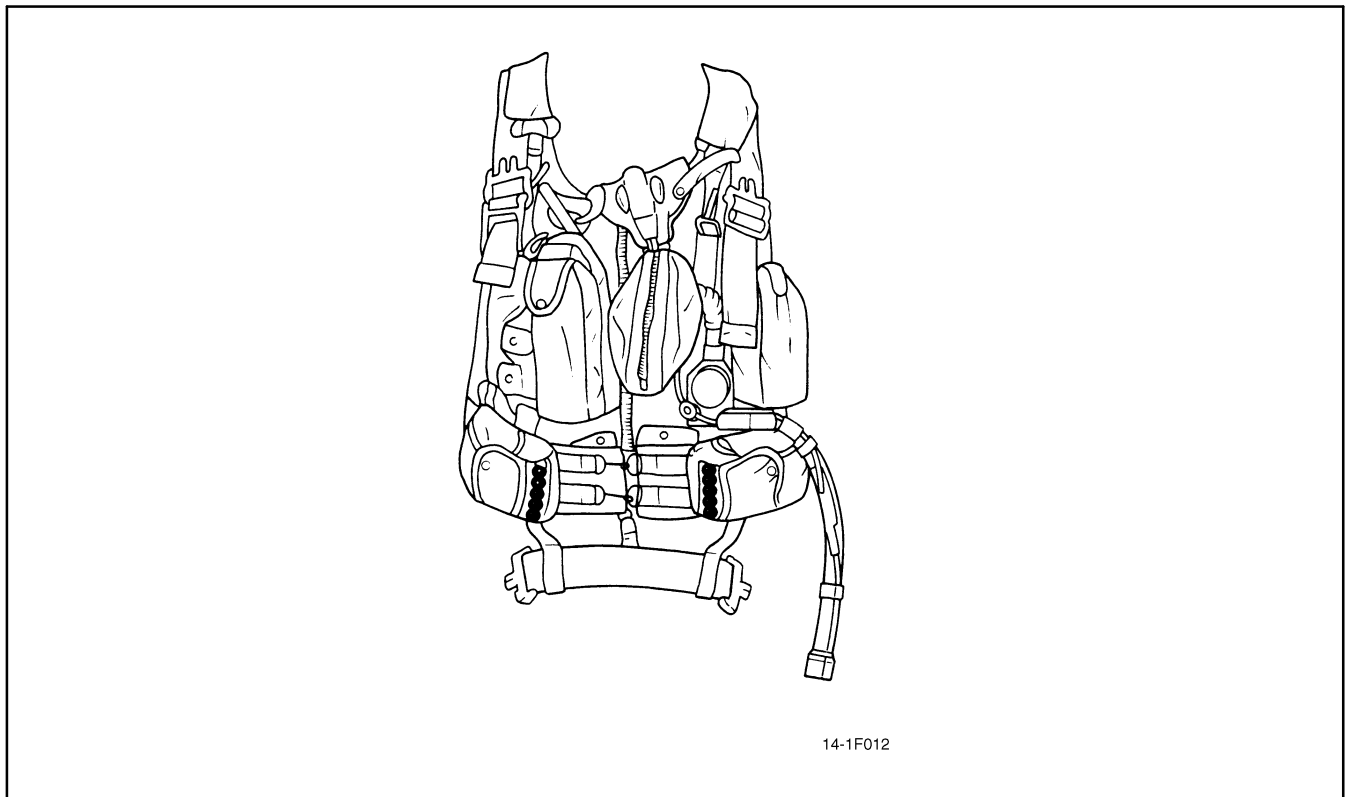


Figure 3-11. Torso Harness

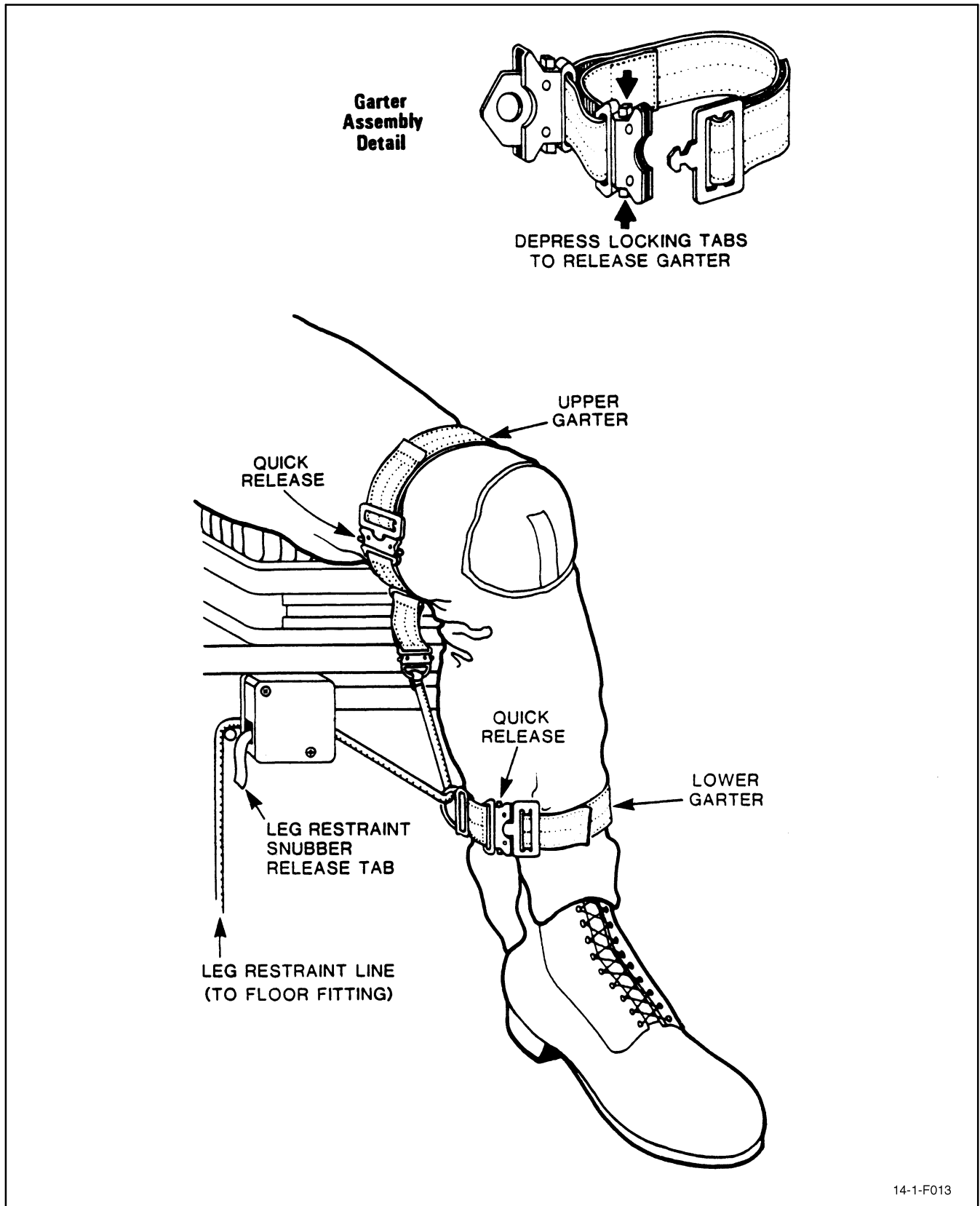
WARNING

ARFF personnel must be thoroughly familiar with aircraft incorporating the emergency harness release system. Some aircraft utilize a handle similar in appearance to the emergency harness release handle on the seat armrest, which will fire the canopy and eject the seat.

Specific instructions for each aircraft on the release of personnel from seat restraint devices are contained in [Appendices A](#) through [G](#) of this manual.

Note

- The fastest method of releasing the crew restraints is to release the fittings, NOT cut the straps.
- Once all restraints have been released, the crewmen may then be removed from the aircraft.
- If there is no fire or it appears there is no danger of a fire, DO NOT move injured crewmen until medical personnel have arrived on the scene to direct removal operations.



14-1-F013

Figure 3-12. Leg Restraint System

Note

When removing crewmember(s) from ejection seat(s), the lower Koch fitting and leg restraints shall be undone prior to the upper Koch fittings to prevent an unconscious person from falling forward.

3.5.4.6 Automatic Sea Water Actuated Release System (SEAWARS) Release Fitting

The **SEAWARS** is a device that may be attached to the standard Koch fitting (see **Figure 3-13**). When the crewmember is submerged in saltwater, the SEAWARS will automatically release the parachute risers from the Koch fittings. The SEAWARS has no effect on the manual release of the fitting.

3.5.4.7 Universal Water Activated Release System (UWARS)

The UWARS is a battery operated, seawater activated electro-explosive device that automatically releases the parachute risers from the crew backpack assembly harness upon immersion in seawater (see **Figure 3-14**). The UWARS has no effect on releasing the crewmember(s) from the seat restraint system.

Note

Attachments are provided for the remaining recommendations. All recommendations are shown in red print.

3.6 SAFETY

The following are general safety considerations that are not related to any specific procedures and therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during many phases of emergency rescue operations.

3.6.1 Fire Hazards

Extreme caution must be exercised if the crash site is contaminated by fuel, lubrication, or hydraulic oil. Most aircraft contain either gaseous or liquid oxygen that acts as an accelerating agent to fire. Aircraft batteries shall be disconnected as soon as practical to reduce the possibility of electrical ignition. Cutting tools or other heat-generating equipment must be used with caution.

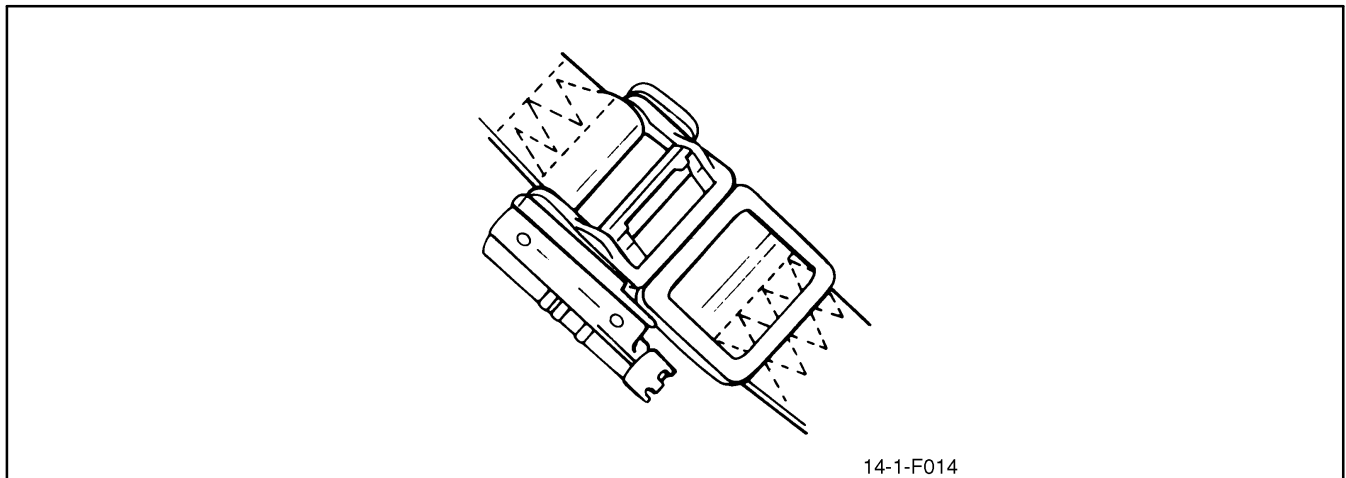


Figure 3-13. SEAWARS Release Fitting

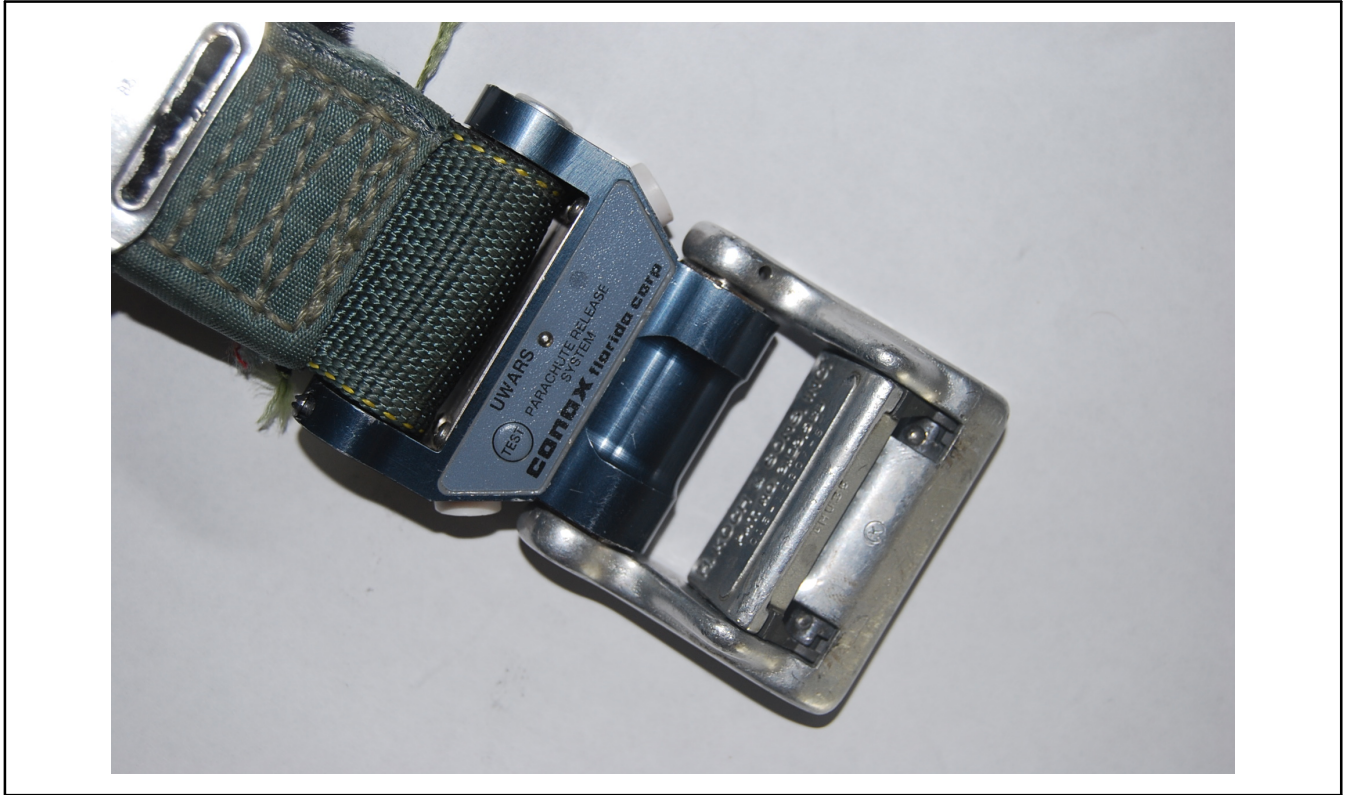


Figure 3-14. UWARS Release Fitting

3.6.2 Electronic Radiation Hazards

Precautions must be taken when handling equipment capable of causing radiation. Some avionics equipment and components may remain charged after engine shutdown or radiate upon application of external power.

3.6.3 Toxic Hazards

Some synthetic oils and onboard fire extinguishing agents are toxic in varying degrees. Fumes and residue from some burnt substances may also be toxic. Protective clothing and breathing apparatus shall be worn or available as required.

3.6.4 Miscellaneous Hazards

Some additional hazards that may be encountered are battery acid, compressed gases (accumulators, shock struts, tires, pneumatic systems), and torn metal. Industrial areas can present additional hazards of materials, which can be flammable, toxic, corrosive, or explosive in any combination.

3.6.5 CCID Warnings Summary

The following warnings, which appear in the various CCIDs in this manual, are collected here in order to emphasize their importance.

3.6.5.1 Aircraft Warnings

1. AV-8 series

WARNING

- In the event of a “wheels-up” landing, secure all electrical power to ensure armament system safety.
- Touching the hot reaction control ducts in the nose, tail, and wing tips immediately after a vertical landing can result in a burn injury.
- The fracturing system (pyrotechnic) should not be used if flammable liquids or fumes are present in area.
- Particles from a blown canopy may exceed 3 square inches and cover a blast area of approximately 25 feet.

2. F-5 series and T-38 series

WARNING

- In the event of a “wheels-up” landing, secure all electrical power to ensure armament system safety.
- DO NOT jettison canopy if residual fuel is around cockpit area; fire or explosion may result.
- To avoid canopy jettison in F-5F aircraft, both cockpit canopy jettison handles must be safed.

3. F/A-18 series and EA-18G

WARNING

- In the event of a “wheels-up” landing, secure all electrical power to ensure armament system safety.
- If the aircraft has crashed or is burning or damaged and the **DFIRS** has not deployed, the heat or mechanical damage may cause the **FLSC** on F/A-18A/B/C/D door #63L or F/A-18E/F and EA-18G door #300 to detonate without warning, propelling the 7-pound door upward at approximately 50 feet per second.
- After flight, before personnel can safely touch the windshield and canopy, high voltage static charge build up must be discharged by using anti-static gloves.

WARNING

- If fuel or other flammable fluids are present, it is not advisable to jettison canopy because rocket motors, when fired, can ignite these fluids.
- Canopy may be jettisoned from either side of aircraft. OPEN door 5L or 5R and REMOVE handle. Move away from aircraft the full length of canopy jettison cable and YANK HARD. Canopy will impact approximately 30 feet behind aircraft.
- During flight of the F-18 aircraft, a high voltage (100,000 volts) static electrical charge may build up and be stored in the windshield and canopy. After flight, static charge buildup must be discharged using anti-static gloves (part number SG-200-93-Y-F150), before personnel can safely touch the windshield and canopy.
- Canopy has dual rocket motors mounted on canopy frame. With canopy open, rescue personnel may be seriously injured if rocket motors are ignited.
- Puddling of fuel under aircraft indicates presence of residual fuel in engine bay. With APU running, this can cause fire/ explosion. Ensure APU shut down prior to crewmember rescue.
- If APU is inoperative, a huffer and electric power are required for engine(s)shutdown in case of tailpipe fire.

4. E-2C series

WARNING

- Radar radiation may cause steel wool to be set afire or metallic chips to produce sparks, which in turn may ignite spilled oils or fuels around aircraft and buildings.
- Unauthorized radar transmissions aboard ship are prohibited.
- Touching the antenna or the airframe while the ARQ-34 HF trailing wire is transmitting may result in an electrical shock.
- Clearance between door, propeller, and forward edge of door is minimal and extremely dangerous. The cabin may be pressurized.

5. P-3 series

WARNING

- In the event of a “wheels-up” landing, secure all electrical power to ensure armament system safety.
- Since the nose and tail radar antennas each rotate 360°, the radar beams may extend beyond the 180° areas shown. Safe distances for these areas have not been determined.

6. S-3

WARNING

- In the event of a “wheels-up” landing, secure all electrical power to ensure armament system safety.
- Canopy fragments from shattering canopies can cause serious injuries to rescue personnel.
- Jettisoning canopies with fuel or fuel fumes in cockpit areas may result in fire or explosion.
- DO NOT use crew door if No. 2 engine is operating above idle speed without engine screens installed.
- Failure to release lock-release button at approximately 15° of door exterior handle rotation may cause personnel access door to blow down if crew compartment has not depressurized.
- Inadvertent ejection of seat in command-eject mode (either pilot or copilot/**COTAC** seat) will eject all four seats regardless of the position of their individual ejection seat safety levers.

7. E-6 series

WARNING

If the FORWARD or AFT doors to the main decks on the port side of the aircraft are opened from the outside, escape slides will deploy if they have not been disconnected from the inside.

8. C-9

WARNING

- Exercise caution when releasing tail cone. Tail cone free falls when released from aircraft.
- Exercise extreme caution prior to forcible entry into any compartment to ensure passenger safety.

9. C-130 series

WARNING

- Emergency exit door (starboard side of fuselage) will fall into aircraft upon release. Personnel inside of aircraft should stand clear of door before door is released.
- Glass fragments created when chopping or cutting windshields in the cockpit area may cause severe injuries to those in the cockpit.
- Stand clear of door when operating handle to prevent injury should door fall free.

10. C-20

WARNING

- Emergency exit door (starboard side of fuselage) will fall into aircraft upon release. Personnel inside of aircraft should stand clear of door before door is released.
- Glass fragments created when chopping or cutting windshields in the cockpit area may cause severe injuries to those in the cockpit.

11. C-26

WARNING

- Methyl Alcohol (Methanol) is a violent poison and can not be made nonpoisonous. In case of accidental contact, flush with water immediately.
- Methanol vapors are toxic and extremely flammable. Do not generate sparks or expose Methanol to open flame.
- Due to the proximity of the propeller, do not use the main entry door as an emergency exit if the port engine is still running since personnel can easily walk into the propeller arc.

12. T-2

WARNING

DO NOT actuate the external electrical canopy switch for emergency entrance to cockpit. Use of electrical power can ignite fuel or other flammable material in a damaged aircraft.

13. T-39

WARNING

Port and starboard emergency exits lie within the danger area for the engine intake suction.

14. T-45

WARNING

- The canopy should not be jettisoned if flammable liquids or fumes are present in area since the canopy jettison pyrotechnic (MDC) may ignite the fuel or cause an explosion.
- Particles from a blown canopy may exceed 3 square inches and cover a blast area of approximately 25 feet.
- Do not cut into canopy SDMC initiator assembly/cover on the starboard side of canopy. This could detonate the canopy fracturing pyrotechnics.
- With safety pins installed, canopy initiators can still be ignited by stepping on or leaning on the Initiator Assembly or cover.

15. AH-1 series

WARNING

- DO NOT shatter canopies with fuel in cockpit area. Fire or explosion may result. Ensure personnel are clear of cockpit area before utilizing jettison system.
- Personnel within 50 feet of aircraft could be injured by debris when the canopy jettison system is used.

16. UH-1 series

WARNING

The main rotor blades may flap as low as 5 feet from the ground when rotors are turning on deck.

17. H-53 series

WARNING

Contact with any hovering H-53 may result in injury or death of ground personnel. The H-53 generates an extreme static electrical charge while in flight; prior to physical contact with any part of a hovering helicopter, the helicopter shall be properly grounded.

18. H-60 series

WARNING

Tips of the main rotor blades may drop as low as 4 feet from ground when main rotor is turning or if not secured during high winds.

19. MV-22B

WARNING

- After landing, engine exhaust is deflected 45° away (outboard) from the aircraft.
- Flying debris could injure personnel positioned within 50 feet of the jettisoned windows/hatches.
- Activation of the cabin window and cabin escape hatch jettison system when fuel and/or vapors are present may result in a fire.
- Cockpit side windows shall be jettisoned one at a time. Failure to comply may result in personnel injury or death to aircrew.
- The high sound levels that occur when the explosive escape system hatches are jettisoned can damage hearing if hearing protection is not worn.
- Do not approach aircraft until it has been shutdown and rotors have come to a complete stop.

3.7 SUMMARY

Rescue techniques are well defined, but no two situations will be identical. Success will depend on training, planning, leadership, and teamwork. Rescue personnel should take advantage of every opportunity to conduct procedural drills and acquire knowledge of aircraft systems, fuel and weapon load, personnel capacity, and rescue procedures specified within this manual.

CHAPTER 4

Ejection Seat Familiarization

4.1 GENERAL

Ejection seats are presently manufactured by a number of companies in the United States and abroad. Each of these companies have designed and developed ejection seats to meet the requirements of a variety of aircraft configurations and military requirements. Therefore, each manufacturer has numerous models of their ejection seats incorporated into the system. Through necessity, this section will remain general and explain only the major differences of the manufacturer models. Rescue personnel are encouraged to become familiar with the safing procedures for the basic models as well as those ejection seats normally encountered at their station.

4.2 SCOPE AND PURPOSE

The most noticeable difference in the various ejection seats is in the locations and methods of safing seats. Some seats require only one step to render the seat safe, while others may require several steps to ensure that the seat is safe for removal of disabled crewmembers.

The study of ejection seat CCIDs contained in this section and frequent procedural drills using actual equipment will ensure that rescue personnel are proficient in the safing of ejection seats.

4.3 EJECTION SEAT SYSTEMS

Safing procedures for the ejection seat systems are outlined in the ejection seat CCIDs. Ejection seat systems discussed in this section are listed in [Figure 4-1](#).

4.4 TRAINING

A comprehensive training program is required to maintain the proficiency and experience level of rescue personnel. As ejection seat development continues, changes in design as well as modifications to existing seats require a continuous training program that will accurately reflect the dangers and safing procedures for each seat. The program should be revised and updated on a continuing basis to reflect new ejection seat design as well as modifications to existing seats. Instructions must be designed to provide the trainee with accurate knowledge and hands-on practical application to perform ejection seat safing and the extraction of disabled crewmembers.

4.4.1 Training Procedures

Training programs should include but are not limited to:

1. Aircraft familiarization
2. Crash crew information diagrams (CCIDs)
3. Maintenance instruction manuals (MIMs)
4. Air Force technical orders (TOs)
5. Aircraft familiarization training films.

AIRCRAFT	SEAT MANUFACTURER AND DESIGNATION	SPECIFIC SEAT LOCATIONS
AV-8B/TAV-8B	Stencel SJU-4A, -13A, -14A	AV-8B — SJU-4A TAV-8B F/S — SJU-13A TAV-8B R/S — SJU-14A
F-5E/F/N	Northrup Rocket Seat	
F-16N	ACES II	
F/A-18A/B/C/D Buno 164068 and prior	Martin-Baker SJU-5/A, -6/A	F/A-18A/B/C/D — F/S — SJU-5/A F/A-18B/D — R/S — SJU-6/A
F/A-18C/D/E/F Buno 164196 and up	Martin-Baker SJU-17(V) series	F/A-18C/D/E/F — SJU-17(V) series
EA-18G	Martin-Baker SJU-17(V) series	EA-18G F/S — SJU-17(V) series
EA-6B	Martin-Baker MK GRUEA-7	
S-3B	ESCAPAC 1E-1	
T-2C	North American LS-1A	
T-38A/C	Northrup Rocket Seat	
T-45A/C	SJU-17(V) series	SJU-17(V) series
T-6A	Martin-Baker MK 16 USLA	
Notes: F/S — Front seat (or only seat) R/S — Rear Seat		

Figure 4-1. Ejection Seat Systems

4.5 SEAT SAFETYING/SAFING

Rescue personnel must become familiar with the variations in ejection seat safing procedures to enable safe, expedient removal of disabled crewmembers. Detailed instructions on seat safing for the various ejection seats are provided in the ejection seat CCIDs.

WARNING

- When rescue personnel are engaged in rescue operations, extreme caution must be observed to prevent inadvertent firing of the ejection seat. Firing of the seat could be fatal for crewmembers and personnel.
- During ejection seat training, all actions shall be simulated and no personnel shall remove safety pins for any reason.

Note

Ejection seat safing actions discussed in this manual are for emergency rescue of disabled personnel only and not for normal ground maintenance.

4.6 CREW EXTRACTION

In order to accomplish rescue of personnel involved in an aircraft incident, they must be removed from the seats. The material contained in this manual describes only the procedures for detaching all of the restraints, communication, and oxygen fittings from the crewmember or passenger. The physical extraction of personnel is not described.

MARTIN-BAKER GRUEA-7 EJECTION SEAT

1. GENERAL EJECTION SEAT INFORMATION

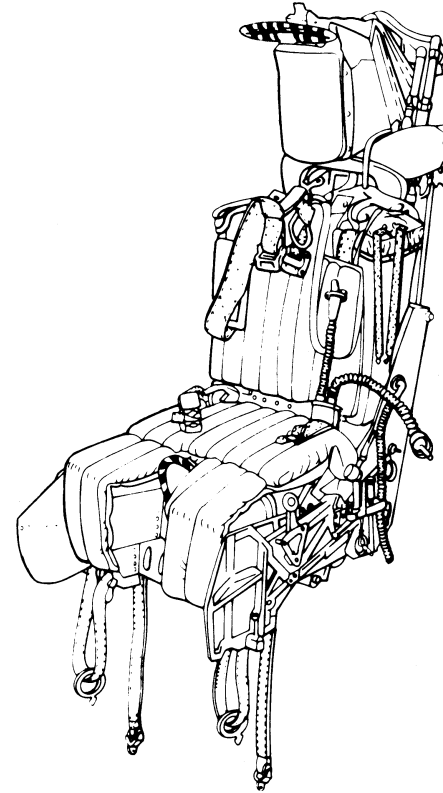
The MARTIN-BAKER GRUEA-7 is a rocket assisted ejection seat that provides support and necessary environmental equipment for crew- members during flight, and a means of fast, safe escape during emergency flight conditions. The seat assembly incorporates features permitting seat ejection at ground level, at zero airspeed as well as during emergency flight conditions.

The basic structure of the seat consists of a main beam assembly, built to withstand high Gloads, support all of the components, and form the main framework for the seat.

The basic components of the seat assembly include a catapult, gas powered inertia reel, rocket motor, seat bucket assembly, drogue gun, parachute, guillotine, and survival equipment.

This ejection seat presents definite hazards which may cause fatal injuries to uninformed and careless personnel. Firefighting/rescue personnel must become thoroughly familiar with the locations and the safetying of the seat components in both normal and emergency conditions.

MARTIN-BAKER GRUEA-7 EJECTION SEAT



EA-6B

14-1-F015

NAVAIR 00-80R-14-1

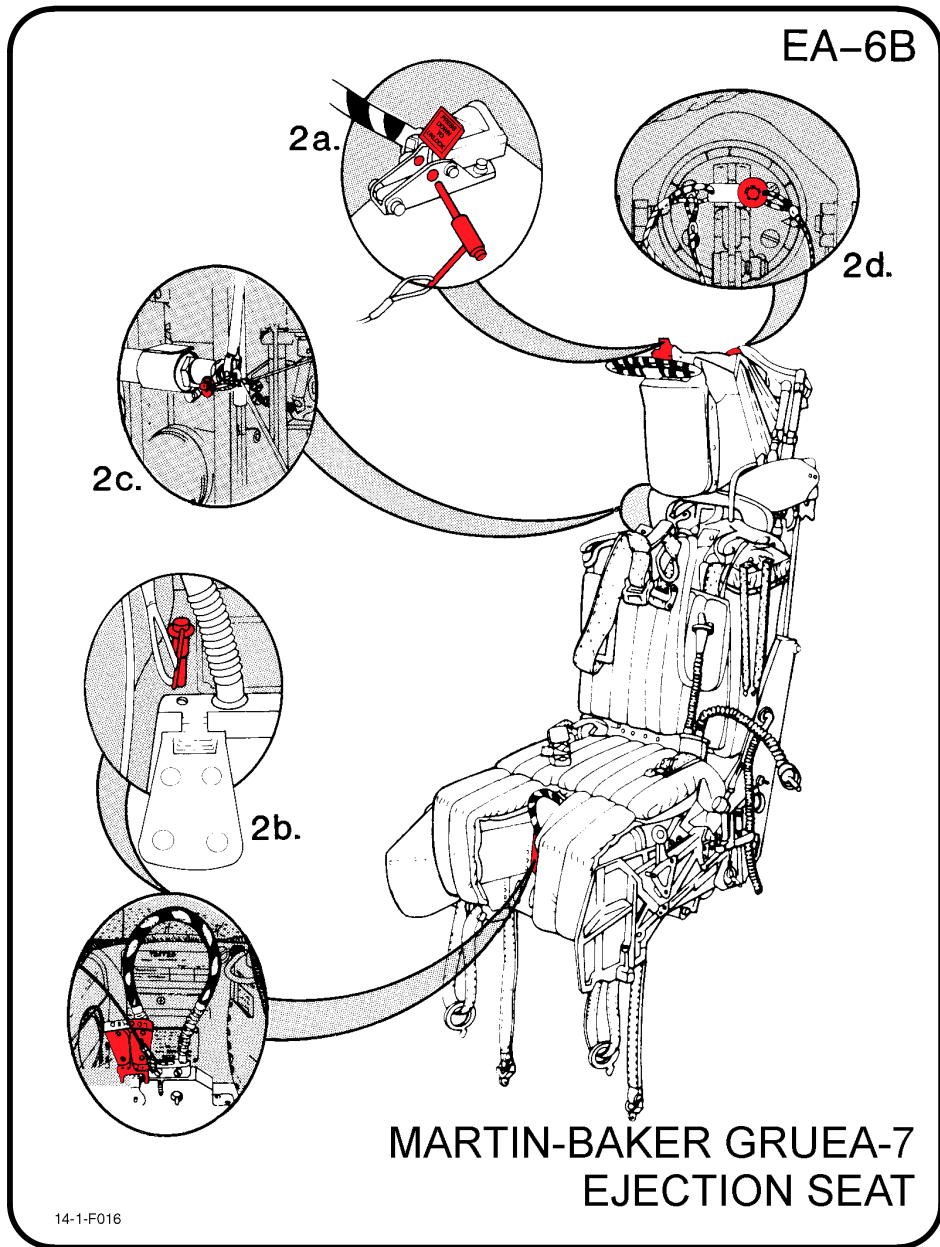
Figure 4-2. Martin-Baker GRUEA-7 Ejection Seat (Sheet 1 of 4)

Figure 4-2. Martin-Baker GRUEA-7 Ejection Seat (Sheet 2)

2. EJECTION SEAT SAFETYING (NORMAL)

Immediately upon gaining access to the aircraft cockpit, if time permits and no hazardous conditions exist, proceed with normal seat safetying procedures. For normal seat safetying:

- a. PLACE Safety Flag in the UP/LOCKED position and INSERT safety pin.
- b. ROTATE Alternate Firing Handle Lock to the UP/LOCKED (vertical) position and INSERT safety pin.
- c. INSERT safety pin into Sequence Gas Generators (RH side of Pilot seat and ECMOI seat).
- d. INSERT Ejection Gun Safety pin into Firing Mechanism.



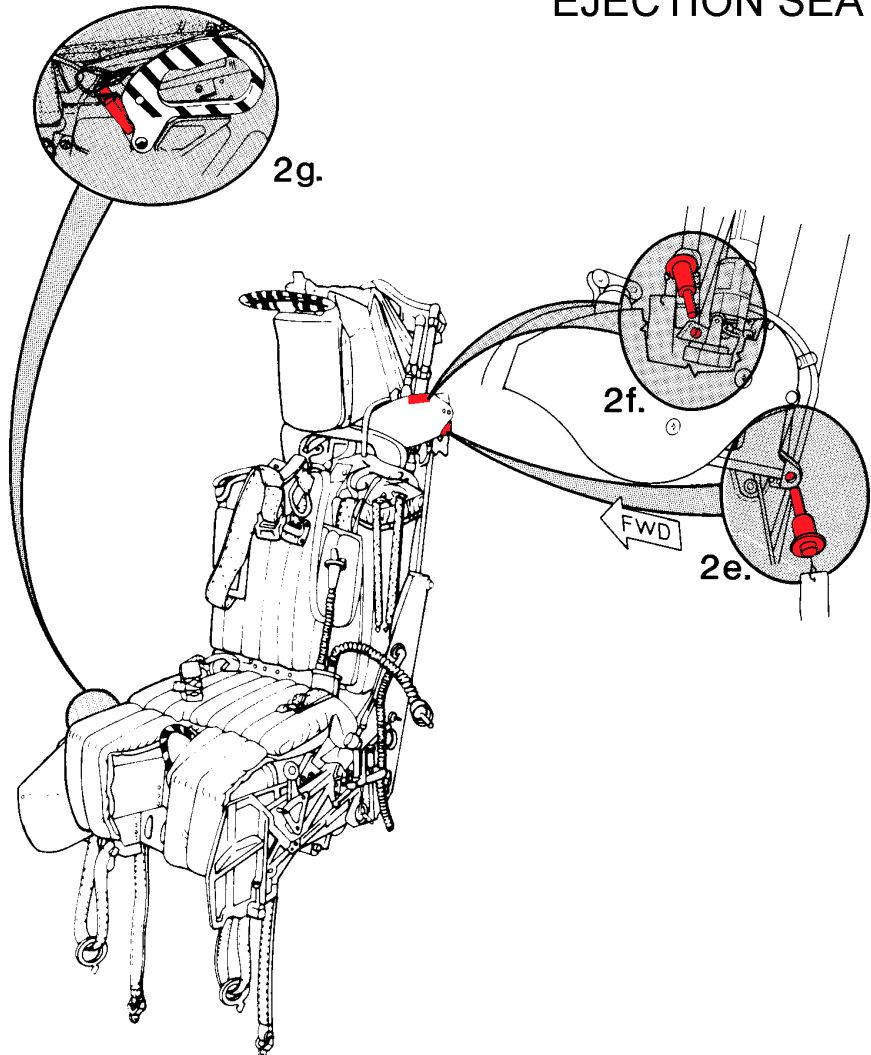
2. EJECTION SEAT SAFETYING (NORMAL-CONT.)

- e. INSERT safety pin into Drogue Gun Sear.
- f. INSERT safety pin into Rocket Motor Initiator Firing Mechanism.
- g. After removing crewmember, INSERT Lock Assembly into Emergency Restraint Release Handle.

WARNING

- In EA-6B aircraft, both front cockpit ejection seats must be safed first because of command ejection possibility.
- When removing personnel from ejection seats, rescue personnel shall exercise care to avoid entangling crewmembers or themselves in over seat ejection handle or use face curtain handle as a support or handhold.

MARTIN-BAKER GRUEA-7 EJECTION SEAT



14-1-F017

EA-6B

NAVAIR 00-80R-14-1

Figure 4-2. Martin-Baker GRUEA-7 Ejection Seat (Sheet 3)

Figure 4-2. Martin-Baker GRUEA-7 Ejection Seat (Sheet 4)

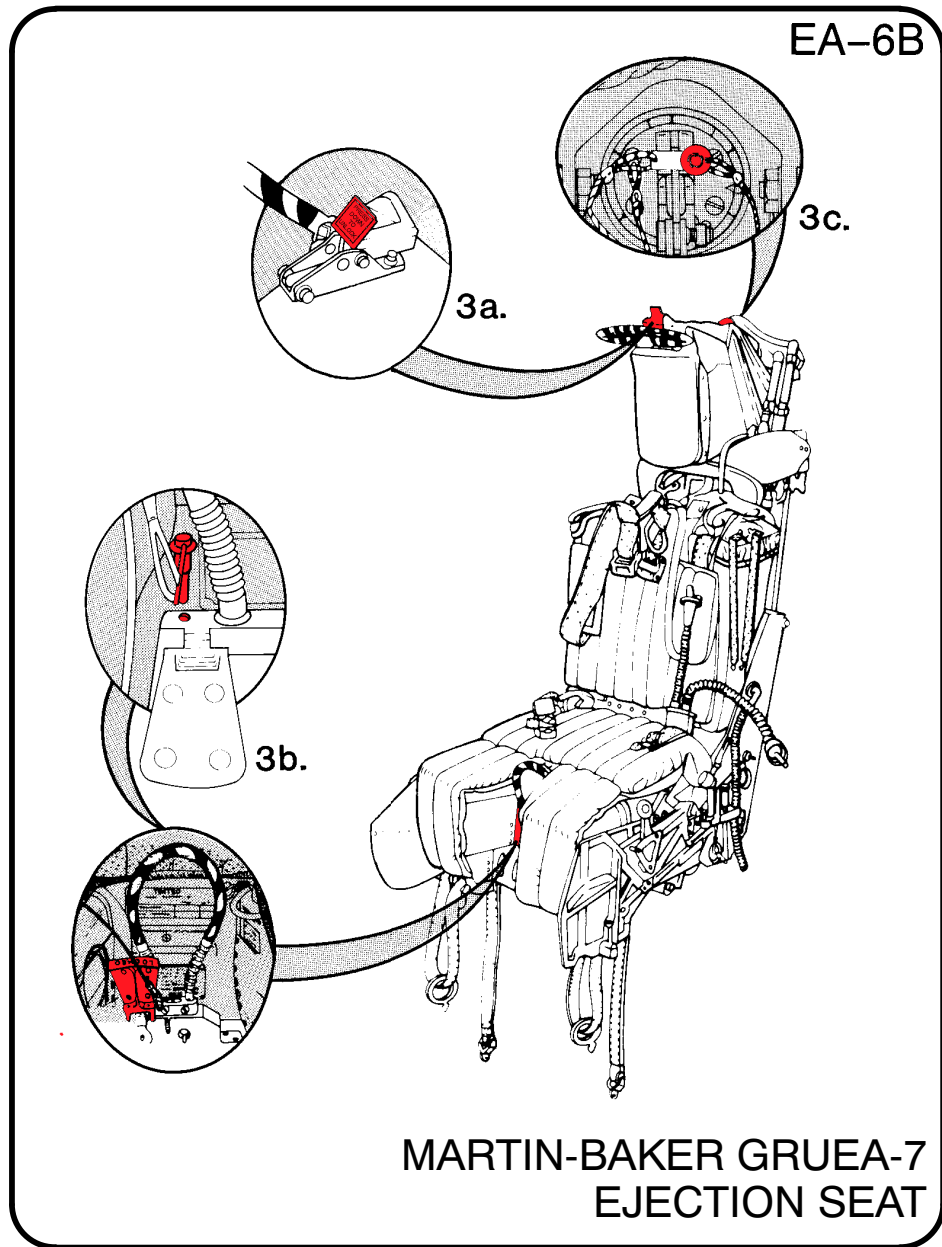
3. EJECTION SEAT SAFETYING (EMERGENCY)

The MARTIN-BAKER GRUEA-7 ejection seat presents special hazards to rescue personnel. Safetying the entire seat under emergency conditions may not be feasible. To temporarily render seat safe for the removal of disabled crewmembers:

- a. PLACE Face Curtain Safety Flag in UP/LOCKED position.
- b. ROTATE Alternate Firing Handle Lock to the UP/LOCKED (vertical) position and INSERT Lower Ejection Handle safety pin.
- c. INSERT safety pin into Ejection Gun Sear.

WARNING

- All aircraft equipped with ejection seats require rescue personnel to safe all seats to avoid possibility of inadvertant ejection.
- When removing personnel from ejection seats, rescue personnel shall exercise care to avoid entangling crewmembers or themselves in ower seat ejection handle or use face curtain handle as a support or handhold.



MARTIN-BAKER SJU-5/A, 6/A EJECTION SEAT

1. GENERAL EJECTION SEAT INFORMATION

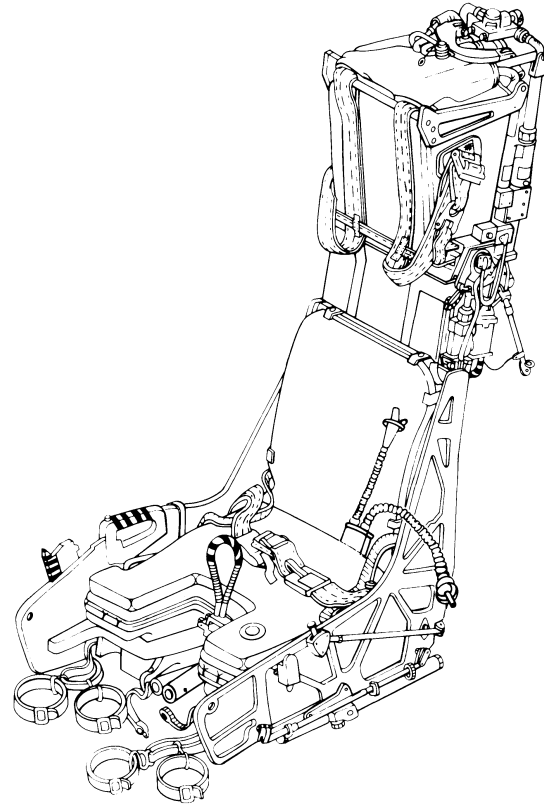
The MARTIN-BAKER SJU-5/A,6/A is a rocket-assisted ejection seat that provides support and necessary environmental equipment for crewmembers during flight, and a means of fast safe escape during emergency flight conditions. The seat assembly incorporates features permitting seat ejection at ground level, at zero airspeed, and emergency flight conditions.

The basic structure of the seat consists of a main beam assembly, built to withstand high Gloads, support all of the components, and form the main framework for the seat.

The basic components of the seat assembly include a catapult, gas-powered inertia reel, rocket motor, seat bucket assembly, drogue gun, and parachute.

This ejection seat presents definite hazards that may cause fatal injuries to uninformed and careless personnel. Rescue/firefighting personnel must become thoroughly familiar with the locations and safetizing of the seat components in both normal and emergency conditions.

MARTIN-BAKER SJU-5/A, 6/A EJECTION SEAT



F/A-18A/B/C/D

NAVAIR 00-80R-14-1

Figure 4-3. Martin-Baker SJU-5/A, 6/A Ejection Seat (Sheet 2)

2. EJECTION SEAT SAFETYING (NORMAL/EMERGENCY)

Immediately upon gaining access to the aircraft cockpit¹ if time permits and no hazardous conditions exist, proceed with seat safetying procedures:

WARNING

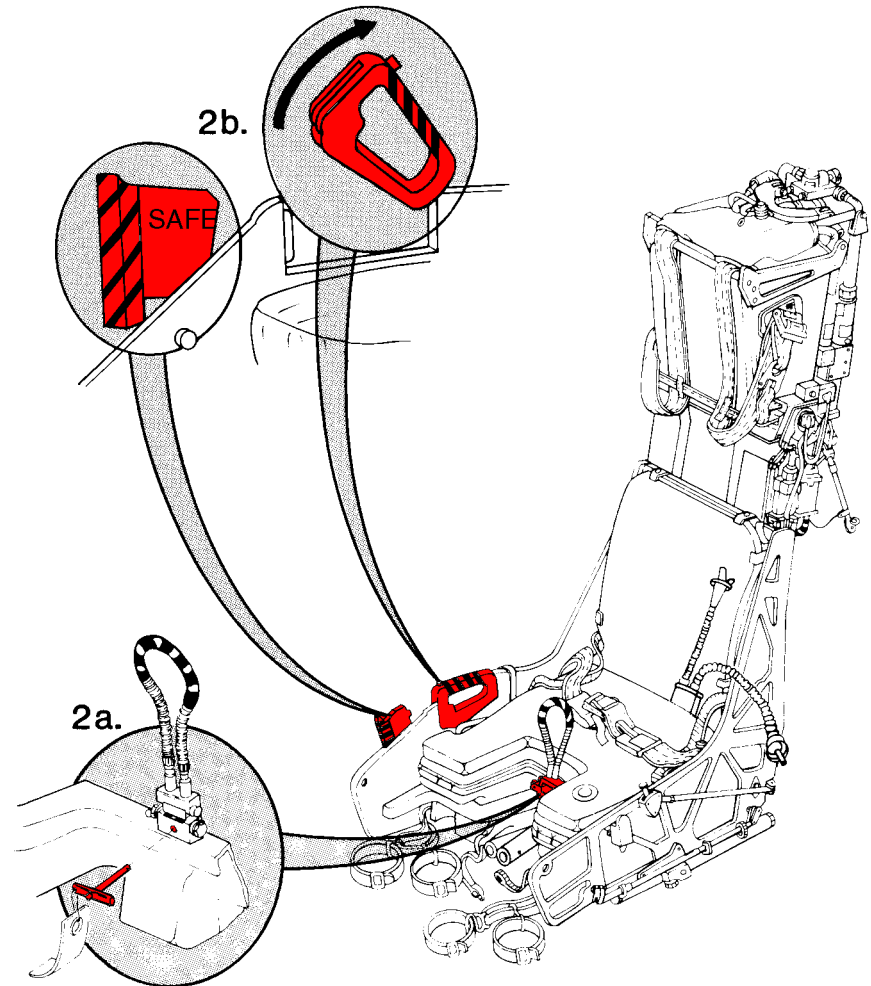
If Ejection Control Handle is not fully seated safety pin cannot be installed and Safe/Armed handle cannot be rotated to the fully locked position. An unsafe seat exists if the entire word "SAFE" is not visible on the Safe/ Armed handle. If ejection seat is not in a safe condition, initiation may occur if Ejection Control Handle is pulled. Proper procedures for resetting handle must be followed.

- a. INSERT safety pin into Ejection Control Handle if handle is in First Detent (stowed) position. If Ejection Control Handle is not in stowed position, RETURN handle to First Detent (stowed position) by PRESSING handle into its housing and INSERTING safety pin.
- b. PRESS button on top of Manual Override Handle and ROTATE handle UP and AFT. The Safe/Armed handle will simultaneously rotate up and the ENTIRE word "SAFE" should be visible.

WARNING

All aircraft equipped with ejection seats require rescue personnel to safe all seats to avoid possibility of inadvertant ejection.

F/A-18A/B/C/D



MARTIN-BAKER SJU-5/A, 6/A EJECTION SEAT

14-1-F025

MARTIN-BAKER SJU-17(V) SERIES EJECTION SEAT

1. GENERAL EJECTION SEAT INFORMATION

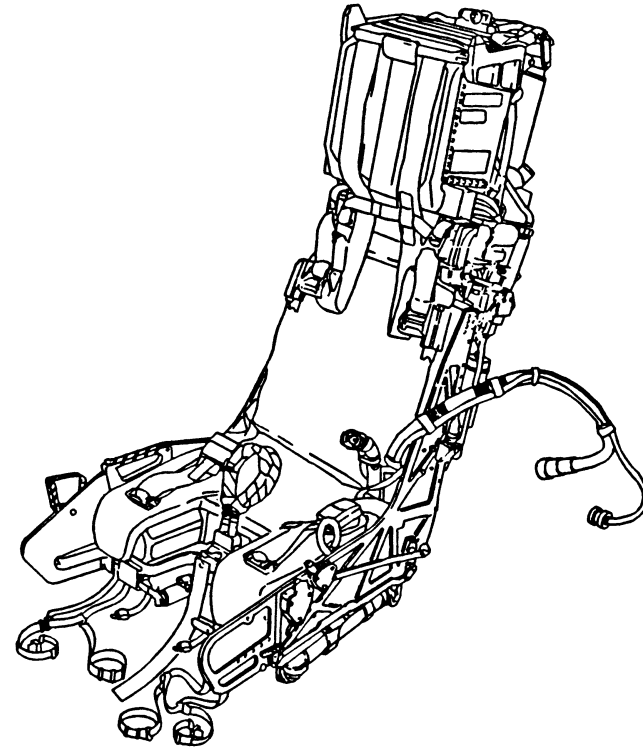
The MARTIN-BAKER SJU-17(V) Series is a rocket-assisted ejection seat that provides support and necessary environmental equipment for crewmembers during flight, and a means of fast, safe escape during emergency flight conditions. The seat assembly incorporates features permitting seat ejection at ground level, at zero airspeed, and during emergency flight conditions.

The basic structure of the seat consists of a main beam assembly, built to withstand high GLoads, support all of the components, and form the main framework for the seat.

The basic components of the seat assembly include a catapult, gas-powered inertia reel, rocket motor, seat bucket assembly, drogue gun, and parachute.

This ejection seat presents definite hazards that may cause fatal injuries to uninformed and careless personnel. Rescue/firefighting personnel must become thoroughly familiar with the locations and safetizing of the seat components in both normal and emergency conditions.

MARTIN-BAKER SJU-17(V) SERIES EJECTION SEAT



F/A-18C/D/E/F/G

14-1-F026

Figure 4-4. Martin-Baker SJU-17(V) Series Ejection Seat (Sheet 2)

2. EJECTION SEAT SAFETYING (NORMAL EMERGENCY)

Immediately upon gaining access to the aircraft cockpit, if time permits and no hazardous conditions exist, proceed with seat safetying procedures.

WARNING

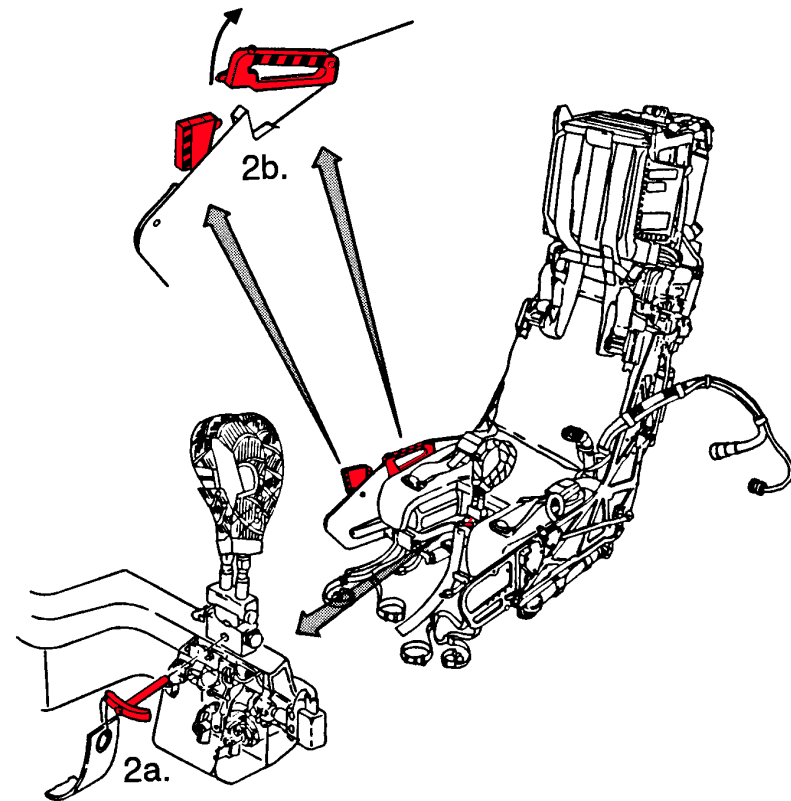
If Ejection Control Handle is not fully seated, safety pin cannot be installed and Safe/Armed Handle cannot be rotated to the fully locked position. An unsafe seat exists if the entire word "SAFE" is not visible on the Safe/Armed Handle. If ejection seat is not in a safe condition, initiation may occur if Ejection Control Handle is pulled. Proper procedures for resetting handle must be followed.

- a. INSERT safety pin into Ejection Control Handle if handle is in First Detent (stowed) position. If Ejection Control Handle is not in stowed position, RETURN handle to First Detent (stowed position) by PRESSING handle into its housing and INSERTING safety pin.
- b. PRESS button on top of Manual Override Handle and ROTATE handle UP and AFT. The Safe/Armed Handle will simultaneously rotate up and the entire word "SAFE" should be visible.

WARNING

All aircraft equipped with ejection seats require rescue personnel to safe all seats to avoid possibility of inadvertant ejection.

F/A-18C/D/E/F/G



MARTIN-BAKER SJU-17(V) SERIES
EJECTION SEAT

MARTIN-BAKER SJU.17(V)-SERIES EJECTION SEAT

1. GENERAL EJECTION SEAT INFORMATION

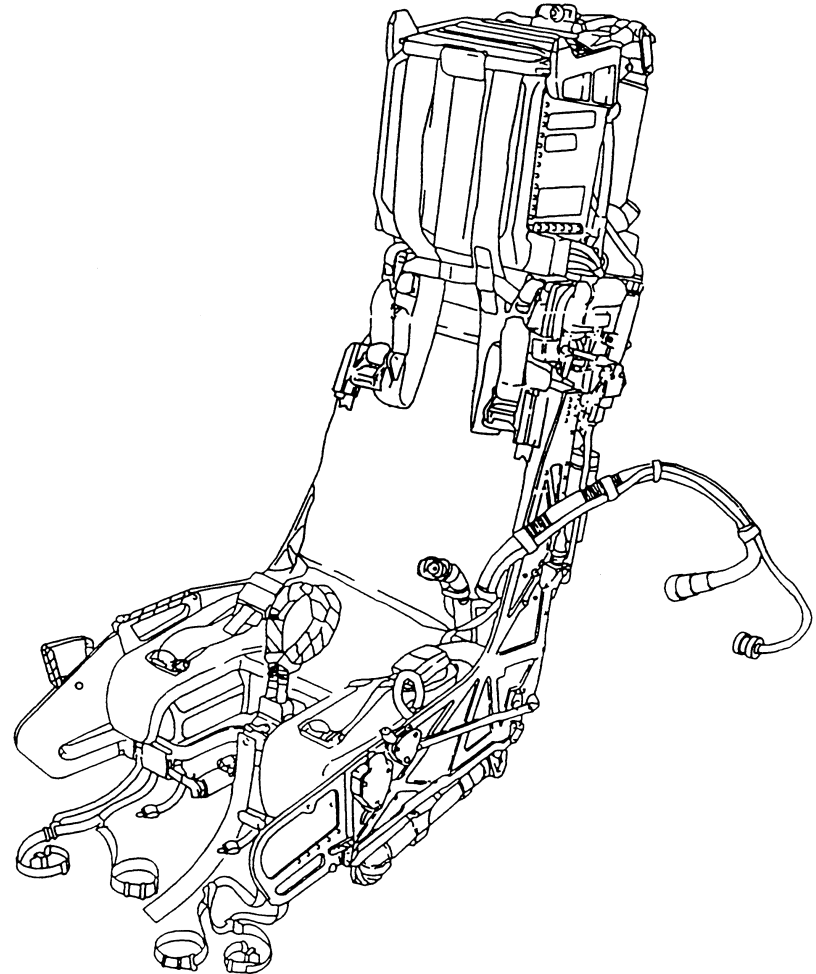
The MARTIN-BAKER SJU-17(V) Series is a rocket-assisted ejection seat that provides support and necessary environmental equipment for crewmembers during flight, and a means of fast, safe escape during emergency flight conditions. The seat assembly incorporates features permitting seat ejection at ground level, at zero airspeed, and during an emergency flight condition.

The basic structure of the seat consists of a main beam assembly, built to withstand high C-loads, support all of the components, and form the main framework for the seat.

The basic components of the seat assembly include a catapult, gas-powered inertia reel, rocket motor, seat bucket assembly, drogue gun, and parachute.

This ejection seat presents definite hazards that may cause fatal injuries to uninformed and careless personnel. Rescue/firefighting personnel must become thoroughly familiar with the locations and safeying of the seat components in both normal and emergency conditions.

MARTIN-BAKER SJU-17(V) SERIES EJECTION SEAT



T-45

14-1-F031

NAVAIR 00-80R-14-1

Figure 4-5. Martin-Baker SJU-17(V) Series Ejection Seat (Sheet 1 of 2)

Figure 4-5. Martin-Baker SJU-17(V) Series Ejection Seat (Sheet 2)

2. EJECTION SEAT SAFETYING (NORMAL/ EMERGENCY)

Immediately upon gaining access to the aircraft's cockpit, if time permits and no hazardous conditions exist, proceed with seat safetying procedures.

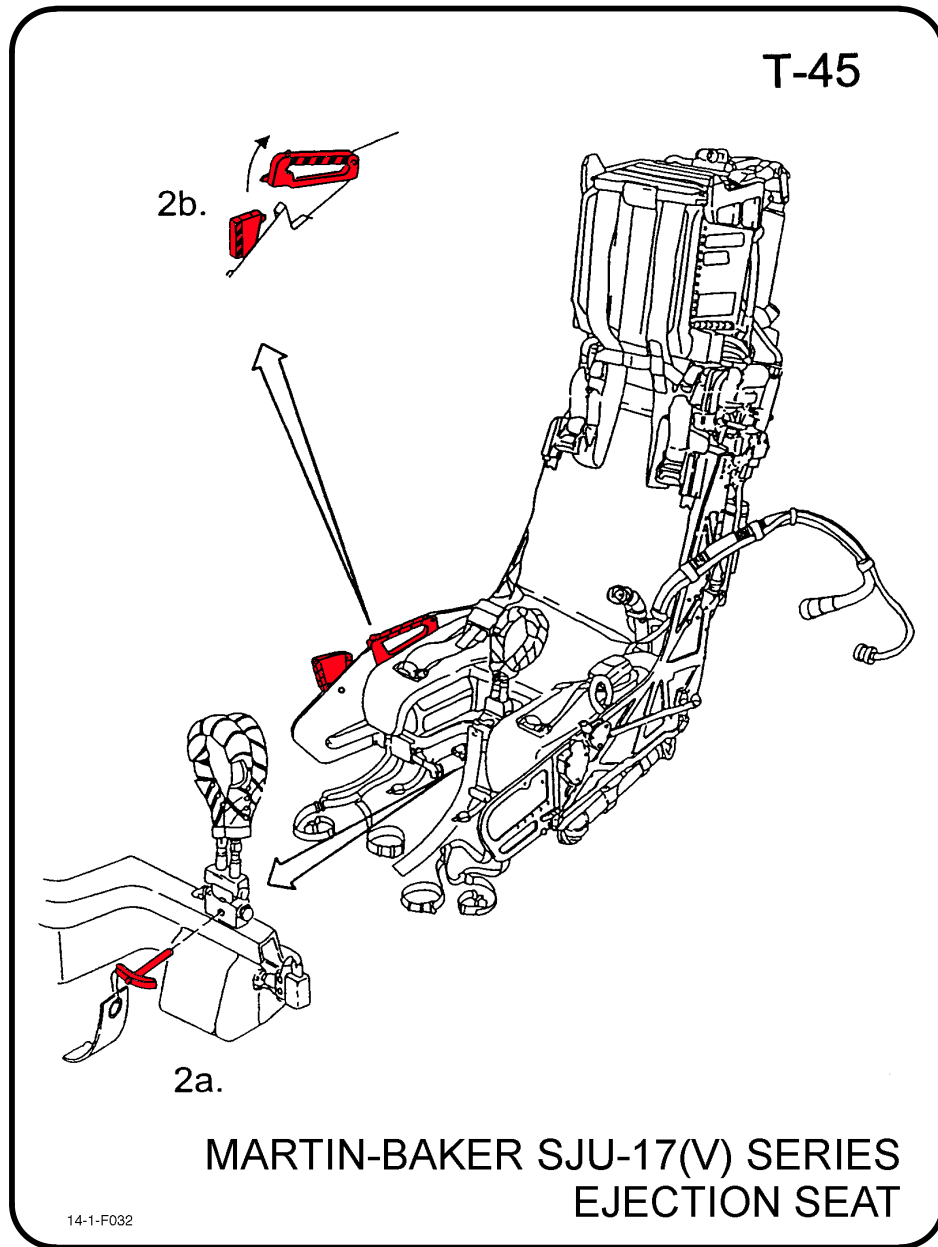
WARNING

If Ejection Control Handle is not fully seated, safety pin cannot be installed and SAFE/ARMED Handle cannot be rotated to the fully locked position. An unsafe seat exists if the ensure word "SAFE" is not visible on the SAFE/ARMED Handle. If ejection seat is not in a safe condition, initiation may occur if Ejection Control Handle is pulled. Proper procedures for resetting handle must be followed.

- a. INSERT safety pin into Ejection Control Handle if handle is in First Detent (stowed) position. If ejection Control Handle is not in stowed position, RETURN handle to First Detent (stowed position) by PRESSING handle into its housing and INSERTING safety pin.
- b. PRESS button on top of Emergency Restraint Release Handle and Rotate handle UP and AFT. The SAFE/ARMED Handle will simultaneously rotate up and the entire word "SAFE" should be visible.

WARNING

All aircraft equipped with ejection seats require rescue personnel to safe all seats to avoid possibility of inadvertent ejection.



STENCEL SJU-4A/13A/14A EJECTION SEAT

1. GENERAL EJECTION SEAT INFORMATION

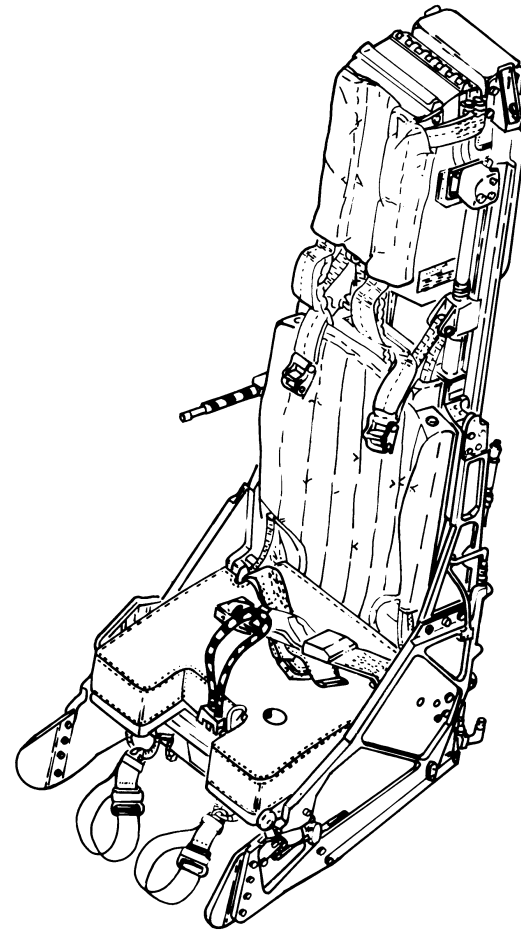
The STENCEL SJU-4A/13A/14A is a catapult and rocket thrust ejection seat that provides support and necessary environmental equipment for crewmembers during flight, and a means of fast, safe escape during emergency flight conditions. The seat assembly incorporates features permitting seat ejection at ground level, at zero airspeed, as well as during emergency flight conditions.

The basic structure of the seat consists of lightweight aluminum, built to withstand high Gloads, support all of the components, and form the main framework for the seat.

The basic components of the seat assembly include catapults, seat back rocket motors, gas powered inertia reel, parachute, survival equipment, and seat stabilization system.

This ejection seat presents definite hazards which may cause fatal injuries to uninformed and careless personnel. Flighting/rescue personnel must become thoroughly familiar with the locations and the safetying of the seat components in both normal and emergency conditions.

STENCEL SJU-4A/13A/14A EJECTION SEAT



AV-8B
TAV-8B

14-1-F033

NAVAIR 00-80R-14-1

Figure 4-6. STENCEL SJU-4A/13A/14A Ejection Seat (Sheet 1 of 2)

Figure 4-6. STENCIL SJU-4A/13A/14A Ejection Seat (Sheet 2)

2. EJECTION SEAT SAFETYING (NORMAL/EMERGENCY)

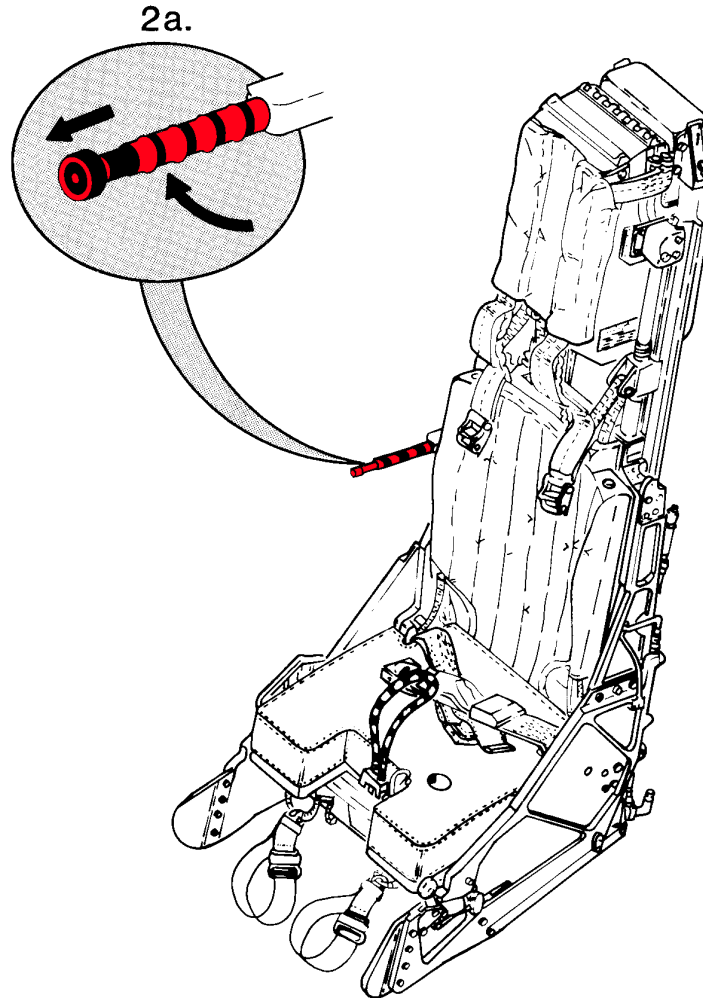
Immediately upon gaining access to the aircraft cockpit, if time permits and no hazardous conditions exist, proceed with seat safetying procedures:

- a. PULL DOWN on spring loaded end of the Ground Safety Control Handle and LIFT handle to the FULL UP and LOCKED position.

WARNING

- The ground safety control handle must be in the FULL UP and LOCKED position to positively safety the seat. The seat will remain armed with the handle in any other position.
- All aircraft equipped with ejection seats require rescue personnel to safe all seats to avoid possibility of inadvertant ejection.
- When removing personnel from ejection seats, rescue personnel shall exercise care to avoid entanglement of crewmembers and themselves in the seat ejection control handle.

AV-8B
TAV-8B



STENCIL SJU-4A/13A/14A
EJECTION SEAT

14-1-F034

ESCAPAC 1E-1 EJECTION SEAT

1. GENERAL EJECTION SEAT INFORMATION

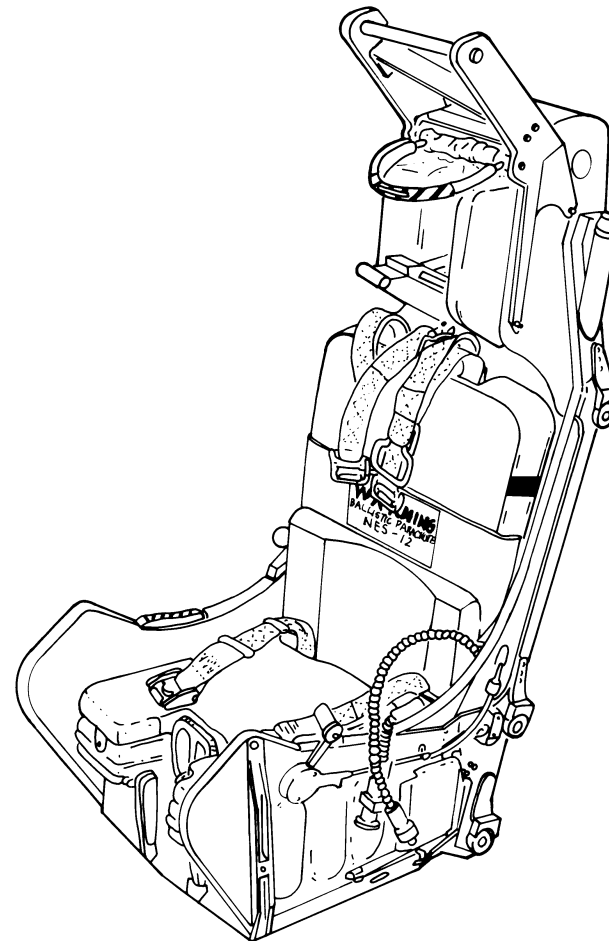
The ESCAPAC 1 E-1 is a catapult rocket seat that provides support and necessary environmental equipment for crewmembers during flight, and a means of fast, safe escape during emergency flight conditions. The seat assembly incorporates features permitting seat ejection at ground level, at zero air-speed as well as during emergency flight conditions.

The basic structure of the seat consists of lightweight aluminum, built to withstand high Gloads, support all of the components, and form the main framework for the seat.

The basic components of the seat assembly include a rocket catapult, ballistic inertia reel, parachute, seat/man separator rocket, survival equipment, and seat stabilization system.

This ejection seat presents definite hazards which may cause fatal injuries to uninformed and careless personnel. Firefighting/rescue personnel must become thoroughly familiar with the locations and the safetying of the seat components in both normal and emergency conditions.

ESCAPAC 1E-1 EJECTION SEAT



14-1-F037

S-3

NAVAIR 00-80R-14-1

Figure 4-7. ESCAPAC 1E-1 Ejection Seat (Sheet 1 of 2)

S-3

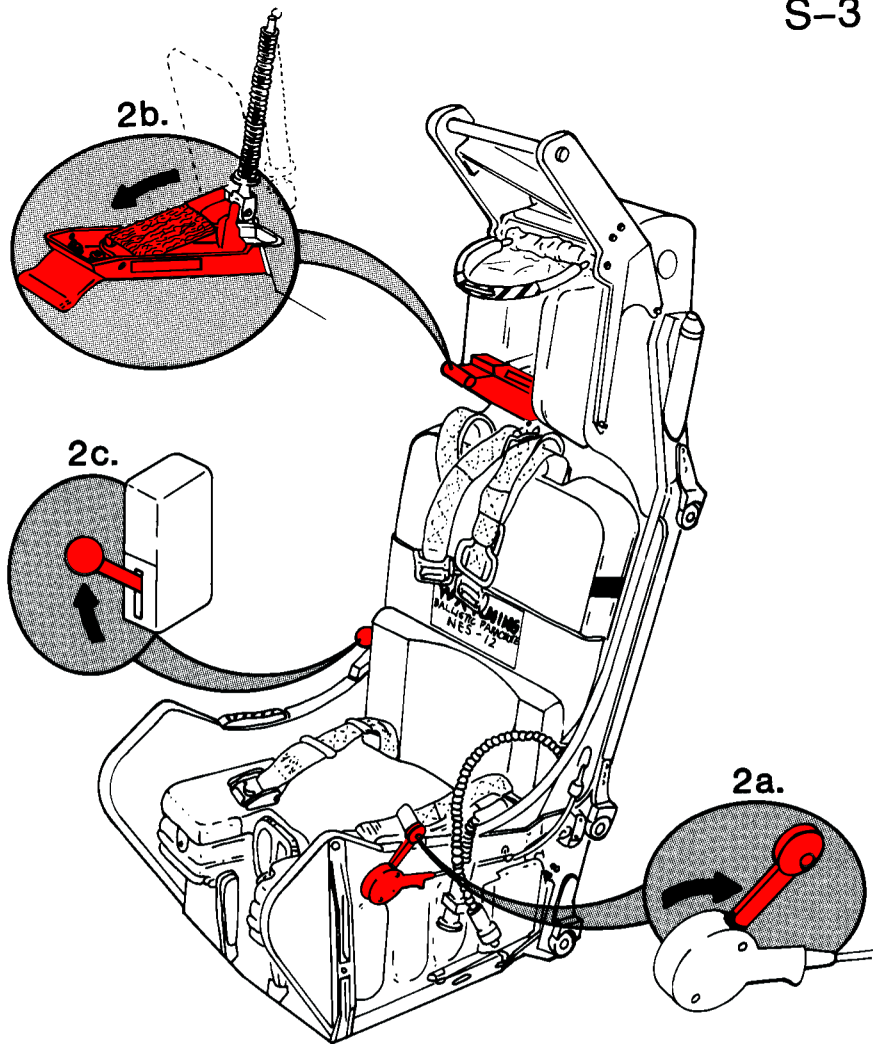
**2. EJECTION SEAT SAFETYING
(NORMAL/EMERGENCY)**

Immediately upon gaining access to the aircraft cockpit, if time permits and no hazardous conditions exist, proceed with seat safetying procedures:

- a. If crewmember is blocking Ejection Seat Safety Control Handle, PULL Inertia Reel Control Handle AFT and PULL pilot FWD to expose Ejection Seat Control Handle.
- b. PLACE Ejection Seat Safety Control Handle in DOWN/LOCKED position.
- c. PLACE Command Ejection Lever, on both pilot and copilot's seats, in the UP/SELF EJECT position.

WARNING

- All aircraft equipped with ejection seats require rescue personnel to safe all seats to avoid possibility of inadvertant ejection.
- This ejection seat has an NES-12 ballistic parachute. Do not use harness release handle to free crewmember from seat.
- When removing personnel from ejection seats, rescue personnel shall exercise care to avoid entangling crewmembers or themselves in ower seat ejection handle or use face curtain handle as a support or handhold.



**ESCAPAC 1E-1
EJECTION SEAT**

14-1-F038

Figure 4-7. ESCAPAC 1E-1 Ejection Seat (Sheet 2)

NORTH AMERICAN LS-1A EJECTION SEAT

1. GENERAL EJECTION SEAT INFORMATION

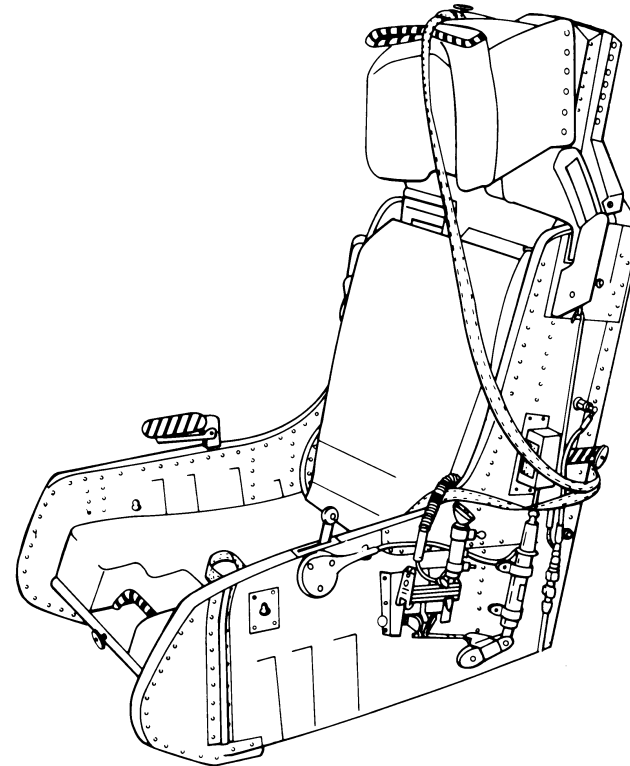
The NORTH AMERICAN LS-1A is a catapult rocket seat that provides support and necessary environmental equipment for crewmembers during flight, and a means of fast, safe escape during emergency flight conditions. The ejection seat system will safely assure the sequenced escape of both pilots, from ground level at a minimum speed of 75 knots throughout maximum altitude and aircraft speed capability. The seat ejection system has the capability of a zero altitude-zero speed ejection only if the canopy is not on the aircraft.

The basic structure of the seat consists of aluminum, built to withstand high G-loads, support all of the components, and form the main framework for the seat.

The basic components of the seat assembly include a catapult tube, rocket tube, ballistic operated inertia reel, seat bucket, parachute, and survival equipment.

This ejection seat presents definite hazards which may cause fatal injuries to uninformed and careless personnel. Firefighting/rescue personnel must become thoroughly familiar with the locations and the safing of the seat components in both normal and emergency conditions.

NORTH AMERICAN LS-1A EJECTION SEAT



14-1-F039

T-2C

NAVAIR 00-80R-14-1

Figure 4-8. North American LS-1A Ejection Seat (Sheet 1 of 2)

Figure 4-8. North America LS-1A Ejection Seat (Sheet 2)

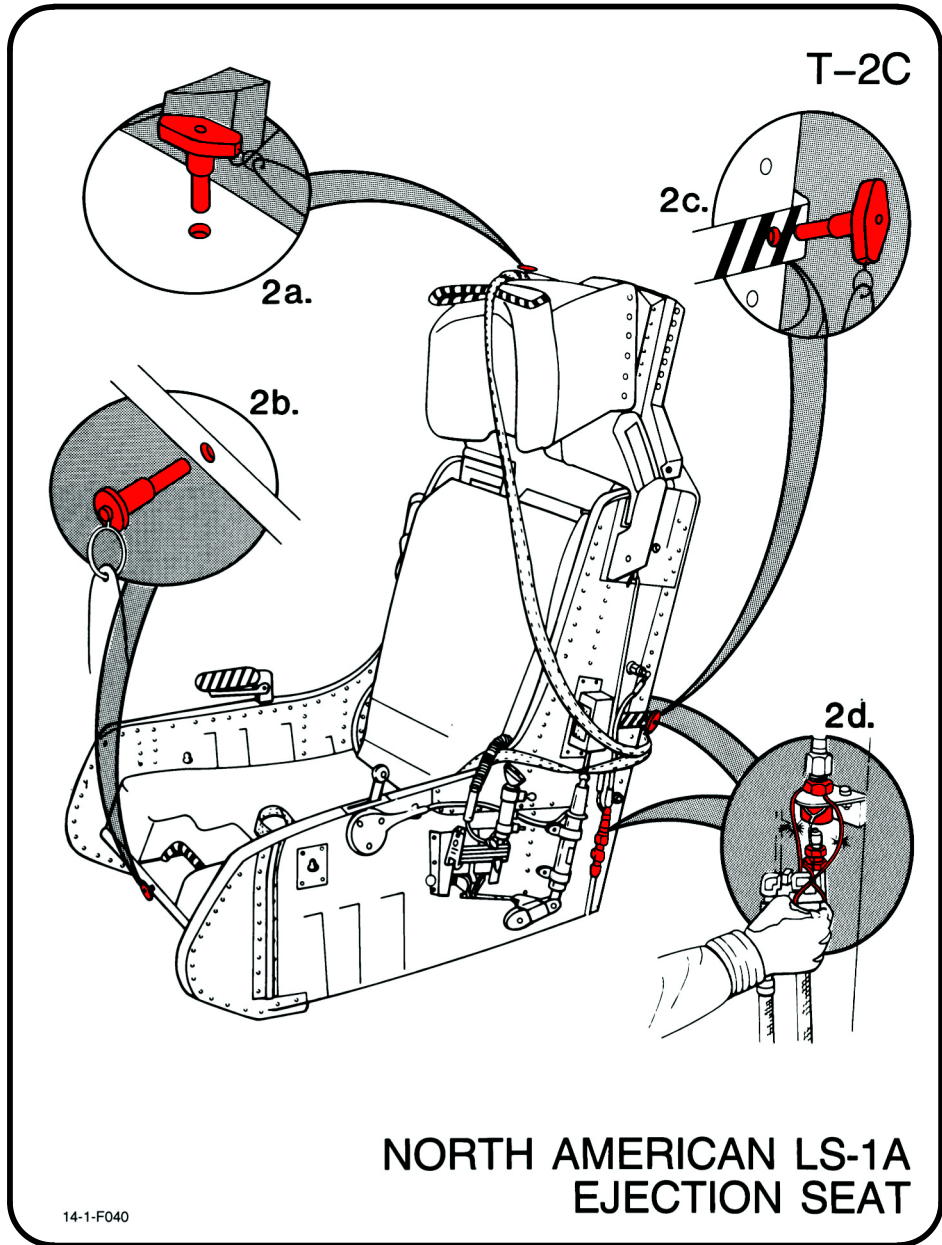
2. EJECTION SEAT SAFETYING (NORMAL/EMERGENCY)

Immediately upon gaining access to the aircraft cockpit, if time permits and no hazardous conditions exist, proceed with seat safetying procedures:

- a. INSERT Face Curtain safety pin.
- b. INSERT Lower Ejection Handle safety pin.
- c. INSERT Striker Belicrank safety pin.
- d. If safety pins are not available, **BREAK** Shear Wires and disconnect seat Initiator quick disconnects by **PULLING DOWN** on lower end of quick disconnect (on both sides of seat).

WARNING

- All aircraft equipped with ejection seats require rescue personnel to safe all seats to avoid possibility of inadvertant ejection.
- When removing personnel from ejection seats, rescue personnel shall exercise care to avoid entangling crewmembers or themselves in lower seat ejection handle or use face curtain handle as a support or handhold.



NORTHROP M-38 EJECTION SEAT

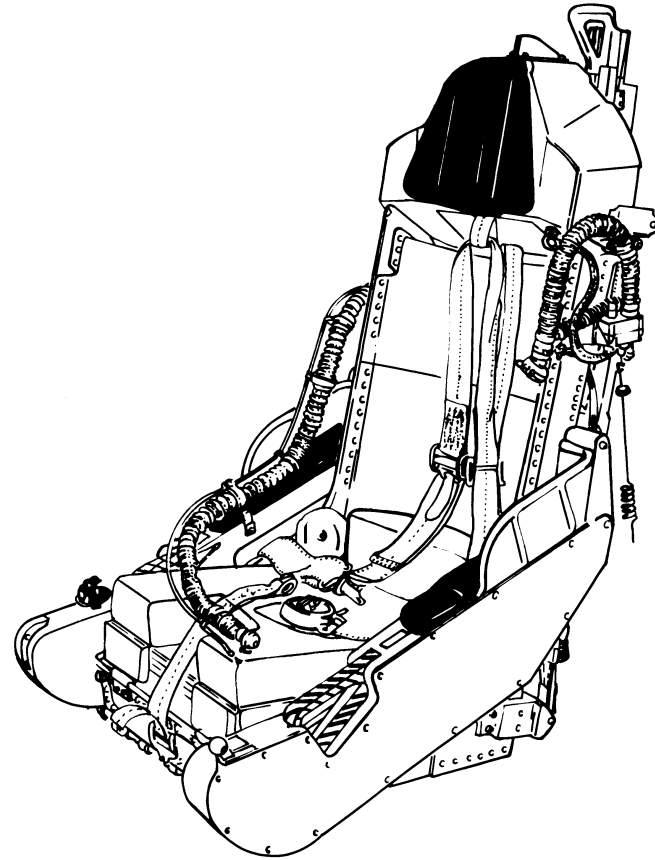
1. GENERAL EJECTION SEAT INFORMATION

The NORTHROP M-38 is a rocket assisted ejection seat that provides support and necessary environmental equipment for crewmembers during flight, and a means of fast, safe escape during emergency flight conditions.

The basic components of the seat assembly include a catapult gun, gas powered inertia reel, rocket motor, seat bucket assembly, and survival equipment.

This ejection seat presents definite hazards which may cause fatal injuries to uninformed and careless personnel. Firefighting/rescue personnel must become thoroughly familiar with the locations and the safing of the seat components in both normal and emergency conditions.

NORTHROP M-38 EJECTION SEAT



T-38
F-5

14-1-F041

NAVAIR 00-80R-14-1

Figure 4-9. Northrop M-38 Ejection Seat (Sheet 1 of 2)

Figure 4-9. Northrop M-38 Ejection Seat (Sheet 2)

2. EJECTION SEAT SAFETYING (NORMAL/EMERGENCY)

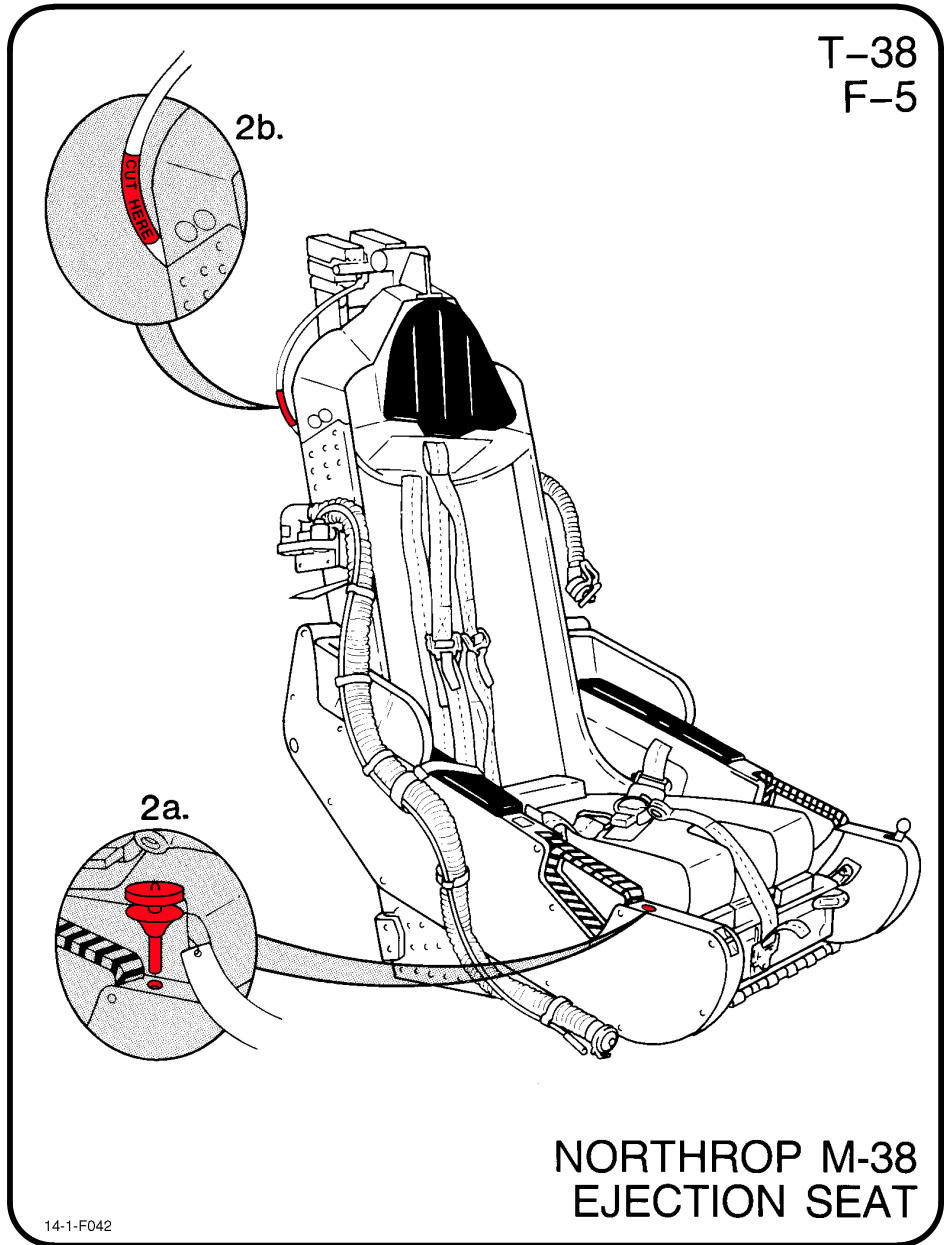
Immediately upon gaining access to the aircraft cockpit, if time permits and no hazardous conditions exist, proceed with seat safetying procedures:

- a. INSERT Seat safety pin into RH Legbrace.

WARNING

All aircraft equipped with ejection seats require rescue personnel to safe all seats to avoid possibility of inadvertant ejection.

- b. If safety pin is not available, CUT Catapult Ballistic Gas Line at Cut Zone.



APPENDIX A
Attack Aircraft

**ATTACK AIRCRAFT SYSTEMS AND
CRASH CREW INFORMATION DIAGRAMS SUMMARY**

TYPE	NAME	AIRFRAME MATERIALS	FUEL (GAL)		OIL (GAL)		OXYGEN		PNEU SYS		GUN	ORDNANCE		PYROTECHNICS	BTRY	EJECT SYS	S.O.B.
			INT	EXT	ENG	HYD	LOX	BOTTLE	GAS	AIR		FWD FIRE	FREE FALL				
AV-8B TAV-8B	HARRIER	ALUMINUM STEEL CARBON EPOXY TITANIUM FIBERGLASS	1141	1200 (4 tanks x 300)	5.5	7.5	NONE	SEAT PAN (1)	N ₂ 3000 PSI	NONE	25MM	MISSILES ROCKETS	BOMBS MINES	PYLON EJECTOR CARTRIDGES (7) STA. CHAFF/ FLARES CANOPY EJECTION SEAT	1	AV-8B (STENCEL SJU-4A)	AV-8B (1)

Figure A-1. Attack Aircraft Systems and CCID Summary

Figure A-2. AV-8B Harrier Crash Crew Information (Sheet 1 of 7)

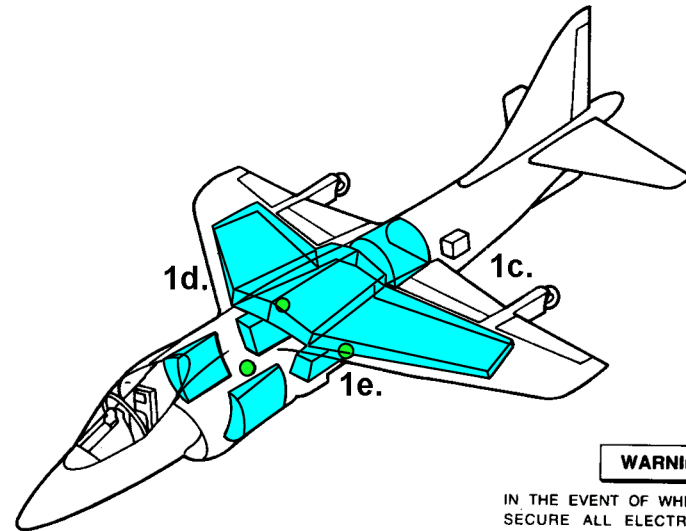
SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
 Crash Axe
 1 1/16 Inch Open End Wrench

1. GENERAL AIRCRAFT INFORMATION

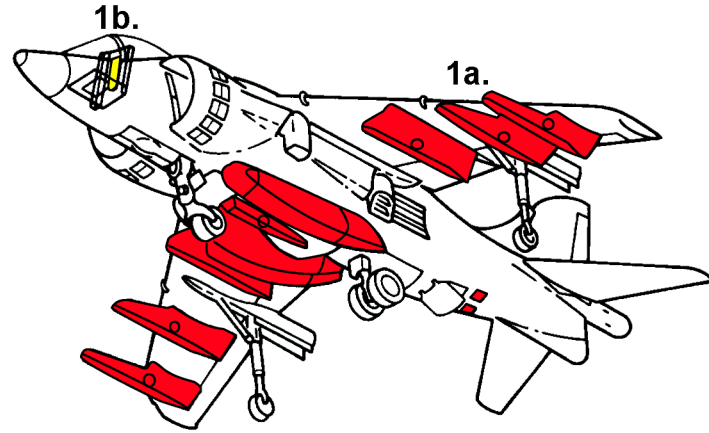
- a. Armament █ 6 Wing Stations
 1 Fus. Station
 25 mm Gun
 Chaff/Flares
 Pylon Ejector
 Cartridges
- b. Oxygen █ OBOGS
- c. Battery █ 1
- d. Fuel █ Internal — 1141 gal
 External — Four 300 gal
 Wing Tanks
- e. Oil █ Engine — 2.4 gal
 Hydraulic — 7.5 gal
- f. Pneumatic System 3000 PSI

AV-8B



WARNING

IN THE EVENT OF WHEELS-UP LANDING,
 SECURE ALL ELECTRICAL POWER TO
 ENSURE ARMAMENT SYSTEM SAFETY.



NOTE

IN NORMAL WHEELS DOWN LANDING,
 GROUND WHEELS DOWN SWITCHES SAFETY
 THE ARMAMENT SYSTEMS.

14-1-F043

Figure A-2. AV-8B Harrier Crash Crew Information (Sheet 2)

2. AIRFRAME MATERIALS

- a. N/A
- b. Other
Fiberglass/Kevlar
- c. Steel
- d. Titanium
- e. Aluminum
- f. Carbon Epoxy
- g. N/A

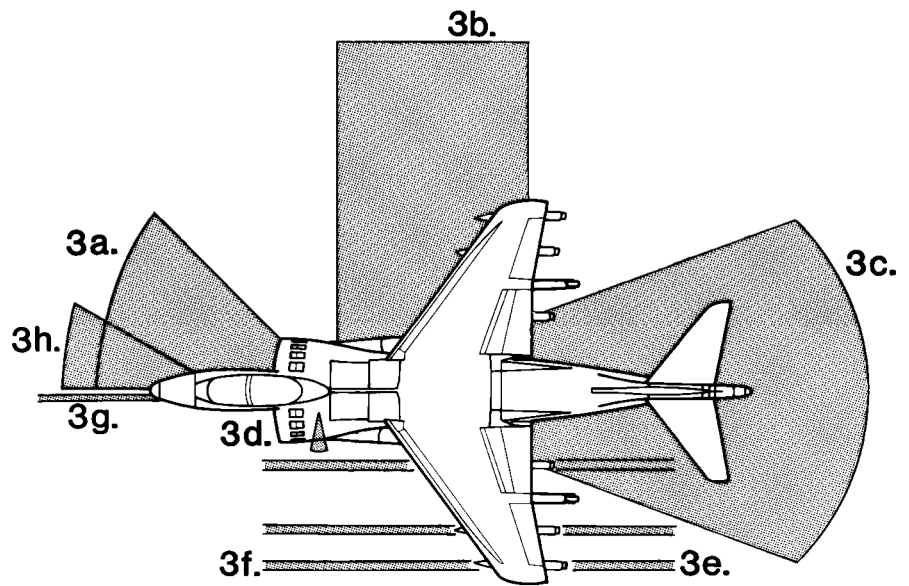
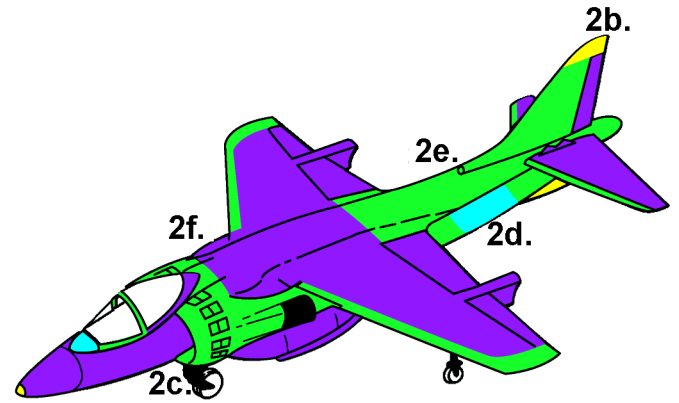
3. AIRCRAFT DANGER AREAS

- a. Inlet Suction
Idle — 20'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust
Idle — 50'

WARNING

Touching the hot reaction control ducts in the nose, tail, and wing tips immediately after a vertical landing can result in a burn injury.

- d. APU Exhaust — 5' (vertically upwards)
- e. Missile/Rocket Exhaust
- f. Missile/Rocket FWD Fire Zone
- g. Gun Pod
- h. Radiation
FWD 60° Arc — 140'



14-1-F044

AV-8B

Figure A-2. AV-8B Harrier Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

Canopy is mechanically actuated by an external release handle located on RH side of fuselage below windshield.

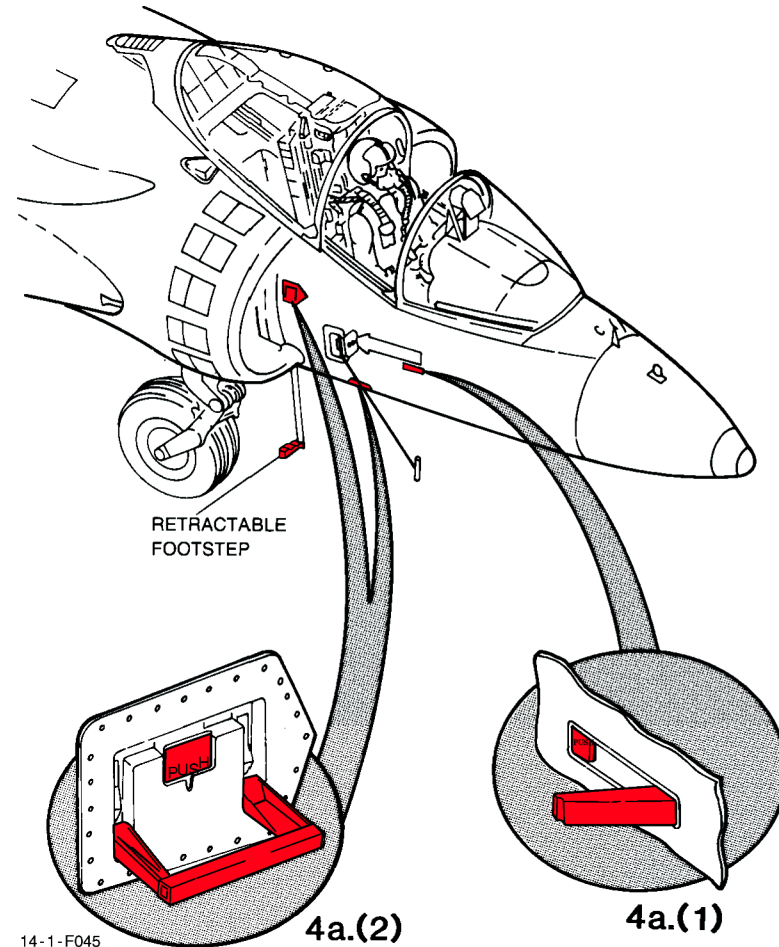
- (1) To open, PRESS latch on Normal Canopy Release Handle and PULL to unlatch canopy and retractable footstep. APPLY DOWNWARD PRESSURE on step and canopy will open fully.

Note

If retractable footstep cannot be extended, canopy opens without restriction from footstep for about 3 inches. The RH canopy cable assembly can then be disengaged from footstep at detent assembly by a hard pull on handles provided on canopy arch. With footstep disengaged, canopy is free to be opened.

- (2) Two additional steps/handholds are located on RH side of fuselage. To extend, PUSH buttons on top part of steps/handholds.

AV-8B



4. AIRCRAFT ENTRY (CONT.)

b. N/A

c. EMERGENCY ENTRY

Canopy can be shattered by using External Fracturing Handles located on both sides of aircraft.

WARNING

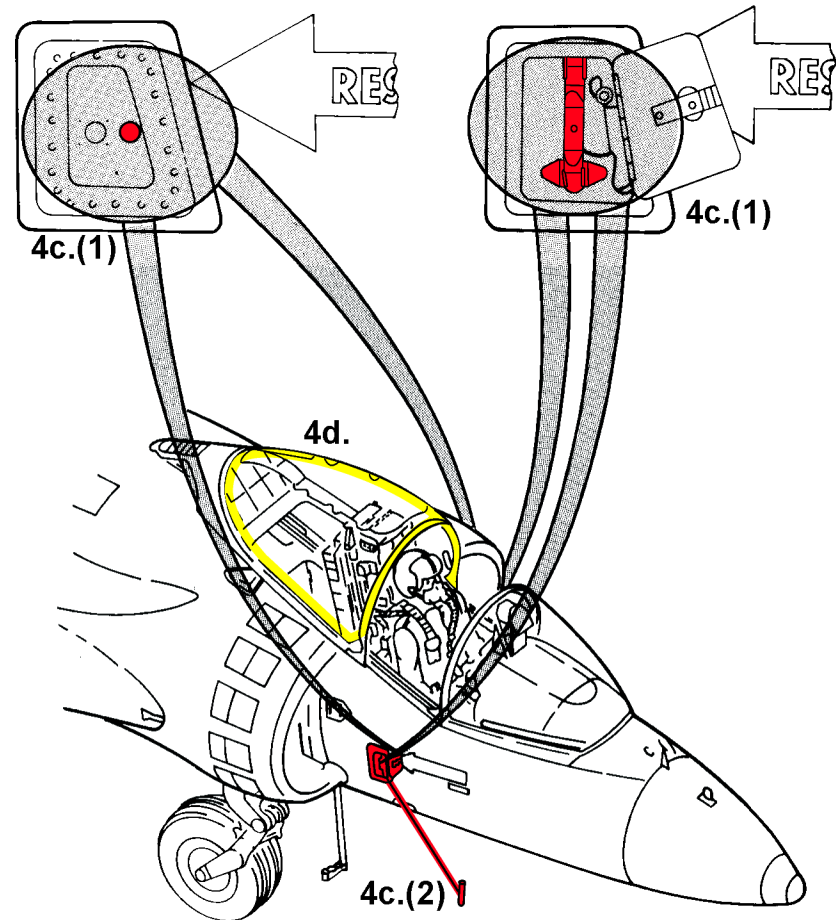
- The fracturing system which utilizes pyrotechnics, should not be used if flammable liquids or fumes are present in the area.
- Particles from a blown canopy may exceed 3 sq. in. and cover a blast area of approximately 25 feet.
 - (1) To access handle, PUSH latch button to open door, GRIP handle and remove from spring clips.
 - (2) To fracture canopy, HOLD handle, RUN FWD to extend cable approximately 40 inches and JERK handle (face away).

Note

Some aircraft are not equipped with an external fracturing handle.

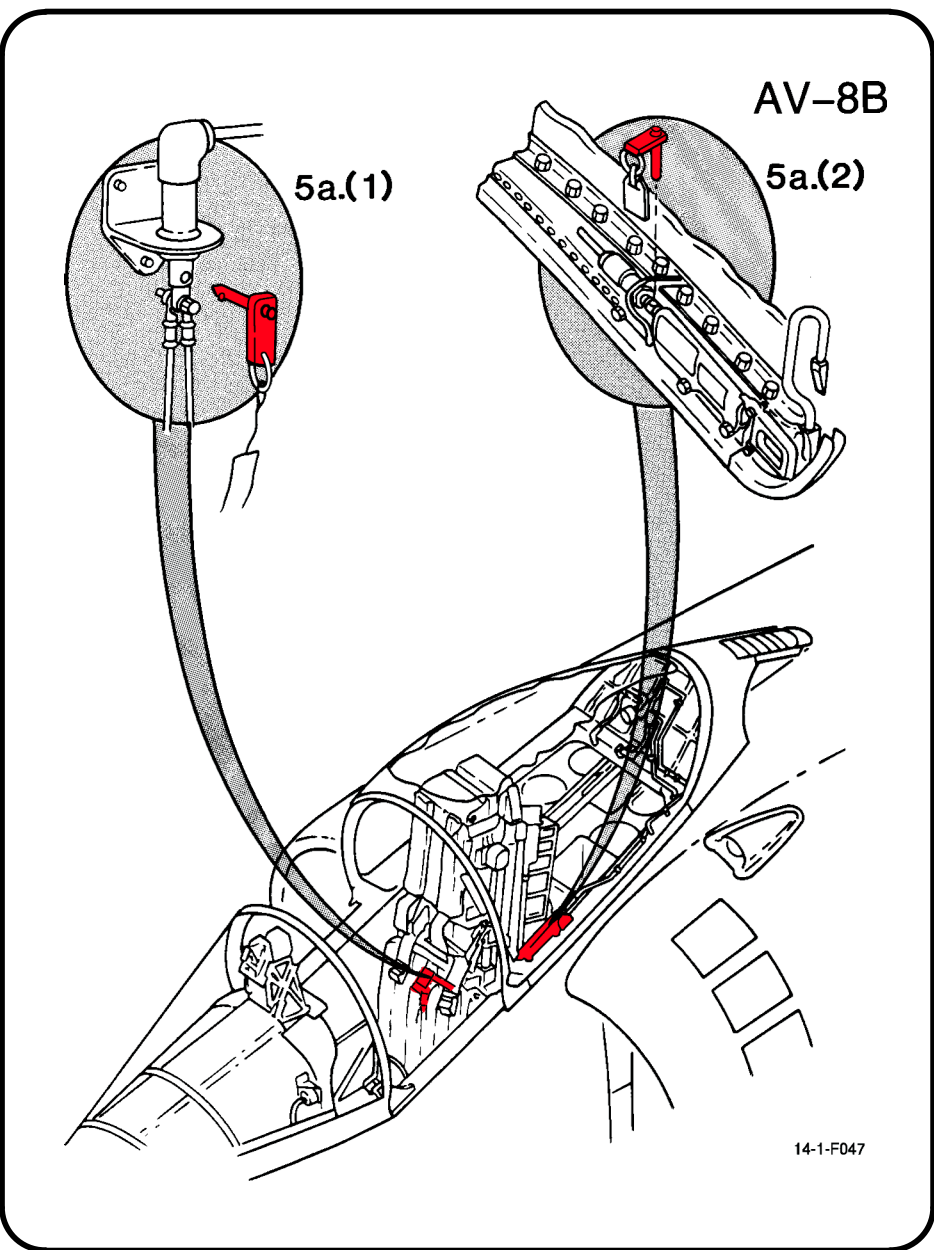
d. FORCED ENTRY

Canopy is made of acrylic plastic and may be cut with power rescue saw or crash axe. CUT along canopy frame.



14-1-F046

AV-8B



14-1-F047

5. CANOPY SAFETY

Canopy has an explosive detonator. With canopy open, rescue personnel may be seriously injured if ignited.

a. INITIATORS

- (1) INSERT safety pin in External Mechanically Actuated Initiator.
- (2) INSERT safety pin in Internal Mechanically Actuated Initiator.

b. N/A

Figure A-2. AV-8B Harrier Crash Crew Information (Sheet 5)

**6. ENGINE/APU SHUTDOWN
(NORMAL/EMERGENCY)**

Engine may be shut down using the throttle or fuel shutoff controls. GTS/APU may be shut down using APU generator switch or battery switch and APU generator switch.

a. N/A

b. N/A

c. BATTERY SWITCH

PLACE Battery Switch on Electrical Control Panel in OFF (center) position. Next, SET and HOLD APU Gen. Switch in RESET position until GTS/ APU shuts down.

d. THROTTLE

RAISE Throttle Finger Lifts and MOVE Engine Throttle Lever Grip Assembly AFT to OFF position. When moving throttle aft, throttle finger lifts must be used in order to shut down aircraft.

e. FUEL SHUT OFF LEVER

PRESS handle lock release Located on end of Manual Fuel Shutoff Lever and MOVE lever to OFF position. Use of fuel shutoff lever will not immediately shut down aircraft.

f. N/A

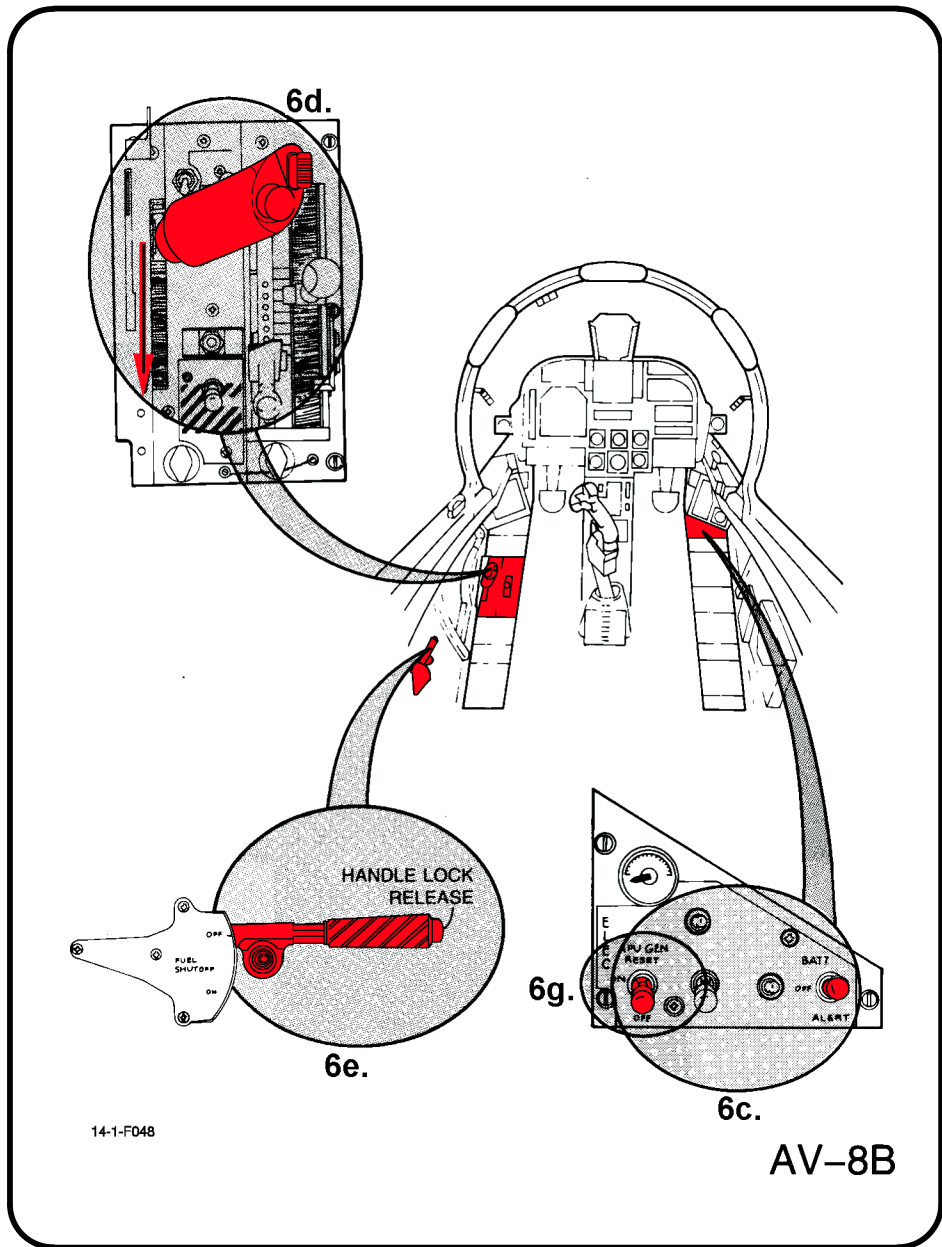
g. APU GENERATOR SWITCH

PLACE APU Gen. Switch on Electrical Control Panel in OFF position.

7. BATTERY

The battery is located on the underside of the fuselage, aft of speed brake in door 60. Disconnect time permitting.

a. N/A



14-1-F048

AV-8B

Figure A-2. AV-8B Harrier Crash Crew Information (Sheet 7)

8. CREW RELEASE

The pilot is attached to the seat by the use of an integrated harness. Additionally, the oxygen/communication lead is connected to the seat pan. The anti-G suit hose is connected to an outlet on the LH console.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask by PULLING DOWN on release tabs on either side of mask.
- (2) Disconnect oxygen/communication lead from connection by PULLING UP on round collar while PULLING APART connection.

b. RESTRAINT SUIT BELTS/RELEASE

PULL anti-G suit hose from LH console.

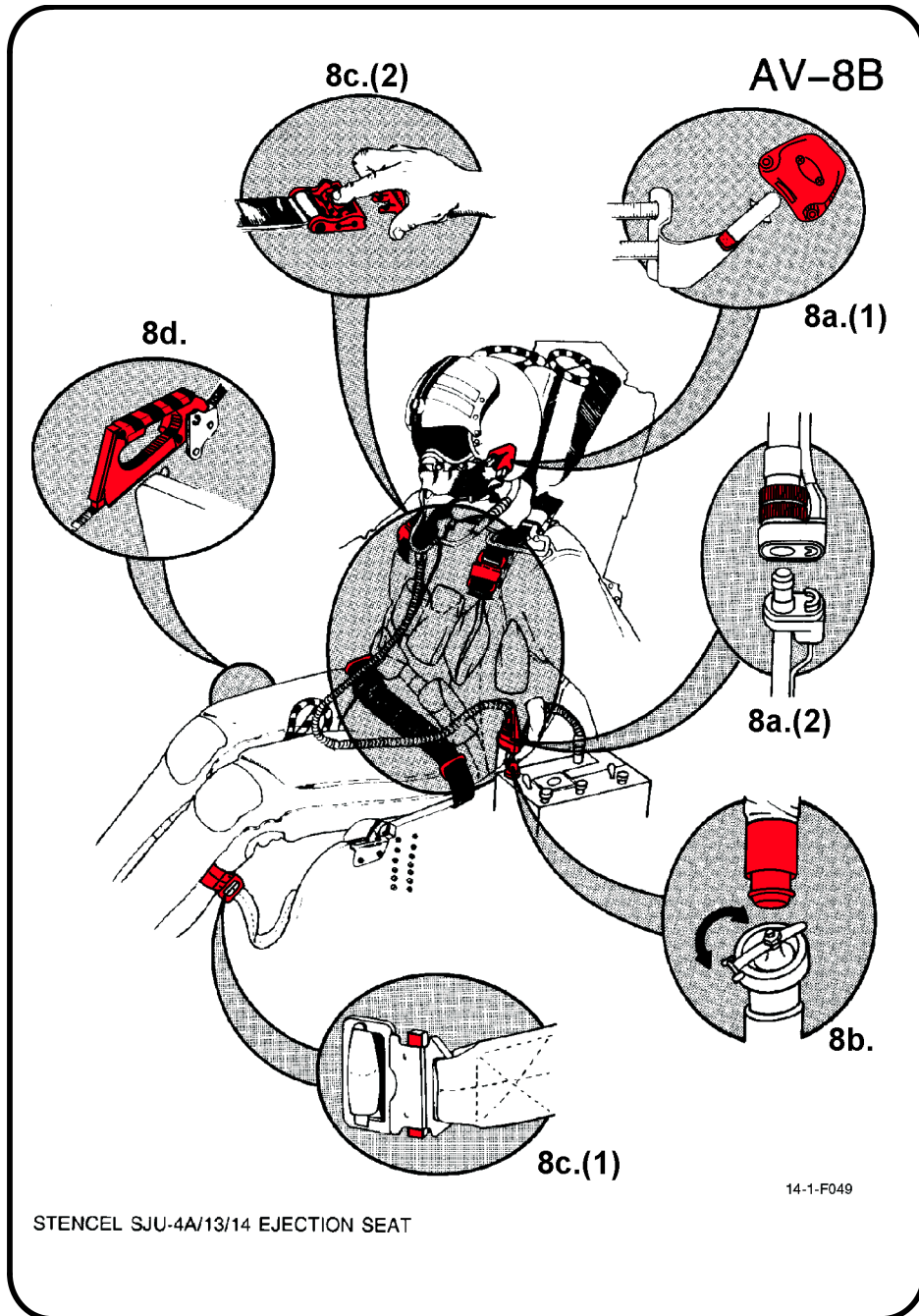
c. HARNESS STRAPS/LEG RESTRAINT RELEASE

Leg garter is secured around leg by a quick disconnect. Leg restraint lines attach to garter using the same type of quick disconnect.

- (1) APPLY PRESSURE to both sides of quick disconnect attaching leg restraint lines to garter (one each leg).
- (2) Release two lap belt, then two shoulder harness koch fittings.

d. EMERGENCY RELEASE

SQUEEZE and PULL Emergency Restraint Release Handle UP and FULLY AFT to LOCKED position. This safeties the ejection initiation system and releases the inertia reel shoulder straps and leg restraints. However, the parachute and survival kit remain attached to the pilot. Repeating [step 8c.\(2\)](#) will release parachute and survival kit from pilot.



APPENDIX B
Fighter Aircraft

FIGHTER AIRCRAFT SYSTEMS AND CRASH CREW INFORMATION DIAGRAMS SUMMARY

TYPE	NAME	AIRFRAME MATERIALS	FUEL/GAL		OIL/GAL		OXYGEN		PNEU SYS		GUN	ORDNANCE		PYROTECHNICS	BTRY	EJECT SYS	S.O.B.
			INT	EXT	ENG	HYD	LOX	BOTTLE	GAS	AIR		FWD FIRE	FREE FALL				
F-5E/F	TIGER II	ALUMINUM STEEL MAGNESIUM FIBERGLASS	698	825	2	3.5	5L	SEAT PAN (2)	NONE	3000 PSI	20MM CANNON	MISSILES ROCKETS	NONE	PYLON EJECTOR CARTRIDGES(5) STA. CANOPIES EJECTION SEATS	1	NORTHROP M38	F-5E(1) F-5F(2)
F/A-18A/B/C/D	HORNET	ALUMINUM STEEL GPH EPOXY MAGNESIUM TITANIUM FIBERGLASS	F/A-18A/ C: 589; F/A-18B/ D: 1487	990	6.5	10	10L	SEAT PAN (1)	N ₂ 3000 PSI	NONE	20MM	MISSILES ROCKETS	BOMBS MINES	PYLON EJECTOR CARTRIDGES (9) STA. CHAFF/FLARES CANOPY EJECTION SEATS	2	MARTIN-BAKER SJU-5/A; F/A-18 A/B/C/D; SJU-6/A; F/A-18 B/C/D; SJU-17(V) SERIES	F/A-18 A/C (1) F/A-18 B/D (2)
F/A-18E F/A-18F	SUPER HORNET	ALUMINUM ALUMINUM HONEY-COM B STEEL TITANIUM CARBON EPOXY	2162 (F/A-18E) 2024 (F/A-18F)	2400 (5 tanks x 480 gal)	4.5	16	OBOGS	SEAT PAN (1)	3000 PSI	5000 PSI	20MM	MISSILES ROCKETS	BOMBS MINES	PYLON EJECTOR CARTRIDGES (11) STA. DECOYS CANOPY EJECTION SEATS DFIRS PYROTECHNIC DOORS TLX	1	MARTIN-BAKER F/A-18E/F SJU-17(V) SERIES	F/A-18E (1) F/A-18F (2)
EA-18G	GROWLER	ALUMINUM ALUMINUM HONEY-COM B STEEL TITANIUM CARBON EPOXY	2054	1440 (3 tanks x 480 gal)	2.6	16	OBOGS	SEAT PAN (2)	3000 PSI	5000 PSI	NONE	HARM AARGM AIM-120	NONE	PYLON EJECTOR CARTRIDGES (9) STA. CHAFF/FLARES CANOPY EJECTION SEATS DIFRS PYROTECHNIC DOORS TLX	1	MARTIN-BAKER SJU-17(V) SERIES	2

Figure B-1. Fighter Aircraft Systems and CCID Summary

B-1

ORIGINAL

Figure B-2. F-5E/F Tiger II Crash Crew Information (Sheet 1 of 7)

SPECIAL TOOLS/EQUIPMENT

- Power Rescue Saw
- Crash Axe
- Wiss Bulldog Shears No. 5
- Shear-Type Bolt Cutters

1. GENERAL AIRCRAFT INFORMATION

a. Armament 6 Wing Stations
 1 Fus. Station
 20mm Cannons
 F-5E Two
 F-5F One
 Pylon Ejector
 Cartridges

b. Oxygen/LOX 5 L

c. Battery 1

Note

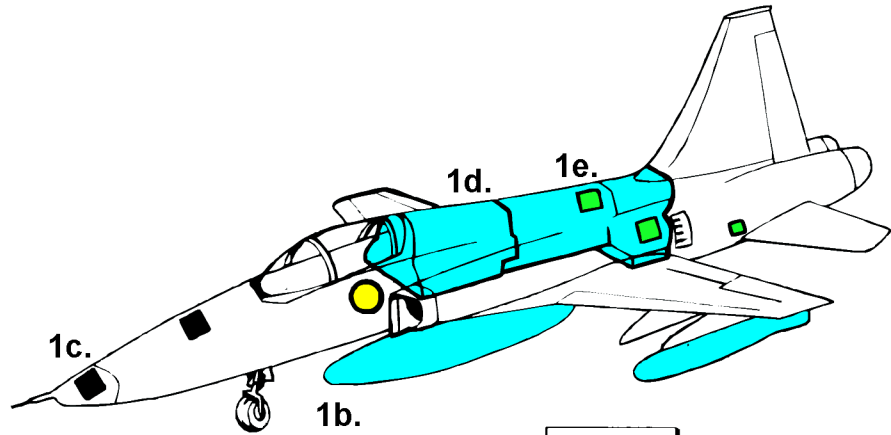
Nose area battery applies to F-5E. Other battery to F-5F.

d. Fuel Internal 698 gal
 External 825 gal

e. Oil Engine 2 gal
 Hydraulic 3.5 gal

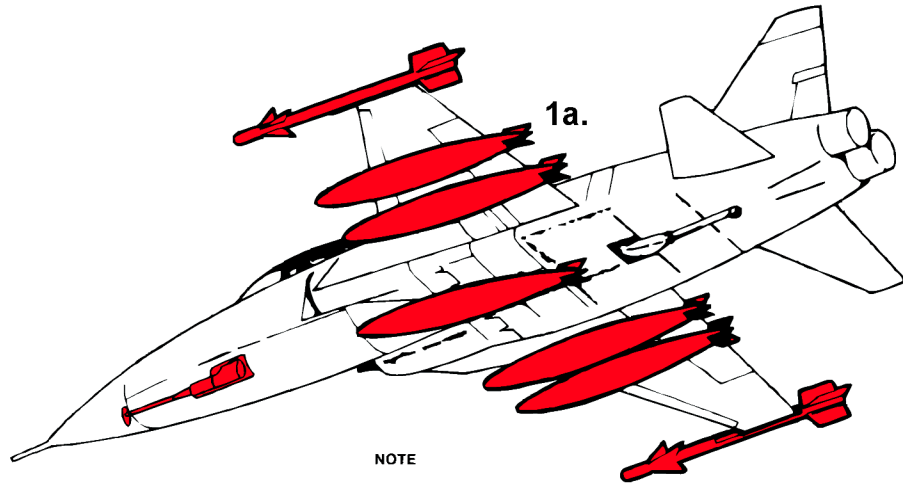
f. Pneumatic System 3000 PSI

F-5E/F



WARNING

IN THE EVENT OF WHEELS-UP LANDING. SECURE ALL ELECTRICAL POWER TO ENSURE ARMAMENT SYSTEM SAFETY.






NOTE

IN NORMAL WHEELS DOWN LANDING. GROUND WHEELS DOWN SWITCHES SAFETY THE ARMAMENT SYSTEMS.

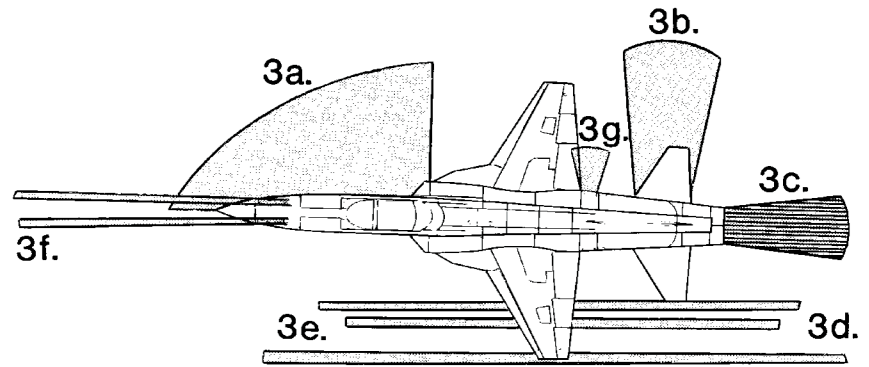
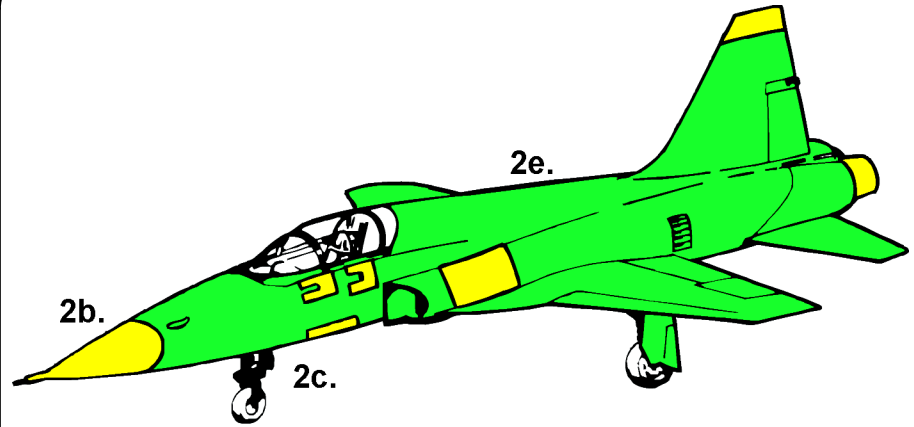
Figure B-2. F-5E/F Tiger II Crash Crew Information (Sheet 2)

2. AIRFRAME MATERIALS

- a. N/A
- b. Other
Fiberglass/Magnesium

- c. Steel

- d. N/A
- e. Aluminum

- f. N/A
- g. N/A

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction
Idle — 15'
Max — 25'
- b. Turbine Blade Failure — 1500'
- c. Engine Exhaust
Idle — 30'
Max — 180'
- d. Missile Exhaust
- e. Missile FWD Fire Zone
- f. Nose Guns
2° Pattern FWD of Gun
- g. Aux Air Intake Door Area
5° Radius



14-1-F055

F-5E/F

Figure B-2. F-5E/F Tiger II Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

F-5E canopy is mechanically operated. To open canopy, PRESS two Latch Buttons on access door (located on LH side of fuselage). PULL handle OUT until engaged. ROTATE handle fully CLOCKWISE to unlock. RAISE canopy by hand to full open position.

b. N/A

c. EMERGENCY ENTRY

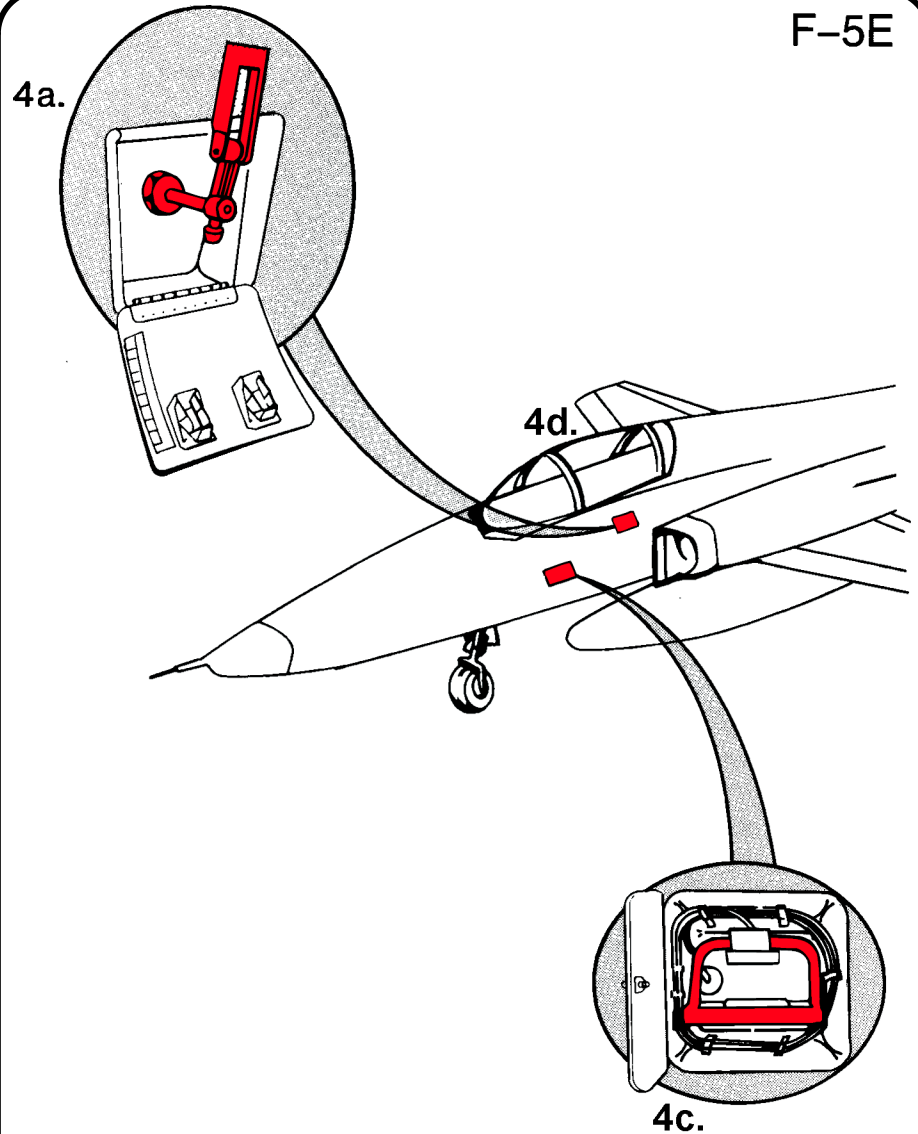
Canopy may be jettisoned from either side of aircraft. PUSH latch to open door and REMOVE D-handle. Move away from aircraft to full length (approximately 6 feet) of canopy jettison cable and YANK hard. Canopy will land AFT of the aircraft.

WARNING

Do not use this method if residual fuel is around cockpit area, fire or explosion may result.

d. FORCED ENTRY

Canopy is acrylic plastic and may be cut with power rescue saw or crash axe. CUT along canopy frame.



4. AIRCRAFT ENTRY

a. NORMAL ENTRY

F-5F canopies are mechanically operated. To open canopies, PRESS two Latch Buttons on access door (located on LH side of fuselage). PULL handles OUT until engaged. ROTATE handles fully CLOCKWISE to unlock. RAISE canopies by hand to full open position.

b. N/A

c. EMERGENCY ENTRY

Canopy may be jettisoned from either side of aircraft. PUSH latch to open door and REMOVE D-handle. Move away from aircraft to full length (approximately 6 feet) of canopy jettison cable and YANK hard. Canopies will land AFT of the aircraft.

WARNING

Do not use this method if residual fuel is around cockpit area, fire or explosion may result.

d. FORCED ENTRY

Canopy is acrylic plastic and may be cut with power rescue saw or crash axe. CUT along canopy frame.

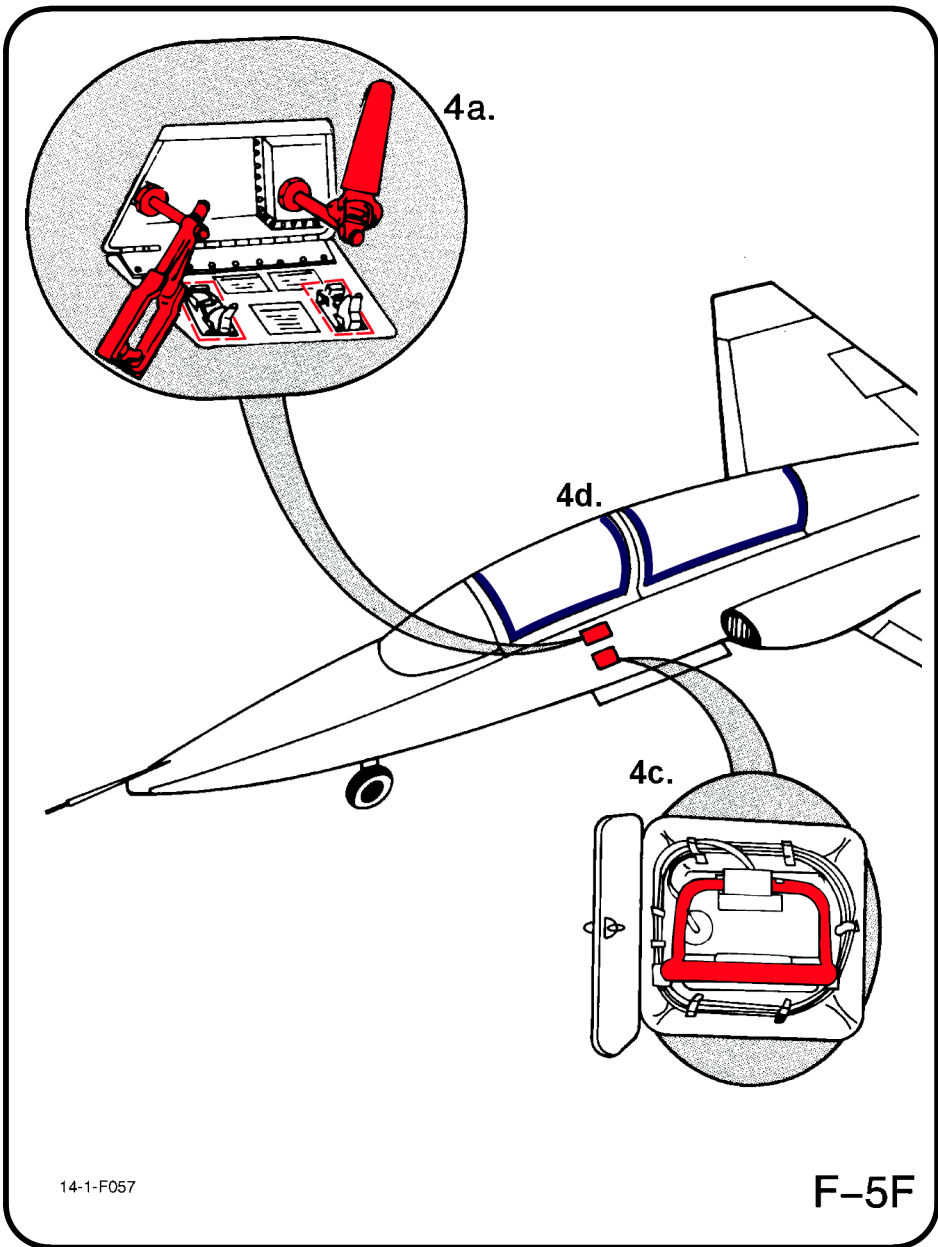


Figure B-2. F-5E/F Tiger II Crash Crew Information (Sheet 5)

5. CANOPY SAFETY

- a. To safety canopies on F-5E/F aircraft, INSERT safety pins in Cockpit Canopy Jettison Handles located on vertical RH panel.

WARNING

In F-5F aircraft, both cockpit canopy jettison handles must be safetied.

- b. N/A

6. ENGINE SHUTDOWN

Engines may be shut down by throttles or fuel shutoff switches from either cockpit.

- a. N/A

- b. N/A

c. BATTERY SWITCH

PLACE Battery Switch in OFF position.

d. THROTTLES

RAISE Finger Lifts and RETARD Throttles (located on LH panel) FULL AFT to OFF position.

e. FUEL SHUTOFF SWITCHES

If engines fail to shut down after retarding throttles, PLACE Fuel Shutoff Switches in OFF position.

- f. N/A

- g. N/A

7. BATTERY

The battery is located in the FWD RH side of the fuselage. Disconnect, time permitting.

- a. N/A

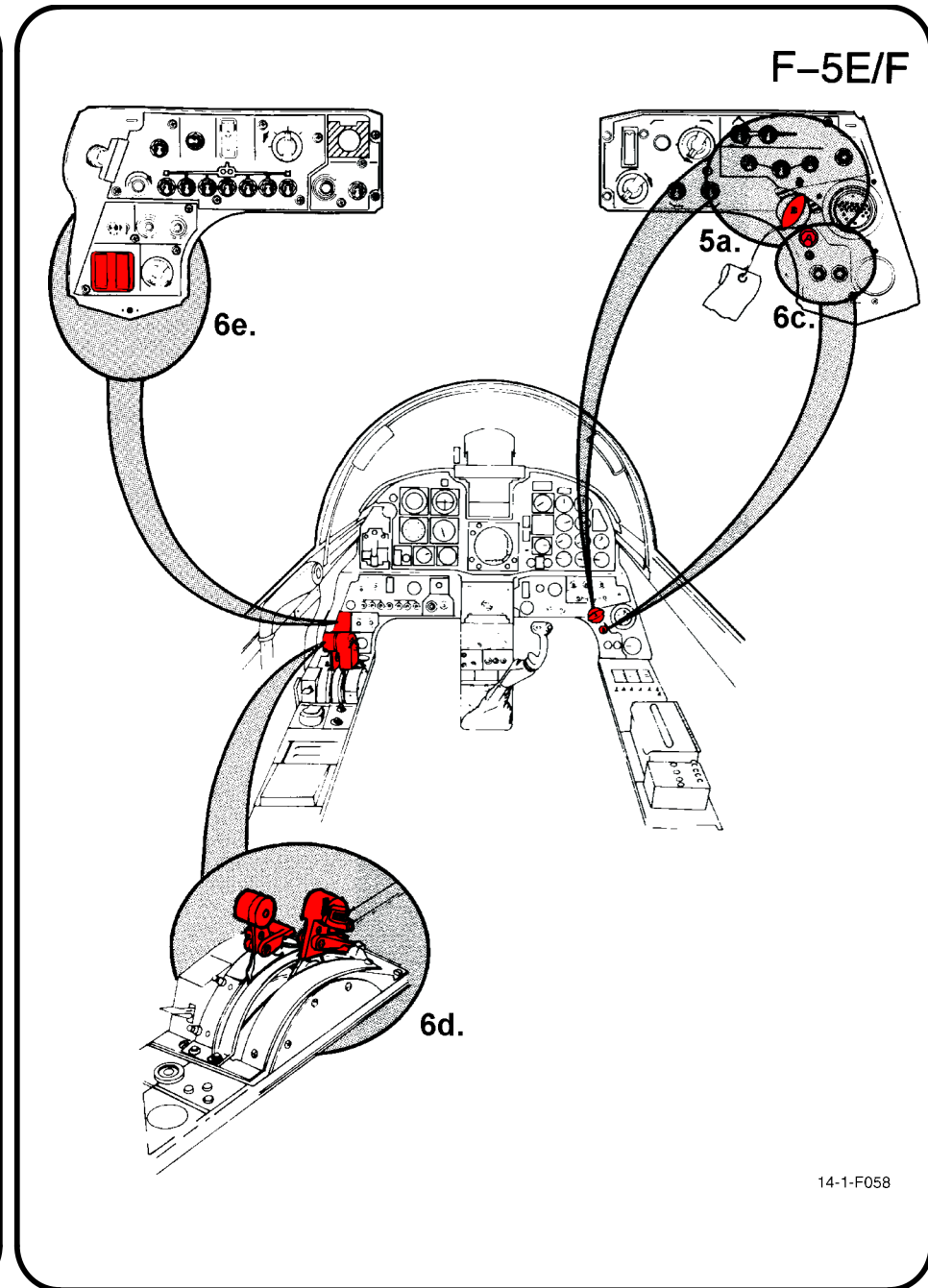


Figure B-2. F-5E/F Tiger II Crash Crew Information (Sheet 6)

B-7

ORIGINAL

8. CREW RELEASE

The crewmembers are attached to the seat by shoulder straps which are attached to the lap belt by a quick release fitting. Additionally, there are oxygen/communication leads and anti-G suit hose attachments.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask by **PULLING DOWN** on release tabs on either side of mask.
- (2) Disconnect oxygen hose and communication lead at disconnection points.

b. RESTRAINT SUIT BELTS/RELEASE

PULL anti-G suit hose from fitting connected to the LH side of seat.

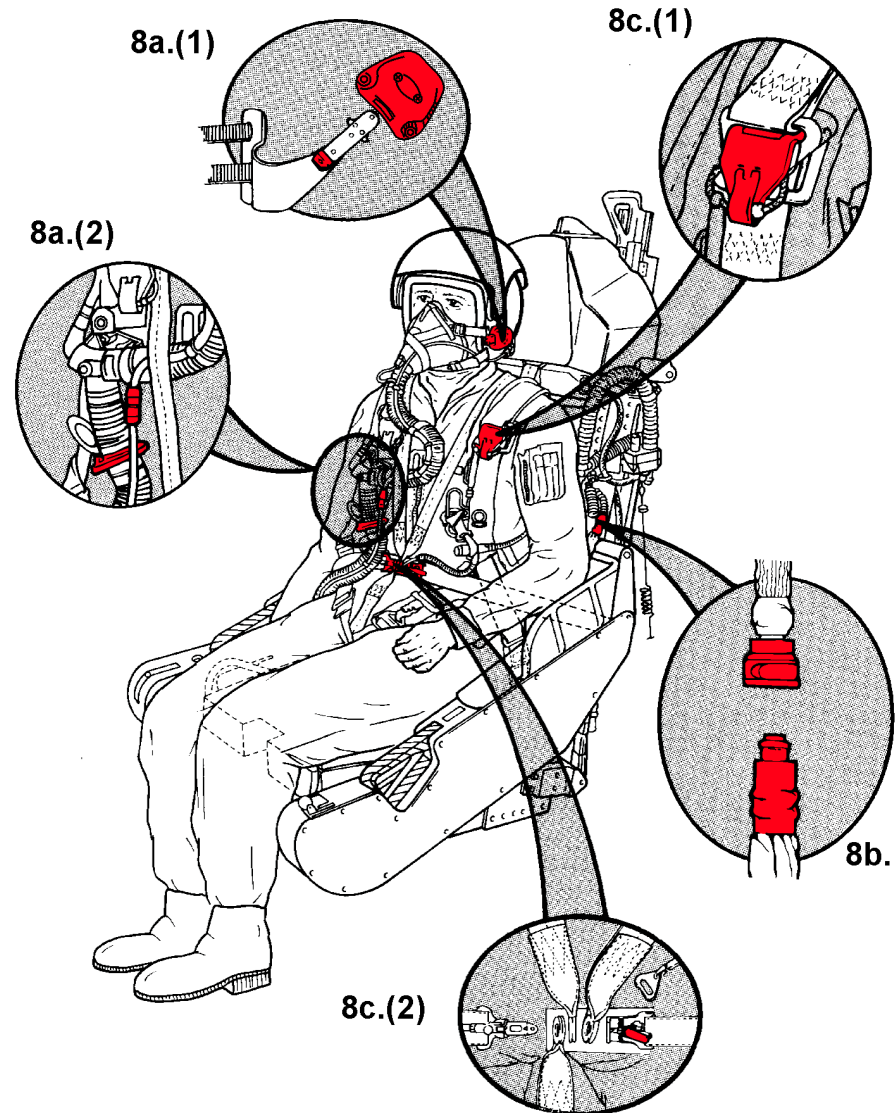
c. HARNESS STRAPS/LEG RESTRAINT RELEASE

- (1) Release both parachute riser straps.
- (2) **SQUEEZE** and **RAISE** Manual Release Lever on lap belt buckle.
- (3) **SURVIVAL KIT** (Improved)

Note

The survival kit disconnect buckles may be obscured from view.

Locate lap belt and follow it to the general area of the Survival Kit disconnect buckles. **PRESS** Push to Release tab in center of each buckle to release.



14-1-F059

NORTHROP M-38 EJECTION SEAT

F-5E/F

Figure B-2. F-5E/F Tiger II Crash Crew Information (Sheet 7)

8. CREW RELEASE (CONT.)

d. EMERGENCY RELEASE

(1) RESTRAINTS

SQUEEZE and RAISE Manual Release Lever on lap belt buckle.

(2) EMERGENCY RELEASE HANDLE

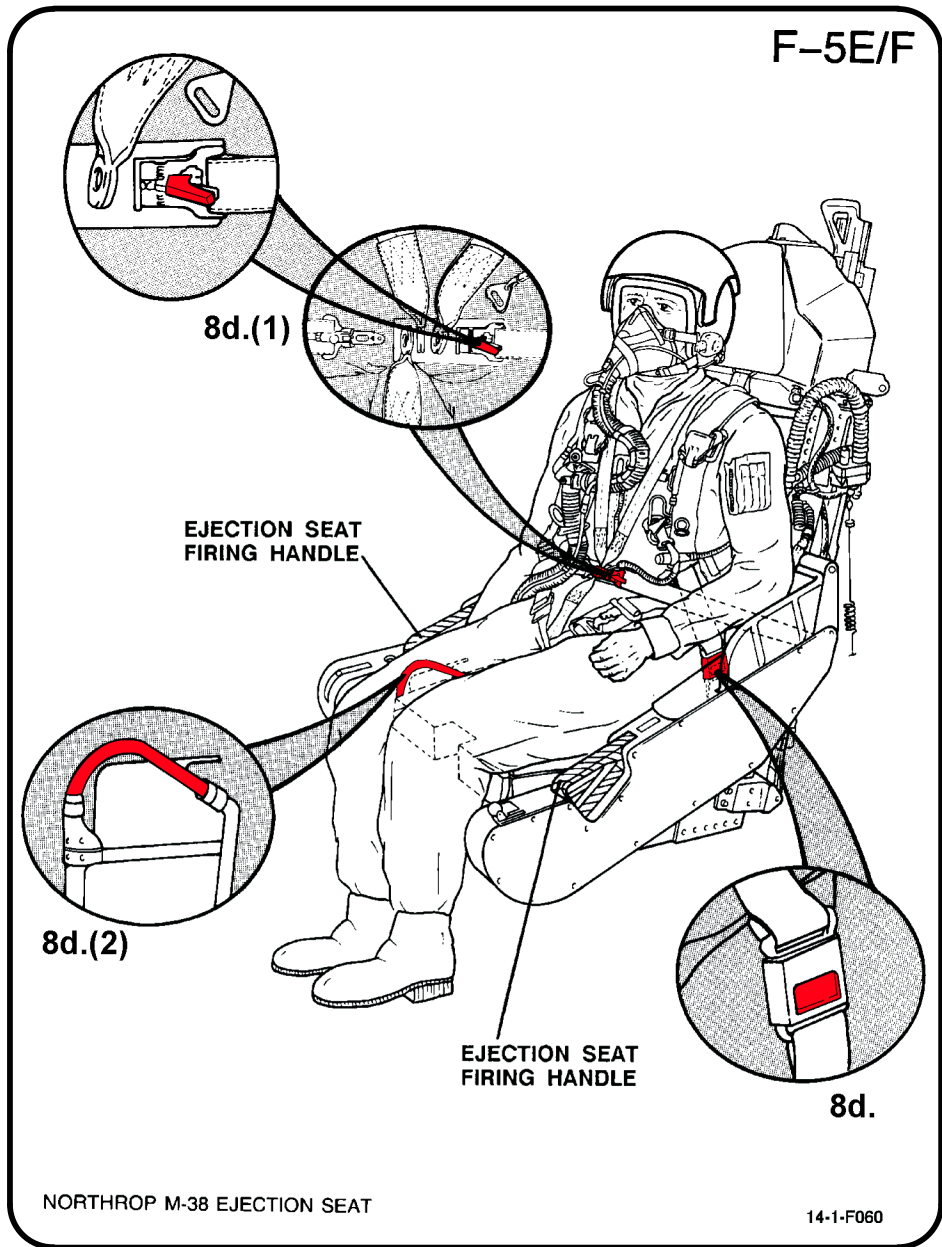
WARNING

The Emergency Release Handle (see illustration 8d(2).) looks similar to the Ejection Seat Firing Handles and may be obscured by the pilot's right leg. DO NOT pull the Ejection Seat Firing Handle. This may be fatal to crewmembers and rescue personnel.

- (a) PULL Emergency Release Handle with pilot's weight on seat. Parachute will remain attached.

Note

Ensure parachute ripcord does not snag when removing pilot from cockpit.



SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw

Crash Axe

3/8 Inch Drive Socket Wrench

1/4 Inch Drive Socket Wrench

7/32 Inch Key Socket Headscrew

1. GENERAL AIRCRAFT INFORMATION

- a. Armament
 - 6 Wing Stations (A/B/C/D)
 - 8 Wing Stations (E/F)
 - 3 Fus. Stations
 - 20-mm Nose Gun
 - Chaff/Flares
 - Decoys (E/F)
 - Pylon Ejector Cartridges
- b. Oxygen/LOX
 - 10 L (Aircraft 161353 Thru 164068)
 - OBOGS (164196 and Up)
- c. Battery
 - 2- F/A-18A/B/C/D
 - 1-F/A-18E/F
- d. Fuel
 - F/A-18A/C — Internal 1589 gal;
 - F/A-18B/D — Internal 1487 gal;
 - F/A-18 E — Internal 2162 gal;
 - F/A-18 F — Internal 2024 gal
- e. Oil
 - Engine 6.5 gal (F/A-18A/B/C/D)
 - Engine 4.5 gal (E/F)
 - Hydraulic 10 gal (F/A-18A/B/C/D)
 - 16 gal (F/A-18E/F)
- f. Pneumatic System
 - 3000 PSI — F/A-18A/B/C/D
 - 3000/5000 PSI — F/A-18E/F

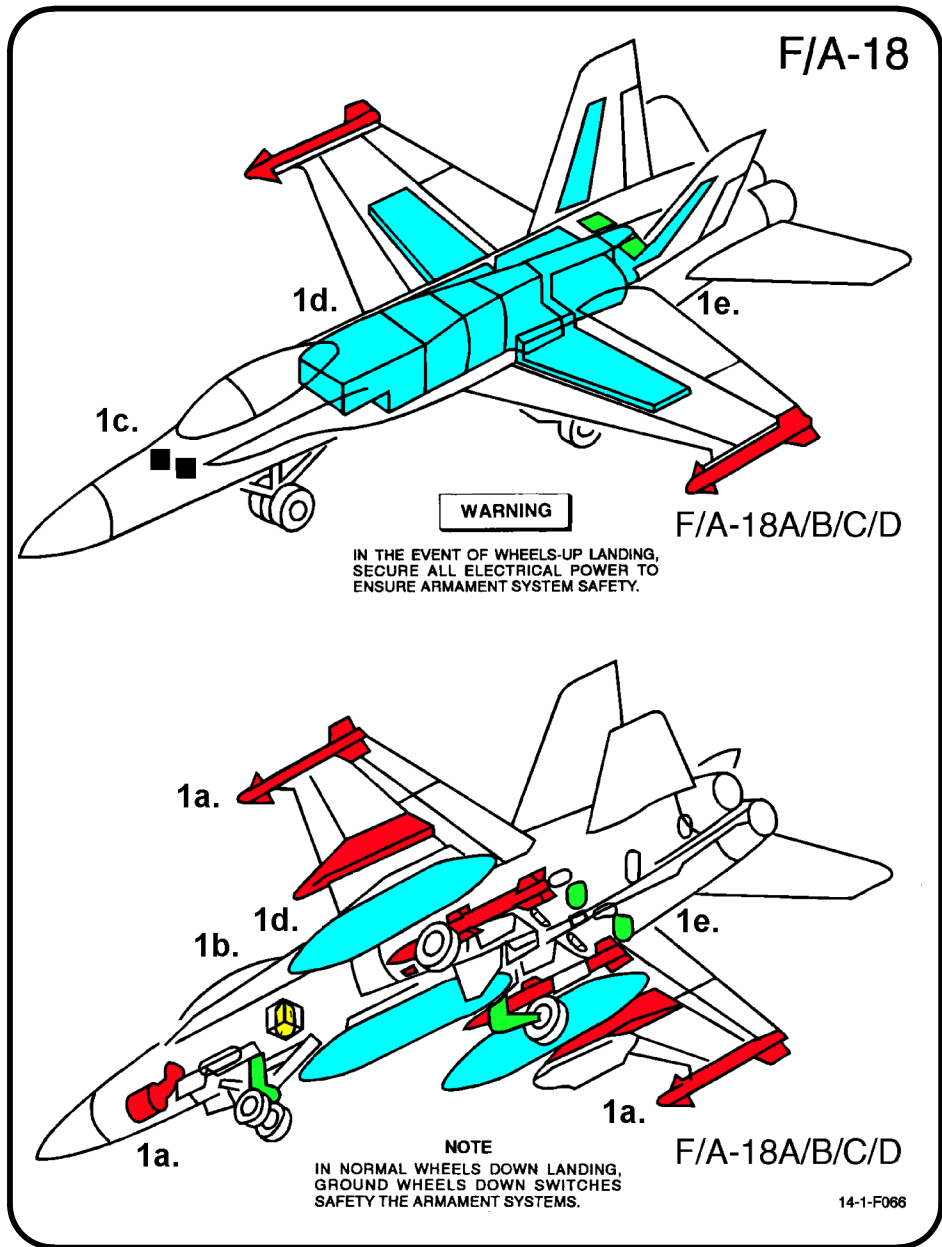
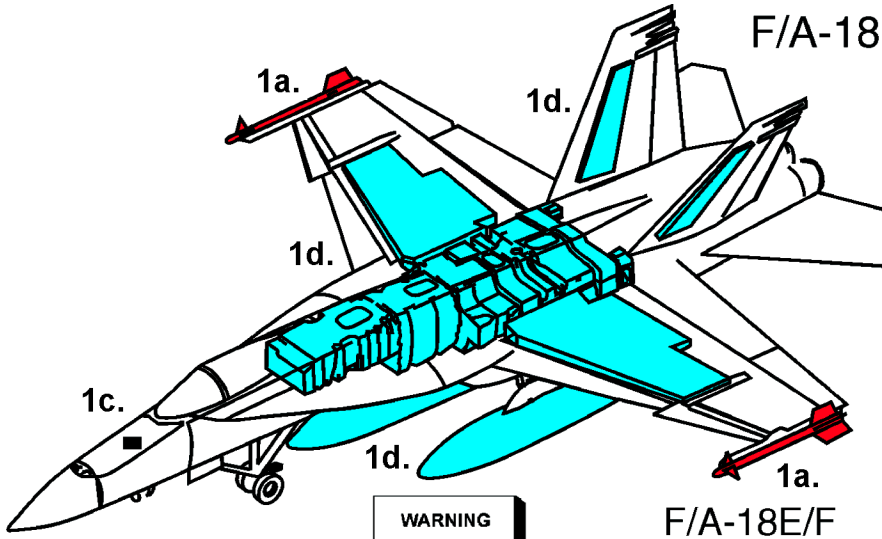
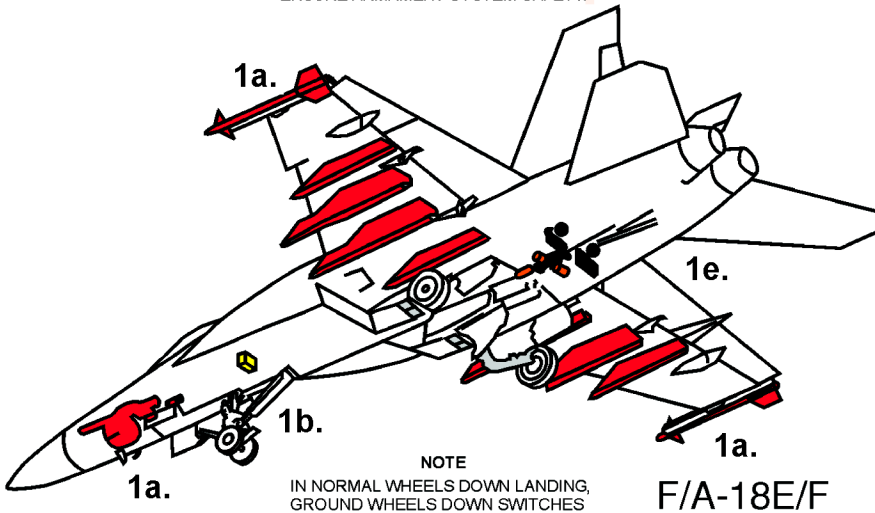


Figure B-3. F-18 Hornet Crash Crew Information (Sheet 1 of 13)



WARNING

IN THE EVENT OF WHEELS-UP LANDING,
SECURE ALL ELECTRICAL POWER TO
ENSURE ARMAMENT SYSTEM SAFETY.



NOTE

IN NORMAL WHEELS DOWN LANDING,
GROUND WHEELS DOWN SWITCHES
SAFETY THE ARMAMENT SYSTEMS.

14-1-F066A

Figure B-3. F-18 Hornet Crash Crew Information (Sheet 2)

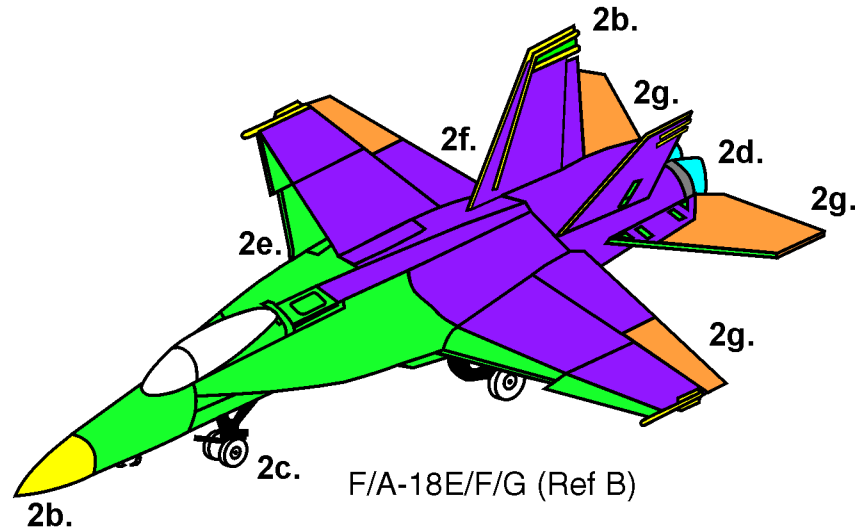
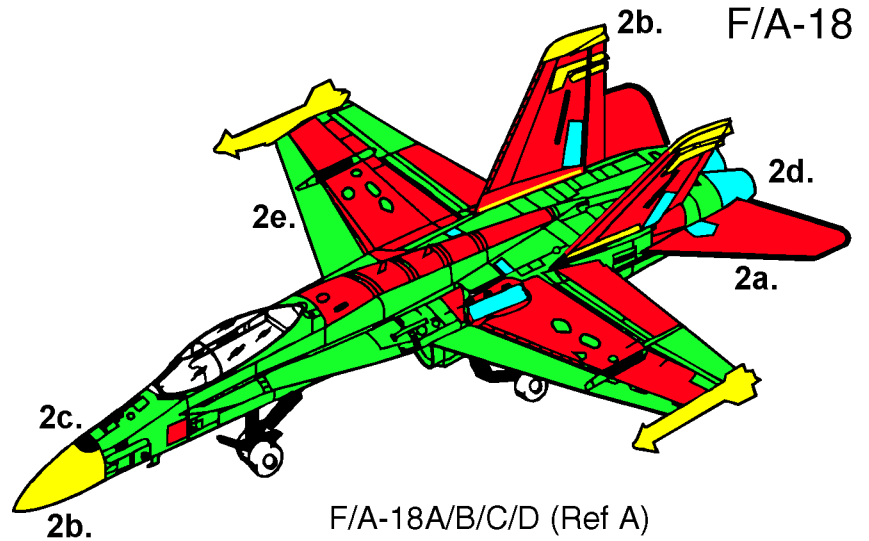
Figure B-3. F-18 Hornet Crash Crew Information (Sheet 3)

**2. AIRFRAME MATERIALS (F/A-18A/B/C/D)
(Ref A)**

- a. Graphite Epoxy
- b. Other
Boron/Tungsten/Fiberglass
- c. Steel
- d. Titanium
- e. Aluminum
- f. N/A
- g. N/A

**2a. AIRFRAME MATERIALS (F/A-18E/F/G)
(Ref B)**

- a. N/A
- b. Other
Boron/Tungsten/Fiberglass)
- c. Steel
- d. Titanium
- e. Aluminum
- f. Carbon Epoxy
- g. Aluminum Honeycomb

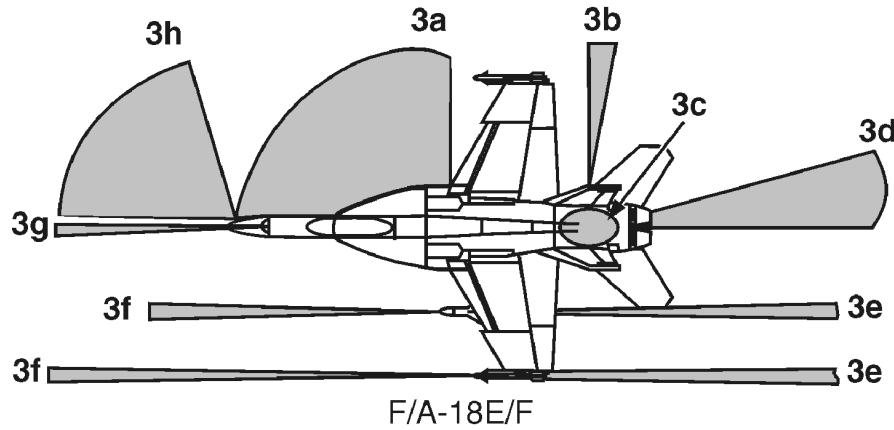
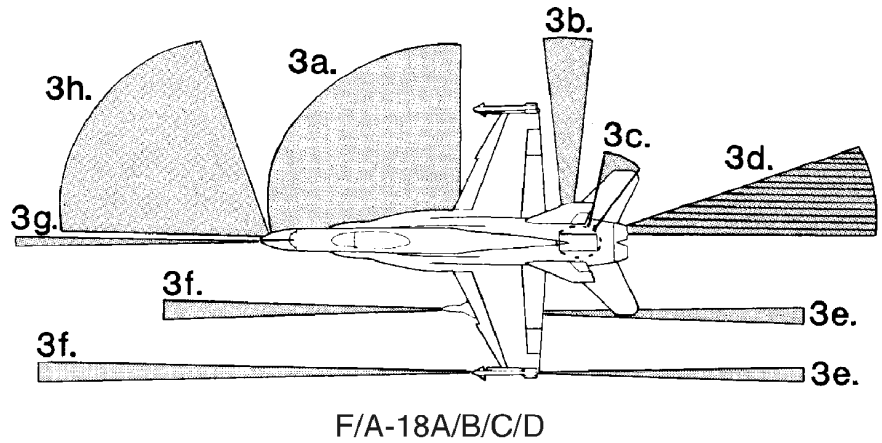


14-1-F067

Figure B-3. F-18 Hornet Crash Crew Information (Sheet 4)

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction
Idle — 9'
Max — 25'
- b. Turbine Blade Failure
Outboard Between Wing
and Stabilizer
- c. APU Exhaust
11'7.28" and 12' (E/F) AFT of the
main landing gear under fuselage
- d. Engine Exhaust
Idle — 100'
Max — 900'
- e. Missile Exhaust
AFT of Wing Station — 168'
- f. Missile Fwd Fire Zone
Aim — 9 FWD 317'
Aim — 7 FWD 34'
- g. Nose Gun
2° Pattern FWD of Gun
- h. Radiation
FWD 140° Arc — 140'



14-1-F067A

F/A-18

Figure B-3. F-18 Hornet Crash Crew Information (Sheet 5)

B-13

ORIGINAL

3. AIRCRAFT DANGER AREAS (CONT.)

a. Deployable Flight Incident Recorder Set (DFIRS) comprises the following components:

- (1) TLX thin-layered transfer system
- (2) Impact initiator and cartridge
- (3) Underwater initiator and cartridge

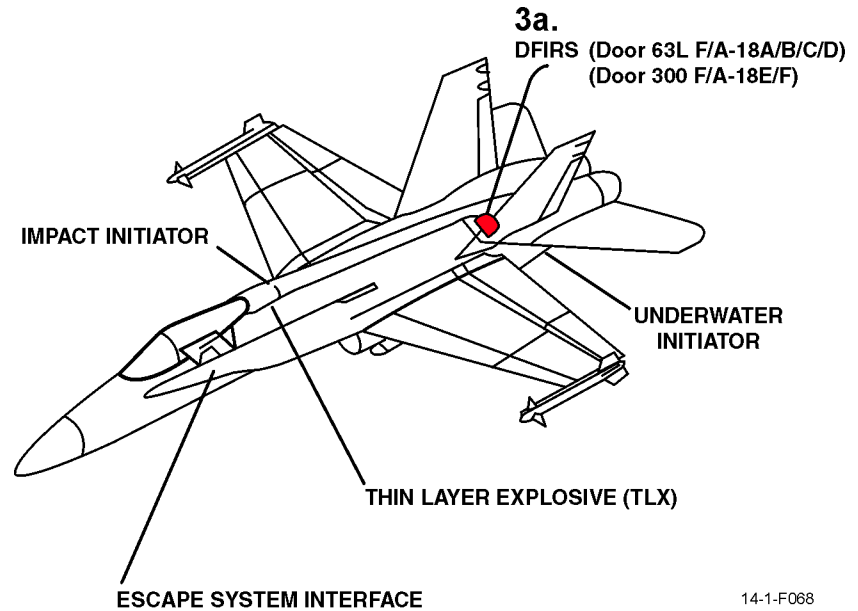
Note

IAFC 126 deactivates the underwater initiator system.

- (4) Severable door
- (5) Front mount and cartridge
- (6) Deployable flight incident recorder

DFIRS deploys under the following conditions:

- (a) Ejection — DFIRS is deployed immediately upon initiation of ejection.
- (b) Crash (without ejection) — DFIRS is deployed when the impact initiator senses 20g's (longitudinal).



14-1-F068

3. AIRCRAFT DANGER AREAS (CONT.)

WARNING

If the aircraft has crashed or is burning or damaged and the DFIRS has not deployed, the heat or mechanical damage may cause the FLSC on F/A-18A/B/C/D door #63L or F/A-18E/F and EA-18G door #300 to detonate without warning, propelling the 7-pound door upward at approximately 50 feet per second.

Note

It is possible that fire or other abnormal activation of DFIRS could result in burning of FLSC without detonation. In this event, the door may not be completely severed and the hazards from hot gas and shrapnel may be reduced.

Figure B-3. F-18 Hornet Crash Crew Information (Sheet 6)

4. AIRCRAFT ENTRY

WARNING

After flight, before personnel can safely touch the windshield and canopy, high voltage static charge build up must be discharged by using anti-static gloves.

a. NORMAL ENTRY

Canopy is electronically operated. To open canopy, PRESS center button to release door and expose the control switch. HOLD switch in UP position until canopy is fully open.

b. MANUAL ENTRY

Canopy can be opened by inserting 3/8-inch drive socket wrench or breaker bar into Manual Open Socket. ROTATE COUNTERCLOCKWISE 35 TURNS (112 TURNS ON TWO-SEAT AIRCRAFT) to fully open canopy.

c. EMERGENCY ENTRY

WARNING

- If fuel or other flammable fluids are present, it is not advisable to jettison canopy because rocket motors, when fired, can ignite these fluids.
- Canopy may be jettisoned from either side of aircraft. OPEN door 5L or 5R and REMOVE handle. Move away from aircraft the full length of canopy jettison cable and YANK HARD. Canopy will impact approximately 30 feet behind aircraft.

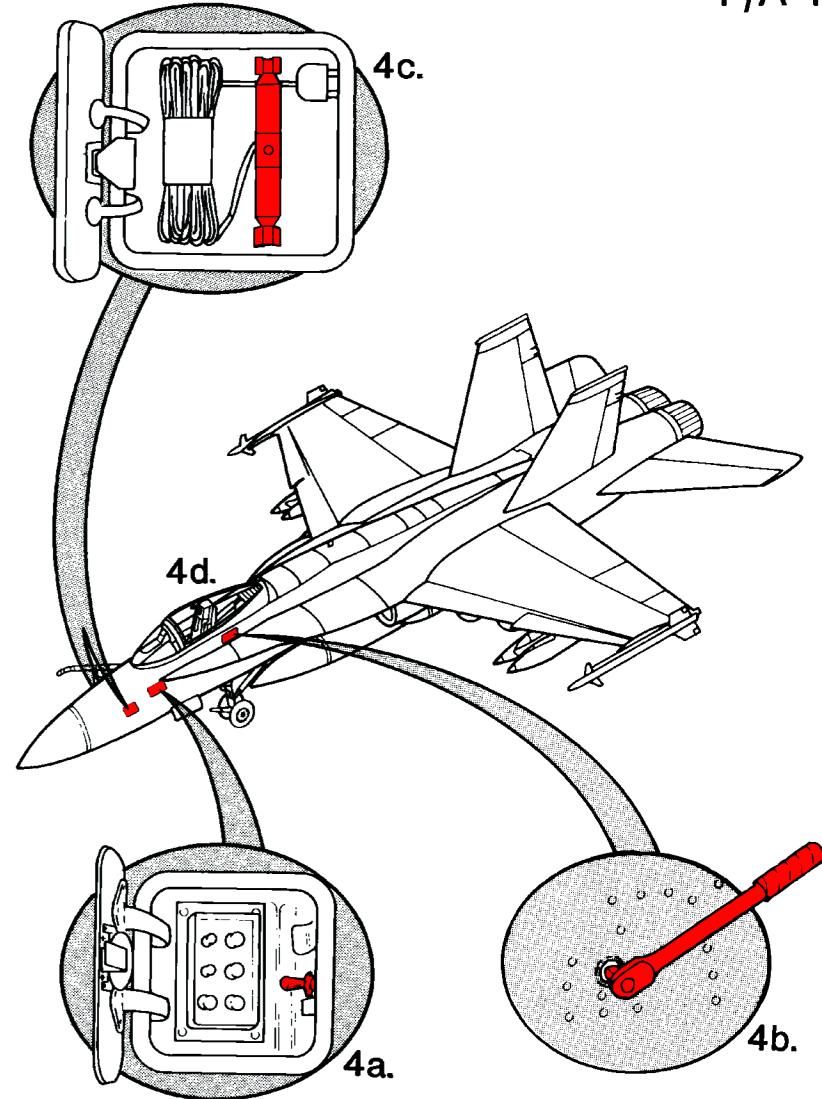
Note

On airplanes 162826 and up, canopy can only be jettisoned from inside the cockpit.

d. FORCED ENTRY

Canopy is acrylic plastic and may be cut with power rescue saw or axe. To avoid canopy fracture spray with CO₂ to make brittle and easy to break. CUT along canopy frame.

F/A-18



14-1-F070

Figure B-3. F-18 Hornet Crash Crew Information (Sheet 7)

Figure B-3. F-18 Hornet Crash Crew Information (Sheet 8)

5. CANOPY SAFETY

WARNING

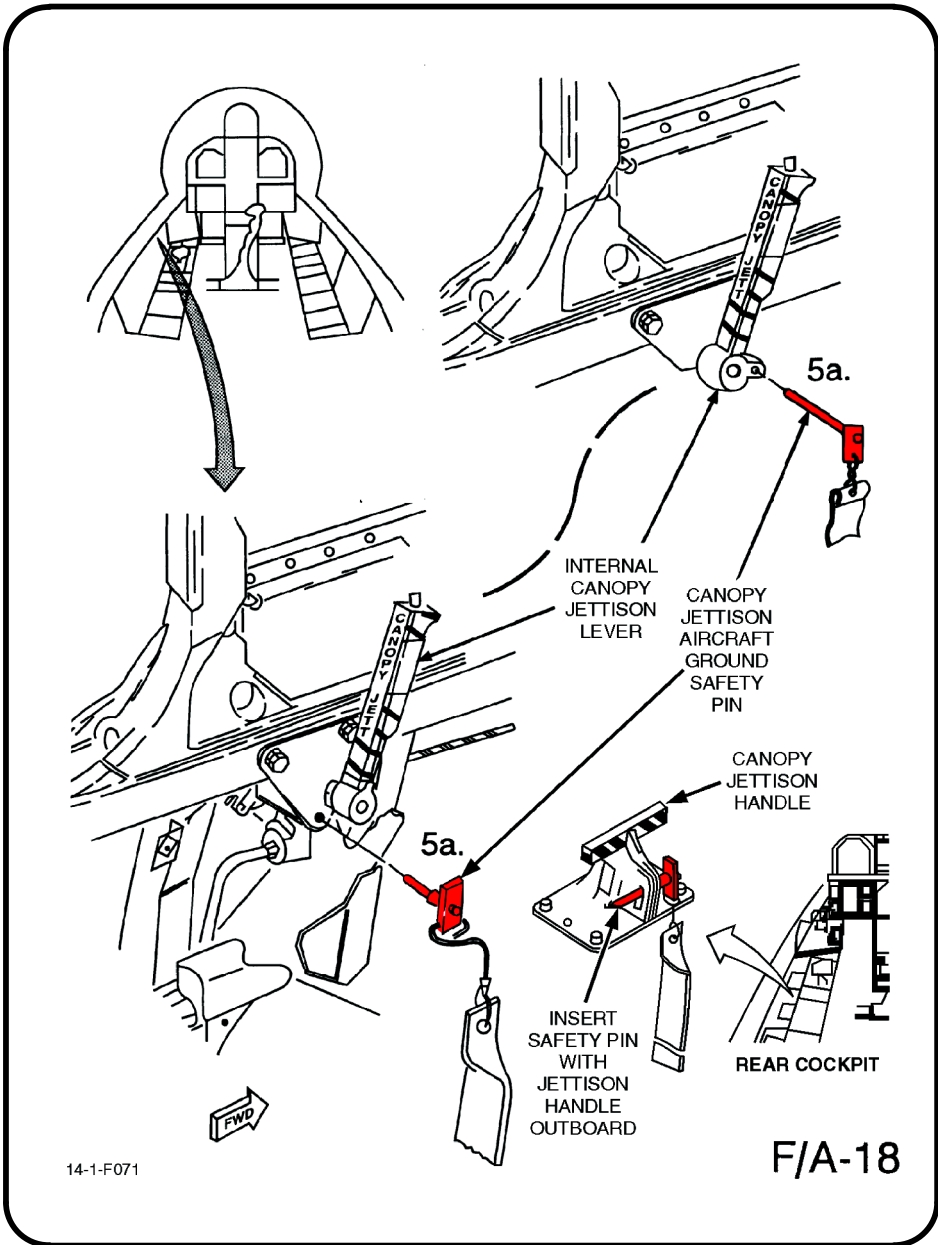
- During flight of the F-18 aircraft, a high voltage (100,000 volts) static electrical charge may build up and be stored in the windshield and canopy. After flight, static charge buildup must be discharged using anti-static gloves (part number SG-200-93-y-F150), before personnel can safely touch the windshield and canopy.
- Canopy has dual rocket motors mounted on canopy frame. With canopy open, rescue personnel may be seriously injured if rocket motors are ignited.

a. CANOPY UNLATCH THRUSTER

To safely Canopy Unlatch Thruster and Canopy Rocket Motors, INSERT safety pin, if available, into Canopy Jettison Handle.

Note

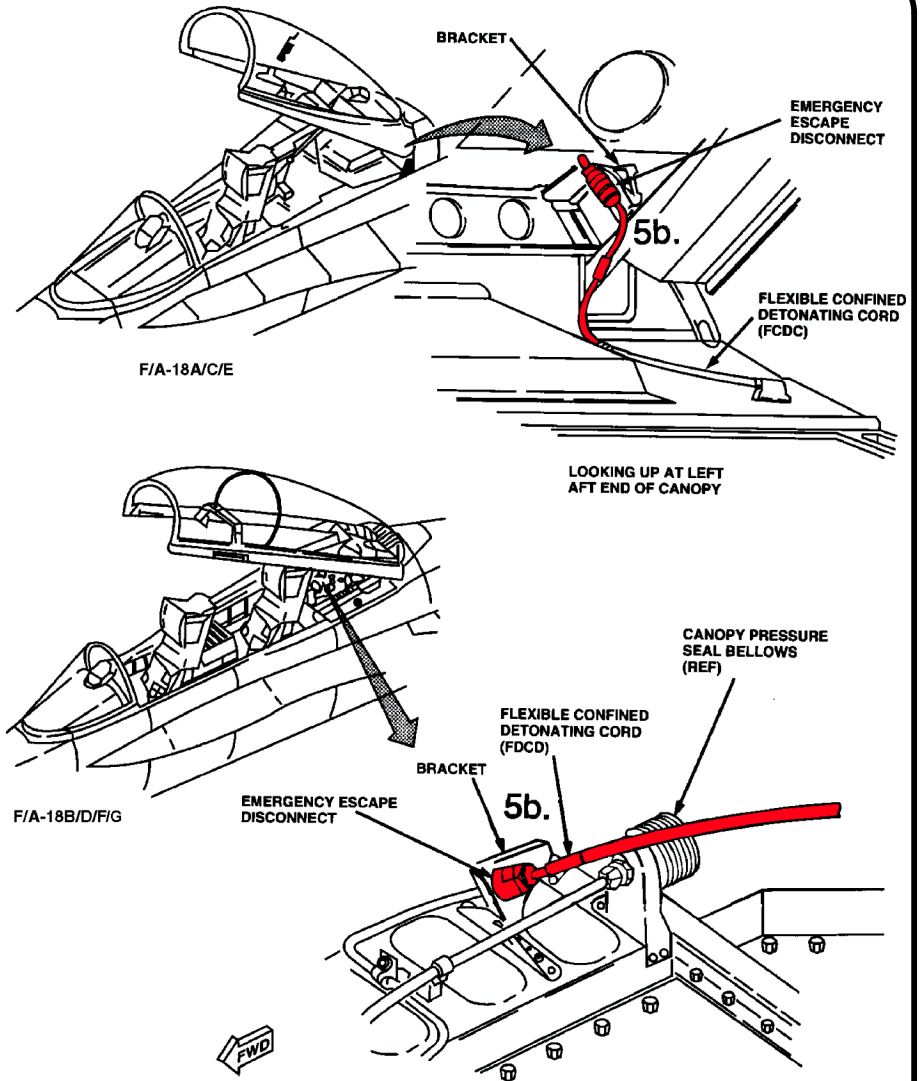
Insert safety pin with jettison lever forward.
 On F/A-18B/D/F/G (two seat), insert the canopy jettison safety pin in the Rear Internal Canopy Jettison Lever.



5. CANOPY SAFETY (CONT.)

b. CANOPY/AIRCRAFT QUICK DISCONNECT

GRASP quick disconnect hose and PULL DOWN to disarm Canopy Thruster and Rocket Motors.



14-1-F072

F/A-18

Figure B-3. F-18 Hornet Crash Crew Information (Sheet 9)

Figure B-3. F-18 Hornet Crash Crew Information (Sheet 10)

**6. ENGINE/APU SHUTDOWN
(NORMAL/EMERGENCY)
(INTERNAL VIEW) (REF A)**

The engines may be shut down by using the throttles or fuel shutoff valve controls.

- a. N/A
- b. N/A
- c. N/A
- d. **THROTTLES**

RAISE finger lifts and MOVE throttles fully AFT to OFF position.

- e. **FUEL SHUTOFF VALVE CONTROLS**

Lift guard and PRESS the Left and Right FIRE warning lights. A time delay of approximately 30 seconds or less (with engines at MIL through IDLE) may be expected before engine shutdown occurs.

Note

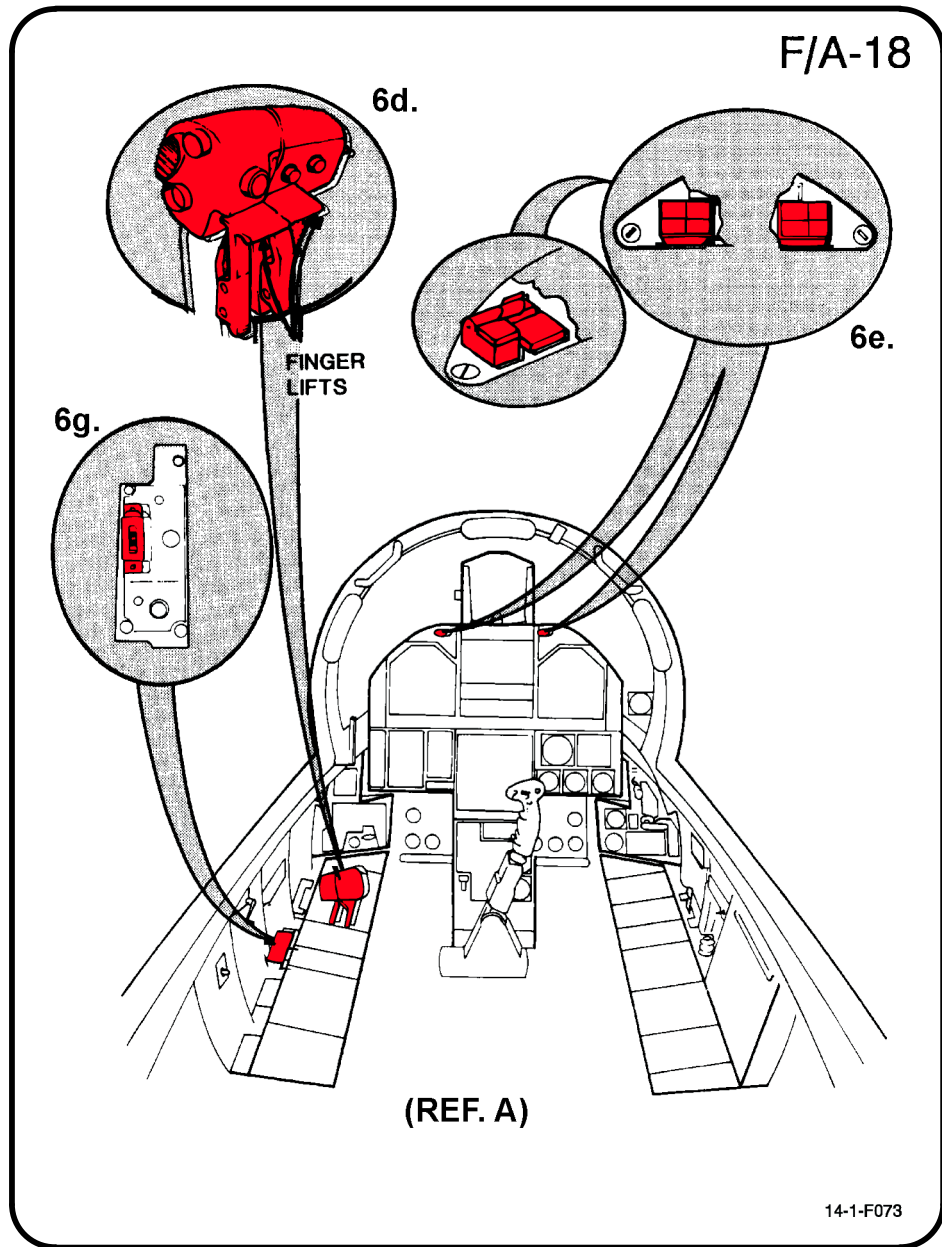
On aircraft 160775 thru 160781 and F/A-18B aircraft BUNO 160782, valve levers are located AFT of throttles. PULL levers to FULL UP position.

- f. N/A
- g. **APU**

Auxiliary Power Unit may be shut down by placing APU Switch in OFF position.

WARNING

Puddling of fuel under aircraft indicates presence of residual fuel in engine bay. With APU running, this can cause fire/explosion. Ensure APU shutdown prior to crewmember rescue.



**6a. ENGINE/APU SHUTDOWN
(NORMAL/EMERGENCY)
(EXTERNAL VIEW) (REF B)**

The engines may be shut down by using the throttles or fuel shutoff valve controls.

- a. N/A
- b. N/A
- c. N/A

d. THROTTLES

RAISE finger lifts and MOVE throttles fully AFT to OFF position.

e. FUEL SHUTOFF VALVE CONTROLS

Lift guard and PRESS the Left and Right FIRE warning lights. A time delay of approximately 30 seconds or less (with engines at MIL through IDLE) may be expected before engine shutdown occurs.

Note

On aircraft 160775 thru 160782 (F/A-18A, Cum 1 thru 7; F/A-18B, Cum 1), valve levers are located AFT of throttles. PULL levers to FULL UP position.

- f. N/A
- g. APU

Auxiliary power unit may be shut down by placing APU switch in OFF position.

WARNING

If APU is inoperative, a huffer and electric power are required for engine(s) shutdown in case of tailpipe fire.

h. BATTERY switch

Place switch in OFF position.

7. N/A

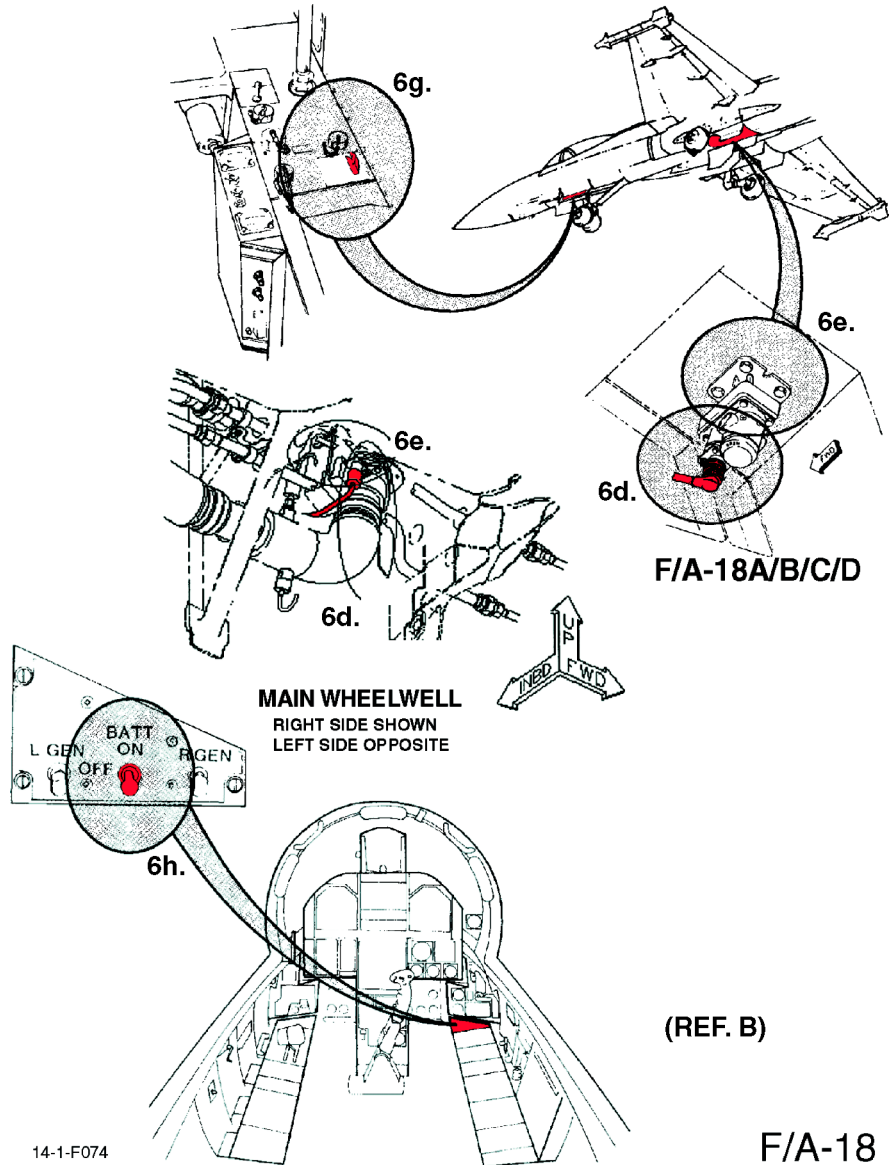


Figure B-3. F-18 Hornet Crash Crew Information (Sheet 11)

Figure B-3. F-18 Hornet Crash Crew Information (Sheet 12)

8. CREW RELEASE

The crewmember is attached to the seat by the use of an integrated harness and leg restraints. Additionally, the oxygen/communication lead is attached to the survival kit. If the crewmember is wearing an anti-G suit, a hose will be attached to an outlet on the LH console.

a. PERSONNEL SERVICE/QUICK DISCONNECT

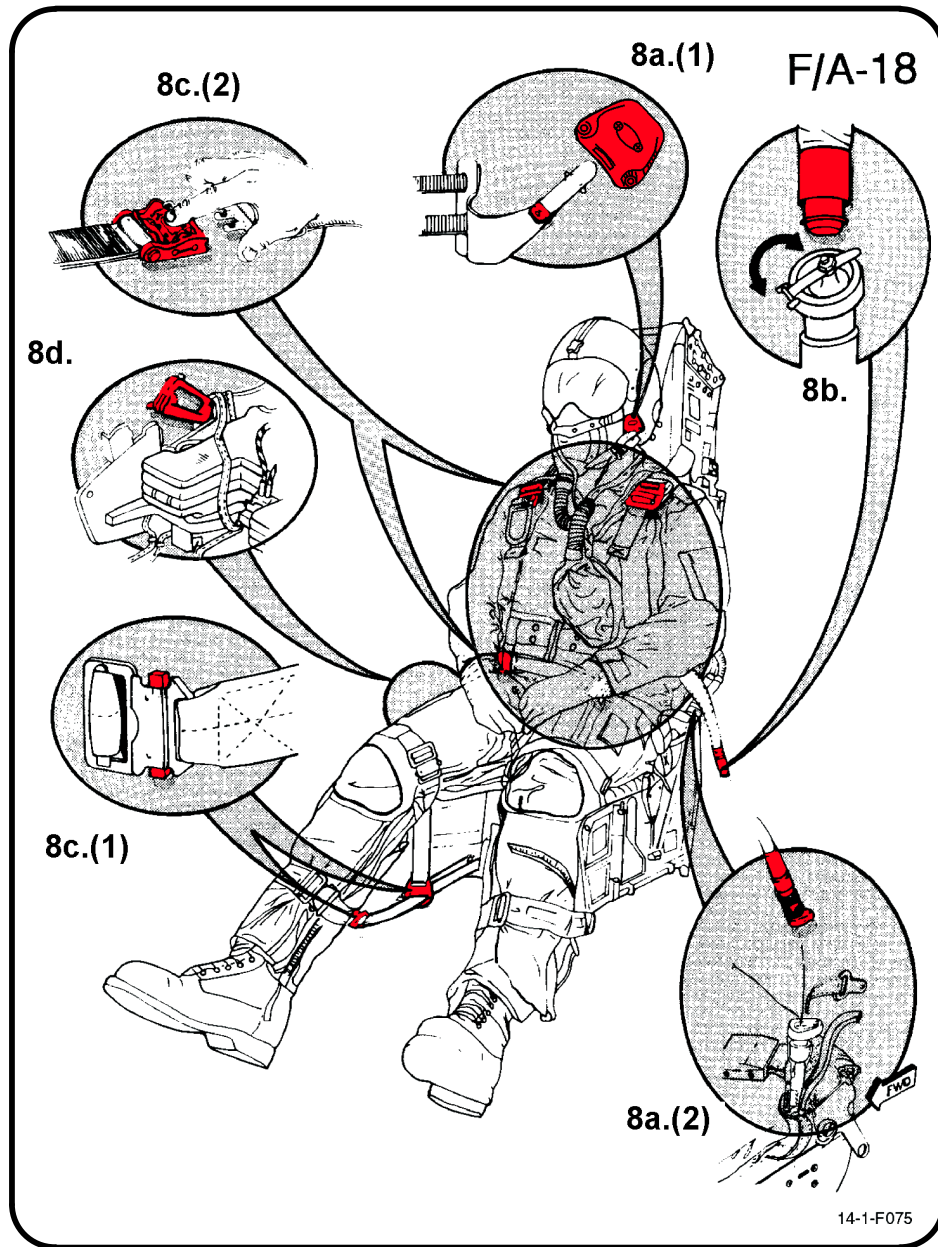
- (1) Remove oxygen mask by PULLING DOWN on release tabs on either side of mask.
- (2) Disconnect oxygen/communication lead at the survival kit. GRASP knurled fitting on hose and PULL UP to disconnect.
- (3) Release hip quick disconnect connector (QDC).
- (4) Release helmet release connector for the Joint Helmet Mounted Cueing System (JHMCS).

b. RESTRAINT SUIT BELTS/RELEASE

PULL anti-G suit hose from LH console.

c. HARNESS STRAPS/LEG RESTRAINT RELEASE

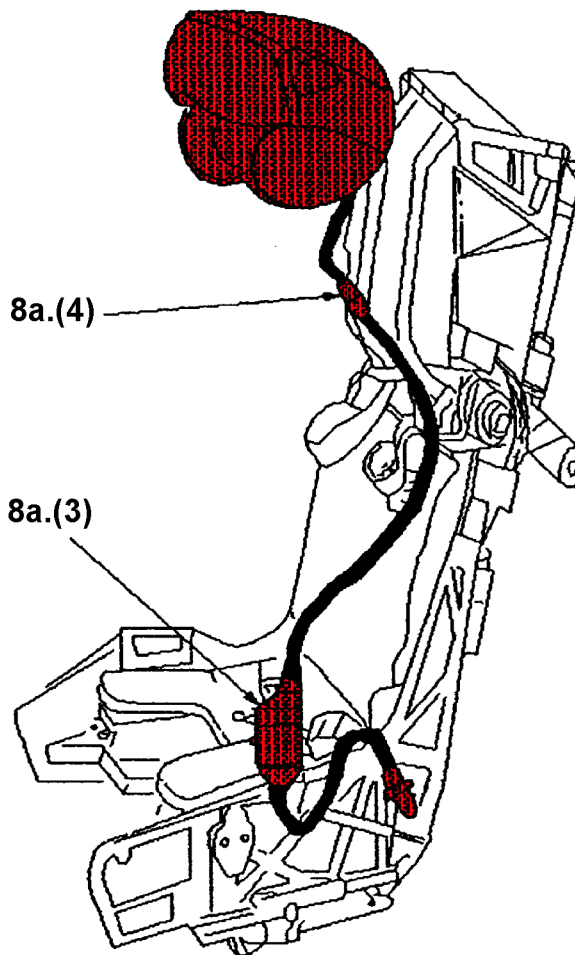
- (1) Release leg garters by APPLYING PRESSURE to both sides of each quick disconnect fitting.
- (2) Release two lap belt, then two shoulder harness koch fittings.



8. CREW RELEASE (CONT.)

d. EMERGENCY RELEASE

PRESS thumb button on FWD part of Manual Override Handle (right Side of seat) and ROTATE handle AFT. This positions the Safe/Armed Handle UP in safe position and releases lower leg restraint lines. However, parachute and survival kit will remain attached to crewmember.



F/A-18E/F/G JOINT HELMET MOUNTED CUEING SYSTEM (JHMCS)

14-1-F075A

Figure B-3. F-18 Hornet Crash Crew Information (Sheet 13)

APPENDIX C

Special Mission Aircraft

SPECIAL MISSIONS AIRCRAFT SYSTEMS
AND
CRASH CREW INFORMATION DIAGRAMS SUMMARY

TYPE	NAME	AIRFRAME MATERIALS	FUEL (GAL)		OIL (GAL)		OXYGEN		PNEU SYS		GUN	ORDNANCE		PYROTECHNICS	BTRY	EJECT SYS	S.O.B.
			INT	EXT	ENG	HYD	LOX	BOTTLE	GAS	AIR		FWD FIRE	FREE FALL				
E-2C	HAWKEYE	ALUMINUM STEEL FIBERGLASS	1824	NONE	16	20	10L	PORT (1) BAIL OUT BOTTLES (5)	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	FLARES	1	NONE	5
EA-6B	PROWLER	ALUMINUM STEEL FIBERGLASS	2300	1500	3.9	18.6	(3) 10L	SEAT PAN (4)	N ₂ 3000 PSI	NONE	NONE	MISSILES	NONE	PYLON EJECTOR CARTRIDGES (5) STA. CHAFF/FLARES	1	MARTIN-B AKER MK GRUEA-7	4
P-3	ORION	ALUMINUM STEEL FIBERGLASS	9200	NONE	40	46	NONE	(3) FIXED (7) PORT	N ₂ 3000 PSI	NONE	NONE	MISSILES ROCKETS	BOMBS MINES SONOBUOY	PYLON EJECTOR CARTRIDGES (18) STA. CHAFF/FLARES	1	NONE	AB-18 C-23 E-27
S-3	VIKING	ALUMINUM STEEL FIBERGLASS MAGNESIUM	1933	530	4.8	7.2	10L	SEAT PAN (4)	NONE	NONE	NONE	MISSILES ROCKETS	BOMBS MINES SONOBUOY	PYLON EJECTOR CARTRIDGES (6) STA. CHAFF/FLARES CANOPIES EJECTION SEATS	0	ESCAPAC 1E-1	4
E-6	MERCURY	ALUMINUM STEEL FIBERGLASS	24.000	NONE	60.5	72	75L	18	N ₂ 1200 PSI	NONE	NONE	NONE	NONE	SIGNAL FLARES	4	NONE	24

Figure C-1. Special Mission Aircraft Systems and CCID Summary

Figure C-2. E-2 Hawkeye Crash Crew Information (Sheet 1 of 6)

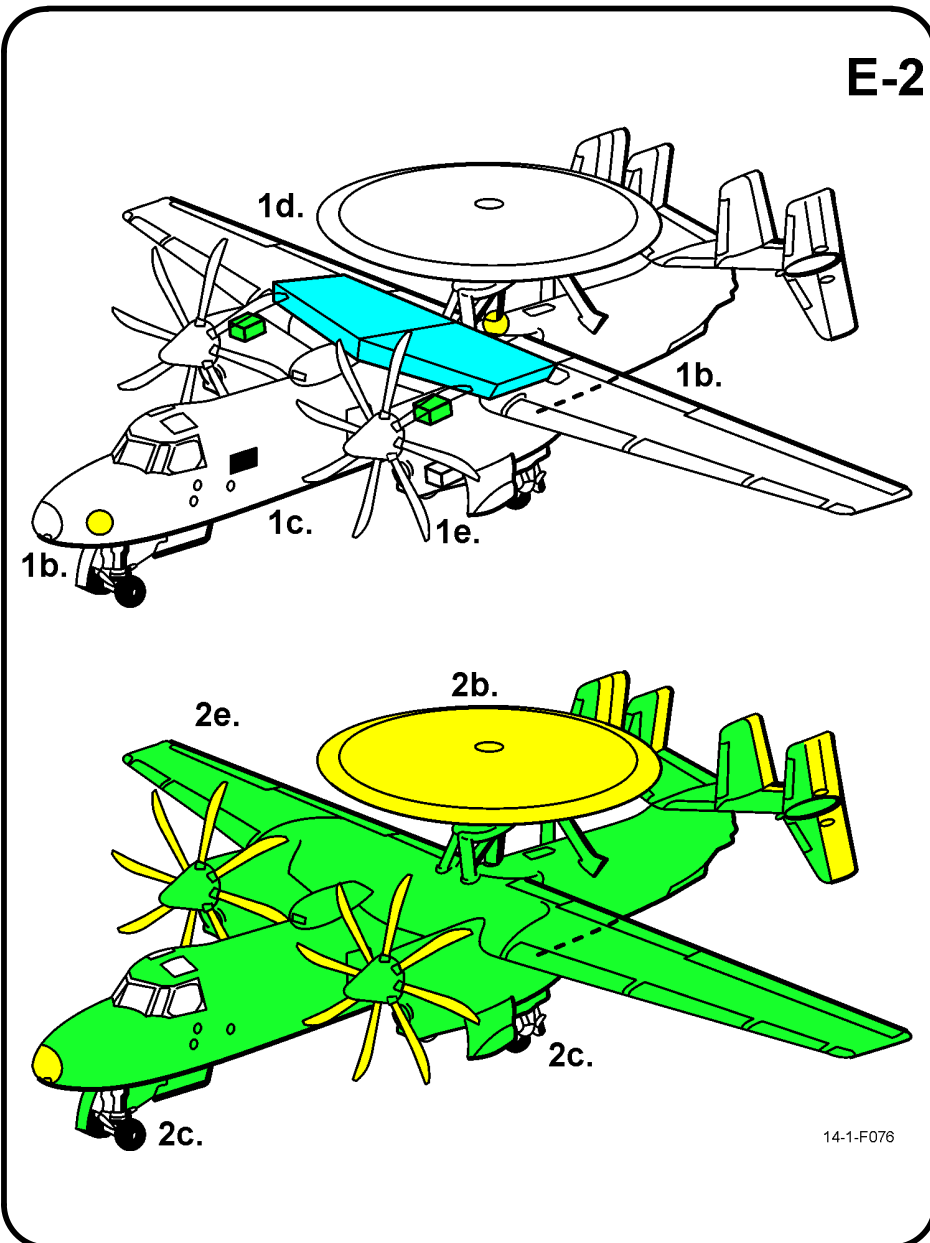
SPECIAL TOOLS/EQUIPMENT
 Power Rescue Saw
 Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. Oxygen/LOX 10 L
 Portable Cylinder (1)
 Bailout Bottle (5)
- c. Battery 1
- d. Fuel Internal 1824 gal
- e. Oil Engines — 16gal
 Hydraulic — 20 gal
 Transmission — 13 gal
- f. Pneumatic System 3000 PSI

2. AIRFRAME MATERIALS

- a. N/A
- b. Other:
 Fiberglass
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A



3. AIRCRAFT DANGER AREAS

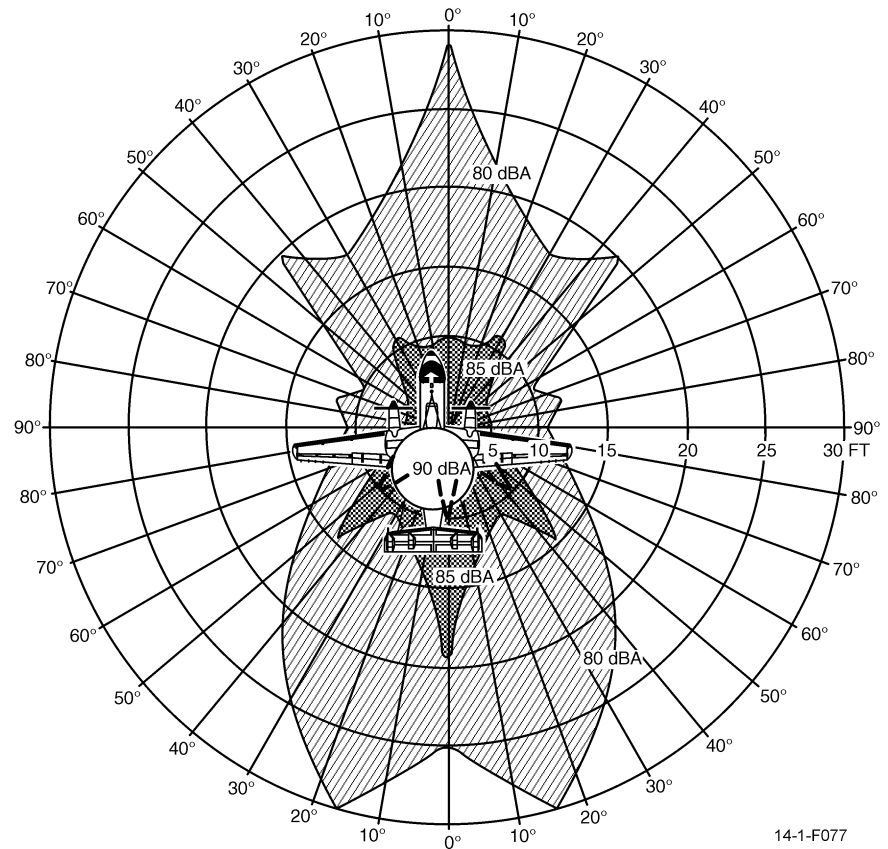
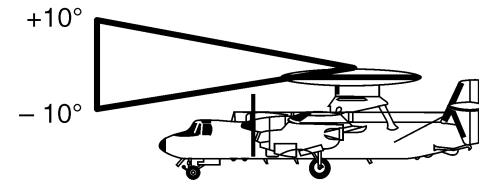
- a. Propeller Danger Zone — 15'
- b. Engine Exhaust/Propeller Blast — 28'
- c. Radiation
 - Sector A Main Lobe — 500'
 - Sector B Side Lobe — 50'

WARNING

- Radiation may cause steel wool to be set afire or metallic chips to produce sparks, which in turn may ignite spilled oils or fuels around aircraft and buildings.
- Unauthorized transmission aboard ship is prohibited.
- While there is no apparent danger to personnel because of the HF electromagnetic field generated by the AN/ARQ-34 transmitter, electrical shock hazards exist if personnel come into contact with the antenna or the airframe. All personnel should be cautioned not to touch the antenna or the airframe while the AN/ARQ-34 is transmitting.

Note

If antenna is rotated, Sector A must move accordingly.



14-1-F077

E-2

Figure C-2. E-2 Hawkeye Crash Crew Information (Sheet 2)

Figure C-2. E-2 Hawkeye Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY**a. NORMAL ENTRY**

- (1) Stand FWD of door.

WARNING

Clearance between door, propeller and forward edge of door is minimal and extremely dangerous. If the cabin is pressurized, even slightly, the door will fly open rapidly. To avoid personal injury, ensure that there is no residual pressurization prior to opening the main entrance door.

- (2) TURN handle to UNLOCK position.
- (3) PULL hand grip on door. SUPPORT door during opening.
- (4) STEP on door when open to secure.

b. N/A**c. EMERGENCY ENTRY****WARNING**

When opened, the CIC compartment ditching hatch drops into the aircraft; therefore, caution should be exercised to prevent injury to crewmember seated below hatch.

Emergency entry is through pilot and copilot escape hatches and the CIC compartment ditching hatch AFT top RH side of aircraft.

d. FORCED ENTRY

Using power rescue saw or crash axe, CUT through fuselage FWD on top center of fuselage and around cockpit windows and AFT RH side of fuselage.

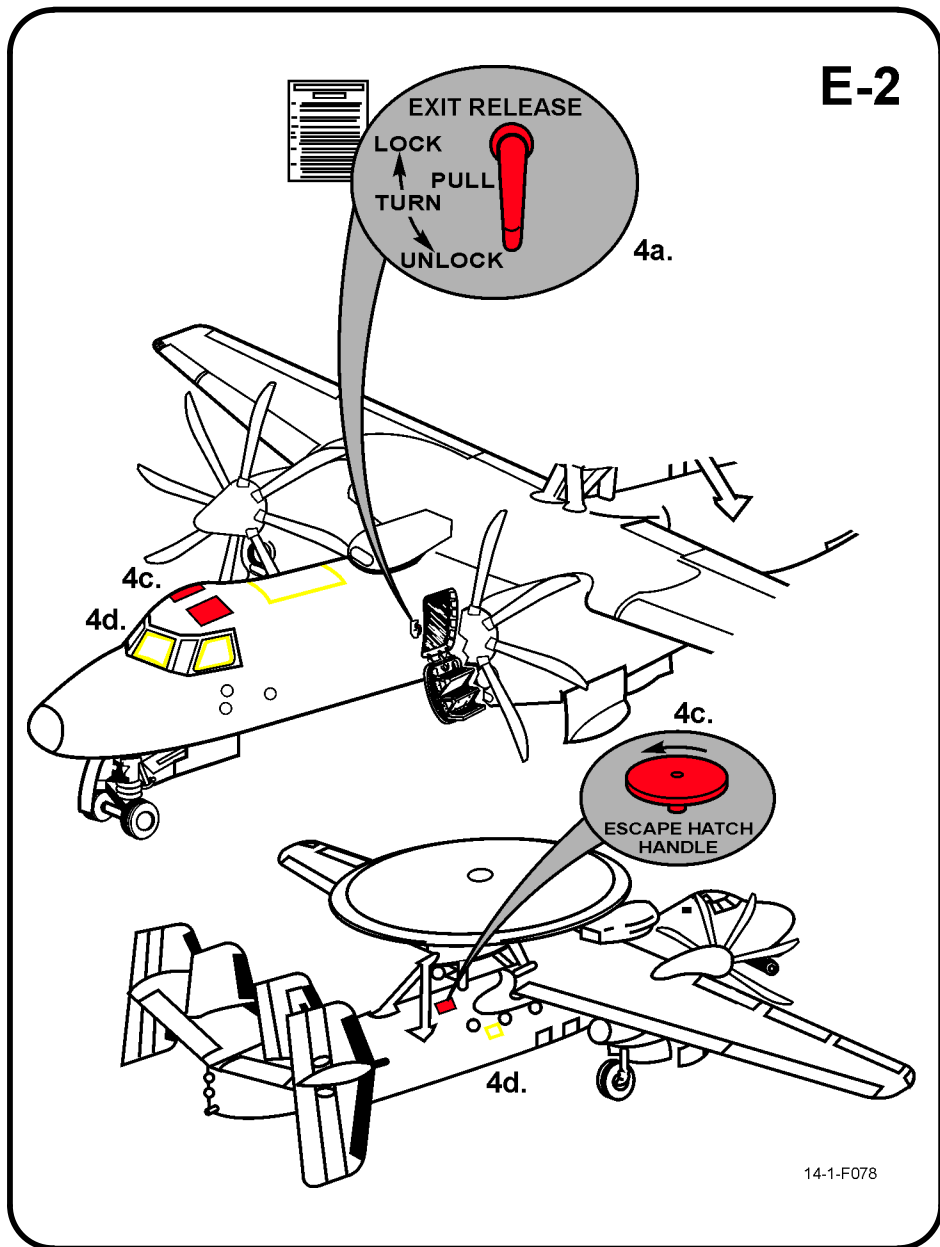


Figure C-2. E-2 Hawkeye Crash Crew Information (Sheet 4)

5. N/A

6. ENGINE SHUTDOWN

a. CONDITION LEVERS

To move the levers to different positions, the Detent Release at the outboard side of each lever must be LIFTED, then MOVE levers to extreme AFT position.

b. GENERATOR SWITCHES

PLACE Left and Right Generator Switches in OFF position.

c. N/A

d. N/A

e. N/A

f. N/A

g. N/A

7. BATTERY

The battery is for the JTIDS only and is located on the port side of the forward equipment compartment adjacent to the cockpit steps. To deactivate the battery remove the quick disconnect fittings.

a. N/A

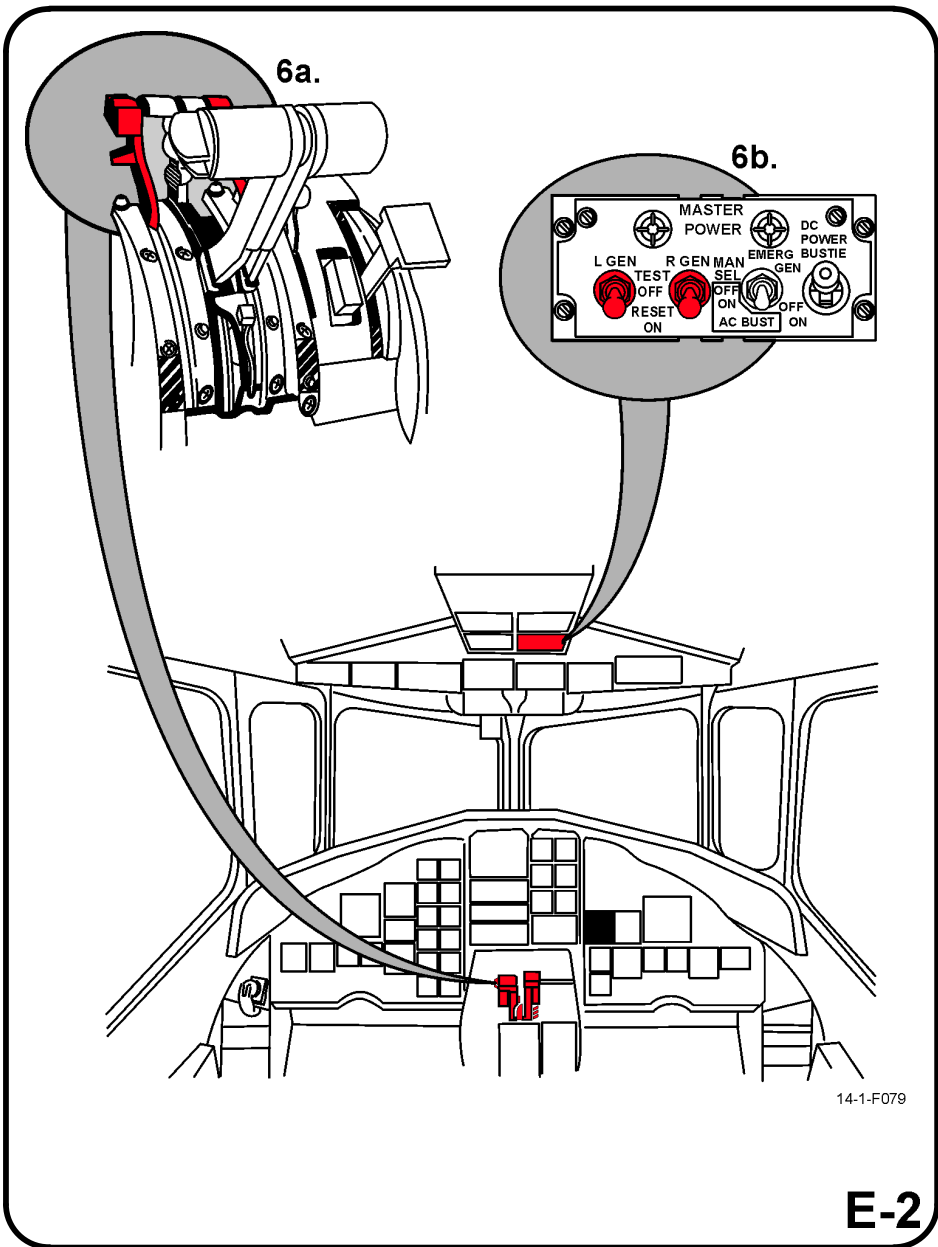


Figure C-2. E-2 Hawkeye Crash Crew Information (Sheet 5)

8. CREW RELEASE (A/P22P-11 CREW PARACHUTE BACKPACK ASSEMBLY)

Crewmembers are attached to the seats by the use of a torso harness.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask by PULLING DOWN on release tabs on either side of mask.
- (2) The oxygen and communications leads are quick disconnect. To release, PULL APART at the quick disconnect fittings.

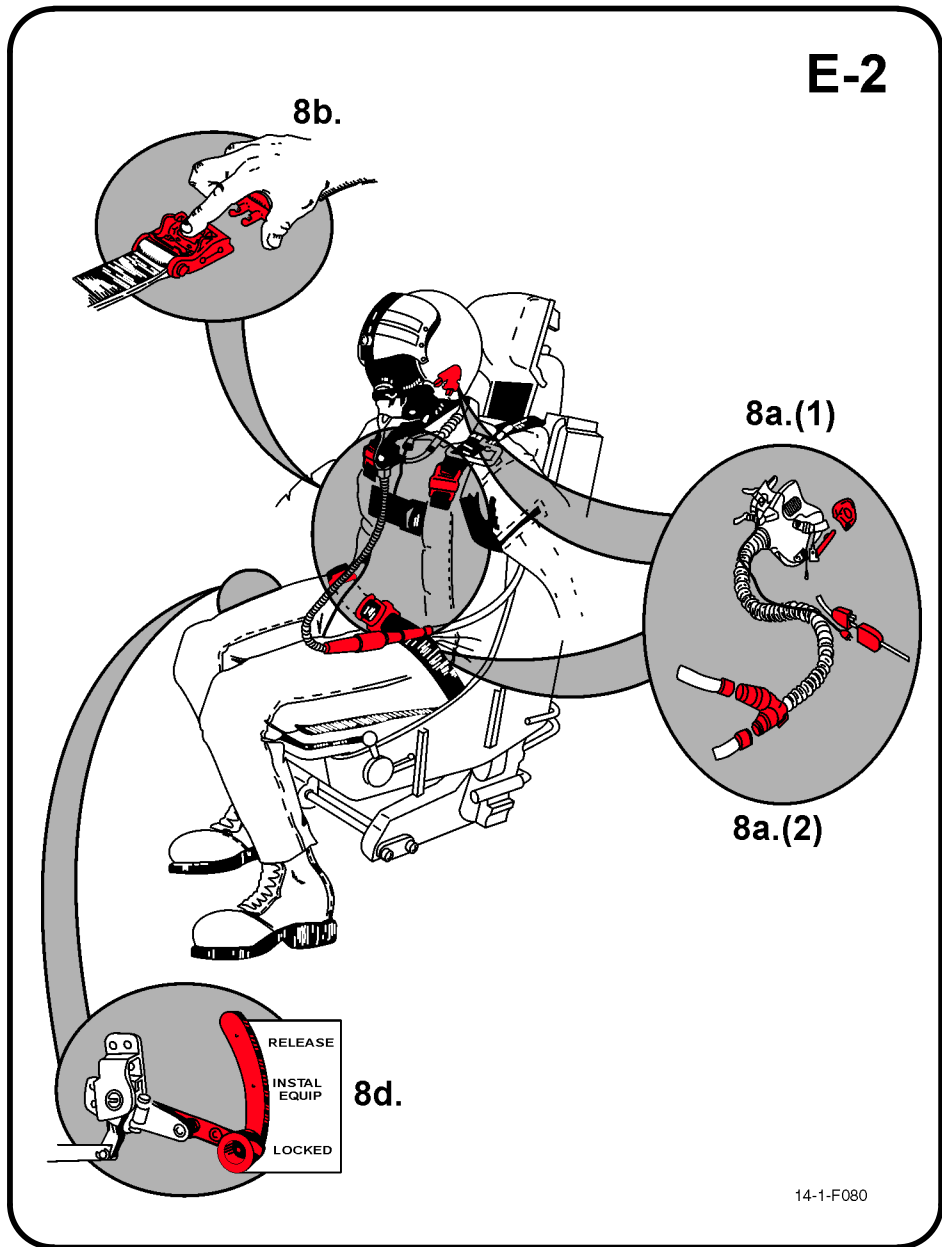
b. RESTRAINT SUIT BELTS/RELEASE

Release two lap belt mini-Koch fittings, then two shoulder harness koch fittings.

c. N/A

d. EMERGENCY RELEASE

Actuating the Emergency Release Handle will free the crewmember from the seat. However, the parachute and survival kit will remain attached to the crewmember.



8a. CREW RELEASE (A/P22P-20 CREW PARACHUTE BACKPACK ASSEMBLY)

Crewmembers are attached to the seats by the use of a torso harness.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask by PULLING DOWN on release tabs on either side of mask.
- (2) The communications leads are quick disconnect. To release, PULL APART at the quick disconnect fittings.
- (3) Disconnect A/P22P-20 Emergency Oxygen System from side of regulator by turning CCW and pulling apart at connection.
- (4) Disconnect oxygen mask hose and aircraft oxygen hose from regulator by depressing and turning connector CCW and pulling apart at connection. the on-board oxygen hose will also be disconnected during the performance of this step.

b. RESTRAINT SUIT BELTS/RELEASE

Release two lap belt mini-Koch fittings, then two shoulder harness Koch fittings.

c. N/A

d. EMERGENCY RELEASE

Actuating the Emergency Release Handle will free the crewmember from the seat. However, the parachute and survival kit will remain attached to the crewmember.

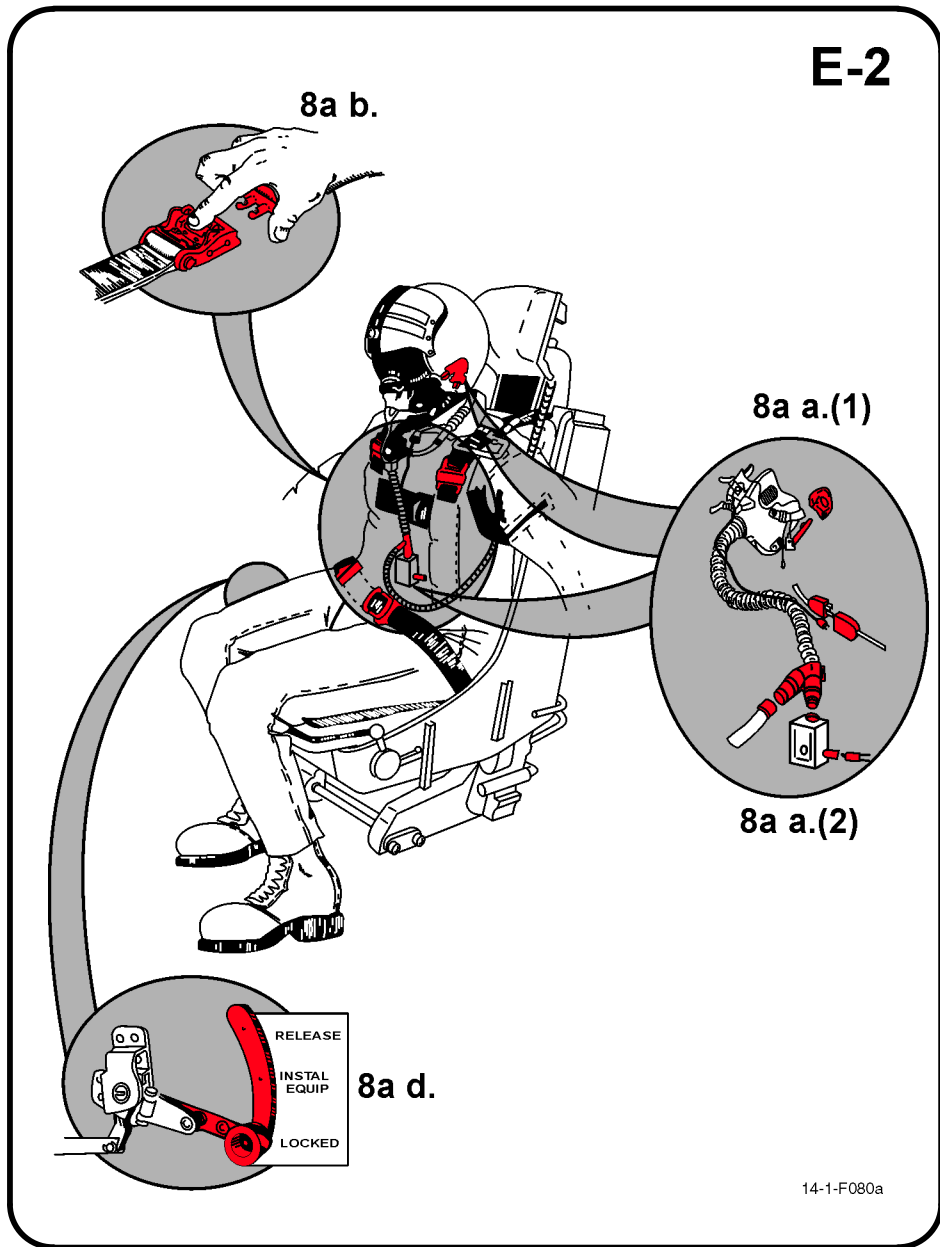


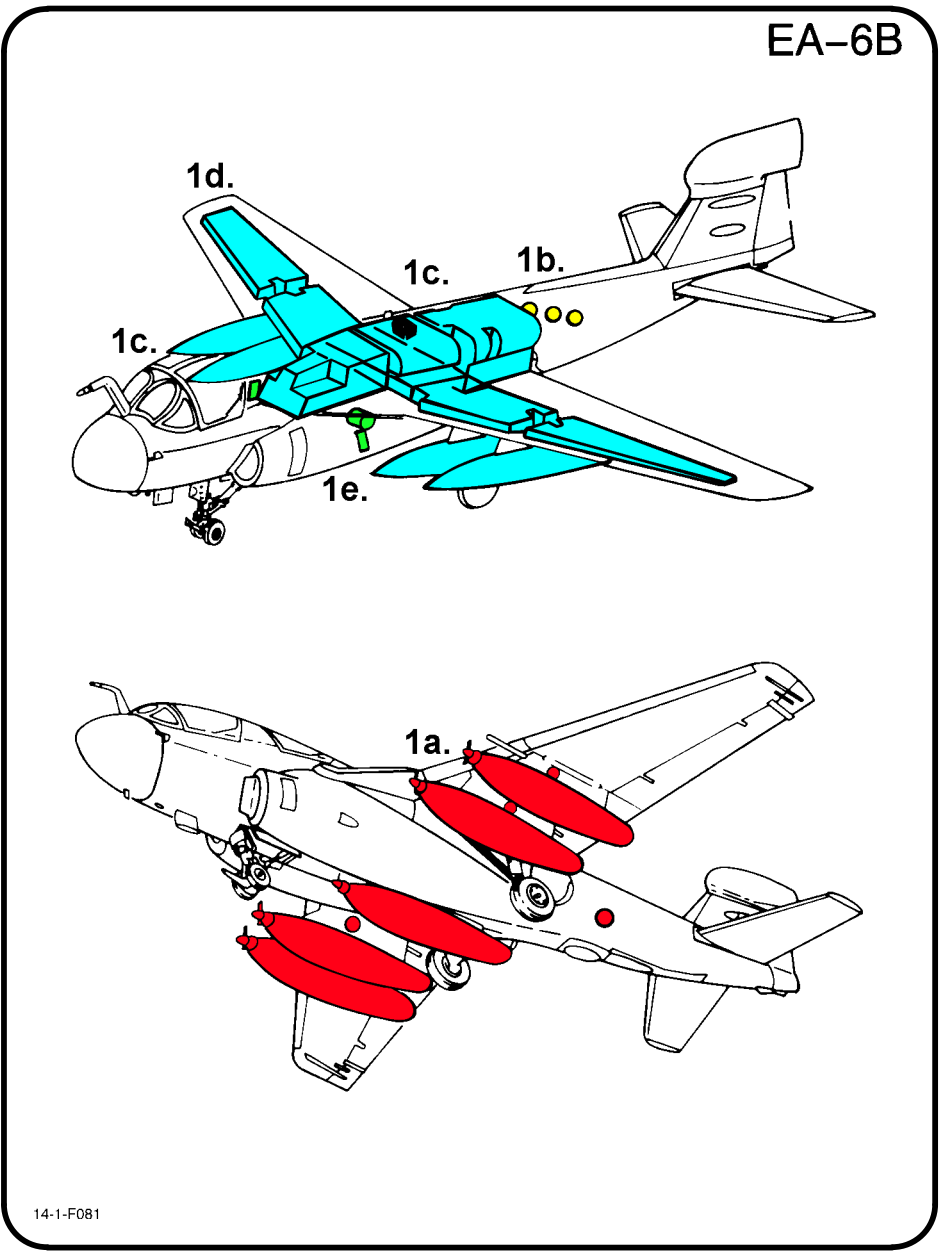
Figure C-2. E-2 Hawkeye Crash Crew Information (Sheet 6)

Figure C-3. EA-6B Prowler Crash Crew Information (Sheet 1 of 5)

SPECIAL TOOLS/EQUIPMENT
 Power Rescue Saw
 Crash Axe

1. GENERAL AIRCRAFT INFORMATION

a. Armament	4 Wing Stations 1 Fus. Station Chaff/Flares Pylon Ejector Cartridges
b. Oxygen	Three 10 L Converters
c. Battery	1
d. Fuel	Internal — 2268 gal External — 295 gal/droptank
e. Oil	Engine 3.9 gal Hydraulic: (Left) Combined — 13 gal (Right) Flight — 5.6 gal
f. Pneumatic System	3000 PSI



14-1-F081

Figure C-3. E-2 EA-6B Prowler Crash Crew Information (Sheet 2)

2. AIRFRAME MATERIALS

- a. N/A
- b. Other
Fiberglass
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 25'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 300'
Idle — 80'
Max — 375'
- d. Radiation
FWD 114° Arc — 80'

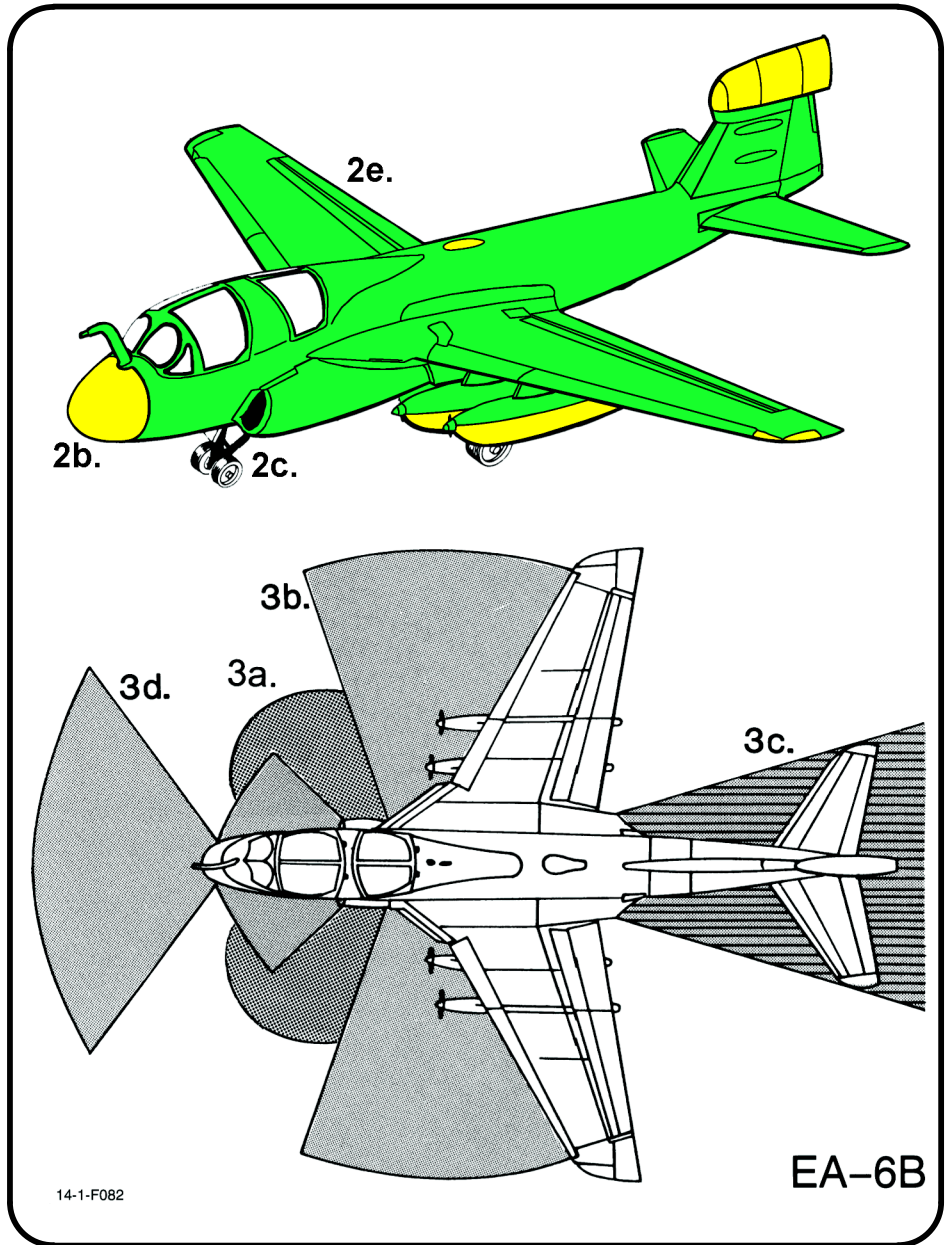


Figure C-3. EA-6B Prowler Crash Crew Information (Sheet 3)

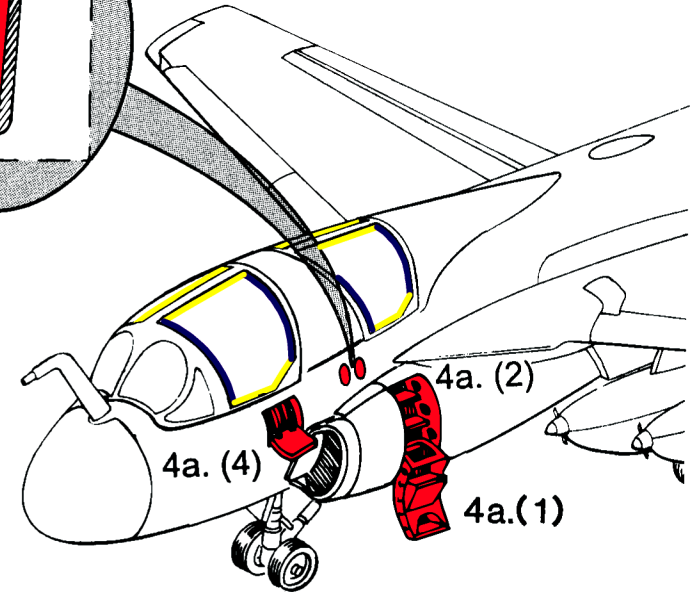
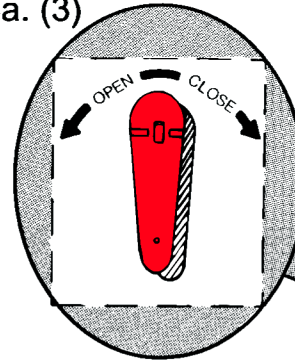
4. AIRCRAFT ENTRY**a. NORMAL ENTRY**

- (1) UNLATCH AND LOWER boarding ladder.
- (2) Raise and lock top step pushing up thumb lock.
- (3) Open canopies by pulling canopy control handle out or detent and rotating counterclockwise.
- (4) To enter Forward cockpit, unlatch and lower hinged boarding platform. Use as a step.

b. N/A**c. N/A****d. FORCED ENTRY**

Canopies are acrylic plastic and may be cut with power rescue saw or crash axe. CUT along canopy frames.

4a. (3)



EA-6B

5. CANOPY SAFETY

a. SAFETY LOCKPINS

Canopy may be made safe by INSERTING Canopy Safety Lockpins in the following:

- (1) FWD Canopy — Canopy Normal Handle and Canopy Jettison Handle.
- (2) AFT Cockpit — Canopy Normal Handle and Canopy Jettison Handle.

b. N/A

6. ENGINE SHUTDOWN

a. N/A

b. N/A

c. ENGINE POWER LEVERS

To secure the engines, RETARD Throttles to the Idle Stop, then OUTBOARD (around the horn) to OFF position.

Note

A stop in the throttle quadrant prevents simultaneous movement of both throttles to or from the off position. Only one engine at a time may be shut completely off.

d. N/A

e. ENGINE AND FUEL MASTER SWITCHES

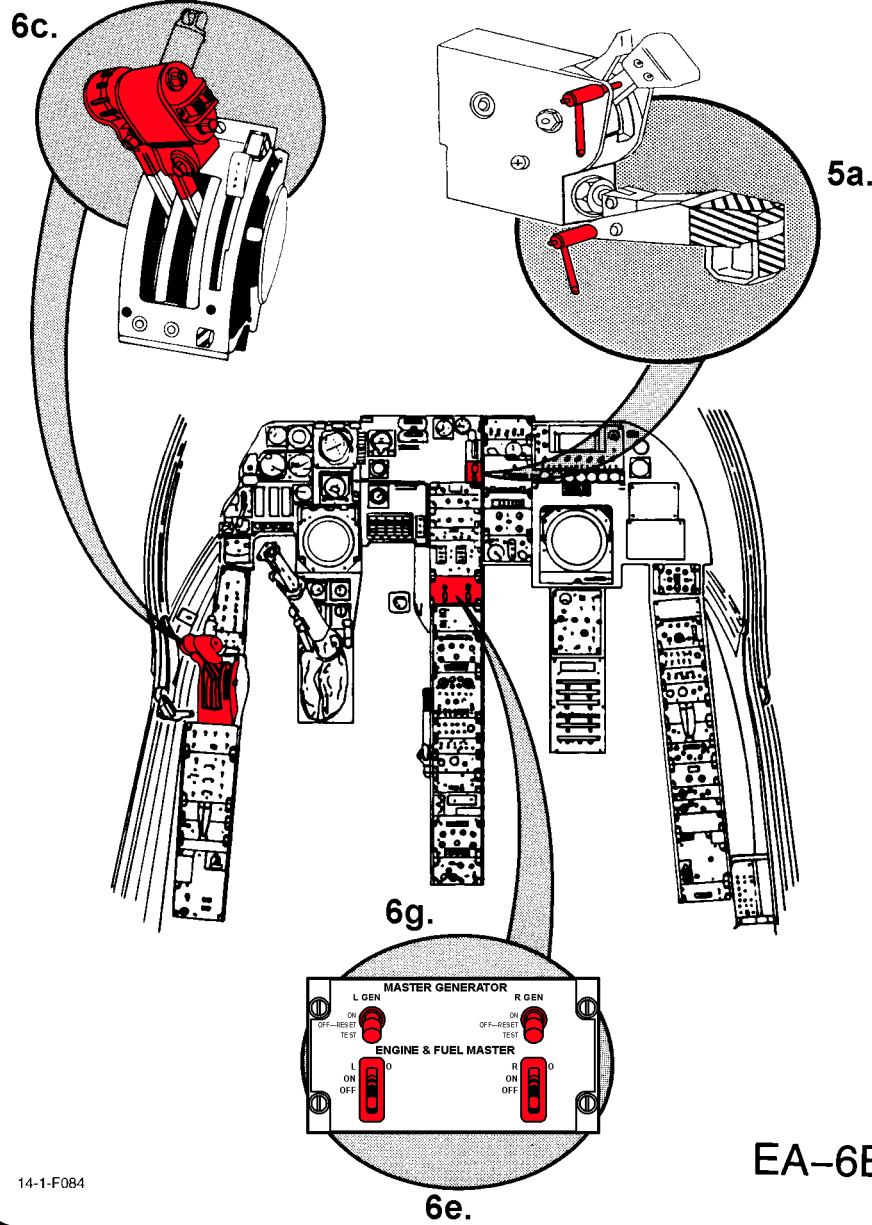
PLACE Engine and Fuel Switches in OFF position.

f. N/A

g. MASTER GENERATOR SWITCHES

PLACE Master Generator Switches in OFF position.

7. N/A



14-1-F084

EA-6B

Figure C-3. EA-6B Prowler Crash Crew Information (Sheet 5)

8. CREW RELEASE

The pilot is attached to the seat by the use of an integrated harness. Additionally, the oxygen/communication lead is connected to the seat pan. The anti-G suit hose is connected to an outlet on the LH console.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask by pulling down on the release tabs on either side of mask.
- (2) Disconnect oxygen/communication lead from connection by pulling up on round collar while pulling apart connection.

b. RESTRAINT SUIT BELTS/RELEASE

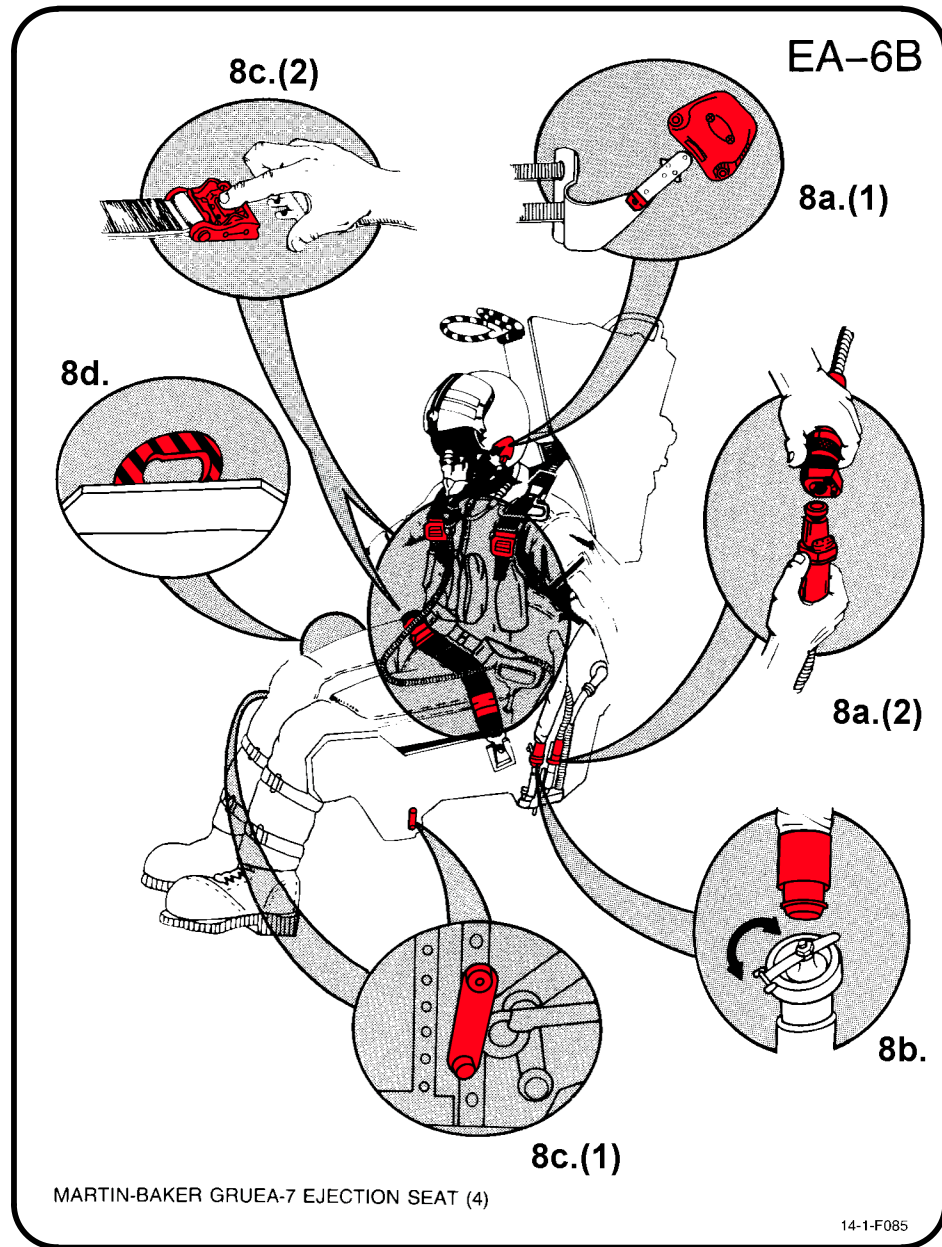
- (1) Disconnect anti-G suit by pulling hose from personnel services block disconnect.

c. HARNESS STRAPS/LEG RESTRAINT RELEASE

- (1) Release two leg restraint lines by pulling the leg line snubber release lever located on outer side of each snubber box.
- (2) Release two lap belt, than two shoulder harnesses koch fitting.

d. EMERGENCY RELEASE

- (1) Squeeze emergency restraint release handle and rotate AFT. This release lap belt, shoulder harness and leg restraint lines. However, survival kit and parachute will remain attached to crewmember.



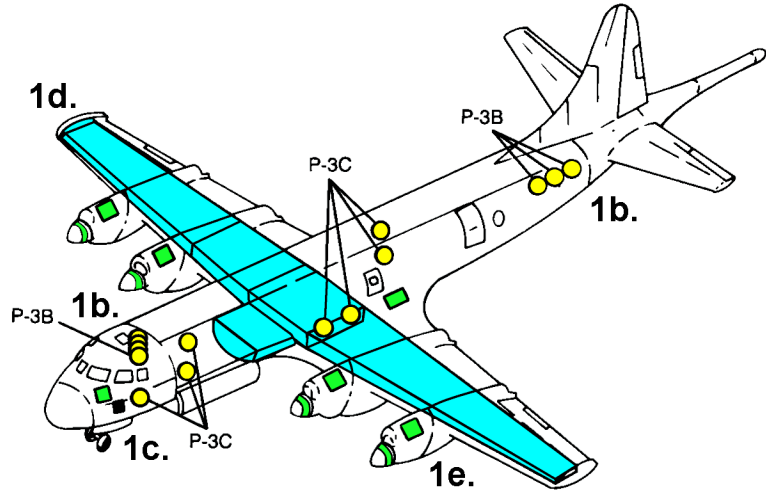
SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

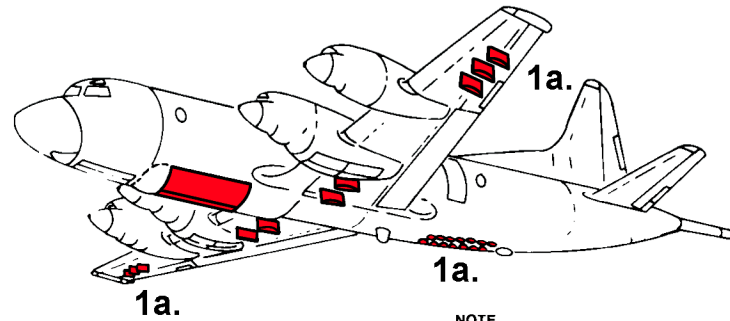
- a. Armament 10 Wing Stations
8 Bomb Bay Stations
Sonobuoys/Flares
Photoflash Cartridges
Pylon Ejector Cartridges
- b. Oxygen/LOX 3 Fixed Cylinders
7 Portable Cylinders
- c. Battery 1
- d. Fuel Internal 9200 gal
- e. Oil Engine 40 gal
Hydraulic 46.5 gal
- f. Pneumatic System 3000 PSI

P-3



WARNING

IN THE EVENT OF WHEELS-UP LANDING,
SECURE ALL ELECTRICAL POWER TO
ENSURE ARMAMENT SYSTEM SAFETY.



NOTE




IN NORMAL WHEELS DOWN LANDING,
GROUND WHEELS DOWN SWITCHES SAFETY
THE ARMAMENT SYSTEMS.

14-1-F086

Figure C-4. P-3 Orion Crash Crew Information (Sheet 1 of 5)

Figure C-4. P-3 Orion Crash Crew Information (Sheet 2)

2. AIRFRAME MATERIALS

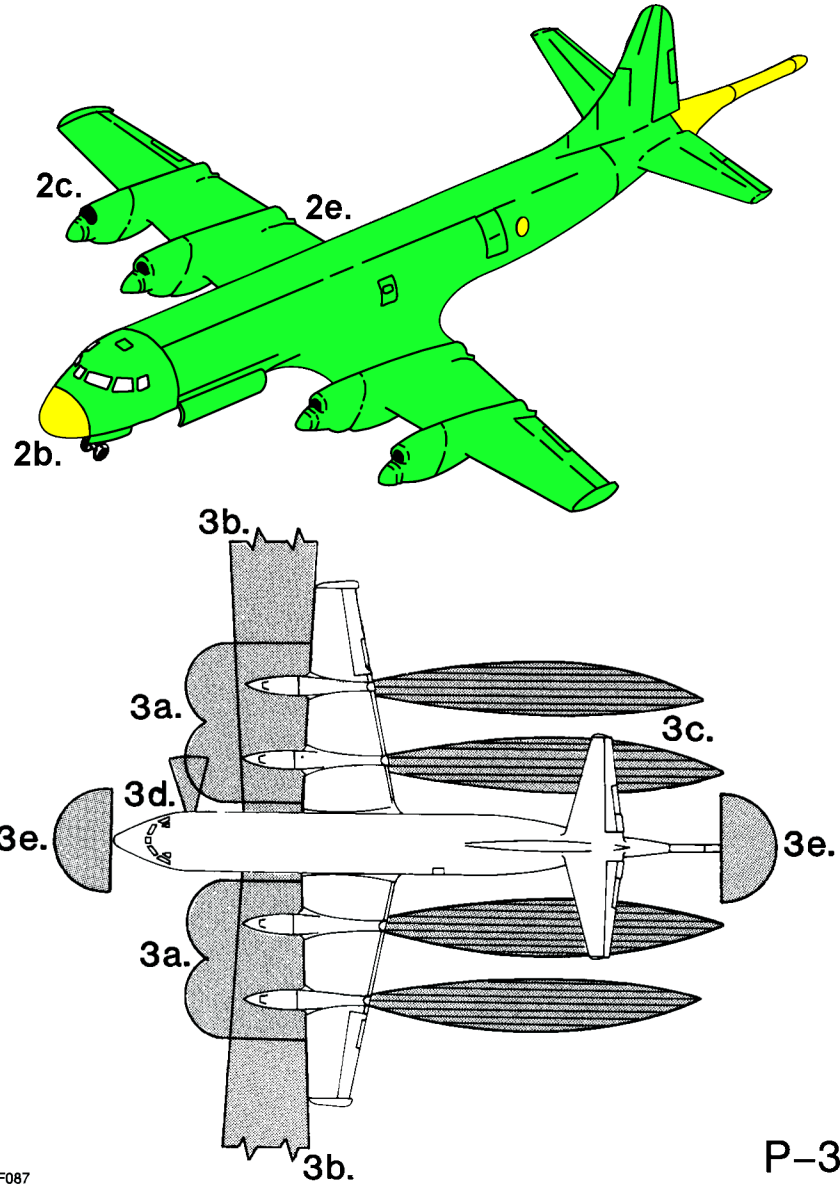
- a. N/A
- b. Other
Fiberglass

- c. Steel

- d. N/A
- e. Aluminum

- f. N/A
- g. N/A

3. AIRCRAFT DANGER AREAS

- a. Propeller Danger Zone — 25'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 1500'
- d. APU Exhaust — 15'
- e. Radiation
 - APS-115
 - FWD 180° Arc — 140'
 - AFT 180° Arc — 140'
 - APS-137/APG-66
 - FWD 180° Arc — 250v
 - AFT 180° Arc — 250'

WARNING

Since the antennas rotate 360°, the beam may extend beyond the 180° area shown. Safe areas have not been determined.



14-1-F087

P-3

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

Normal entrance is through AFT cabin door on LH side of fuselage.

b. N/A

c. EMERGENCY ENTRY

In event the Main Entrance Door is inaccessible, emergency entrance may be gained through;

- (1) Flight Station Escape Hatch, over cockpit.
- (2) Pilot's Auxiliary Exit, LH side of fuselage just AFT of pilot's window.
- (3) Overwing Emergency Exit Hatches, both sides of fuselage.

d. FORCED ENTRY

CUT OUT entry areas as indicated in diagram using power rescue saw or crash axe.

5. N/A

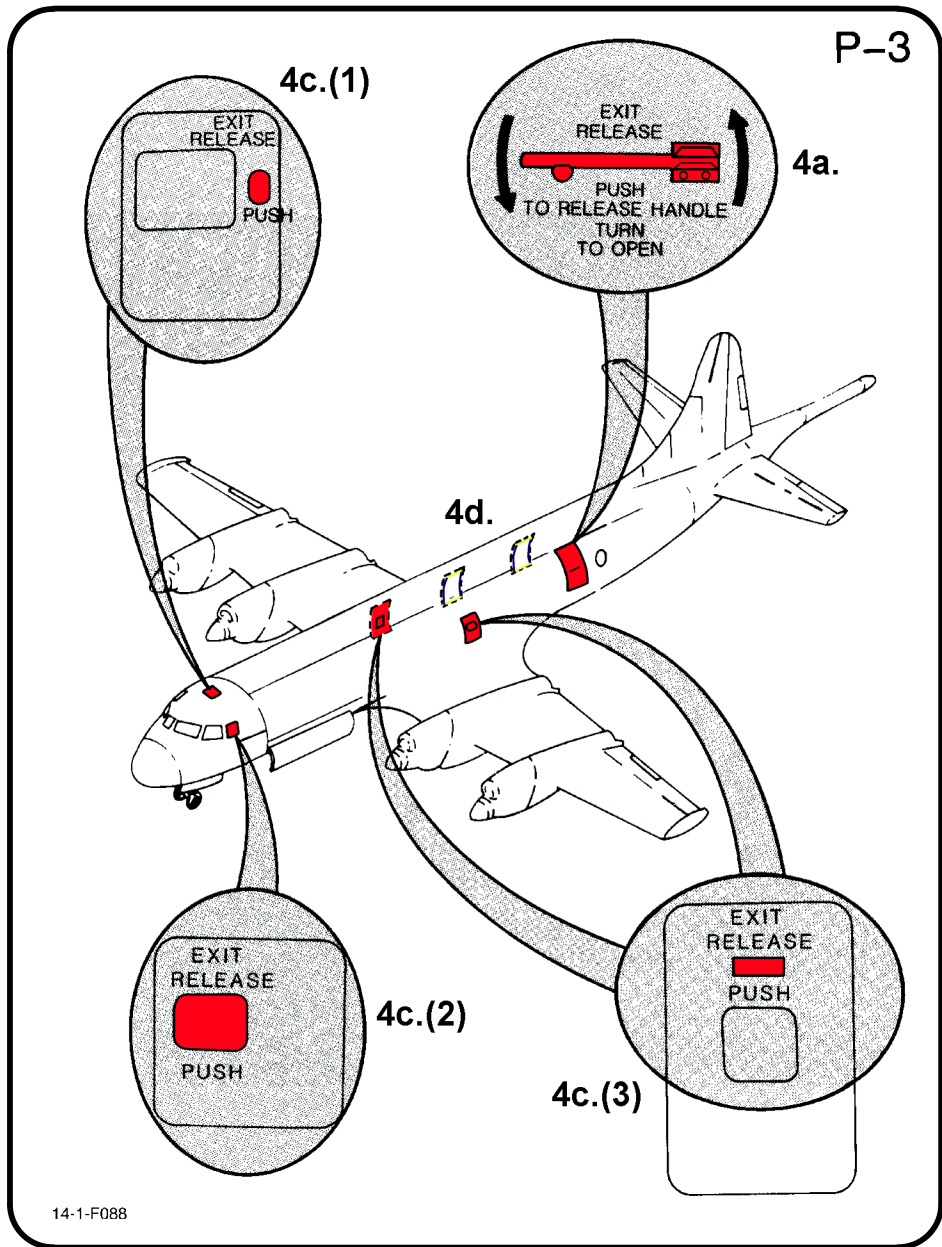


Figure C-4. P-3 Orion Crash Crew Information (Sheet 3)

Figure C-4. P-3 Orion Crash Crew Information (Sheet 4)

6. ENGINE/APU SHUTDOWN

a. N/A

b. PARKING BRAKE

SET Parking Brake by DEPRESSING toe pedals and PULLING Parking Brake Handle.

c. EMERGENCY ENGINE SHUTDOWN HANDLES

Pull all four Emergency Shutdown Handles.

d. N/A

e. N/A

f. N/A

g. AUXILIARY POWER UNIT (APU) SWITCH

PLACE APU Switch in OFF position. APUs may be secured externally by a safety switch located on LH side of fuselage FWD of the APU.

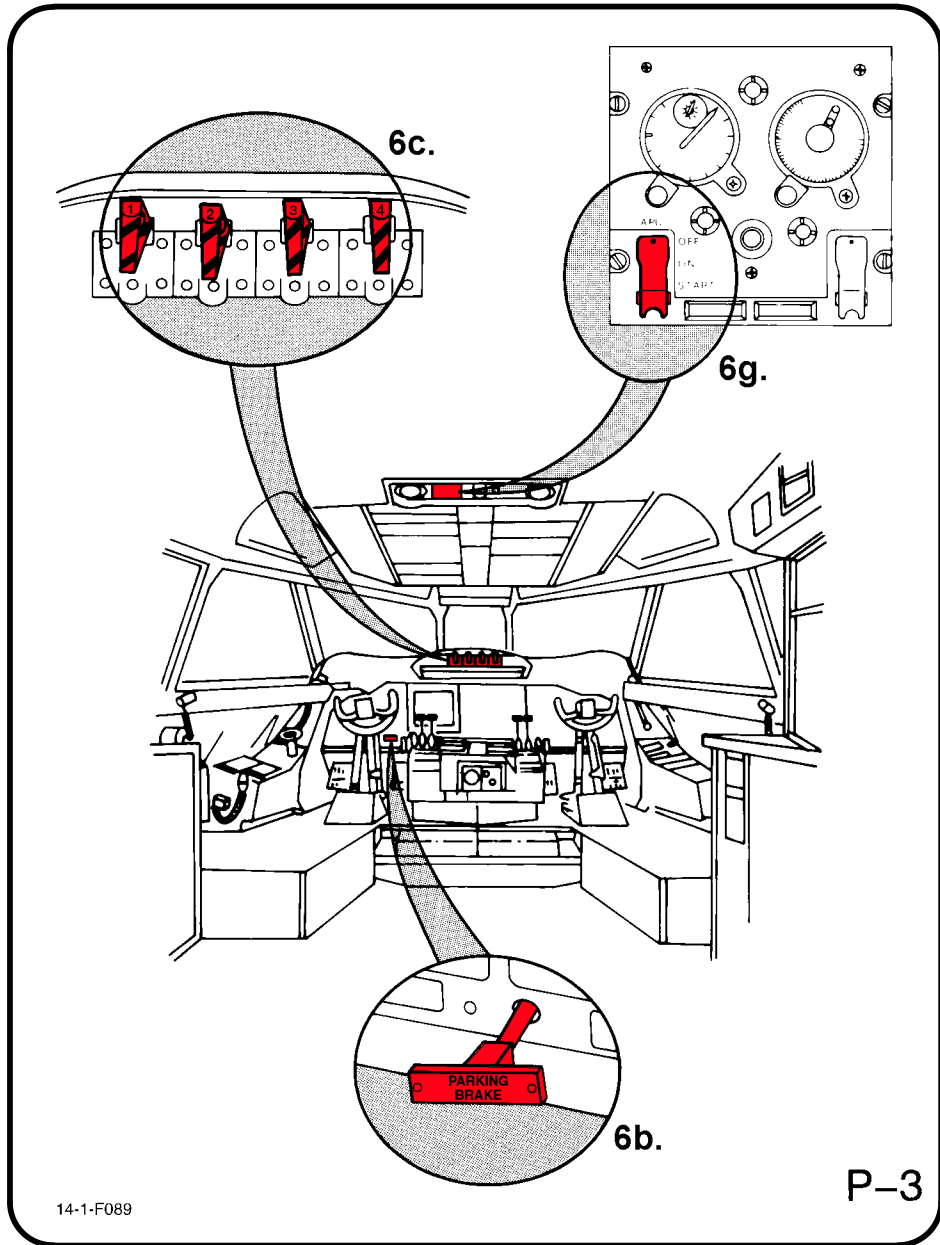
Note

The APU Normal/Safe Switch also disables the automatic fire extinguisher circuit.

7. BATTERY

Battery is located in nose wheelwell. To deactivate battery, remove quick disconnect fitting.

a. N/A

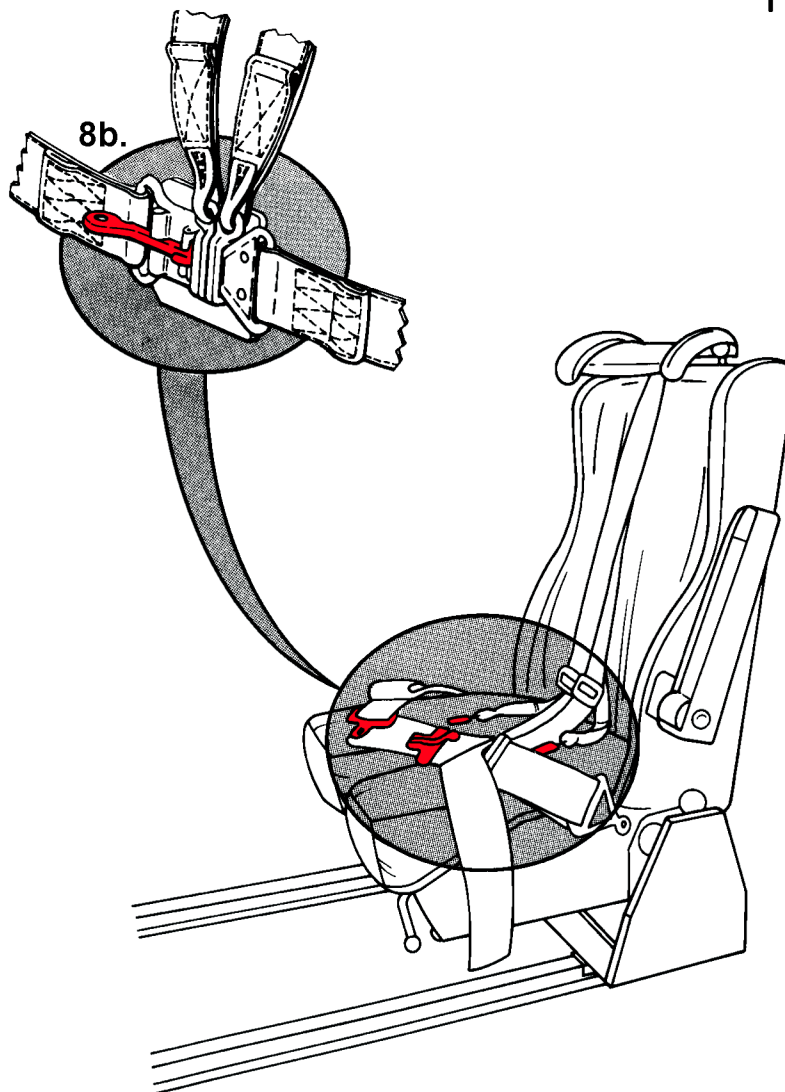


8. CREW RELEASE

The pilot, copilot, flight engineer, and radio operator on the P-3B have shoulder harnesses and lap belts. All other crewmembers have lap belts only.

The pilot, copilot, flight engineer, TACCO, Nav Comm, and SS-3 on the P-3C have shoulder harnesses and lap belts. All other crewmembers have lap belts only.

- a. N/A
- b. **RESTRAINT SUIT BELTS/RELEASE**
Lift quick disconnect lever to release shoulder harnesses and lap belt.
- c. N/A
- d. N/A



14-1-F090

Figure C-4. P-3 Orion Crash Crew Information (Sheet 5)

Figure C-5. S-3 Viking Crash Crew Information (Sheet 1 of 5)

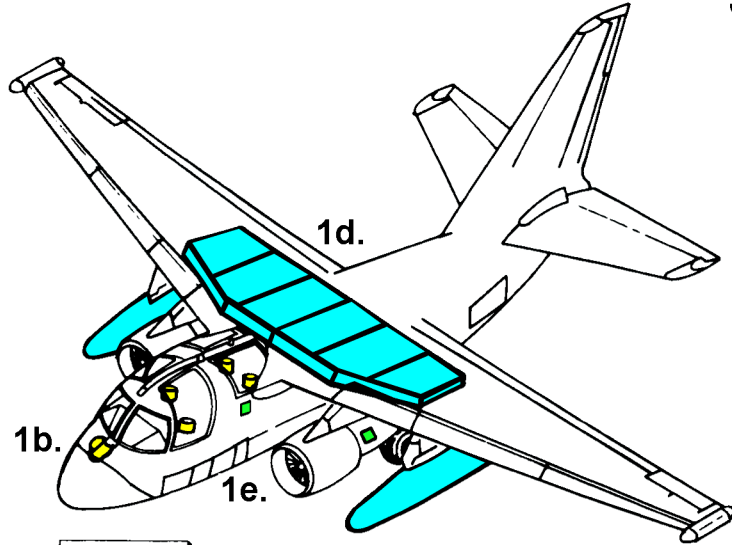
SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

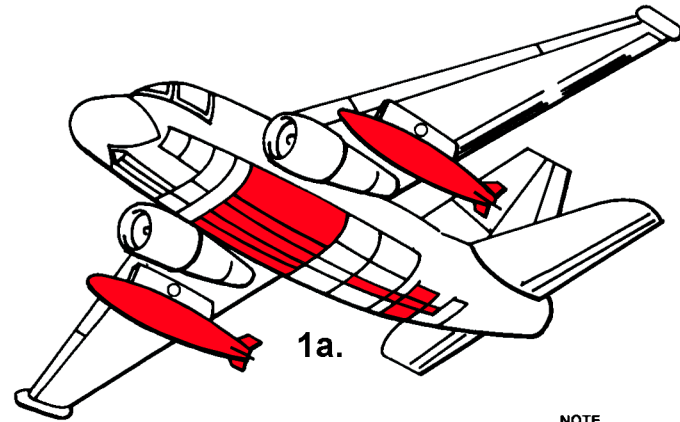
- a. Armament 2 Wing Stations
2 Bomb Bays with 4 Weapons Stations
Sonobuoys
Pylon Ejector Cartridges
- b. Oxygen/LOX 10 L
- c. N/A
- d. Fuel Internal 1933 gal
External 530 gal
- e. Oil Engine 2.4 gal
Hydraulic 7.2 gal
- f. N/A

S-3



WARNING

IN THE EVENT OF WHEELS-UP LANDING,
SECURE ALL ELECTRICAL POWER TO
ENSURE ARMAMENT SYSTEM SAFETY.



NOTE

IN NORMAL WHEELS DOWN LANDING,
GROUND WHEELS DOWN SWITCHES SAFETY
THE ARMAMENT SYSTEMS.

Figure C-5. S-3 Viking Crash Crew Information (Sheet 2)



2. AIRFRAME MATERIALS

- a. N/A
- b. Other
Fiberglass/Magnesium



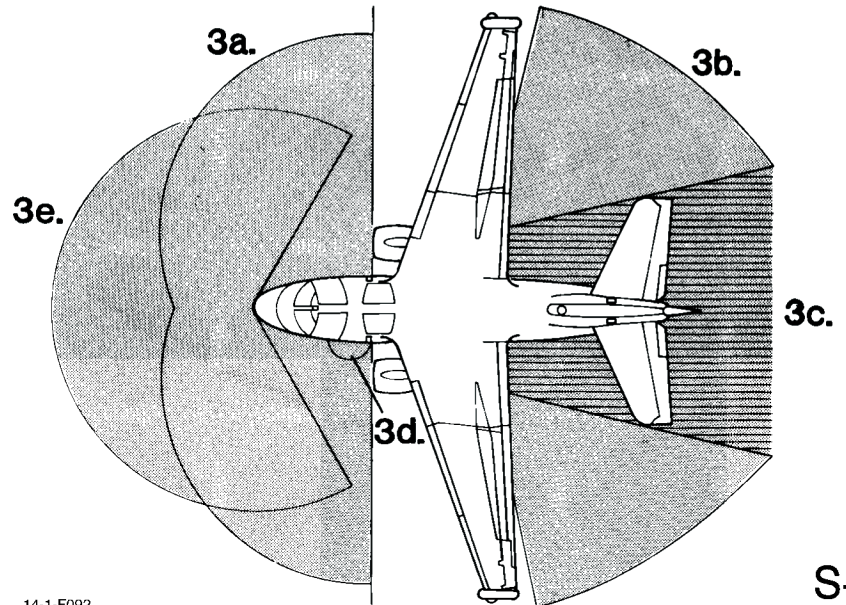
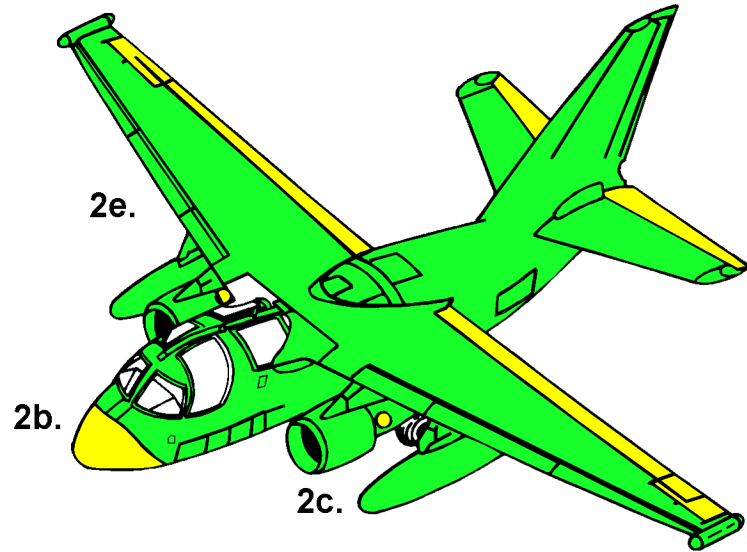
Note

Integrated drive generator castings are magnesium.

- c. Steel
- 
- d. N/A
 - e. Aluminum
- 
- f. N/A
 - g. N/A

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 26'
- b. Turbine Blade Failure/Tire Explosion Hazard
- c. Engine Exhaust
Idle — 50'
Max — 287'
- d. APU Exhaust — 5'
- e. Radiation
FWD 240° Arc — 235'



14-1-F092

S-3

Figure C-5. S-3 Viking Crash Crew Information (Sheet 4)

5. CANOPY SAFETY

a. Canopy and hatches are equipped with a mild explosive which uses a detonating cord and a linear shaped charge. To safety jettison system, INSERT safety pins in Jettison Handles at 3 locations.

b. N/A

6. ENGINE/APU SHUTDOWN

Engine may be shut down by throttles or fuel system valves.

a. N/A

b. N/A

c. N/A

d. THROTTLES

MOVE Pilot's Throttles to OFF position (move one at a time).

Note

Engines cannot be shut down with copilot's throttles.

e. FUEL SHUTOFF VALVES

PULL Fire Handles 1 and 2 to shutoff fuel to engines.

f. N/A

g. AUXILIARY POWER UNIT (APU)

PLACE APU T-Handle in OFF position.

7. N/A

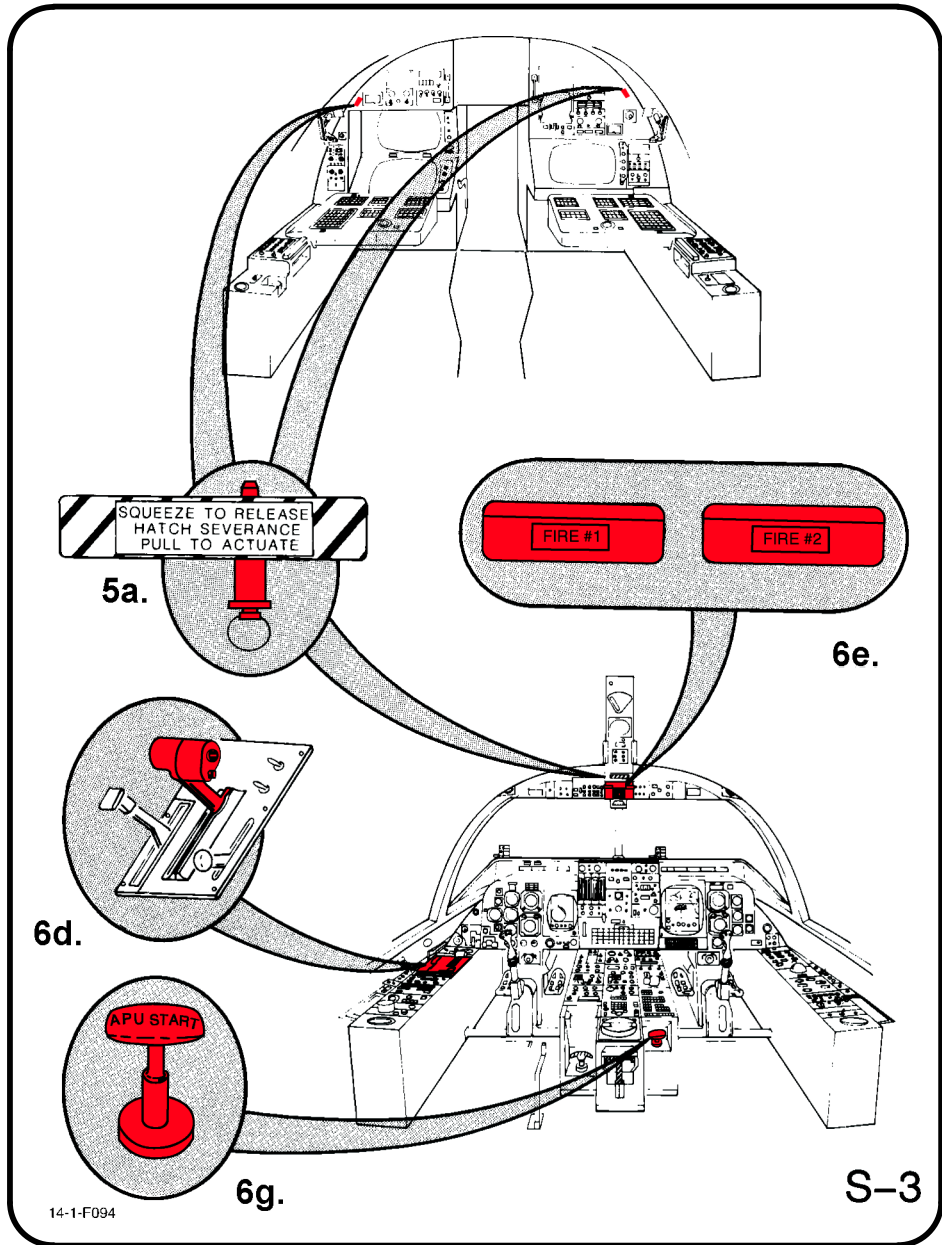


Figure C-5. S-3 Viking Crash Crew Information (Sheet 5)

8. CREW RELEASE

The pilot is attached to the seat by the use of an integrated harness. Additionally, the oxygen/communication lead is connected to the seat pan. The anti-G suit hose is connected to an outlet on the LH console.

WARNING

Inadvertent ejection of seat selected in command-eject mode (either pilot or copilot/COTAC seat) will eject all four seats regardless of the position of their individual ejection seat safety levers.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask by pulling down on the release tabs on either side of mask.
- (2) The oxygen/communication lead is joined by a positive locking ring. To release, pull up on round collar while pulling apart connection.

b. RESTRAINT SUIT BELTS/RELEASE

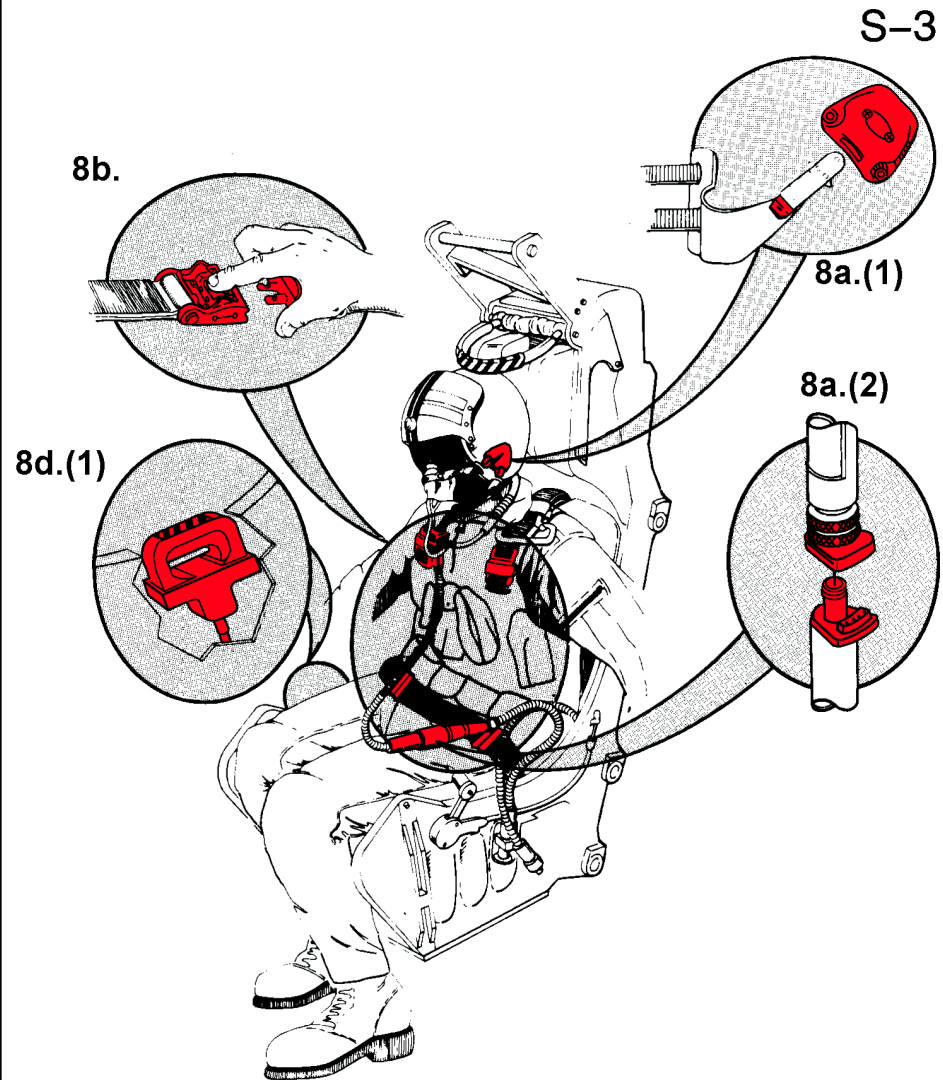
- (1) None

c. HARNESS STRAPS/LEG RESTRAINT RELEASE

- (1) Release two lap belt, than two shoulder harnesses koch fitting.

d. EMERGENCY RELEASE

- (1) Actuating the emergency release handle will free the crewmember fro the seat. However, the parachute and survival kit parachute will remain attached to crewmember which increases difficulty of removing crewmember if exit through opposite canopy is required.



ESCAPAC 1E-1 EJECTION SEAT (4)

14-1-F095

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

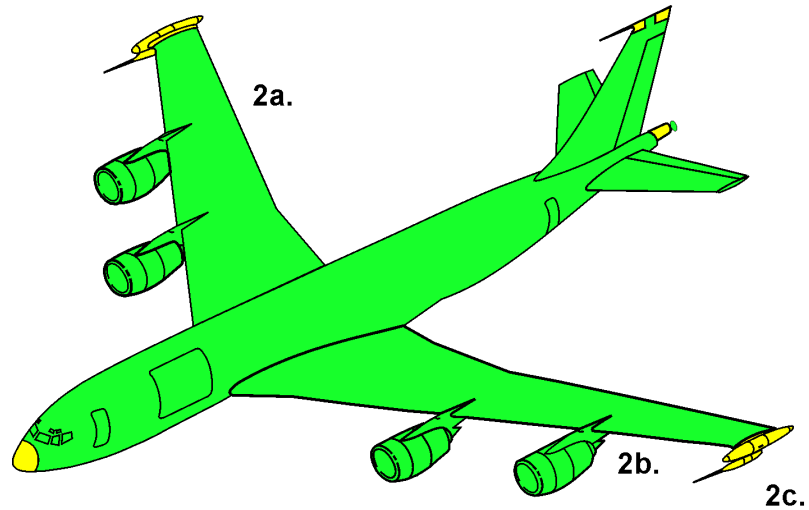
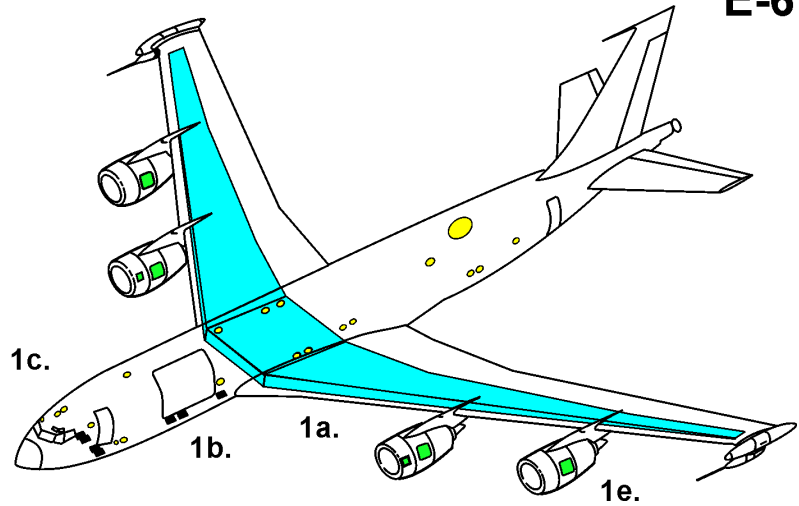
1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. Oxygen/LOX 75 L LOX
18 Portable Bottles
- c. Battery 7
- d. Fuel Internal 23,200 gal
- e. Oil Engine 54 gal
Hydraulic 72 gal
- f. Pneumatic System 3000 PSI

2. AIRFRAME MATERIALS

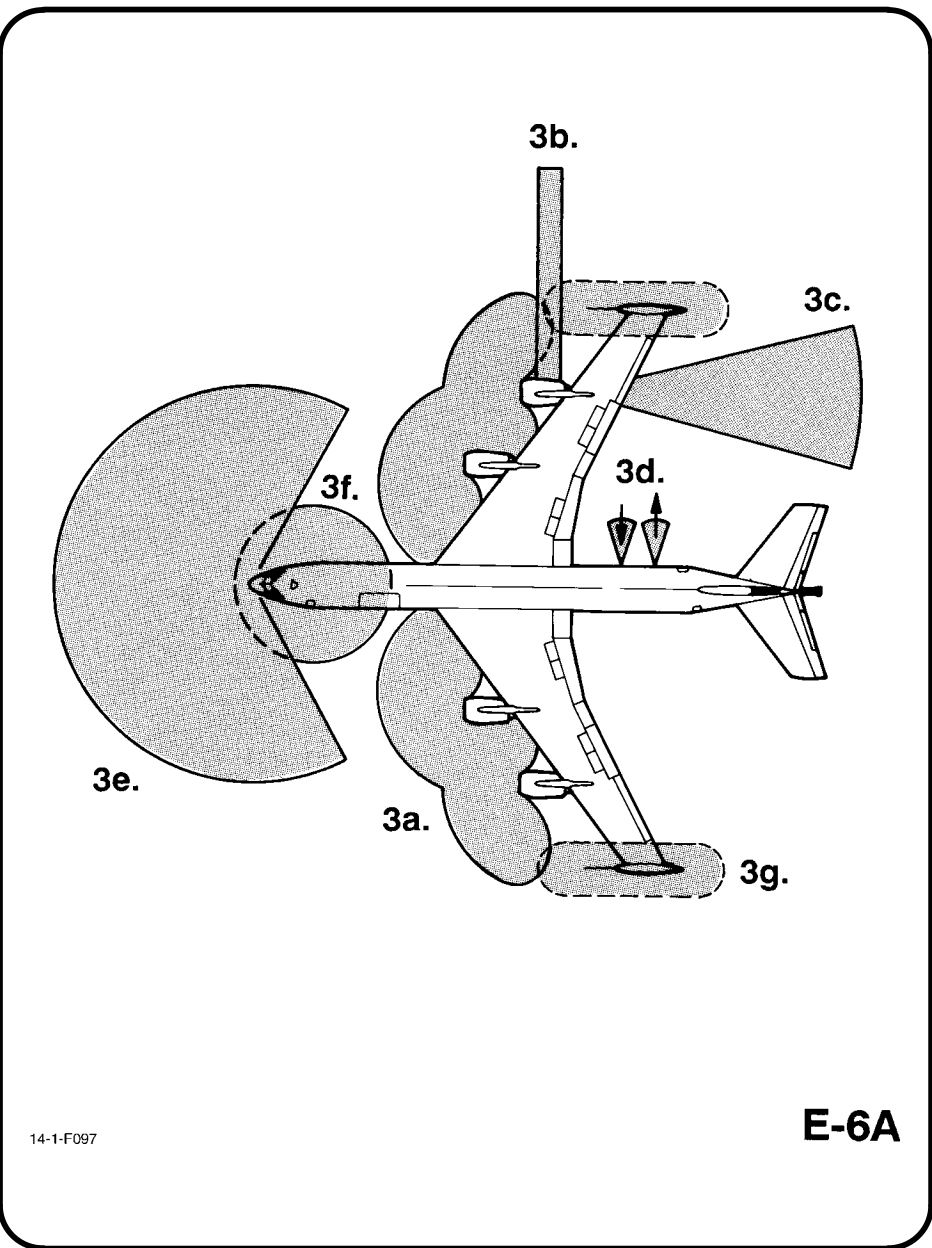
- a. N/A
- b. Other Fiberglass
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A

E-6



14-1-F096

Figure C-6. E-6 Mercury Crash Crew Information (Sheet 1 of 6)



E-6A

14-1-F097

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 25'
- b. Turbine Blade failure — 300'
- c. Engine Exhaust — 500'
- d. APU Intake and Exhaust — 25'
- e. Radar Radiation FWD 240° Arc — 60'
- f. UHF Radiation 360° Arc — 60'
- g. HF Radiation 360° Arc — 10'

Figure C-6. E-6 Mercury Crash Crew Information (Sheet 2)

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

Normal Entry to the main deck is through the forward and aft main doors (LH side). Normal entry to the forward and aft lower compartments is through the forward and aft cargo doors (RH side). The forward and aft lower compartments also provide access to the main deck through access hatches located on the overhead of each compartment.

- (1) PULL either Main Door Handle OUT and ROTATE CLOCKWISE. RELEASE and STOW Handle. PULL on AFT side of door while PUSHING IN on FWD side until door is parallel to aircraft and Door Open Latch has caught.
- (2) PRESS Catch on either FWD or AFT Cargo Door Handle. ROTATE Handle COUNTERCLOCKWISE, PUSH Door IN, and SLIDE Door FWD. To access the main deck, DEPRESS Latch on Access Hatch and PUSH UPWARD on bottom of Hatch until Uplock is engaged.

Note

To gain entry to the main deck from the radio access door, proceed through compartment and open hatch to the main deck, see 4a(2).

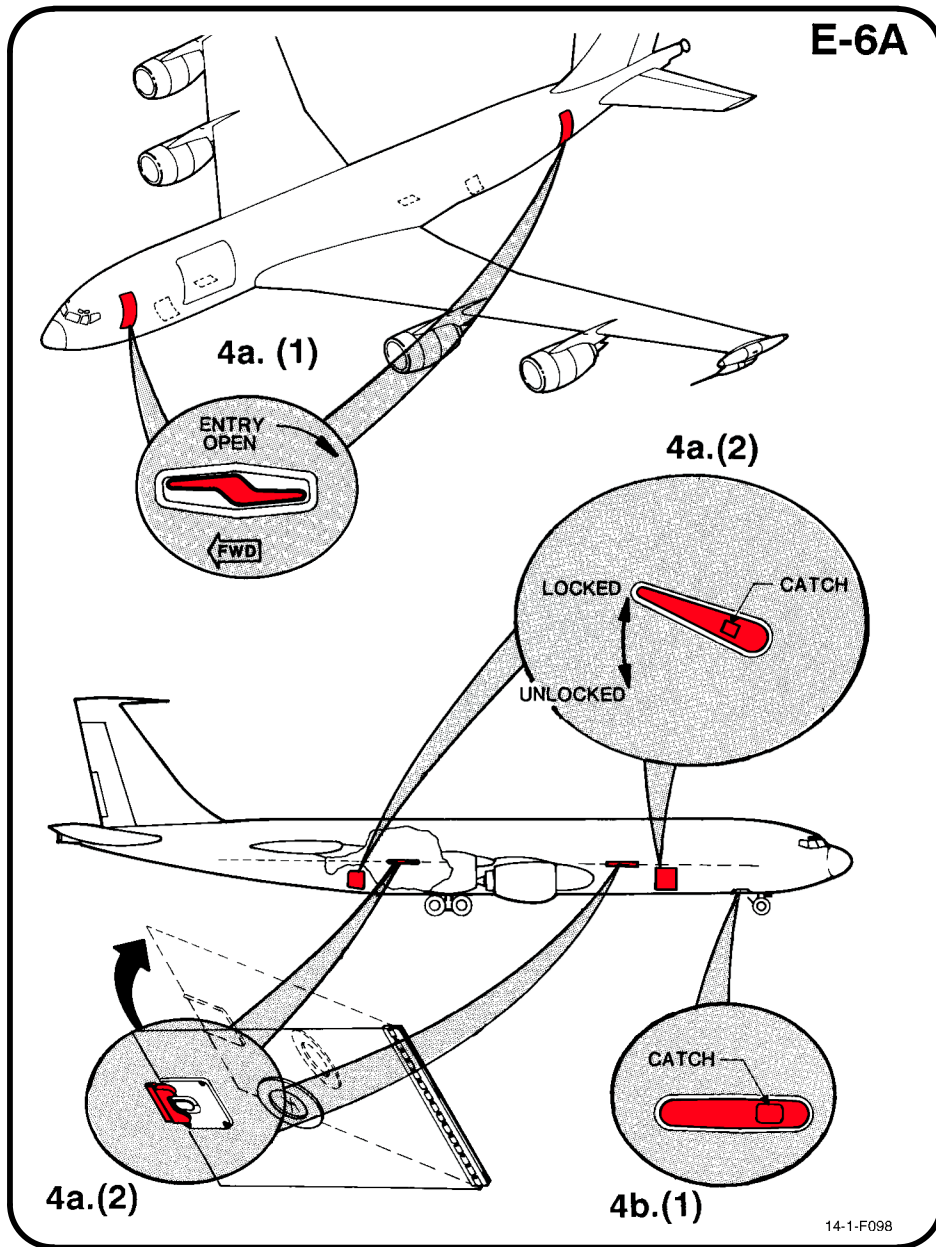


Figure C-6. E-6 Mercury Crash Crew Information (Sheet 3)

Figure C-6. E-6 Mercury Crash Crew Information (Sheet 4)

4. AIRCRAFT ENTRY (CONT.)

b. N/A

c. EMERGENCY ENTRY

- (1) Radio Access Door. PRESS catch to release Handle. ROTATE Handle COUNTERCLOCKWISE and PUSH door INWARD.
- (2) Emergency Exit Hatches. PUSH Panel INWARD to unlatch. PUSH Hatch INWARD and LIFT UPWARD. Hatch weighs about 50 pounds.
- (3) Bailout Door. PULL Door Handle OUT and ROTATE COUNTERCLOCKWISE. PUSH door INWARD. Door is free-standing and weighs about 69 pounds.

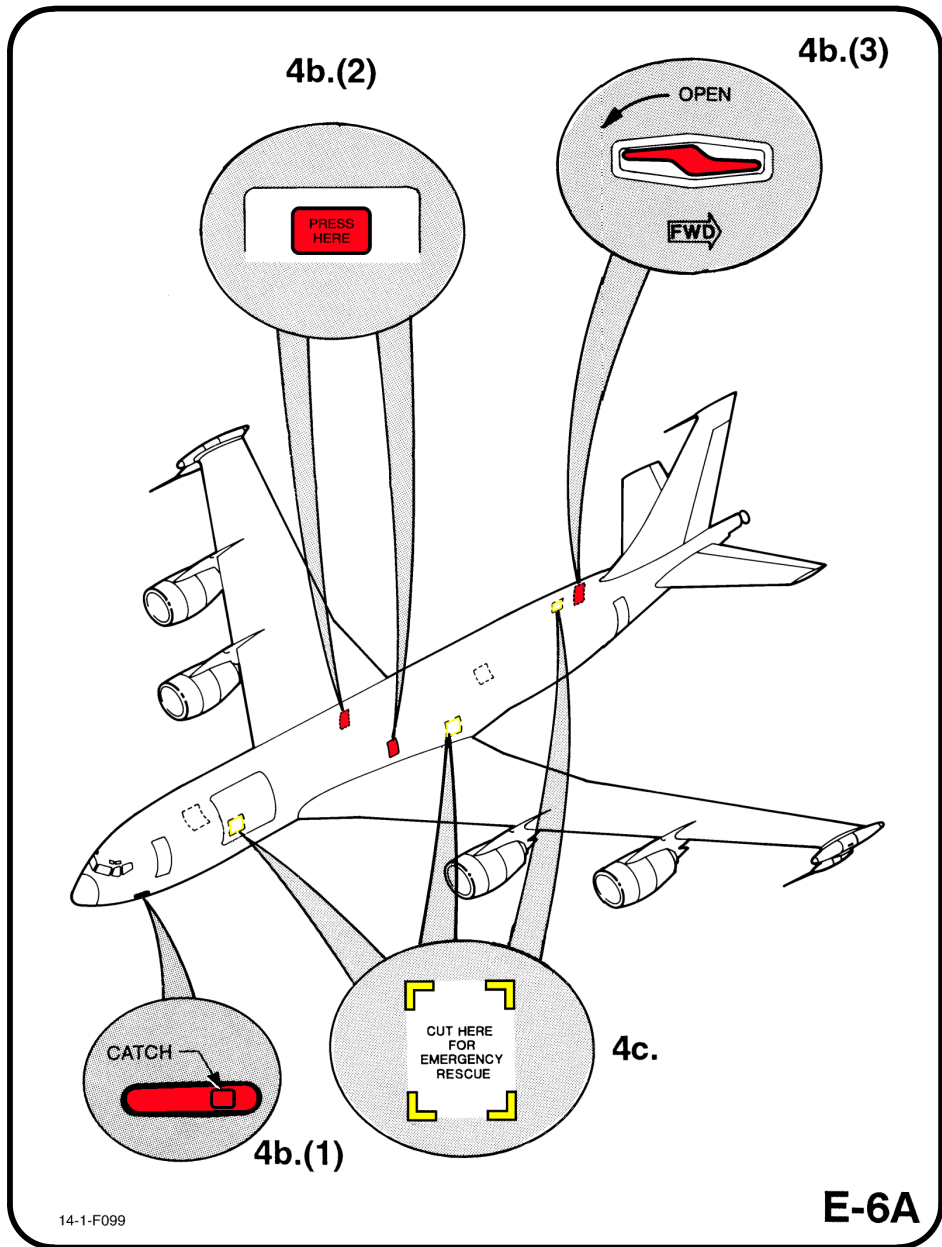
WARNING

If the FORWARD or AFT doors to the main decks on the left hand side are opened from the outside, escape slides will deploy if they have not been disconnected from the inside.

CUT OUT entry areas as indicated on diagram using power rescue saw or crash axe.

d. N/A

5. N/A



14-1-F099

E-6A

6. ENGINE/APU SHUTDOWN**a. ENGINE FIRE SWITCHES**

PULL Engine Fire Switches.

b. START LEVERS

PULL Start Levers AFT and PLACE in FULL DOWN position.

c. BATTERY

LIFT Red Guard UP and PLACE Battery Switch DOWN in OFF position.

d. THROTTLES

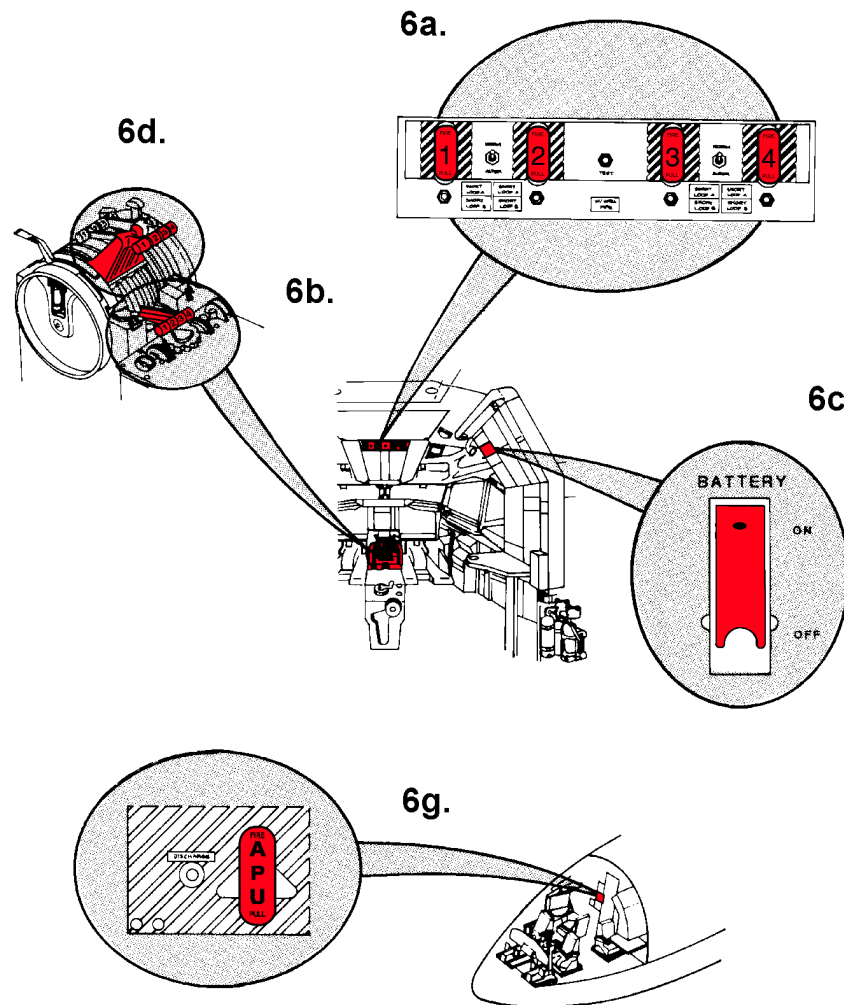
RETARD Throttles to FULL AFT position.

e. N/A**f. N/A****g. AUXILIARY POWER UNIT (APU)**

PULL APU Fire Switch.

7. BATTERIES

Batteries are located in the FWD Lower Compartment accessible through the Radio Access Door, labeled Battery Access. To further deactivate batteries, REMOVE Quick Disconnect Fittings, time permitting.

a. N/A

14-1-F100

Figure C-6. E-6 Mercury Crash Crew Information (Sheet 6)

8. CREW RELEASE

All crewmembers are attached to the seats by shoulder harnesses secured to lap belts equipped with quick disconnect buckles (rotary type). Aft facing crew rest seats are not equipped with shoulder harnesses; forward facing seats are so equipped. Both have quick disconnect buckles similar to the pilot seat.

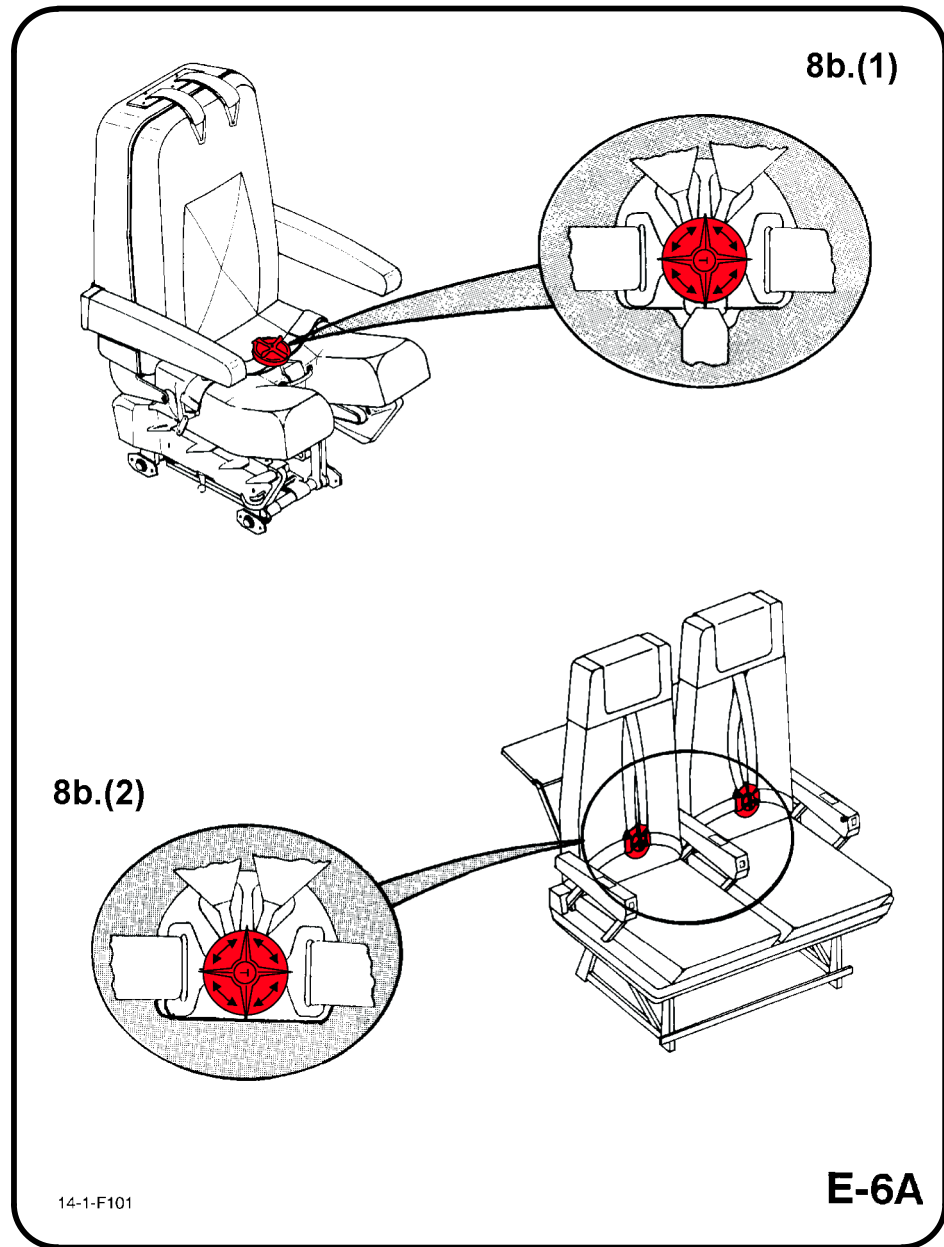
a. N/A

b. RESTRAINT SUIT BELTS/RELEASE

- (1) Rotate Rotary Release Buckle in either direction to release shoulder harness, lap belt and crotch strap.
- (2) CREW REST SEATS; Rotate Rotary Release Buckle in either direction to release shoulder harness and lap belt on FWD facing seats or lap belt only on Aft facing seats.

c. N/A

d. N/A



APPENDIX D

Transport Aircraft

TRANSPORT AIRCRAFT SYSTEMS
AND
CRASH CREW INFORMATION DIAGRAMS SUMMARY

TYPE	NAME	AIRFRAME MATERIALS	FUEL (GAL)		OIL (GAL)		OXYGEN		PNEU SYS		GUN	ORDNANCE		PYROTECHNICS	BTRY	EJECT SYS	S.O.B.
			INT	EXT	ENG	HYD	LOX	BOTTLE	GAS	AIR		FWD FIRE	FREE FALL				
C-2	GREYHOUND	ALUMINUM STEEL FIBERGLASS	1824	NONE	36	19.8	20L	2 PORT	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	SIGNAL FLARES	1	NONE	30
C-9	SKYTRAIN II	ALUMINUM STEEL FIBERGLASS	5929	NONE	10	15	35L	24.6 IN ³ SYS	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	SIGNAL FLARES	2	NONE	97
U/RC-12	SUPER KING AIR	ALUMINUM STEEL FIBERGLASS	544	NONE	6	1 PT (B) 3.5 GAL (F/M)	NONE	49 IN ³	NONE	NONE	NONE	NONE	NONE	NONE	1	NONE	10
C/KC-130 F/R/T/J	HERCULES	ALUMINUM STEEL FIBERGLASS	6826	2810	48	29.6	25L LOX C/KC-130 T/J only	(4) PORT	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	SIGNAL FLARES	2	NONE	100
C-20D/G	GULFSTREAM III/IV	ALUMINUM STEEL GRAPHITE EPOXY	4134	NONE	3.8	6.7	NONE	(2) 77 FT ³ (2) 115 FT ³	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	NONE	2	NONE	C-20D (21) C-20G (30)
UC-26	METRO-LINER	ALUMINUM STEEL FIBERGLASS	648	NONE	8	TBD	NONE	2 AFT/FORWARD 1850 IN SYS	NONE	NONE	NONE	NONE	NONE	NONE	2	NONE	20

*Fuselage tank if installed adds - 3587 gal to internal fuel.






Figure D-1. Transport Aircraft Systems and CCID Summary

Figure D-2. C-2 Greyhound Crash Crew Information (Sheet 1 of 5)




SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- a. Pyrotechnics Signal Flares
 
- b. Oxygen/LOX 20L
 
- c. Battery 1 (Starboard Side)
 
- d. Fuel Internal 1824 gal
 
- e. Oil Engine 36 gal
 Hydraulic 19.83 gal
 
- f. Pneumatic System 3000 PSI

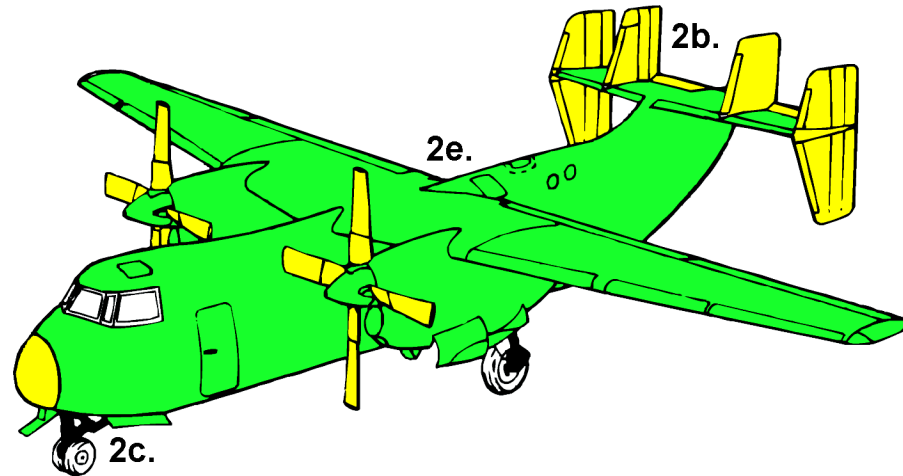
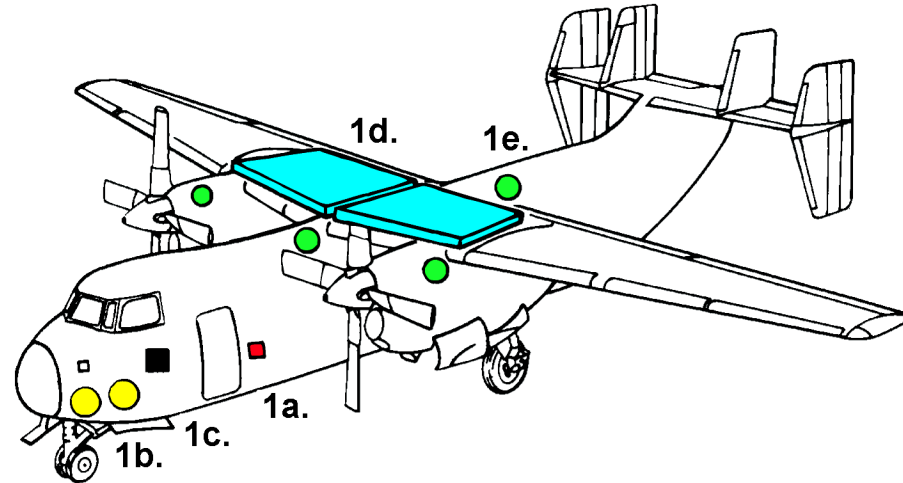
2. AIRFRAME MATERIALS

- a. N/A
- b. Other
 Fiberglass/Magnesium
 
- c. Steel
 
- d. N/A
- e. Aluminum
 
- f. N/A
- g. N/A

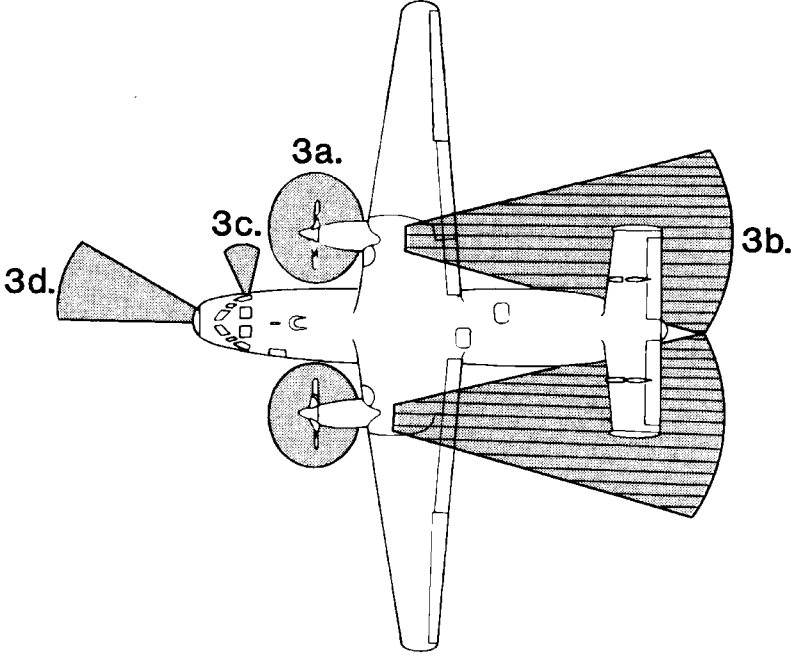
Note

Reduction gear behind engine propellers are approximately 80% magnesium.

C-2



14-1-F0102



C-2

14-F0103

- 3. AIRCRAFT DANGER AREAS**
- a. Propeller Danger Zone — 15'
 - b. Propeller Blast
Idle — 24'
Max — 28'
 - c. APU Exhaust
 - d. Radiation
FWD 1200 Arc — 21'

Figure D-2. C-2 Greyhound Crash Crew Information (Sheet 2)

Figure D-2. C-2 Greyhound Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY**a. NORMAL ENTRY**

- (1) Enter the flight deck through the Main Entrance Door on LH side of fuselage. TURN Release Handle to UNLOCK and PULL door OUT and DOWN.
- (2) Enter the Cargo/Passenger Compartment through the ramp. If ramp is closed and hydraulic power is available, OPEN access covers to selector valve on AFT RH side of fuselage. PLACE Cargo and Ramp Selector Valve Handle to RAMP OPEN position. With ramp level, PLACE Ramp Loading Selector Valve Handle to RAMP GROUND position to lower ramp.

Note

Cargo doors and ramp will open and ramp will stop in level position. Releasing handle will stop opening cycle at any point.

b. N/A**c. EMERGENCY ENTRY**

Access may be gained through FWD and AFT Emergency Escape Hatches on top of fuselage.

d. FORCED ENTRY

If the main entrance, cargo door and ramp are inaccessible, CHOP or SAW around pilot or copilot's side windows where indicated. Access to the cargo or passenger compartment is available, CHOP or SAW out AFT escape hatch.

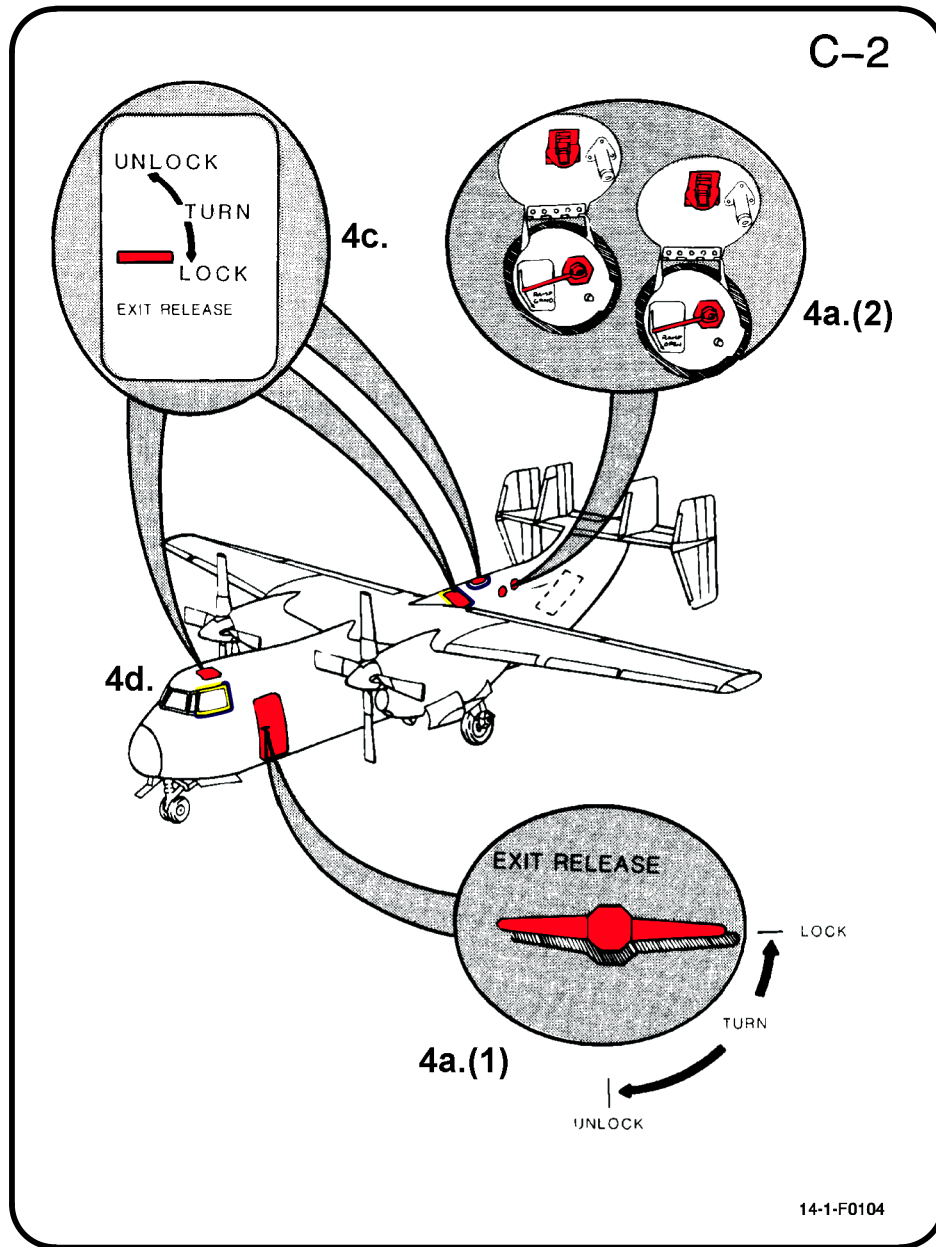
5. N/A

Figure D-2. C-2 Greyhound Crash Crew Information (Sheet 4)

6. ENGINE/APU SHUTDOWN

- a. N/A
- b. N/A
- c. N/A
- d. N/A

e. CONDITION LEVER

DEPRESS trigger lock on UNDERSIDE of Condition Lever Handles and MOVE levers to extreme AFT position.

f. GENERATORS

Place Left and Right Generator Switches in OFF position.

g. AUXILIARY POWER UNIT CONTROL (APU)

PLACE the Run/Stop Switch in STOP position.

7. BATTERY

The battery is for the APU only and is located FWD and below the copilot's compartment.

- a. N/A

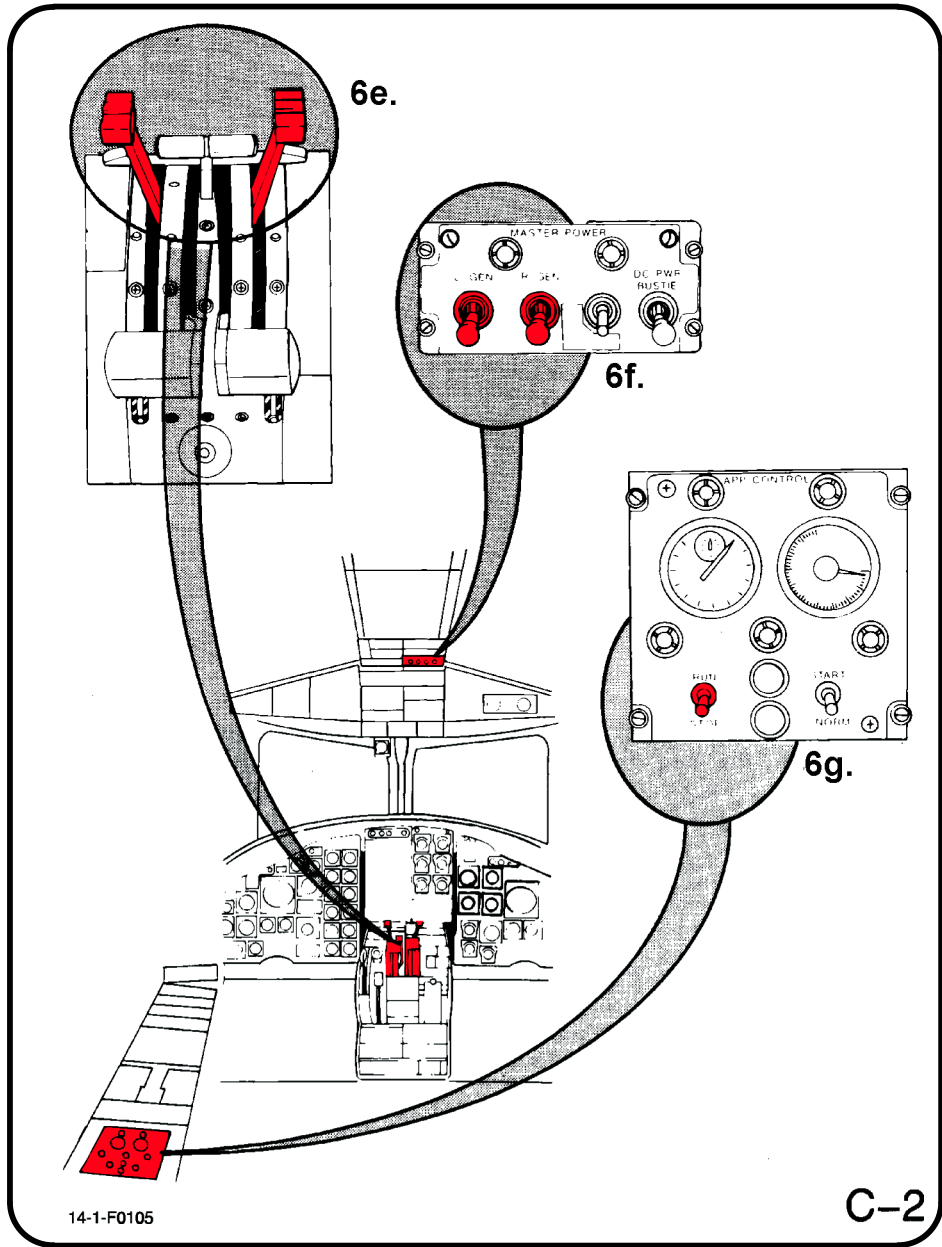


Figure D-2. C-2 Greyhound Crash Crew Information (Sheet 5)

8. CREW RELEASE

The pilot/copilot's seats may be equipped with standard shoulder straps and lap belts or equipped for use with an integrated harness. All other seats are equipped with standard shoulder harnesses and lap belts.

a. N/A

b. N/A

c. RESTRAINT SUIT BELTS/RELEASE

- (1) Release two lap belt, then two shoulder harness koch fittings.
- (2) SHOULDER HARNESS/LAP BELT — LIFT quick disconnect lever to release shoulder harnesses and lap belt.

d. N/A

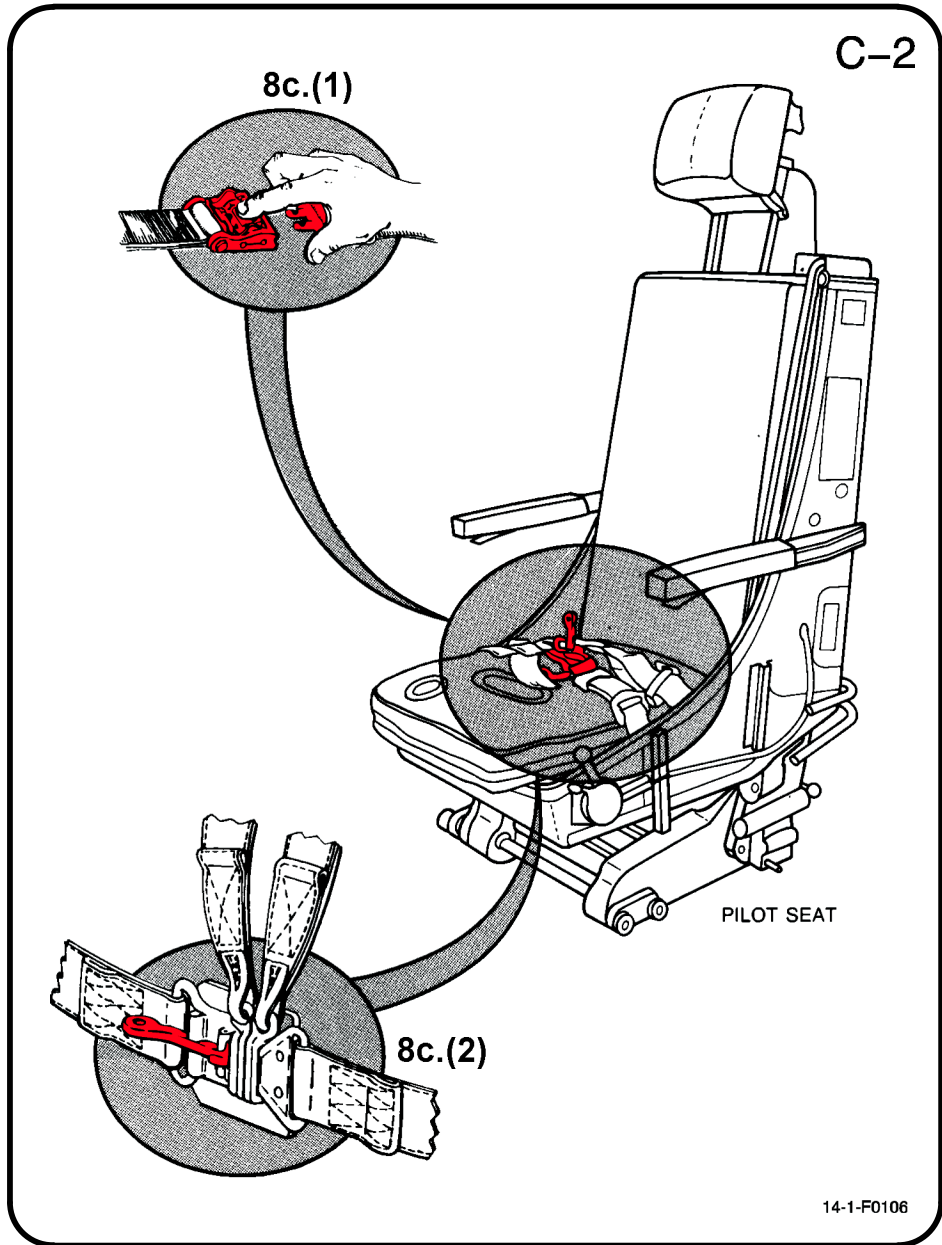






Figure D-3. C-9 Skytrain II Crash Crew Information (Sheet 1 of 6)




SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

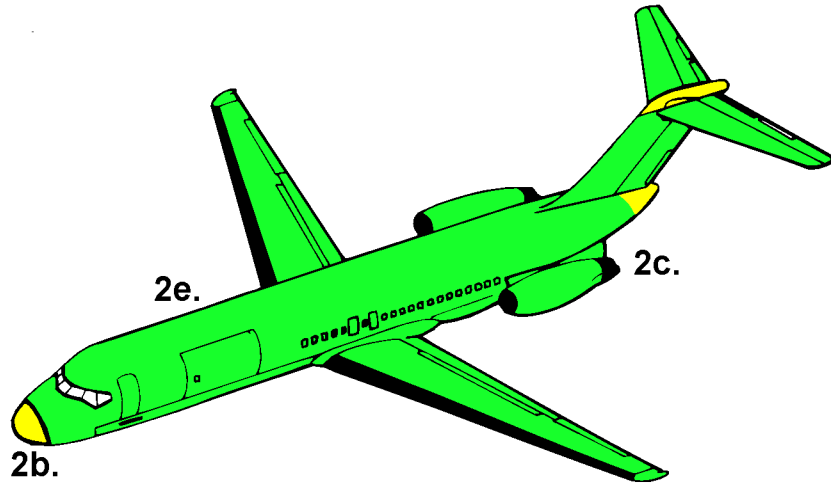
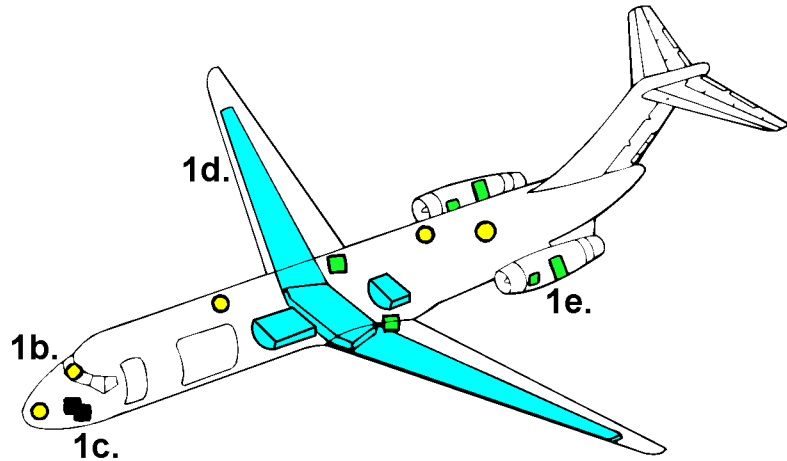
1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. Oxygen/Gas 35 L LOX
24.6 in³

- c. Battery 2

- d. Fuel Internal 5929 gal

- e. Oil Engine 10 gal
Hydraulic 15 gal

- f. Pneumatic System 3000 PSI

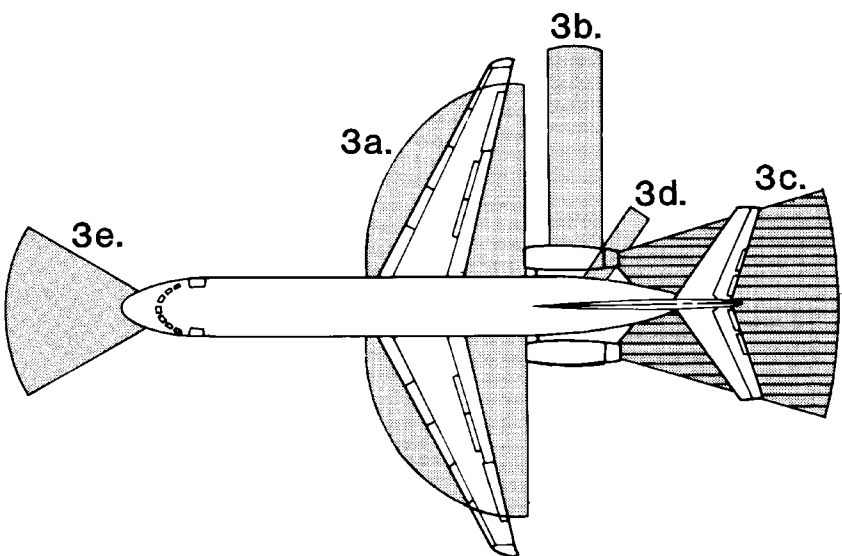
2. AIRFRAME MATERIALS

- a. N/A
- b. Other
Fiberglass

- c. Steel

- d. N/A
- e. Aluminum

- f. N/A
- g. N/A

C-9



14-1-F0107



14-1-F0108

C-9

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 25'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 350'
- d. APU Exhaust — 8'
- e. Radiation
 FWD 140° Arc — 21'

Figure D-3. C-9 Skytrain II Crash Crew Information (Sheet 2)

Figure D-3. C-9 Skytrain II Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

Normal entry to the flight compartment, and passenger and/or cargo compartment is through the FWD entrance door, service entrance door, main cargo door, and pressure bulkhead door.

- (1) PULL FWD Entrance Door Handle (FWD LH side of fuselage) OUT and ROTATE COUNTERCLOCKWISE. Service door is located on RH side of fuselage, PULL handle and ROTATE CLOCKWISE.
- (2) LIFT Stairwell External Door Handle, located below FWD entrance door, and RAISE to UP position.
- (3) DEPRESS lower button marked DN to EXTEND stairwell ladder.

Note

If aircraft is shut down, auxiliary power switch under latch handle must be held in the ON position while depressing DOWN button.

- (4) Open Rear Stairway Control Panel, located on AFT LH exterior fuselage, PUSH control handle FWD to OPEN position to release stairway, HOLD until stairway is fully OPEN.

CAUTION

Stairway free falls to down position.

b. N/A

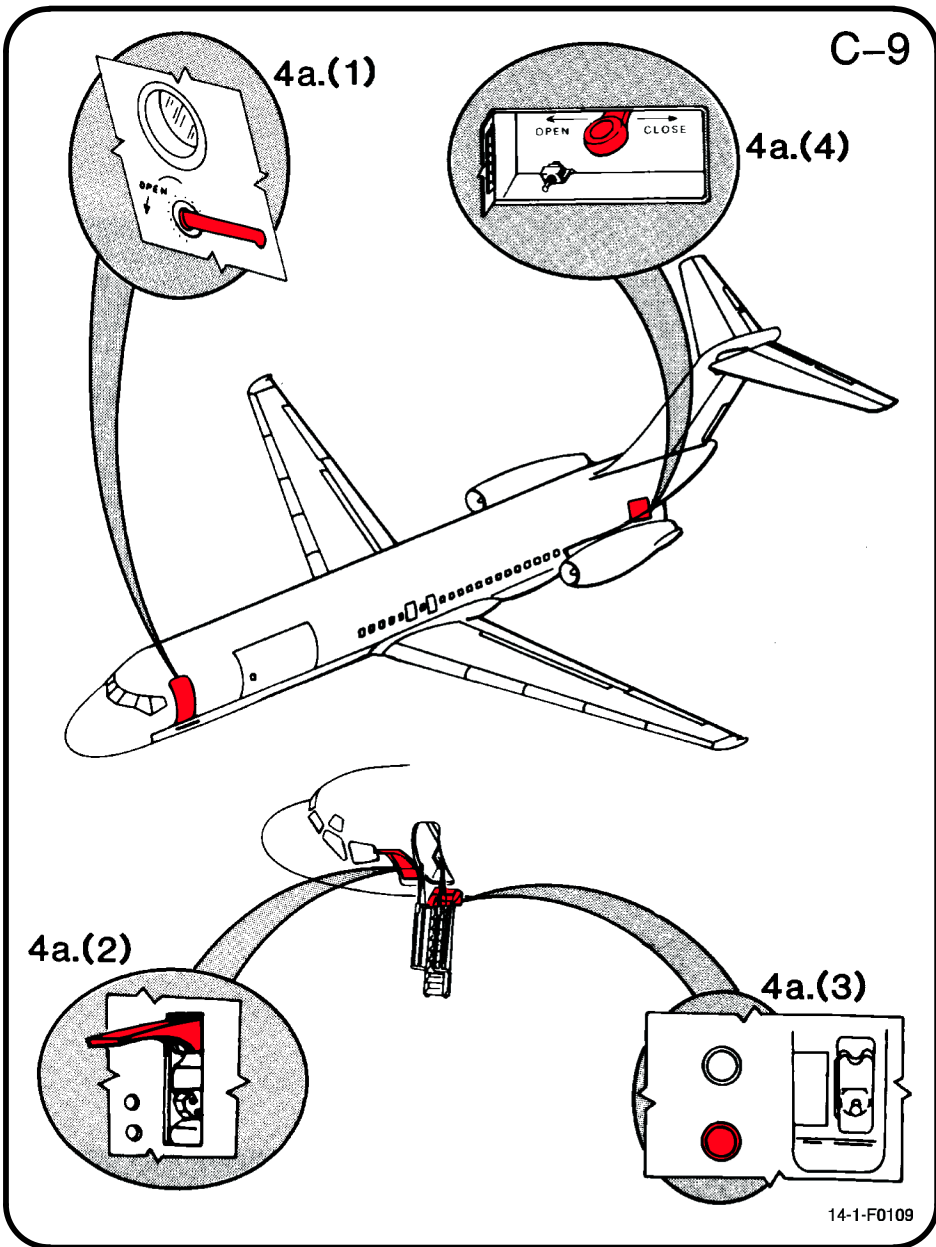


Figure D-3. C-9 Skytrain II Crash Crew Information (Sheet 4)

4. AIRCRAFT ENTRY (CONT.)

c. EMERGENCY ENTRY

If normal entry doors are inaccessible, entry may be obtained through the overwing emergency entry doors, the jettisonable tail cone area, and the clear view windows.

- (1) PUSH Overwing Exit Door Handle (two doors are located over each wing), PULL handle to unlatch door, PUSH IN and LIFT UP forcibly.
- (2) PUSH IN Jettisonable Tail Cone T-Handle door, located on fuselage FWD of tail cone. PULL T-Handle to jettison tail cone. Jettison door is approximately 8.5 feet high.

WARNING

Exercise caution when releasing tail cone. Tail cone free falls when released from aircraft.

Note

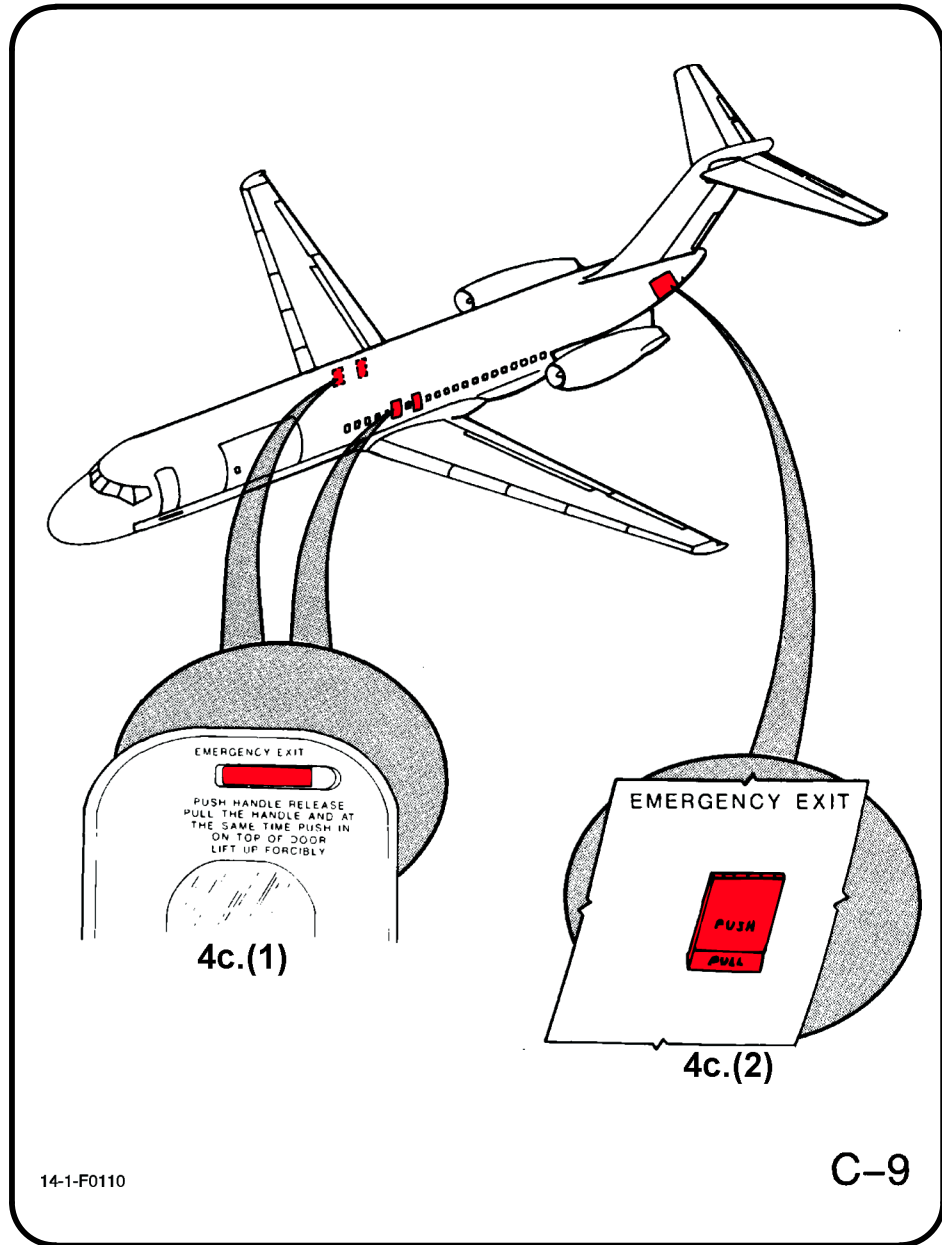
Tail cone entrance and aft stairway cannot be used at the same time.

d. FORCED ENTRY

The aircraft does not have any CUT OUT areas marked off. Use a power rescue saw or axe to gain access through a designated cargo compartment. A window shade in the down position should indicate a cargo compartment.

WARNING

Exercise extreme caution prior to forcible entry into any compartment to ensure passenger safety.



14-1-F0110

C-9

Figure D-3. C-9 Skytrain II Crash Crew Information (Sheet 5)

5. N/A

6. ENGINE/APU SHUTDOWN

a. N/A

b. ENGINE SHUTOFF T-HANDLES

PULL Engine Fire Shutoff T-Handles, located on upper portion of instrument panel.

c. BATTERY SWITCH

PLACE Battery Switch, located below APU control panel, in OFF position.

d. THROTTLES

RETARD Throttles to FULL AFT position.

e. N/A

f. N/A

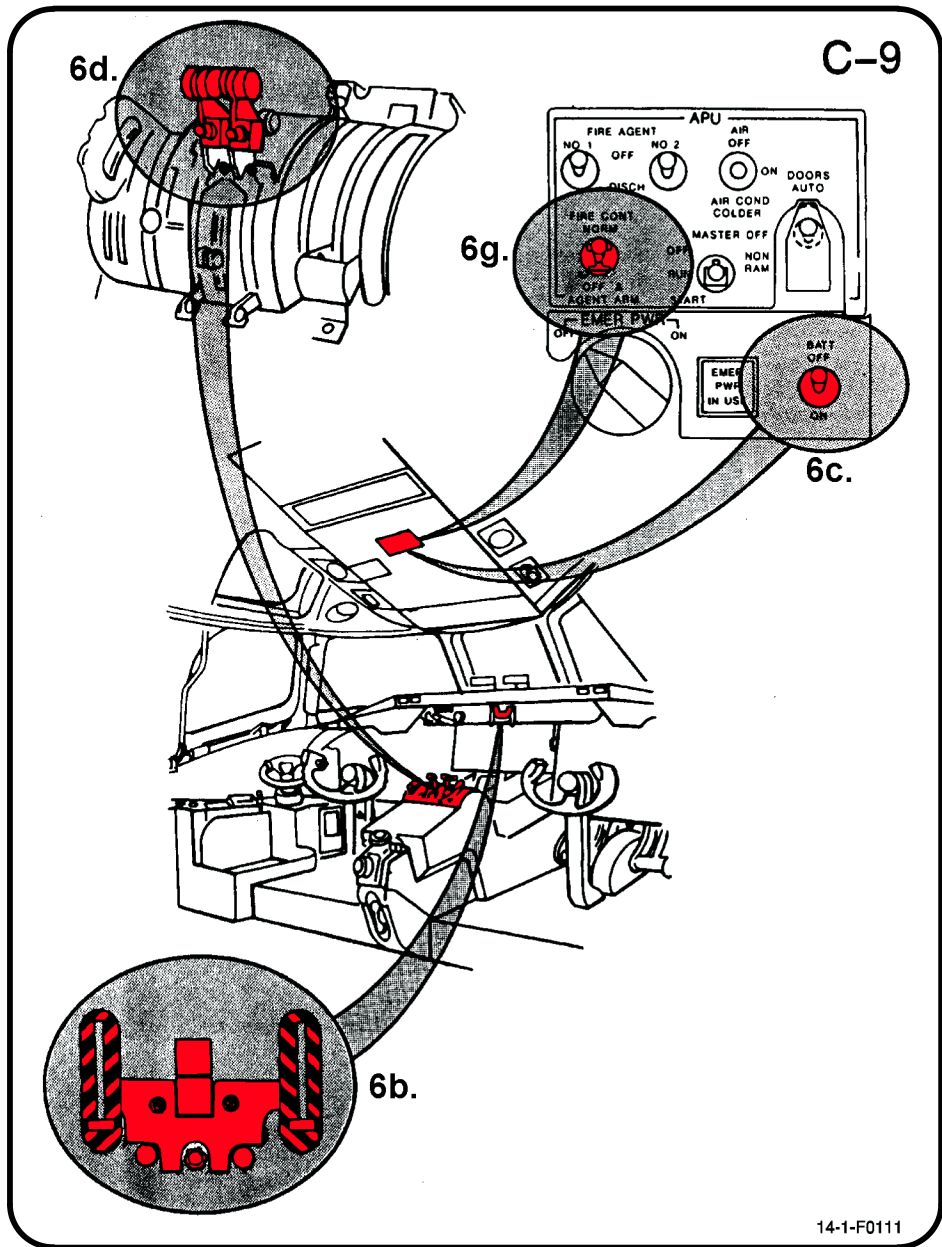
g. AUXILIARY POWER UNIT (APU)

PLACE APU Fire Control Switch, located on overhead switch panel, in OFF and AGENT ARM position.

7. BATTERIES

Batteries are located in electrical/electronic compartment. To further deactivate batteries remove quick disconnect fitting(s).

a. N/A



14-1-F0111

Figure D-3. C-9 Skytrain II Crash Crew Information (Sheet 6)

8. CREW RELEASE

Pilot, copilot, and crewchief are attached to the seats by shoulder harnesses secured to a lap belt equipped with a quick disconnect buckle. Passengers have lap belts only.

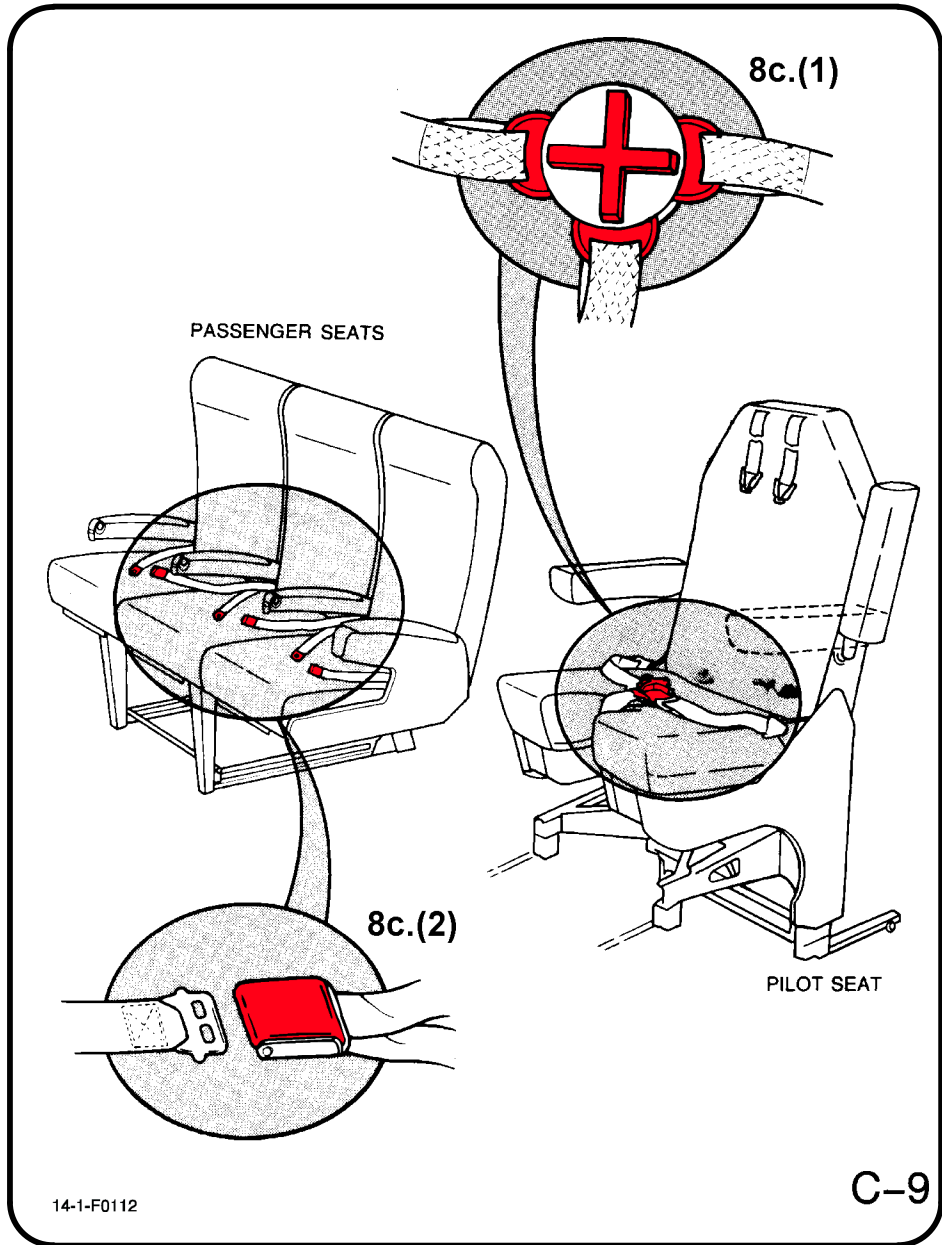
a. N/A

b. N/A

c. RESTRAINTS SUIT BELTS/RELEASE

- (1) ROTATE lap belt quick disconnect fitting to release shoulder harnesses and lap belt.
- (2) PASSENGER — LIFT buckle cover to release lap belt (airline type).

d. N/A



SPECIAL TOOLS/EQUIPMENT

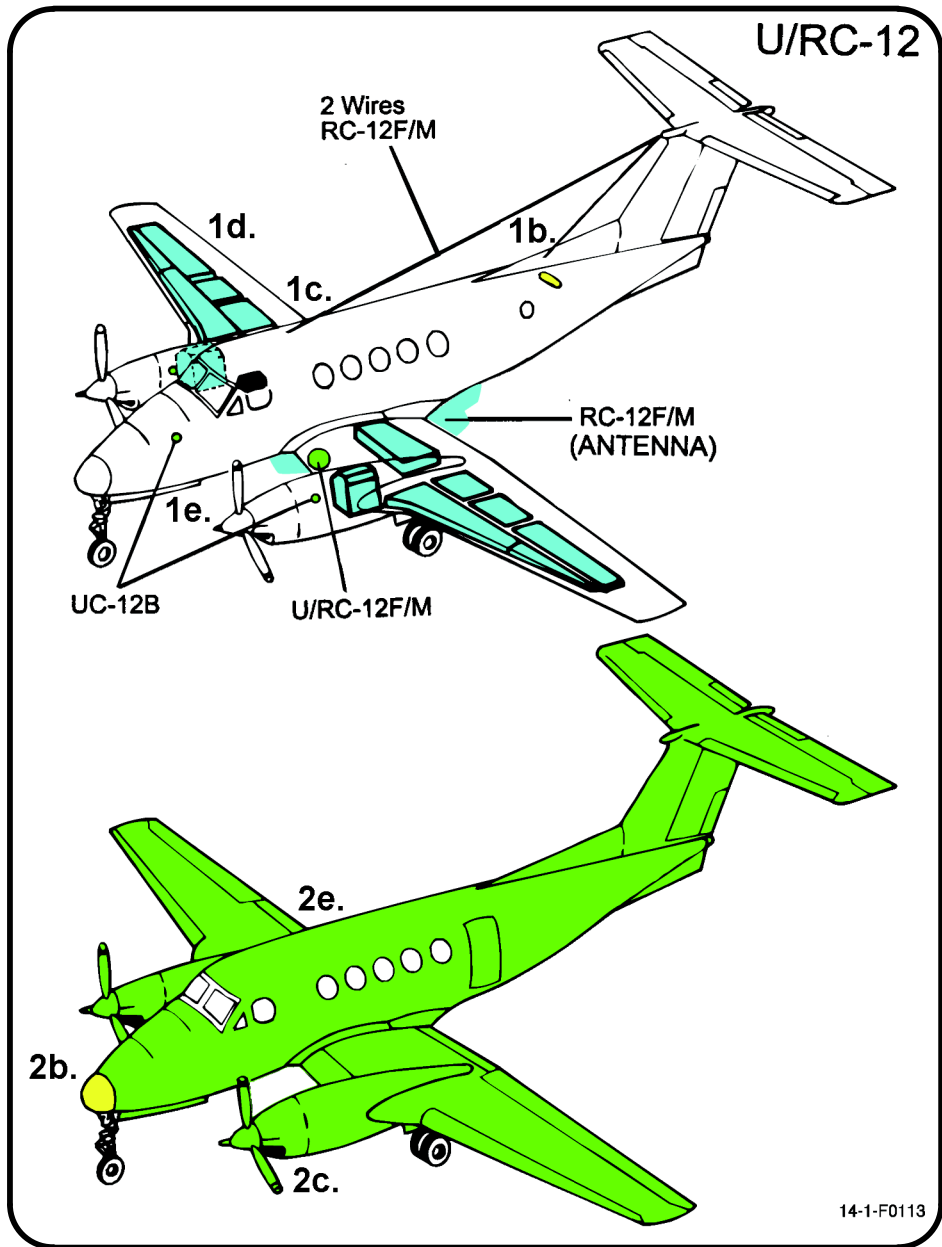
Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. Oxygen/LOX 49 ft³
- c. Battery 1 (RH Wing Center Section)
- d. Fuel Internal 544 gal
- e. Oil Engine 6 gal
 Hydraulic 3.5 gal
 1 pt (UC-12B)
- f. N/A

2. AIRFRAME MATERIALS

- a. N/A
- b. Other
 Fiberglass
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A



14-1-F0113

Figure D-4. U/RC-12 Super King Air Crash Crew Information (Sheet 1 of 4)

Figure D-4, U/RC-12 Super King Air Crash Crew Information (Sheet 2)

3. AIRCRAFT DANGER AREAS

- a. Propeller Danger Zone — 9'
- b. Propeller Turbulence/Engine Exhaust
Idle — 18'
Max — 40'
- c. Radar
 - (1) Weather — 6'
 - (2) Reconnaissance (RC-12F/M) — 90'

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

A swing-down door provides a stairway for normal entry. The door locking mechanism is operated by interconnected handles, one inside and one outside. A button above the door handle, must be DEPRESSED before the handle can be ROTATED to open the door.

b. N/A

c. EMERGENCY ENTRY

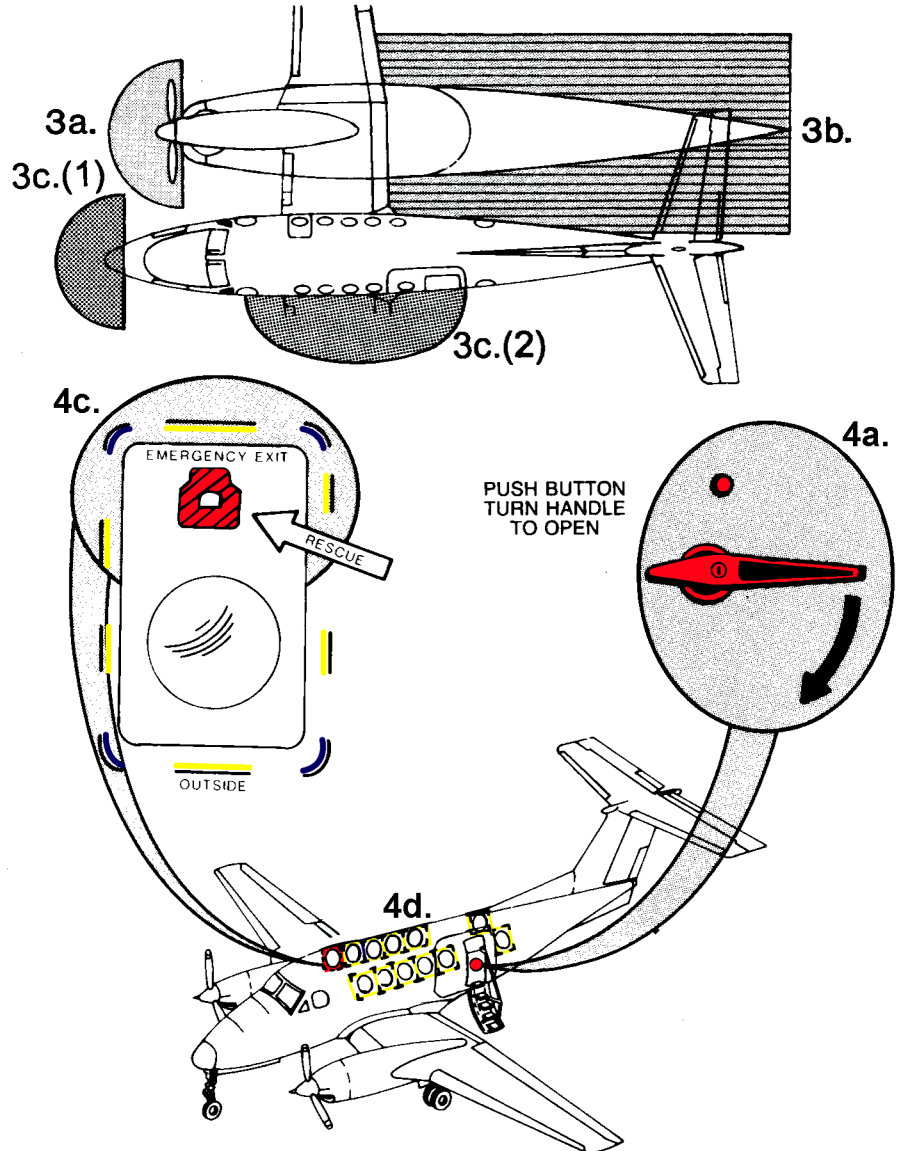
A plug-type Emergency Exit Hatch is located at the first cabin window on the RH side of the aircraft. When released, the hatch removes from the frame towards the inside of the cabin. The hatch is released from the outside with a flush mounted Pull-Out Handle.

Note

Hatch may be locked from the inside with key.

d. FORCED ENTRY

CUT OUT entry areas as indicated in diagram using power rescue saw or crash axe.



14-1-F0114

U/RC-12

Figure D-4. U/RC-12 Super King Air Crash Crew Information (Sheet 3)

5. N/A

6. ENGINE SHUTDOWN

a. N/A

b. N/A

c. N/A

d. CONDITION LEVERS

MOVE Condition Levers, located on center pedestal, AFT to CUT OFF position.

e. FUEL VALVE SWITCHES

f. N/A

PLACE Fuel Valve Switches in CLOSED position by RAISING guard and MOVING switches DOWN.

g. BATTERY SWITCH

PLACE Master Gang Bar in DOWN position.

7. BATTERY

The battery is located in the right wing center section beneath an access cover secured with screws and is equipped with a quick disconnect fitting.

a. N/A

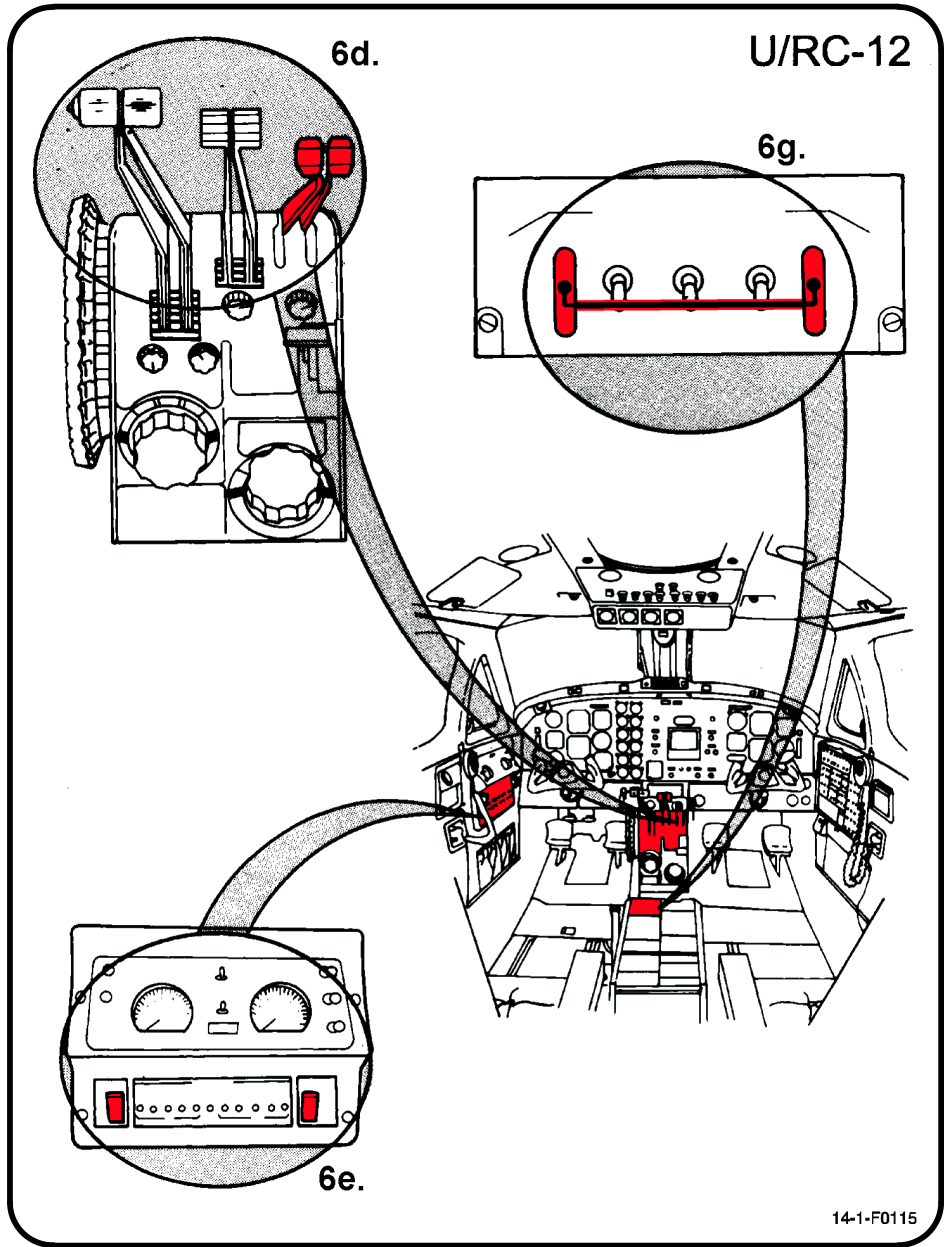


Figure D-4. U/RC-12 Super King Air Crash Crew Information (Sheet 4)

8. CREW RELEASE

The pilot and copilot are attached to the seats by a shoulder harness attached to a lap belt by a quick disconnect buckle. The passengers have lap belts only.

a. N/A

b. N/A

c. RESTRAINTS SUIT BELTS/RELEASE

- (1) LIFT buckle cover to release lap belt and shoulder harness.
- (2) PASSENGER — LIFT buckle cover to release lap belt (airline type).

d. N/A

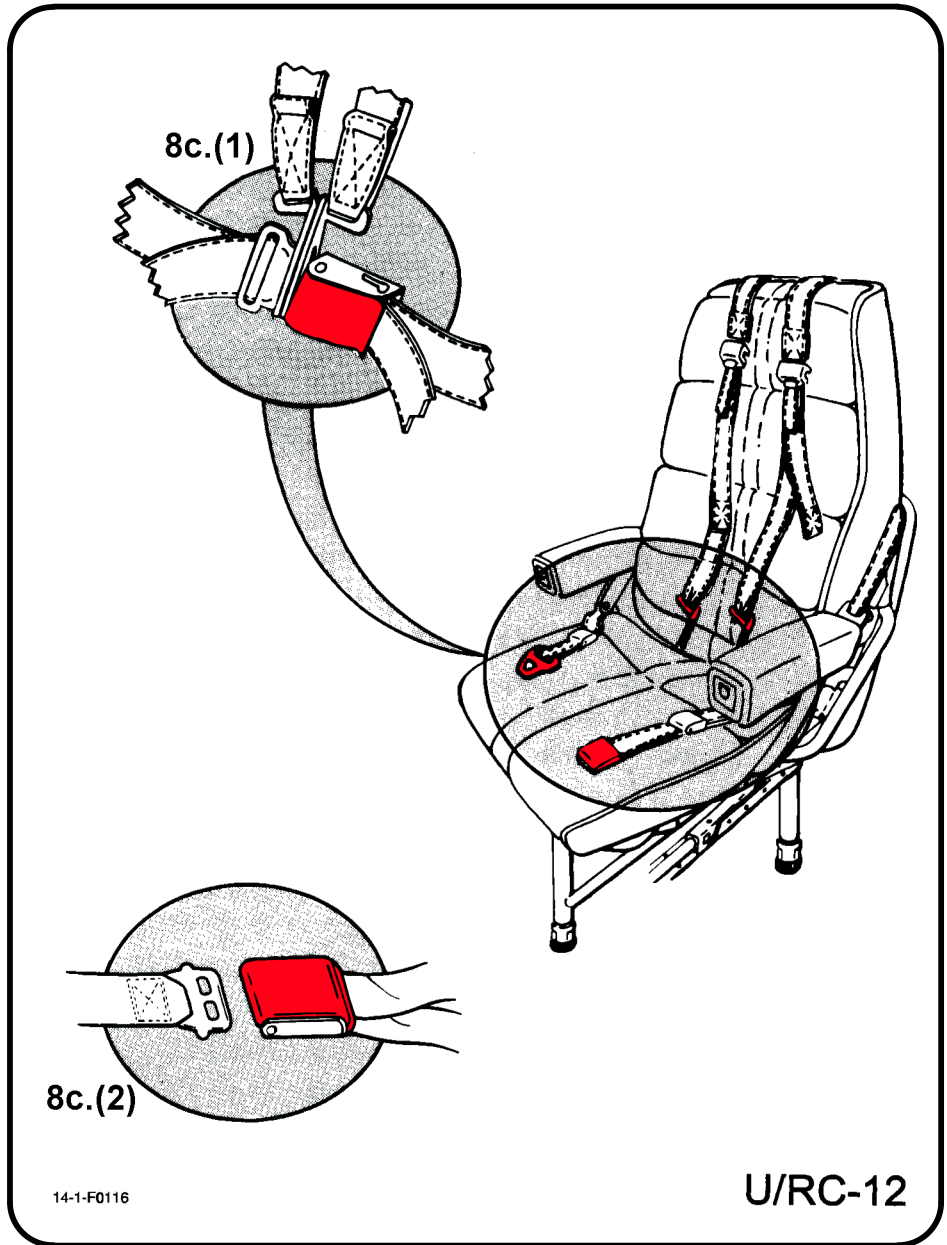


Figure D-5. C-130 Hercules Crash Crew Information (Sheet 1 of 4)

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

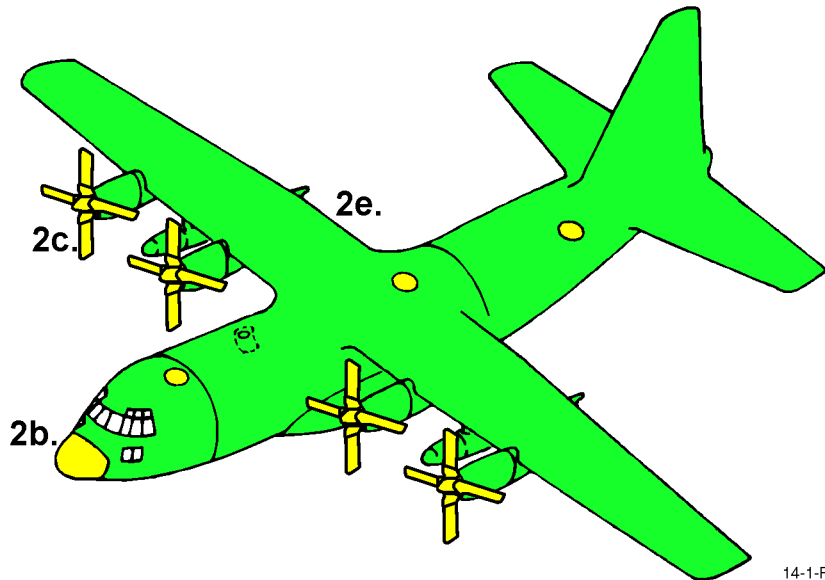
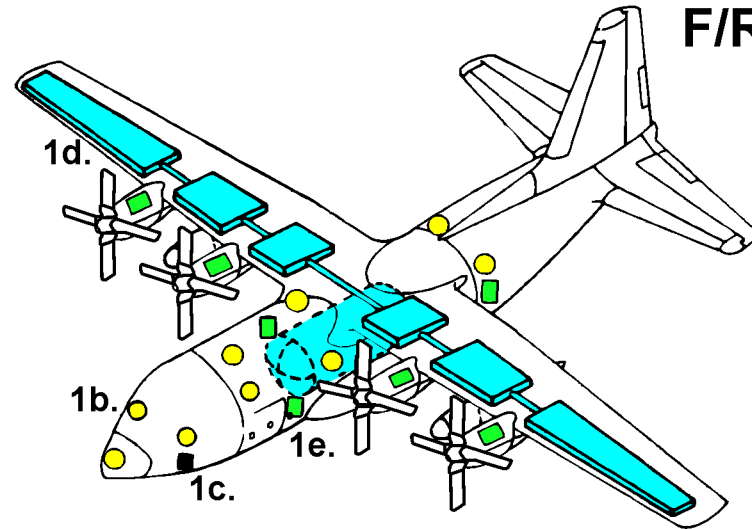
1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. Oxygen/LOX 25 L Fixed
4 Portable Bottles
LOX ON
C/KC-130T/J only
- c. Battery 2
- d. Fuel Cargo Aircraft
9,800 gal
Refueling Aircraft
10,224 gal
- e. Oil Engine 48 gal
Hydraulic 29.59 gal
- f. Pneumatic System 3000 PSI

2. AIRFRAME MATERIALS

- a. N/A
- b. Other Fiberglass
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A

**C/KC-130
F/R/T**



14-1-F0117

Figure D-5. C-130 Hercules Crash Crew Information (Sheet 2)

3. AIRCRAFT DANGER AREAS

- a. Propeller Danger Zone — 10'
- b. Turbine Blade Failure — 300'
- c. Propeller Blast — 300'
- d. Radiation — 37'
- e. GTC Exhaust Area

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

- (1) ROTATE Crew Door Handle DOWNWARD. Allow door to swing down slowly.

WARNING

Stand clear of door when operating handle to prevent injury should door fall free.

- (2) ROTATE Paratroop Jump Door Handle CLOCKWISE, PUSH IN and SLIDE door UPWARD.

b. N/A

c. EMERGENCY ENTRY

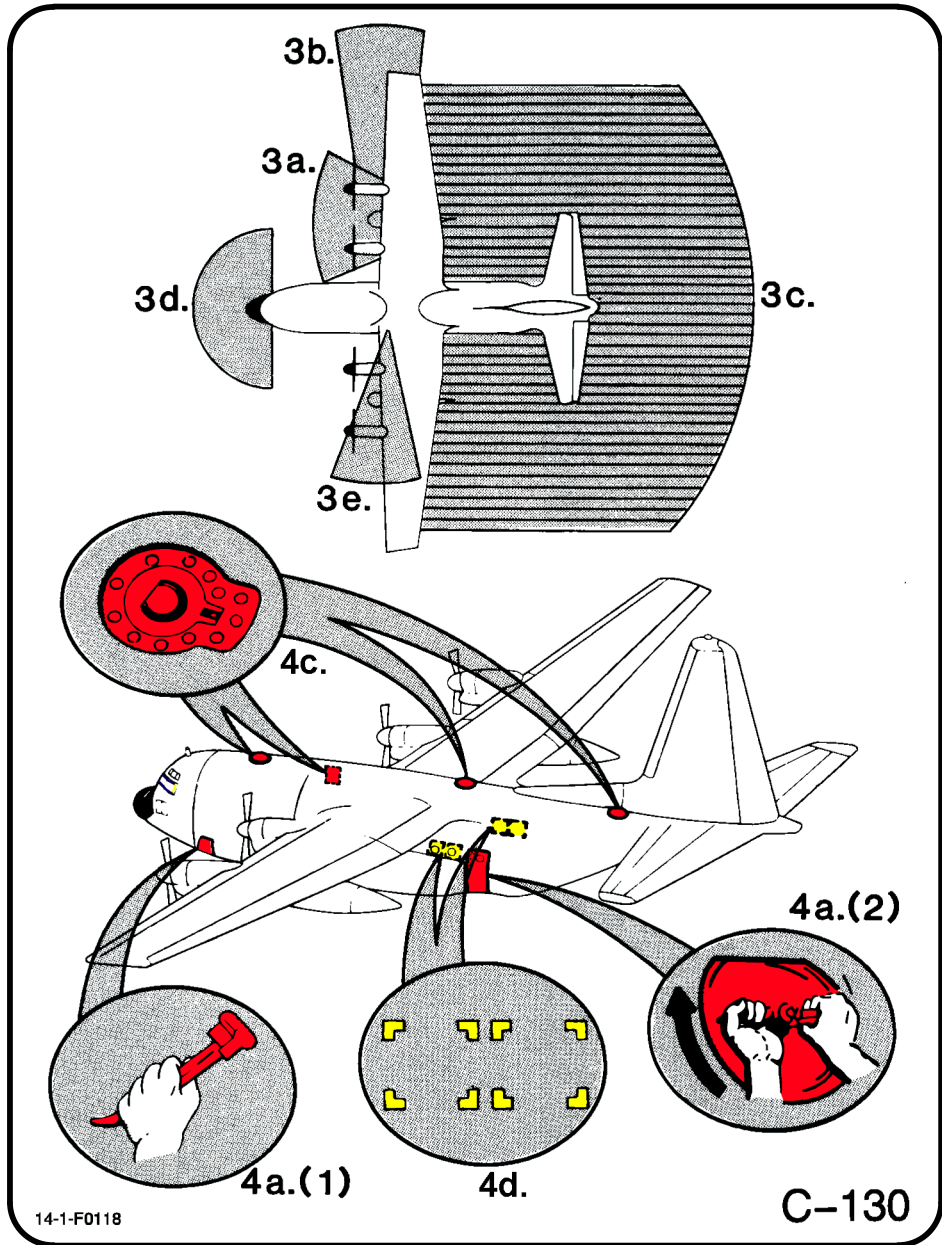
PULL Emergency Release Ring on hatch or door and PUSH INWARD.

WARNING

Emergency exit door (right side of fuselage) will fall into aircraft upon release. Clear personnel before door is released.

d. FORCED ENTRY

CUT OUT entry areas as indicated on diagram using power rescue saw or crash axe.



14-1-F0118

C-130

5. N/A
6. **ENGINE SHUTDOWN**
 - a. **FIRE HANDLES**
PULL OUT all five Fire Handles.
 - b. **CONDITION LEVERS**
PULL all four levers BACK to the FULL AFT position.
 - c. **BATTERY SWITCH**
PLACE Battery Switch in OFF position.
 - d. N/A
 - e. N/A
 - f. N/A
 - g. N/A
7. **BATTERY**
Two batteries are located in fuselage compartment FWD of crew door on LH side of aircraft. Disconnect, time permitting.
 - a. N/A

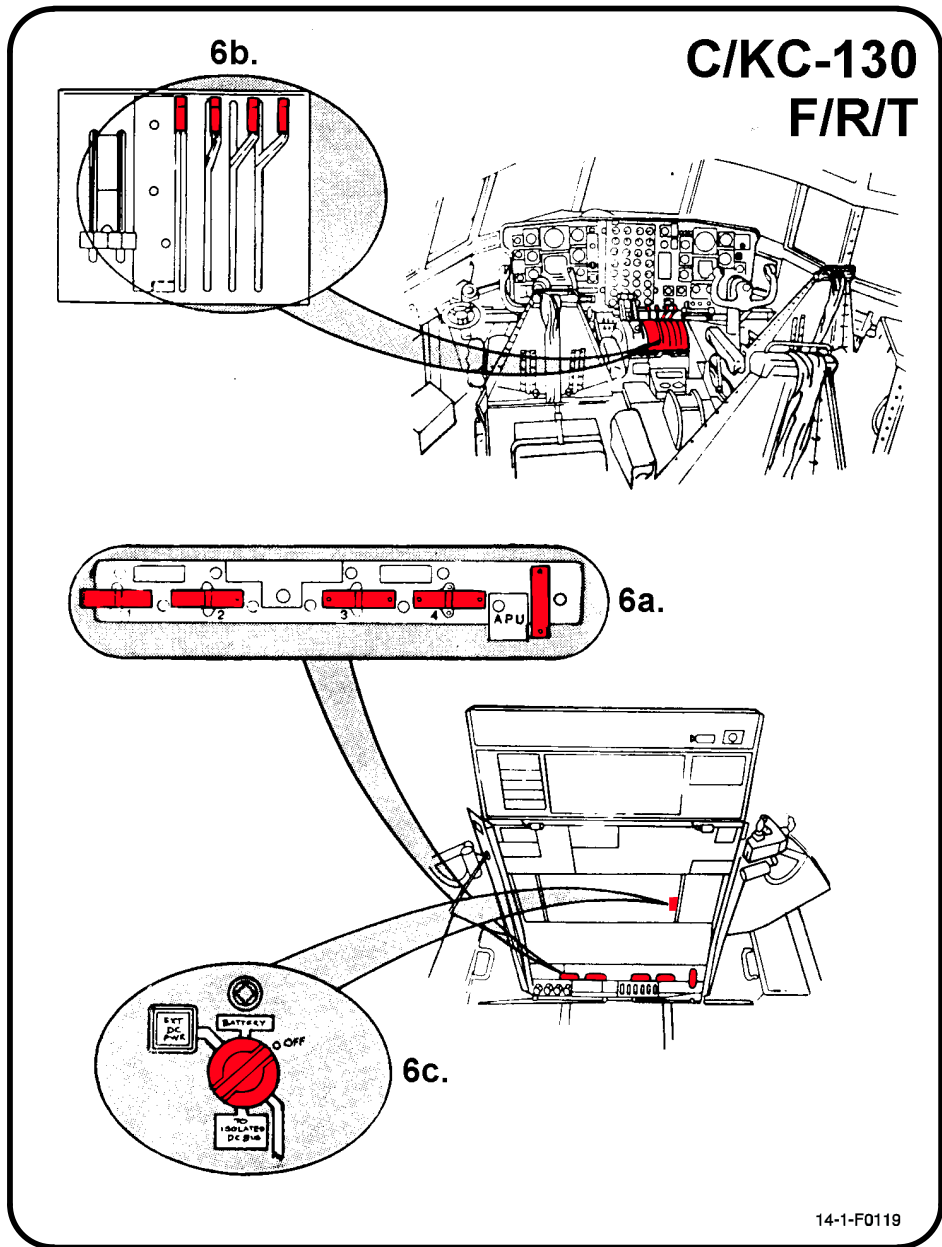


Figure D-5. C-130 Hercules Crash Crew Information (Sheet 3)

Figure D-5. C-130 Hercules Crash Crew Information (Sheet 4)

8. CREW RELEASE

All crewmembers are attached to the seats by shoulder harnesses secured to lap belts with quick disconnects. Passengers have lap belts only.

a. N/A

b. N/A

c. RESTRAINTS SUIT BELTS/RELEASE

LIFT quick disconnect lever to release shoulder harnesses and lap belt.

d. N/A

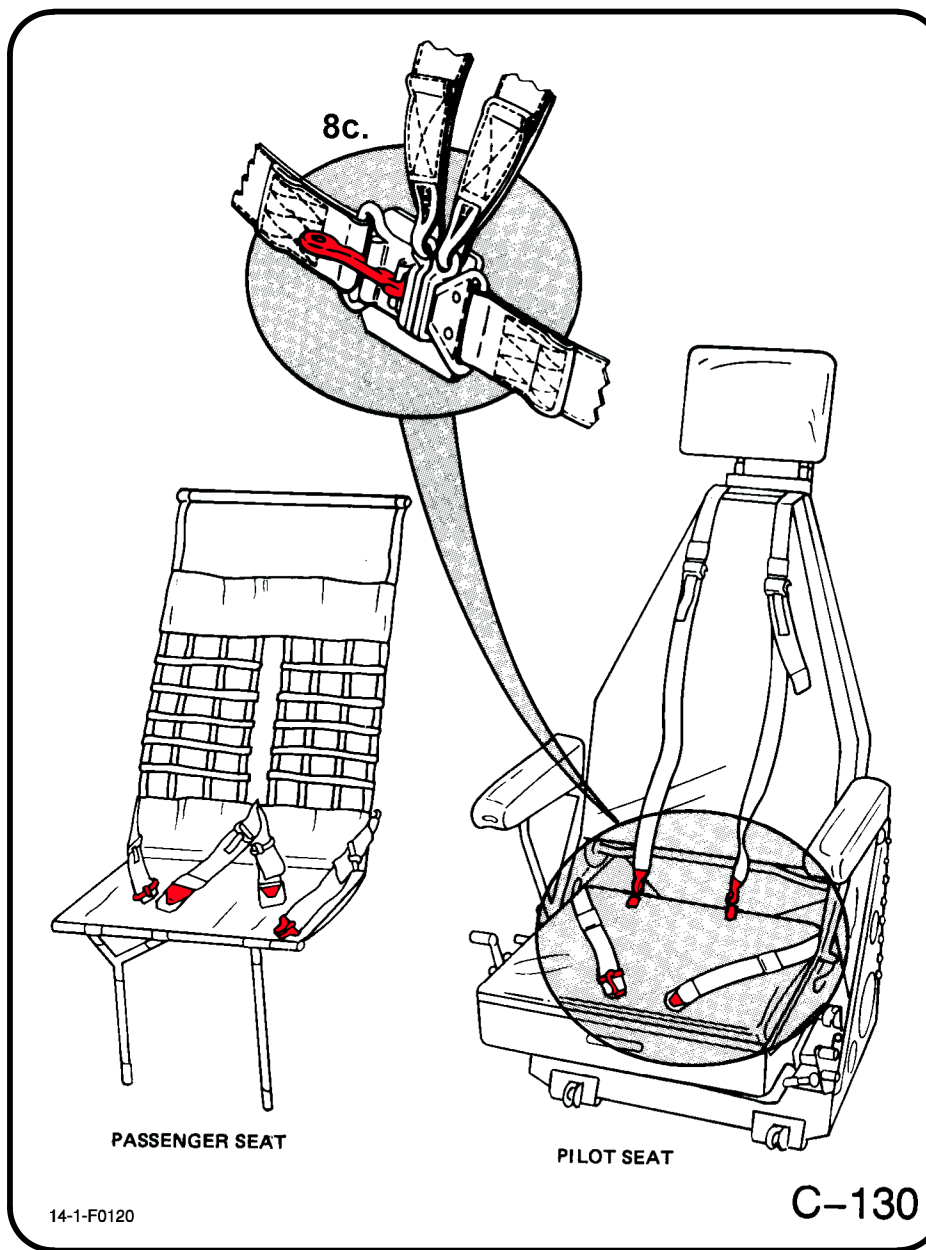


Figure D-6. C-20D/G Gulfstream III/IV Crash Crew Information (Sheet 1 of 5)

SPECIAL TOOLS/EQUIPMENT

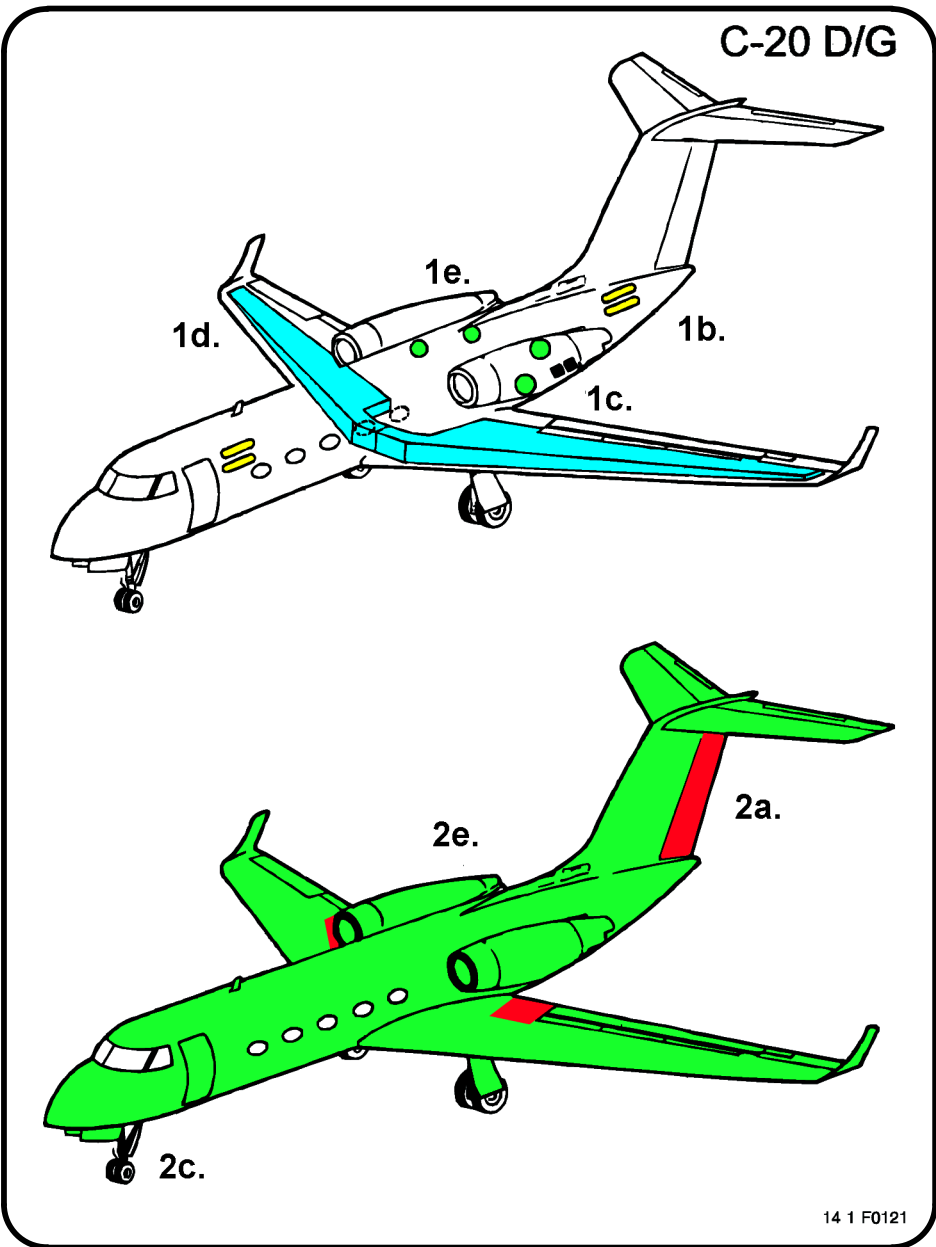
Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

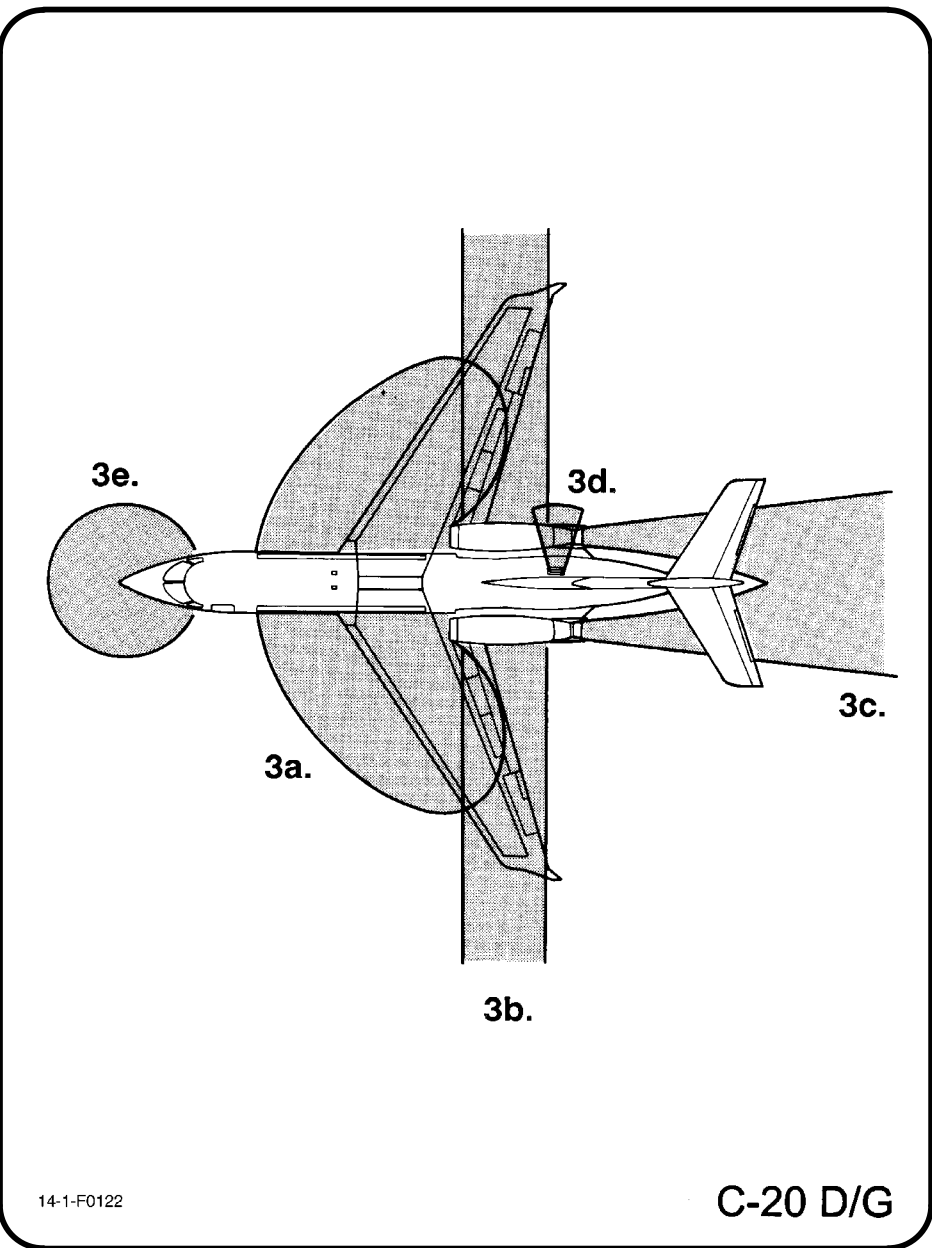
- a. N/A
- b. Oxygen Two 77 ft³ and Two 115 ft³ Bottles
- c. Battery 2
- d. Fuel Internal 4134 gal
- e. Oil Engine 3.8 gal Hydraulic 6.7 gal
- f. Pneumatic System 3,000 PSI

2. AIRFRAME MATERIALS

- a. Graphite Epoxy
- b. N/A
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A



14 1 F0121



14-1-F0122

C-20 D/G

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 20'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 250'
- d. APU Exhaust — 5'
- e. Radiation FWD 270° Arc — 15'

Figure D-6. C-20D/G Gulfstream III/IV Crash Crew Information (Sheet 2)

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

Normal entry to the aircraft is through the main entrance door. The swing-down door provides a stairway for entry. PUSH the small Inner Panel to release Secondary Lock. PULL the larger Outer Handle (on the bottom) OUT to release the Primary Lock. The door will freefall to OPEN

CAUTION

Door will fall rapidly. Support door while lowering.

b. N/A

c. EMERGENCY ENTRY

In the event the main entrance door is inaccessible, entry may be gained by using the emergency escape windows or the baggage compartment door.

- (1) PUSH the Emergency Escape Window panel where indicated. Open Door, PULL Handle UPWARD, and PUSH window INWARD.

WARNING

Emergency exit door (starboard side of fuselage) will fall into aircraft upon release. Personnel inside of aircraft should stand clear of door before door is released.

- (2) PUSH Button in center of Baggage Compartment Door Handle. ROTATE Handle CLOCKWISE, PUSH Door INWARD and SLIDE UPWARD. Once inside Baggage Compartment, OPEN Door to Lavatory, then OPEN Door to Cabin.

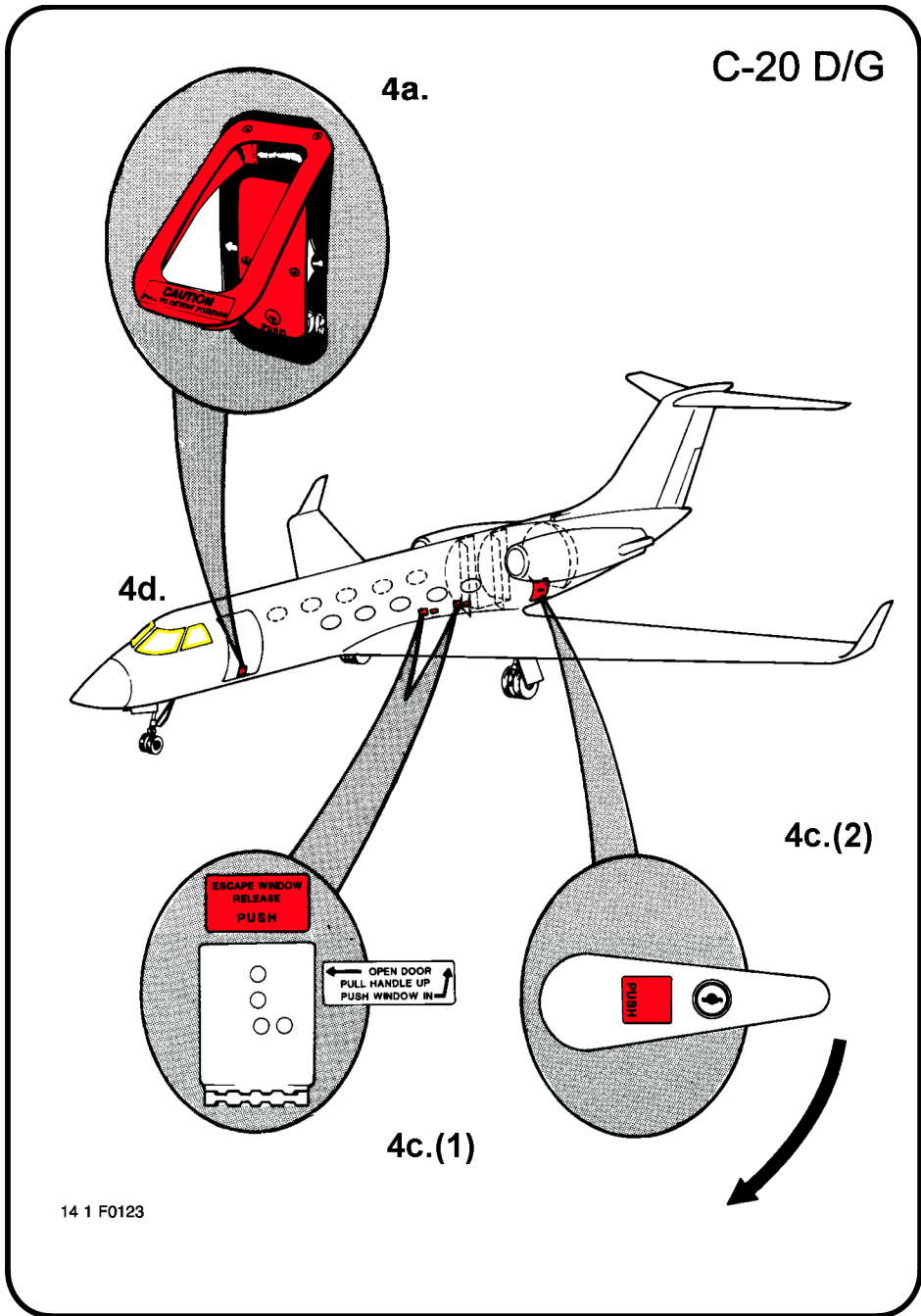


Figure D-6. C-20D/G Gulfstream III/IV Crash Crew Information (Sheet 4)

4. AIRCRAFT ENTRY (CONT.)

d. FORCED ENTRY

WARNING

Glass fragments created when chopping or cutting windshields in the cockpit area may cause severe injuries to those in the cockpit.

CUT OUT entry areas as required using power rescue saw or crash axe.

5. N/A

6. ENGINE/APU SHUTDOWN

a. FUEL BOOST PUMP SWITCHES

LIFT both clear Guards and PLACE all four Fuel Boost Pump Switches DOWN in OFF position.

b. FUEL COCK LEVERS

PULL both Fuel Cock Levers FULLY AFT to SHUT position.

c. BATTERY SWITCHES

PUSH both BATT 1 and BATT 2 Buttons to release each from depressed position ("ON" light should go out).

d. FIRE T-HANDLES

PULL both Fire T-Handles.

e. N/A

f. N/A

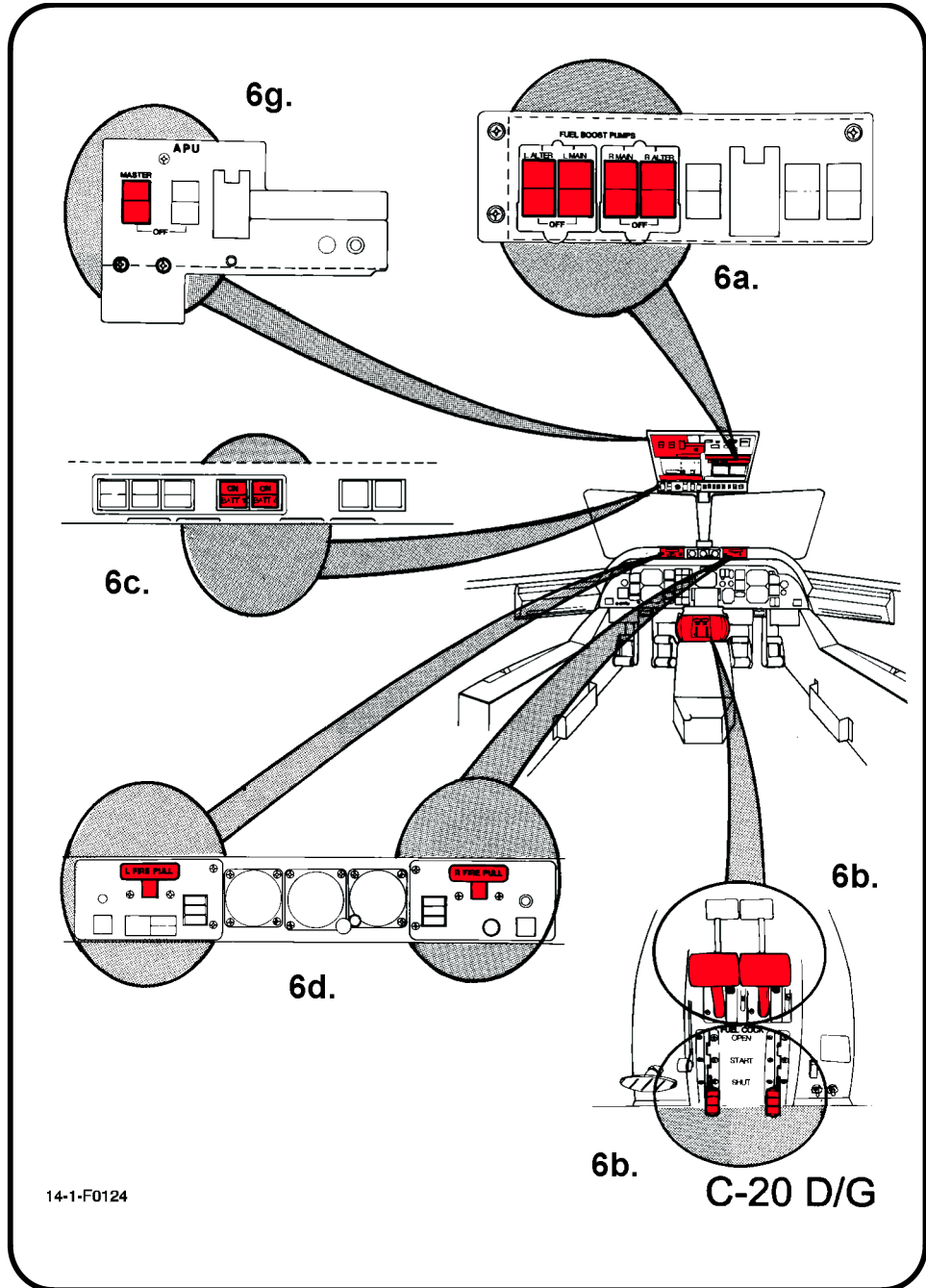
g. APU MASTER SWITCH

PLACE APU Master Switch in DOWN (OFF) position.

7. BATTERIES

Batteries are located in the Battery Compartment in the LH tail section of the aircraft. To further deactivate batteries, REMOVE Quick Disconnect Fittings, time permitting.

a. N/A



8. CREW RELEASE

The pilot and copilot seats are equipped with shoulder harness straps, lap belts, and crotch straps attached to a rotary release buckle. The passenger seats have lap belts only.

a. N/A

b. N/A

c. RESTRAINTS SUIT BELTS/RELEASE

- (1) ROTATE Rotary Release Buckle in EITHER DIRECTION to release Shoulder Harness, Lap Belt and Crotch Strap.
- (2) PASSENGER — LIFT Buckle Cover to release Lap Belt (airline type).

d. N/A

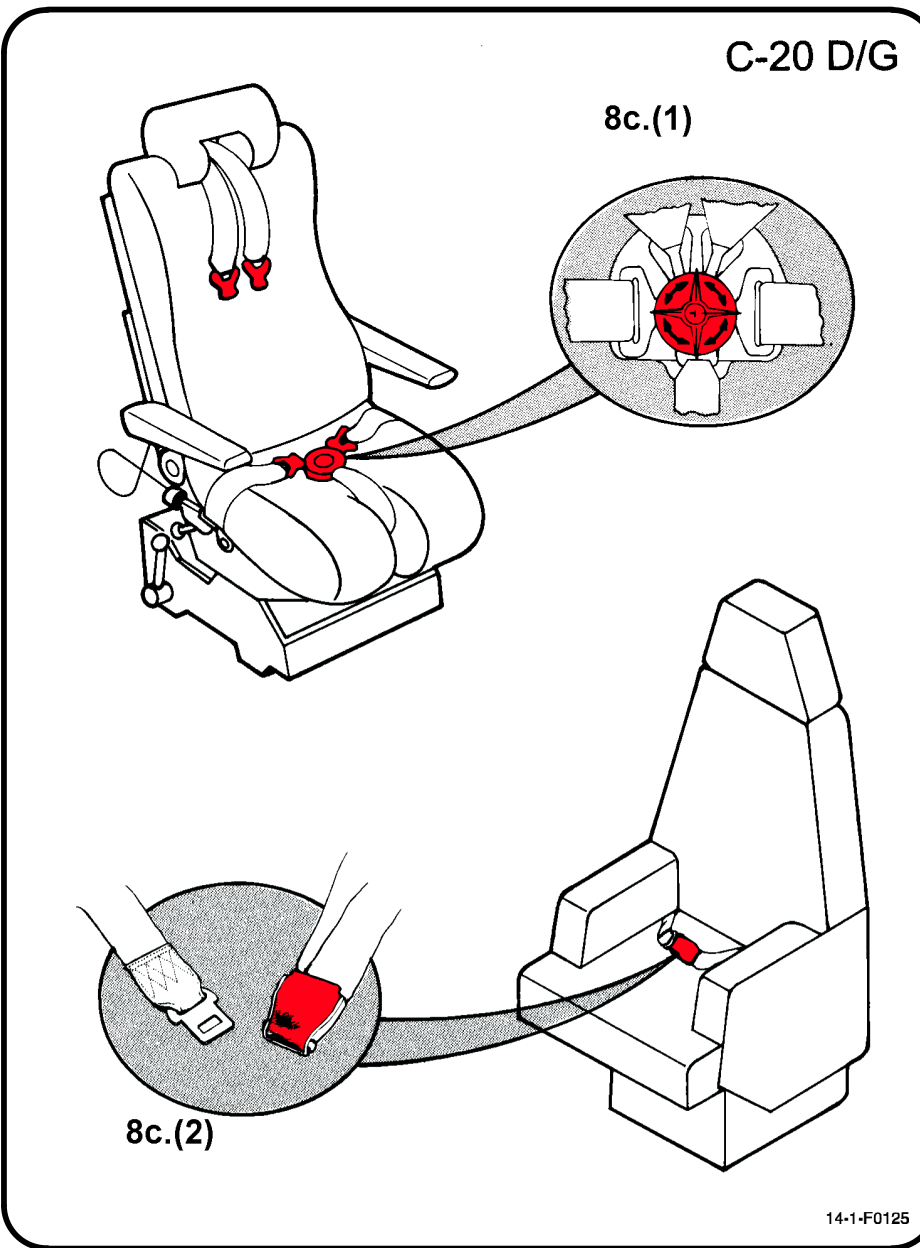


Figure D-7. C-26 Crash Crew Information (Sheet 1 of 7)

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
6-Foot Ladder

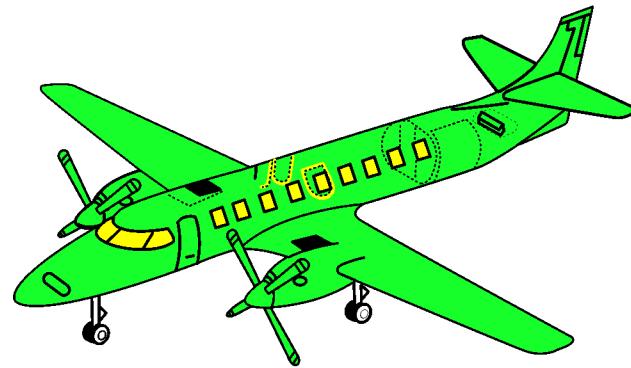
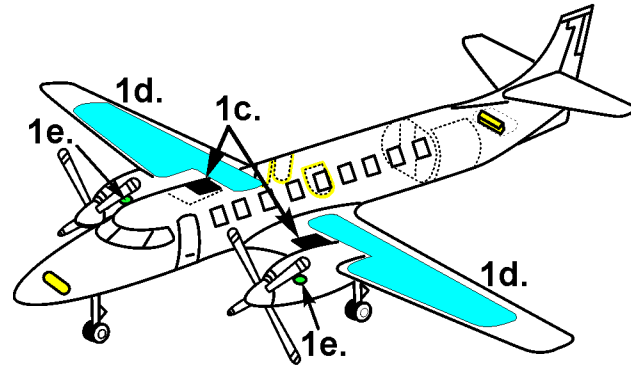
1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. Oxygen/LOX 49 ft³
- c. Battery 2 (1 port, 1 starboard)
- d. Fuel Internal 648 gal
- e. Oil Engine 8 gal
 Hydraulic 8 gal
- f. N/A
- g. N/A

2. AIRFRAME MATERIALS

- a. N/A
- b. Other
 Acrylic
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A

C-26

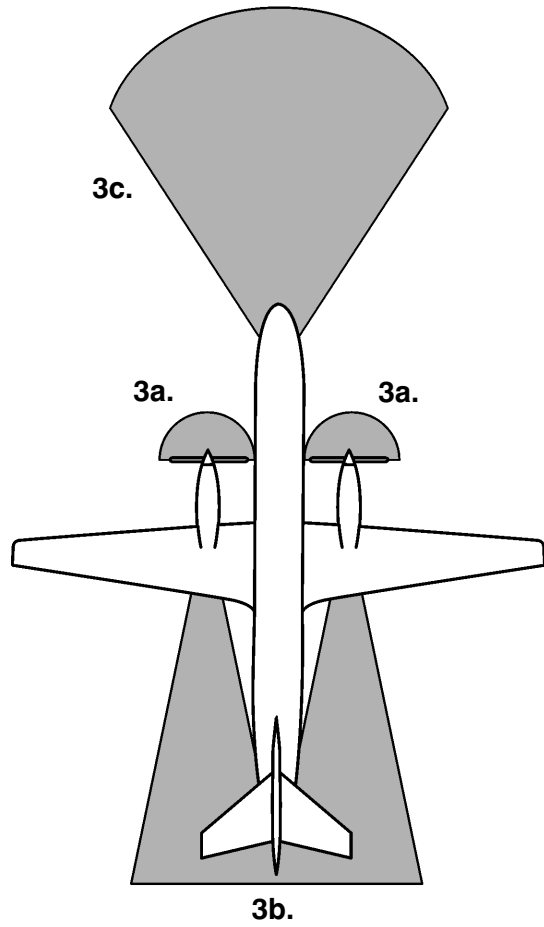


14-1-F0126a

C-26

3. AIRCRAFT DANGER AREAS

- a. Propeller Danger Zone — 9'
- b. Propeller Turbulence/Engine Exhaust
 - Idle — 18'
 - Max — 40'
- c. Radar — 6'



14-1-F0126b

Figure D-7. C-26 Crash Crew Information (Sheet 2)

Figure D-7. C-26 Crash Crew Information (Sheet 3)

3. AIRCRAFT DANGER AREAS (CONT.)

Note

The C-26 is a joint service aircraft used by the USAF, US Army, US Navy, and State Department for drug interdiction.

d. ALCOHOL-WATER (AWI) FLUID MIXTURE

The C-26 (SA 227-DC model) uses an alcohol-water mixture composition (CAWI system) with a quantity of 14 US gallons or 54 liters. The mixture is Methyl Alcohol 40% and water 60%. Prior to flight the CAWI tank will be full. The interconnected storage tanks are located between the fuselage lower skin and the wing belly panel. Common plumbing is routed through each wing leading edge to each engine.

WARNING

Methyl Alcohol (Methanol) is a violent poison and can not be made nonpoisonous. In case of accidental contact, flush with water immediately. Methanol vapors are toxic and extremely flammable. Do not smoke, generate sparks, or expose Methanol to open flame.

e. OXYGEN BOTTLE AND SHUTOFF VALVE LOCATION

The C-26 (SA 227-DC) contains one oxygen bottle located beneath the equipment rack aft of the aft cargo compartment bulkhead. Oxygen lines are routed to the pilot and co-pilot and along the right side of the fuselage to the passengers. A shut-off valve is located on each regulator.

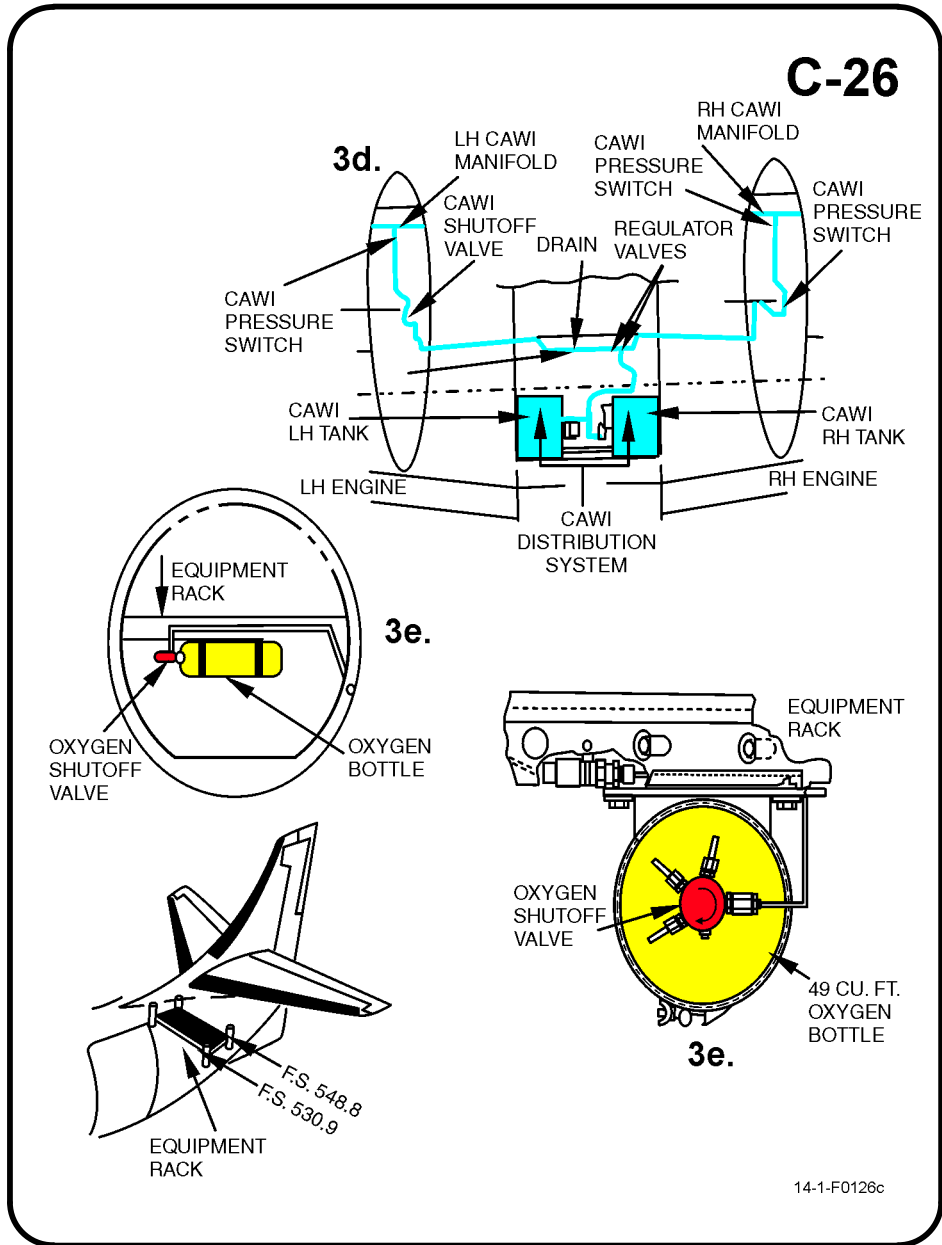


Figure D-7. C-26 Crash Crew Information (Sheet 4)

4. AIRCRAFT ENTRY — SA226/227 MODELS

a. NORMAL ENTRY

- (1) Push in on forward end of entry door handle. Door is located on forward left side of aircraft.
- (2) Rotate entry door handle down, clockwise, to open.
- (3) Pull out on door handle. (Door is hinged at the bottom and will rotate out from the top).

b. N/A

c. EMERGENCY ENTRY

- (1) The cargo door handle operates same as the forward entry door handle. Cargo door must be lifted up to open. Cargo door is located on aft left side of aircraft.
- (2) Optional bulkhead separates passenger compartment and cargo compartment. The bulkhead may be removable and may contain a door. Can also be used as an emergency entry and exit.

d. FORCED ENTRY

- (1) Cut along window lines. There are no cut-in marks painted on the aircraft. The area 14 inches above and 3 inches below the window will offer the least resistance for forced entry.

5. N/A

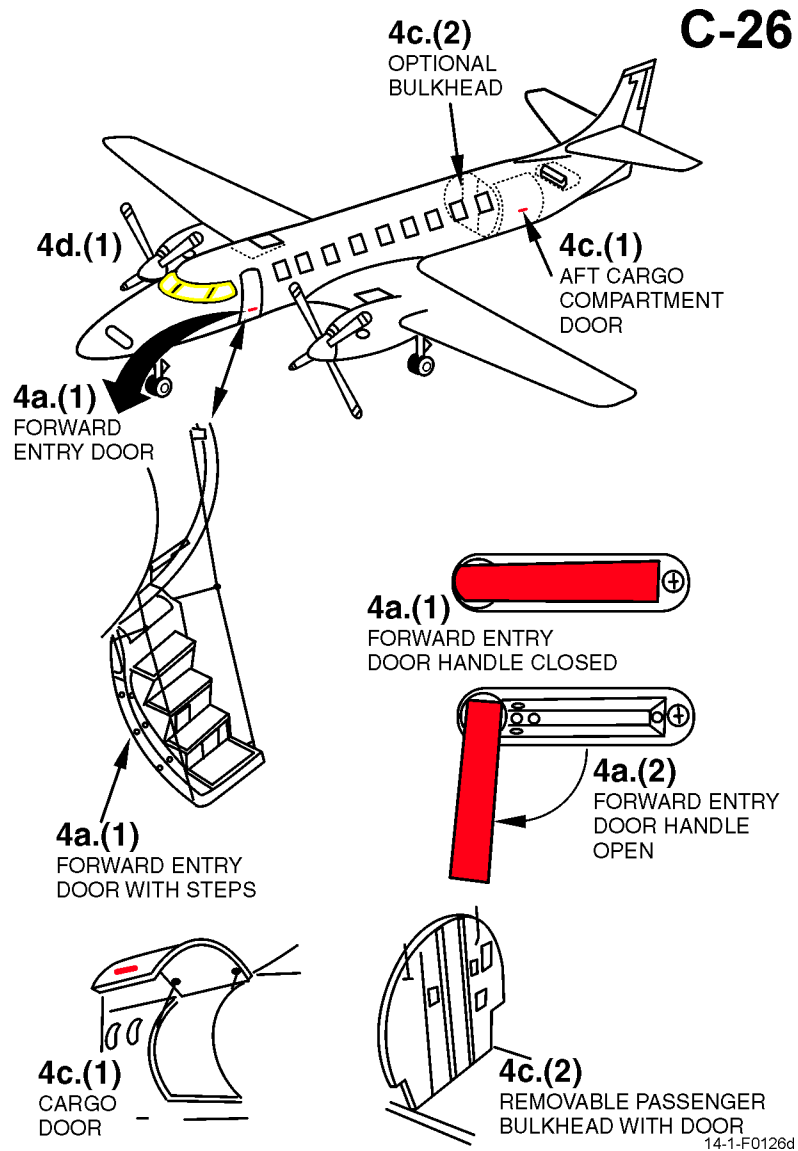
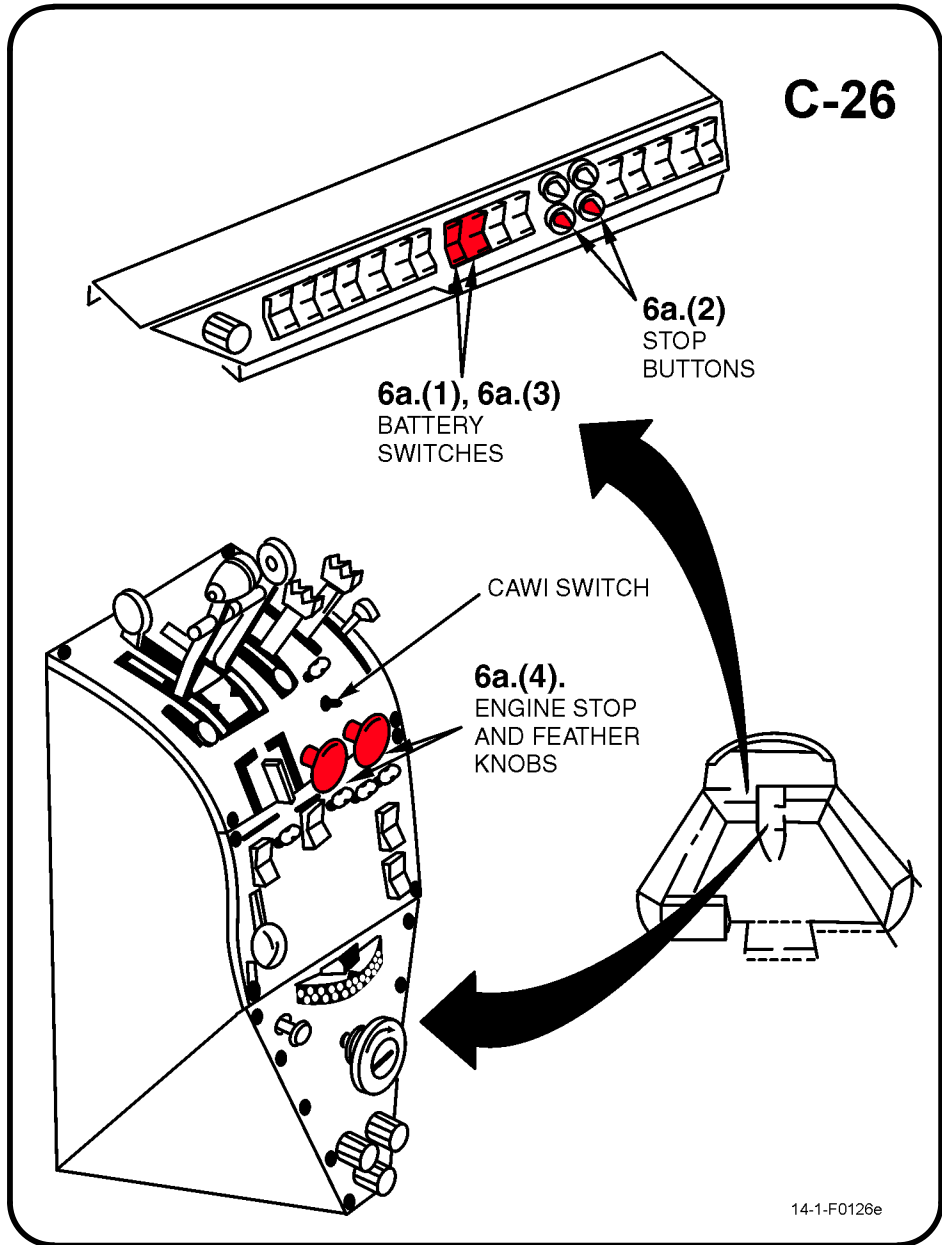


Figure D-7. C-26 Crash Crew Information (Sheet 5)

6. ENGINE SHUTDOWN**a. ENGINE SHUTDOWN**

- (1) Ensure at least one battery switch is ON (forward position). Battery switches are located straight forward of pilot's control column.
- (2) Push stop buttons, located below left instrument panel. (Approx. 5 inches to right of battery switches.)
- (3) Place both battery switches to OFF (center) position.
- (4) Pull both engine stop and feather knobs, located on center pedestal just below engine controls, full aft. Controls are red.

- b. N/A
- c. N/A
- d. N/A
- e. N/A
- f. N/A
- g. N/A



7. BATTERY

Note

Aircraft is equipped with two 24 volt 23 Ah Ni/Cd batteries.

- a. Remove battery access panels from upper surface of left and right inboard wing.
- b. Disconnect main battery quick disconnect by turning battery disconnect knob counterclockwise.
- c. Disconnect minor battery quick disconnects by turning connectors counterclockwise.

Figure D-7. C-26 Crash Crew Information (Sheet 6)

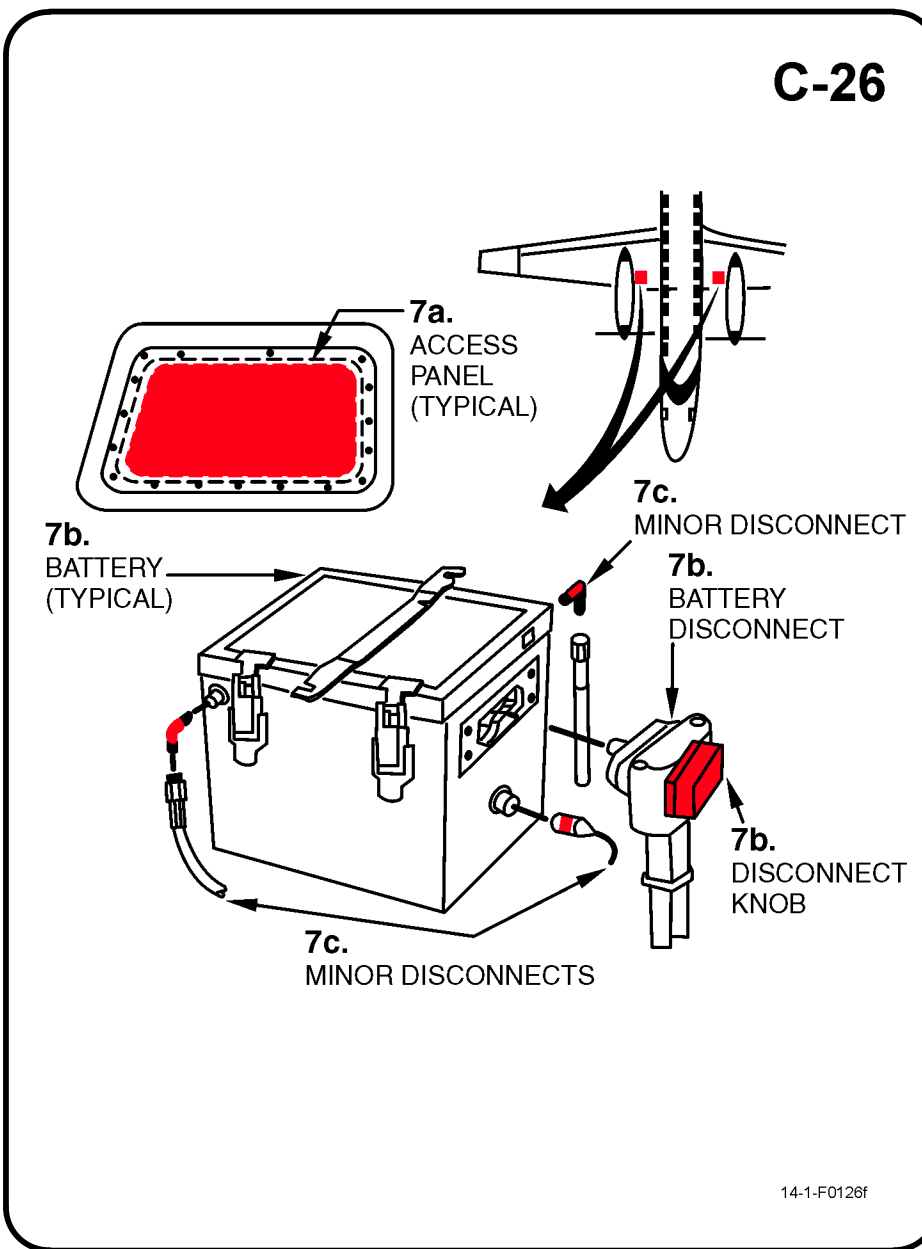


Figure D-7. C-26 Crash Crew Information (Sheet 7)

8. CREW RELEASE

The pilot and copilot seats are equipped with shoulder harness straps, lap belts, and crotch straps attached to a rotary release buckle. The passenger seats have lap belts only.

a. N/A

b. N/A

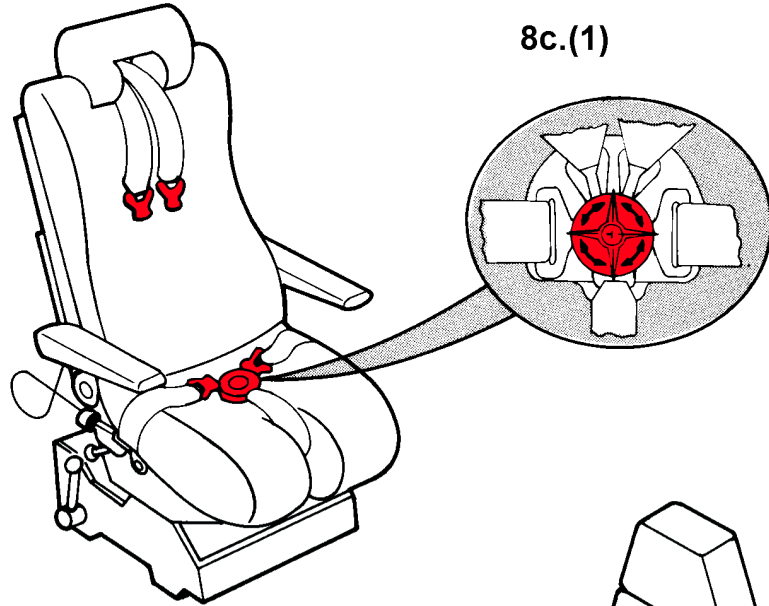
c. RESTRAINTS SUIT BELTS/RELEASE

- (1) ROTATE Rotary Release Buckle in EITHER DIRECTION to release Shoulder Harness, Lap Belt and Crotch Strap.
- (2) PASSENGER — LIFT Buckle Cover to release Lap Belt (airline type).

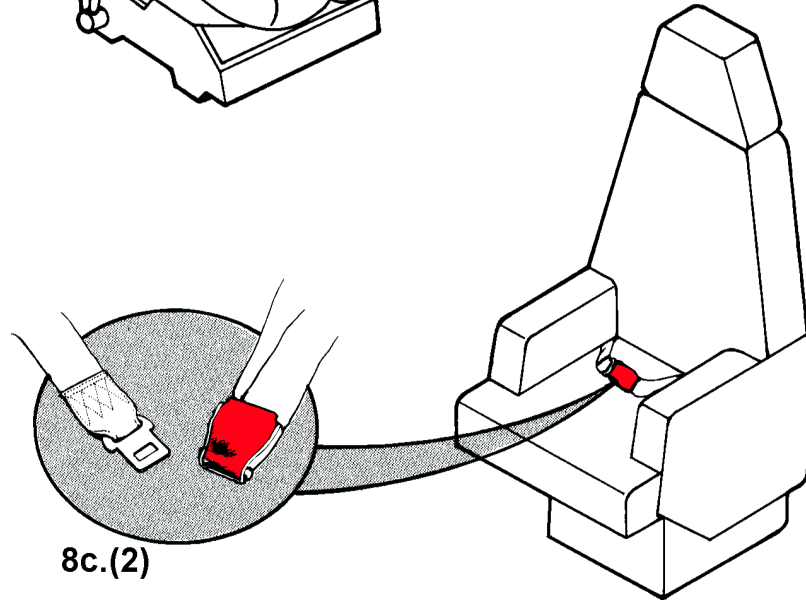
d. N/A

C-26

8c.(1)



8c.(2)



14-1-F0125a

**TRAINING AIRCRAFT SYSTEMS AND
CRASH CREW INFORMATION DIAGRAMS SUMMARY**

TYPE	NAME	AIRFRAME MATERIALS	FUEL (GAL)		OIL (GAL)		OXYGEN		PNEU SYS		GUN	ORDNANCE		PYROTECHNICS	BTRY	EJECT SYS	S.O.B.
			INT	EXT	ENG	HYD	LOX	BOTTLE	GAS	AIR		FWD FIRE	FREE FALL				
T-2	BUCKEYE	ALUMINUM STEEL FIBERGLASS	487	204	2	1	10L	SEAT PAN (2)	3200 PSI*	NONE	50 CAL POD	MISSILES ROCKETS	BOMBS	PYLON EJECTOR CARTRIDGES (2) STA. CANOPY EJECTION SEATS	2	NORTH AMER LS-1A	2
T-6	TEXAN II	ALUMINUM STEEL FIBERGLASS	165	NONE	18.5 QTS	.5 QTS	OBOGS	SEAT PAN (2)			NONE	NONE	NONE	PYLON EJECTOR CARTRIDGES (2) STA. CANOPY EJECTION SEATS	2	MKUS16LA EJECTION SEAT	2
T-34C	TURBO MENTOR	ALUMINUM STEEL FIBERGLASS	130	NONE	4.4	1 PT	NONE	NONE	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	NONE	1	NONE	2
T-38	TALON	ALUMINUM STEEL MAGNESIUM FIBERGLASS	598	275	2	3.5	5L	NONE	NONE	3000 PSI	NONE	NONE	NONE	PYLON EJECTOR CARTRIDGES (2) STA. CANOPY EJECTION SEATS	1	NORTHROP M38	2
T-39	SABRE- LINER	ALUMINUM STEEL FIBERGLASS	1087	NONE	4.0	2.0	NONE	77.9FT3 (2) 11FT ³	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	NONE	2	NONE	D8 G9 N6
T-44	KING AIR	ALUMINUM STEEL FIBERGLASS	388	NONE	2.3	1 PT	NONE	49 FT3	NONE	NONE	NONE	NONE	NONE	NONE	1	NONE	7
T-45A	GOSHAWK	ALUMINUM STEEL ACRYLIC TITANIUM FIBERGLASS CARBON COMPOSITES	432	0	3.7	4.3	OBOGS	SEAT PAN (2)	N ₂ 1300 PSI	0	NONE	ROCKETS	PRAC BOMBS	PYLON EJECTOR CARTRIDGES (2) STA. CANOPY EJECTION SEATS	2	MB SJU-17(V) SERIES	2

*Canopy Emergency Jettison

**APPENDIX E
Training Aircraft**






Figure E-1. Training Aircraft Systems and CCID Summary

Figure E-2. T-2 Buckeye Crash Crew Information (Sheet 1 of 5)

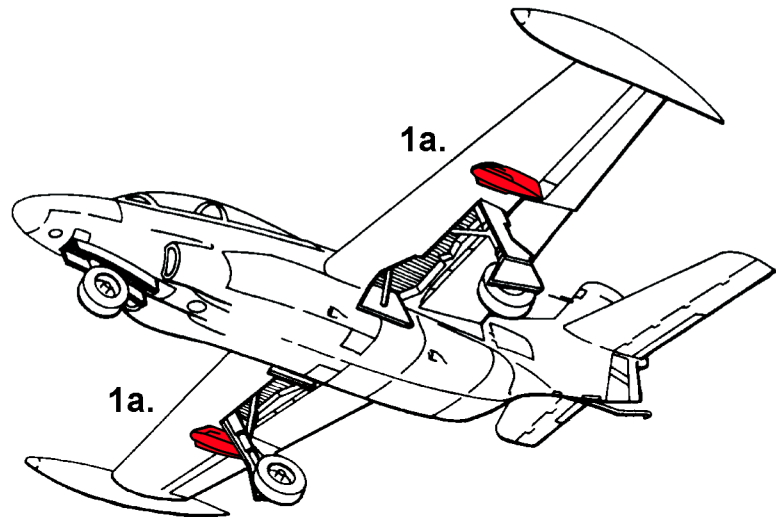
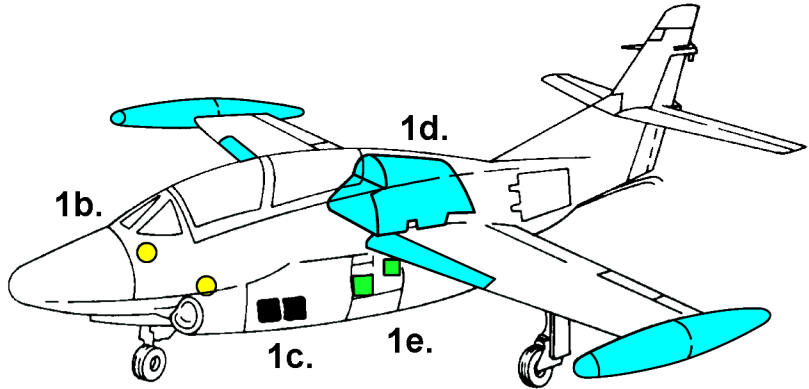
SPECIALS TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- a. Armament 2 Wing Stations
 
- b. Oxygen/LOX 10 L
 
- c. Battery 2
 
- d. Fuel Internal 487 gal
 External 204 gal
 
- e. Oil Reservoir for
 each engine: 1.0 gal
 Hydraulic 1.1 gal
 
- f. N/A




T-2



14-1-F0145

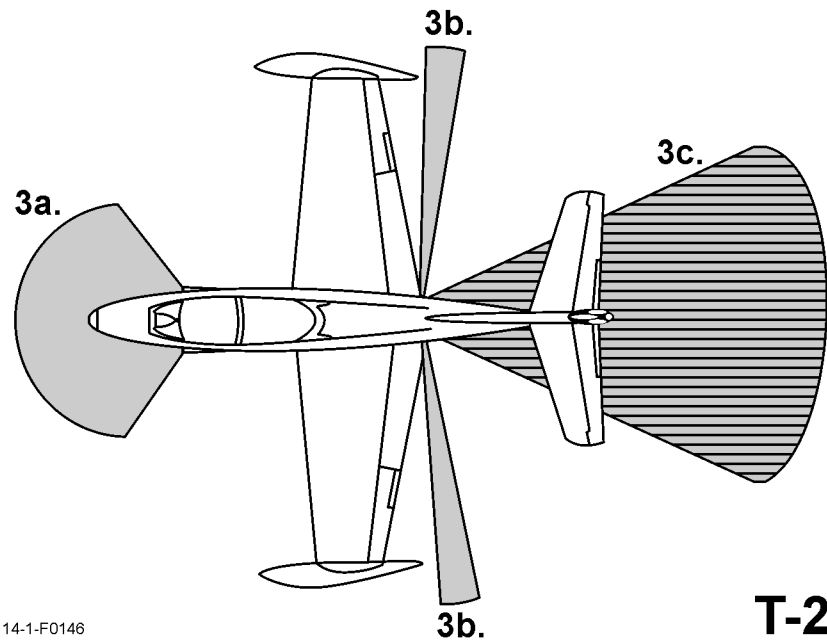
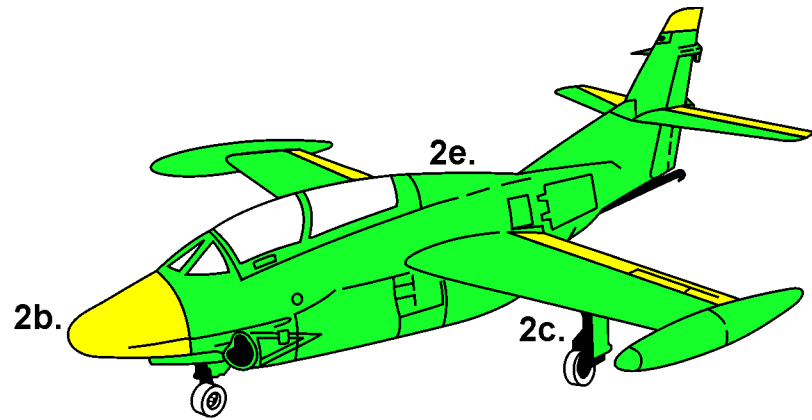
Figure E-2. T-2 Buckeye Crash Crew Information (Sheet 2)

2. AIRFRAME MATERIALS

- a. N/A
- b. Other
Fiberglass

- c. Steel

- d. N/A
- e. Aluminum

- f. N/A
- g. N/A

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 15'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 300'
 - Idle — 40'
 - Max — 65'



14-1-F0146

Figure E-2. T-2 Buckeye Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

An External Electrical Canopy Switch, located on the LH side of the fuselage, opens the canopy vertically to full open position in 7 seconds.

WARNING

Do not actuate this switch for emergency entrance to cockpit. Use of electrical power can ignite fuel or other flammable material in damaged aircraft.

b. MANUAL ENTRY

PUSH button and PULL LH External Canopy Manual Release Handle FULL OUT (90°). PULL canopy AFT about 1 inch to release internal latches.

MANUALLY RAISE canopy until canopy falls OFF to either side.

c. EMERGENCY ENTRY

PULL External Canopy Jettison Handle. Handle is located in circular panel on LH side of fuselage.

d. FORCED ENTRY

Canopy is made of acrylic plastic and may be cut with power rescue saw or crash axe. CUT along canopy frame.

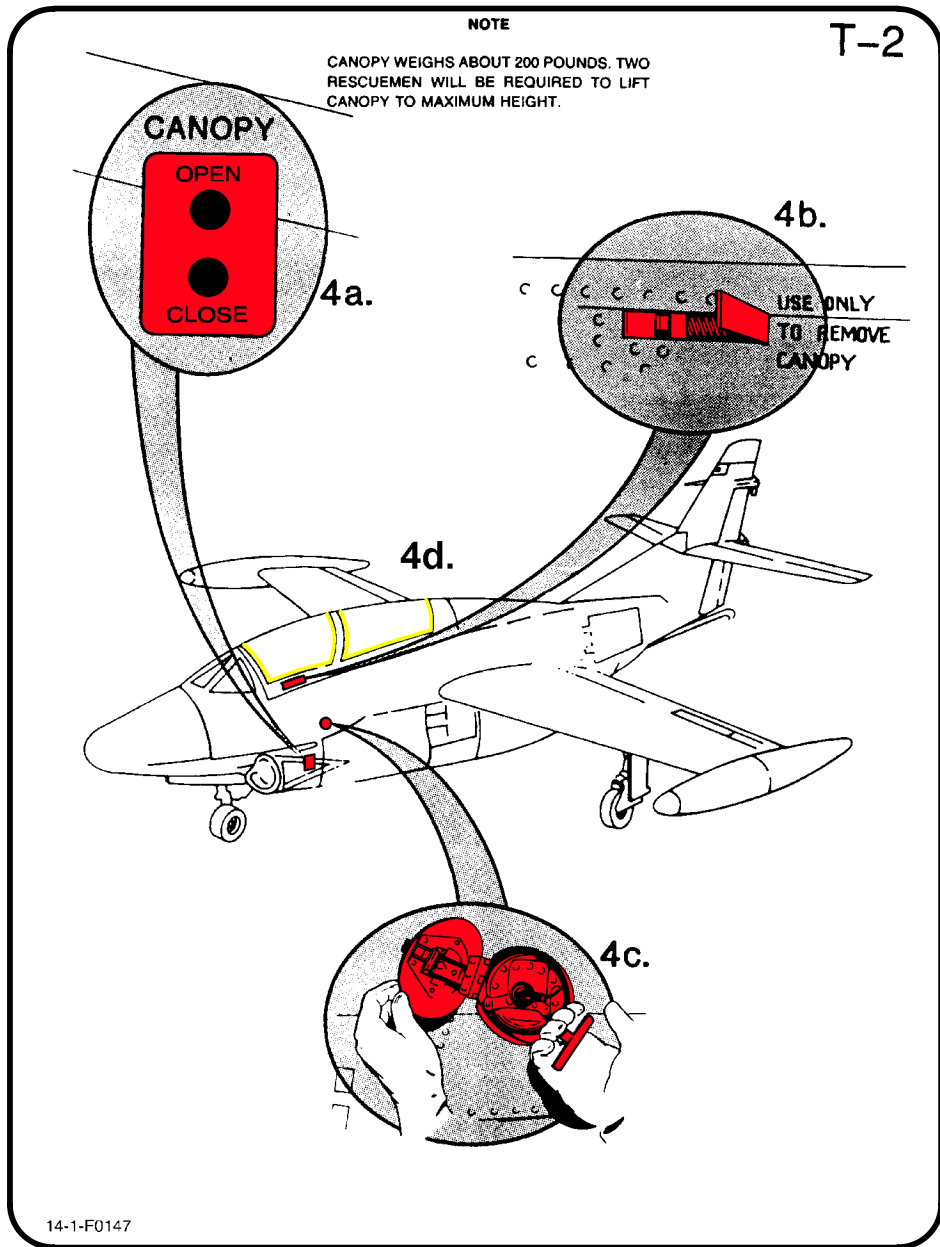


Figure E-2. T-2 Buckeye Crash Crew Information (Sheet 4)

5. CANOPY SAFETY

a. To prevent accidental discharge of pneumatic canopy remover tube, **INSTALL** safety pins in the Canopy Release Handle located in the FWD LH corner of each cockpit.

b. N/A

6. ENGINE SHUTDOWN

Shut down engine from the FWD cockpit.

a. POWER CONTROL LEVERS

DEPRESS PCL Idle Stop Button if installed.
PULL Power Control Levers **AFT** and **AROUND DETENT** to **FULL CLOSED** position.

b. ENGINE MASTER SWITCHES

PLACE No. 1 and No. 2 Engine Master Switches in **OFF** position.

c. BATTERY SWITCH

PLACE Battery Switch in **NORM** position.

d. N/A

e. N/A

f. N/A

g. N/A

7. BATTERIES

Batteries are accessible through access door located FWD LH side of fuselage below the canopy. Batteries are equipped with quick disconnect plugs.

a. N/A

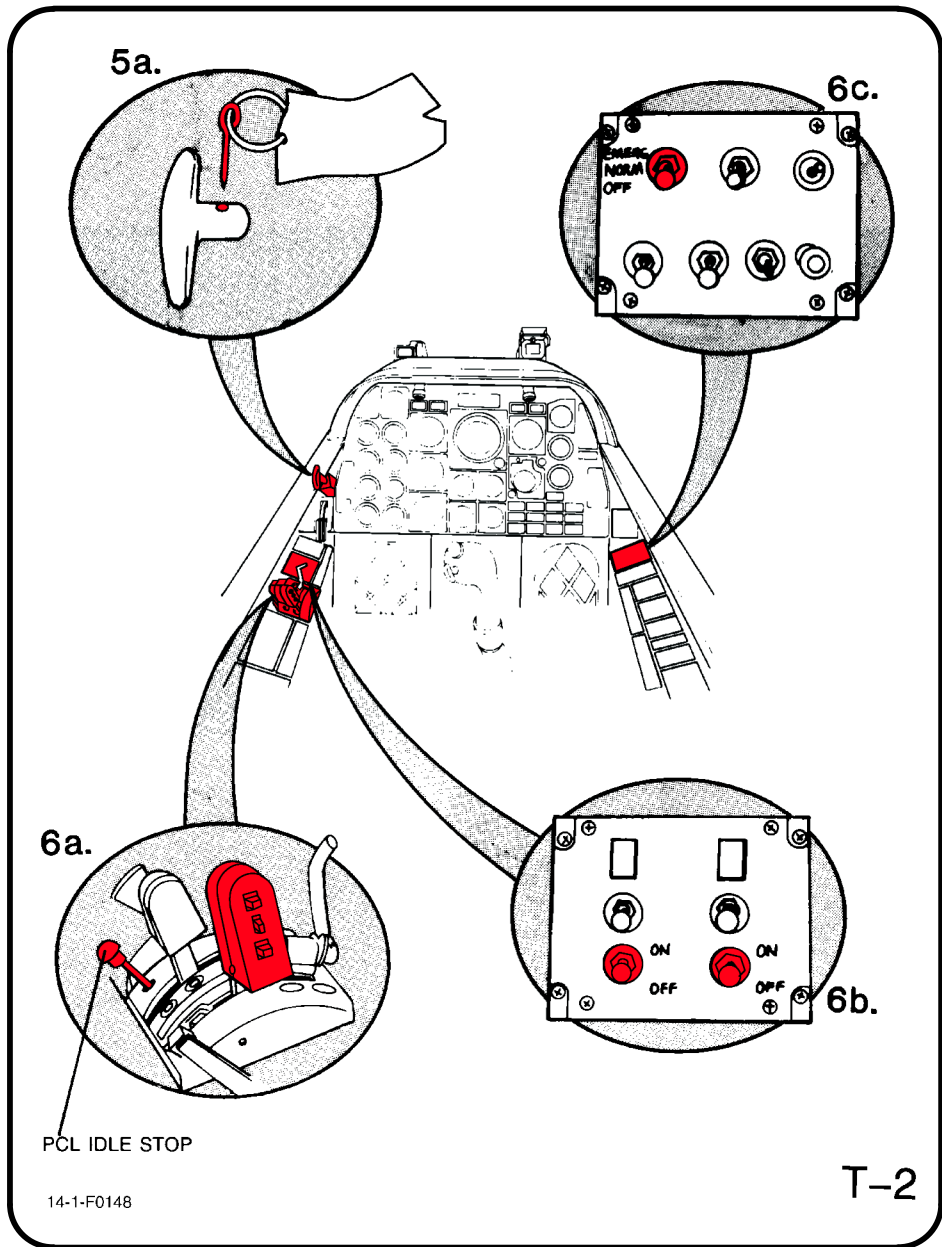


Figure E-2. T-2 Buckeye Crash Crew Information (Sheet 5)

8. CREW RELEASE

The crewmembers are attached to the seat by the use of an integrated harness. Additionally, the oxygen/communication lead is attached to the survival kit. If crewmembers are wearing anti-G suit a hose will be attached to the LH side of the seat.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask by pulling down on the release tabs on either side of mask.
- (2) To disconnect oxygen/communication lead, pull up round collar and pull apart connection.

b. RESTRAINT SUIT BELTS/RELEASE

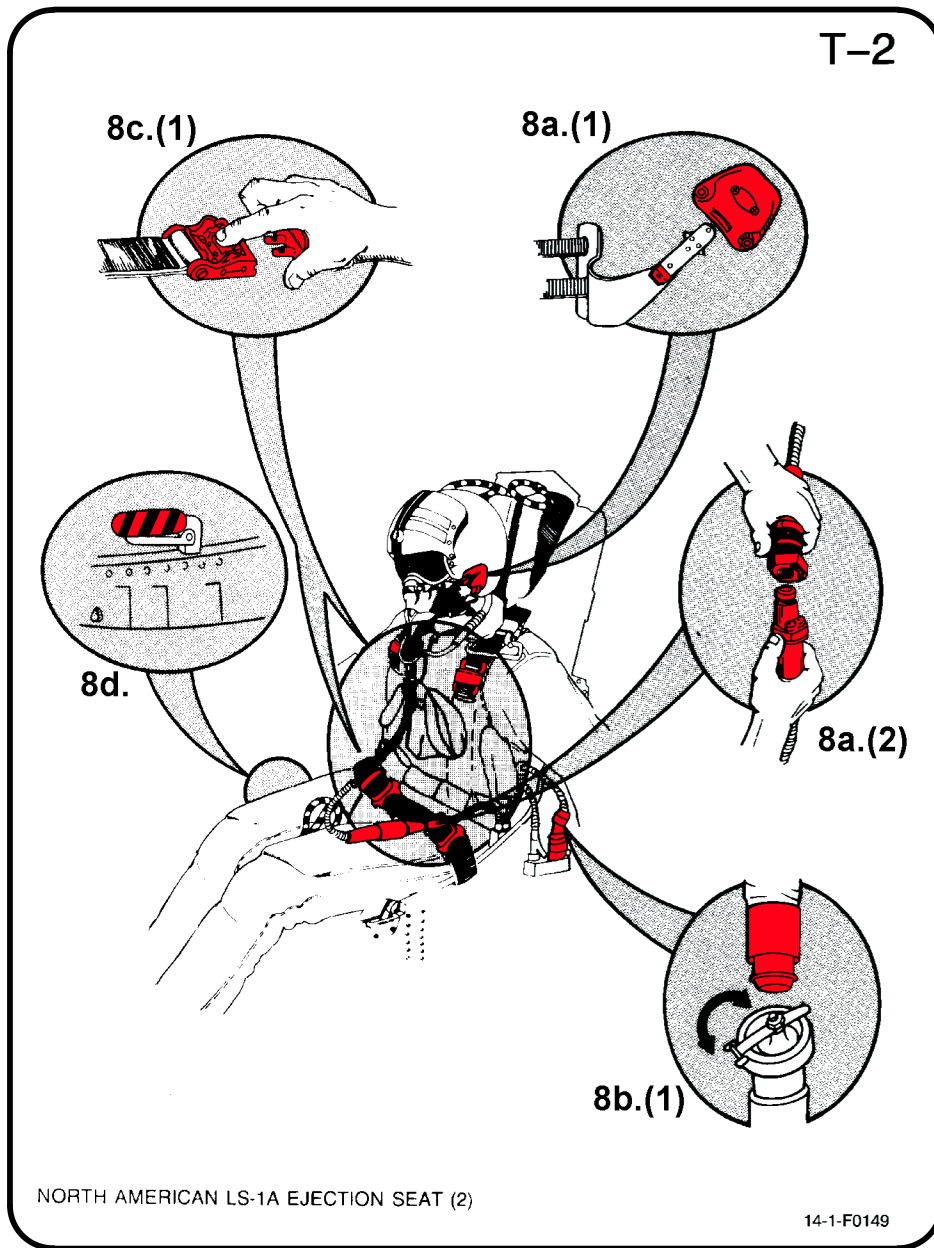
- (1) PULL anti-G suit hose from LH seat fitting.

c. HARNESS STRAPS/LEG RESTRAINT RELEASE

- (1) Release two lap belt, then two shoulder harness koch fittings.

d. EMERGENCY RELEASE





- (1) Actuating the Emergency Release Handle will free the crewmember from seat. However, the parachute and survival kit will remain attached to the crewmember.






SPECIALS TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

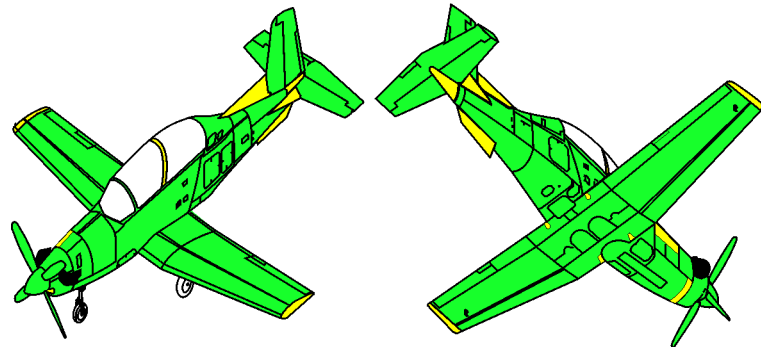
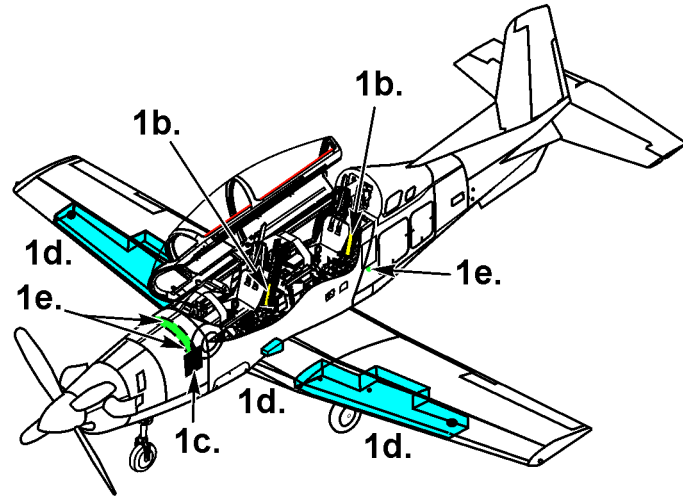
1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. Oxygen Bottle OBOGS
Bailout Bottle (2)
 (1 in each seat pan)
 
- c. Battery 2
 
- d. Fuel Internal 165 gal
 
- e. Oil Engine 18.5 quarts
 Hydraulic 5 quarts
 
- f. N/A

2. AIRFRAME MATERIALS

- a. N/A
- b. Other:
 Fiberglass
 
- c. Steel
 
- d. N/A
- e. Aluminum
 
- f. N/A
- g. N/A

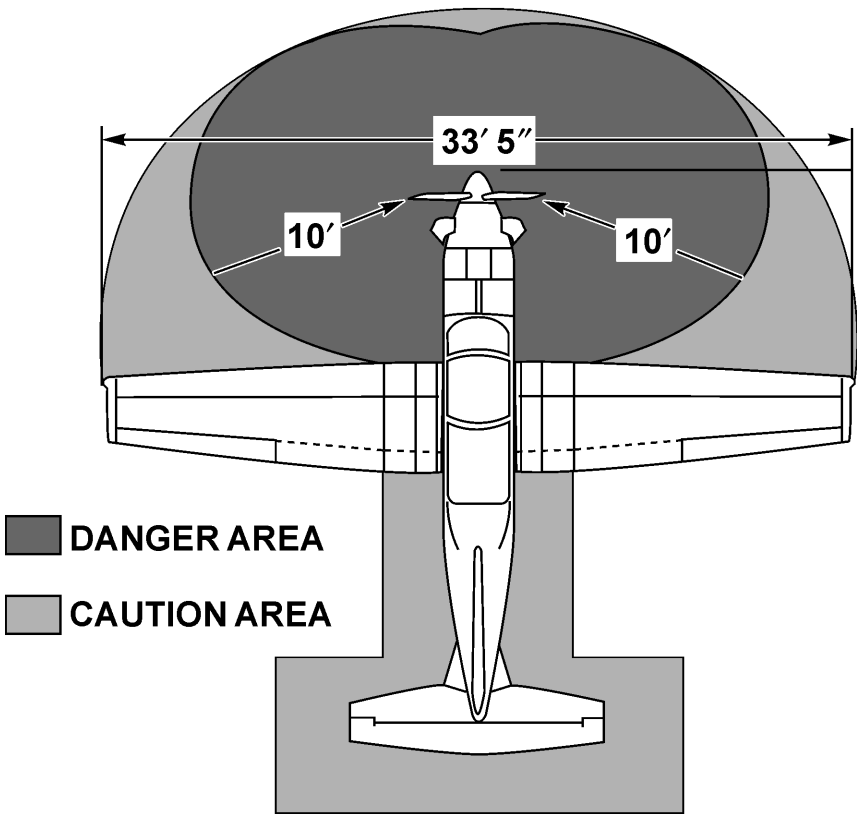
T-6A



14-1-F0174a

Figure E-3. T-6A Texan II Crash Crew Information (Sheet 1 of 5)

T-6A



14-1-F0174b

3. AIRCRAFT DANGER AREAS

Propeller/Prop Wash — 10'

Figure E-3. T-6A Texan II Crash Crew Information (Sheet 2)

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

Note

Approach aircraft from left wing. Enter aircraft from left side of fuselage where the canopy open handle is located.

- (1) Push unlock button, located forward of canopy open handle, to unlock canopy.
- (2) Rotate canopy open handle clockwise to the open position.



The side opening canopy is not quickly opened. It has a hydraulic control rod which makes rapid opening difficult. Use a slow deliberate push upward. Rapid upward movement will resist the firefighter or responder.

Note

Canopy is secure when in the full open position and will not need assistance.

- (3) Lift canopy up using the open handle.
- (4) Rotate the interior canopy locking handle located on the left canopy sill, to the CLOSED/LATCHED position.
- (5) Normally, the ejection seat safety pin is stored in the internal canopy locking handle. Handle can be rotated with pin installed.
- (6) Safety the ejection seats.

b. N/A

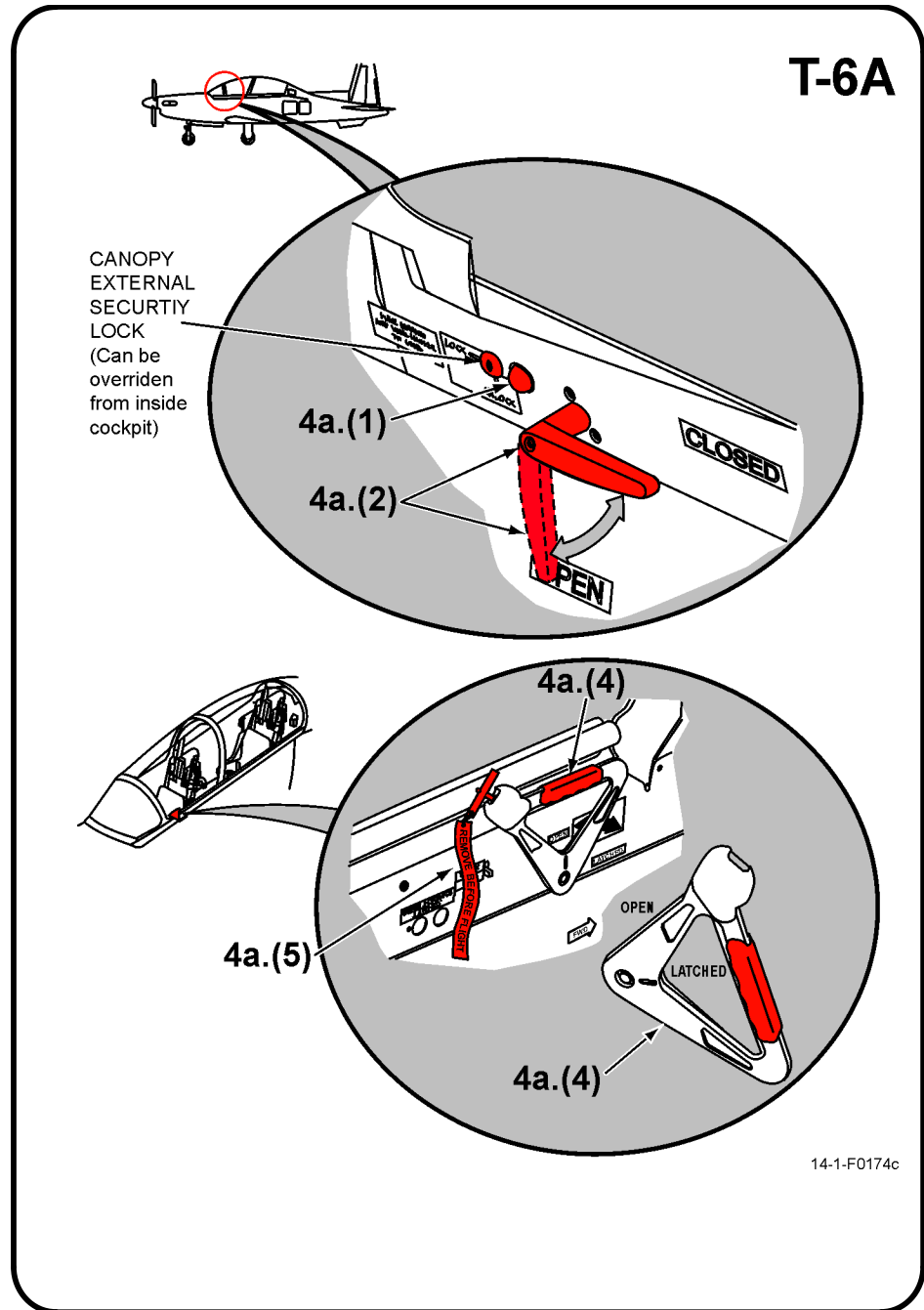


Figure E-3. T-6A Texan II Crash Crew Information (Sheet 4)

4. AIRCRAFT ENTRY (CONT.)**c. EMERGENCY ENTRY**

Detonation cord is glued to inside of canopy. Face away from aircraft when initiating system due to possibility of flying fragments of canopy plexiglass.

Note

Canopy fracturing system (CFS) is installed. Canopy does not jettison.

- (1) Open external emergency egress door, located near either wing trailing edge on side fuselage.
- (2) Push latch on egress door, located on either side fuselage under aft canopy sill.
- (3) If CFS safety pin is installed, remove pin and then remove T-handle by pulling outward and aft.
- (4) Pull T-handle and lanyard out to full extension of 10 feet.
- (5) Face away and pull sharply to initiate canopy fracturing system. Both transparencies will fracture and fall away.

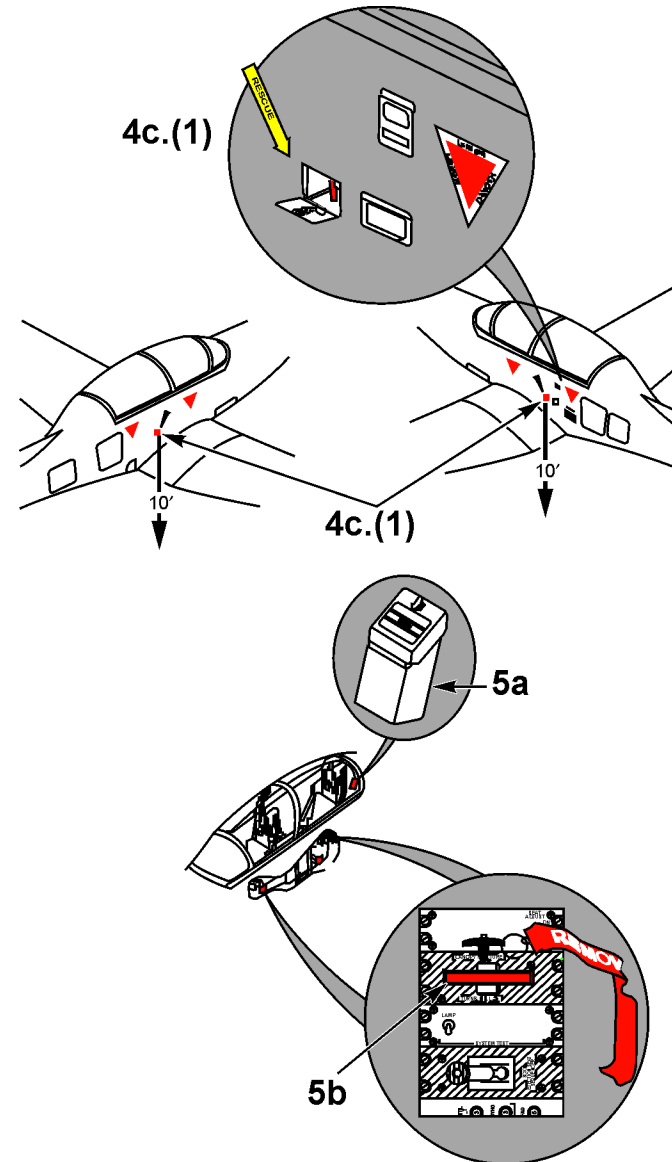
d. FORCED ENTRY

If CFS system is inoperative, use power rescue saw or crash ax to gain cockpit entry.

5. CANOPY SAFETY

- a. CFS safety pins are stored in the pin storage box on the aft left cockpit bulkhead. Remove pins from storage.
- b. Insert CFS safety pins in the CFS handles located on the left consoles in both cockpits.

If canopy can not be opened or fractured, cut hole into canopy opposite interior handle, then rotate the interior canopy locking handle, located on the left canopy sill, to the OPEN/UNLATCHED position. Handle can be rotated with seat safety pin installed.



14-1-F0174d

Figure E-3. T-6A Texan II Crash Crew Information (Sheet 5)

E-11

ORIGINAL

6. ENGINE SHUTDOWN

Note

Emergency engine shutdown (to include shutting off fuel, hydraulics, and bleed air supply via the firewall shutoff handle), can be accomplished in the front cockpit only. If the front cockpit is not accessible and the engine needs to be shutdown, normal engine shutdown can also be accomplished from the rear cockpit. (In the event the front cockpit controls are not accessible or damaged, and the engine is still running, the PCL can also be placed to "OFF" from the rear cockpit.)

a. FIRE SHUTDOWN

- (1) Move power control lever (PCL) to idle and raise finger tab (red lever labeled "Engine Shutoff"), located on the forward side of throttle handle.
- (2) Retard power control handle (PCL), located on left console, to full aft OFF position.
- (3) Remove metal clip and pull emergency firewall shutoff handle, located on left aft control panel of forward cockpit, to the UP position.

b. N/A

c. BATTERY

Place battery and generator gang switches, located on right horizontal control panel, aft or down to OFF position.

d. THROTTLE

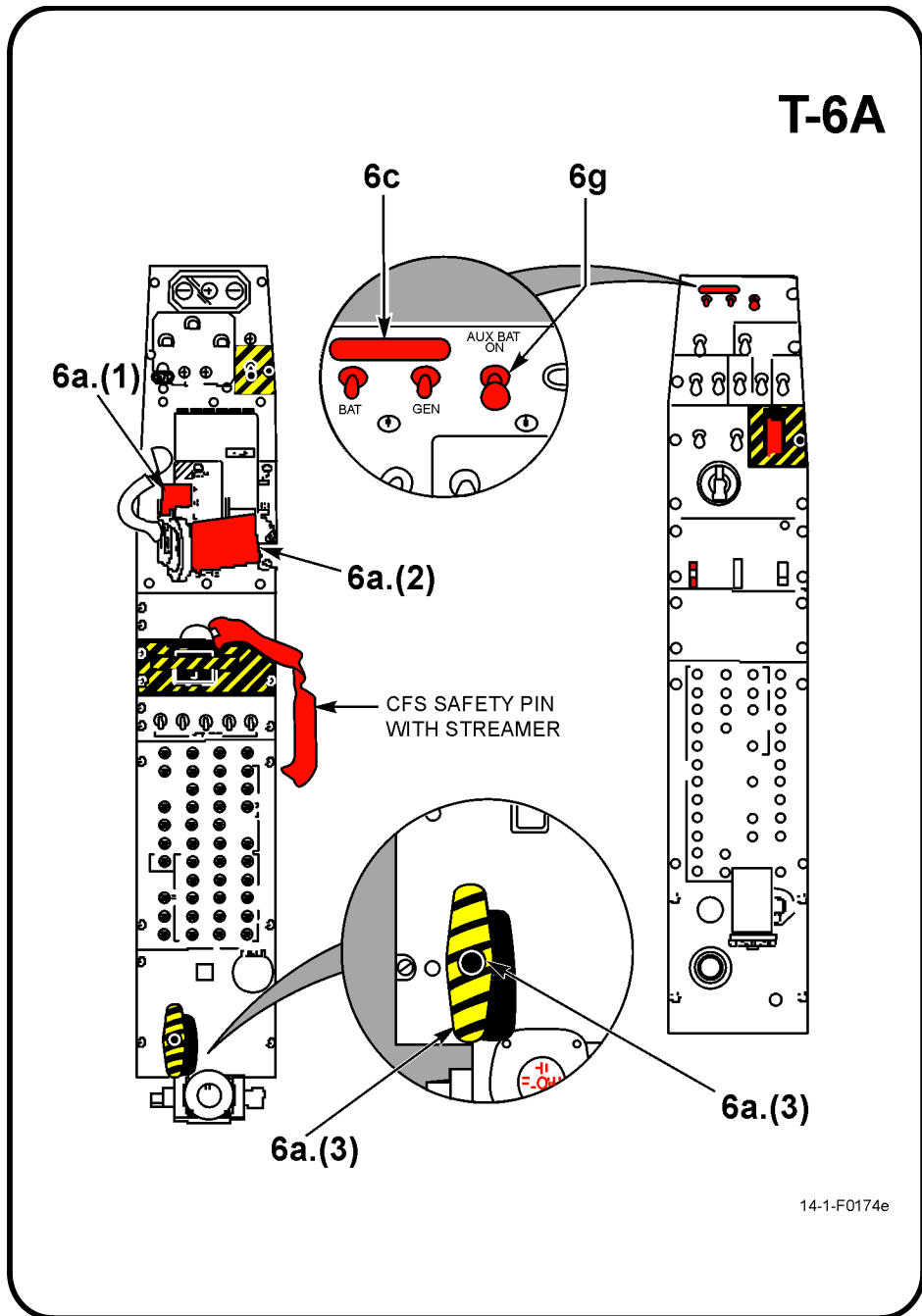
e. FUEL SELECTOR

f. N/A

g. AUXILIARY POWER

Lift up and move auxiliary battery switch, located right side battery/generator switch on right console, aft to OFF position.

7. N/A



8. CREW RELEASE**WARNING**

Insure safety pins are installed in ejection control handle of both seats and CFS handles to prevent inadvertent seat ejection and detonation of the canopy fracturing system.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask, if not previously done.
- (2) Disconnect oxygen and emergency oxygen hoses, located on right side of crew member, by pulling hoses apart.
- (3) Disconnect communication lead, located on oxygen hose, by pulling apart.

b. RESTRAINT SUIT BELTS/RELEASE

- (1) Disconnect anti-G suit connection, located on left side of crew member, by pulling apart.
- (2) Disconnect quick release connector on right and left leg restraint garters at crew member's shins by squeezing tabs inward.
- (3) Disconnect survival kit sticker clips from left and right torso harness V-rings.

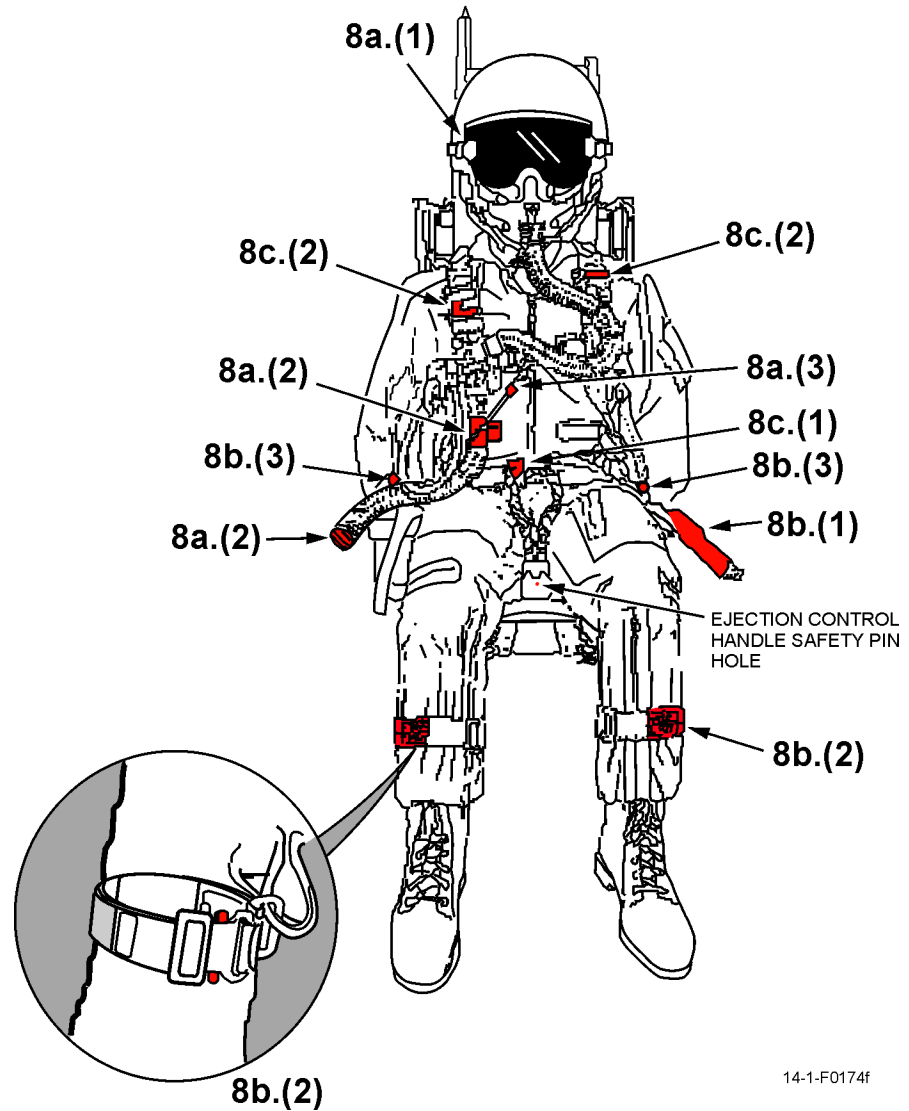
c. HARNESS STRAPS/LEG RESTRAINT RELEASE

- (1) Unlatch lap belt connection and lay lap belt halves aside.
- (2) Unlatch right and left parachute fittings/risers from torso harness and lay shoulder harness straps aside.

Note

Torso harness contains strobe lights with batteries.

- (3) Remove crew members carefully while avoiding entanglement of legs in equipment.

d. N/A**T-6A**





14-1-F0174f

Figure E-4. T-34C Turbo Mentor Crash Crew Information (Sheet 1 of 5)



SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

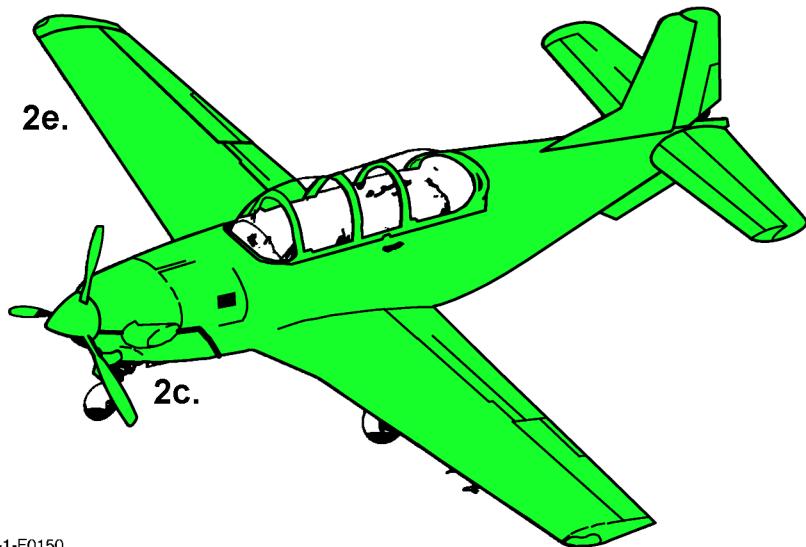
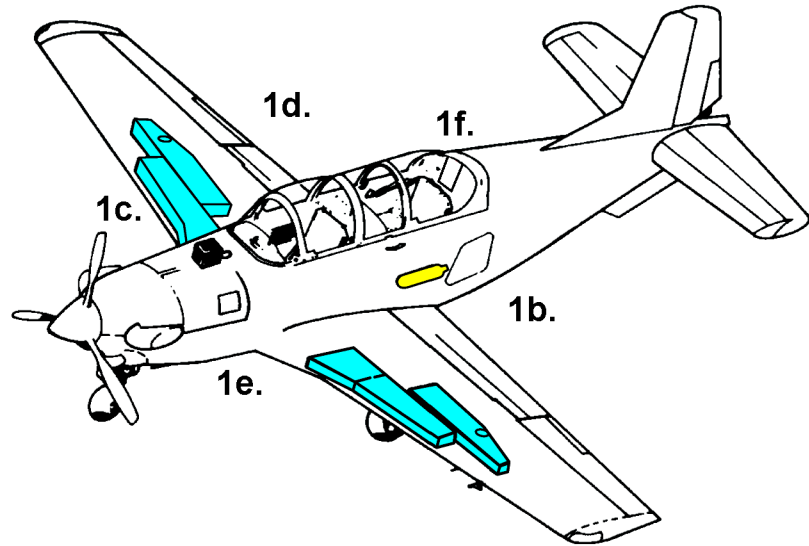
1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. Oxygen Bottle 1 — 76ft³

- c. Battery 1

- d. Fuel Internal 130 gal

- e. Oil Engine 4.4 gal
Brake Reservoir 1 pt

- f. Pneumatic System 3000 psi

2. AIRFRAME MATERIALS

- a. N/A
- b. N/A
- c. Steel

- d. N/A
- e. Aluminum

- f. N/A
- g. N/A

T-34C



14-1-F0150

Figure E-4. T-34C Turbo Mentor Crash Crew Information (Sheet 2)

3. AIRCRAFT DANGER AREAS

- a. Propeller/Prop Wash — 30'
- b. Engine Exhaust Idle — 18'
Max Power — 30'

4. AIRCRAFT ENTRY**Note**

- Entrance to and egress from both cockpits is made from the left wing since canopy handles and the aft cockpit assist step are on the left side only.
- The canopy is in three sections: a manually-operated sliding section over each cockpit, and a rigid center section. Each sliding section opens aft and can be operated independently.

a. NORMAL ENTRY

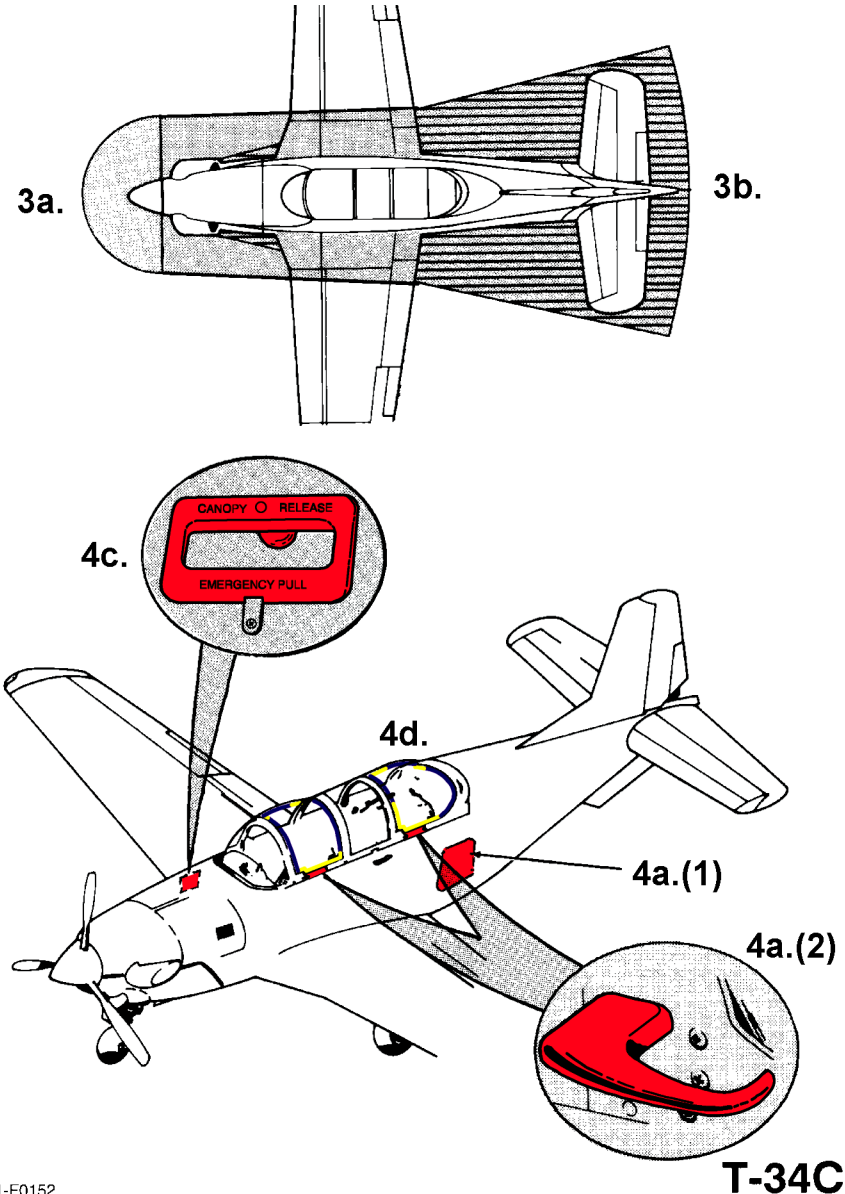
- (1) The aft cockpit kick step is located in the fuselage above the trailing edge of the left wing flap. Access to the step is from the wing by kicking in a spring-loaded door that is flush with the aircraft exterior when closed.
- (2) ROTATE Canopy Release Locking Handle CLOCKWISE and PULL Canopy Section AFT with Handle.

b. N/A**c. EMERGENCY ENTRY (PNEUMATIC)**

PULL Canopy Release Handle, located on RH FWD fuselage marked with yellow Rescue Arrow, to release both sets of Canopy Rails from fuselage. REMOVE Canopies.

d. FORCED ENTRY

Canopies are made of acrylic plastic. CUT around Canopy Frames with power rescue saw or crash ax.



14-1-F0152

T-34C

Figure E-4. T-34C Turbo Mentor Crash Crew Information (Sheet 3)

5. CANOPY SAFETY

The interior Emergency Canopy Handle presents no hazard to rescue personnel. A metal clip holds the Handle securely in place.

- a. N/A
- b. N/A

6. ENGINE SHUTDOWN

a. CONDITION LEVER

PULL Condition Lever AFT to OFF position.

b. BATTERY SWITCH

PLACE Battery Switch in the OFF position.

- c. N/A
- d. N/A

e. EMERGENCY FUEL SHUTOFF

RAISE Guard, PULL UP on Emergency Fuel Shutoff Handle.

- f. N/A
- g. N/A

7. BATTERY

The Battery is accessible through an Access Door on the RH fuselage just FWD of the Canopy. The Battery is equipped with a Quick Disconnect Fitting. DISCONNECT, time permitting.

- a. N/A

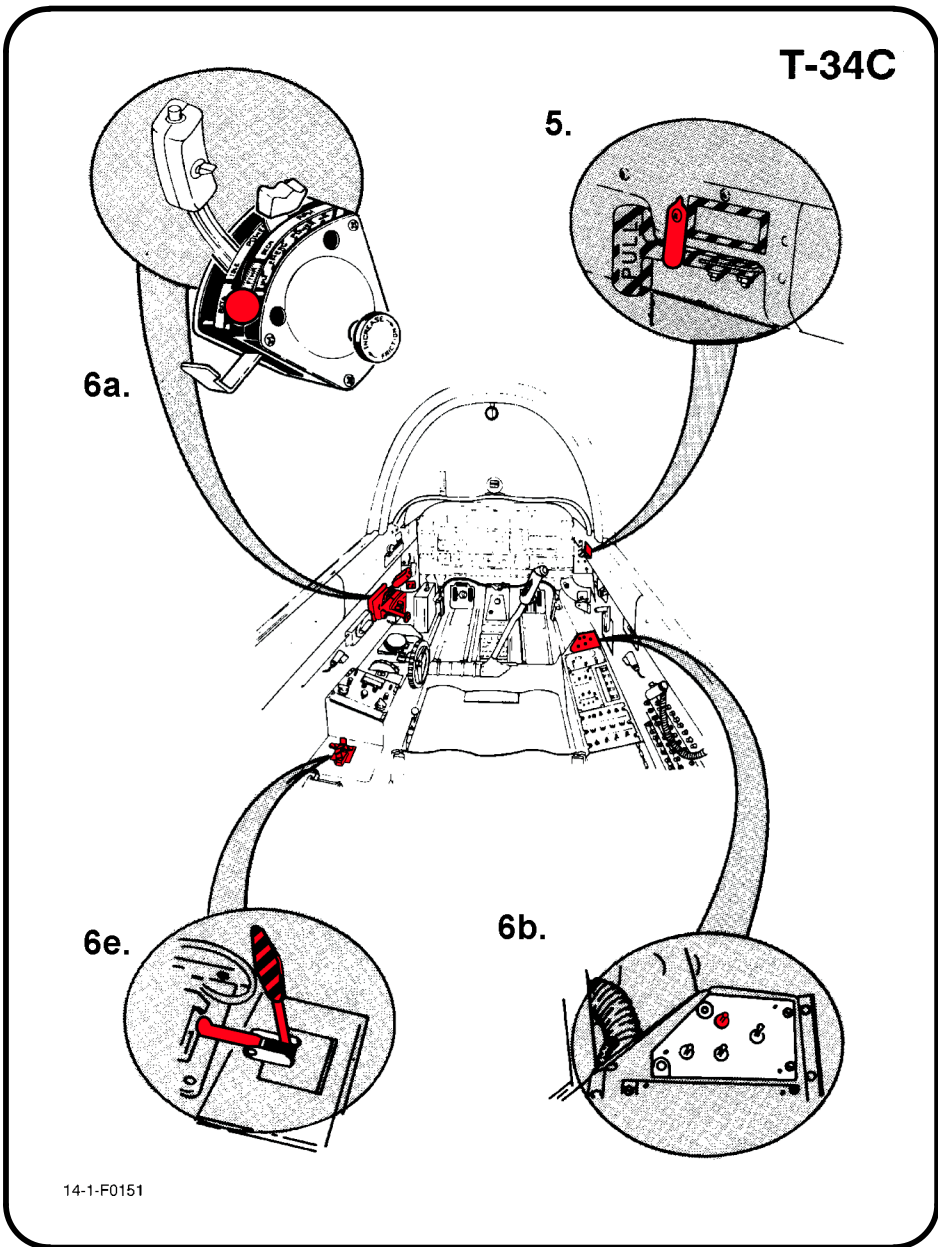


Figure E-4. T-34C Turbo Mentor Crash Crew Information (Sheet 4)

8. CREW RELEASE

Pilot seats are equipped with shoulder harnesses, lap belts, and crotch straps utilizing a single five point quick disconnect buckle. Communication leads and oxygen hoses are attached to the RH console and have quick disconnects. Crewmembers wear NB-6 backpack parachutes which have static lines attached to the LH side of the seats with red spring clips.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask by pulling down on bayonet fittings on both sides of mask.
- (2) Disconnect communication leads by pulling apart quick disconnect attached to LH shoulder straps.

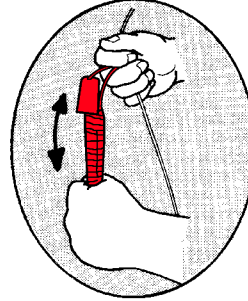
Note

Position oxygen mask hose assembly to the RH console to remit unobstructed path for extraction of crewmember.

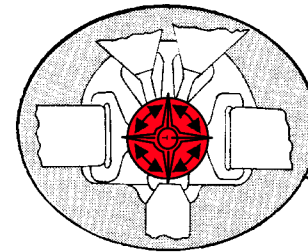
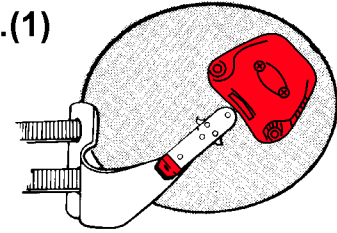
b. N/A**c. HARNESS STRAPS/LEG RESTRAINT RELEASE**

- (1) Rotate single point buckle in either direction to release shoulder harness, lap belt and crotch strap.

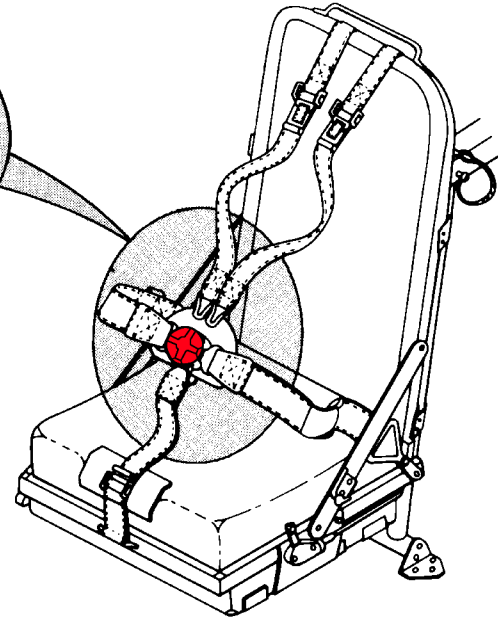
8a.(2)



8a.(1)



8c.(1)



14-1-F0153

T-34C

Figure E-4. T-34C Turbo Mentor Crash Crew Information (Sheet 5)

8. CREW RELEASE (CONT.)

c. HARNESS STRAPS/LEG RESTRAINT RELEASE (CONT.)

- (2) Pull out on three parachute ejector snap release levers one on each leg and one on chest.
- (3) If parachute cannot be released, crewmember may be removed from aircraft with parachute attached. Release static line spring clip from LH side of seat before removing crewmember.

d. N/A

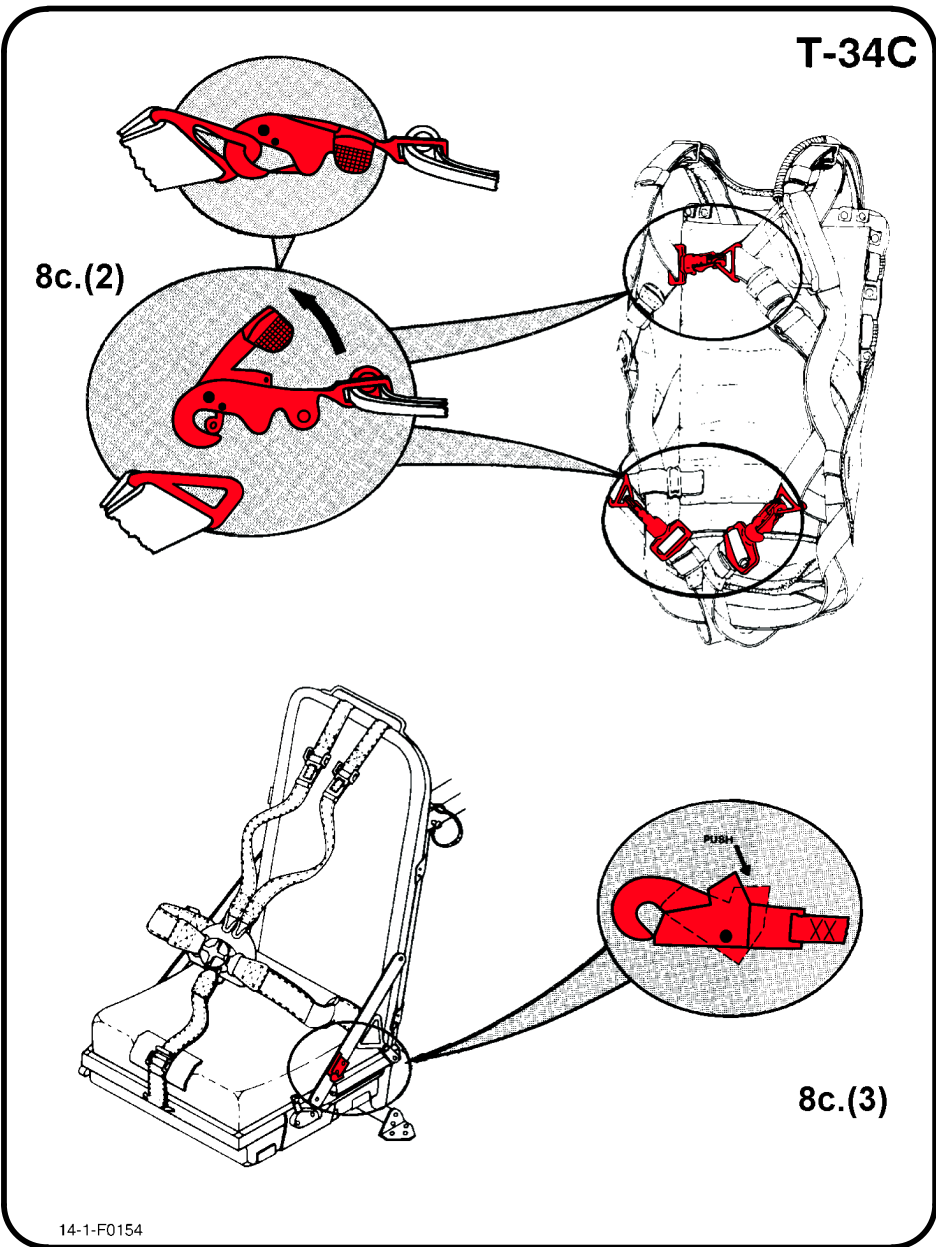


Figure E-5. T-38A/C Talon Crash Crew Information (Sheet 1 of 5)

SPECIAL TOOLS/EQUIPMENT

- Dearming Tool
- Power Rescue Saw
- Safety Pin P/N 50615
- Fire Drill II

1. GENERAL AIRCRAFT INFORMATION

- a. Armament Gun bays both sides
- b. Oxygen/LOX 5 L
- c. Battery 1
- d. Fuel Forward 293 gal
Aft 305 gal
- e. Oil 2 1 gal oil reservoirs
on each side of engine
- f. N/A

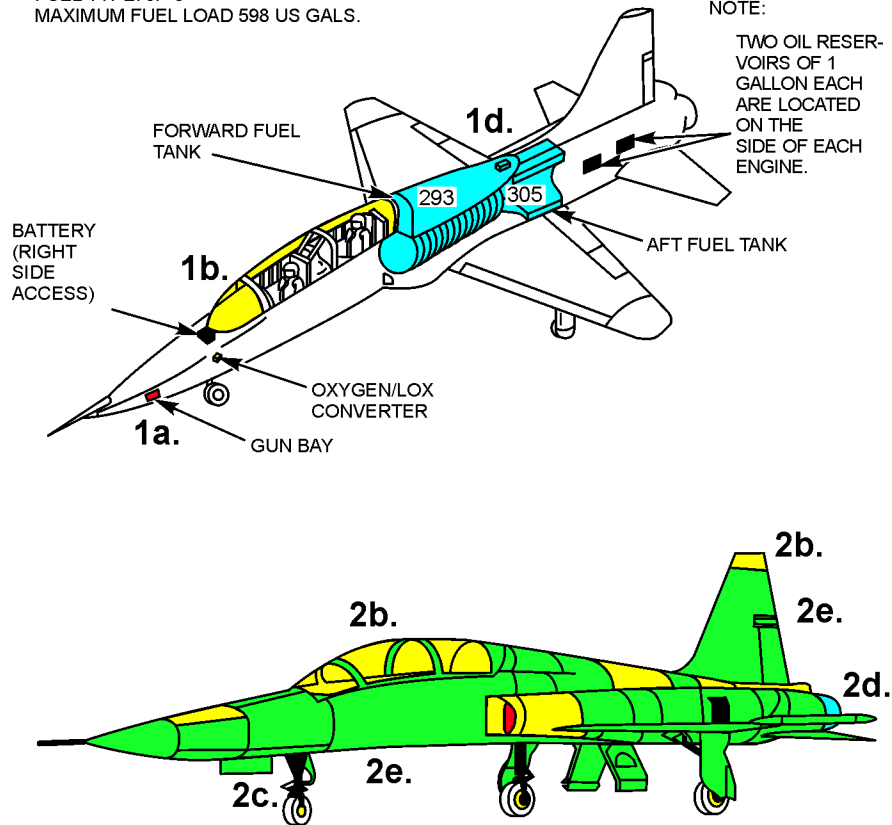
2. AIRFRAME MATERIALS

- a. N/A
- b. Other
Plexiglass
Magnesium
- c. Steel
- d. Titanium
- e. Aluminum
- f. N/A
- g. N/A

T-38A

NOTE:
FUEL TYPE: JP-8
MAXIMUM FUEL LOAD 598 US GALS.

NOTE:
TWO OIL RESER-
VOIRS OF 1
GALLON EACH
ARE LOCATED
ON THE
SIDE OF EACH
ENGINE.



3. AIRCRAFT DANGER AREAS

- a. Engine Air Intake Area — 25'
- b. Engine Exhaust Idle — 50'
Max Power — 200'
- c. Turbine Hazard Area — 1500'
- d. Pitot Tube Hazard — Unpainted area could be hot and can puncture

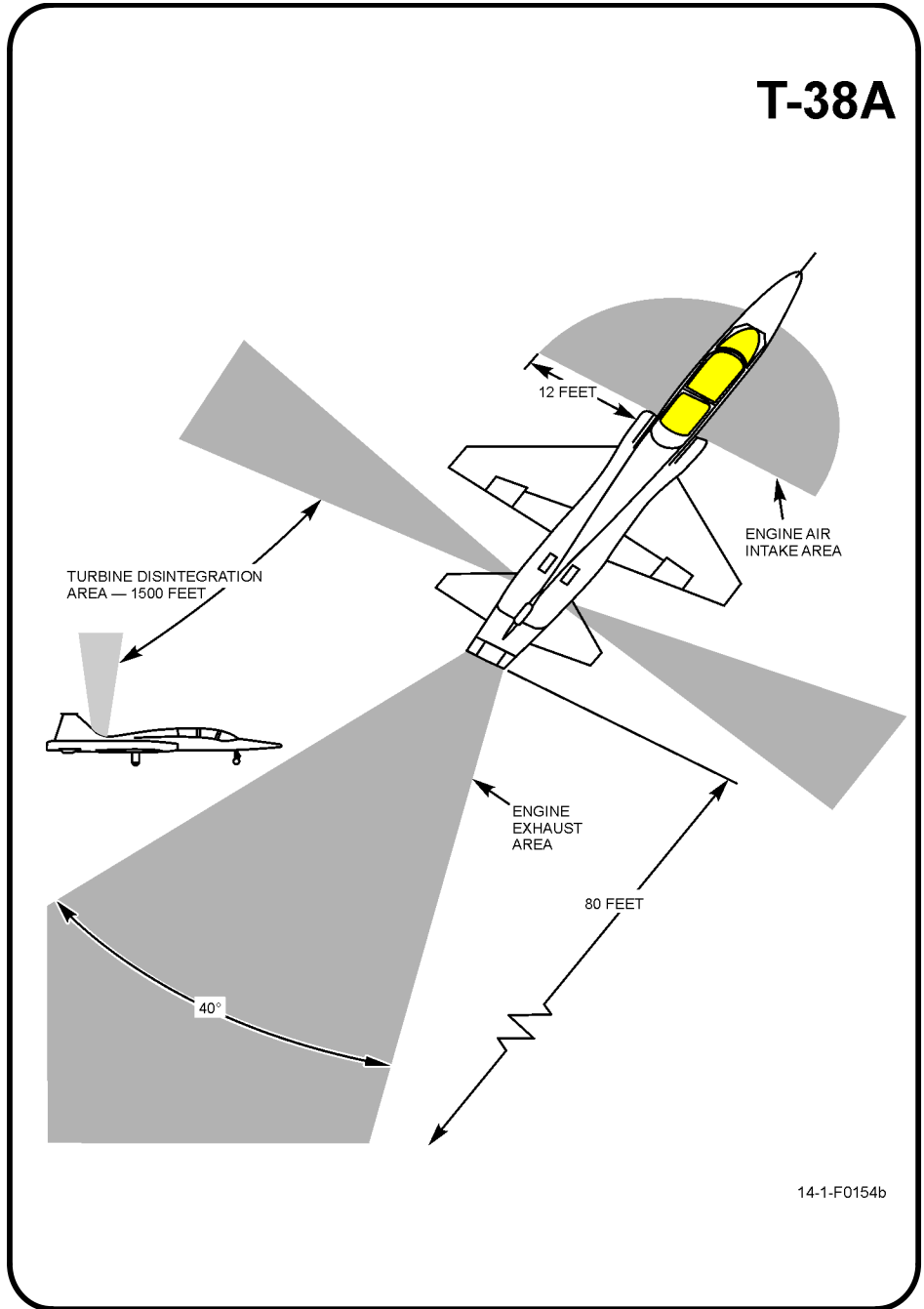


Figure E-5. T-38A/C Crash Crew Information (Sheet 2)

Figure E-5. T-38A/C Talon Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY**a. NORMAL ENTRY**

- (1) Push latches to open door, located on left side of fuselage.

CAUTION

Opening canopy under windy conditions could cause inadvertant canopy separation from aircraft.

- (2) Pull handle(s) 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.

b. N/A**c. EMERGENCY ENTRY**

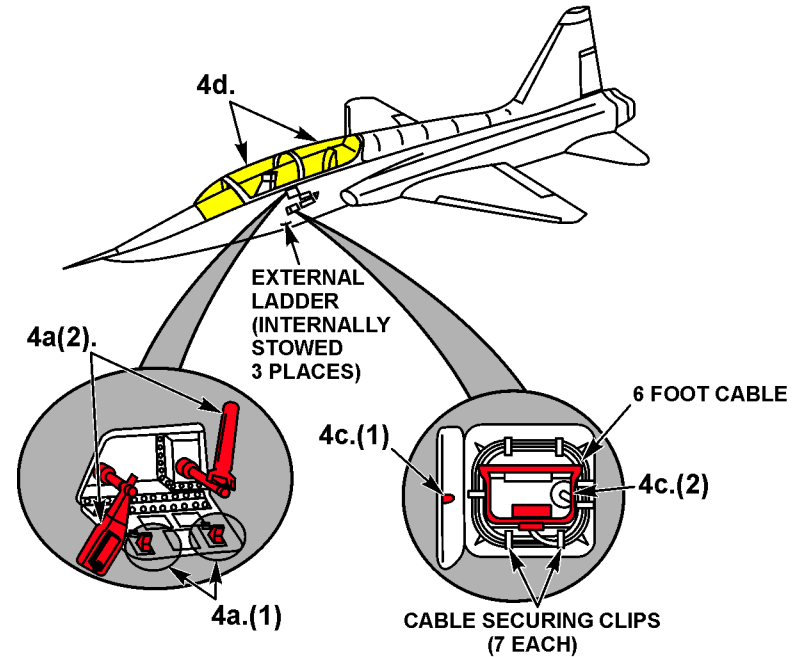
- (1) Push latch on canopy jettison access door, located on left and right side of forward fuselage, to open.
- (2) Pull canopy jettison D-handle, approximately 6 feet to jettison both canopies.

d. FORCED ENTRY

Cut canopy along canopy frame on all 4 sides.

5. CANOPY SAFETY**WARNING**

If emergency canopy jettison T-handle has been actuated, but canopy has not jettisoned, cut canopy hose at top aft of seat structure to prevent inadvertant canopy jettison.

a. N/A**b. N/A****T-38A**

14-1-F0154c

6. ENGINE SHUTDOWN

Note

AETC operated aircraft have a throttle gate installed on the aft portion of the throttle console in the forward cockpit. The throttle gate must be disengaged prior to proceeding.

- a. N/A
- b. N/A
- c. **BATTERY**

Place battery switch, located on right vertical control panel, down to OFF position.

Note

- Engines can be throttled to idle from rear cockpit.
- If engines fail to shutdown, turn battery switch ON and place fuel shutoff switches, located on left vertical panel, to CLOSED position. Place battery switch to OFF position.

d. THROTTLE

- (1) For AETC aircraft only: Disengage throttle gate by pushing the red release arm inboard (toward ejection seat).
- (2) For conventional aircraft: Raise finger lift and retard throttle, located on left console panel, to full aft OFF position.

e. FUEL SELECTOR

Push red guards down and place fuel shutoff switches to closed position. Wait 10 seconds for fuel valve to operate.

- f. N/A
- g. N/A

7. BATTERY

Battery is located right side access.

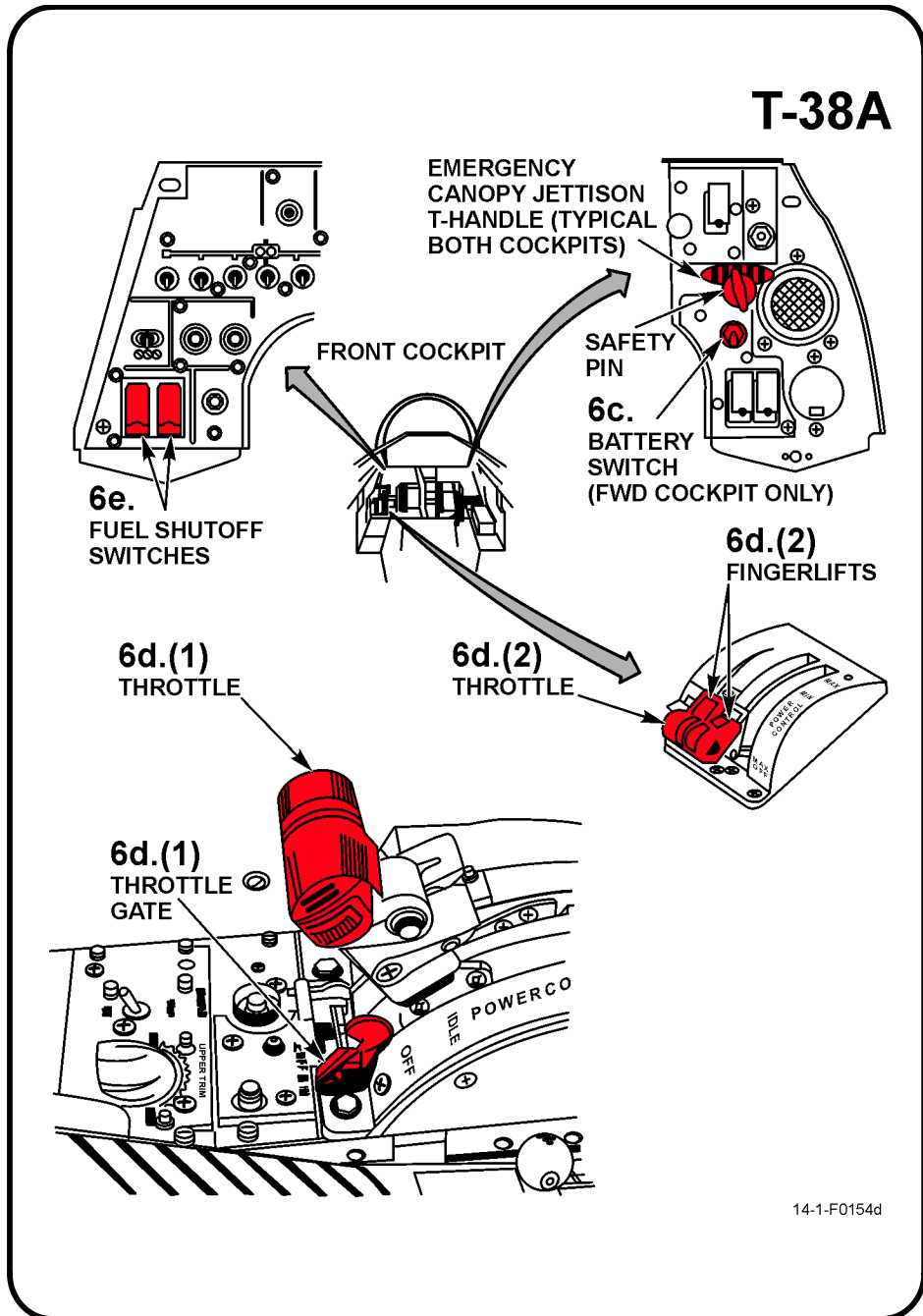


Figure E-5. T-38A/C Crash Crew Information (Sheet 4)

8. CREW RELEASE

The crewmembers are attached to the seat by shoulder straps which are attached to the lap belt by a quick release fitting. Additionally, there are oxygen/communication leads and anti-G suit hose attachments.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask by PULLING DOWN on release tabs on either side of mask.
- (2) Disconnect oxygen hose and communication lead at disconnection points.

b. RESTRAINT SUIT BELTS/RELEASE

PULL anti-G suit hose from fitting connected to the LH side of seat.

c. HARNESS STRAPS/LEG RESTRAINT RELEASE

- (1) Release both parachute riser straps.
- (2) SQUEEZE and RAISE Manual Release Lever on lap belt buckle.

Note

The survival kit disconnect buckles may be obscured from view.

Locate lap belt and follow it to the general area of the Survival Kit disconnect buckles. PRESS Push to Release tab in center of each buckle to release.

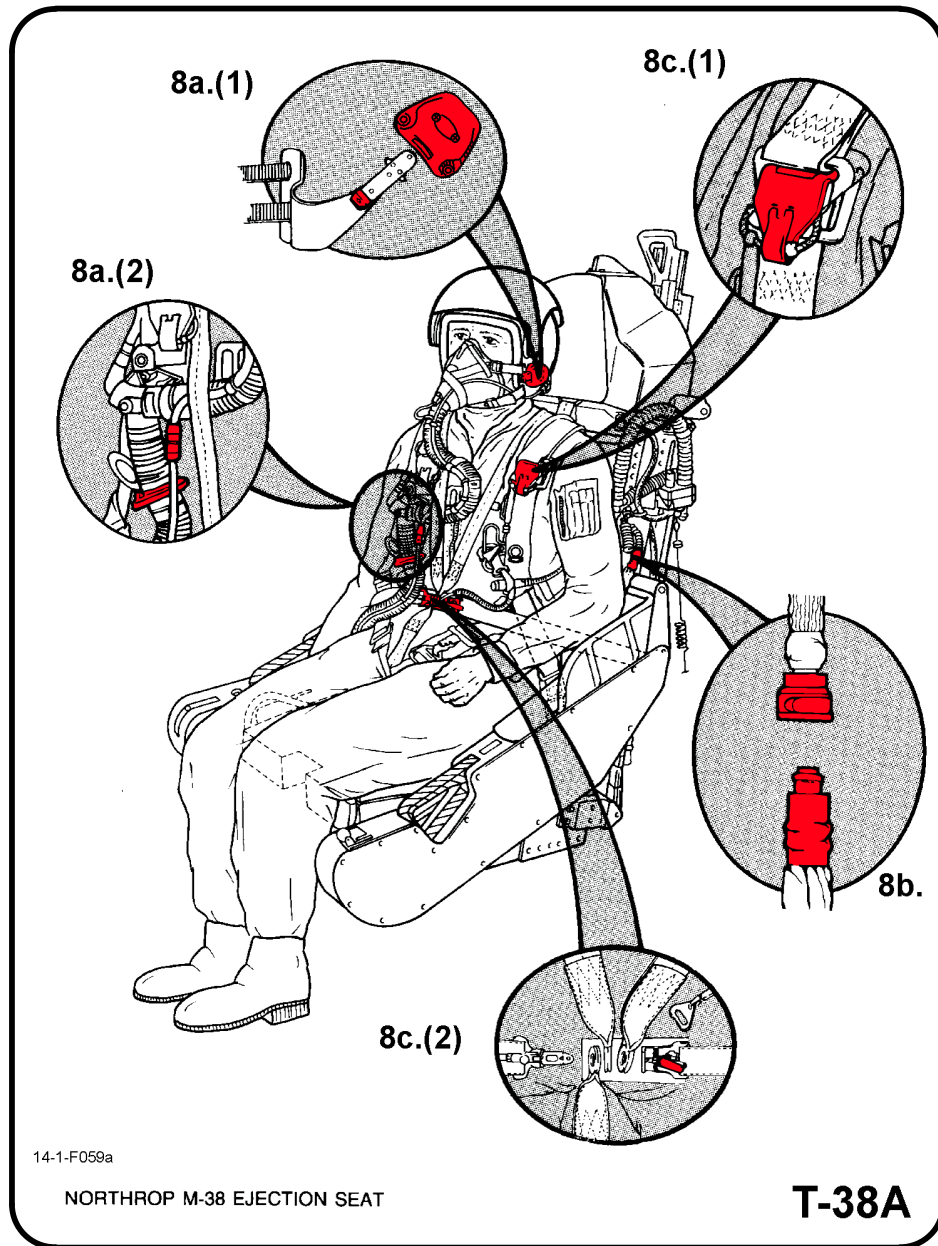


Figure E-5. T-38A/C Crash Crew Information (Sheet 6)

E-23

ORIGINAL

8. CREW RELEASE (CONT.)

d. EMERGENCY RELEASE

(1) RESTRAINTS

SQUEEZE and RAISE Manual Release Lever on lap belt buckle.

(2) EMERGENCY RELEASE HANDLE

WARNING

The Emergency Release Handle (see illustration 8d(2).) looks similar to the Ejection Seat Firing Handles and may be obscured by the pilot's right leg. DO NOT pull the Ejection Seat Firing Handle. This may be fatal to crewmembers and rescue personnel.

- (a) PULL Emergency Release Handle with pilot's weight on seat. Parachute will remain attached.

Note

Ensure parachute ripcord does not snag when removing pilot from cockpit.

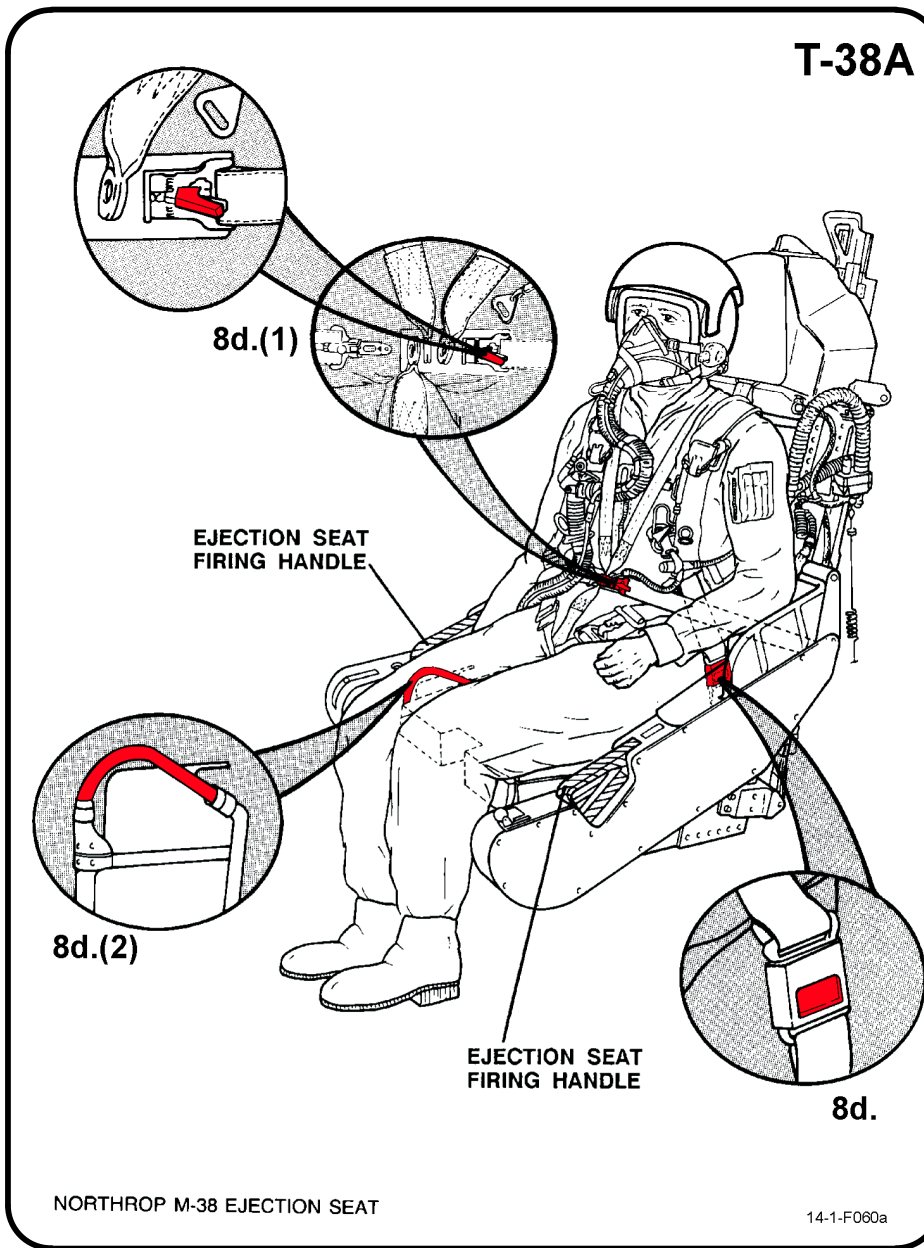









Figure E-6. T-39 Sabreliner Crash Crew Information (Sheet 1 of 5)

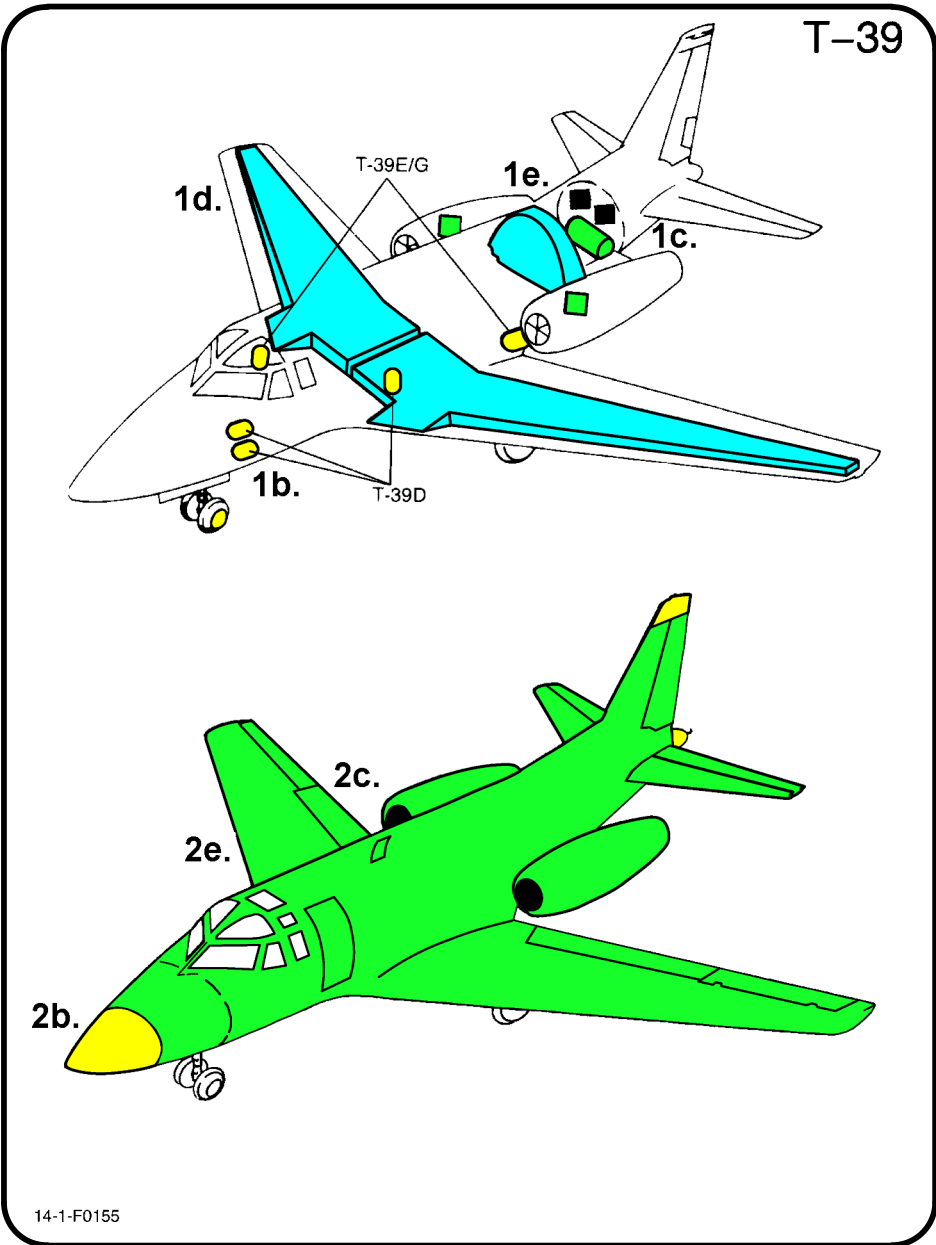
SPECIAL TOOLS/EQUIPMENT
 Power Rescue Saw
 Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. Oxygen/LOX 78.4 ft³

- c. Battery 2

- d. Fuel Internal 1100 gal

- e. Oil Engine 3.2 gal
 Hydraulic 2.6 gal

- f. Pneumatic System 3000 PSI

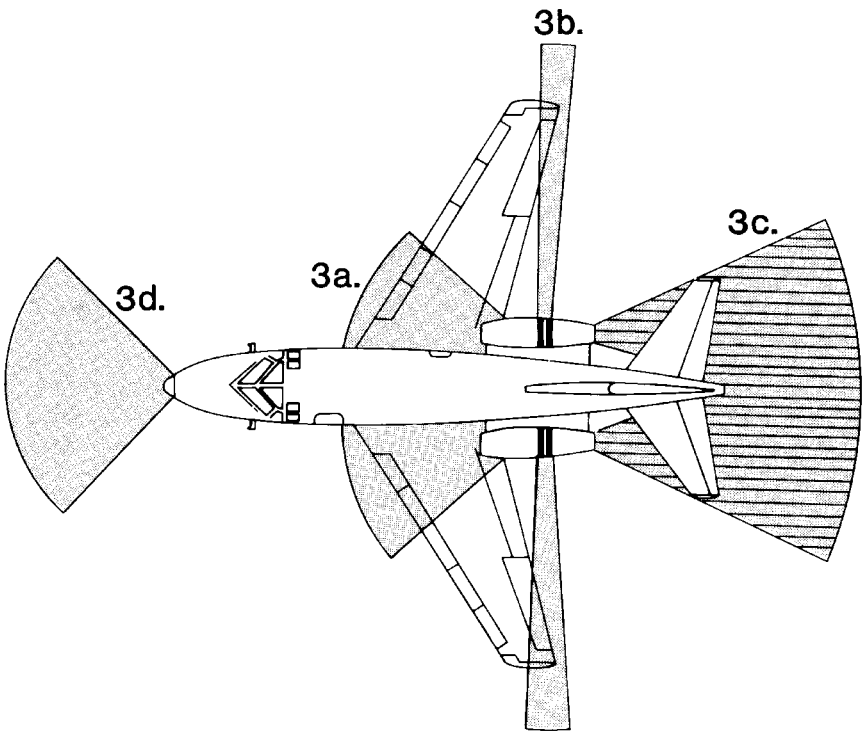
2. AIRFRAME MATERIALS

- a. N/A
- b. Other Fiberglass/Magnesium

- c. Steel

- d. N/A
- e. Aluminum

- f. N/A
- g. N/A



3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 12'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust
 - Idle — 60'
 - Max — 100'
- d. Radiation
 - FWD 110° Arc — 150'



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T-39

Figure E-6. T-39 Sabreliner Crash Crew Information (Sheet 2)

Figure E-6. T-39 Sabreliner Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY**a. NORMAL ENTRY**

TURN Rotary Latch, located FWD LH side of fuselage, One Quarter Turn COUNTERCLOCKWISE to UNLOCK Main Entrance Door. APPLY EVEN PRESSURE on lower section of door. Door will move inward several inches and then top of door will rotate outward and start a downward swing. When door starts downward movement, SUPPORT door and LOWER to extended position.

b. N/A**c. EMERGENCY ENTRY**

If the Main Entrance Doorway is inaccessible, enter through the Ground Escape Hatch located on RH side of fuselage just FWD of the engine intake.

WARNING

This entrance lies within the danger area for the engine intake suction area.

PUSH Release Button, located RH side of fuselage over wing, and PULL handle to unlock escape hatch. PUSH escape hatch IN to gain entry.

d. FORCED ENTRY

If the door or escape hatch are inaccessible, the chopping or cutting area that would offer the least resistance is the area immediately AFT of the Main Entrance Doorway. This area may or may not be marked on the aircraft.

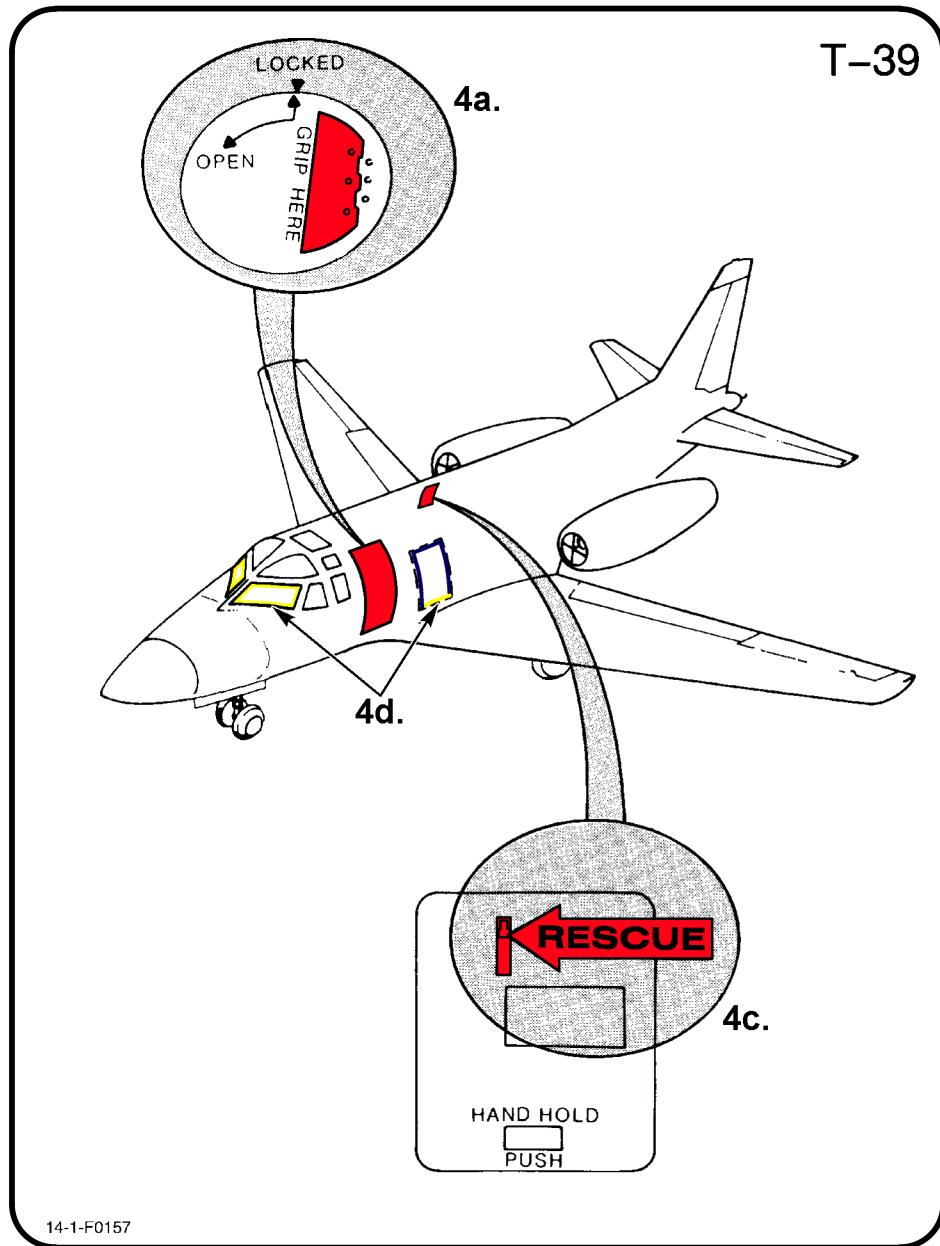
5. N/A

Figure E-6. T-39 Sabreliner Crash Crew Information (Sheet 4)

6. ENGINE SHUTDOWN

a. ENGINE MASTER SWITCHES

PLACE Electrical Master Switch in OFF position (positive lock type).

b. ELECTRICAL MASTER SWITCH

PLACE Electrical Master Switch in OFF position (positive lock type).

c. BATTERY SWITCH

PLACE Battery Switch in OFF position.

d. THROTTLE

DEPRESS Throttle Safety Latches and RETARD Throttles to CLOSE position.

e. N/A

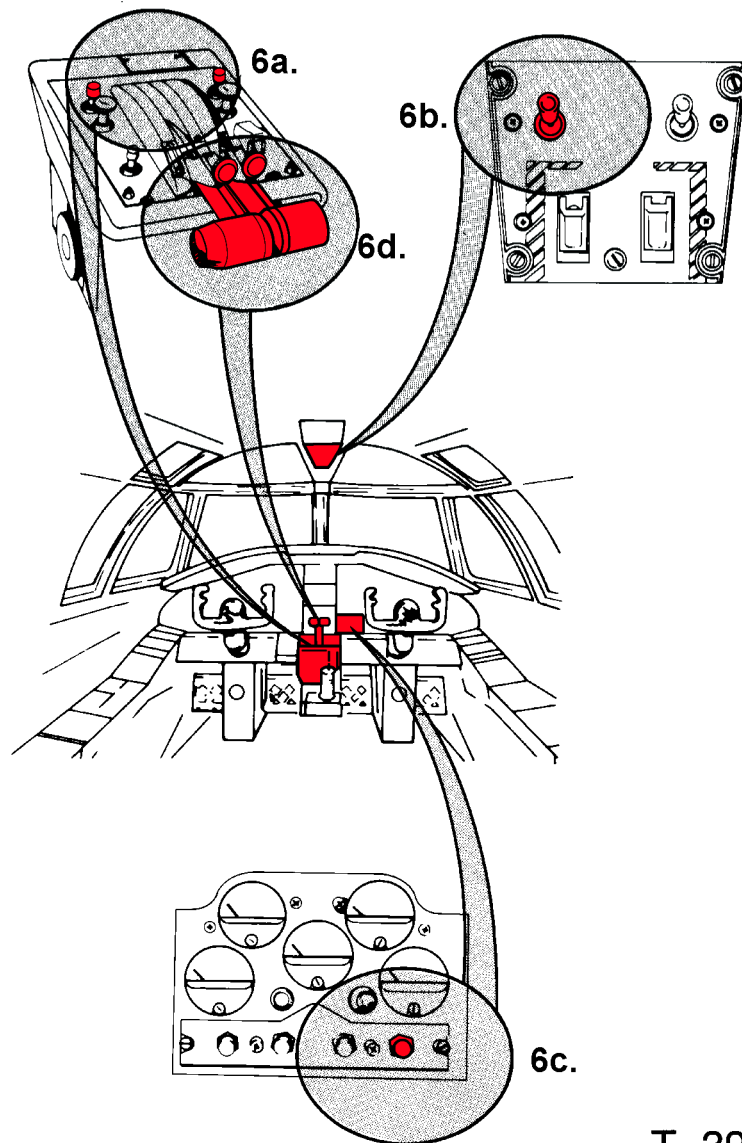
f. N/A

g. N/A

7. BATTERY

Two batteries are located in the AFT fuselage compartment and are accessible through the AFT compartment access door. This door will be inaccessible if the aircraft is on its belly.

a. N/A



14-1-F0158

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Figure E-6. T-39 Sabreliner Crash Crew Information (Sheet 5)

8. CREW RELEASE

The pilot and copilot are attached to the seats by shoulder harnesses and lap belts. Passengers and crew have lap belts only.

a. N/A

b. RESTRAINT SUIT BELTS/RELEASE

- (1) Lift quick disconnect lever to release shoulder harnesses and lap belt.
- (2) PASSENGER; Lift buckle cover to release lap belt (airline type).

c. N/A

d. N/A

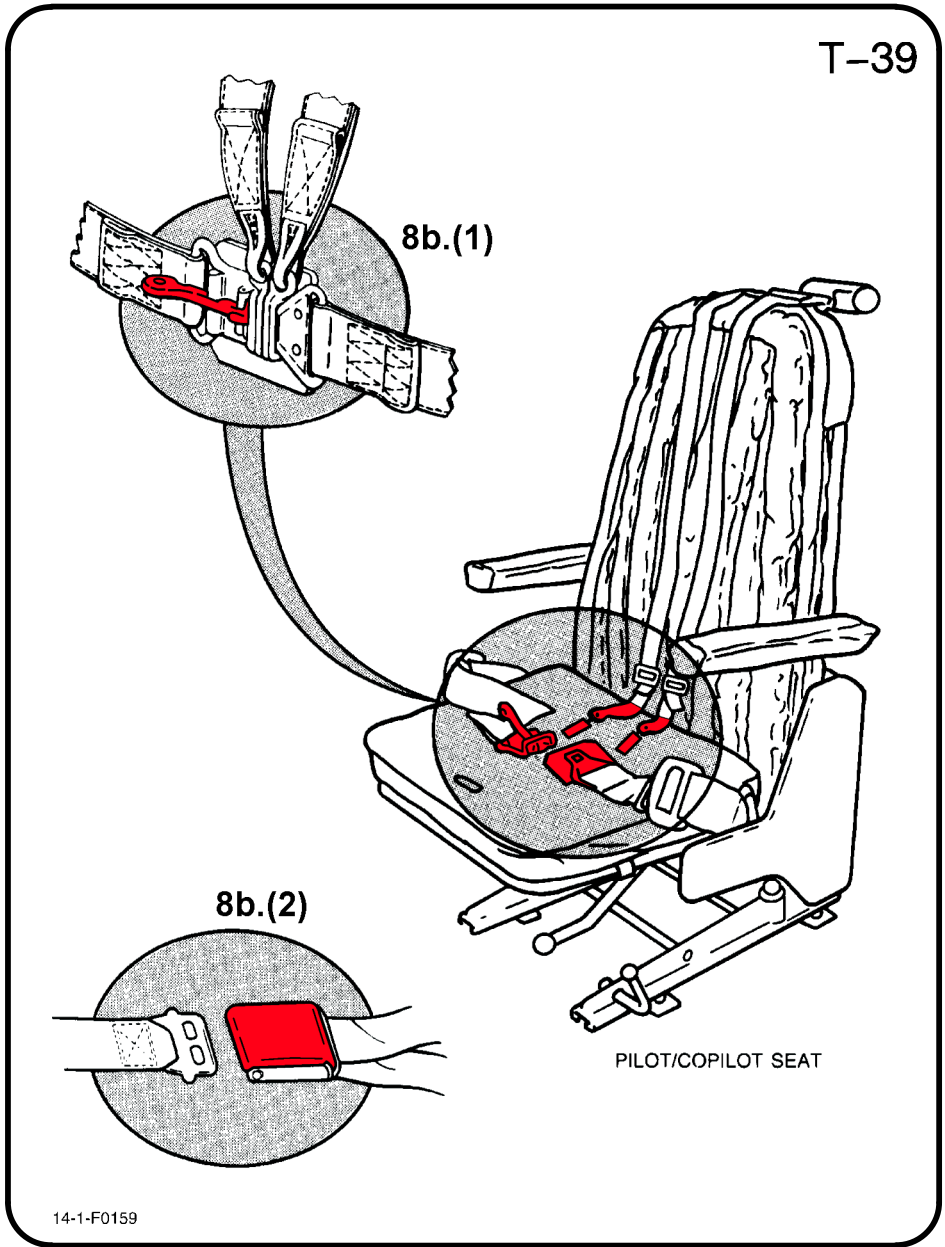


Figure E-7. T-44A King Air Crash Crew Information (Sheet 1 of 4)

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

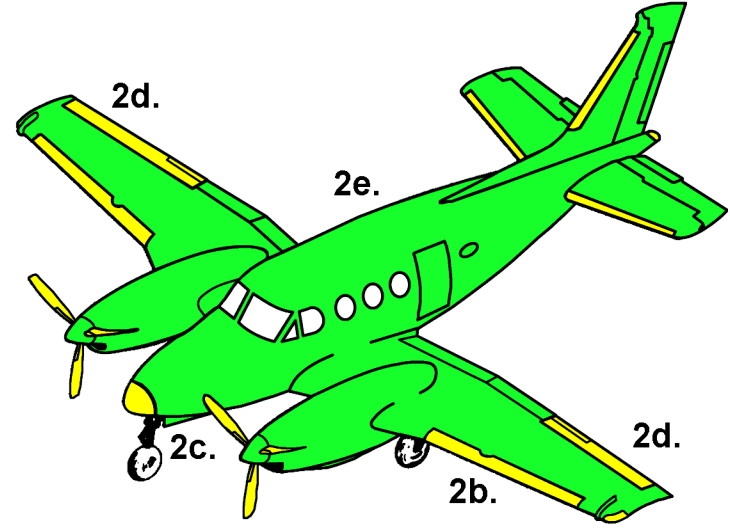
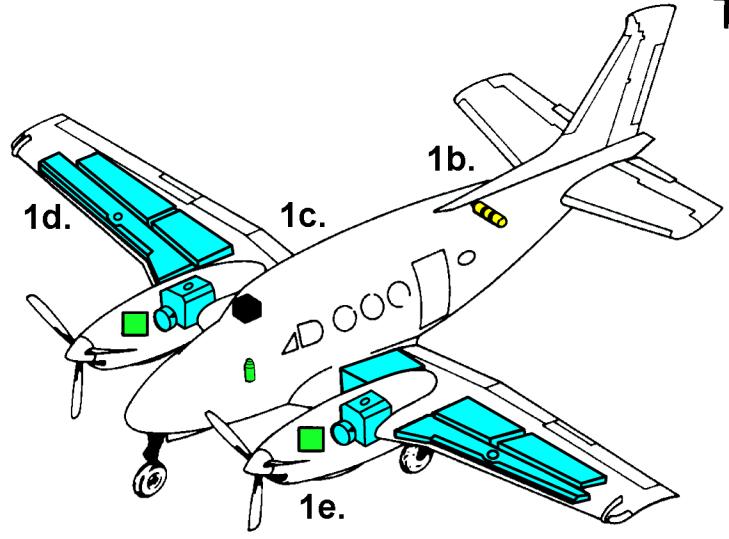
1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. Oxygen/LOX 49 ft³
- c. Battery 1
- d. Fuel Internal 388 gal
- e. Oil Engine 2.3 gal
 Hydraulic 1 pt

2. AIRFRAME MATERIALS

- a. N/A
- b. Other
 Fiberglass/Magnesium
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A

T-44



14-1-F0160

Figure E-7. T-44A King Air Crash Crew Information (Sheet 2)

3. AIRCRAFT DANGER AREAS

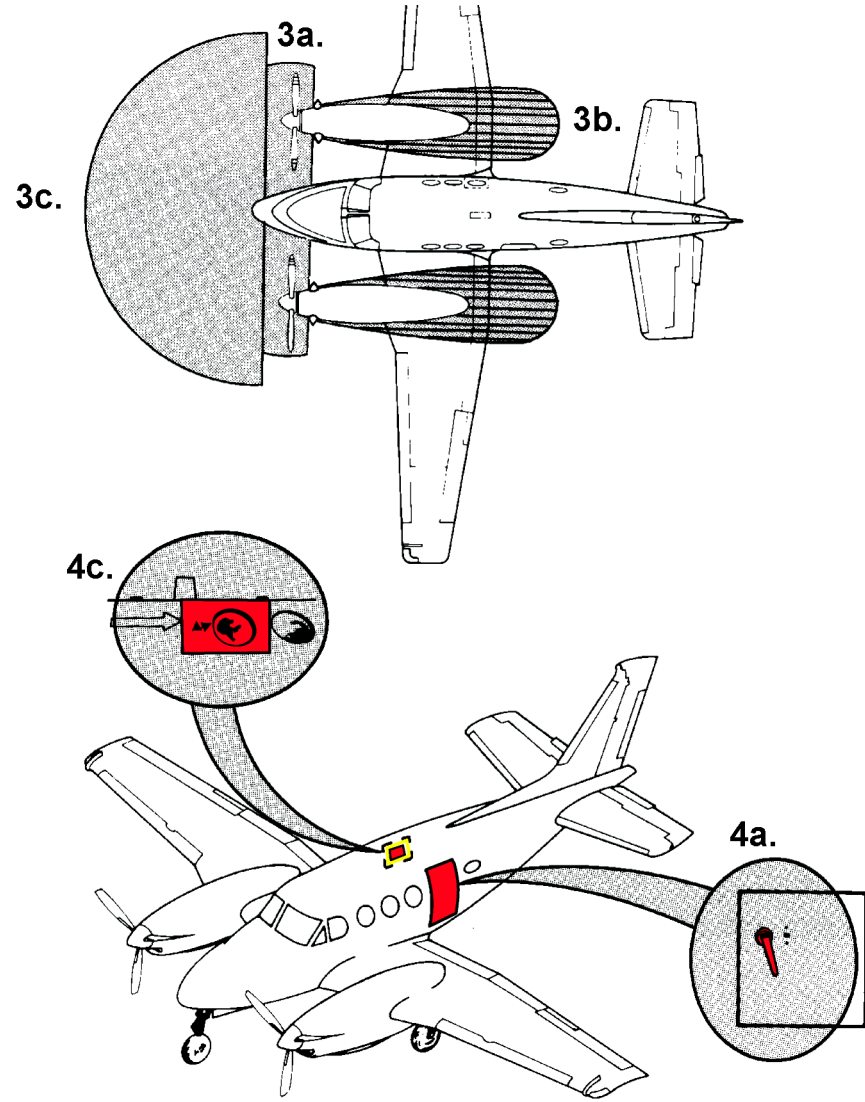
- a. Propeller Danger Zone — 15'
- b. Engine Exhaust — 20'
- c. Radiation FWD 180° Arc — 18'

4. AIRCRAFT ENTRY**a. NORMAL ENTRY**

Normal entry is through the cabin door located AFT of the wing on the LH side of the fuselage. PRESS button behind the handle and ROTATE the handle CLOCKWISE to OPEN.

b. N/A**c. EMERGENCY/FORCED ENTRY**

The Emergency Exit Hatch is located on RH side of fuselage. Using crash axe, BREAK window. REACH through, REMOVE cover over release handle. PRESS pushbutton below handle. PULL handle INWARD and UP to release hatch.

d. N/A**5. N/A**

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T-44

6. ENGINE SHUTDOWN

a. CONDITION LEVERS

MOVE Condition Levers AFT to CUT-OFF position.

b. N/A

c. BATTERY SWITCH

PLACE Battery Switch in the OFF position by MOVING Master Gang Bar AFT.

d. N/A

e. FUEL VALVE SWITCHES

PLACE Fuel Valve Switches in CLOSED position by RAISING guards and MOVING switches DOWN.

f. N/A

g. N/A

7. BATTERY

The battery is located in the top of the right wing center section and equipped with a quick disconnect plug.

a. N/A

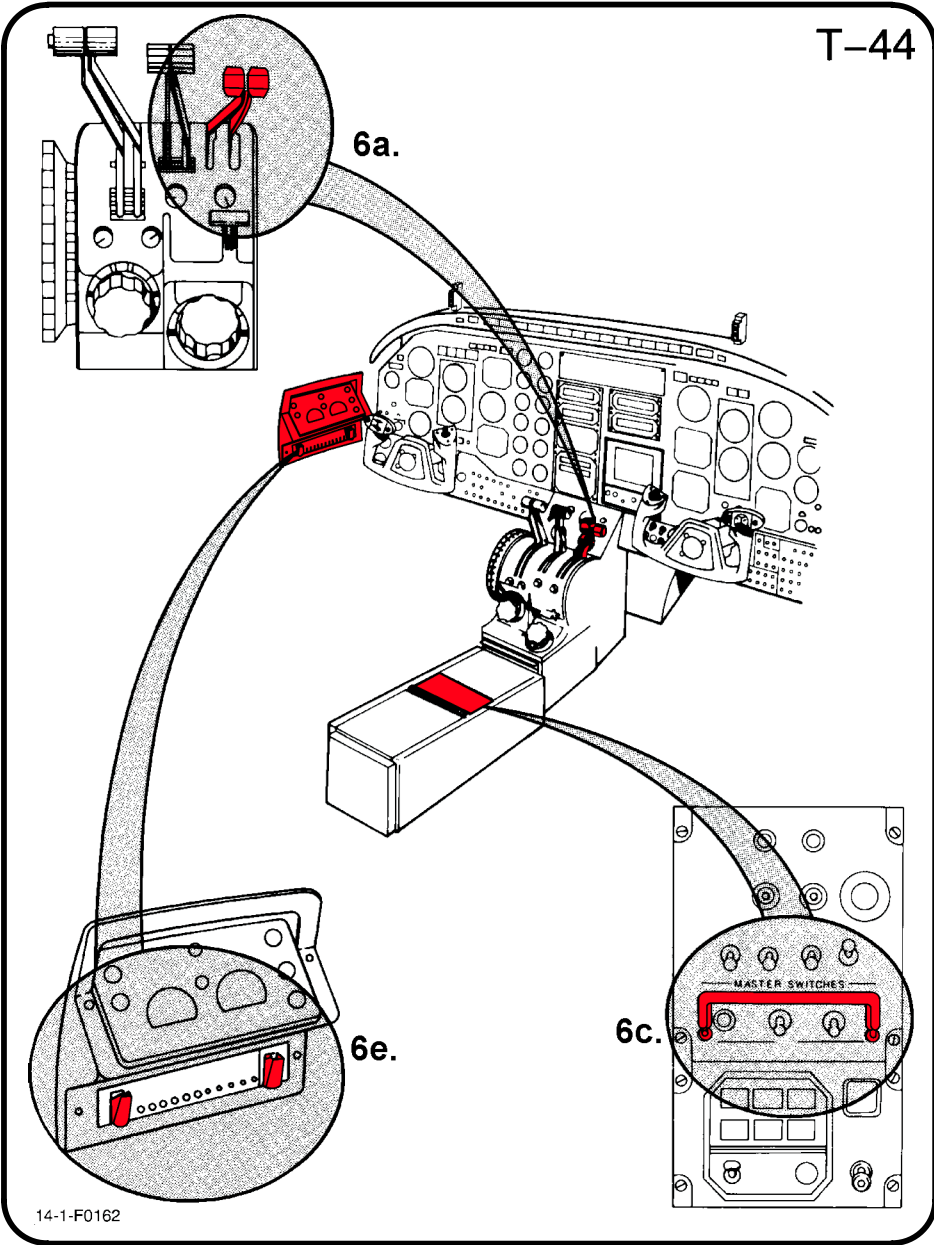


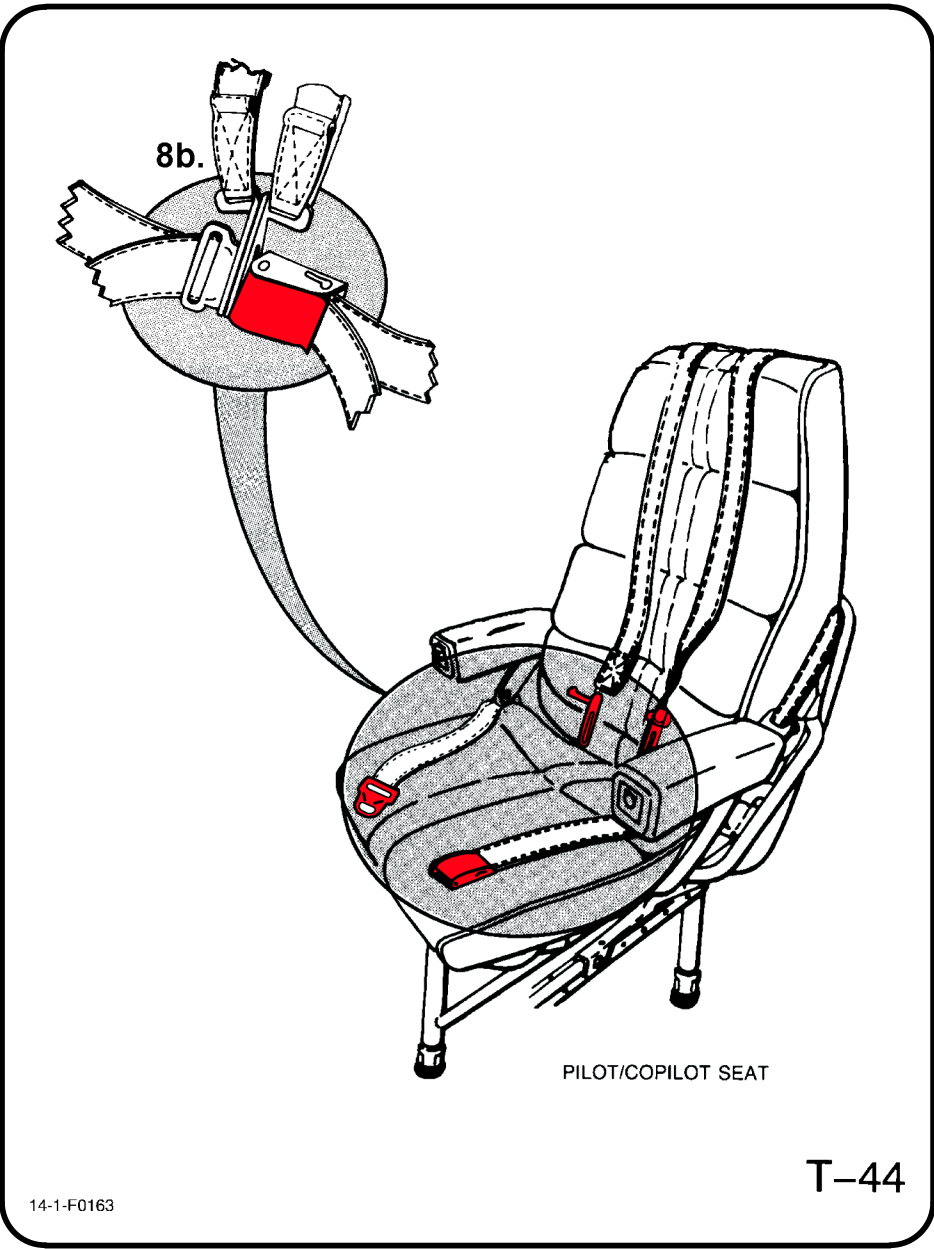
Figure E-7. T-44A King Air Crash Crew Information (Sheet 3)

Figure E-7. T-44A King Air Crash Crew Information (Sheet 4)

8. CREW RELEASE

The pilot and copilot are attached to the seats by shoulder harnesses and lap belts. Passengers have lap belts only.

- a. N/A
- b. **RESTRAINT SUIT BELTS/RELEASE**
Lift buckle cover to release shoulder harnesses and lap belt.
- c. N/A
- d. N/A



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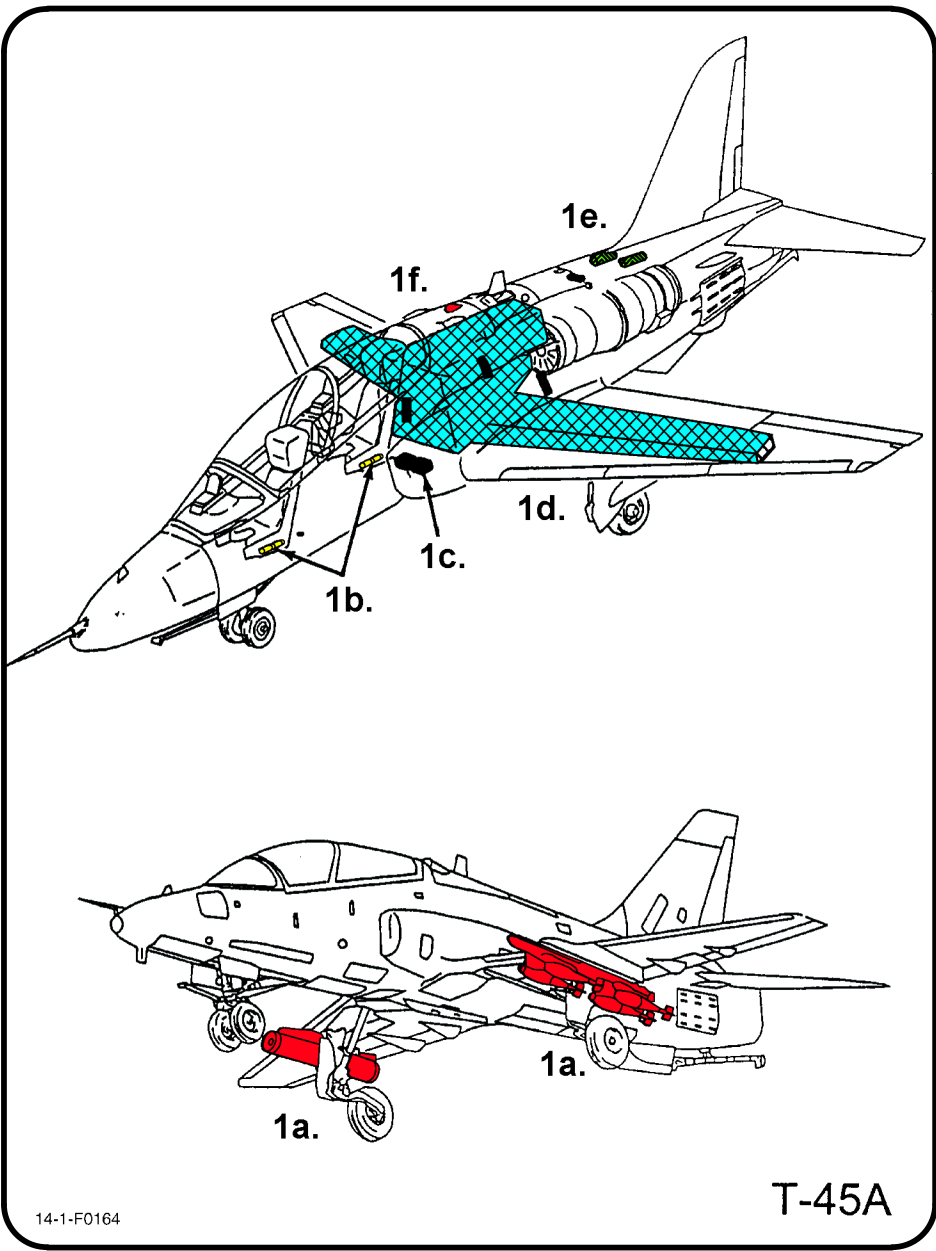
Figure E-8. T-45A Goshawk Crash Crew Information (Sheet 1 of 6)

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- | | |
|---------------------|---|
| a. Armament | 2 Wing Stations
Practice Bombs
Rockets
Pylon Ejector
Cartridges |
| b. Oxygen | OBOGS
Bailout Bottle (2)
(1 in each seat pan) |
| c. Battery | 2 |
| d. Fuel | Internal 433 gal |
| e. Oil/Hydraulic | 2 Reservoirs |
| f. Pneumatic System | 3,000 PSI |



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T-45A

Figure E-8. T-45A Goshawk Crash Crew Information (Sheet 2)

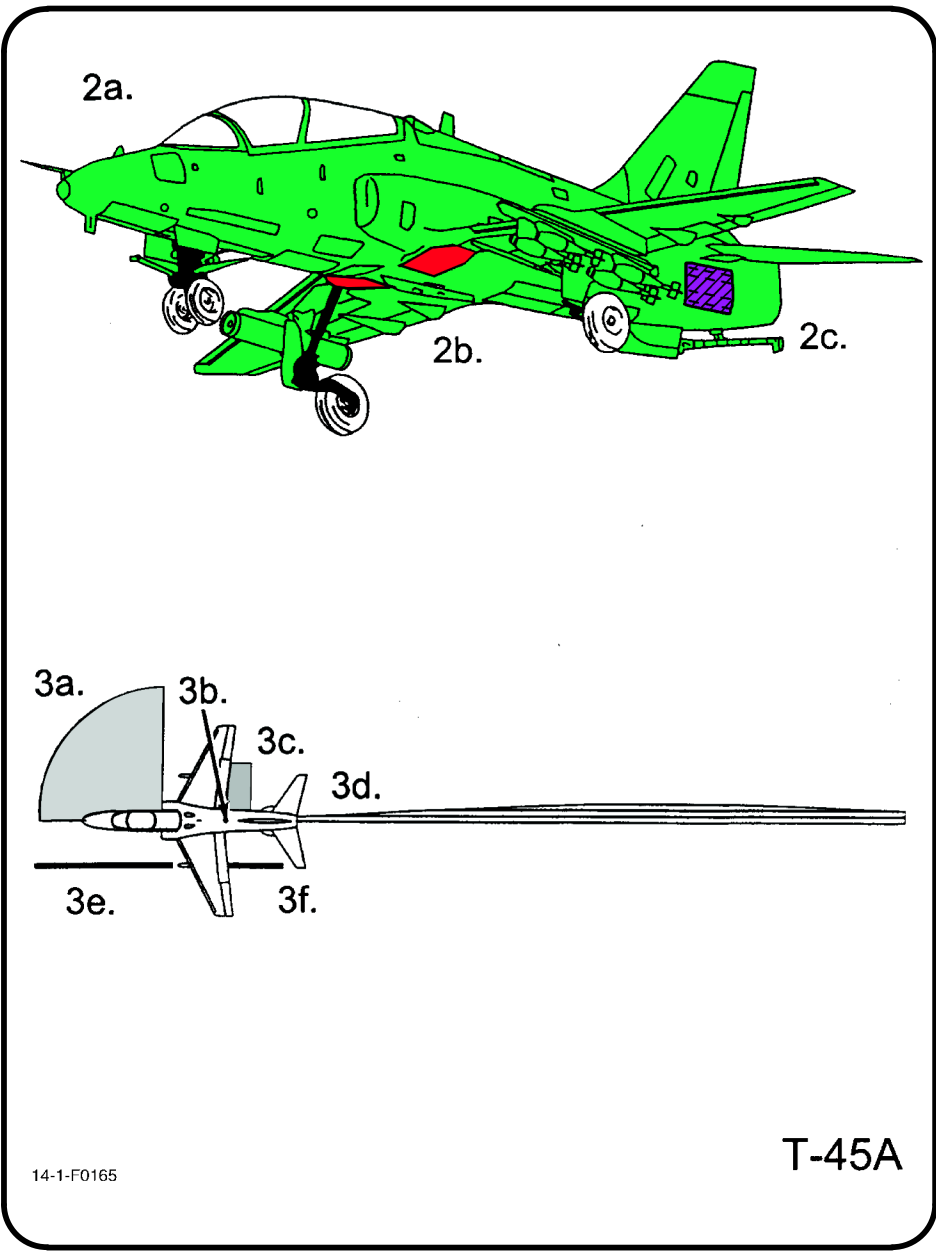
2. AIRFRAME MATERIALS

- a. Graphite Epoxy

 - MLG Inboard Doors
 - Slat Control Rods
(Inside Wing Leading Edge)
- b. N/A
- c. Steel
- d. N/A
- e. Aluminum
- f. Carbon Epoxy
- g. N/A

3. AIRCRAFT DANGER AREAS

- a. Intake Area
MRT — 20 feet
 Idle — 5 feet
- b. GTS Exhaust (top)
- c. Turbine Failure
 Outboard between wing and stabilator
- d. Engine Exhaust
 Idle — 40 feet
 MRT — 100 feet
- e. Rocket wd Fire Zone (2 places)
- f. Rocket Exhaust Zone (2 places)



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T-45A

Figure E-8. T-45A Goshawk Crash Crew Information (Sheet 3)

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ORIGINAL

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

Access to cockpit in normal operation is gained by using the side opening canopy's external handle. A retractable footstep, toe kick-in footstep, two pullout footsteps/handholds, a nonskid footstep, and two handholds are available for forward and aft cockpit entry.

- (1) PRESS Canopy External Handle release button.
- (2) ROTATE Canopy External Handle CLOCKWISE and LIFT canopy.

b. N/A

c. EMERGENCY ENTRY

Access to the cockpit can be gained in emergency situations by manually opening canopy external handle; however, if this proves impossible, canopy can be shattered by aircrew operation of mild detonating cords (MDC).

WARNING

- The canopy pyrotechnic (MDC) should not be used if flammable liquids or fumes are present in area.
- Particles from a blown canopy may exceed 3 square inches and cover a blast radius area of over 25 feet.

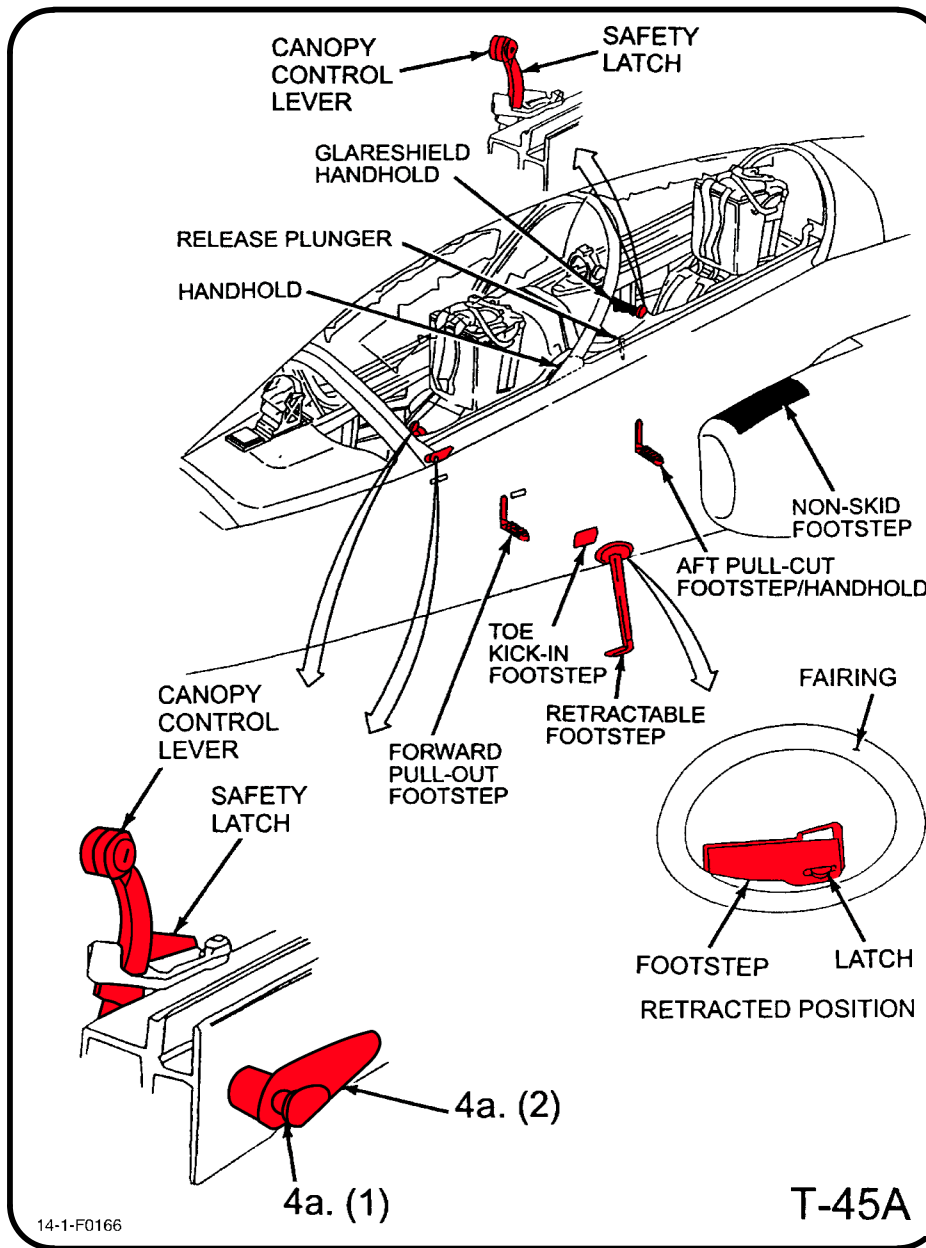


Figure E-8. T-45A Goshawk Crash Crew Information (Sheet 4)

4. AIRCRAFT ENTRY (CONT.)**d. FORCED ENTRY**

Canopy is acrylic plastic and may be cut with power rescue saw or shattered by impact with crash axe. Cut along canopy frame.

WARNING

Do not cut into canopy **S**MDC initiator assembly on the right side of canopy. This could detonate the canopy fracturing pyrotechnics.

5. CANOPY SAFETY PROCEDURES

Remove streamers and safety pins from map case containers and install in **M**D C firing handle (both cockpits).

WARNING

With safety pins installed, canopy initiators can still be ignited by stepping on or leaning on Initiator Assembly or cover.

a. N/A

b. N/A

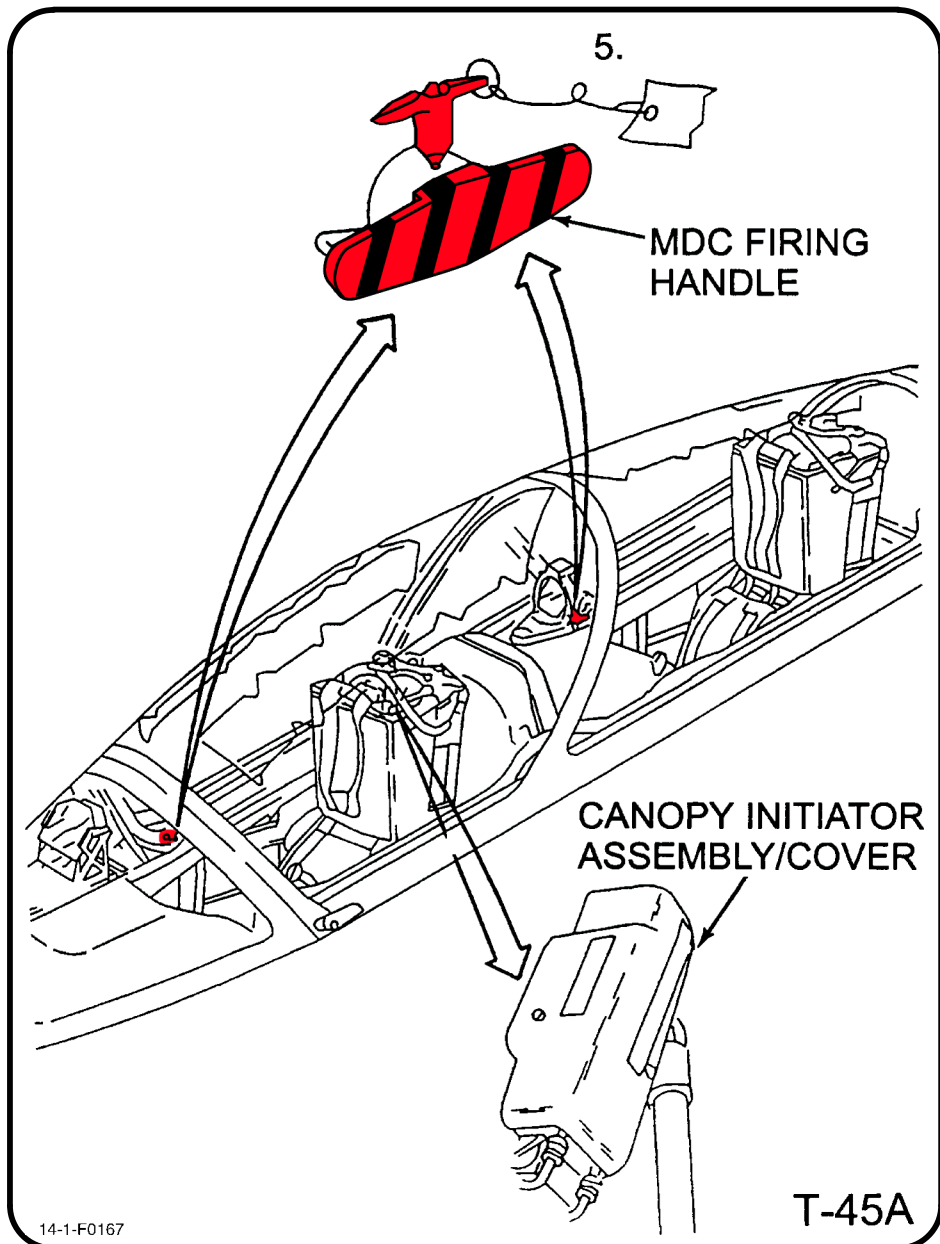


Figure E-8. T-45A Goshawk Crash Crew Information (Sheet 5)

6. ENGINE/GTS SHUTDOWN

- a. N/A
- b. N/A

c. BATTERY SWITCHES

PLACE BATT 1 and BATT 2 switches in OFF position

d. THROTTLE

MOVE throttle AFT to stop, then RAISE finger lift and MOVE throttle AFT to OFF position (either cockpit).

e. FUEL SHUTOFF

PRESS release button on top of Fuel Shutoff Handle and PULL handle up (front cockpit only).

f. N/A

g. GTS

PLACE the Engine Start Switch in OFF position (both cockpits).

7. N/A

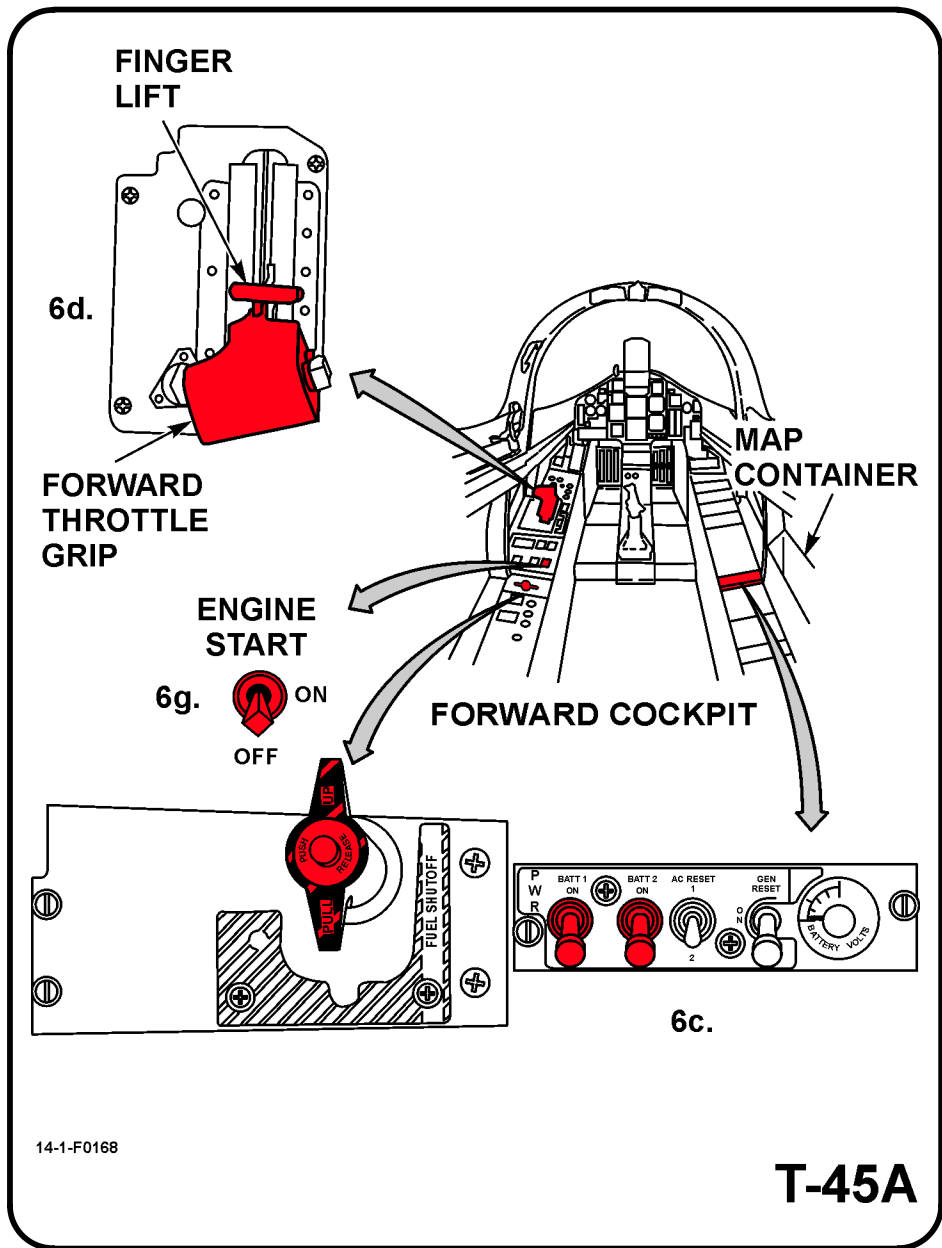


Figure E-8. T-45A Goshawk Crash Crew Information (Sheet 6)

8. CREW RELEASE

Each crewmember is attached to the seat by the use of an integrated harness and leg restraints. Additionally, the oxygen/communication lead is attached to survival kit. If crewmember is wearing an anti-G suit a hose will be attached to an outlet on left console.

a. PERSONAL SERVICE, QUICK DISCONNECT

- (1) Remove oxygen mask by pulling down on the release tabs on either side of mask.
- (2) Disconnect oxygen/communication lead at survival kit. Grasp knurled fitting on hose and pull up to disconnect.

b. RESTRAINT SUIT BELTS/RELEASE

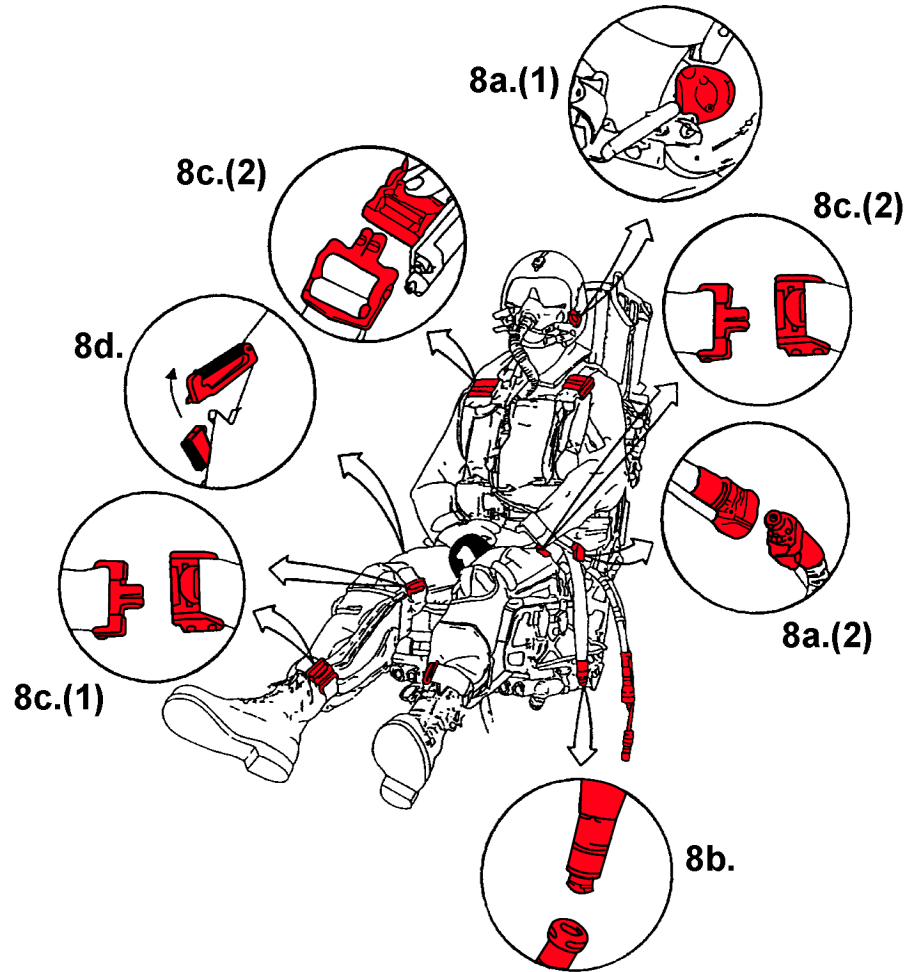
Pull anti-G suit hose from left console.

c. HARNESS STRAPS/LEG RESTRAINT RELEASE

- (1) Leg garter is secured around leg by a quick disconnect. Leg restraints lines attach to garter using the same types of quick disconnect.
- (2) Support pilot, release two (2) lap belts, than two (2) shoulder harness Koch fittings or cut webbing and remove pilot from cockpit.

d. EMERGENCY RELEASE

- (1) Press thumb button on Emergency restraint release handle (right side of seat) and pull handle up. This positions safe/armed handle in safe position and release lower leg restraint lines. However, the parachute and survival kit remain attached to crewmember. Repeating [step 8c.\(2\)](#) will release parachute and survival kit.



14-1-F0169

T-45A

**HELICOPTER AIRCRAFT SYSTEMS AND
CRASH CREW INFORMATION DIAGRAMS SUMMARY**

TYPE	NAME	AIRFRAME MATERIALS	FUEL (GAL)		OIL (GAL)		OXYGEN		PNEU SYS	GUN	ORDNANCE		PYROTECHNICS	BTRY	S.O.B.
			INT	EXT	ENG	HYD	BOTTLE	FWD FIRE			FREE FALL				
AH-1	SEA COBRA	ALUMINUM STEEL TITANIUM FIBERGLASS	304	(2) 100 OR (2) 75	3.7	3.4	NONE	N ₂ 3000 PSI	20 MM	MISSILES ROCKETS	NONE	PYLON EJECTOR CARTRIDGES(4)STA. CHAFF/FLARES CANOPIES	2	2	
AH-1Z	SUPER COBRA	ALUMINUM STEEL TITANIUM FIBERGLASS	403	(2) 100 OR (2) 75	14 QT	10.8 QT	NONE	N ₂ 3000 PSI	20 MM	MISSILES ROCKETS	NONE	PYLON EJECTOR CARTRIDGES(4)STA. CHAFF/FLARES CANOPIES	1	2	
UH-1/ HH-1	IROQUOIS/ HUEY	ALUMINUM STEEL FIBERGLASS	212	NONE	3.3	3	NONE	N ₂ 1500 PSI	GAV-2B/A M-60 50 CAL	NONE	NONE	CHAFF/FLARES	1	15	
UH-1Y	IROQUOIS/ HUEY	ALUMINUM STEEL CARBON FIBER	385	(2) 77	14 QT	10.8	NONE	N ₂ 3000 PSI	GAV-2B/A M-60 50 CAL	MISSILES ROCKETS	NONE	CHAFF/FLARES	1	12	
H-3	SEA KING	ALUMINUM STEEL TITANIUM FIBERGLASS	831	(2) 110	18.6	2	NONE	N ₂ 3000 PSI	NONE	NONE	NONE	SMOKE MARKERS	1	5	
H-46	SEA KNIGHT	ALUMINUM STEEL TITANIUM FIBERGLASS	380 HH-46D AUX 729	NONE	13 E	5.8 E	(2) 295 IN ³ (CH-46E)	N ₂ 3000 PSI	(2) 50 CAL OR (2) M-60	NONE	NONE	CHAFF/FLARES (CH-46E)	1	28	
H-53D	SEA STALLION	ALUMINUM STEEL TITANIUM FIBERGLASS	638	1300	8	6.5	NONE	N ₂ 3000 PSI	(2) 50 CAL	NONE	NONE	(2) EXT FUEL TANK EJECTOR CARTRIDGES CHAFF/FLARES	0	41	
H-53E	SUPER SEA STALLION/ SEA DRAGON	ALUMINUM STEEL GPH EPOXY TITANIUM FIBERGLASS KEVLAR	MH-53 3212 CH-53 977	CH-53 1300	11.7	MH-53 9.3 CH-53 6.5	NONE	N ₂ 3000 PSI	(2) 50 CAL	NONE	NONE	PYLON EJECTOR CARTRIDGES (4) STA CHAFF/FLARES UTILITY HOIST CART. SINGLE PT CARGO HOOK CART	MH-53 3 CH-53 1	58	
TH-57	SEA RANGER	ALUMINUM STEEL FIBERGLASS	91	NONE	5.5 QTS	1.0 PT	NONE	NONE	NONE	NONE	NONE	NONE	TH-57B 1 TH-57C 2	5	
H-60	SEAHAWK	ALUMINUM STEEL GPH EPOXY TITANIUM FIBERGLASS KEVLAR	590	320	10.8	3 CT	NONE	N ₂ 3000 PSI	GAU-16 GAU 21 M240 M240D M60	HELLFIRE	MK 46 MK 50 TORPEDOES SONOBUOY	SMOKE MARKERS	1	MH-60S —16 SH-60B — 5 H-60F — 6 H-60H — 11 MH-60R — 7	

Rotary-Wing Aircraft

APPENDIX F

Figure F-1. Helicopter Systems and CCID Summary

Figure F-2. Typical Rotor Blade Cross-Section (Sheet 1 of 2)

HELICOPTER MAIN ROTOR BLADE CONSTRUCTION (TYPICAL)

1. The main rotor blades of a helicopter have titanium spars with Nomex cores and fiberglass/graphite outer skin. The low weight, high strength ratio of these materials, combined with unlimited configuration possibilities make them ideal for use in naval aircraft.

2. The helicopter main rotor blade construction consists of the following material:

a. Graphite Epoxy



b. Other

- Fiberglass
- Nickel
- Rubber



c. N/A

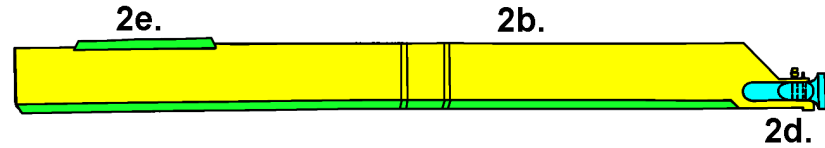
d. Titanium



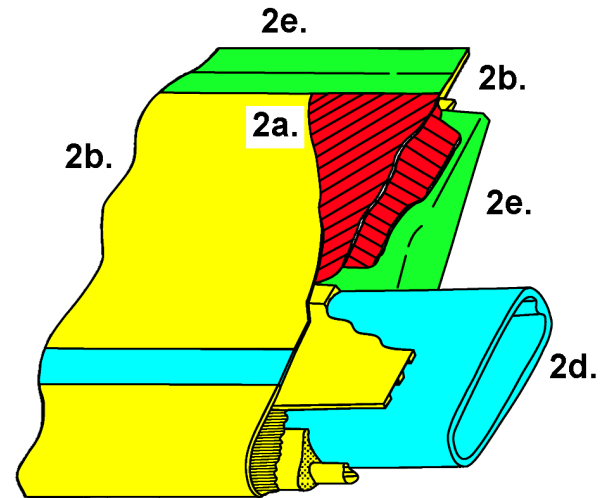
e. Aluminum



MAIN ROTOR BLADE CONSTRUCTION



TYPICAL MAIN ROTOR BLADE CROSS SECTION

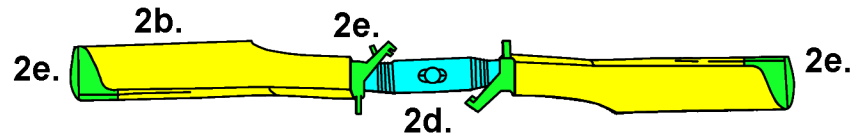


HELICOPTER TAIL ROTOR BLADE CONSTRUCTION (TYPICAL)

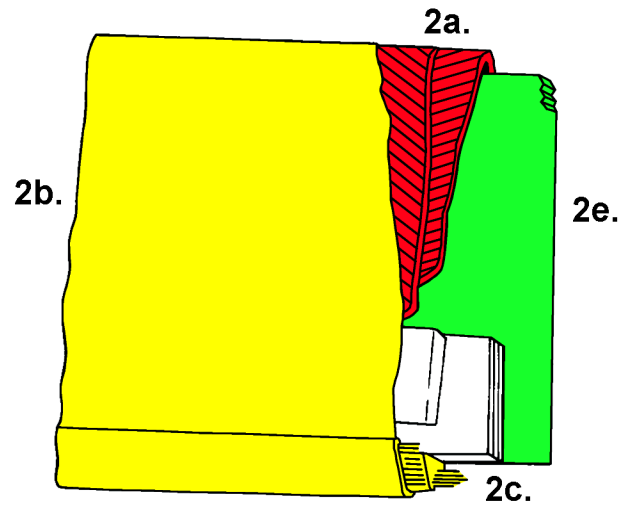
1. Helicopter tail rotor blades are constructed of laminated composite materials which are reinforced with carbon/graphite fibers. This material provides superior stiffness, high strength to weight ratio, and the ease of fabrication.
2. The helicopter tail rotor blade construction consists of the following material:
 - a. Graphite Epoxy
 - b. Other
Fiberglass
Rubber
 - c. N/A
 - d. Titanium
 - e. Aluminum



TAIL ROTOR BLADE CONSTRUCTION



TYPICAL TAIL ROTOR BLADE CROSS SECTION



14-1-F0176

Figure F-2. Typical Rotor Blade Cross-Section (Sheet 2)

Figure F-3. AH-1W Super Cobra Crash Crew Information (Sheet 1 of 5)

SPECIAL TOOLS/EQUIPMENT
 Power Rescue Saw
 Crash Axe

1. GENERAL AIRCRAFT INFORMATION

a. Armament	4 Stub Wing Stations 20mm Nose Gun Chaff/Flares Ejector cartridges (TMS)
b. N/A	
c. Battery	2 (1 port and 1 starboard side battery compartment)
d. Fuel	Internal 304 gal External two 100 gal and/or two 77 gal aux tanks
e. Oil	Engine 3.6 gal Hydraulic 3.4 gal Transmission 11.6 gal C-Box/Combining Gearbox 20 qts
f. Pneumatic System	2000 PSI

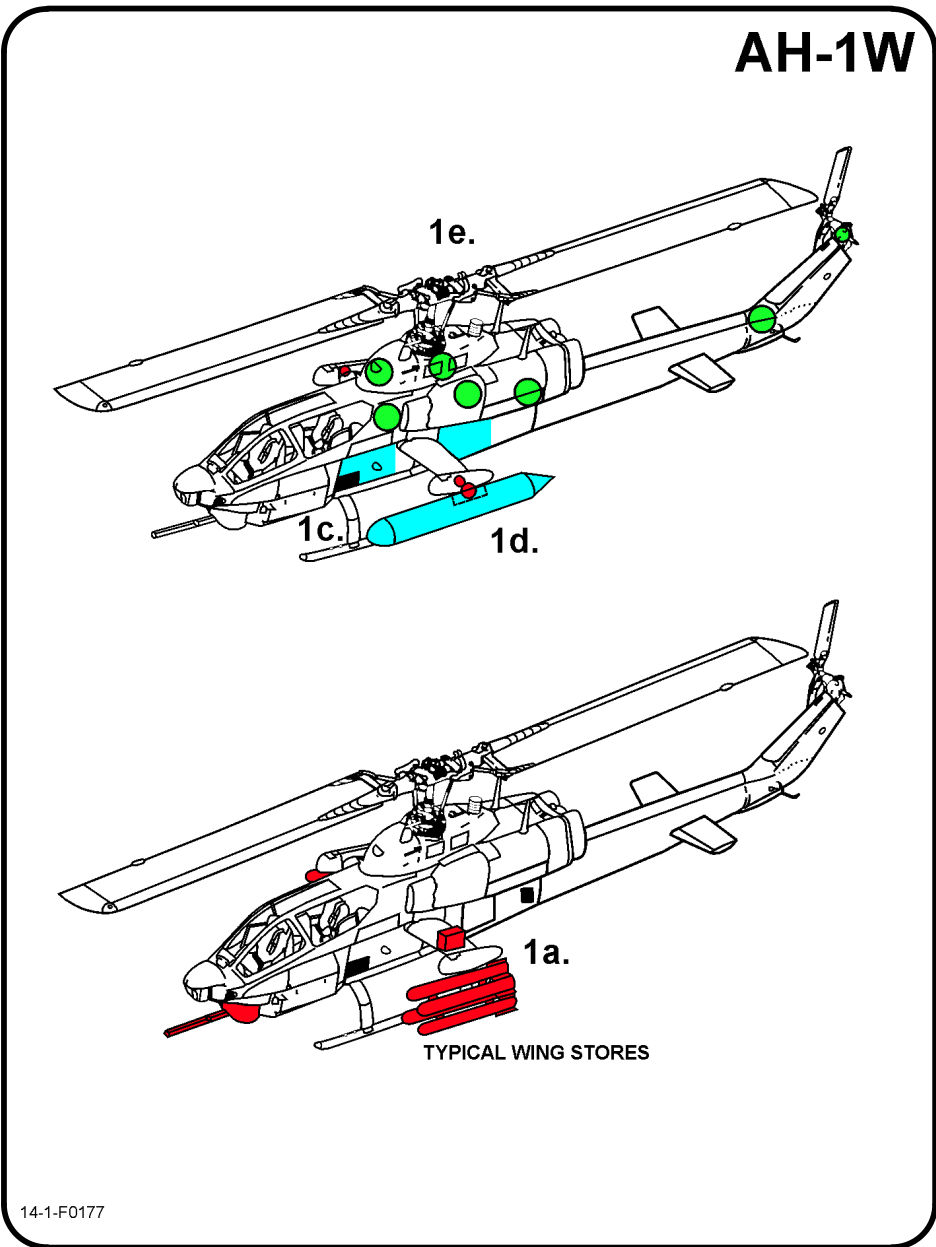


Figure F-3. AH-1W Super Cobra Crash Crew Information (Sheet 2)

2. AIRFRAME MATERIALS

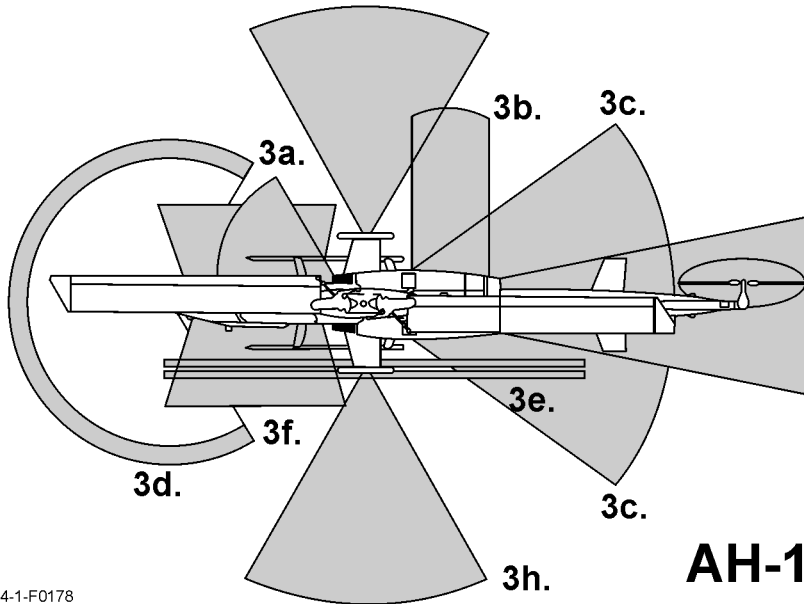
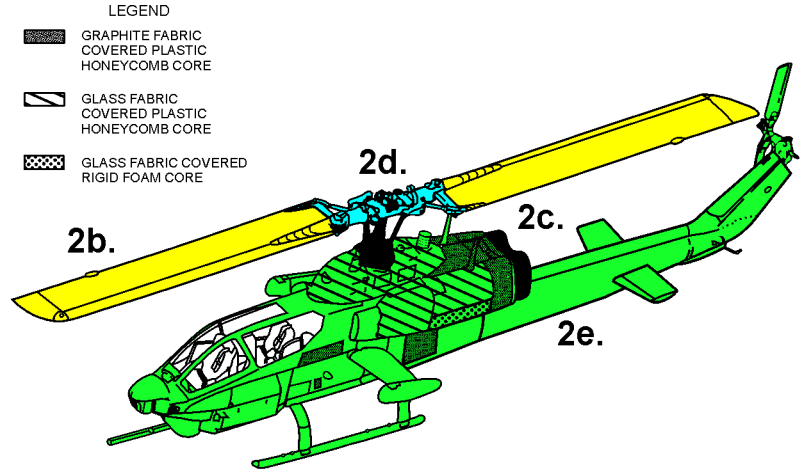
- a. Composite Materials (See Legend)
- b. Other
Fiberglass
- c. Steel
- d. Titanium
- e. Aluminum
- f. N/A
- g. N/A

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 6'
- b. Turbine blade Failure — 300'
- c. Engine Exhaust — 24'
- d. Nose Gun
220° Pattern FWD of Gun
50° Below Horizontal Plane
30° Above Horizontal Plane
- e. Missile Exhaust
- f. Missile FWD Fire Zone
- g. Rotors

Rotor Minimum	Main	9'
Ground Clearance	Tail	2'6"
Rotor Disc	Main	48'
Diameter	Tail	9'9"

- h. Chaff/Flares



14-1-F0178

Figure F-3. AH-1W Super Cobra Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

The pilot canopy door opening is on the RH side and the copilot/gunner door is on LH side. Both doors are pneumatically opened and closed from outside. To open either door, TURN door handle and it will automatically raise to full open position.

b. N/A

c. EMERGENCY ENTRY

The external canopy jettison system is located in the nose of the aircraft. OPEN access door, REMOVE safety pin from arm/fire mechanism, ROTATE ring 90° COUNTERCLOCKWISE, and PULL ring to shatter windows.

WARNING

- Do not shatter canopies with fuel in cockpit area, fire or explosion may result. Ensure personnel are clear of cockpit area before utilizing jettison system.
- Personnel within 50 ft of aircraft could be injured by debris when jettison system is used.

d. FORCED ENTRY

Canopies are made of acrylic plastic and may be cut using a power rescue saw or crash axe. CUT along canopy frames.

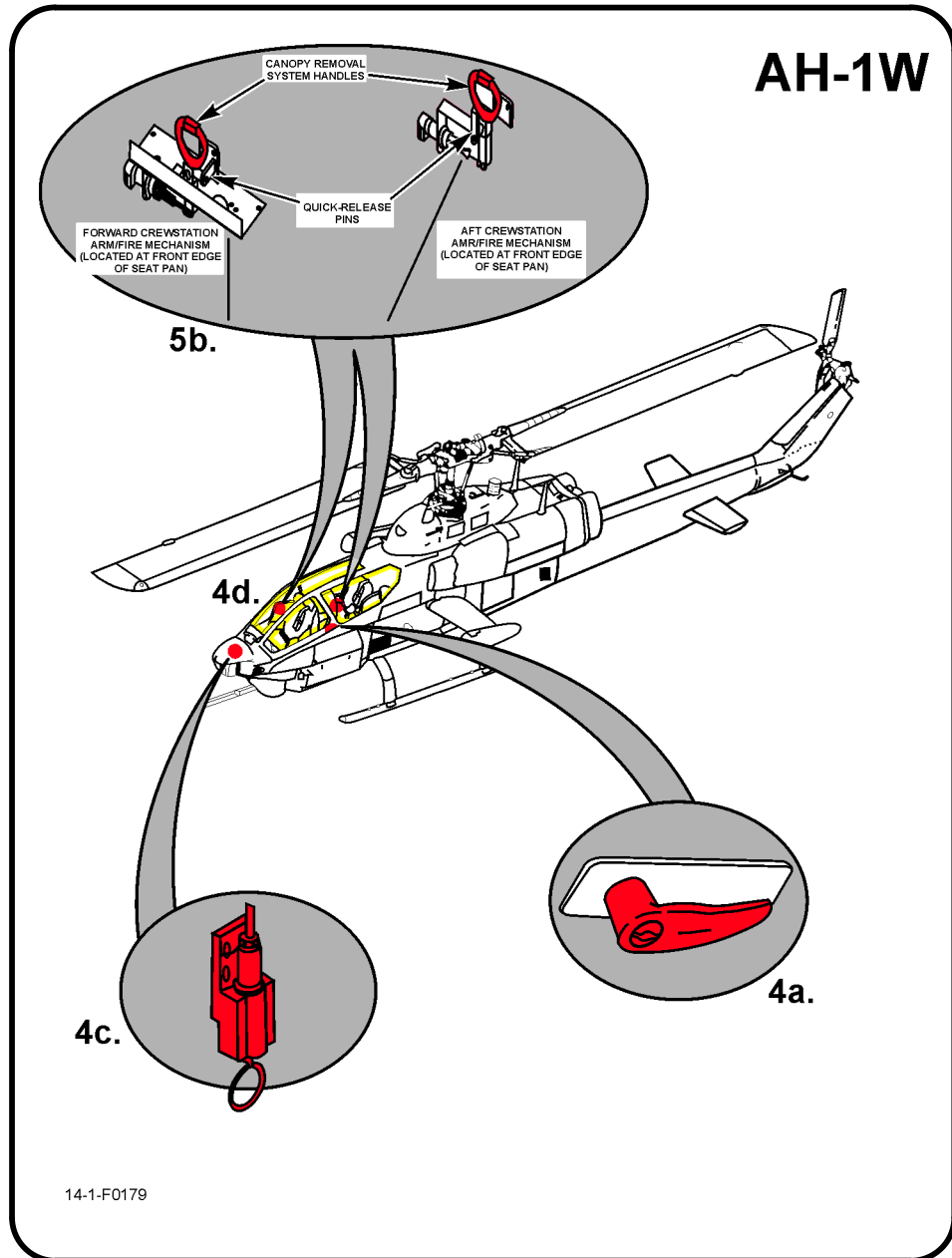
5. CANOPY SAFETY

Canopies have a linear explosive system used to cut the windows from support structure for emergency entrance or exit.

a. N/A

b. JETTISON HANDLE

To safe canopy, INSERT safety pins in pilot's and copilot/gunner's Canopy Jettison Handle.



6. ENGINE SHUTDOWN (NORMAL)

- a. N/A
- b. N/A
- c. **BATTERY SWITCHES**
PLACE Battery Switches in OFF position.
- d. **IDLE STOP RELEASE SWITCH/THROTTLES**

MOVE Idle Stop Release Switch to Engine 1 position and CLOSE Throttle for Engine 1 by TURNING grip to the Right. REPEAT procedure for Engine 2.

Note

Close throttle within 5 seconds after actuating idle stop release.

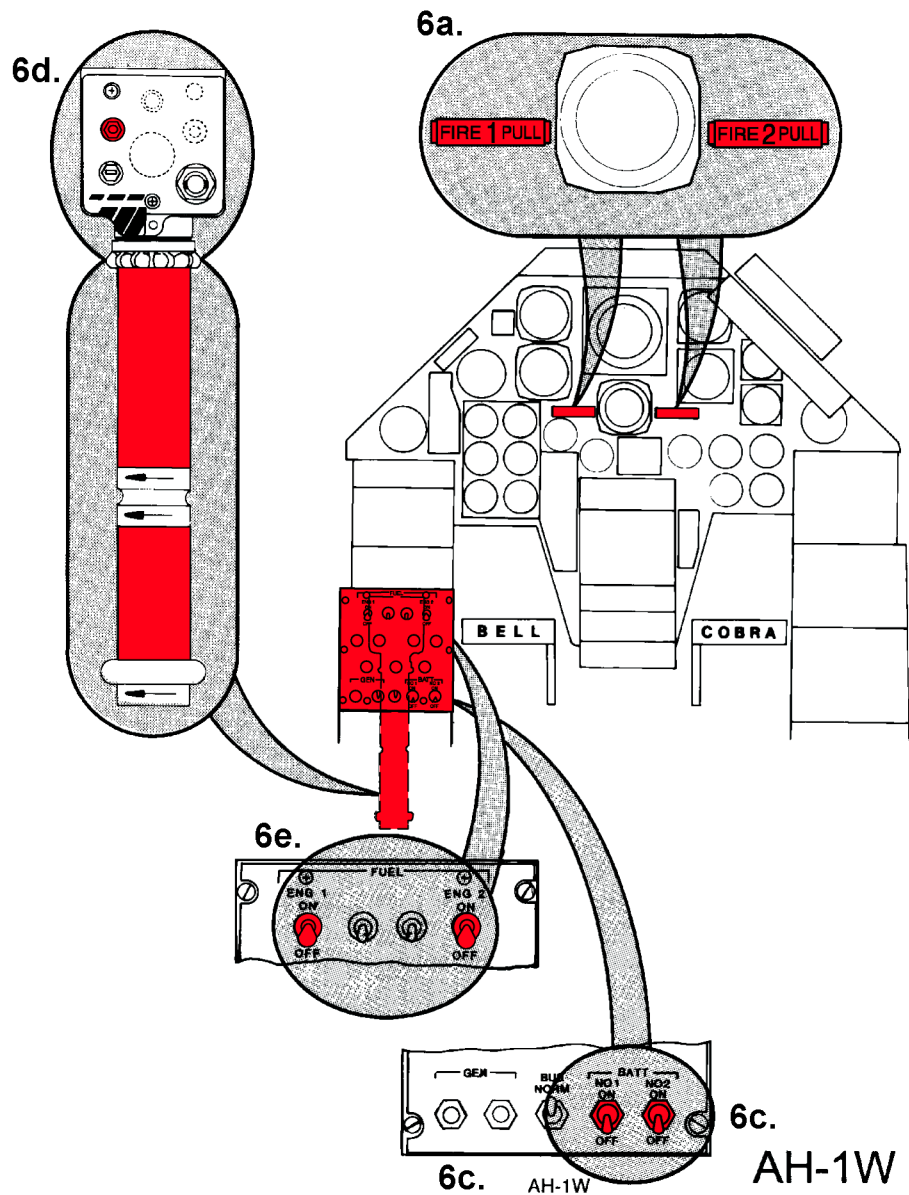
- e. **FUEL SHUTOFF SWITCHES**
PLACE both Engine 1 and 2 Fuel Shutoff Switches in OFF position.
- f. N/A
- g. N/A

6. ENGINE SHUTDOWN (EMERGENCY)

- a. **FIRE PULL HANDLES**
PULL both number 1 and number 2 Fire Pull Handles.
- b. N/A
- c. **BATTERY SWITCHES**
PLACE Battery Switches in OFF position.
- d. N/A
- e. N/A
- f. N/A
- g. N/A

7. BATTERY(ies)

- Disconnect if time permits.
- a. N/A



14-1-F0180

6c. AH-1W

6c. AH-1W

Figure F-3. AH-1W Super Cobra Crash Crew Information (Sheet 5)

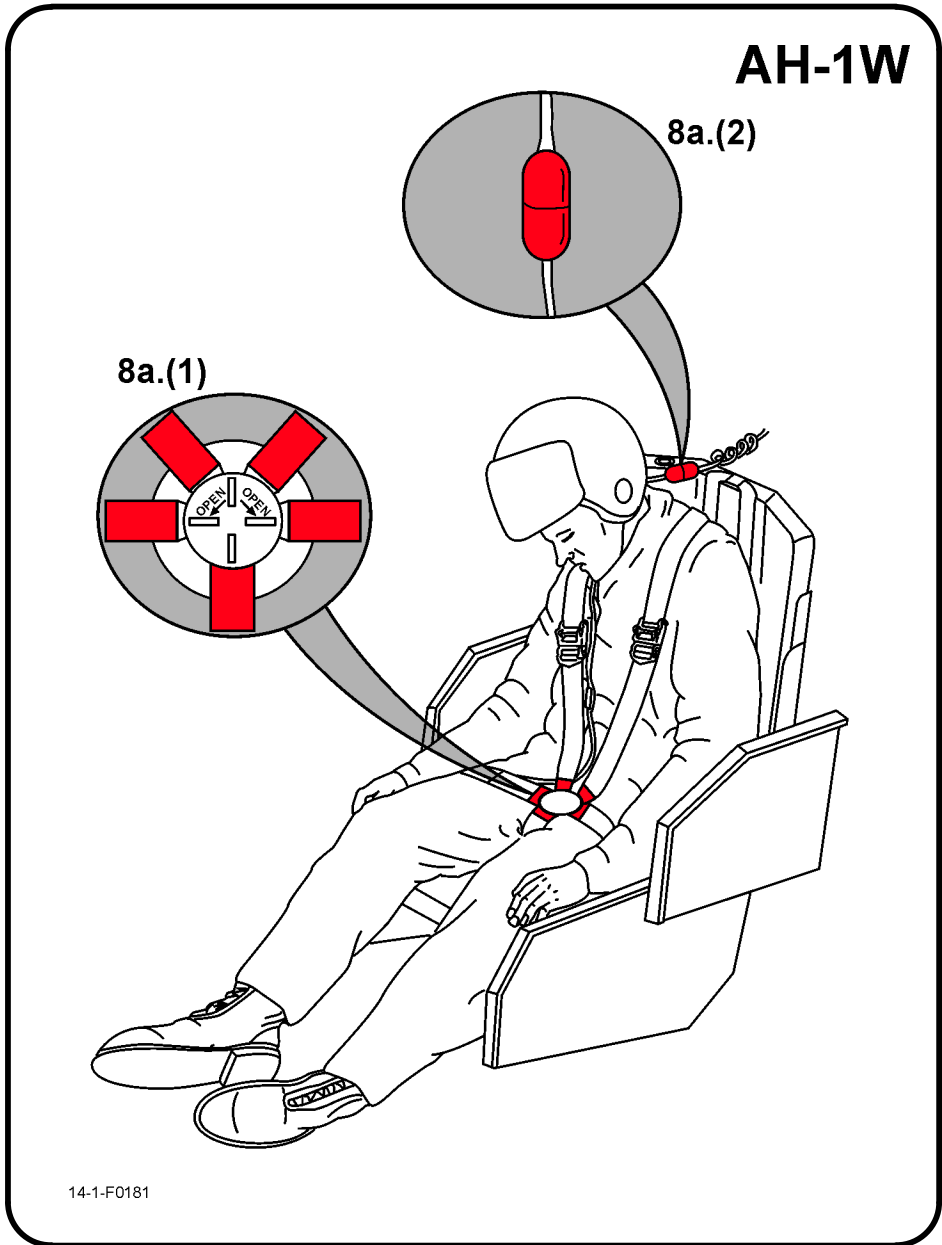
8. CREW RELEASE

Pilot and copilot/gunner are attached to the seats by shoulder harnesses secured to lap belts with quick disconnects.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) TWIST quick disconnect lever to release shoulder harnesses and lap belt.
- (2) MICROPHONE CORD: Disconnect microphone cord prior to lifting crewman from seat.

- b. N/A
- c. N/A
- d. N/A



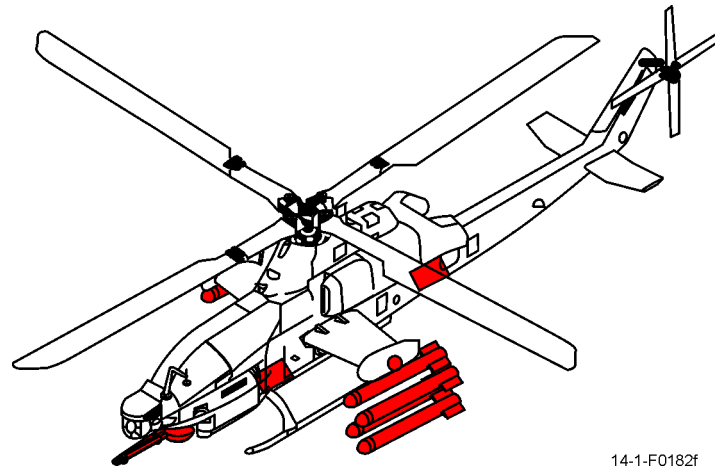
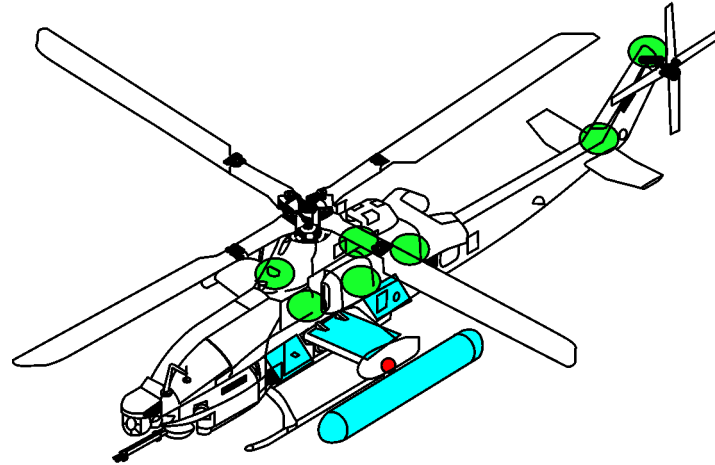
SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- | | |
|---------------------|--|
| a. Armament | 2 Wing Tip Stations (AIM-9)
4 Stub Wing Stations
20mm Nose Gun
Chaff/Flares
Ejector Cartridges (TMS) |
| b. N/A | |
| c. Battery | 1 LH Side of Battery Compartment |
| d. Fuel | Internal 403 gal
External two 100 gal
or
two 77 gal |
| e. Oil | Engine 14 qt
Hydraulic 10.8 qt
Transmission 18.9 qt
Combining Gearbox 18.4 qt |
| f. Pneumatic System | 3000 psi |

AH-1Z



14-1-F0182f

Figure F-4. AH-1Z Super Cobra Crash Crew Information (Sheet 1 of 5)

Figure F-4. AH-1Z Super Cobra Crash Crew Information (Sheet 2)

2. AIRFRAME MATERIALS

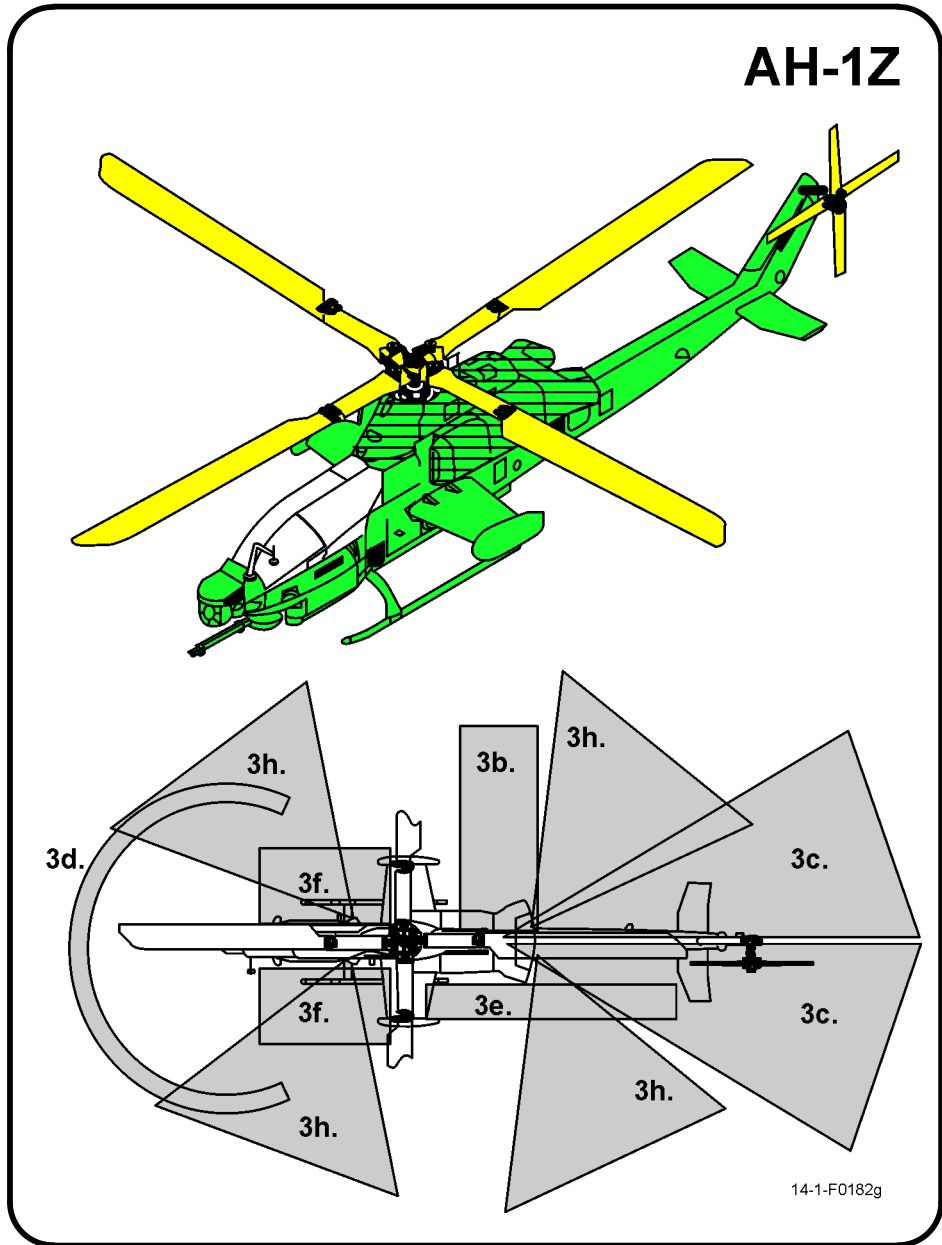
- a. N/A
- b. Other
Carbon Fiber
Composite Materials
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 6'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 24'
- d. Nose Gun
220° Pattern FWD of Gun
50° Below Horizontal Plane
30° Above Horizontal Plane
- e. Missile Exhaust
- f. Missile FWD Fire Zone
- g. Rotors

Rotor Minimum	Main	8'8"
Ground Clearance	Tail	4'7"
Rotor Disc	Main	48'
Diameter	Tail	9'9"

- h. Chaff/Flares



4. AIRCRAFT ENTRY

a. NORMAL ENTRY

The pilot canopy door opening is on the RH side and the copilot/gunner door is on the LH side. Both doors are pneumatically opened and closed from outside. To open either door, TURN door handle and it will automatically raise to full open position.

b. N/A

c. EMERGENCY ENTRY

The external canopy jettison system is located in the nose of the aircraft. OPEN access door, REMOVE safety pin from arm/fire mechanism, ROTATE ring 90° COUNTERCLOCKWISE, and PULL ring to shatter windows.

WARNING

- Do not shatter canopies with fuel in cockpit area, fire or explosion may result. Ensure personnel are clear of cockpit area before utilizing jettison system.
- Personnel within 50 ft of aircraft could be injured by debris when jettison system is used.

d. FORCED ENTRY

Canopies are made of acrylic plastic and may be cut using a power rescue saw or crash axe. CUT along canopy frames.

5. CANOPY SAFETY

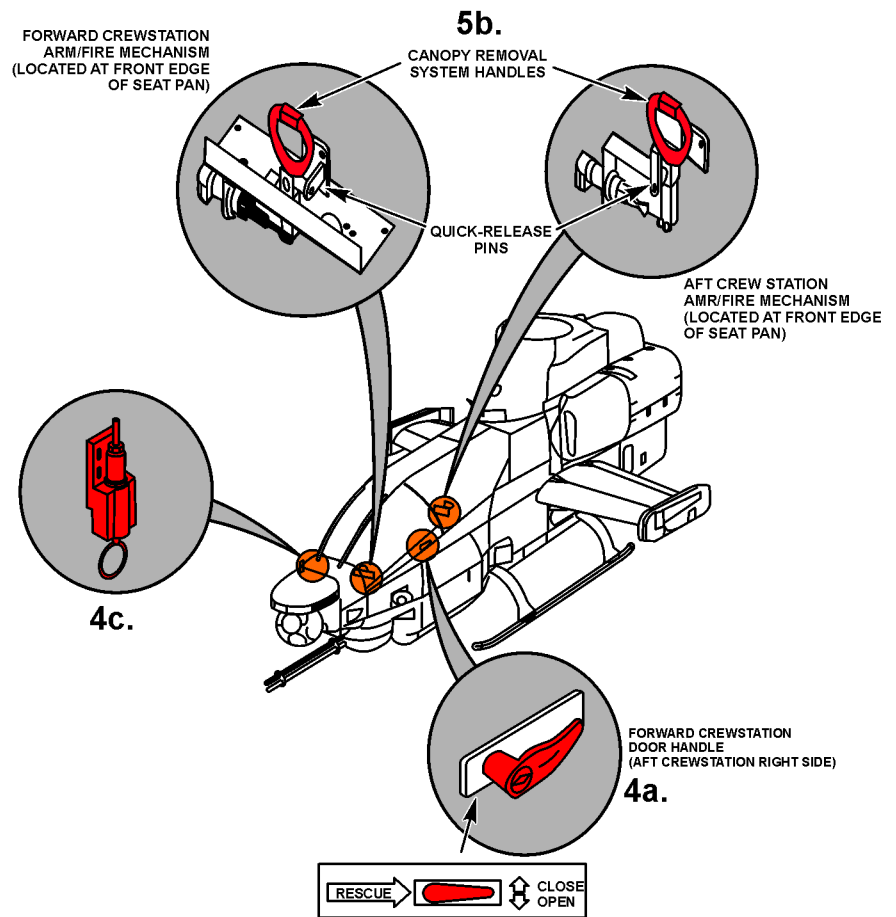
Canopies have a linear explosive system used to cut the windows from support structure for emergency entrance or exit.

a. N/A

b. JETTISON HANDLE

To safety canopy, INSERT safety pins in pilot's and copilot/gunner's Canopy Jettison Handle.

AH-1Z



14-1-F0182h

Figure F-4. AH-1Z Super Cobra Crew Information (Sheet 4)

6. ENGINE SHUTDOWN (NORMAL)

- a. N/A
- b. N/A
- c. **BATTERY PUSH BUTTON**
PUSH Battery button off.
- d. **IDLE STOP RELEASE SWITCH/THROTTLES**
MOVE Idle Stop Release to Engine 1 position (left) and CLOSE Throttle for Engine 1 by TURNING grip to the right. MOVE Idle Stop Release to Engine 2 position (right) and CLOSE Throttle for Engine 2 by TURNING grip to the right.

Note

Close throttle within 5 seconds after actuating idle stop release.

- e. **FUEL SHUTOFF PUSH BUTTONS**
LIFT clear button covers and PUSH fuel shutoff buttons for Engine 1 and 2.
 - f. N/A
 - g. N/A
- 6. ENGINE SHUTDOWN (FIRE EMERGENCY)**
- a. **FIRE PUSH BUTTON ANNUNCIATORS**
LIFT Engine 1 and 2 clear fire button covers and PUSH fire buttons. ARMED light on both push buttons will illuminate, and the READY light will illuminate on the discharge button. PUSH discharge button to discharge fire bottle.
 - b. N/A
 - c. **BATTERY BUTTON**
PUSH Battery button off.
 - d. N/A
 - e. N/A
 - f. N/A
 - g. N/A

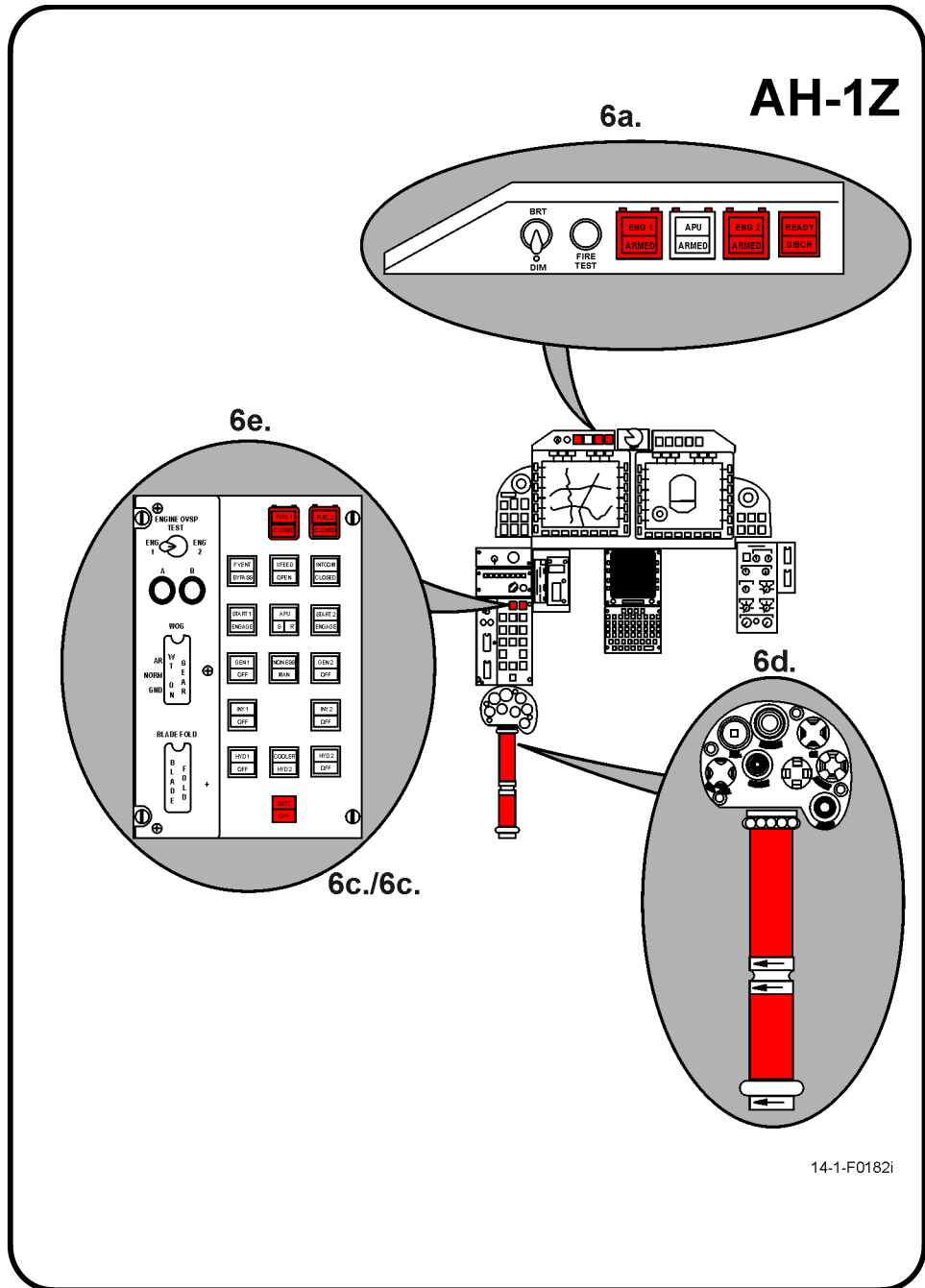


Figure F-4. AH-1Z Super Cobra Crash Crew Information (Sheet 5)

7. BATTERY

Disconnect if time permits

a. N/A

8. CREW RELEASE

Pilot and copilot/gunner are attached to the seats by shoulder harnesses secured to lap belts with quick disconnects.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) TWIST quick disconnect lever to release shoulder harness and lap belt.
- (2) HELMET CORDS: DISCONNECT microphone and helmet cords prior to lifting pilot from seat.

b. N/A

c. N/A

d. N/A

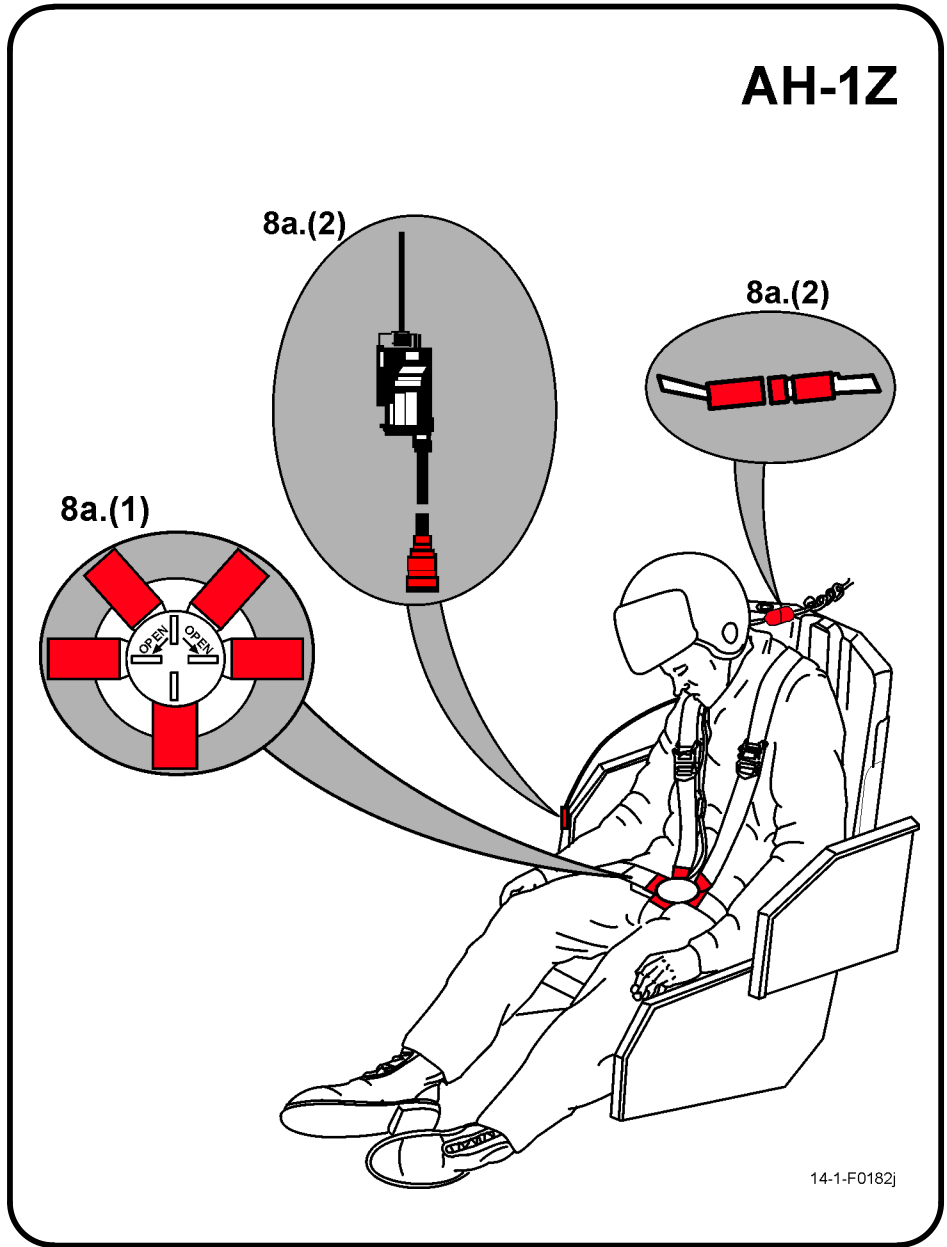


Figure F-5. UH-1N Iroquois/Huey Crash Crew Information (Sheet 1 of 4)

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- a. Armament GAU-16A (50 cal)
GAU-17/A (7.62mm)
M240D (7.62mm)
Rocket LAU-68
- b. N/A
- c. Battery 1
- d. Fuel Internal 212/242 gal
Auxiliary Tanks
165 or 350 gal
- e. Oil Engine 3.25 gal
Hydraulic 4 pt
Transmission 2.35 gal
- f. Pneumatic System 1500 PSI

2. AIRFRAME MATERIALS

- a. N/A
- b. Other Fiberglass
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A

UH-1N

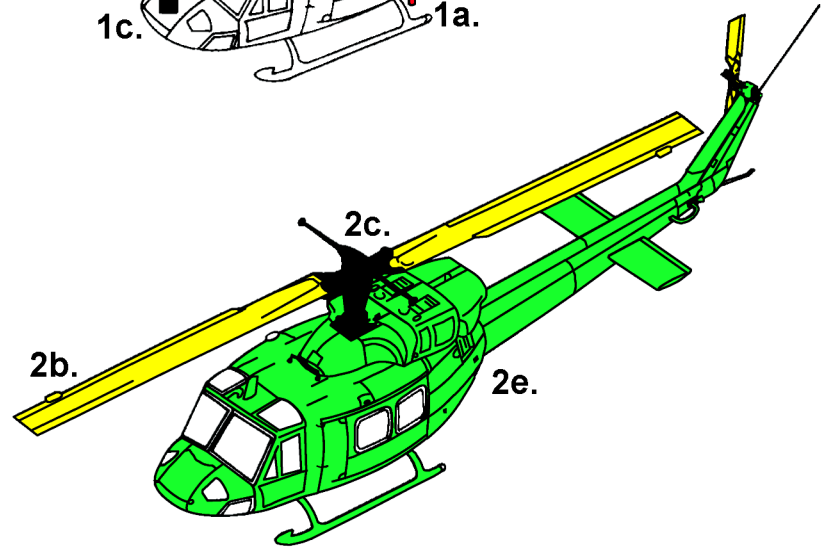
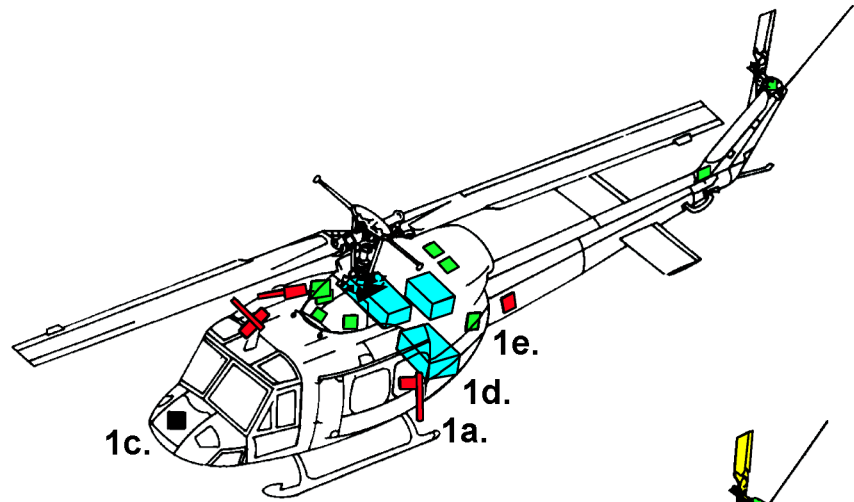


Figure F-5. UH-1N Iroquois/Huey Crash Crew Information (Sheet 2)

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 6'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 23'
- d. Rotors

Rotor Minimum	Main	7'2"
Ground Clearance	Tail	5'11"
Rotor Disc	Main	48'
Diameter	Tail	8'6"

WARNING

Rotor blade may flap down as low as 5 feet.

- e. Guns
 - (1) GAU-16A — 172°
 - (2) GAU-17A — 176°
 - (3) M240D — 172°
- f. Chaff/Flares

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

- (1) ROTATE Crew Door Handle, PULL OUT and FWD to open door (both sides).
- (2) ROTATE Passenger Cargo Door Handle DOWN and SLIDE door AFT to open (both sides).

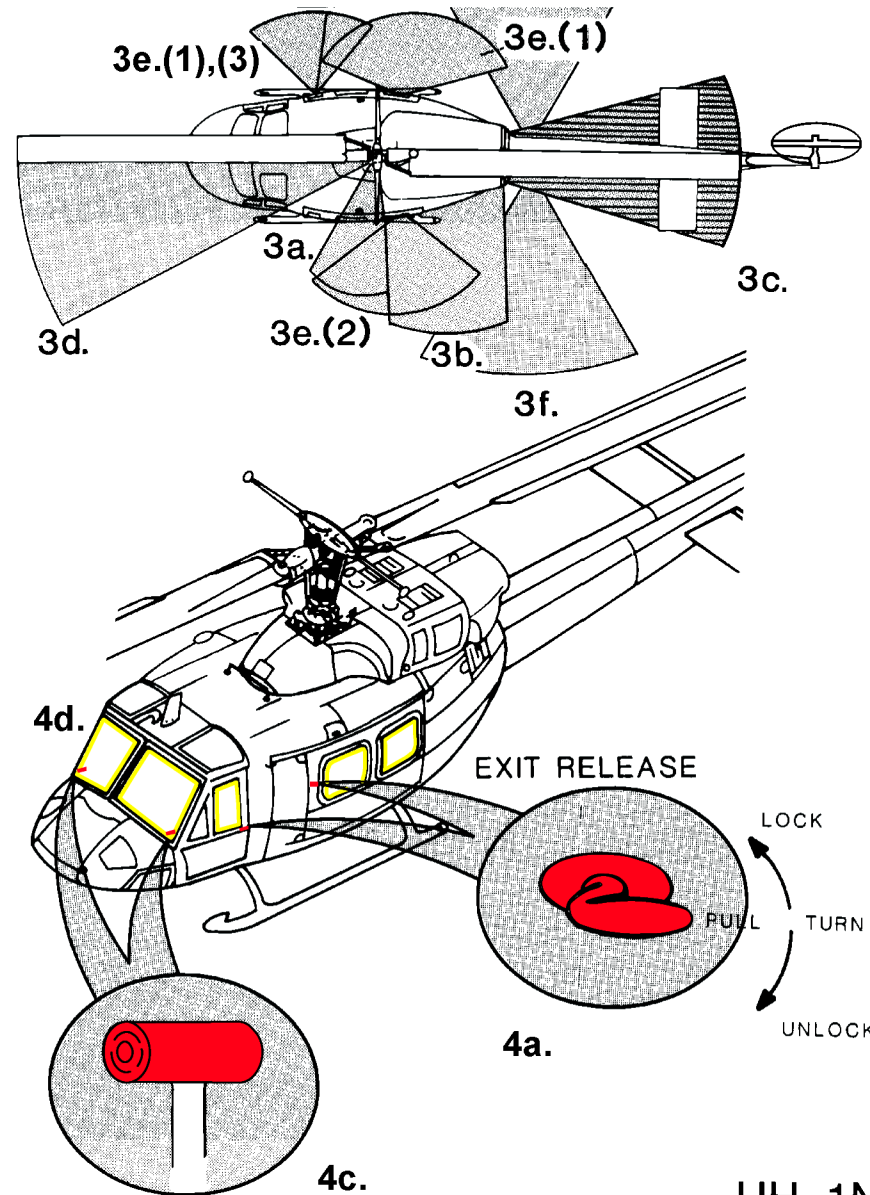
b. N/A

c. EMERGENCY ENTRY

If the pilot/copilot crew exits are jammed and access cannot be gained through the passengers' exits, SLIDE or BREAK the pilot or copilot windows, REACH FWD and PULL jettison able door release. If the doors do not jettison, BREAK the windshield or any other windows to gain entrance.

d. FORCED ENTRY

Windows are made of acrylic plastic and may be cut using a power rescue saw or crash axe. CUT along window frames.



14-1-F0183

UH-1N

Figure F-5. UH-1N Iroquois/Huey Crash Crew Information (Sheet 3)

5. N/A

6. ENGINE SHUTDOWN

a. CYCLE CONTROL STICK

CENTER either Cycle Control Stick and HOLD.

b. COLLECTIVE PITCH LEVER

PUSH the Collective Pitch Lever Down into DOWN LOCK.

c. BATTERY SWITCH

PLACE Battery Switch in OFF position.

d. THROTTLES/ENGINE IDLE RELEASE STOP SWITCHES

ENGAGE Engine 1 Idle Release Stop Switch (on pilot's collective only) then CLOSE Throttle 1 by TWISTING grip to RIGHT to shut down engine 1. REPEAT procedure for engine 2.

e. FUEL SHUTOFF SWITCHES

PLACE Engine 1, Engine 2, and Crossfeed Fuel Control Switches in OFF position.

f. ROTOR BRAKE

PULL DOWN on Rotor Brake Actuator Handle to position of greatest pressure and HOLD until rotor stops turning.

g. N/A

7. BATTERY

Battery is located in the nose compartment. Disconnect, time permitting.

a. N/A

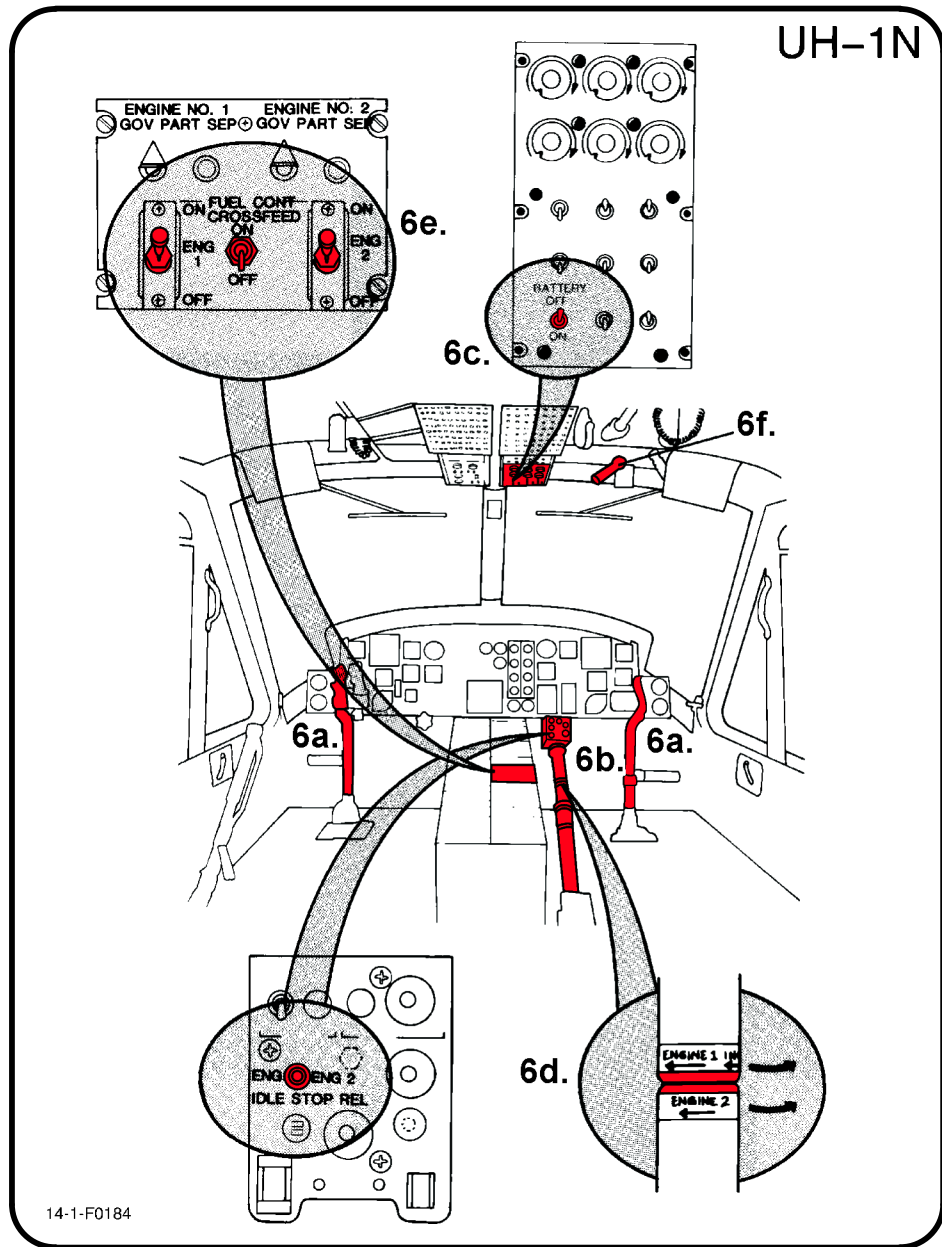


Figure F-5. UH-1N Iroquois/Huey Crash Crew Information (Sheet 4)

8. CREW RELEASE

The pilot/copilot are attached to the seats by shoulder harnesses secured to lap belt with quick disconnects. Passengers have lap belts only.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) LIFT quick disconnect lever to release shoulder harnesses and lap belt.
- (2) PASSENGER: LIFT buckle cover to release lap belt (airline type).

- b. N/A
- c. N/A
- d. N/A

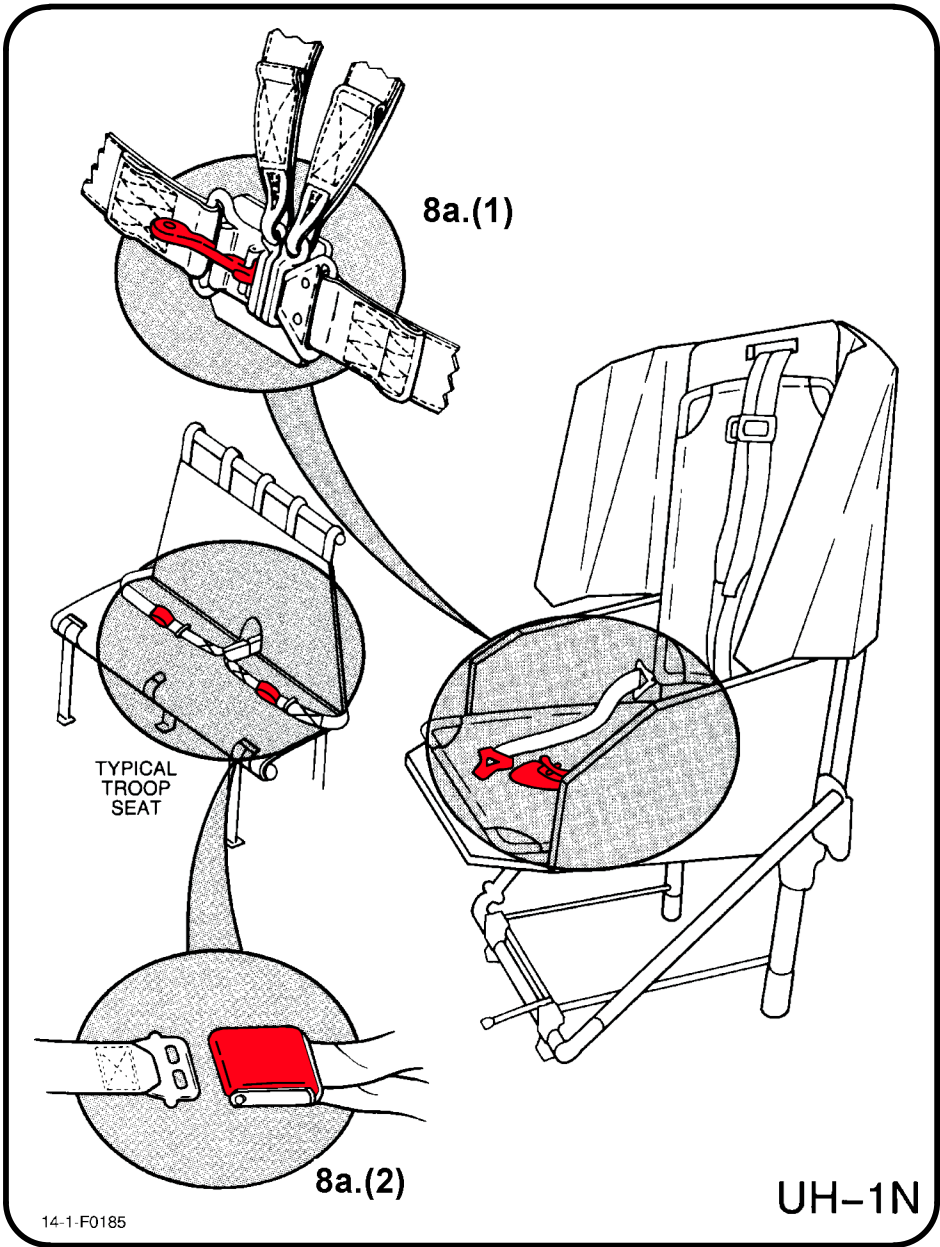


Figure F-6. UH-1Y Super Cobra Crash Crew Information (Sheet 1 of 5)

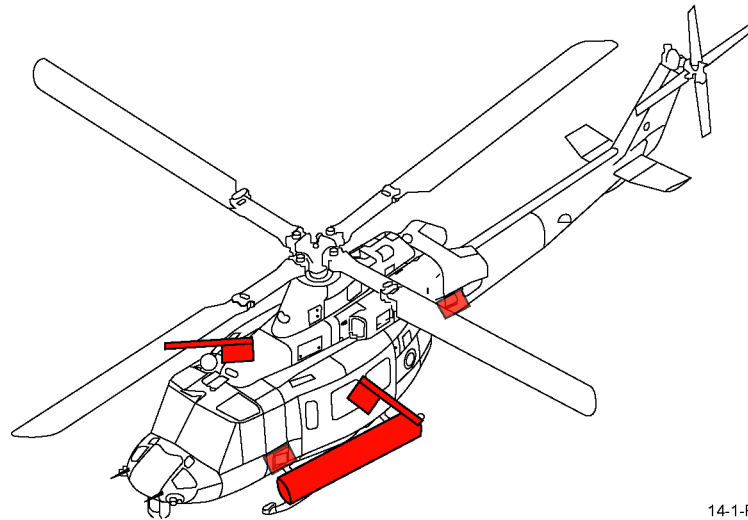
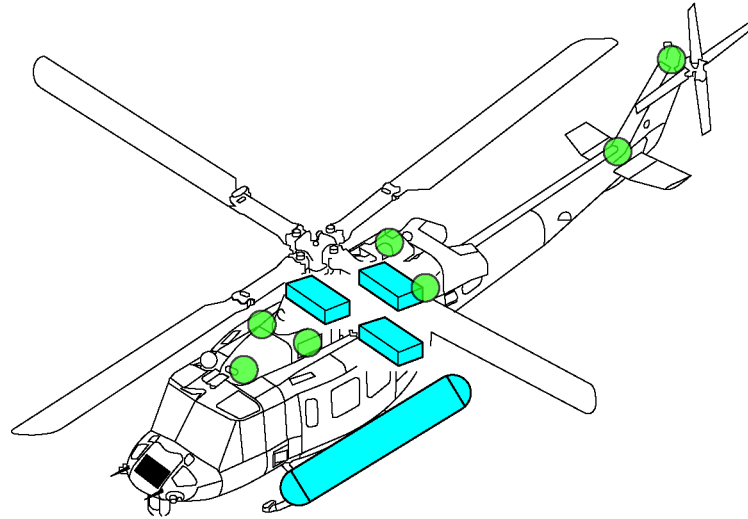
SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- a. Armament █ GAU-16 (.50)
GAU-17 (7.62)
M240 (7.62)
Rocket Pods
Chaffs/Flares
Ejector Cartridges (TMS)
- b. N/A
- c. Battery █ 1 Nose Compartment
- d. Fuel █ Internal 385 gal
External two 77 gal
- e. Oil █ Engine 14 qt
Hydraulic 10.8 qt
Transmission 18.9 qt
Combining Gearbox 18.4 qt
- f. Pneumatic System 3000 psi

UH-1Y



14-1-F0182a

Figure F-6. UH-1Y Super Cobra Crash Crew Information (Sheet 2)

2. AIRFRAME MATERIALS

- a. N/A
- b. Other
 - Carbon Fiber
 - Composite Materials
- c. Steel
- d. N/A
- e. Aluminum
- f. N/A
- g. N/A

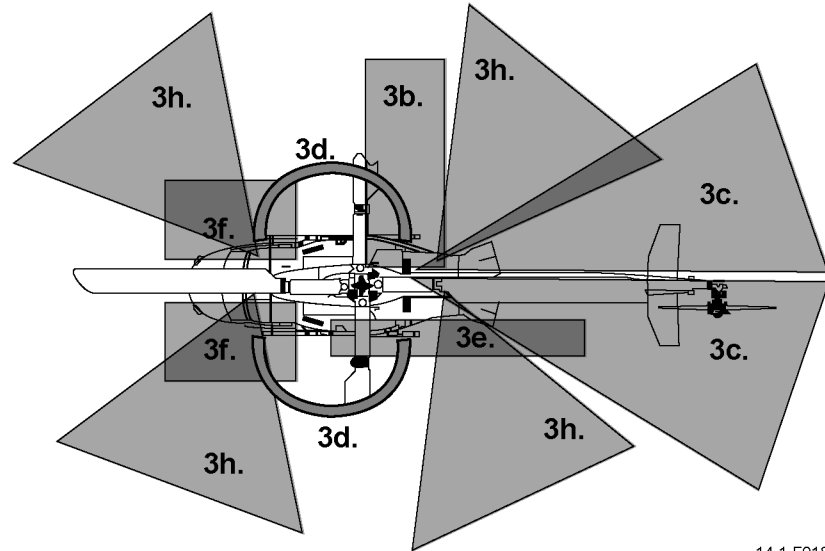
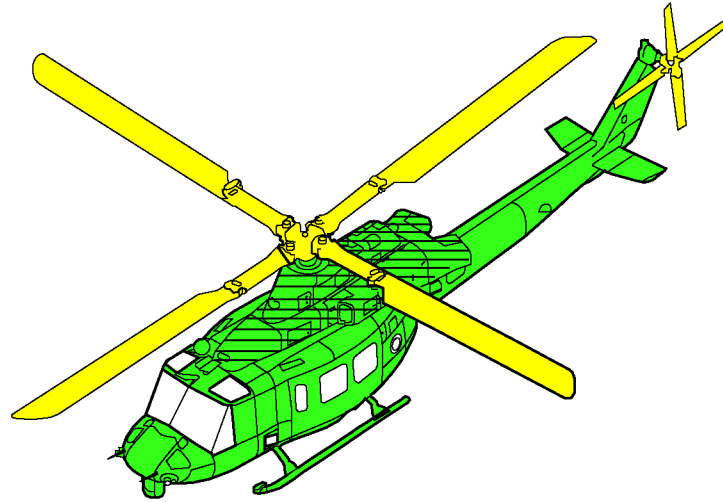
3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 6'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 24'
- d. Guns
 - (1) GAU-16 — 172°
 - (2) GAU-17 — 176°
 - (3) M240 — 172°
- e. Rocket Exhaust
- f. Rocket FWD Fire Zone
- g. Rotors

Rotor Minimum	Main	8'7"
Ground Clearance	Tail	4'10"
Rotor Disc	Main	48'
Diameter	Tail	9'9"

- h. Chaff/Flares

UH-1Y



14-1-F0182b

Figure F-6. UH-1Y Super Cobra Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY**a. NORMAL ENTRY**

- (1) ROTATE Crew Door Handle, PULL OUT and FWD to open door (both sides).
- (2) ROTATE Passenger Cargo Door Handle DOWN and SLIDE door AFT to open (both sides).

b. N/A**c. EMERGENCY ENTRY**

If the pilot/copilot crew exits are jammed and access cannot be gained through the passengers' exits, SLIDE or BREAK the pilot or copilot windows, REACH FWD and PULL jettisonable door release. If the doors do not jettison, BREAK the windshield or any other windows to gain entrance.

d. FORCED ENTRY

Windows are made of acrylic plastic and may be cut using a power rescue saw or crash axe. CUT along window frames.

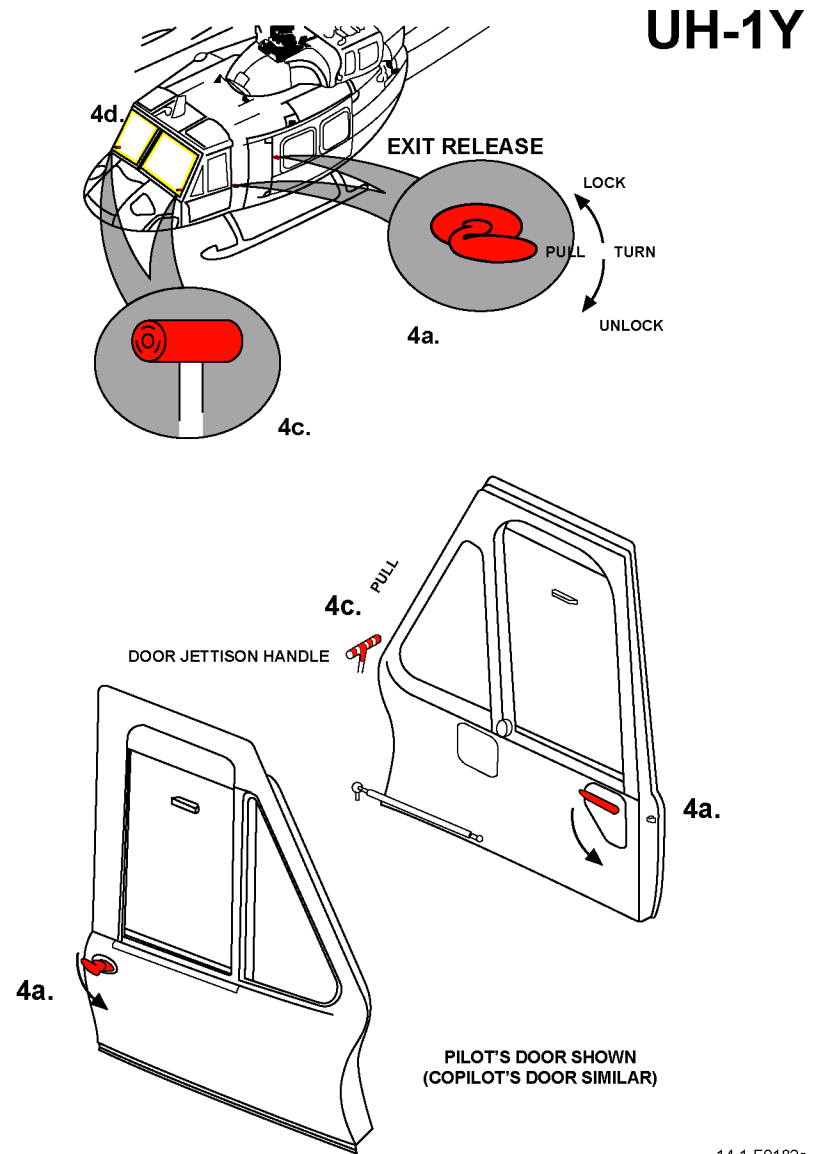
5. N/A

Figure F-6. UH-1Y Super Cobra Crash Crew Information (Sheet 4)

6. ENGINE SHUTDOWN (NORMAL)

- a. N/A
- b. N/A
- c. **BATTERY PUSH BUTTON**
PUSH Battery button off.
- d. **IDLE STOP RELEASE SWITCH/THROTTLES**

MOVE Idle Stop Release to Engine 1 position (left) and CLOSE Throttle for Engine 1 by TURNING grip to the right. MOVE Idle Stop Release to Engine 2 position (right) and CLOSE Throttle for Engine 2 by TURNING grip to the right.

Note

Close throttle within 5 seconds after actuating idle stop release.

- e. **FUEL SHUTOFF PUSH BUTTONS**
LIFT clear button covers and PUSH fuel shutoff buttons for Engine 1 and 2.
- f. N/A
- g. N/A

6. ENGINE SHUTDOWN (FIRE EMERGENCY)

- a. **FIRE PUSH BUTTON ANNUNCIATORS**
LIFT Engine 1 and 2 clear fire button covers and PUSH fire buttons. ARMED light on both push buttons will illuminate, and the READY light will illuminate on the discharge button. PUSH discharge button to discharge fire bottle.
- b. N/A
- c. **BATTERY BUTTON**
PUSH Battery button off.
- d. N/A
- e. N/A
- f. N/A
- g. N/A

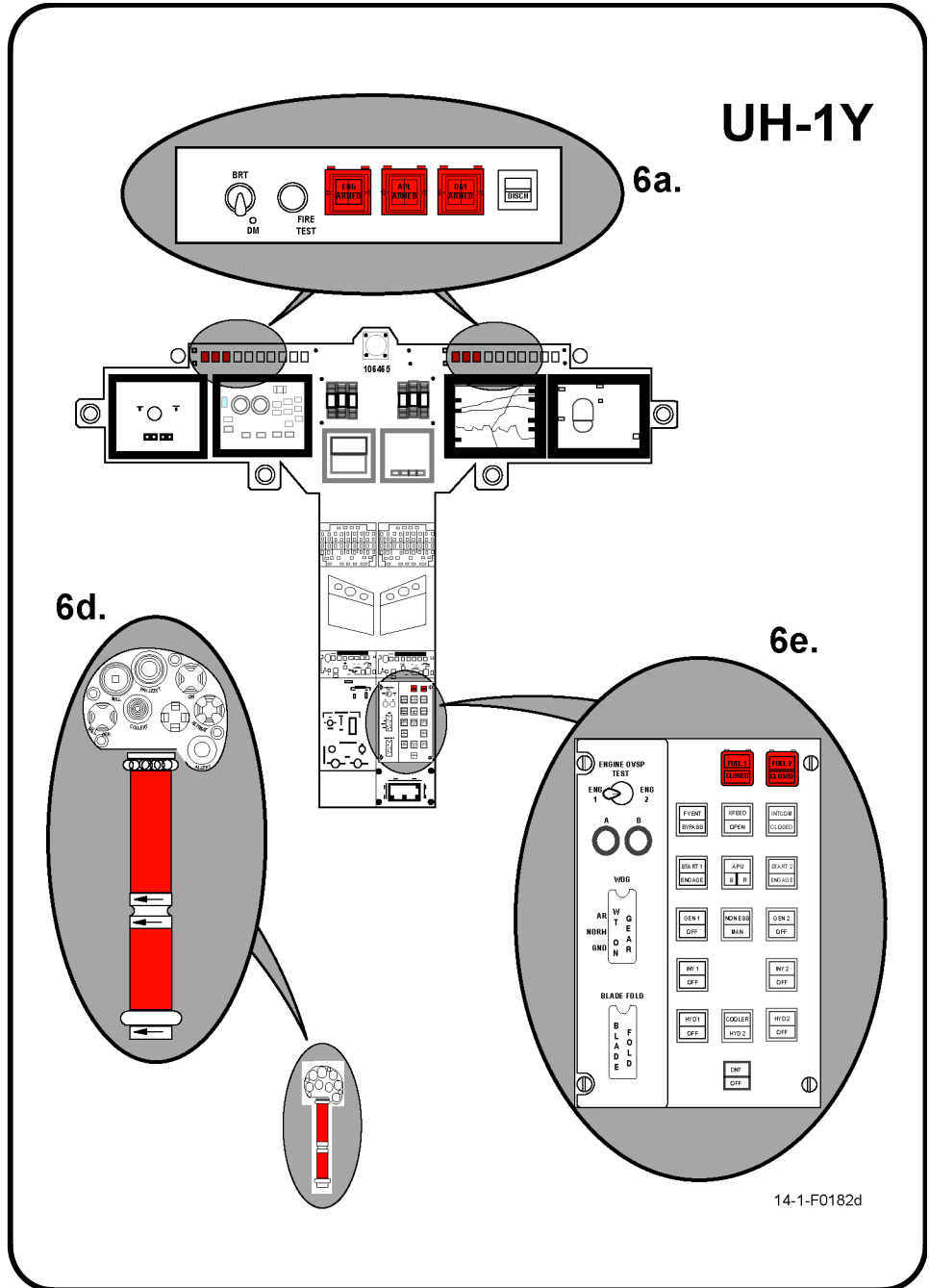


Figure F-6. UH-1Y Super Cobra Crash Crew Information (Sheet 5)

7. BATTERY

Disconnect if time permits

a. N/A

8. CREW RELEASE

Pilot and copilot/gunner are attached to the seats by shoulder harnesses secured to lap belts with quick disconnects.

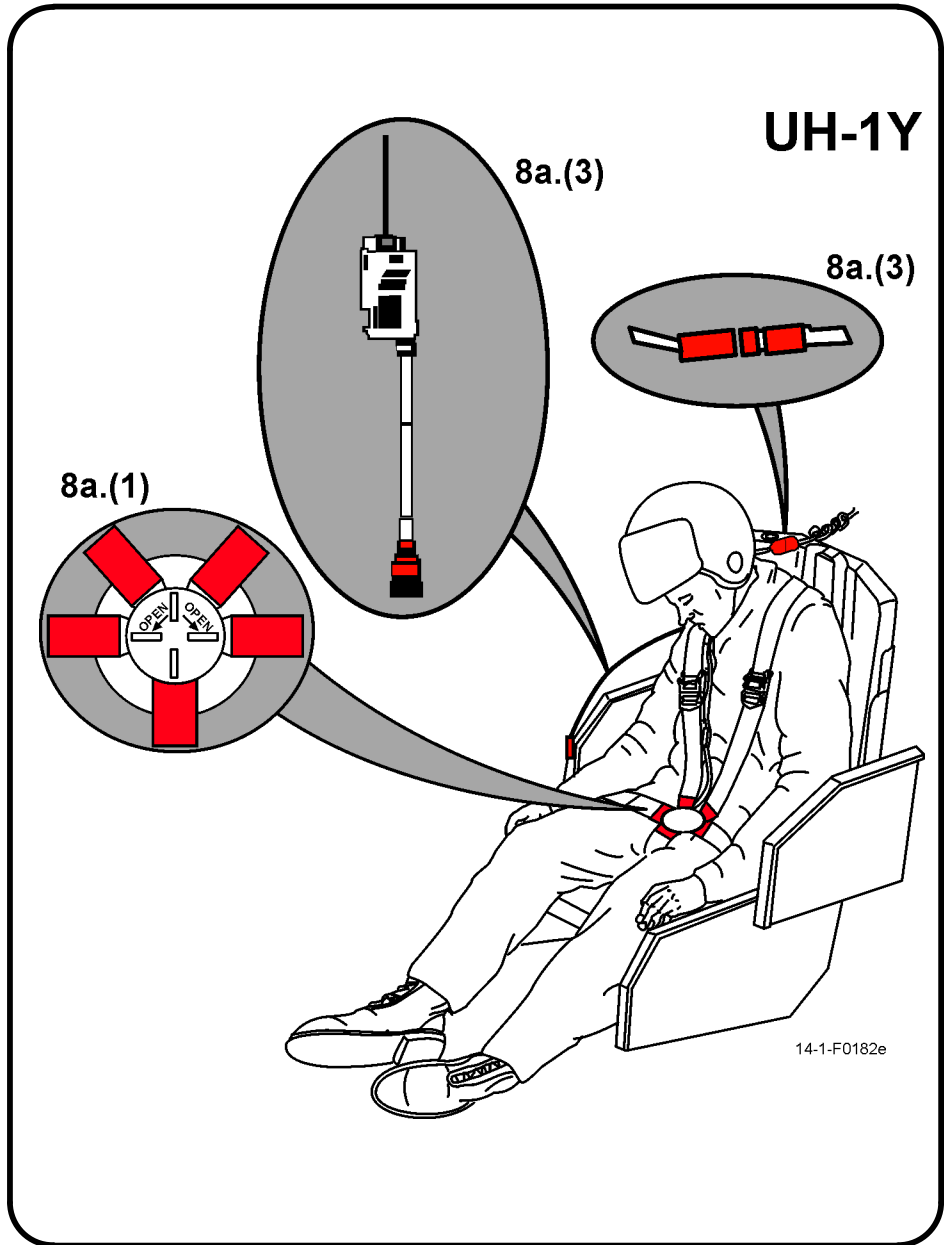
a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) TWIST quick disconnect lever to release shoulder harness and lap belt.
- (2) PASSENGER RESTRAINTS: TWIST quick disconnect lever to release shoulder harness and lap belt.
- (3) HELMET CORDS: DISCONNECT microphone and helmet cords prior to lifting pilot from seat.

b. N/A

c. N/A

d. N/A



SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

a. Armament █ Launcher Ejector Cartridges
Sonobuoy Launcher (H-3)
Chaff Dispensers (H-3)
Marine Marker Launcher
Smoke Marker Launcher System
Torpedoes

b. N/A

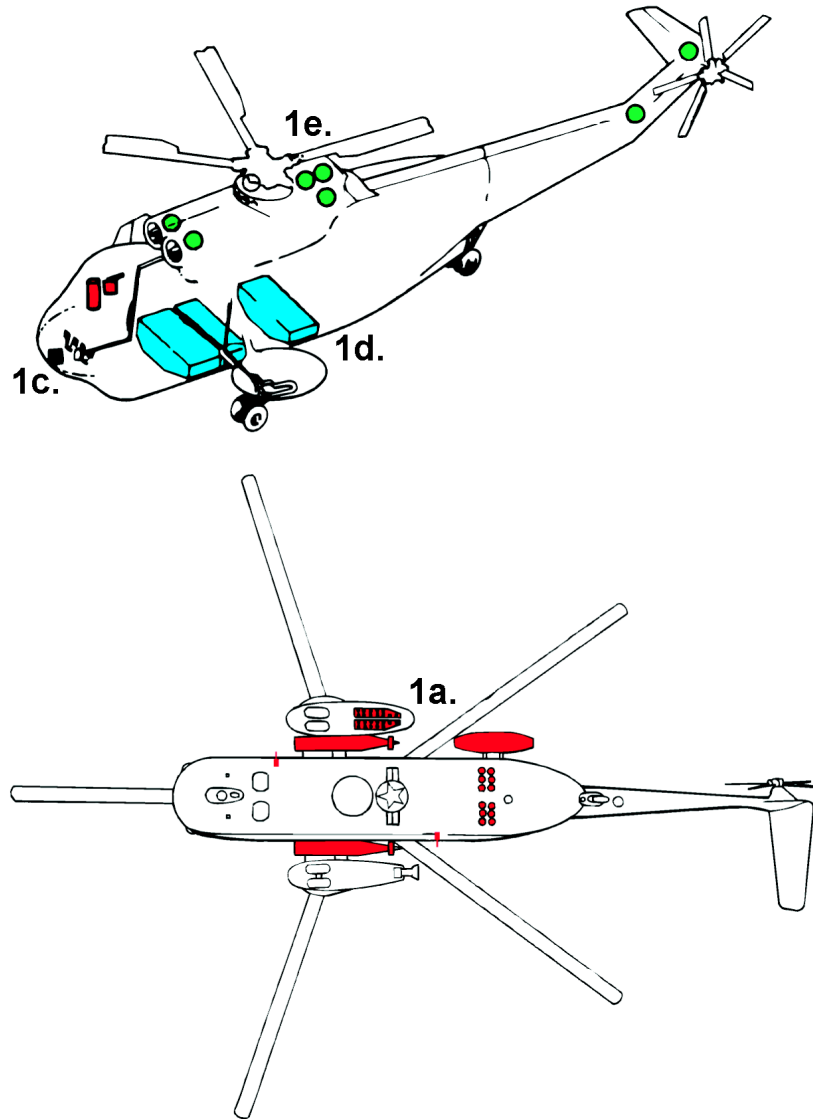
c. Battery █ 1

d. Fuel █ Internal
848 gal

e. Oil █ Engine 5.4 gal
Hydraulic 2 gal
Transmission 11 gal

f. Pneumatic System 3000 PSI

H-3



14-1-F0191

Figure F-7. H-3 Sea King Crash Crew Information (Sheet 1 of 6)

Figure F-7. H-3 Sea King Crash Crew Information (Sheet 2)

2. AIRFRAME MATERIALS

- a. N/A
- b. Other
Fiberglass/Magnesium
- c. Steel
- d. Titanium
- e. Aluminum
- f. N/A
- g. N/A

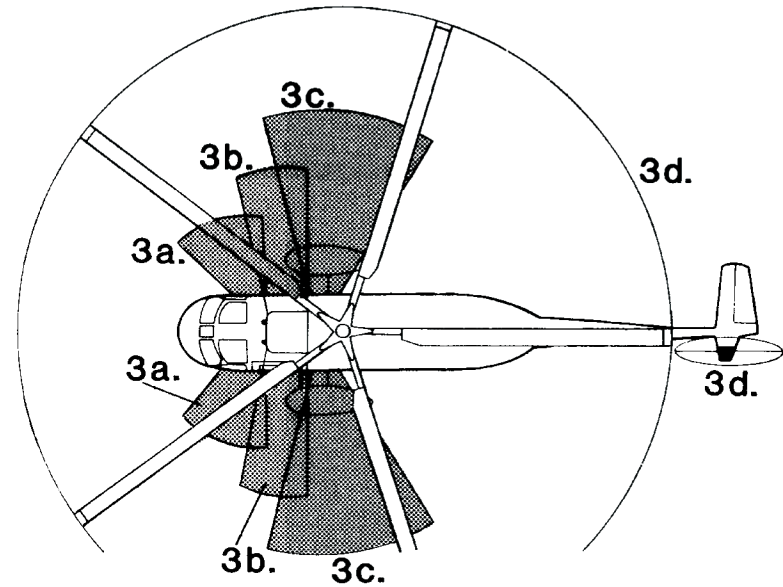
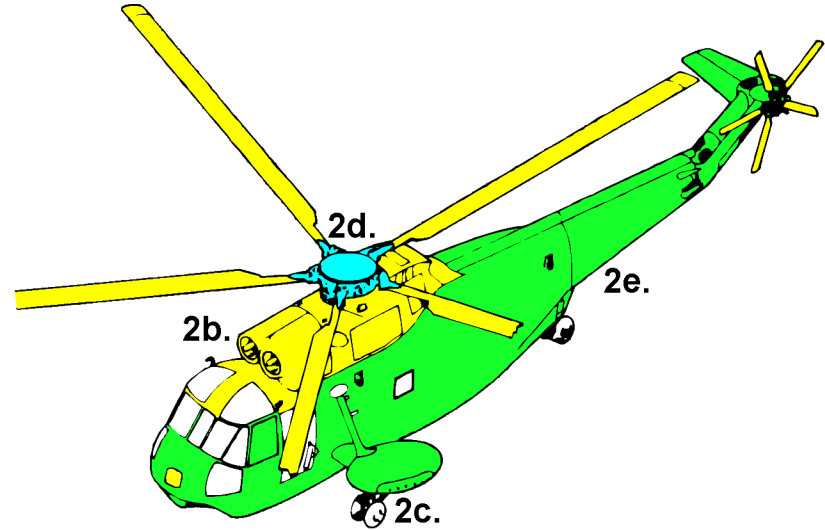
Note

Gear boxes are made of magnesium.

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 4'
- b. Turbine Blade Failure
- c. Engine Exhaust — 20'
- d. Rotors

Rotor Minimum	Main	9'1"
Ground Clearance	Tail	6'6"
Rotor Disc	Main	62'
Diameter	Tail	10'6"



14-1-F0192

H-3

Figure F-7. H-3 Sea King Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

- (1) Enter through the personnel door on LH side of aircraft. The upper door may be opened at center of door below window by turning handle. To open, PUSH FWD part of handle and TURN COUNTERCLOCKWISE.

Note

On helicopters not modified by AFC No. 301, the upper door handle is located in well at AFT bottom of window.

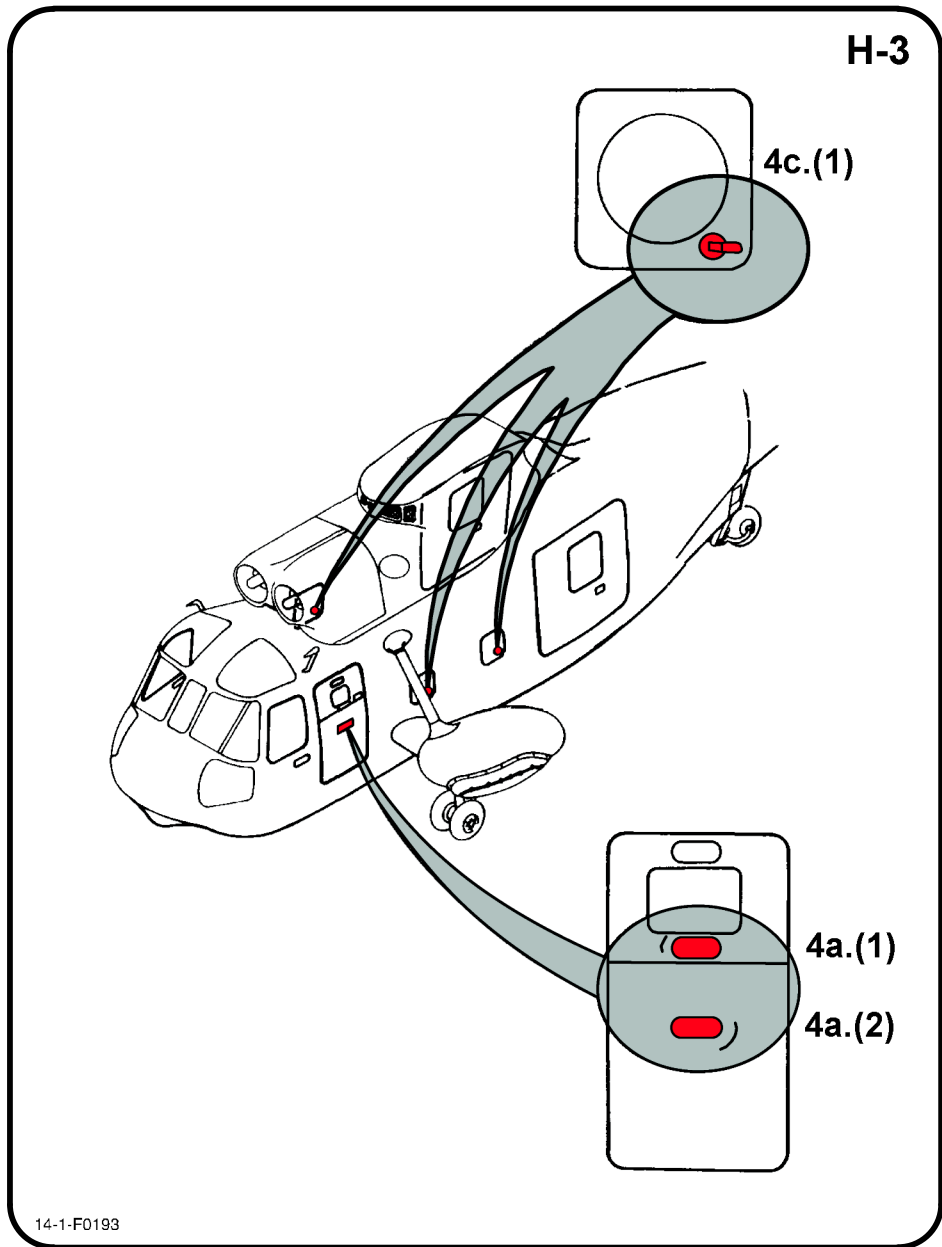
- (2) The lower door may be opened by turning handle at center of door. To open, PUSH FWD part of handle, TURN COUNTERCLOCKWISE and PULL door open.

b. N/A

c. EMERGENCY ENTRY

For emergency access, cabin windows, cabin doors, and pilot/copilot's jettison able windows may be opened from the outside.

- (1) Cabin windows are equipped with pull tab, lower AFT corner. To open, PULL tab and PUSH panel INWARD.



14-1-F0193

Figure F-7. H-3 Sea King Crash Crew Information (Sheet 4)

4. AIRCRAFT ENTRY (CONT.)**c. EMERGENCY ENTRY (CONT.)**

- (2) To gain access through the window in the cabin door (RH side of aircraft), TURN handle (lower AFT corner) CLOCKWISE and PULL.

Note

UH-3A has 2 cabin doors, one on each side of aircraft. RH door operates as described in 4b.(2). LH door, upper section, opens by turning handle FWD.

- (3) To jettison pilot/copilot windows PRESS handle to extend, then TURN handle COUNTERCLOCKWISE and PULL window OUTWARD.
- (4) Upper half of personnel door may be removed by ROTATING handle DOWN.

d. FORCED ENTRY

Windows are made of acrylic plastic and may be cut using a power rescue saw or crash axe. Areas marked on fuselage CUT HERE also may be cut for access. CUT along window frames and marked fuselage entry areas only.

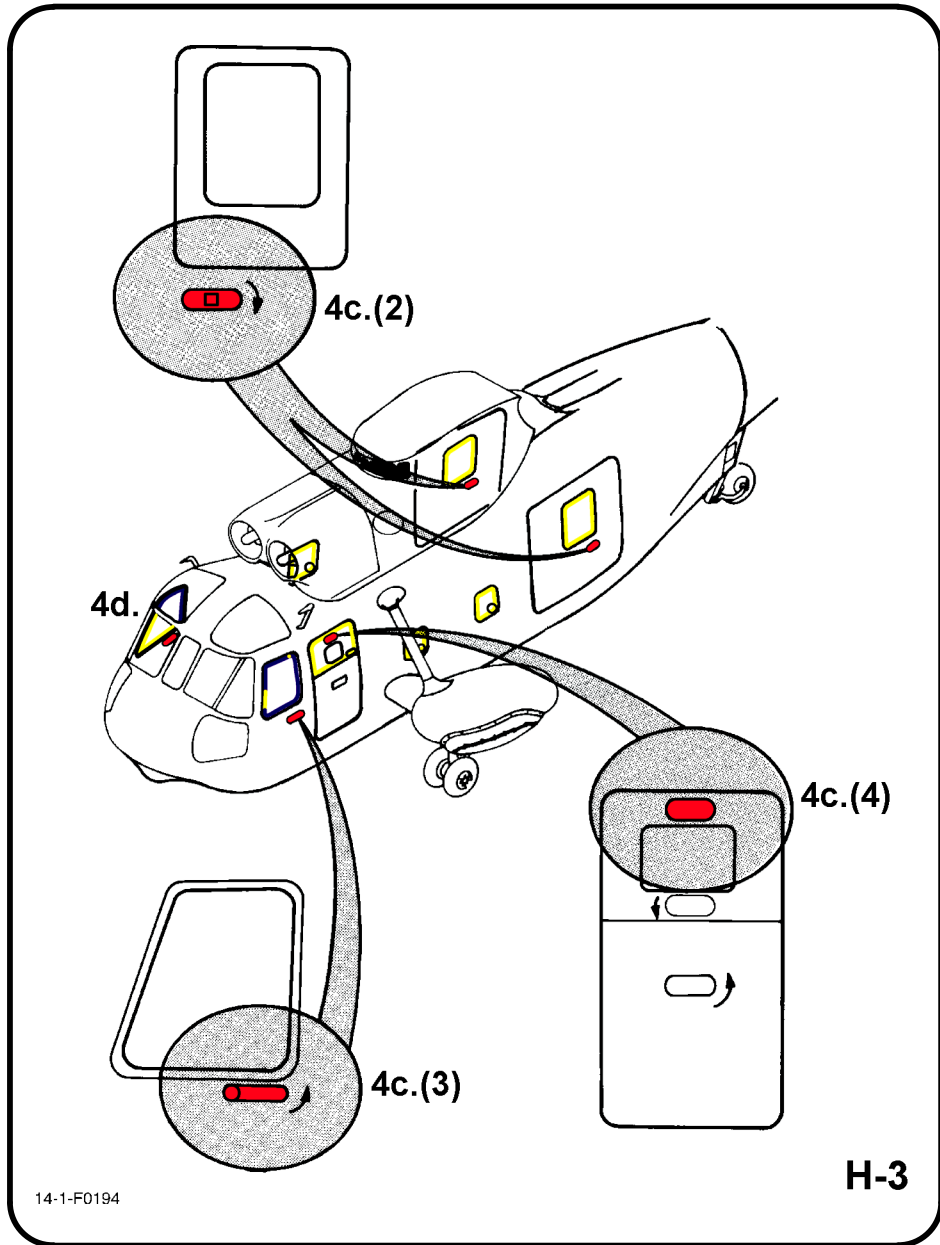
5. N/A

Figure F-7. H-3 Sea King Crash Crew Information (Sheet 5)

F-27

ORIGINAL

6. ENGINE SHUTDOWN

Engine may be shut down by engine speed selector levers fuel shutoff handles located on the center overhead control panel.

a. ENGINE SPEED SELECTOR LEVERS

PLACE Selector Levers in SHUTOFF position by PULLING Speed Handles AFT.

Note

A limit stop or friction control prevents inadvertent retarding of speed selector below ground idle. PULLING speed selector down bypasses this stop.

b. N/A

c. BATTERY SWITCH

PLACE Battery Switch in OFF position.

d. N/A

e. N/A

f. N/A

g. N/A

7. BATTERY

The battery is located in the nose section FWD of the pilot's compartment and is accessible from outside.

a. N/A

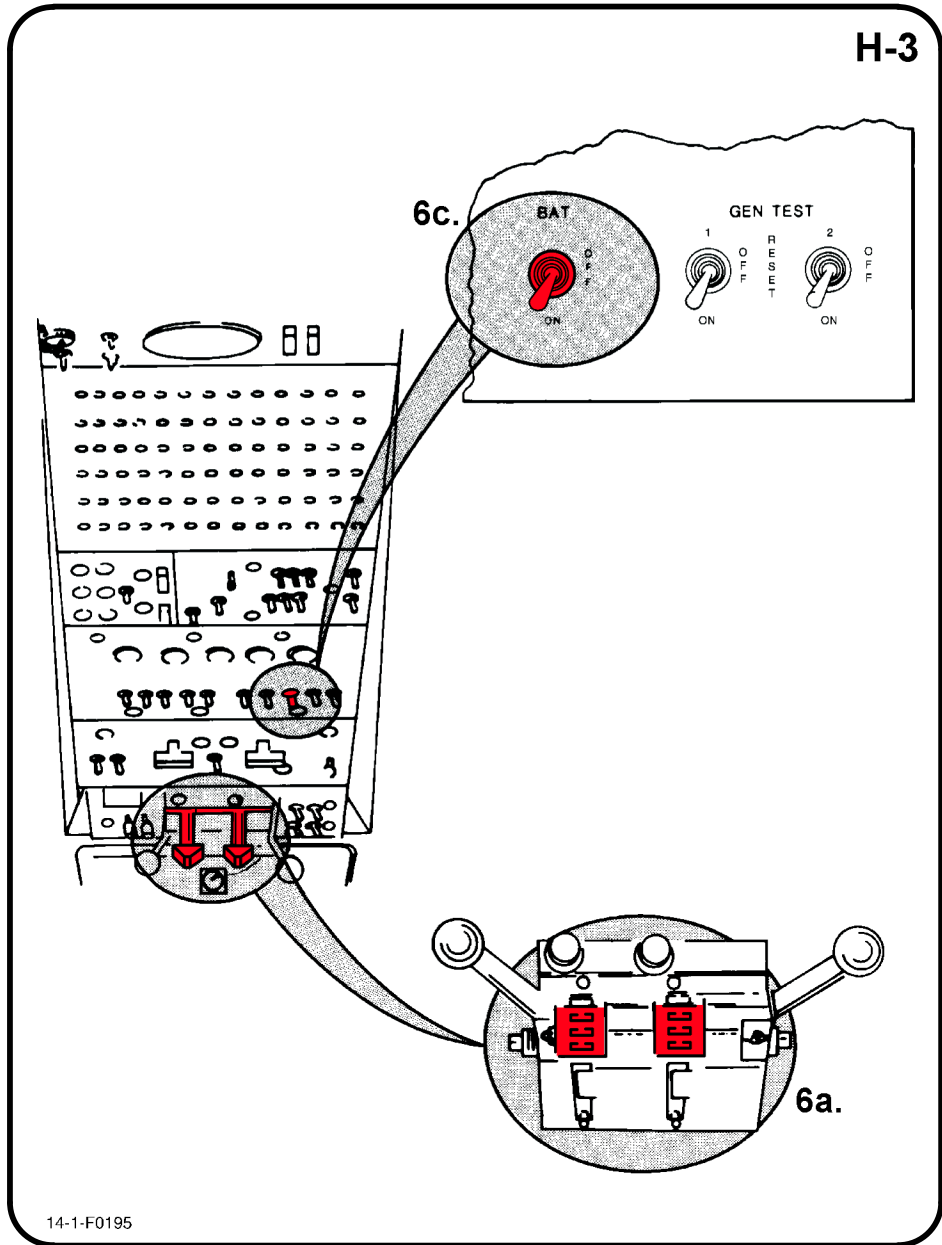


Figure F-7. H-3 Sea King Crash Crew Information (Sheet 6)

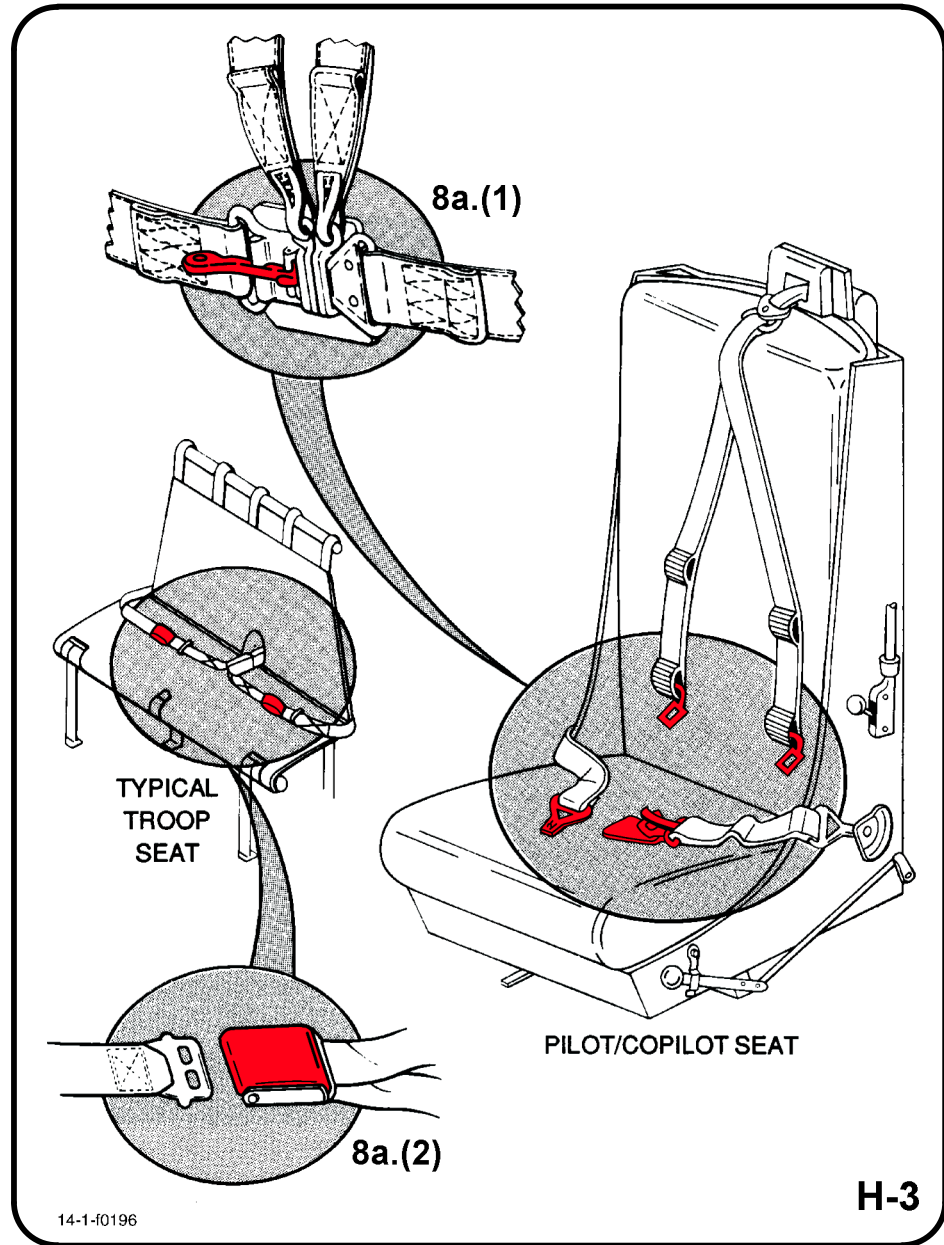
8. CREW RELEASE

The pilot, copilot, and sensor operators are attached to the seat by shoulder harnesses secured to a lap belt equipped with a quick disconnect buckle. Passengers have lap belts only.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) LIFT quick disconnect lever to release shoulder harnesses and lap belt.
- (2) TROOP: LIFT buckle cover to release lap belt (airline type).

- b. N/A
- c. N/A
- d. N/A



14-1-f0196

H-3

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

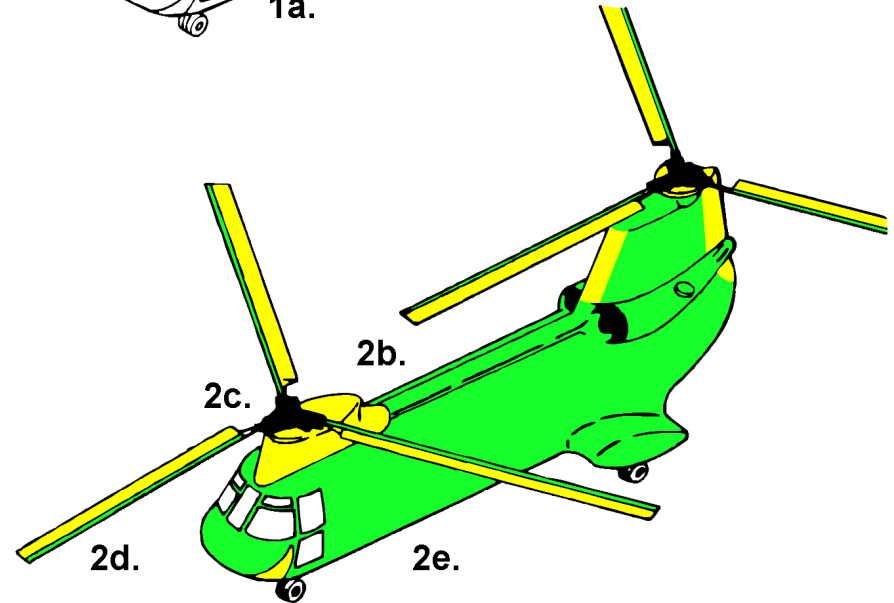
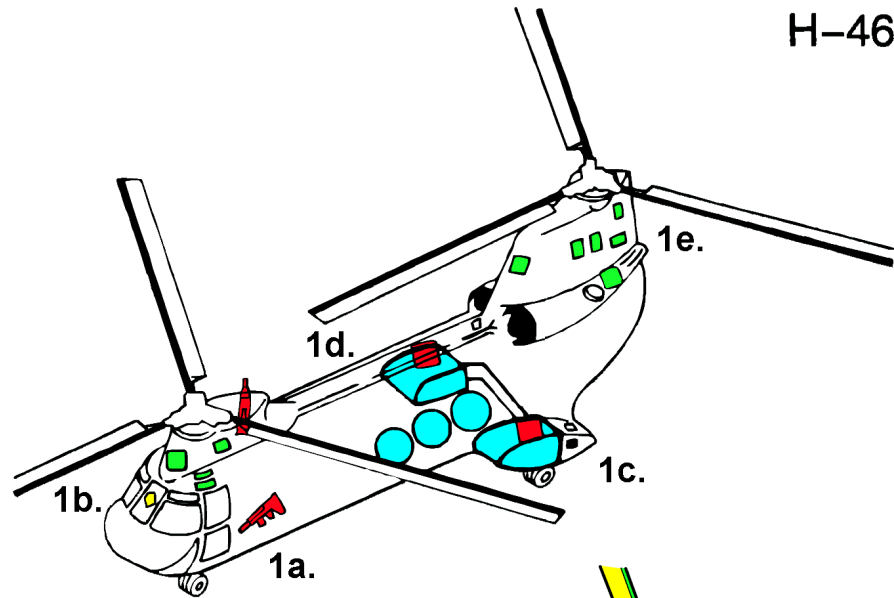
1. GENERAL AIRCRAFT INFORMATION

- a. Armament █ Two 50 cal or M-60 Guns
Chaff/Flares (CH-46E)
- b. Oxygen █ A/C prior to 154045
Two 295 in³ Bottles (CH-46E)
- c. Battery █ 1
- d. Fuel █ Internal 380 gal
Internal Auxiliary Three Tanks 243 gal each
- e. Oil █ Engine 13 gal (CH-46E)
Hydraulic 5.77 gal (CH-46E)
Transmission 9 gal
- f. Pneumatic System 3000 PSI

2. AIRFRAME MATERIALS

- a. N/A
- b. Other █ Fiberglass
- c. Steel █
- d. Titanium █
- e. Aluminum █
- f. N/A
- g. N/A

H-46



14-1-F0197

Figure F-8. H-46 Sea Knight Crash Crew Information (Sheet 1 of 5)

Figure F-8. H-46 Sea Knight Crash Crew Information (Sheet 2)

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 4'
- b. Turbine Blade Failure
- c. Engine Exhaust 12'
- d. Rotors

Rotor Minimum	FWD	11'2"
Ground Clearance	AFT	16'9"
Rotor Disc	FWD	51"
Diameter	AFT	51"

- e. APP Exhaust — 12'
- f. Guns
 - (1) M-60 Guns
 - 62° Pattern FWD
 - 65° Pattern AFT
 - 44° Below Sponson
 - (2) 50 cal Guns
 - 51° Pattern FWD
 - 32° Pattern AFT
 - 51° Below Sponson

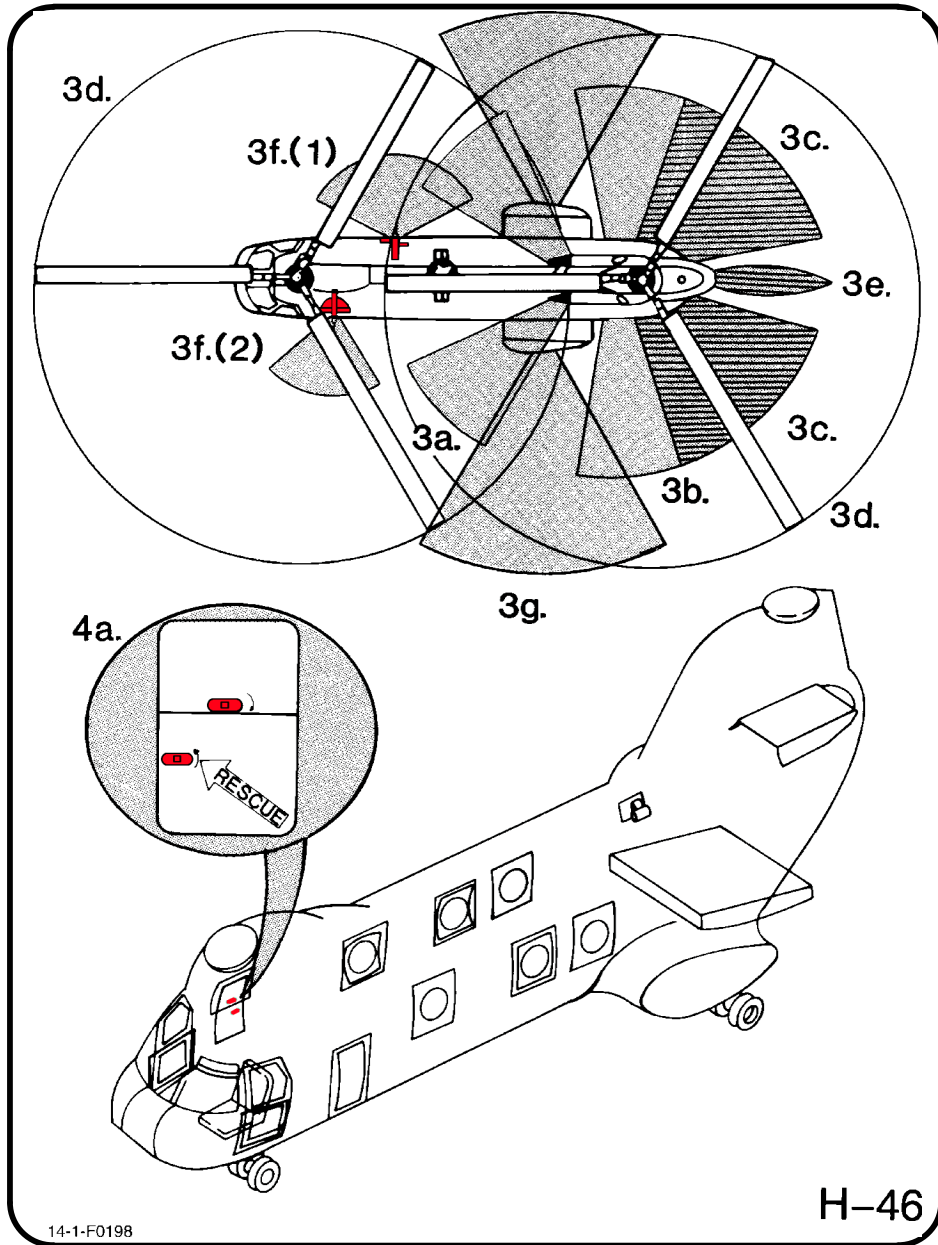
- g. Chaff/Flares

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

Normal entry is through main cabin door on RH side. The door has an upper and lower door which operate separately. To open upper portion, PUSH handle to expose, TURN HANDLE CLOCKWISE, MOVE door INWARD slightly and ROLL UP until the uplock is engaged. The lower door opens out and down. To open, PUSH handle, TURN handle COUNTERCLOCKWISE and PULL door OUT and DOWN.

- b. N/A



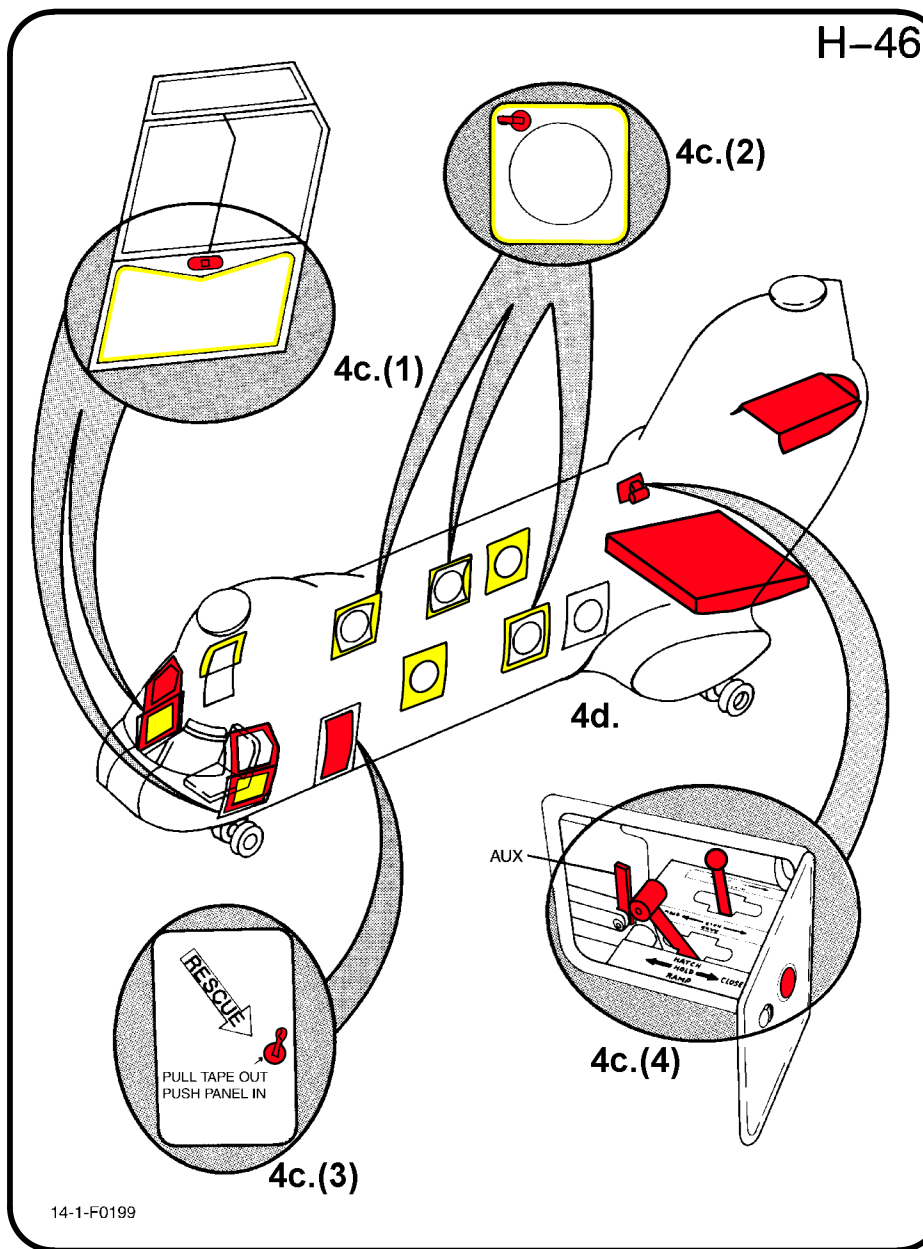
4. AIRCRAFT ENTRY (CONT.)**c. EMERGENCY ENTRY**

Emergency entrance may be gained through pilot/copilot jettison able windows, three fuselage windows, the emergency access hatch, and the cargo ramp/hatch.

- (1) To open pilot/copilot's jettison able window PUSH handle, TURN handle CLOCKWISE and PULL.
- (2) Three windows, two on RH side and one on LH side are marked RESCUE. To open, PULL tape OUT (upper LH corner of window) the PUSH panel INWARD.
- (3) To open the Emergency Access Hatch (CH-46E LH side), also marked RESCUE, PULL tape OUT and PUSH panel INWARD.
- (4) The Cargo Ramp/Hatch Controls are located on RH side, above stub wing (rear). To access controls, PUSH button on access door. The system consists of three control levers. With hydraulic pressure, actuate both ramp and hatch by PUSHING Ramp Control Handle and Cargo Hatch Control Handle AFT. Without hydraulic pressure, only ramp will operate. To lower ramp, PUSH Ramp Control Handle AFT then PUSH Ramp Auxiliary Control Handle AFT.

d. FORCED ENTRY

Windows are made of acrylic plastic and may be cut or broken. Areas marked on fuselage CUT HERE also may be cut out. CUT along window frames and marked fuselage areas only.



14-1-F0199

Figure F-8. H-46 Sea Knight Crash Crew Information (Sheet 3)

Figure F-8. H-46 Sea Knight Crash Crew Information (Sheet 4)

5. N/A

6. ENGINE SHUTDOWN

a. CONDITION LEVERS

PULL Condition Levers, fully AFT to STOP position.

b. N/A

c. BATTERY SWITCH

Deactivate electrical system by PLACING Battery Switch in the OFF position. The electrical power control panel is located in the overhead console.

d. N/A

e. N/A

f. N/A

g. APU

PLACE Power Off Switch in OFF position. PLACE Power Control Master Switch in OFF position. PLACE APU Switch in STOP position.

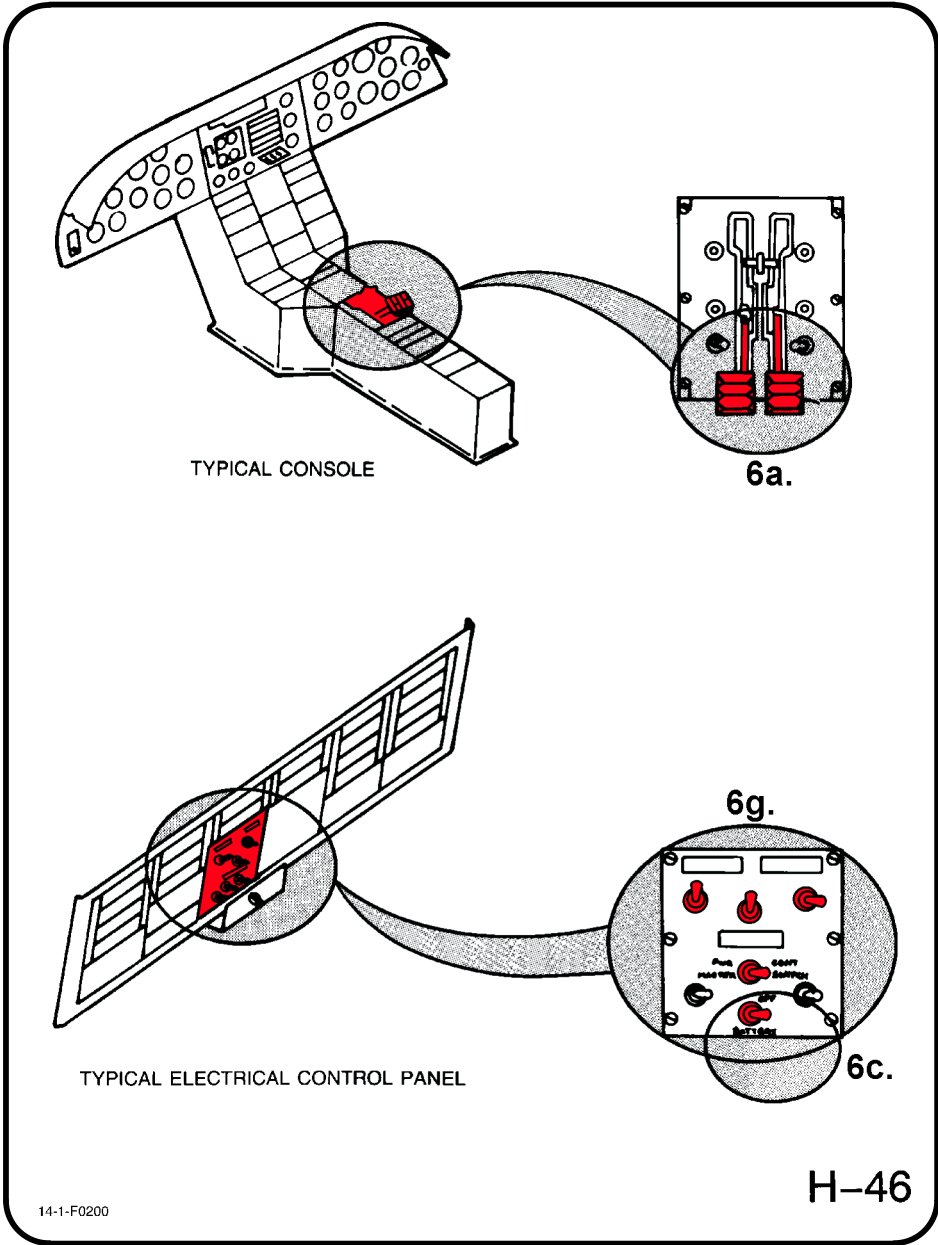
Note

Fire handles may be pulled to secure fuel and oil to engines.

7. BATTERY

The battery is located in the left wheelwell.

a. N/A



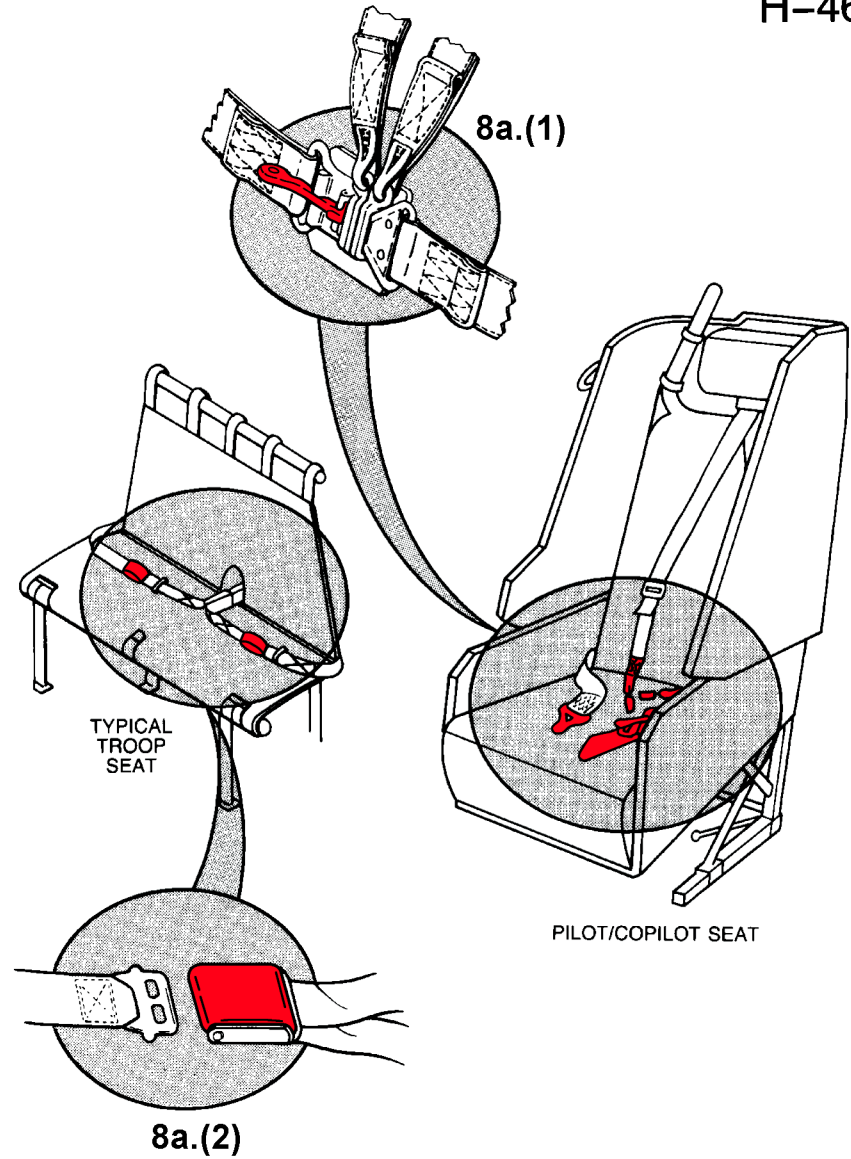
8. CREW RELEASE

The pilot and copilot are attached to the seats by shoulder harnesses secured to lap belts with quick disconnect buckles. Passengers and crew-members have lap belts only.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) LIFT quick disconnect lever to release shoulder harnesses and lap belt.
- (2) TROOP: LIFT buckle cover to release lap belt (airline type).

- b. N/A
- c. N/A
- d. N/A



14-1-F0201

Figure F-8. H-46 Sea Knight Crash Crew Information (Sheet 5)

Figure F-9. H-53D Sea Stallion Crash Crew Information (Sheet 1 of 4)

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT IN FORMATION

- a. Armament Two 50 cal Guns
Chaff/Flares
Two External Fuel Tank Ejector Cartridges
- b. N/A
- c. N/A
- d. Fuel Internal 638 gal
External 1300 gal
- e. Oil Engines 8.04 gal
Hydraulic 6.5 gal
Transmission 22.5 gal
- f. Pneumatic System 3000 PSI

2. AIRFRAME MATERIALS

- a. N/A
- b. Other Fiberglass
- c. Steel
- d. Titanium
- e. Aluminum
- f. N/A
- g. N/A

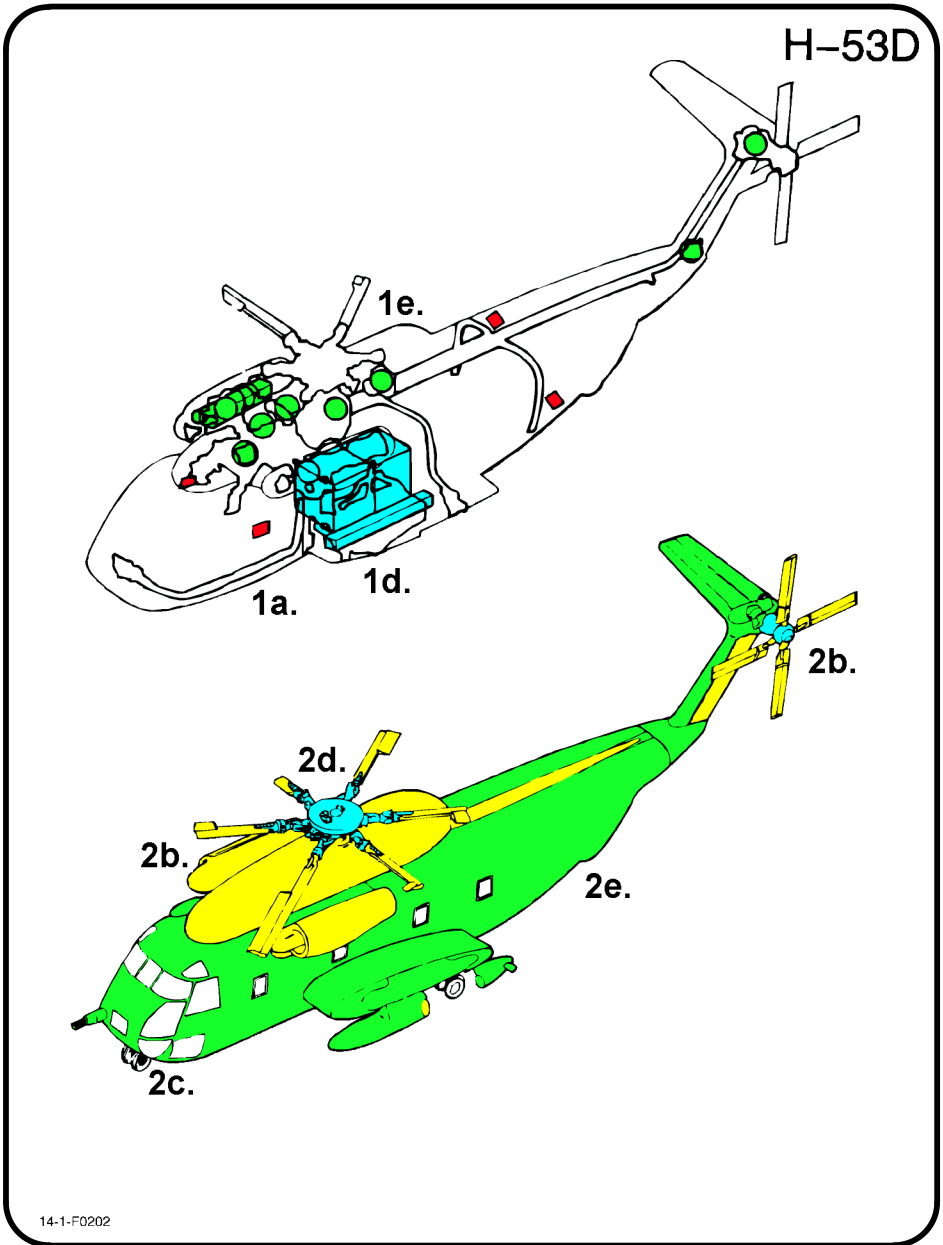


Figure F-9. H-53D Sea Stallion Crash Crew Information (Sheet 2)

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 8'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 30'
- d. APP and Heater Exhaust — 10'
- e. Guns
 - 66° Pattern FWD
 - 66° Pattern AFT
 - 30° Below Sponson

f. Rotors

Rotor Minimum	Main	10'4"
Ground Clearance	Tail	8'9"
Rotor Disc	Main	72'2"
Diameter	Tail	16'

g. Chaff/Flares

4. AIRCRAFT ENTRY

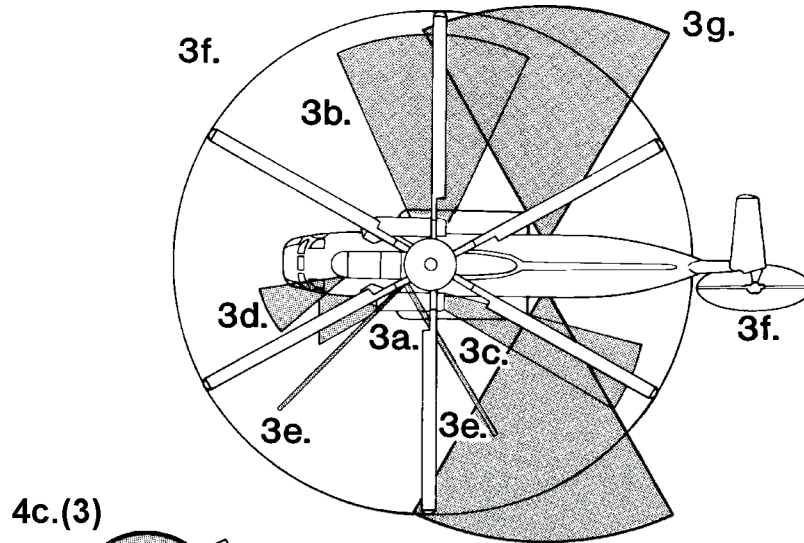
a. NORMAL ENTRY

The upper half of Personnel Door may be opened from outside by PRESSING button and TURNING handle COUNTERCLOCKWISE. PUSH upper half UP to cabin ceiling and TURN handle COUNTERCLOCKWISE to lock in OPEN position. The lower half of Personnel Door opens DOWN. PUSH button, TURN handle COUNTERCLOCKWISE and PULL.

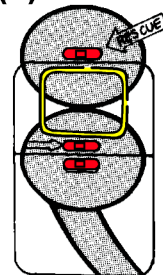
b. N/A

c. EMERGENCY ENTRY

- (1) The pilot/copilot's compartment window may be opened by PRESSING button and TURNING handle.
- (2) The Cabin Emergency Escape Hatch (left FWD side of cabin) may be opened by PRESSING button, TURNING handle COUNTERCLOCKWISE and PUSHING INWARD.
- (3) Upper half of Personnel Door may be jettisoned, TURN handle and PULL OUTWARD.

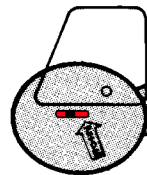


4c.(3)

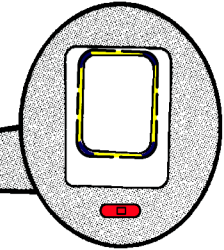


4a.

4c.(1)



4c.(2)



H-53D

14-1-F0203

Figure F-9. H-53D Sea Stallion Crash Stallion Crew Information (Sheet 3)

4. AIRCRAFT ENTRY (CONT.)**a. FORCED ENTRY**

Windows are made of acrylic plastic and may be cut or broken. Areas marked on fuselage CUT HERE also may be cut for access. CUT along window frames and marked fuselage areas only.

5. N/A**6. ENGINE SHUTDOWN**

Engine may be shut down by speed control and fuel shutoff or an alternate method by the emergency T-handle.

a. ENGINE SPEED CONTROL LEVERS

PULL Engine Speed Control Levers fully AFT to SHUTOFF position.

b. ENGINE EMERGENCY T-HANDLES

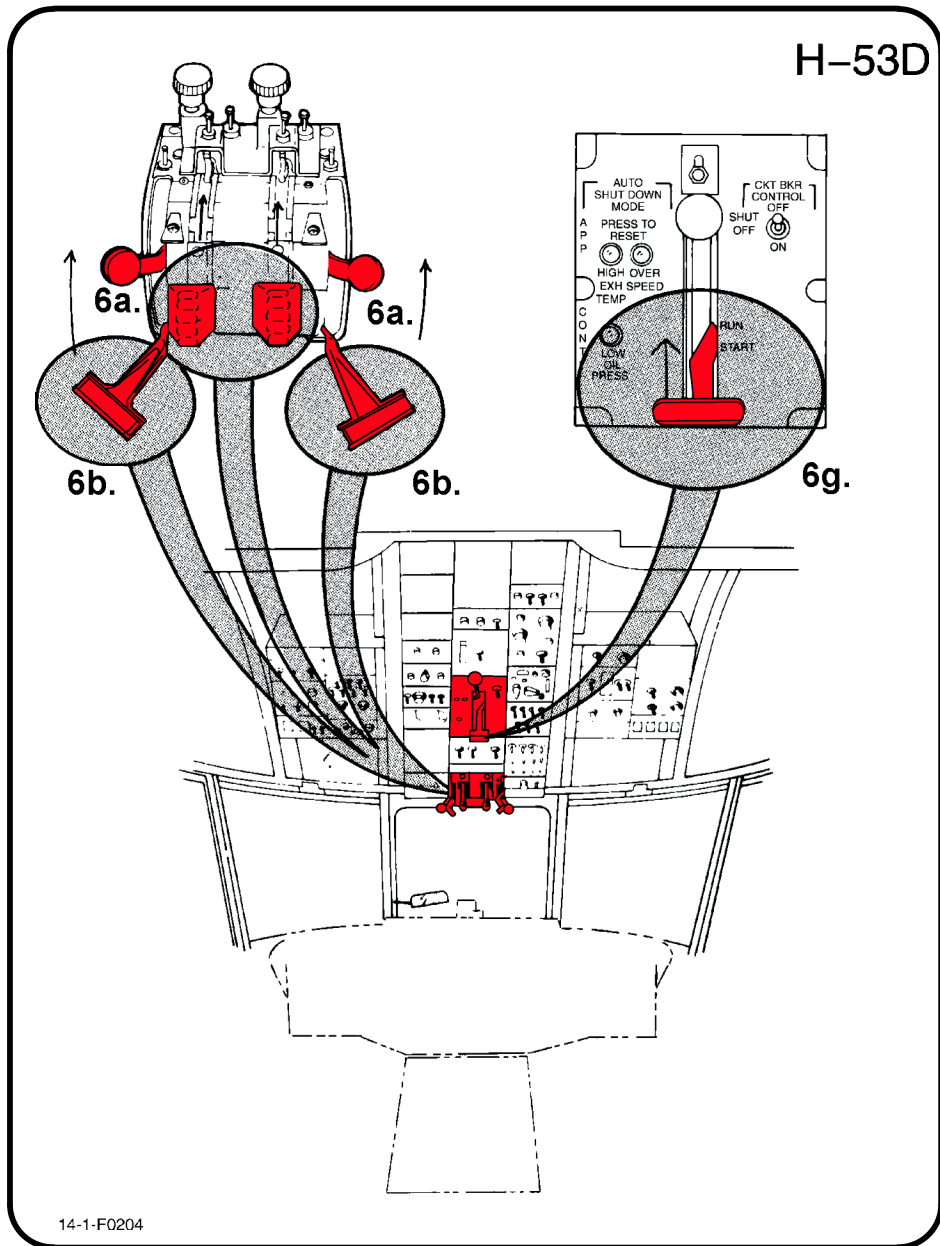
PULL Engine Emergency T-Handles fully AFT (fuel valves will close).

Note

If only emergency T-handles are used, the engines will continue to run for up to 2 minutes before fuel starvation effects a shutdown.

c. N/A**d. N/A****e. N/A****f. N/A****g. AUXILIARY POWER PLANT (APP)**

Pull APP Control Lever fully AFT if the system is operating.

7. N/A

8. CREW RELEASE

The pilot and copilot are attached to the seats by shoulder harnesses secured to a lap belt equipped with a quick disconnect buckle. Passengers and crewmembers have lap belts only.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) LIFT quick disconnect lever to release shoulder harnesses and lap belt.
- (2) TROOP: LIFT buckle cover to release lap belt (airline type).

b. N/A

c. N/A

d. N/A

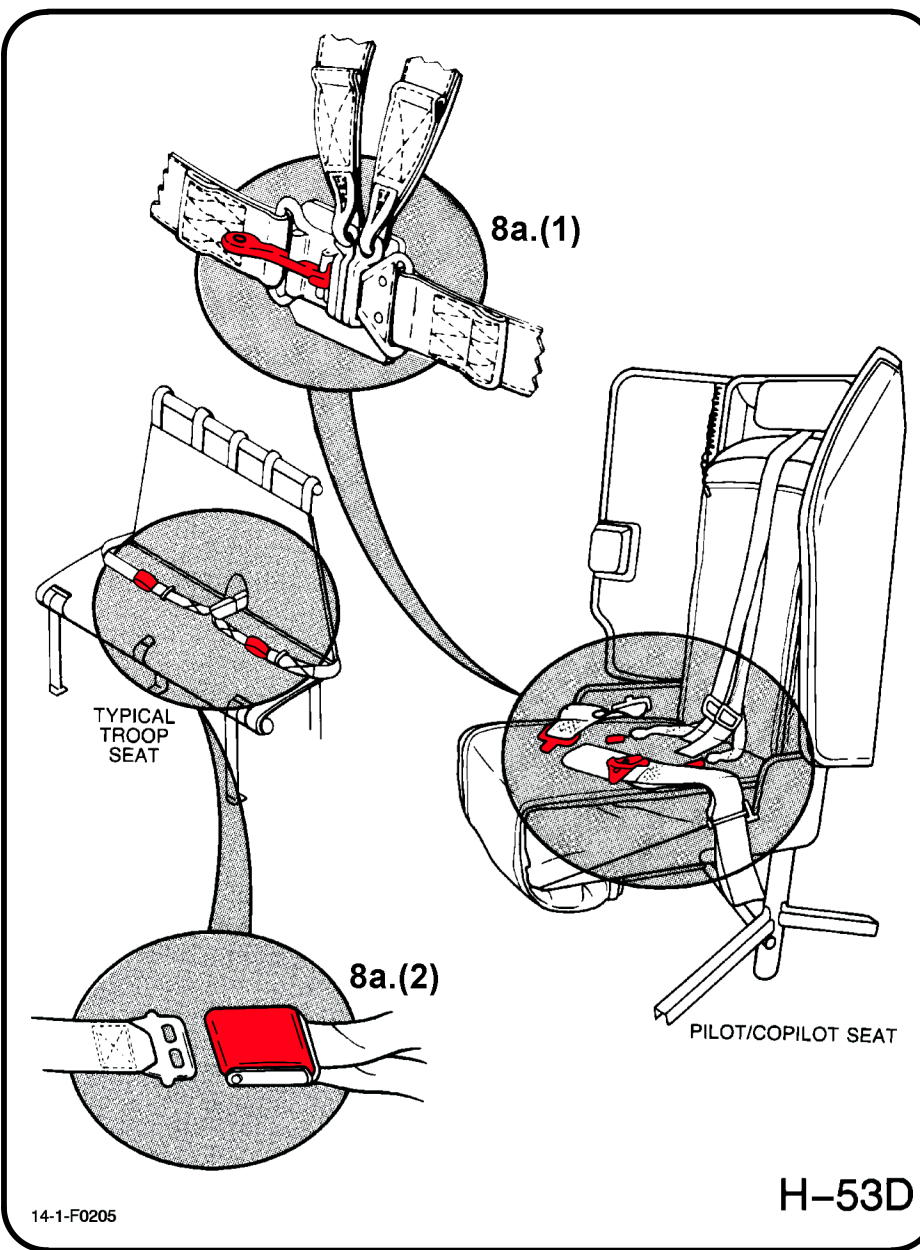


Figure F-9. H-53D Sea Stallion Crash Crew Information (Sheet 4)

Figure F-10. H-53E Super Sea Stallion/Sea Dragon Crash Crew Information (Sheet 1 of 6)

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- a. Armament Two 50 cal or M-60 Guns
Mines
Flares
Pylon Ejector Cartridges
Rescue Hoist
- b. N/A
- c. N/A
- d. Fuel Internal 977 gal
External 1300 gal
- e. Oil Engine 11.67 gal
Hydraulic 6.5 gal
Transmission 24 gal
- f. Pneumatic System 3000 PSI

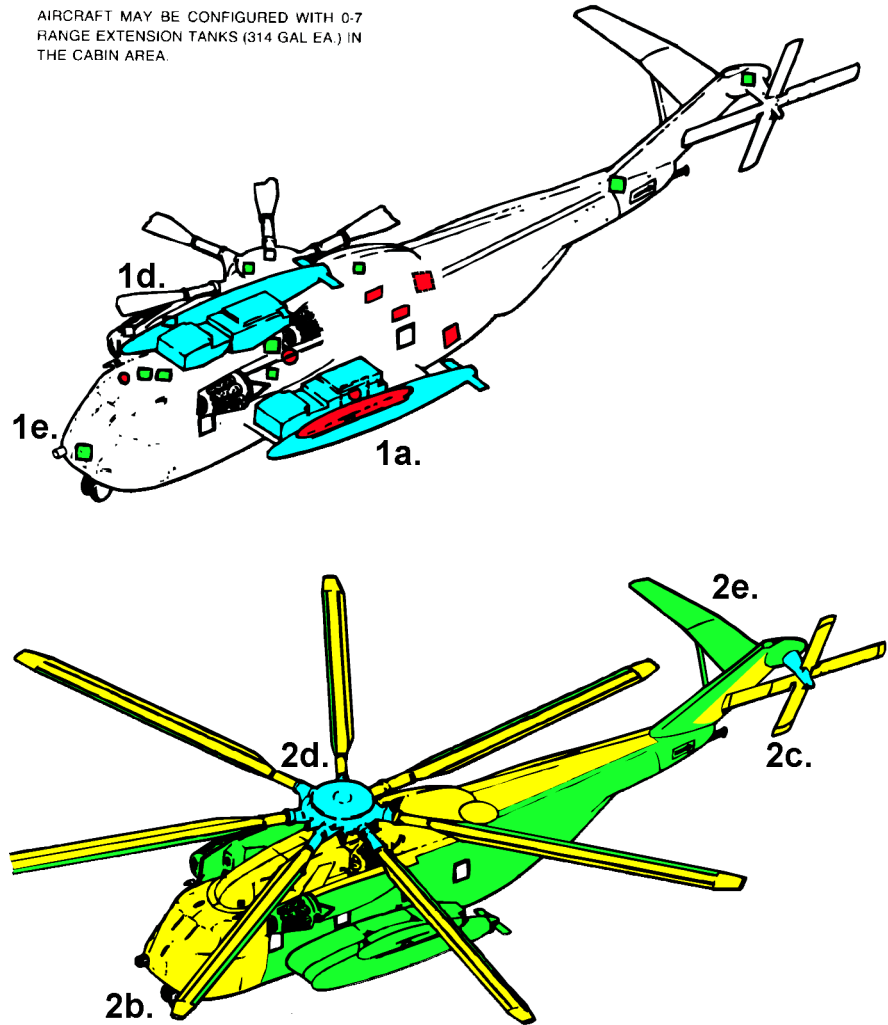
2. AIRFRAME MATERIALS

- a. N/A
- b. Other Fiberglass/Kevlar
- c. Steel
- d. Titanium
- e. Aluminum
- f. N/A
- g. N/A

CH-53

NOTE

AIRCRAFT MAY BE CONFIGURED WITH 0-7 RANGE EXTENSION TANKS (314 GAL EA.) IN THE CABIN AREA.



14-1-F0206

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

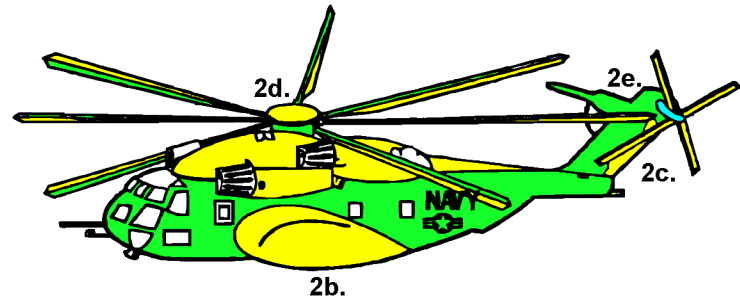
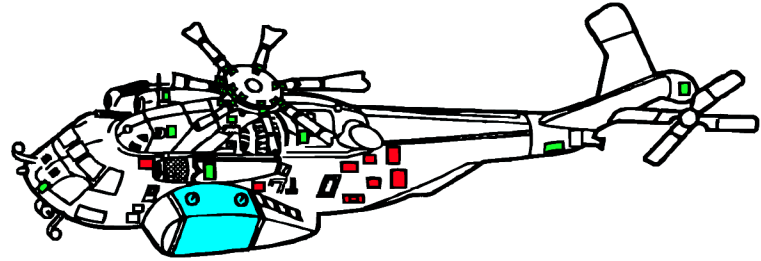
1. GENERAL AIRCRAFT INFORMATION

- a. Armament Two 50 cal Guns
Explosive Cutters
Flares
Rescue Hoist
Single Point Cargo Hook
AMCM Guillotine Cartridges
- b. N/A
- c. N/A
- d. Fuel Internal 3212 gal
- e. Oil Engine 11.67 gal
Hydraulic 9.3 gal
Transmission 24 gal
- f. Pneumatic System 3000 PSI

2. AIRFRAME MATERIALS

- a. N/A
- b. Other Fiberglass/Kevlar
- c. Steel
- d. Titanium
- e. Aluminum
- f. N/A
- g. N/A

MH-53



14-1-F0207

Figure F-10. H-53E Super Sea Stallion/Sea Dragon Crash Crew Information (Sheet 2)

Figure F-10. H-53E Super Sea Stallion/Sea Dragon Crash Crew Information (Sheet 3)

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 8'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 60'
- d. APP Heat Exhaust — 10'
- e. Guns
 - 60° Pattern FWD
 - 66° Pattern AFT
 - 30° Below Sponson
- f. Rotors

Rotor Minimum	Main	8'6"
Ground Clearance	Tail	8'6"
Rotor Disc	Main	79'
Diameter	Tail	20'

- g. Chaff/Flares
- h. Static Electrical Charge

WARNING

Contact with a hovering C/MH-53E may result in injury or death of ground personnel. The C/MH-53E generates an extreme static electrical charge while in flight; prior to physical contact with any part of a hovering helicopter, the helicopter shall be properly grounded.

NOTE
WAKE FROM NO. 2 ENGINE IS DIVERTED UPWARD AND NOT A FACTOR TO PERSONNEL ON GROUND.

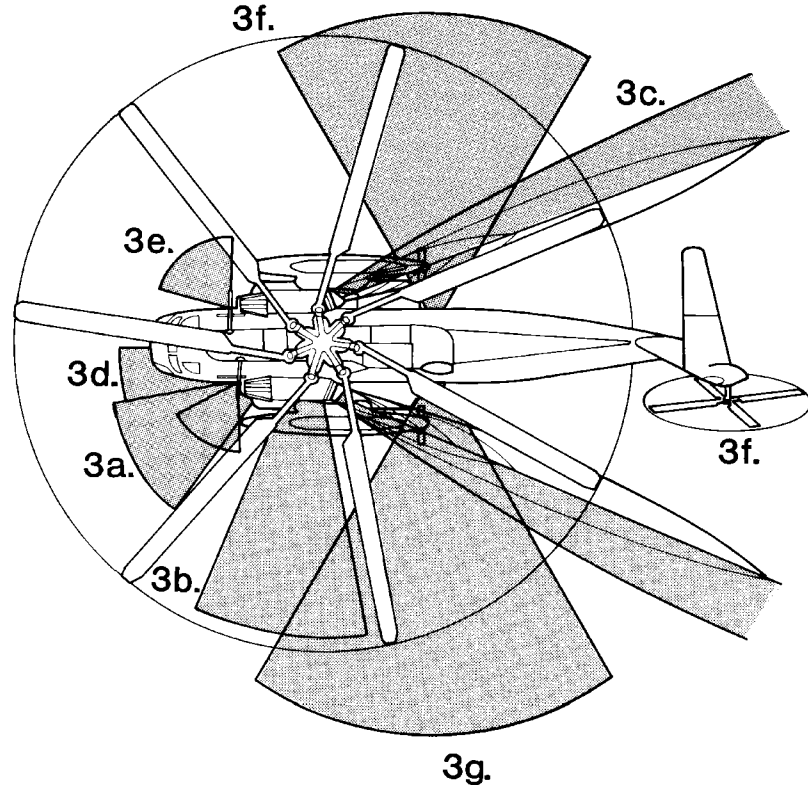


Figure F-10. H-53E Super Sea Stallion/Sea Dragon Crash Crew Information (Sheet 4)

F-41

ORIGINAL

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

The upper half of Personnel Door may be opened from outside by PRESSING button and TURNING handle COUNTERCLOCKWISE. PUSH upper half UP to cabin ceiling and TURN handle COUNTERCLOCKWISE to lock in OPEN position. The lower half of Personnel Door swings IN to RIGHT. PUSH button, TURN handle COUNTERCLOCKWISE and PUSH.

b. N/A

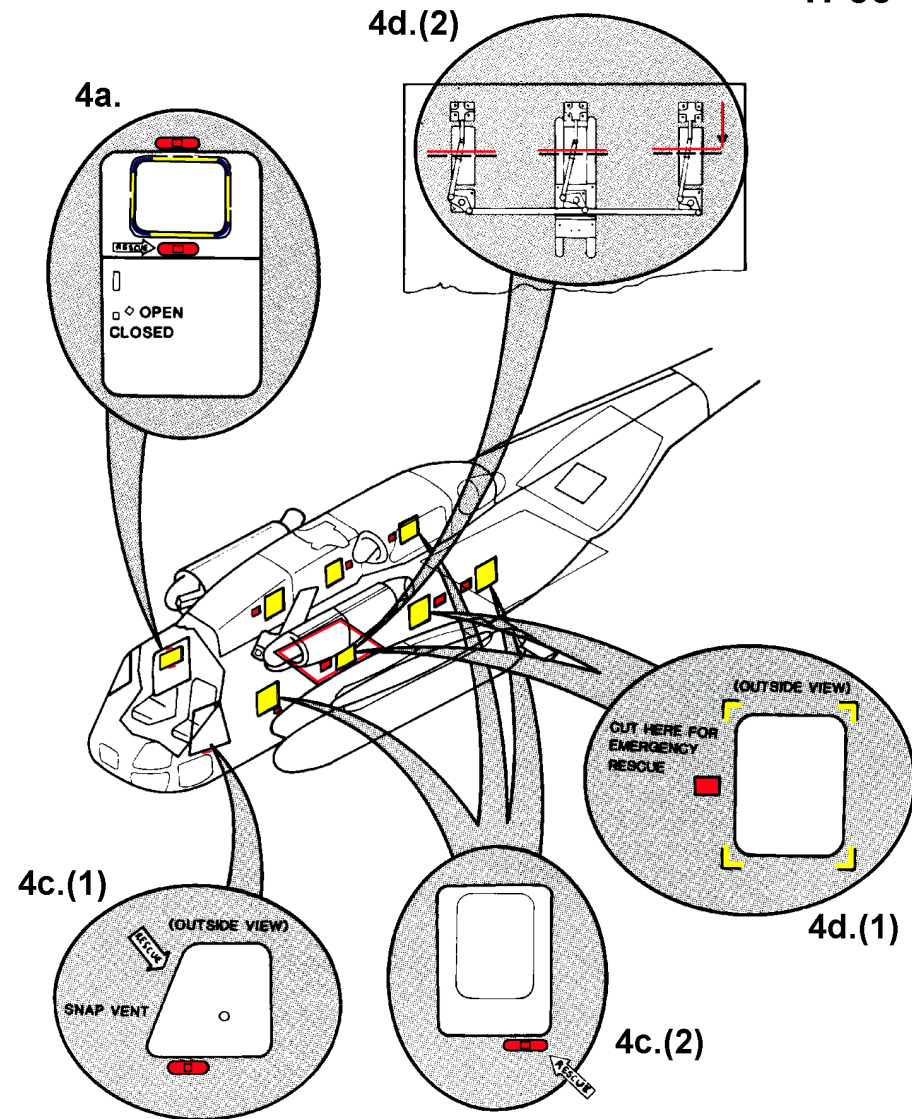
c. EMERGENCY ENTRY

- (1) The pilot/copilot's compartment window may be opened. PRESS button and TURN handle.
- (2) The Cabin Emergency Escape Hatch (left FWD cabin) may be opened. PRESS button, TURN handle COUNTERCLOCKWISE and PUSH INWARD.

d. FORCED ENTRY

- (1) Windows are made of acrylic plastic and may be cut or broken. Areas marked on fuselage CUT HERE also may be cut for access. CUT along window frames and marked fuselage areas only.
- (2) All CH-53Es have a door in the center of the cabin floor. The door has no external handle, however, entry may be gained by CUTTING three lock bolts. Once cut, bolts may be PULLED OUT allowing door to be PUSHED INWARD.

H-53



14-1-F0209

Figure F-10. H-53E Super Sea Stallion/Sea Dragon Crash Crew Information (Sheet 5)

5. N/A
6. **ENGINE SHUTDOWN**
 - a. **ENGINE SPEED CONTROL LEVERS**
PULL Engine Speed Control Levers DOWN and fully AFT to SHUT OFF position.
 - b. **ENGINE EMERGENCY T-HANDLES**
PULL Engine Emergency T-Handles fully AFT (fuel valves will close).
 - c. N/A
 - d. N/A
 - e. N/A
 - f. N/A
 - g. **AUXILIARY POWER PLANT (APP)**
PULL APP Control Lever fully AFT if system is operating.
7. N/A

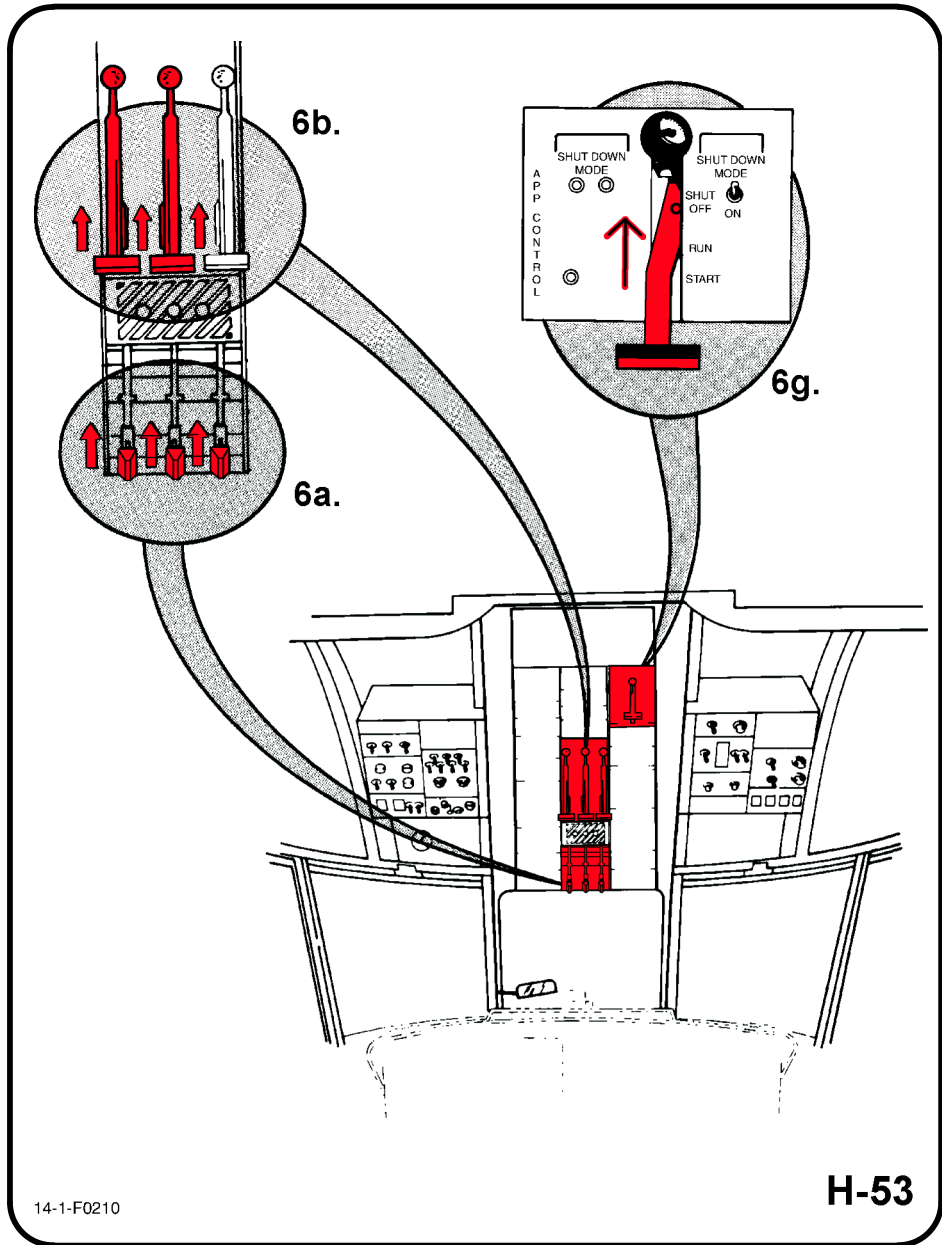


Figure F-10. H-53E Super Sea Stallion/Sea Dragon Crash Crew Information (Sheet 6)

8. CREW RELEASE

The pilot and copilot are attached to the seats by shoulder harnesses secured to lap belts equipped with quick disconnect buckles. Passengers and crewmembers have lap belts only.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) LIFT quick disconnect lever to release shoulder harnesses and lap belt.
- (2) TROOP: LIFT buckle cover to release lap belt (airline type).

- b. N/A
- c. N/A
- d. N/A

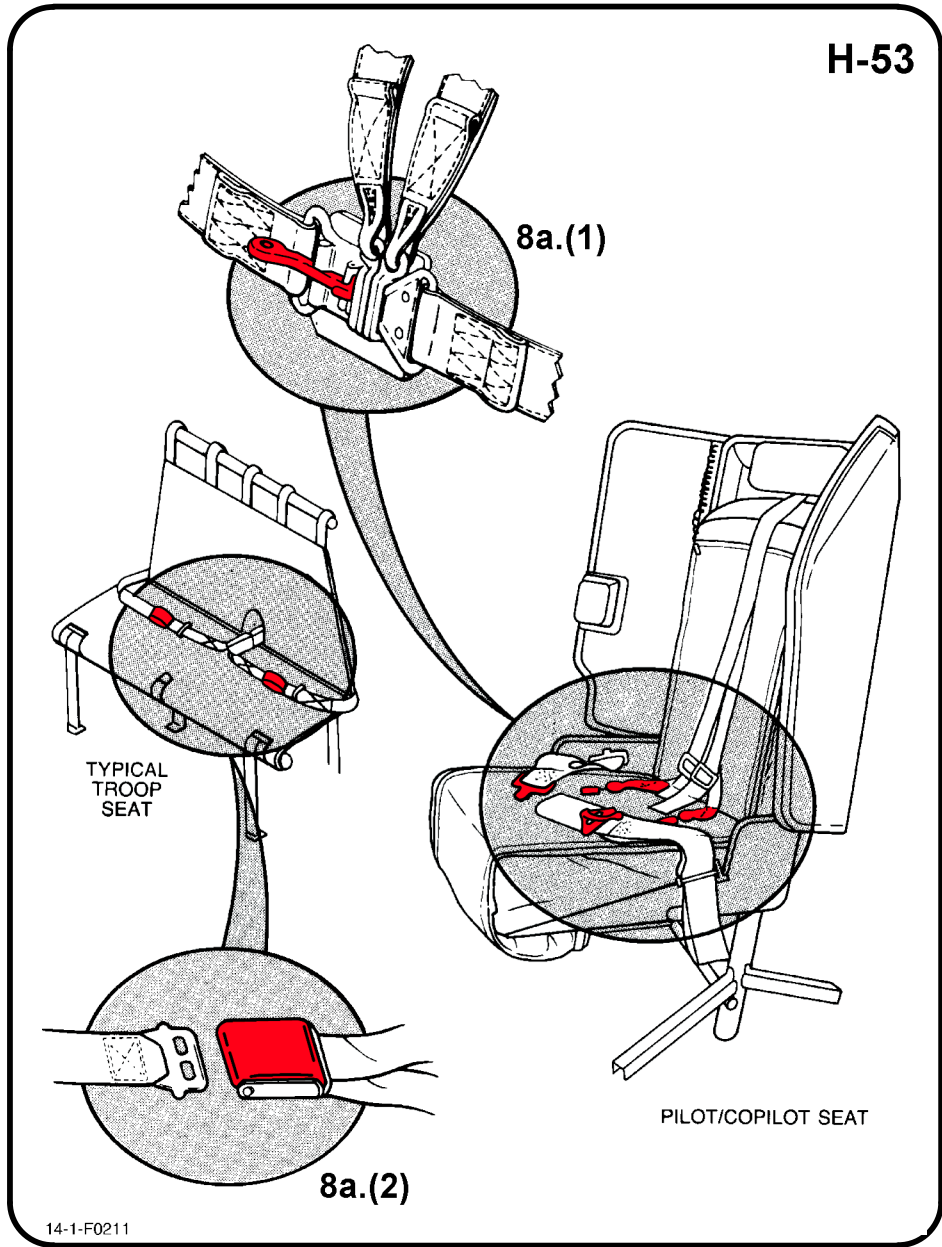


Figure F-11. TH-57 Sea Ranger Crash Crew Information (Sheet 1 of 4)

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- a. N/A
- b. N/A
- c. Battery 1 TH-57B
2 TH-57C
- d. Fuel 91 gal
- e. Oil Engine 5.5 qts
Hydraulic 1.0 pt
Transmission 5.0 qts
T/R Gearbox .38 pt
- f. Pneumatic System 650 PSI

2. AIRFRAME MATERIALS

- a. N/A
- b. Other Fiberglass
- c. Steel
- d. Titanium
- e. Aluminum
- f. N/A
- g. N/A

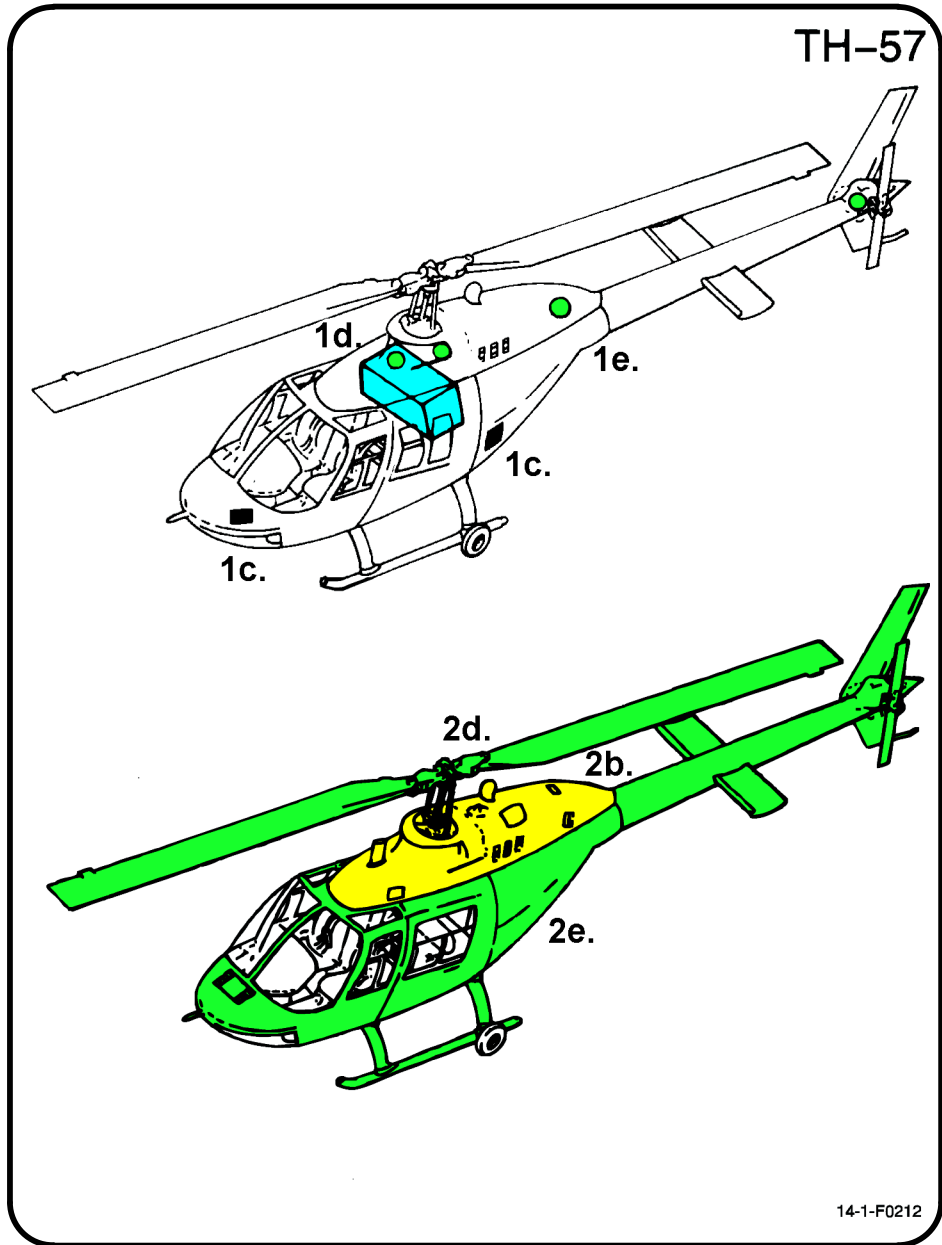


Figure F-11. TH-57 Sea Ranger Crash Crew Information (Sheet 2)

3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — Unknown
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 20'
- d. Rotors

Rotor Minimum	Main	6'5"
Ground Clearance	Tail	1'7"
Rotor Disc	Main	33'4"
Diameter	Tail	5'5"

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

The Cockpit and Cabin Doors on both sides of aircraft, are used for normal entry. PULL door handle OUT, PUSH door open.

b. N/A

c. EMERGENCY ENTRY

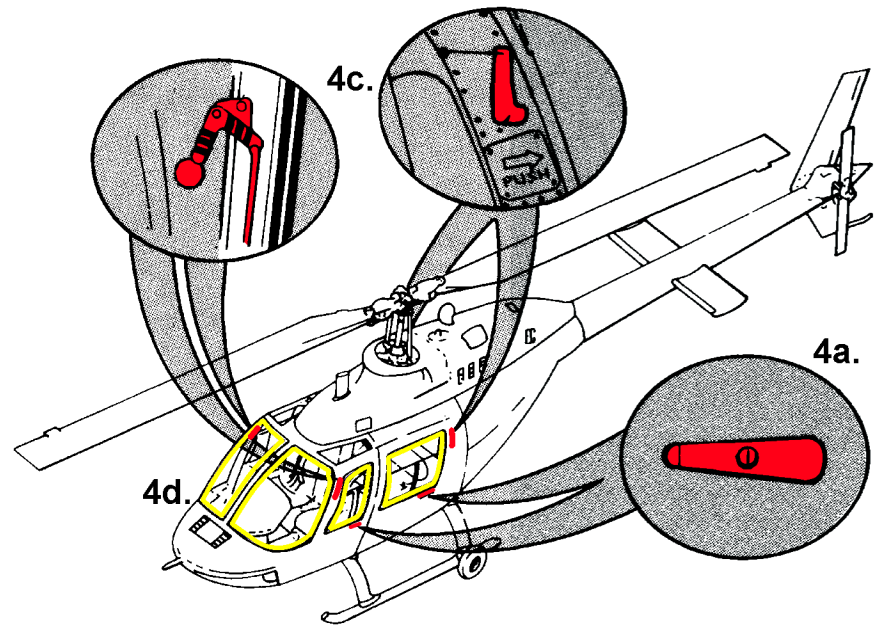
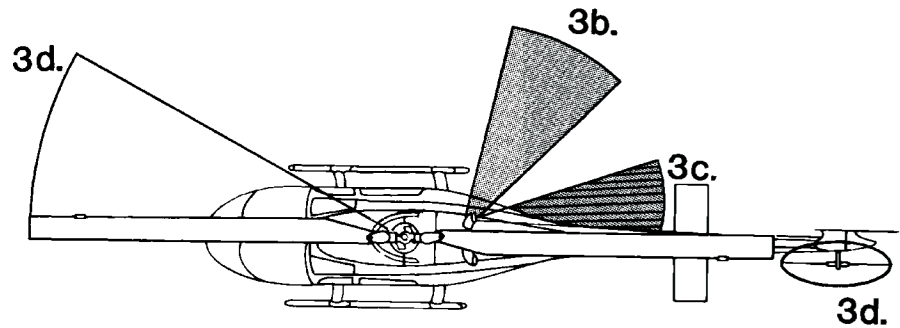
Access to the Jettison Handles from the outside can be gained by BREAKING the plexiglass windows, REACHING IN and PULLING Jettison Handles.

Note

The jettison handles are installed on TH-57C aircraft only.

d. FORCED ENTRY

Windows are made of acrylic plastic and may be cut with power rescue saw or crash axe. CUT along window frames.



14-1-F0213

TH-57

Figure F-11. TH-57 Sea Ranger Crash Crew Information (Sheet 3)

5. N/A

6. ENGINE SHUTDOWN

a. N/A

b. N/A

c. **BATTERY SWITCH(ES)**

d. **THROTTLES**

ROTATE Throttle Twist Grip **CLOCKWISE**.
DEPRESS Idle Rel Button and continue to
ROTATE to Shutoff/STOP position.

e. **FUEL VALVE SWITCH**

PLACE fuel Valve Switch in OFF position.

(1) TH-57B, located on RH side of pedestal
instrument panel.

(2) TH-57C, located on instrument panel.

(3) TH-57B, PLACE Battery Switch in OFF
position.

(4) TH-57C, PLACE Battery Switch and
Standby Battery Switch in OFF position.

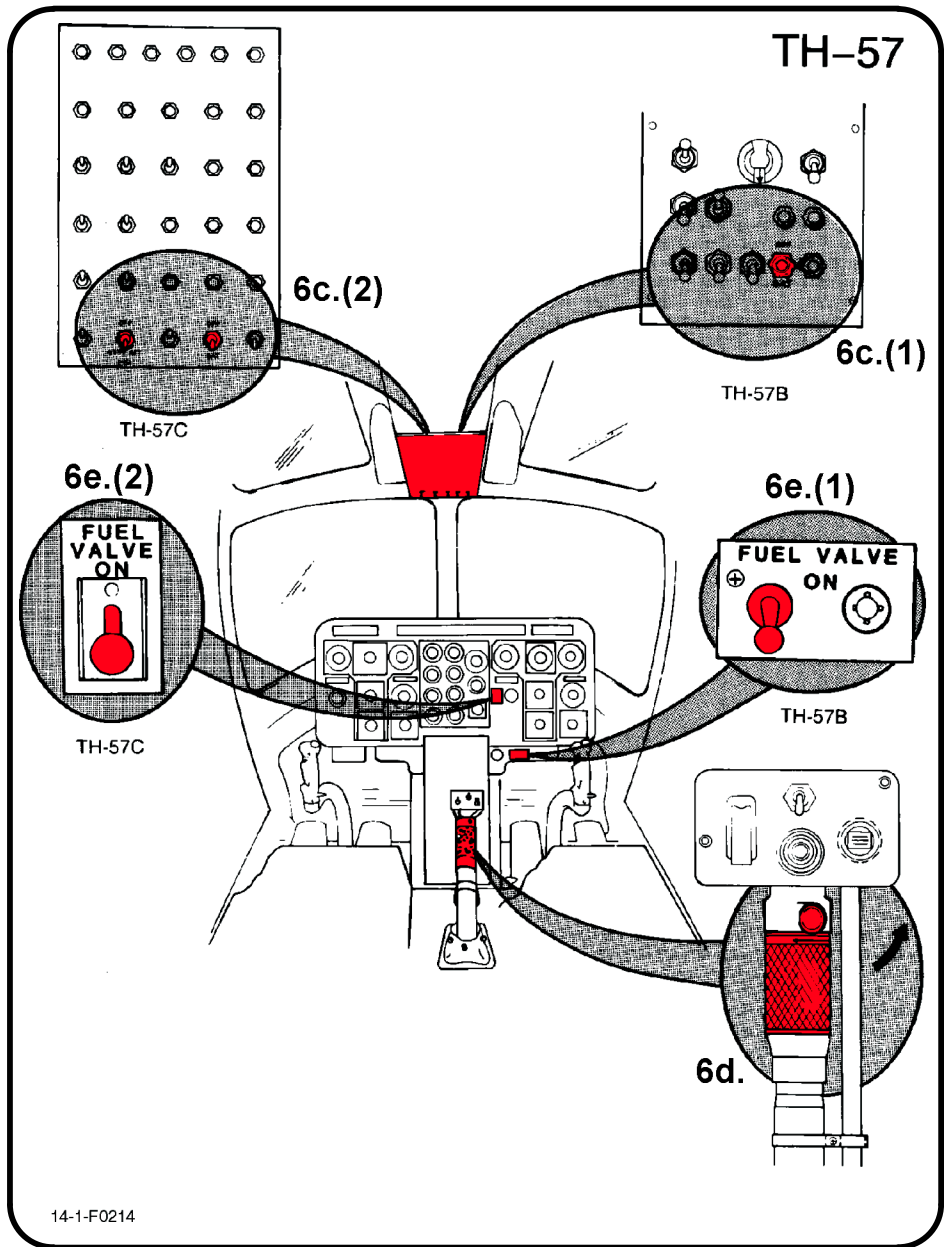
f. N/A

g. N/A

7. BATTERIES

The FWD battery is located in the nose
section, accessible through a hinged door. The
AFT battery in the TH-57C is located in the
AFT portion of the baggage compartment,
accessible through the baggage door on the
LH side of aircraft.

a. N/A



8. CREW RELEASE

The pilot and copilot are attached to the seats with shoulder harnesses and a lap belt equipped with a quick disconnect buckle. Passengers and crewmembers have a lap belt and a fixed shoulder harness.

a. PERSONNEL SERVICE, QUICK DISCONNECT

Note

Before releasing the lap belt/shoulder harness from the pilot/copilot, disconnect the helmet cord.

- (1) LIFT quick disconnect lever to release shoulder harnesses and lap belt.
- (2) (PASSENGER: LIFT buckle cover to release lap belt (airline type).

- b. N/A
- c. N/A
- d. N/A

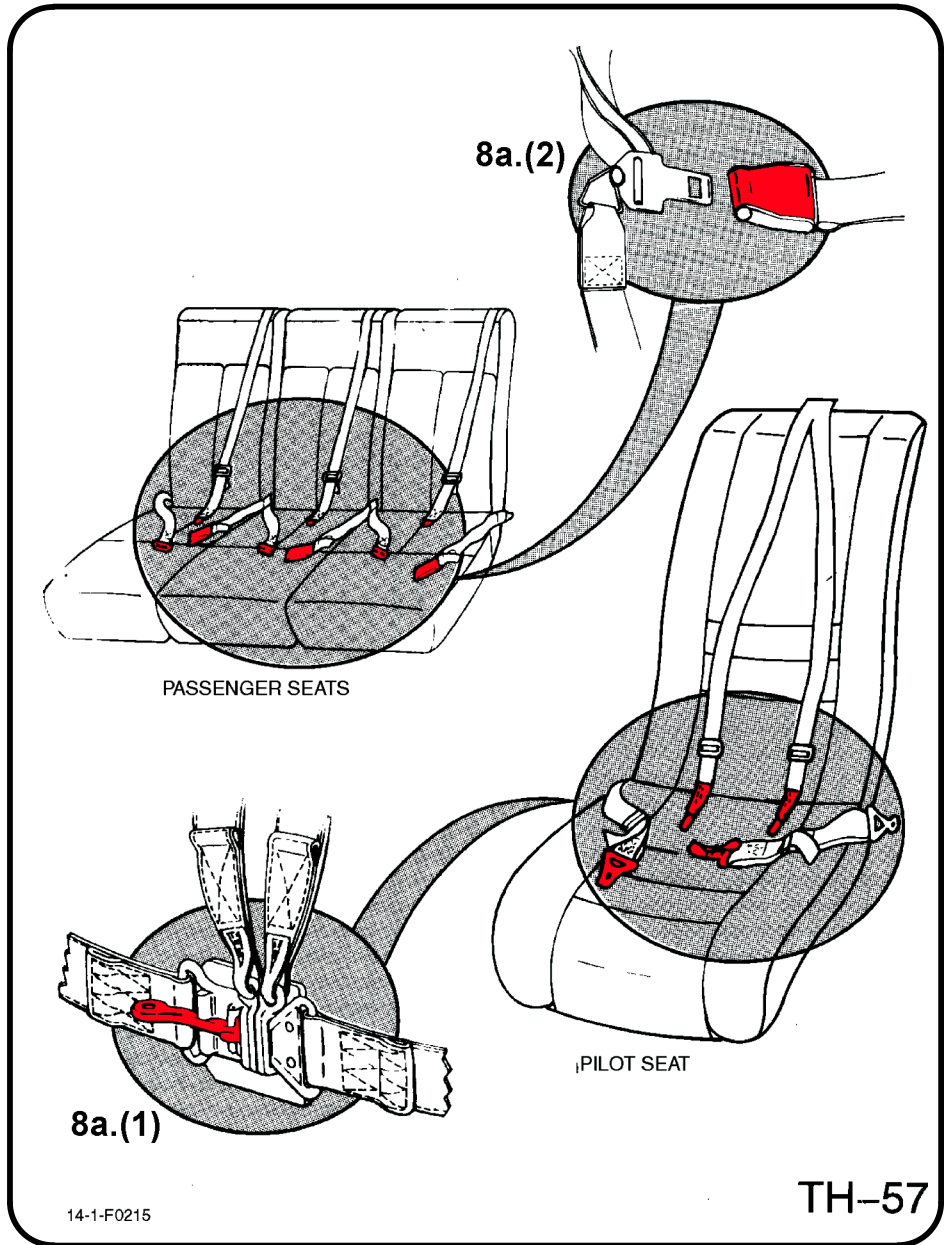


Figure F-12. H-60 Seahawk Crash Crew Information (Sheet 1 of 5)

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

- | | |
|---|--|
| <p>a. Armament
</p> <p>b. N/A</p> <p>c. Battery
</p> <p>d. Fuel
</p> <p>e. Oil
</p> <p>f. Pneumatic System</p> | <p>Torpedoes
Sonobuoy Launcher
GAU-16A
MK-25 MLM
MK-39
MK-58 MLM
MK-64
MK-84 SUS
MD240D
Hellfire Missile</p> <p>1</p> <p>Internal 590 gal
External 120 gal</p> <p>Engine 3.8 gal
Hydraulic 3.9 qt
Transmission 8.15 gal</p> <p>Two Systems
3200 PSI
1250 PSI</p> |
|---|--|

H-60

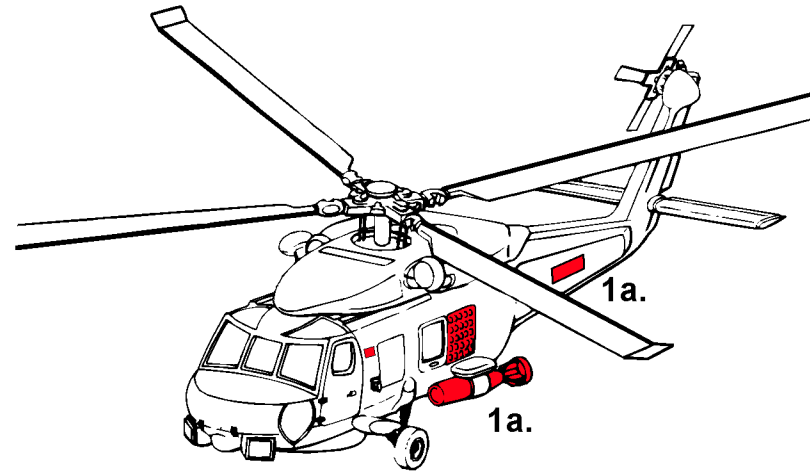
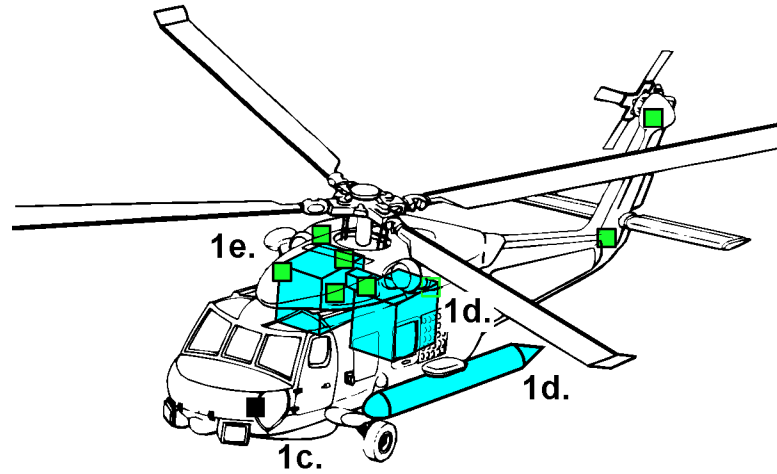


Figure F-12. H-60 Seahawk Crash Crew Information (Sheet 2)

2. AIRFRAME MATERIALS

- a. Graphite Epoxy
- b. Other
Fiberglass/Magnesium/Kevlar
- c. Steel
- d. Titanium
- e. Aluminum
- f. N/A
- g. N/A

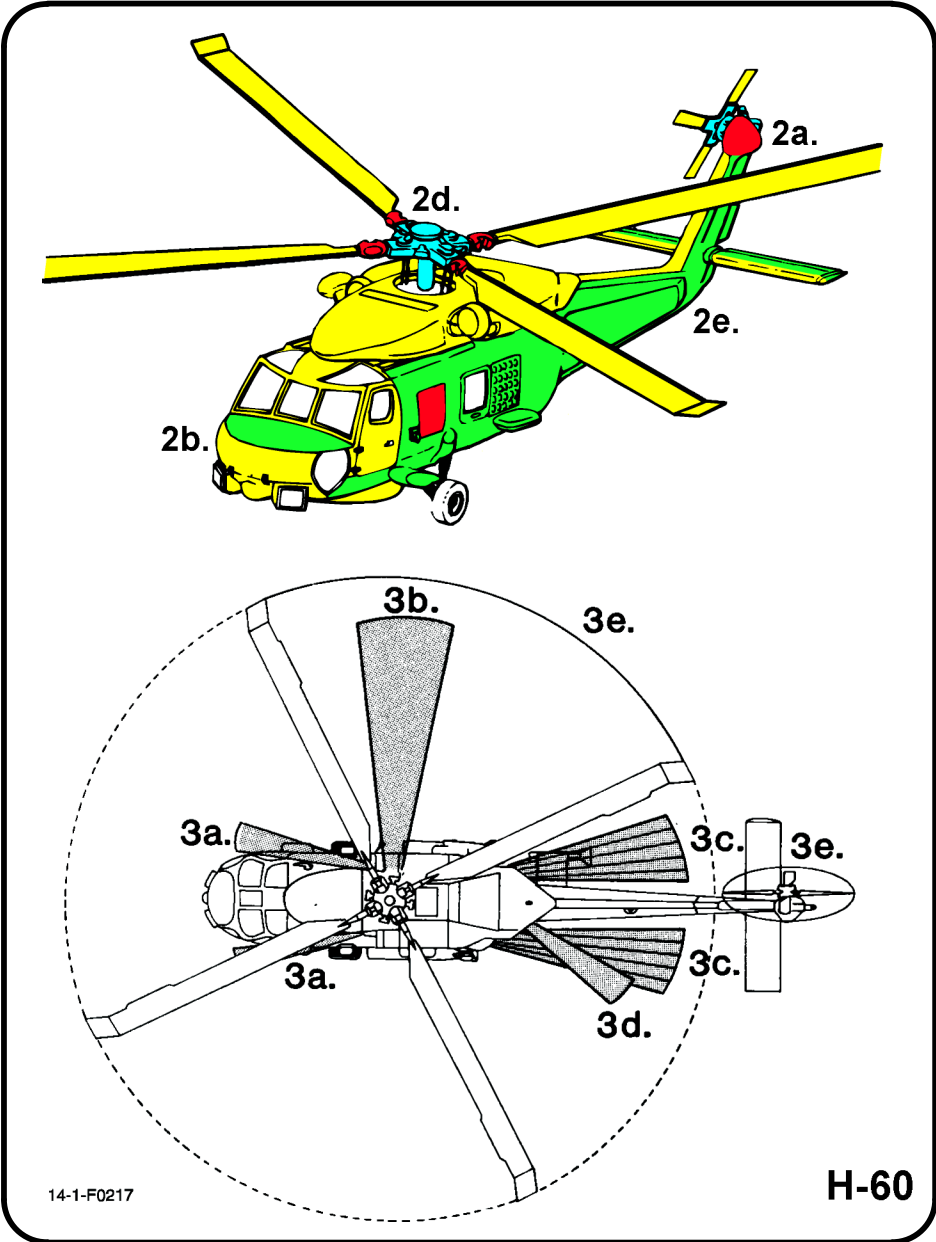
3. AIRCRAFT DANGER AREAS

- a. Inlet Suction — 4'
- b. Turbine Blade Failure — 300'
- c. Engine Exhaust — 30'
- d. APU Exhaust — 4'
- e. Rotors

Rotor Minimum	Main	7'6"
Ground Clearance	Tail	6'8"
Rotor Disc	Main	53'8"
Diameter	Tail	11'

WARNING

Tip of rotor blade may drop as low as 4 feet from ground when turning.



14-1-F0217

H-60

Figure F-12. H-60 Seahawk Crash Crew Information (Sheet 3)

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

- (1) Enter the pilot/ATO area through hinged door on each side of cockpit. PULL handle DOWN to open.
- (2) A sliding door on RH side of fuselage provides access to the cabin. PUSH to release handle and TURN DOWN to open.

b. N/A

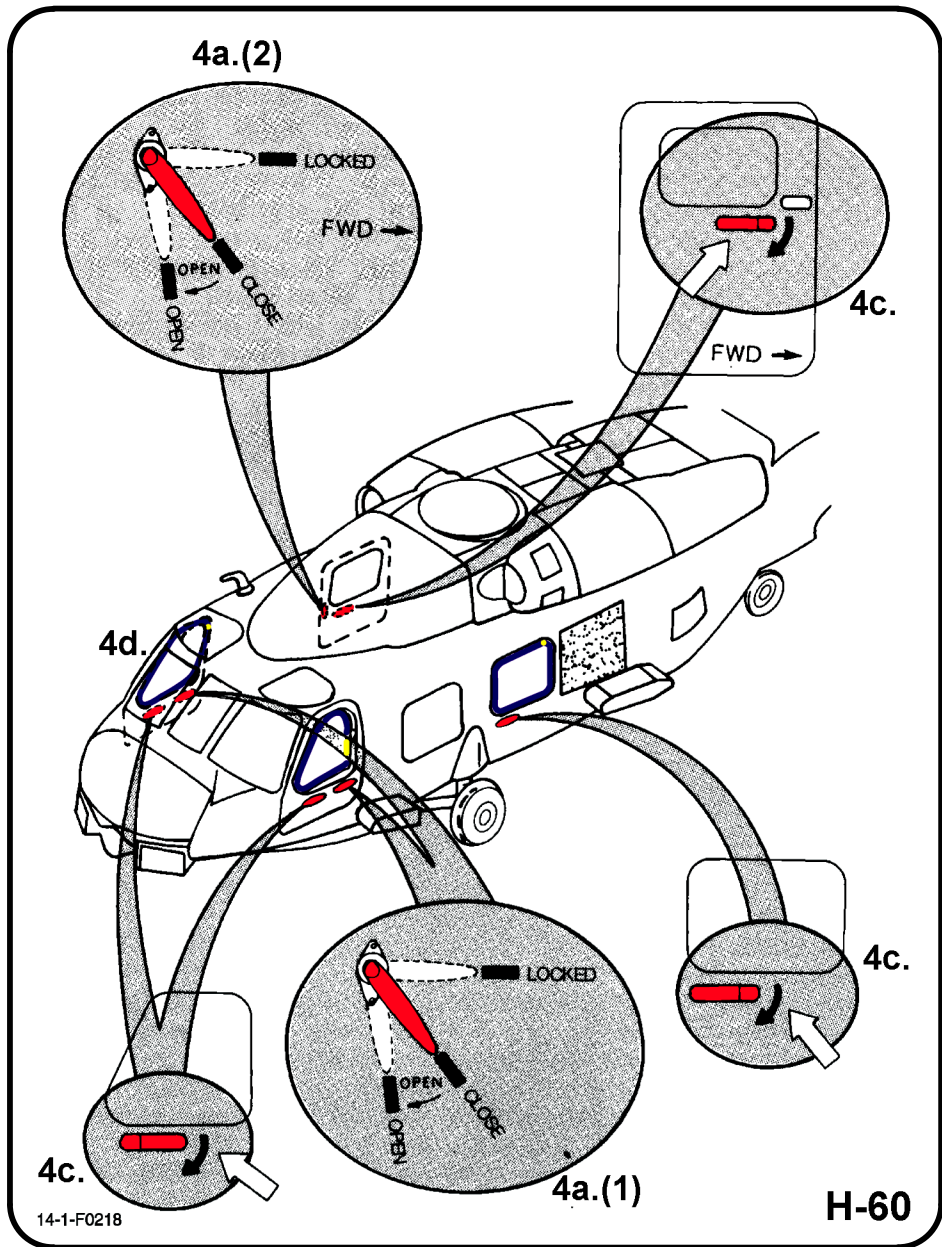
c. EMERGENCY ENTRY

The pilot and ATO windows, cabin door window and cabin window may be jettisoned by operating the Emergency Release Handle and PULLING window OUT.

d. FORCED ENTRY

If main entrances are jammed or inoperable, CUT around pilot, ATO, and SO windows.

5. N/A



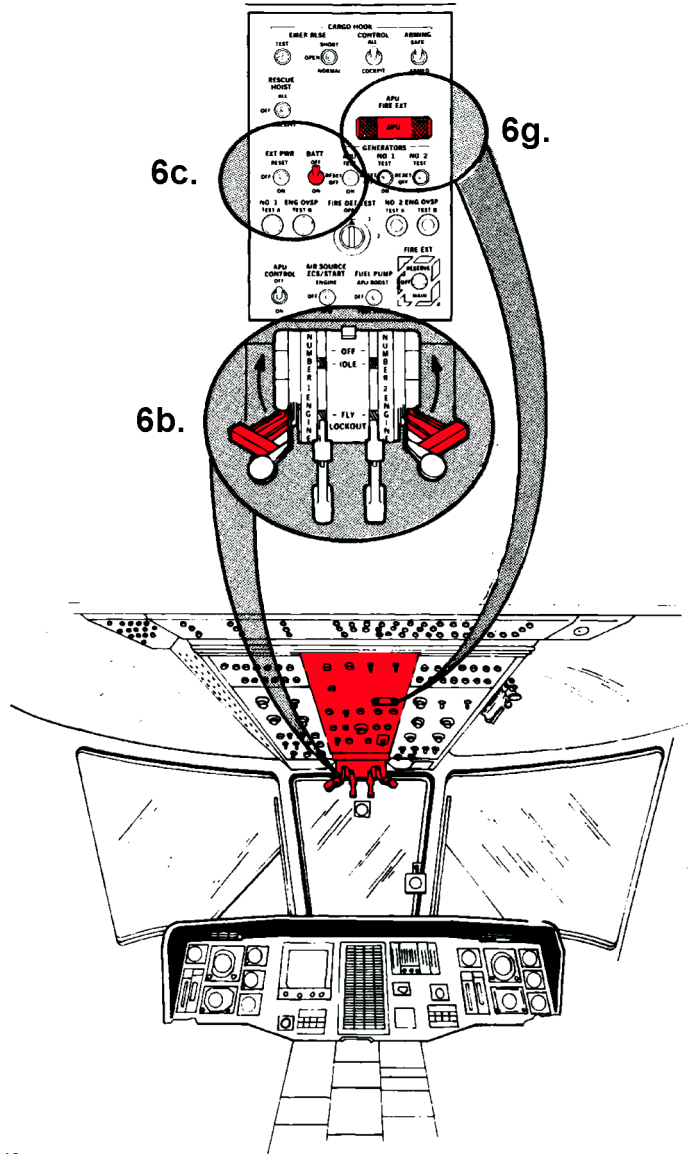
6. ENGINE SHUTDOWN

- a. N/A
- b. **EMERGENCY T-HANDLES**
PULL both Engine Emergency T-Handles AFT to OFF position.
- c. **BATTERY SWITCH**
PLACE Battery Switch in OFF position.
- d. N/A
- e. N/A
- f. N/A
- g. **AUXILIARY POWER UNIT (APU)**
PULL APU Fire Extinguisher T-Handle (required if APU operating).

7. BATTERY

To further deactivate the electrical system, disconnect battery quick disconnect fitting. Battery is located in ATO seat well.

- a. N/A



14-1-F0219

H-60

Figure F-12. H-60 Seahawk Crash Crew Information (Sheet 5)

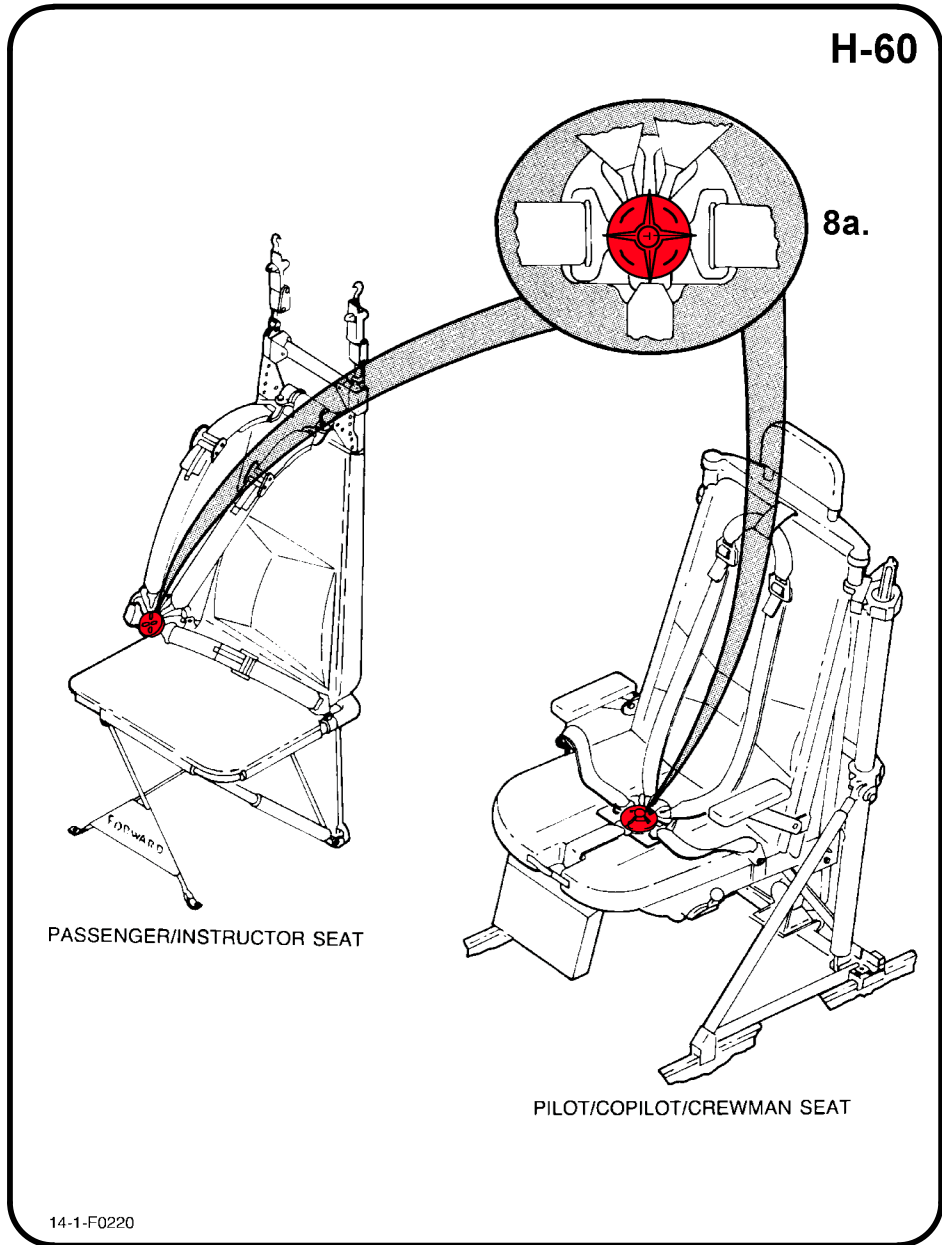
8. CREW RELEASE

The pilot, copilot, crewman, and instructor/passenger are attached to the seats by a complete lap belt and dual torso-restraint shoulder harness attached to a rotary release buckle.

a. PERSONNEL SERVICE, QUICK DISCONNECT

ROTATE Rotary Release Buckle in either direction, to release shoulder harnesses and lap belt.

- b. N/A
- c. N/A
- d. N/A



APPENDIX G

Tilt-Rotor Aircraft

TILT-ROTOR AIRCRAFT SYSTEMS AND
CRASH CREW INFORMATION DIAGRAMS SUMMARY

TYPE	NAME	AIRFRAME MATERIALS	FUEL (GAL)		OIL (GAL)		OXYGEN		PNEU SYS		GUN	ORDNANCE		PYROTECHNICS	BTRY	EJEC SYS	SOB
			INT	EXT	ENG	HYD	LOX	BOTTL	GAS	AIR		FWD FIRE	FREE FALL				
MV-22B	OSPREY	ALUMINUM TITANIUM STEEL CARBON-EPOXY COMPOSITES GLASS-EPOXY COMPOSITES	1448	NONE	3.0	4.3	NONE	400L	N ₂ 3000 PSI	NONE	NONE	NONE	NONE	CHAFF/FLARES ESCAPE WINDOWS/HATCHES	1	NONE	27

Figure G-1. Tilt-Rotor Aircraft Systems and CCID Summary

G.1 MV-22B LEFT/RIGHT CENTER, LEFT FORWARD CABIN FUSELAGE HATCH SEVERANCE ASSEMBLY SOURCE DATA

WARNING

Cabin fuselage hatches and overhead transparencies contain TLX. Serious injury may result when activating these devices.

G.1.1 Function and Location

The left forward, left center, and right center hatch severance assemblies (see [Figure G-2, Sheet 4](#)) are used to explosively sever its respective transparent fuselage skin material and are primarily intended to provide an escape route for personnel.

G.1.2 Description

The Severance Assembly, are explosively loaded parts designed to cut the fuselage skin material at designated areas of the fuselage along the hatch periphery when initiated by the system. The explosive part is composed of a piece of lead tubing, shaped into a chevron shape and filled with high explosive material. The purpose of the chevron shape is to focus more of the explosive reaction in one direction to form a cutting jet. The hatch assemblies are structurally and functionally identical to the canopy severance assemblies except the explosive material itself is less powerful.

G.1.3 Operation

Functioning either the internal or external initiator starts a rapidly burning reaction in the TLX line end mated to the initiator. This signal moves along the line rapidly from the initiator end (primer end) to the terminating end (high explosive end), which is mated to the TLX connector. The terminating end of the TLX line initiates the other two TLX lines mated to the connector. The signal then follows two different paths. The first path is the one to the severance assembly. The TLX line (low energy by high explosive type) is mated to the connectors middle port and accepts the signal from the initiator. This signal moves along the line rapidly from the low energy end to the high explosive end, which is connected to the severance assembly. The high explosive end detonates which starts the detonation of the explosive charge in the severance assembly. This detonation causes very high-pressure shock waves and metal particles to be directed at, and strike the thin walled steel tube. The impact of the metal particles and the shock wave cause the explosive material within the sleeve to detonate. This in turn will cause the detonation of the explosive in the shaped lead tube. The detonation will be sent down the two ends of the tubing and will meet at a point nearly opposite to where the manifold is located. The extremely rapid explosive reactions forms a focused jet of explosive shock waves and heat which cuts through the plastic transparency graphite material creating an escape opening. The opening is blocked however, by the troop seats mounted on the side of the troop compartment so the second signal path is required to operate a system to release the troop seats from their mounting racks.

The second path the signal follows is to the thruster assembly, which is used to activate the troop seat release mechanism and *can be initiated only from the internal initiator*.

The Cabin Fuselage Hatch Severance Assembly will operate satisfactorily with a temperature range of -54 to $+93^{\circ}\text{C}$.

G.2 MV-22B OVERHEAD CABIN FUSELAGE HATCH SEVERANCE ASSEMBLY SOURCE DATA

G.2.1 Function and Location

The overhead hatch severance assembly (see [Figure G-2, Sheet 4](#)) is used to explosively sever the overhead escape hatch and is primarily intended to provide an escape route for troop member or passenger if the aircraft has come to rest on its side.

G.2.2 Description

The severance assembly, is a explosively loaded part designed to cut the fuselage skin material along the hatch periphery when initiated by the system. The explosive part is composed of a piece of lead tubing, shaped into a chevron shape and filled with high explosive material. The purpose of the chevron shape is to focus more of the explosive reaction in one direction to form a cutting jet. The overhead hatch severance assembly is structurally and functionally identical to the canopy severance assemblies except the explosive material itself is less powerful.

G.2.3 Operation

Functioning either the internal or external initiator starts a rapidly burning reaction in the TLX line end mated to the initiator. This signal moves along the line rapidly from the initiator end to the terminating end, which is mated to the severance assembly. The terminating end of the TLX line initiates the explosive charge in the severance assembly which is specially shaped to focus most of the force outboard. This detonation causes very high-pressure shock waves and metal particles to be directed at, and strike the thin walled steel tube. The impact of the metal particles and the shock wave cause the explosive material within the sleeve to detonate. This in turn will cause the detonation of the explosive in the shaped lead tube. The detonation will be sent down the two ends of the tubing and will meet at a point nearly opposite to where the manifold is located. The extremely rapid explosive reactions forms a focused jet of explosive shock waves and heat which cuts through the escape hatch material creating an escape opening.

The Cabin Fuselage Hatch Severance Assembly will operate satisfactorily with a temperature range of -54 to $+93^{\circ}\text{C}$.

G.3 MV-22B EXTERNAL INITIATOR SOURCE DATA

G.3.1 Function

The External Initiator is used to start the pyrotechnic reaction of the TLX line.

G.3.2 Description

An External Initiator is used with the left and right Side Canopy, left forward, left and right Center Cabin Fuselage Hatches, and the Overhead Fuselage Hatch. The External Initiator, is an inert mechanically actuated device. It is designed to accept only the primer ended TLX lines. The initiator consists of a cylindrical housing containing a small handle, approximately ten feet of thin steel cable and an initiator body. The external initiators are mounted flush to the fuselage skin of the aircraft. No ground safety device is used for this initiator assembly; it is always at the ready position.

G.3.3 Operation

The external initiator assembly is operated by first arming the initiator and functioning it. Arming is accomplished by depressing the red colored arming button with 6 to 12 pounds of force. Pushing the arming button allows the retaining pin (three each) to be withdrawn inside the handle. This allows the initiator handle to deploy from the initiator housing approximately 1 inch. The large spring in the base of the housing pushes the handle out of the housing until the handle is stopped by the lockout pins. At this point the handle can be replaced in the ready position by pushing the arming button, pushing the handle back into the housing and releasing the button. This action should not be done on a routine basis as it could lead to accelerated wear of the initiator assembly.

The initiator is functioned by removing the handle from the housing and deploys a thin steel cable from the spool on the inside of the handle as the operator moves away from the aircraft approximately ten feet. To function the system the operator must pull on the initiator handle with 20 to 35 pounds of force. When the handle is pulled a firing pin and a part called a sear is pulled back against a spring inside the initiator body. When the sear is pulled completely out of the body the firing pin is released and driven in the opposite direction by the compressed spring. The firing pin impacts the percussion primer cap, which is part of the TLX line. The impact to the primer cap starts the pyrotechnic reaction in the TLX line.

The External Initiator will operate satisfactorily with a temperature range of -54 to $+93^{\circ}\text{C}$.

G.4 MV-22B INTERNAL INITIATOR SOURCE DATA

G.4.1 Function

The Internal Initiator is used to start the pyrotechnic reaction of the TLX line.

G.4.2 Description

An Internal Initiator is used with the left and right Side Canopy, left forward, left and right Center Cabin Fuselage Hatches, and the Overhead Fuselage Hatch. The Internal Initiator, is an inert mechanically actuated device. It is designed to accept only the primer ended TLX lines. The initiator consists of a pull handle fitted with a push button release, and a housing, which attaches to the aircraft structure. A safety pin with attached red flag with "REMOVE BEFORE FLIGHT" is also included and can be installed into the initiator to prevent inadvertent operation.

G.4.3 Operation

To operate the internal initiator assembly the safety pin must be removed. Pushing the red arming button with 6 to 12 pounds of force arm the initiator. This action allows the retaining pin in the handle to withdraw from the catcher, and the retaining balls in the arming sleeve to relax. The handle can now be removed from the housing.

The initiator is functioned by removing the handle from the housing and pulling with 20 to 35 pounds of force. The handle will require approximately one and a half inches of travel to cause the initiator to function. When the handle is pulled a firing pin and a part called a sear is pulled back against a spring inside the housing. When the sear is pulled completely out of the housing the firing pin is released and the firing pin is driven in the opposite direction by the compressed spring and impacts the percussion primer cap, which is part of the TLX line. The impact to the primer cap starts the pyrotechnic reaction in the TLX line.

The Internal Initiator will operate satisfactorily with a temperature range of -54 to $+93^{\circ}\text{C}$.

G.5 MV-22B SIDE CANOPY SEVERANCE ASSEMBLY SOURCE DATA

G.5.1 Function and Location

The left and right side canopy severance assemblies (see [Figure G-2, Sheet 4](#)) are used to explosively sever the side cockpit transparencies and are primarily intended to provide an escape route for the pilot and copilot.

G.5.2 Description

The Severance Assembly, is an explosively loaded device parts designed to cut the side canopy transparency along its periphery when initiated by the system. The explosive part is composed of a piece of lead tubing, shaped into a chevron shape and filled with high explosive material. The purpose of the chevron shape is to focus more of the explosive reaction in one direction to form a cutting jet.

G.5.3 Operation

Functioning either the internal or external initiator starts a rapidly burning reaction in the TLX line end mated to the initiator. This signal moves along the line rapidly from the initiator end to the terminating end, which is mated to the severance assembly. The terminating end of the TLX line initiates the explosive charge in the severance assembly. This detonation causes very high-pressure shock waves and metal particles to be directed at, and strike the thin walled steel tube. The impact of the metal particles and the shock wave cause the explosive material within the sleeve to detonate. This in turn will cause the detonation of the explosive in the shaped lead tube. The detonation will be sent down the two ends of the tubing and will meet at a point nearly opposite to where the manifold is located. The

extremely rapid explosive reactions forms a focused jet of explosive shock waves and heat which cuts through the plastic transparency material creating an escape opening.

The Canopy Severance Assembly will operate satisfactorily with a temperature range of -54 to $+93$ °C.

G.6 MV-22B THRUSTER SOURCE DATA

G.6.1 Function

The Thruster Assembly is a restrained, one-time-use piston device used to release the troop seat release mechanism.

G.6.2 Description

The Thruster Assembly, is basically a piston contained in an aluminum housing. The Thruster Assembly itself does not contain any explosive materials. A Thruster is used with the left forward, and the left and right Center Cabin Fuselage Hatches.

G.6.3 Operation

The piston is restrained in its ready position by a pin. The Thruster will operate when a certain amount of gas pressure pushes against the piston with sufficient force to break the pin. When the pin is broken the piston will travel approximately 0.45 inch and will turn a cam on the troop seat release mechanism.

A hot gas-producing cartridge fitted to the mating TLX line develops the pressure source for the Thruster Assembly. When this TLX line is initiated, hot gas is rapidly liberated by the cartridge and is directed into the piston chamber where it pushes against the piston.

The Thruster will operate satisfactorily with a temperature range of -54 to $+93$ °C.

G.7 MV-22B TLX LINE SOURCE DATA

G.7.1 Function

The Thin Line Explosive (TLX) transfer lines are used to initiate explosive cutting charges on the left/right cockpit canopies, and cabin escape hatches 2LS3, 2RS3, 3CT1, and 2LS2.

G.7.2 Description

The TLX line is a pyrotechnic signal transmission line loaded with explosive and pyrotechnic materials. They are thin plastic hollow tubes with a thin layer of explosive material coating the inside surface of the tube. The exterior of the tube is covered with a flexible steel braid and then with a heat shrink plastic jacket. Three types of Transfer Lines (TLX) used on the MV-22B aircraft include Primer-to-High Explosive (P-HE), High Explosive-to-Gas Generator (HE-GG), and High Explosive-to-Low Explosive (HE-LE).

The Primer-to-High Explosive (P-HE), is used between the Internal/External initiators and Hatch Severance Assemblies or Tee connectors installed either on the left/right cockpit canopies, or cabin escape hatches 2LS3, 2RS3, 3CT1, and 2LS2. The High Explosive-to-Gas Generator (HE-GG), is used between the Tee Connector and Thruster Assembly on cabin escape hatches 2LS3, 2RS3, AND 2LS2. The High Explosive-to-Low Explosive (HE-LE), is used between the Tee Connector and Hatch Severance Assembly for 2LS3, 2RS3, AND 2LS2.

G.7.3 Operation

When the Primer-to-High Explosive (P-HE) TLX line is ignited, the explosive material on the inner wall burns rapidly (no explosive detonation occurs because there is very little material in any given area and the material is not

compacted) producing a hot gas shock wave that travels down the tube from one end to the other. The material that is burned along the tube continually reinforces the shock wave. Special purpose end assemblies are attached to the ends of the TLX lines. The primer is by high explosive type TLX, one end is fitted with a primer cap and the other has a high explosive output assembly. The primer end of the TLX line consists of a steel ferrule, which mounts to a standard military percussion type Primer Cap. This primer cap is loaded with a small amount of very sensitive, primer explosive material. This material will explode if a certain amount of mechanical energy is focused in the center of the cap. Normally, this energy is delivered using a spring-loaded firing pin. The primer ends are mated to the initiator ports. The high explosive end of the TLX line assembly consists of a steel ferrule with a small, thin wall steel cup welded to it. Explosive materials are loaded in both the ferrule and the cup. The explosive inside the ferrule is a sensitive primary explosive and is used to receive the weak TLX shock wave and to boost it high enough in energy to detonate the secondary high explosive loaded in the cup. The high explosive end of the TLX lines is used to initiate the severance assemblies or to transfer the command signal from one TLX line to another.

The Primer-to-High Explosive (P-HE) TLX line will operate satisfactorily with a temperature range of -54 to $+93^{\circ}\text{C}$.

The High Explosive-to-Low Explosive (HE-LE) is similar to the primer by high explosive (P-HE) line except for one of the end assemblies. While the basic TLX tube and high explosive end remain the same the line is fitted with a low energy type of end assembly at the other end. The low energy end of the TLX line consists of a steel ferrule in which the end of the TLX tube is fitted. A small pyrotechnic booster charge is fitted to the end of the TLX inside the tube. This booster charge is present to accept the explosive output reaction from the high explosive TLX ends when the ends are all mated to the Tee Connector. The low energy booster charge will accept the explosive stimulus, ignite, burn rapidly and ignite the explosive material on the inside wall of the TLX tube. If the explosive signal were started at the high explosive end of this line the signal would travel from that end to the low energy end. The low energy booster charge would ignite and output some hot gas into the connecting assembly. While the basic TLX tube and high explosive end remain the same the line is fitted with a gas generating type of end assembly at the other end. The gas generator end of the TLX line consists of a steel cartridge assembly, which encases two type of gas producing pyrotechnic materials. It is intended that the input signal for this type of TLX line be from the high explosive end. The TLX shock wave travels down the TLX line and enters the inner chamber by passing around a steel ball. This shock wave ignites a small pyrotechnic material load, which starts to burn and create hot gas. The hot gas forces the steel ball into the throat of the ferrule cutting off any gas flow from the ferrule from going into the TLX tube. This small pyrotechnic load then burns through the other end and ignites the main charge of gas producing material. The hot gas freed by the burning reaction bursts through a thin steel closure plate on the end of the cartridge. This hot, high-pressure gas is used to push a piston contained within the thruster assembly.

The High Explosive-to-Low Explosive (HE-LE) TLX line will operate satisfactorily with a temperature range of -54 to $+93^{\circ}\text{C}$.

The High Explosive-to-Gas Generator (HE-GG) is similar to the primer by high explosive (P-HE) line except for one of the end assemblies. While the basic TLX tube and high explosive end remain the same the line is fitted with a gas generating type of end assembly at the other end. The gas generator end of the TLX line consists of a steel cartridge assembly, which encases two types of gas producing pyrotechnic materials. The input signal is from the high explosive end.

The TLX shock wave travels down the TLX line and enters the inner chamber by passing around a steel ball. This shock wave ignites a small pyrotechnic material load, which starts to burn and create hot gas. The hot gas forces the steel ball into the throat of the ferrule cutting off any gas flow from the ferrule from going into the TLX tube. This small pyrotechnic load then burns through the other end and ignites the main charge of gas producing material. The hot gas freed by the burning reaction bursts through a thin steel closure plate on the end of the cartridge. This hot, high-pressure gas is used to push a piston contained within the thruster assembly.

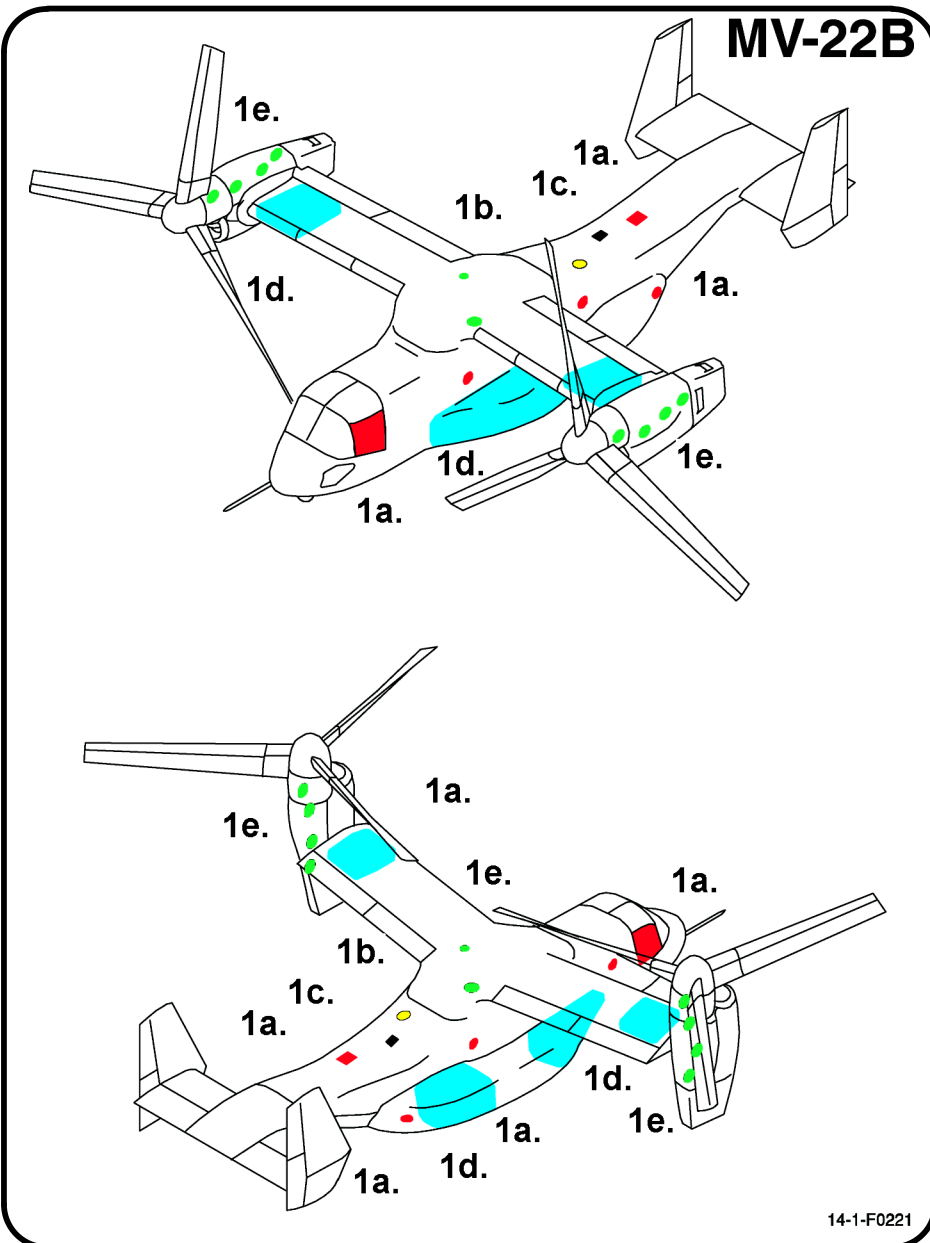
The High Explosive-to-Gas Generator (HE-GG) TLX line will operate satisfactorily with a temperature range of -54 to $+93^{\circ}\text{C}$.

SPECIAL TOOLS/EQUIPMENT

Power Rescue Saw
Crash Axe

1. GENERAL AIRCRAFT INFORMATION

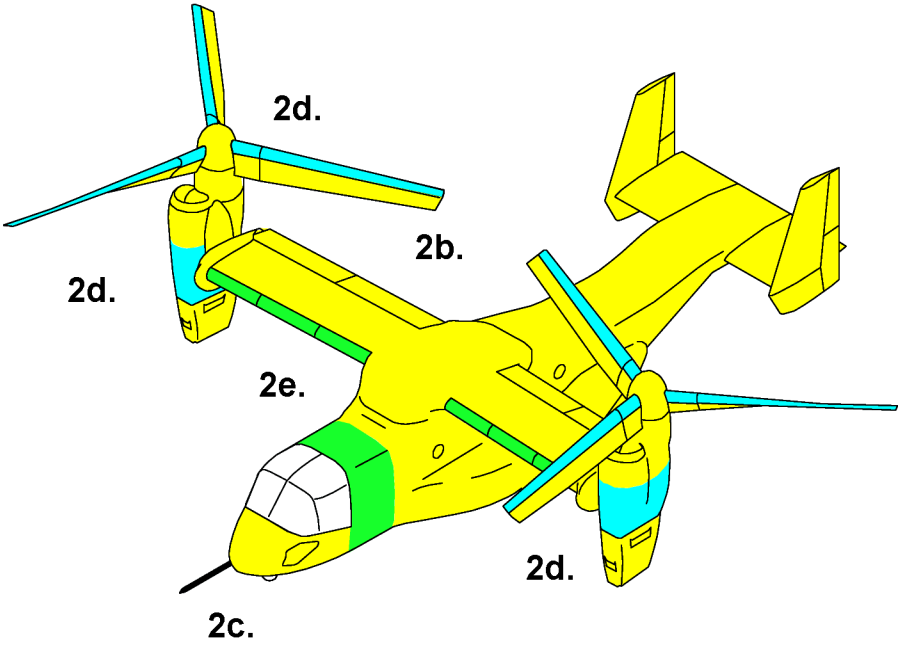
- a. Pyrotechnics Chaff/Flares, Escape Hatches/ Explosive Cartridges
- b. Oxygen/Gas 400 Liter emergency supply — Gaseous (Located in aft cabin overhead)
- c. Battery 1 (Located in aft cabin overhead)
- d. Fuel Internal 1448.4 gal
- e. Oil Engine 3.0 gal
APU 1.3 gal
Proprotor Gearbox 8 gal
Tilt Axis Gearbox 3.5 gal
Midwing Gearbox 2.25 gal
Emergency Lubrication Reservoir 6 gal
Variable Frequency Generators 3.5 qt
Hydraulic 4.3 gal
- f. Pneumatic System 3000 PSI



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Figure G-2. MV-22B Osprey Crash Crew Information (Sheet 1 of 7)

MV-22B



2. AIRFRAME MATERIALS

- a. N/A
- b. Other
Fiberglass/Carbon Epoxy
Composite/Glass Epoxy
Composite
- c. Steel
- d. Titanium
- e. Aluminum
- f. N/A
- g. N/A



Figure G-2. MV-22B Osprey Crash Crew Information (Sheet 2)

3. AIRCRAFT DANGER AREAS

- a. Turbine Blade Failure — 300'
- b. Engine Exhaust

WARNING

After landing, engine exhaust is deflected 45° away (outboard) from the aircraft.

- c. APU Exhaust (Top)
- d. Rotors

Rotor Minimum Ground Clearance	20'10"
Proprotor Disc Diameter	38'0" (single) 84'5.5" (combined)

- e. Escape Windows/Hatches — 50'
- f. Chaff/Flares

4. AIRCRAFT ENTRY

a. NORMAL ENTRY

WARNING

- Do not approach aircraft until it has been shutdown and rotors have come to a complete stop.
- Solid propellant inert gas generator fire extinguishing systems discharge an inert gas mixture that appears as voluminous white smoke as the mixture is expelled from the aircraft.

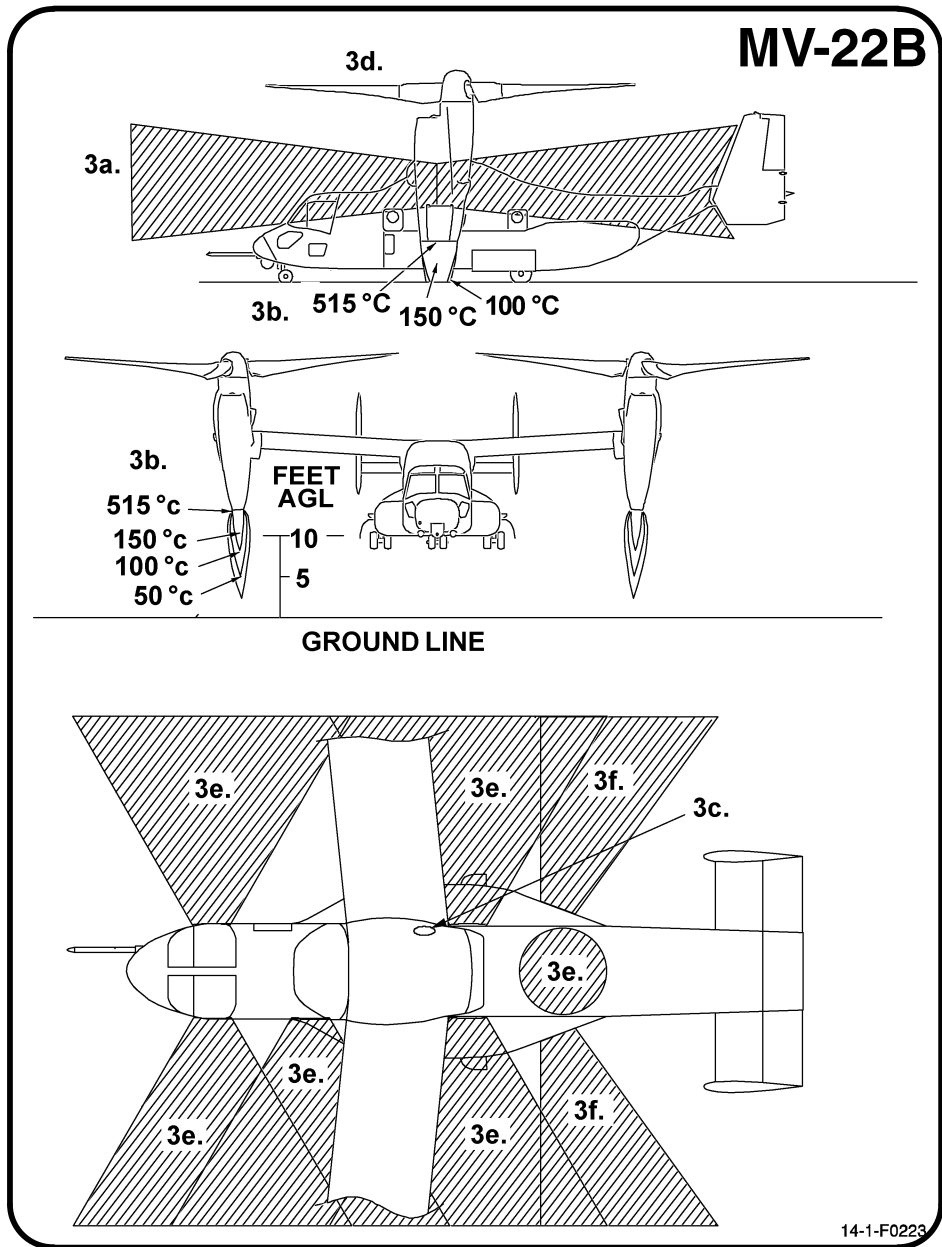


Figure G-2. MV-22B Osprey Crash Crew Information (Sheet 4)

4. AIRCRAFT ENTRY (CONT.)

a. NORMAL ENTRY (CONT.)

Normal entry to the flight compartment, and passenger and/or cargo compartment is through the forward entrance door on the starboard side. The door can be opened from inside or outside the aircraft.

- (1) On lower door: Push button in center of handle, handle will pop out. Turn handle up and pull, door will hinge downward to provide entry steps. On upper door: Push button in center of handle, handle will pop out. Pull handle down and push door in.

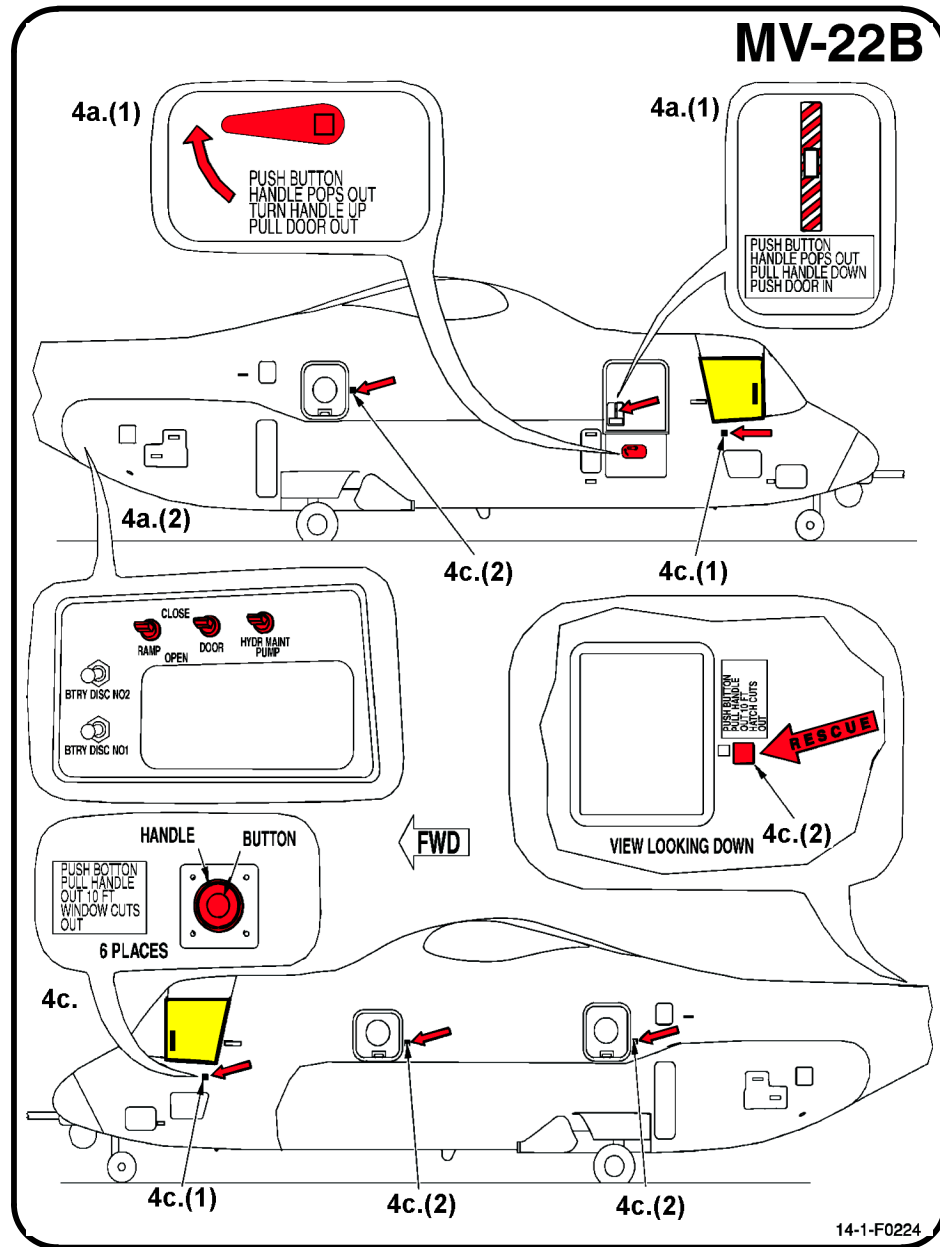
Alternate entry to the flight compartment, and passenger and/or cargo compartment is through the cargo ramp/door. The cargo ramp/door can be opened from inside or outside the aircraft. The External Ramp Control Panel is located on the aft corner of the starboard sponson.

- (2) On the External Ramp Control Panel: Activate the HYD MAINT PUMP switch, the RAMP directional switch, and the DOOR directional switch **simultaneously**. Release all three switches when cargo ramp/door reaches desired position.

b. N/A

c. EMERGENCY ENTRY

Emergency entry can be made through two cockpit jettisonable windows and four jettisonable cabin escape hatches. The windows and hatches are jettisoned by the use of a detonation cord system designed to cut the windows/hatches from the aircraft.



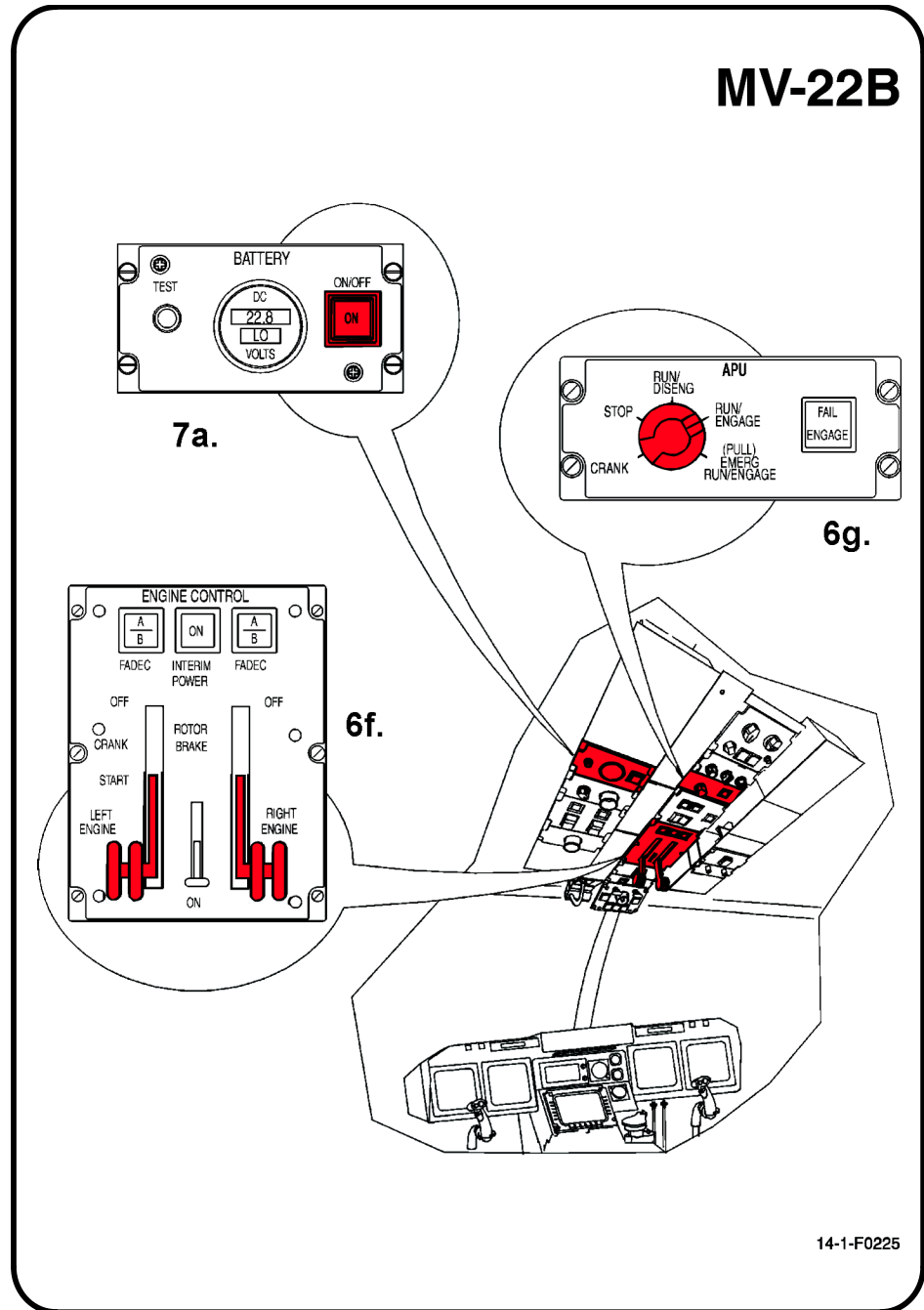
4. AIRCRAFT ENTRY (CONT.)**c. EMERGENCY ENTRY (CONT.)****WARNING**

- Flying debris could injure personnel positioned within 50 feet of the jettisoned windows/hatches.
- Activation of the cabin window and cabin escape hatch jettison system when fuel and/or vapors are present may result in a fire.
- The high sound levels that occur when the explosive escape system hatches are jettisoned can damage hearing if hearing protection is not worn.
- Cockpit side windows shall be jettisoned one at a time. Failure to comply may result in personnel injury or death to aircrew.
 - (1) Cockpit windows: Push button, handle will pop out. Grasp handle and, at a 45° angle, extend to end of lanyard (approximately 10 feet). Face away from aircraft and pull handle to initiate detonation.
 - (2) Cabin escape hatches: Two on left side, one on right side, and one in aft cabin overhead. Push button, handle will pop out. Grasp handle and, at 45° angle, extended to end of lanyard (approximately 10 feet). Face away from aircraft and pull handle to initiate detonation.

d. N/A

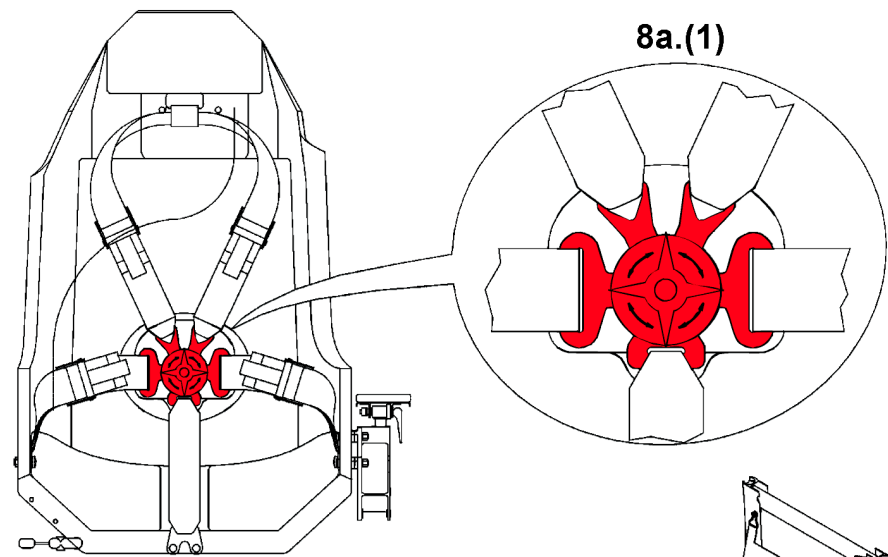
Figure G-2. MV-22B Osprey Crash Crew Information (Sheet 6)

- 5. N/A
- 6. **ENGINE SHUTDOWN**
 - a. N/A
 - b. N/A
 - c. N/A
 - d. N/A
 - e. N/A
 - f. Apply INBOARD pressure to Control Levers and MOVE levers to extreme AFT position (OFF).
 - g. **APU**
Position APU rotary switch to STOP. APU shutdown will be automatic.
- 7. **BATTERY**
The primary purpose for the battery is for starting the APU. One 24-volt sealed, lead-acid battery is located in the cabin overhead and is accessible from inside the cabin.
 - a. PUSH battery switch to turn battery ON/OFF.

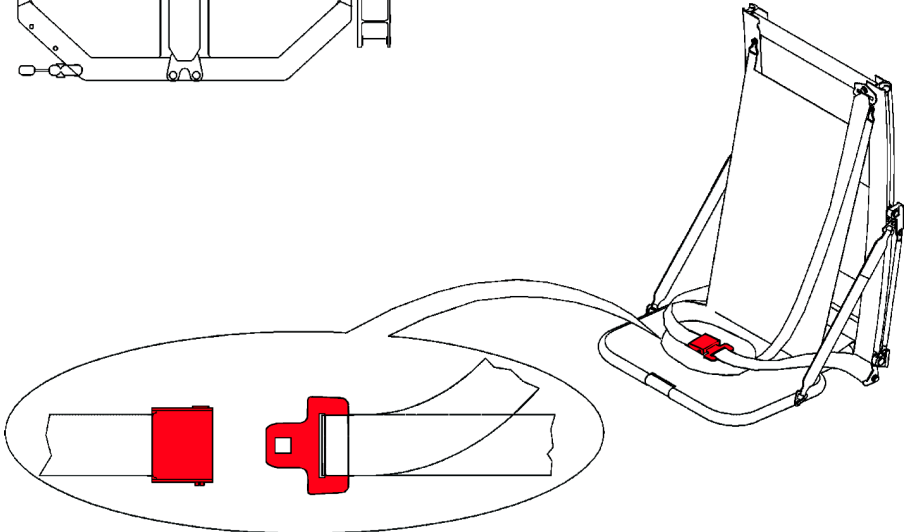


MV-22B

8a.(1)



8a.(2)



14-1-F0226

8. CREW RELEASE

The pilot, copilot, and cockpit jump seat restraint system consists of two lap straps, crotch strap and attaching rotary buckle, and a shoulder harness. Passengers and crewmembers have lap belts and a shoulder harness only.

a. PERSONNEL SERVICE, QUICK DISCONNECT

- (1) PILOT, COPILOT, AND COCKPIT JUMP SEAT: TURNING rotary buckle knob 1/4 turn will RELEASE lap straps and shoulder harness from crotch strap.
- (2) PASSENGER/CREWMEMBER: LIFT BUCKLE to RELEASE lap belt and shoulder harness (airline type).

- b. N/A
- c. N/A
- d. N/A

Figure G-2. MV-22B Osprey Crash Crew Information (Sheet 7)

APPENDIX H

References

H.1 RESCUE AND FIREFIGHTING PUBLICATIONS

The following publications contain additional information about Aircraft Rescue and Firefighting Procedures.

AIRCRAFT TYPE	PUBLICATION TITLE	PUBLICATION NUMBER
USN/USMC AIRCRAFT	NATOPS U.S. NAVY AIRCRAFT FIREFIGHTING AND RESCUE	NAVAIR 00-80T-14
USAF AIRCRAFT	TECHNICAL MANUAL AIRCRAFT EMERGENCY RESCUE INFORMATION	USAF T.O. 00-105E9

H.2 AIRCRAFT SYSTEMS PUBLICATION

The following publications contain additional information about USN and USMC aircraft equipment and escape procedures.

AIRCRAFT TYPE	PUBLICATION TITLE	PUBLICATION NUMBER
AV-8B/TAV-8B Harrier	AV-8B/TAV-8B NATOPS Flight Manual	NAVAIR A1-AV8BB-NFM-000
F-5E/F/N Tiger II	F-5E/F/N NATOPS Flight Manual	NAVAIR 01-F5AAA-1
F-16N Fighting Falcon	F-16A/B Flight Manual	USAF T.O. 1F-16A-1
F/A-18A/B/C/D Hornet	F/A-18A/B/C/D NATOPS Flight Manual F/A-18A/B/C/D Line Maintenance Emergency Procedures	NAVAIR A1-F18AC-NFM-000 NAVAIR A1-F18AC-LMM-020
F/A-18E/F Super Hornet	F/A-18E/F NATOPS Flight Manual F/A-18E/F Line Maintenance Emergency Procedures	NAVAIR A1-F18EA-NFM-000 NAVAIR A1-F18EA-LMM-020
EA-6B Prowler	EA-6B BLK 89A/89, 82 NATOPS Flight Manual EA-6B ICAP II BLK 3 Preliminary NATOPS Flight Manual EA-6B ICAP III BLK II Preliminary NATOPS Flight Manual	NAVAIR 01-85ADC-1 NAVAIR 01-85ADX-1 NAVAIR 01-85ADZ-1
EA-18G Growler	EA-18A Preliminary NATOPS Flight Manual	NAVAIR 01-E18GA-NFM-000
E-2C Hawkeye	E-2C NATOPS Flight Manual	NAVAIR 01-E2AAF-1
E-6B Mercury	E-6B NATOPS Flight Manual	NAVAIR A1-E6AAB-NFM-000
EP-3E	EP-3E NATOPS Flight Manual	NAVAIR 01-75EPS-1
P-3C AIP Orion	P-3C NATOPS Flight Manual	NAVAIR 01-75PAC-1
P-3A/B/C	P-3A/B/C NATOPS Flight Manual	NAVAIR 01-75PAG-1
S-3B Viking	S-3B NATOPS Flight Manual	NAVAIR 01-S3AAB-1
C-2A Greyhound	C-2A NATOPS Flight Manual	NAVAIR A1-C2AHA-NFM-000
C-9B/DC-9B Skytrain II	C-9B NATOPS Flight Manual	NAVAIR 01-C9BAAA-1
UC-12B/F/M Super King Air	UC-12B/F/M NATOPS Flight Manual	NAVAIR A1-C12BM-NFM-000

NAVAIR 00-80R-14-1

AIRCRAFT TYPE	PUBLICATION TITLE	PUBLICATION NUMBER
C-20A/D/G Gulfstream III/III/IV	C-20A Flight Manual C-20D NATOPS Flight Manual C-20G NATOPS Flight Manual	USAF T.O. 1C-20A-1 NAVAIR 01-C20DAAA-1 NAVAIR 01-C20GAAA-1
C-26D Metroliner	C-26D NATOPS Flight Manual	NAVAIR 01-C26DA-NFM-000
UC-35C/D Citation	UC-35C/D NATOPS Flight Manual	NAVAIR 01-C35CAA-1
C-37A/B Gulfstream V/550	C-37A NATOPS Flight Manual C-37B NATOPS Flight Manual	NAVAIR 01-C37A-1 NAVAIR 01-C37B-1
C-40A Clipper	C-40A NATOPS Flight Manual	NAVAIR 01-C40AA-NFM-000
C-130T & KC-130F/R/T/J Hercules	C-130T NATOPS Flight Manual KC-130F NATOPS Flight Manual KC-130J NATOPS Flight Manual KC-130R NATOPS Flight Manual KC-130T & KC-130T-30 NATOPS Flight Manual	NAVAIR 01-75GAL-1 NAVAIR 01-75GAA-1 NAVAIR 01-75GAJ-1 NAVAIR 01-75GAG-1 NAVAIR 01-75GAH-1
T-2C Buckeye	T-2C NATOPS Flight Manual	NAVAIR 01-60GAB-1
T-6A Texan II	T-6A NATOPS Flight Manual	NAVAIR A1-T6AAA-NFM-100
TC-12B Super King Air	TC-12B NATOPS Flight Manual	NAVAIR 01-C12AAB-1
T-34C Turbo Mentor	T-34C NATOPS Flight Manual	NAVAIR 01-T34AAC-1
T-39D/G/N Sabreliner	T-39D NATOPS Flight Manual T-39G/N NATOPS Flight Manual	NAVAIR 01-60GBA-1 NAVAIR 01-60GBE-1
T-44A/C King Air	T-44A NATOPS Flight Manual T-44C NATOPS Flight Manual	NAVAIR 01-T44AAA-1 NAVAIR 01-T44AAC-1
T-45A/C Goshawk	T-45A NATOPS Flight Manual T-45C NATOPS Flight Manual	NAVAIR A1-T45AB-NFM-000 NAVAIR A1-T45AC-NFM-000
MV-22B Osprey	MV-22B NATOPS Flight Manual	NAVAIR A1-V22AB-NFM-000
AH-1W/Z Super Cobra	AH-1W NATOPS Flight Manual AH-1Z NATOPS Flight Manual	NAVAIR 01-H1AAC-1 NAVAIR 01-H1AAD-1
UH-1N/Y Iroquois	UH/HH-1N NATOPS Flight Manual UH-1Y NATOPS Flight Manual	NAVAIR 01-110HCE-1 NAVAIR 01-110HCG-1
UH-3H & UH-3E(ET) Sea King	UH-3H & UH-3H(ET) NATOPS Flight Manual	NAVAIR 01-230HLH-1
CH-46E Sea Knight	CH-46E NATOPS Flight Manual	NAVAIR A1-H46AE-NFM-000
CH-53D Sea Stallion	CH-53D NATOPS Flight Manual	NAVAIR 01-230HMA-1
CH-53E Super Stallion MH-53E Sea Dragon	CH-53E NATOPS Flight Manual MH-53E NATOPS Flight Manual	NAVAIR A1-H53BE-NFM-000 NAVAIR A1-H53ME-NFM-000
TH-57B/C Sea Ranger	TH-57B/C NATOPS Flight Manual	NAVAIR 01-H57BC-1
SH-60B Seahawk SH-60F & HH-60H Seahawk MH-60R Seahawk MH-60S Knighthawk	SH-60B NATOPS Flight Manual H-60F/H NATOPS Flight Manual MH-60R NATOPS Flight Manual MH-60S NATOPS Flight Manual	NAVAIR A1-H60BB-NFM-000 NAVAIR A1-H60CA-NFM-000 NAVAIR A1-H60RA-NFM-000 NAVAIR A1-H60SA-NFM-000

APPENDIX I

NATOPS Question and Answer Bank

Test question and answer bank under development.

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