

Declassified E.O. 12356 Section 3.3/NND No.

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FIRE FIGHTING SERVICES
SEPT. 1946

M1

A.S.O.

Please read Para 14 in Evaluation 7A
AFSC/302/16/Orig. re NO 2 Free Fighting School
at Amman and take action on the Evaluation
note.

Lee Jannan the
18. 9. 46

S.S.O. — Good up 20/9.
M2.

Reference Mr. I have spoken with the Air Ministry and they have
promised to let me have an answer as to whether they have any
English-speaking personnel available for the proposed courses, when this
is received I will write M.A.A.C. to obtain necessary authority.

Paul
6/20/9.

0357

1A

From: Air Forces Sub-Commission, Allied Commission, Rome.
To : Italian Air Ministry.
Ref : AFBC/48/5/Air
Date: 27th September, 1946

CRASHFIRES

Reference a recent telephone conversation between the undersigned and Lt. Col. Roveda of your ministry it is regretted that English-speaking personnel are not available to apply for a course at No. 2 RAF Fire Fighting school, Amman

However, for the guidance of all personnel concerned the attached extracts have been taken from the Combined Air Sea Rescue Bulletin, and forwarded for your use.

It is considered that these notes will be particularly helpful to trained personnel on an airfield crash tender but it is further suggested that some paragraphs may be included in the Rescue brochure being prepared at your Ministry for the guidance of the other Italian Services, Carabinieri, Alpini, etc.

for

[Signature]
F/LT. F. REID
AIR VICE MARSHAL
DIRECTOR
A.F.B.C.

[Handwritten notes]
29/9
J.K.M.
11/10

1B

CRASHFIRES.Entry Operations.

Rescue operations are the primary objective in crash fire fighting. The successful removal of air crew requires every necessary speed and teamwork. Preparations should be so complete that they may be started the instant a truck rolls into its approach position.

Under normal circumstances two rescue men should be used for operations at any single point of attempted entry. The following outline is principally based on the use of two men at a single point. If other points of entry are selected a repetition of the procedure outlined will apply to additional rescue teams.

Estimate of Air Crew in Aircraft.

Escaped air crewmen may give a clue as to the number believed remaining in the plane. If the aircraft involved is a transport or bomber a check on the total crew and passengers may be impossible within reasonable time limit. If more than a very few passengers of crew appear to be involved and unless there is absolute and unquestioned assurance of their safety outside of the aircraft, no dependence should be placed upon appearance that all aircrew are out. Investigations must be carried out to guarantee clearance of personnel from a burning airplane.

Point of Attack.

Only a general outline can be made on the method of attack. The principal points of concern will be the probable locations of trapped air personnel, the location of the fire, its possible envelopment of additional parts of the airplane and the location of access doors or points of forcible entry. These will be affected by gun positions, presence of bombs incendiaries, flares and location and quantity of other fire-fighting equipment. The most suitable point of entry should be chosen a full consideration of all circumstances.

Approach to Airplane.

If high pressure turret streams from the class 155 crash fire truck or CO2 from the class 150 crash fire truck are being used, almost immediate approach to the aircraft may be possible. Rescue men should take the path cleared, if high pressure turret water blast is used.

Great caution should be observed in attempting to enter planes which are surrounded with intense, widespread fires. Backflashes may cut off the rescue men within the flaming area.

Movement of Wreckage.

No part of the airplane structure should be moved unless it is absolutely essential to rescue operations. If any fracturing of structure has occurred, electric

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cables may have been broken. If the main switch has not been cut off, cables may still be connected to the battery. The slightest movement of wreckage or fragments may cause a broken cable to spark sufficiently to ignite gasoline vapors which have drifted to that point, regardless of its apparent remoteness from any visible gasoline source. Static electric discharges may be caused by slight movements of planes. Figure 6-3 shows a typical crash in which movement of wreckage would be hazardous under unusual circumstances.

In spite of the general hazards of moving parts of aircraft, circumstances exist in which such risks are warranted. Airplanes may be partially moved to a more favorable angle with reference to the wind. They may be moved to protect trapped crew by changing direction of progress of the fire. Where large parts of the fuselage have been separated by impact and where only isolated parts are involved in a general fire, it may be possible by the use of grapples or cables to remove a portion of the aircraft to a point at which the danger of ignition is reduced. Small aircraft may be pulled away from gasoline spills or saturated ground.

Air planes are occasionally found resting in final position on their backs. Single-engine aircraft with cover cockpits may have the canopy or access hatch partially buried. On some types of soils it may be safer to dig under the inverted cockpit to release the air crew than to attempt to move the fuselage.

Access Door Entry

The easiest and quickest way for rescue men to gain access to the airplane is by the use of doors escape hatches.

In most instances there are provided with external releases. The exterior latch on either the handle or flush type may be quickly operated. If heavy asbestos gloves are worn over leather gloves, it may require the use of a screwdriver or bar to operate the flush type latch.

If there is no exterior release device, shatter a window to reach interior release.

If a door is jammed, attempt to force it around the framework or at the hinges. Bring a bar or hand axe to bear if the damaged unit cannot be displaced. If doors or hatches are immovable a plastic or glass area may be the next fastest means of entry.

The forcing of jammed doors and escape hatches should be tried before an attempt is made to enter the airplane otherwise, unless glass or plexiglas openings will serve. The reason for this is that such openings are not ordinarily obstructed by equipment inside the airplane.

Plexiglas

Plexiglas is readily shattered by a sharp blow from a hand axe. Broken sections will separate and fall away from any part remaining within the framework. A large area can be completely and swiftly opened up by quick, repeated blows.

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Safety Glass

Safety glass, consisting of two or more glass layers with one or more plastic film interlayers, may be shattered with an axe. Its complete removal is slower than plexiglas. The shattering occurs principally along radial lines from the point of impact, as with laminated glass in automobiles. Relatively small fragments or slivers will fall away from both the inner and outer glass surfaces near the point of impact, but the majority of fragments remain held in place by the center of soft, flexible plastic film. After several blows, the plastic film tends to hold the sagging fragments together, in spite of the destruction of the inner and outer layers of thicker glass. Continued blows will cut through the plastic film and the section of shattered glass will collapse.

Window Frames or Bays.

Plexiglas or safety glass sections are fastened into the fuselage framework by metal strips. Rubber or composition inserts cushion the actual contact around edges of the transparent section. If the glass is cracked out near the edge, the cushion strip may be reached and stripped from the slot. This releases the transparent section and leaves no jagged, cutting fragments in the frame.

If sections of glass or plexiglas are used to form bays, they may be supported by a metal framework. After knocking out two adjoining panes, the metal framework may be separated from the fuselage at top or bottom by a heavy blow or by sawing with a hack or metal saw. The metal framework may then be pulled outward. This will leave the total space of two transparent sections open.

In comparison of rapidity of entry, breaking transparent sections may require more time than removing slightly jammed doors, but will require less time than going through metal skin, transverse frames, and stiffeners of a fuselage wall.

Fuselage Wall Entry

On failure to gain access through doors, hatches, openings, plexiglas, or safety glass, entry must be attempted through the wall of the fuselage itself. A complete mental picture should be set up of the interior arrangement of bulkheads, partitions, decks, armor plates, and fixed equipment. The approximate location of the majority of cables, connections, and tubing must be estimated. Taking these factors into consideration, along with the most probable location of entrapped crew and the possibility of interior movement once entry has been effected, a section of the fuselage is selected for cutting.

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Selection of Line of Cut

Cuts must be made so as to involve the least possible number of reinforcing channels, stiffeners, ribs, or longerons. Structural reinforcements of skin surface are almost always parallel or perpendicular to the length of the fuselage. This rectangular sections of skin surface between horizontal stringers or longerons and curved vertical ribs or bulkheads.

The position of the internal reinforcements is indicated by the rivet heads exposed on the outer surface. A single line of rivets means that the interior reinforcements is probably a light channel. Two or more closely placed rows of rivets mean that a heavier channel or built-up section of some magnitude is immediately underneath. Cuts must be laid out so as to avoid as many as possible of the closely positioned double rows of rivets.

The area desired will consist of one or more adjacent rectangular sheet skin surfaces which involve cutting the least number of heavier sections supporting it, and whose combined area is sufficient for access. The cut is indicated.

Make Smallest Cut Possible

Usually only three sides of a rectangular opening large enough to permit access will have to be fully cut. The fourth side may be used as a hinge and bent back. Cut any heavy sections along this side and use the still-joined skin surface as a hinge. If the opening is on the upper part of the fuselage, the top side should be used as a hinge and the cut section swung outward and upward, where it will not obstruct movement from the interior to the ground. If the opening is low on the fuselage, use the bottom side of the cut section as a hinge and swing it outward and downward, so that it will not be within the fuselage to create an additional obstacle inside.

Water in the form of a straight stream or fog may be constantly applied during the cutting operations to offset ignition of vapors or ruptured lines.

Tubing, Wood, and Fabric Fuselage Entry

In tubular and fabric fuselage construction the fabric surfaces may be rapidly cut away with a knife. Tubular sections of steel or Duralumin may be cut with a rotary pipe cutter, by a hacksaw, or by metal-cutting saw.

Entry through fuselages construction of plywood or moulded woods may be by wood saw or axe.

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Entrance Into Fuselage

No more than one of the two rescue men in a rescue team should make an initial entry into an aircraft. The other rescue man should stay at the opening until some indication is given from the crewman inside as to necessary action. Signal should be given if help is needed or if the withdrawal of the inside crewman becomes necessary from some development apparent to the outside crewmen.

Action Within Fuselage

When an entry is made the first step is to locate personnel and determine conditions. Where immediate hazards are beyond control of rescue men, so that time is limited, remove air crew at once. In other cases it will be more practical to reduce hazards first and thereafter remove personnel.

In such circumstances, the master and gun safety switches should be checked in the "Off" position if they can be reached. Gasoline selector switches, booster, and transfer pumps should be cut off. Hazardous material should be removed or placed as far as possible from the fire. This includes pyrotechnics of all types, incendiaries, ammunition, and bombs. The first action on any gun is to elevate its muzzle. Immediate elevation of the gun muzzle will usually raise the line of fire above the crewmen on the ground. If time permits, ammunition belts may be removed and cartridges ejected.

Release Of Crews From Belts and Harness

Air crewmen may be held in their seats by safety belts and shoulder harness or parachute harness. The fastest removal from safety belt and shoulder harness is to operate the release catch itself, not cut the belts. If the aircrewman is unconscious, the safety belt and shoulder harness safety release catch in the middle of the belt across the stomach should be opened. This releases the safety belt; the shoulder harness straps will come free if they are jerked slightly.

When the safety catch cannot be reached, cut the webbing of the safety belt. If the safety catch on a belt cannot be released and shoulder harness is in position, each shoulder strap will have to be cut separately or the joined harness slipped over the head. A shoulder harness release lever at the base of the seat extends the straps from the seat back without completely releasing them. The use of this lever may allow sufficient movement to help in removal operations.

Parachute harness may have to be cut off before air crewman can be moved. This is done by cutting the webbing straps. This will leave the parachute in the seat, removing possibility of parachute or harness parts from catching in debris during removal.

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Release of Air Crew from Controls

The control stick or wheel and drum may jam in such a position as to pin the pilot or co-pilot. It may be faster to remove the cause of jamming than to attempt to move the stick itself. The stick is connected by cables to the control surfaces, rudder, elevators, ailerons. Jamming of pulleys pressure against the cables in any part of the aircraft, or wreckage against the cables in any part of the aircraft, or wreckage against the control surfaces themselves will make the stick immovable. In such cases, cutting a cable or linkage at any point between the jam and the control stick should release the stick. Cables or linkages to the rudder and elevators may be exposed within the fuselage, those to the ailerons may be reached in the wings through access plates, engine nacelles, landing gear compartments or removal of leading edges. They are easily cut at any exposed point. Teamwork in the operations of the two rescue men and knowledge of the plane structure will play an important part in operations of this type.

Release of Air Crew From Debris

If members of the air crew are pinned by wreckage or controls, their immediate release may not be possible. Their position should be communicated to the fire fighters outside. Efforts should be made to keep the fire from reaching those areas by forming a water curtain around them, or by concentrating extinguishment efforts around those points. Wire-cutting pliers, hacksaw, bolt clippers, hand hatchet, and bars will prove useful in confined operations to release personnel. When limbs are entangled in cable tubing, or fragments, extreme care must be exercised in release operations to avoid aggravation of injuries. Unless the emergency is extreme due to the physical condition of the crewmen, or unless removal must be made at once due to fire or heat hazard, advice of medical officers should be secured during extrication operations. Patience and careful work may accomplish more with less harmful results than an excited rapid effort.

Care in Removal of Injured

Extreme care must be taken in removing air-crew members if they appear to be injured. Injuries may be greatly aggravated through inexperienced handling. Compound fractures encountered in crash injuries may be transformed into more serious or even fatal injuries unless removal is made in the proper manner. When a fire is not serious or is under control, immediate removal by crash crew may not be desirable if experienced and competent medical aid is directly at hand.

Medical Aid

The primary objective is to relieve air crew from exposure to hazards accompanying the crash. All action must be taken so that additional injury is not inflicted. Medical advice should be used whenever available during removal of air crew. Preliminary treatment should be provided prior to transportation of injured from the site.

Medical assistance must be introduced at earliest possible time.

