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SPECIAL EDITION #2
2020
Online Newsletter of Army Aircraft Accident Prevention

Introduction of the Emergency Response Methodology

For more than 50 years, Army Aviation instructors have trained and evaluated crewmember responses to aircraft emergencies the same way. Central to this training was memorization and rapid execution of emergency action steps, and today's Army aviators are products of this approach. This methodology undoubtedly saved lives over the last half century, especially in earlier generations of aircraft lacking redundant systems and requiring constant inputs to maintain control. However, as our aircraft have evolved to become more capable and sophisticated, our approach to training flight crews must evolve as well.

In 2019, the United States Army Aviation Center of Excellence (USAACE) initiated a review of the Aviation branch's current emergency training approach. As Aviation formations continue to train for large-scale combat operations (LSCO) where crews must routinely operate close to obstacles and terrain, we have experienced several mishaps that highlight the need to update our approach to preparing aviators for emergencies. In all instances, but especially in the terrain flight environment, it is essential to respond to aircraft emergencies in context with the aircraft's flight profile. To help mitigate the risk associated with operating in these complex flight environments, USAACE developed a two-phased approach to change how crewmembers react to aircraft emergencies: the Emergency Response Methodology (ERM).

> **"Analysis from recent aviation mishaps indicates training deficiencies exist in crew reactions to emergencies, particularly in LSCO flight profiles with junior aircrew — Army Aviation branch identified the need for change."**

Phase 1 focused on revising Shared Rotary Wing Task 1070, Respond to Emergencies, to define a fundamental approach all helicopter crews use to survive any emergency. The emergency response method in the updated version of Task 1070 (known as FADEC-F) provides a fundamental logic appropriate for any emergency; it creates a construct for crews to communicate and respond to the emergency while prioritizing aircraft control above all else. This ensures crews respond in context to the situation rather than simply applying rote memorization in stressful situations where specific steps could be confused or accidentally omitted.

In all instances, crews must fly the aircraft first. This follows the old aviator adage of Aviate-Navigate-Communicate, but Task 1070 now codifies a formal, trainable response process for crews to follow. USAACE recently released all products related to Phase 1: Task 1070, as part of the 2020 publishing of all helicopter aircrew training modules; a standardization communication (STACOM) to clarify implementation guidance; and a training package to standardize training across the force. While priority for this effort focused on rotary-wing aircrew training modules first, the USAACE Directorate of Training and Doctrine will ultimately publish updated versions of

Task 1070 for all Army aircraft. By implementing an overarching emergency handling logic across the Aviation branch, Army aircrews will be better prepared to respond to emergencies in context with the profiles required in LSCO.

F ly the aircraft
A lert the crew
D iagnose the emergency
E xecute the emergency procedure
C ommunicate
F ly the aircraft

Phase 2 of this effort is ongoing and complements the emergency response method in Task 1070 by updating the look, design and content of current aircraft checklists. After a thorough analysis of sister-service and partner-nation aviation products, USAACE developed smarter and more intuitive crewmember checklists in a flight reference card (FRC) format, which include normal and expanded procedures as well as emergency procedures. The emergency section of the FRCs includes logically grouped, tabbed and color-coded sections for warnings, cautions, advisories and mission equipment malfunctions. The FRCs feature simplified emergency procedures and pertinent amplifying information supporting specific situations to aid in fault diagnosis and crew decision-making. By enabling our crews with updated FRC-format flight crew checklists, we will resource them with the intuitive and purpose-designed products necessary to expedite access to pertinent information during demanding flight conditions. Whereas Task 1070 (FADEC-F) will contextualize the crew's response to emergencies, FRCs will expedite access to pertinent information during an emergency, facilitating informed diagnosis and execution of emergency action steps.

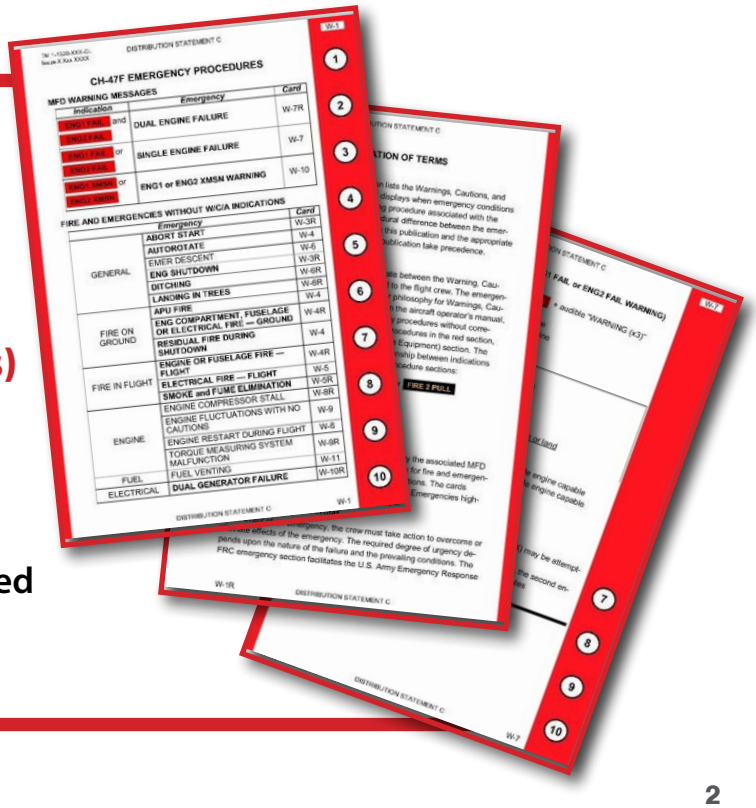
By redefining the approach we use to train crewmember responses to emergencies, Army Aviation will develop thinking crews that prioritize safe flight profiles over rote execution of underlined emergency procedures. This will enhance survivability and create a cultural shift in Army Aviation. This enterprise-wide change will not take hold unless we all commit to rethinking how we train and evaluate our crewmembers. Just as we want our crews to evaluate an emergency in the context of the situation, we must evaluate them the same way — in context. We must move past the days of associating

Phase 1: ATM Task 1070 Update

- April 2020 Rotary Wing ATMs
- Emergency Response Method

Phase 2: Aircrew CL Revision (FRCs)

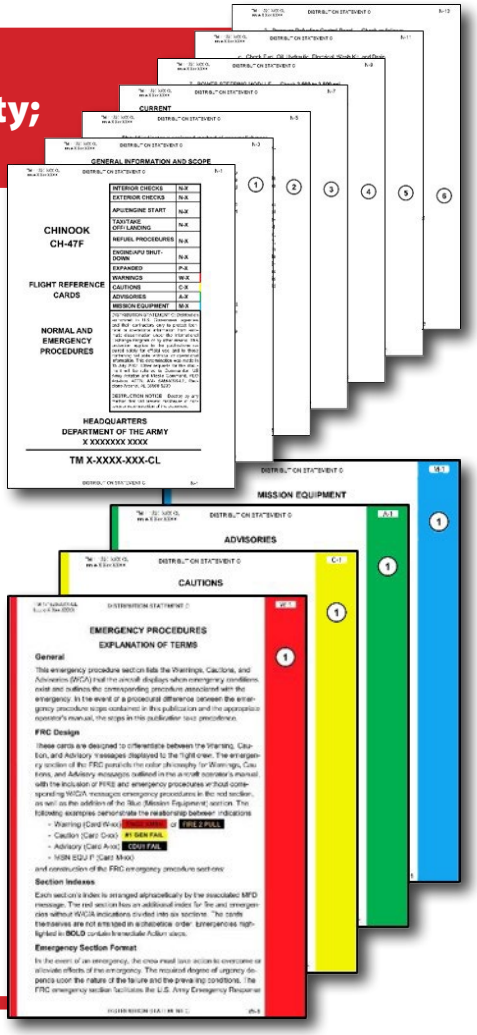
- FY21 deliver to the field
- Updated/simplified emergency procedures
- Quick-access tabs/colors with expanded information



proficiency with the speed of a crewmember's verbatim recitation of emergency procedures. Speed of execution does not necessarily equate to survivability. We must focus on developing thinking flight crews who, above all else, always fly the aircraft. ■

MG David J. Francis
Commanding General
U.S. Army Aviation Center of Excellence
Fort Rucker, Ala.

FRCs are subdivided into two books. Sections are color coded and tabbed, listed in order of intensity; organized by index on the cover page.



FRC Format

- Name of emergency
- Indications of emergency
- Immediate Actions/Action steps
- Subsequent actions
- Additional considerations

Book 1 - Normal and Expanded Procedures

- Exterior Checks
- Interior Checks
- APU/Engine Start Checks
- Taxi/Take Off/Landing Checks
- Engine/APU Shutdown
- Expanded Procedures

Book 2 - Emergency Procedures

- Warnings (Red)
- Cautions (Yellow)
- Advisories (Green)
- Mission Equipment (Blue)

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TASK 1070

Respond to Emergencies

CONDITIONS: In a rotary wing aircraft, you encounter a specific emergency, warning, caution, or advisory.

STANDARDS: Appropriate common standards and the following additions/modifications:

1. RCM.
   a. Conduct the Emergency Response Method (fly, alert, diagnose, execute, communicate-fly [FADEC-F]) upon recognition of an emergency.
   b. Identify the emergency condition or system malfunction.
   c. Conduct the emergency procedure.
   d. Select a suitable landing area, if required.
2. NRCM (if applicable).
   a. Assist in identifying the emergency condition or system malfunction.
   b. Assist in the conduct of the emergency response method.
   c. Assist in confirming the suitability of the landing area, if required.
   d. Prepare the aircraft and passengers for an emergency landing.
   e. Evacuate passengers to designated assembly area.

DESCRIPTION:

1. Crew actions. The urgency of certain emergencies requires immediate and instinctive action by the P*. The most important single consideration is helicopter control. All procedures are subordinate to this requirement.

a. The P* will accomplish steps that must be performed immediately and instinctively in an emergency situation to maintain helicopter control. Those steps that are underlined in the CL must be performed from memory.

b. When the crew identifies an emergency or system malfunction they will conduct the emergency response method below (FADEC-F):

(1) **F** – Fly the aircraft. The most important single consideration is aircraft control. Aircrew's should consider jettisoning external stores and external cargo (if required) to establish or maintain a safe flight profile. Disengaging from coupled flight may assist in maintaining the aircraft within operating limits. Aircrew's should place the aircraft in a single engine profile, or safest flight profile that the conditions permit, any time there are indications that could result in the eventual failure of one or both engines. The P* will adjust the flight controls as necessary to achieve the following:

- Safe rotor speed. N_R stabilized and within aircraft limits. When continued flight is in question, due to a loss of rotor RPM or reduction of available power (as a result of equipment malfunctions or environmental conditions), the immediate corrective action should be to adjust collective to maintain N_R within limits.
- Safe attitude. Level the wings on the attitude indicator or appropriate symbology.
- Safe altitude. If able, level off or climb (as necessary), unless descending as a result of the emergency.
- Safe speed. Achieve safe single engine airspeed if possible or achieve the best airspeed to maintain the minimum rate of descent or best autorotation airspeed for the situation.
- Safe heading. The aircraft should be oriented toward a landing area and away from danger.

(2) **A** – Alert the crew to the problem. While aircraft control is the primary concern, it is important to near simultaneously alert the crew to the emergency condition.

(3) **D** – Diagnose the emergency condition or system malfunction. Malfunction analysis should be conducted using the helicopter indications, the current CL, and input from both RCM and NRCM as applicable. The cockpit indications may be preceded or accompanied by unusual helicopter vibration, abnormal control actions, or a change in ambient helicopter noise.

(4) **E** – Execute the emergency procedure. Crews will accomplish underlined steps from memory, when time does not allow the use of the checklist, or it's use becomes a hazard to flight. All other steps will be accomplished utilizing the current helicopter CL.

(5) **C** – Communicate. The PIC will communicate a plan of action to the crew (e.g. landing plan). The crew will then communicate outside of the aircraft as necessary (e.g. MAYDAY call).

(6) **F** – Fly the aircraft. The P* will remain focused outside and continue to maintain control of the helicopter until the completion of the emergency or safe landing, shut down, and egress.

c. The P will perform as directed or briefed. If time permits, the P will verify all actions with the aircraft checklist as well as assist in executing the emergency response method (FADEC-F).

d. The NRCM will assist the crew in malfunction analysis by explicitly relaying indications of an emergency situation from their crew station. They will then assist as directed during the conduct of the rmergency response method. The NRCM will prepare passengers for an emergency landing. During the descent, the NRCM will assist in identifying a suitable landing area as applicable. After landing, the NRCM will assist in evacuating the passengers to the designated assemble area. After accounting for all crewmembers and passengers, the NRCM will assist the other crewmembers in any follow-on actions.

2. Procedures. Perform the Emergency Response Method (FADEC-F), conduct the appropriate emergency procedure IAW the appropriate operator's manual, and safely land the aircraft.

NIGHT OR NIGHT VISION GOGGLES CONSIDERATIONS: Take special precautions to identify the correct switches/levers when performing EPs at night or while wearing NVD.

TRAINING AND EVALUATION REQUIREMENTS:

1. Training will be conducted in the helicopter, TFPS, SFTS or FS, and academically.
2. Evaluation will be conducted in the helicopter, TFPS, SFTS or FS, and academically.
3. During the conduct of annual standardization evaluations, NVG evaluations, and PFE's a crewmember must respond to a minimum of three (3) emergency procedure scenarios in the helicopter, (or if authorized) TFPS, SFTS or FS. Emphasis should be placed on selecting critical emergencies that require immediate and instinctive action by the pilot such situations involving the loss of Nr, loss of engine(s), and fires.

REFERENCES: Appropriate common references, AR 95-1, aircraft current operator's manual and CL.

STACOM Message 20-01

Shared Rotary Wing Task 1070
Respond To Emergencies Implementation Guidance

This STACOM establishes implementation guidance for shared rotary wing task 1070, Respond To Emergencies, published in the 2020 Aircrew Training Modules (ATM). This implementation guidance is not applicable to the Fixed Wing and UAS communities.

TRAINING REQUIREMENTS: Unit Standardization personnel will self-start and initiate the training requirements listed in this STACOM for their units.

Academic training: Academic training will be led by unit standardization personnel utilizing the exportable training package for the implementation of task 1070. Trainers will familiarize themselves with the training material, to include the instructor notes, prior to administering. The exportable training package can be downloaded from the link below or by navigating to the DOTD Flight Training Branch page on AKO 2.

Emergency Response Method Training Package

Flight training: Task 1070 incorporates the Emergency Response Method (FADEC-F) which provides crewmembers a structure to systematically respond to emergencies. To meet the standards listed in task 1070, a crewmember must apply the emergency response method, not just recite an emergency procedure.

All ACM will receive a one hour flight, preferably in a SFTS, to practice the application of the Emergency Response Method and to demonstrate their ability to perform the new task 1070 to standard. The mode of flight is at the trainer's discretion. The SFTS enhances the ability to replicate emergency conditions and improves the quality of training. Training and evaluation may be completed in an aircraft for NRCM and RCM if there is no access to a NCM3 or SFTS.

Standardization personnel will select a minimum of three emergency scenarios to train and evaluate task 1070. The scenarios chosen should range from critical emergencies that require immediate and instinctive reaction from the pilot to maintain aircraft control to less urgent scenarios that involve more extensive diagnosis and use of the aircraft checklist.

DOCUMENTATION REQUIREMENTS: Successful completion of the academic and flight training will be recorded on the crewmember's DA Form 7122. Units will create the following custom CAFRS entry; "Task 1070 implementation complete." The grade, aircraft, and associated flight or simulator time will be annotated on the entry.

TIMELINE: All ACM will complete this implementation guidance by 31 OCT 2020. ACM who have not completed this implementation guidance will be designated RL3. All ACM integrated after 31 OCT 2020 will comply with this STACOM prior to being designated RL2. Commanders should consider crewing ACM who have implemented task 1070 together although it is not mandatory. The pilot in command will direct the conduct of the crew during an emergency if a crewmember has not implemented task 1070. This STACOM will remain in effect until it is rescinded.

The POC for this STACOM is the Directorate Standardization Officer, at 334-255-1582 DSN 558-1582 or email robert.s.slider.mil@mail.mil.

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