

Chapter 4

Wartime Operations

4-1. During wartime and contingency operations, Army engineer fire-fighting forces are assigned or attached to a CSG/an ASG of a theater Army area command (TAACOM) and must protect personnel, aircraft, facilities, materials, and equipment from fire. Extensive facility, utility, and runway and taxiway damage may occur. Under these circumstances, a commander will face many critical emergency situations. Fire departments will be required to provide fire-fighting, as well as other mission-support, requirements. Commanders at all levels employ the resources to *move and fight*. To this end, fire-protection resources protect critical components needed for sortie generation, such as facilities and aircraft. This chapter provides general guidance for planning, training, and developing wartime and contingency-operations policies, which must be adapted to threat, mission, and location by planners at all levels.

FIRE-PROTECTION WARTIME MISSION, LIMITING FACTORS, AND ASSUMPTIONS

4-2. To maintain fire-protection capabilities, risks to fire-protection personnel, vehicles, materials, and equipment must be minimized. The rules for wartime fire-protection operations differ radically from peacetime procedures. The presence of battle damage, chemical agents, munitions, and submunitions will complicate fire-fighting and rescue operations.

FIRE-PROTECTION WARTIME MISSION

4-3. The preattack fire-protection mission is to—

- Eliminate or reduce the fire threat to personnel, aircraft, and facilities before an attack.
- Protect fire-protection resources during an attack.
- Provide postattack suppression and rescue response to fire incidents that seriously jeopardize an AO's combat-generation capability.

LIMITING FACTORS

4-4. Firefighters will probably encounter several critical problems during a wartime environment. These conditions should be expected as the norm rather than as the exception.

- The lack of adequate chemical-warfare-defense equipment (CWDE) can make fire-protection capabilities minimal to nonexistent under chemical conditions. With existing CWDE, firefighters are severely limited during fire-fighting and rescue operations. The equipment does not provide heat shielding, and firefighters cannot approach intense exterior or interior fires. Due to inadequate respiratory

protection, firefighters cannot attack interior fires (aircraft and structures). Fire fighting can be attempted from a distance, but with limited effectiveness and wasted agents. When using CWDE, firefighters should not attempt fire fighting and rescue unless there is a reasonable probability of successful life-saving efforts or preserving mission-critical assets without injury or death to themselves.

- The lack of an adequate water supply will severely limit fire-fighting and rescue operations.
- All fire vehicles are unarmored and susceptible to major damage during attacks.
- The firefighters will be unable to extinguish all large, totally involved fires, such as large-frame aircraft and POL tanks. Attempts to extinguish such fires will result in unwise depletion of available resources due to personnel, agent, and vehicle limitations.
- Extreme climatic conditions and the use of protective equipment will limit performance.
- Fire-protection resources will be at risk until hardening measures are effected.
- A six-person firefighter team (LB) is capable of providing only one 12-hour shift in support of strategic, wide-body aircraft operations. The team must be augmented by another six-person team to complete a 24-hour operation.

ASSUMPTIONS

4-5. Fire-fighting vehicles and equipment should be available for the initial phase of a contingency or wartime operation. Vehicle, equipment, and manpower shortfalls must be identified to the supporting agency. Shortfalls take time to correct. The priority should be on assets that directly affect capabilities. Because there will not be enough firefighters to respond to all emergencies, other services' or HN fire-fighting assets should be used to the maximum extent possible. Military firefighters will probably face more fires in combat situations than they will be able to extinguish. An AO commander, with input from an available SFO, will determine a priority of effort. With the likelihood of these assumptions being real, firefighters must expect the following:

- The effectiveness of fire-protection personnel will be diminished by physical and psychological stresses because of sustained emergency-response operations and attrition of fire-fighting personnel.
- Main operating bases (MOBs) will have adequate in-place, fire-protection resources to provide needed protection during sudden conflict. These resources include a trained and capable fire-fighting and rescue force and enough fire-fighting equipment and vehicles and chemical-protection equipment so that firefighters can survive a chemical attack.
- Adequate fire-protection resources will be available before an attack at MOBs, FOBs, and bare bases (BBs).

- Enemy attacks might include chemical-warfare (CW) agents.
- A reattack could occur.
- Water-distribution system(s) will be damaged during an attack and will not be totally usable for fire-fighting purposes.
- Fire-department responses will be delayed by UXO and craters or debris in roads, taxiways, and runways. Firefighters will have to perform explosive-ordnance reconnaissance (EOR), which will result in a delayed arrival. When UXO is present, alternate routes will be required.
- Some fires might progress past the incipient stage, cause major damage, and necessitate greater depletion of extinguishing agents because of response delays warranted by EOR.
- The fire department will not have the resources to attack and extinguish all structural fires, respond to all rescue situations, and support all aircraft incidents simultaneously.
- Hostile activities may deplete fire-department resources (personnel, vehicles, and equipment), unless physical protection is provided.

PREATTACK

4-6. A preattack occurs between the time a threat is detected and an actual attack occurs on a base. The preattack period is a transitional period from peacetime to a wartime mode of operation. This phase may begin months before actual hostilities occur; it will not be less than 20 days. However, a transition may be required at any time when in a threat area. Preparation is critical to a rapid transition and will include three distinct efforts: planning, training, and acting. Based on the projected postattack environment, the following minimum needs can be expected:

- Critical fire-department-support resources such as war-readiness spares kits (WRSK), war-consumable-distribution-objective (WCDO) levels, vehicle maintenance, food service, and personnel shelters must be protected.
- Specific fire-suppression-and-rescue responses must be accomplished based on their priority in relation to the start of an operation.
- Ignition and fuel sources must be removed from facilities to reduce the possibility of responding to a postattack fire and to reduce the rescue workload.
- Facility occupants (especially those in critical facilities) must be trained in first-aid fire fighting so that they can extinguish or contain fires in their incipient stage.

FIRE-PROTECTION SYSTEM

4-7. Fire protection consists of many interdependent elements that contribute to the survivability and operability of the fire-fighting force. These elements include—

- Expedient splinter protection and physical protection.
- Crash and structural rescue, C², and support vehicles.
- A sufficient number of trained and capable firefighters.
- Ancillary equipment, which includes proximity suits, SCBA, recharging apparatus for SCBA, CWDE, mobility gear, and weapons.
- Consumable materials such as water, foam (Classes A and B), and breathing air.
- Base stations and mobile and portable units for communications.
- Essential support regarding vehicle maintenance/spares, fuel, food service, and medical resupply, facilities, and utilities.
- Adequate training in general military and contingency skills, priorities, tactics, strategies, and procedures.

PLANNING

4-8. Planning is the key to successful transition. A comprehensive understanding of what is expected can be obtained through planning documents which are prepared by a variety of agencies at all command levels. Preferably, plans developed before a preattack will normally be available for MOBs. However, plans may not be available which address specific forward operating locations that may become operational. In this event, planning will have to be accomplished immediately after arrival. As a minimum, fire-fighting teams must initiate the plans and actions. They should use plans that the major Army command (MACOM), local base operations, and fire-protection organizations develop, when available. Fire-fighting teams must—

- Survey water supplies for use during postattack, including both on-base and off-base sources (swimming pools, cooling towers, reservoirs, tankers, pumps, wells, storage bladders, supply points, and Harvest Eagle/Falcon mobile water-distribution systems).
- Construct expedient access routes to auxiliary water, as necessary.
- Establish a supply of pumps, hoses, and equipment for rapidly replenishing water where hydrants are not available.
- Consider installing dry hydrants near lakes, streams, and rivers to facilitate drafting.
- Survey the base terrain for naturally protected areas for fire vehicles, agents, equipment, and personnel. Using natural features (ditches, hillsides, and trenches), combined with camouflage netting, provides effective concealment.

- Identify locations, if required, where expedient construction could be used to provide splinter protection for fire vehicles, agents, and personnel.
- Determine how many sandbags they need to construct expedient protective facilities. Earth berms or bermed revetments are effective and are rapidly constructed.
- Coordinate with POL personnel to ensure that POL areas have drainage ditches and holding areas to prevent spilled fuel from endangering other tanks.
- Survey possible fuel-holding or tank-drainage diversion areas where spilled fuel could burn without endangering other critical fuel supplies.
- Identify all *safe* areas where munitions are not expected to impact, and disperse assets (fuel and spare parts and fire-fighting agents) into these areas.
- Identify the need for camouflage netting and concertina wire to aid in concealment and security.
- Inventory all agents and other critical equipment and supplies. If shortages exist, they must submit high-priority requests for additional agents and equipment that they may need. The teams should try to obtain stocks from local sources.
- Establish fire-fighting procedures for a CW environment.
- Review a facility's priority listing. A facility's priority system must identify those facilities most critical to sortie generation. In a multiple-fire operation, fire-fighting and rescue response must be made on a priority basis based on a commander's assessment and the amount of fire-fighting equipment available.
- Coordinate with vehicle maintenance for the expedient and priority repair of fire vehicles.
- Ensure that vehicle spare parts, including tires, are available and protected. Mechanics should be dedicated to fire-vehicle maintenance, and special levels should be established for spare parts.
- Establish duty hours and crew-change procedures.
- Determine where firefighters will be housed and establish feeding procedures, rest periods, relief procedures, and processing areas. Firefighters should be located as close to their dispersed location as possible.
- Coordinate with the MACOM and local HN fire officials for support.
- Pre-position fire hoses, nozzles, and equipment at critical, mission-essential facilities for first-aid fire fighting by occupants.
- Provide training in the use of fire-fighting equipment, when required.
- Plan dispersal and physical protection.

- Locate dedicated, splinter-protected areas for fire vehicles, agents, and personnel. These areas include the following:
 - Hardened aircraft shelters.
 - Earth-bermed modular revetments.
 - Earth berms, trenches, or bermed trenches.

TRAINING

4-9. Intense training is required after arriving at a base of operations. Training firefighters to adapt to a wartime operation is essential for survival. Training base occupants on fire-protection responsibilities and providing necessary refresher training are necessary for protecting a base's resources. Other training considerations are listed below:

- Conducting *fine-tuning* training for fire crews, including *what-if* situations, attrition of vehicles, and personnel and materials situations.
- Training in procedures required to conduct fire fighting and rescue in a CW environment, based on the type of equipment available. While wearing CW defense ensemble, close-in fire fighting should not be attempted except to save lives or mission-critical assets. There must be reasonable probability of success without undue danger to firefighters before any fire fighting or rescue is attempted.
- Training fire-protection personnel in the tactics and strategy that they will use during fire-fighting operations in a postattack environment, to include contamination avoidance.
- Conducting refresher training related to survival, such as EOR; CW defense; convoy security; defensive combat skills; base denial; camouflage, concealment, and deception (CCD); and hardening.
- Establishing cooperation with the HN, to include joint operations, C², mutual training on fire-fighting equipment, and aircraft fire-fighting and rescue procedures on host and US mission aircraft.
- Conducting refresher, first-aid firefighter training for personnel whose duty locations are in critical facilities. Occupants must know what to do in case of a fire; how to use available fire extinguishers, standpipes, and installed systems; and what the risks and limitations are in such operations.

CRITICAL ACTIONS

4-10. Fire-protection personnel must perform certain critical actions before a conflict to ensure that fire-fighting and rescue capabilities survive. They must—

- Don chemical-protective equipment if they might be exposed to a CW environment. They do this according to the mission-oriented protective-posture (MOPP) level that a commander determines. In a surprise attack, fire-protection personnel must don a complete CW ensemble immediately.

- Affix M8 paper and M9 tape to the exterior of each fire-fighting vehicle and fire-station facility.
- Disperse personnel, vehicles, equipment, and agents to protected areas. Agent dispersal should include both fire-department stock and special levels. Fire-protection personnel must record the amounts and location of all dispersed equipment and materials. They must disperse and locate agents in the same splinter-protected areas as the fire vehicles.
- Locate agents in at least two separate areas.
- Handle fire-fighting vehicles as follows:
 - Conceal vehicles with natural cover, when possible.
 - Place no more than one vehicle in one location.
 - Position one vehicle to observe runways and aircraft parking areas, when possible.
 - Keep vehicles at least 300 feet away from priority 1 buildings, aircraft, and other likely targets.
 - Place vehicles in a staggered line so that all will not be destroyed with one pass of an enemy aircraft.
- Ensure that dispersed vehicles have first-aid kits, fresh water, and full fuel and agent tanks.
- Locate and disperse all vehicle spare parts and tires, WRSK, and other critical materials to splinter-protected areas.
- Use expedient construction, to include providing splinter protection and concealment for agents that cannot be moved.
- Provide splinter protection and concealment for the FCC, the fire/crash radio-network base station, and the repeater units.
- Consider a line-of-sight (LOS) requirement between radios and repeater units.
- Provide splinter protection and concealment for fire-vehicle fuel supplies. Equip the tanks with hand pumps or other measures.
- Ensure that POL dikes are intact.
- Ensure that utilities and POL piping systems are isolated.

TRANSATTACK

4-11. A transattack begins with the first enemy action at a base and ends when the base transitions to a recovery role and begins usual operations. During a transattack, fire-department personnel will be dispersed throughout a base so that they can observe and report the airfield-attack status. If possible, they must note information (the number and type of aircraft attacking a base, an attack's intensity, base areas receiving the most damage, and fire starts) for later relay to the FCC. Firefighters should be able to make general observations about the type of attack in progress (air attack with

various types of conventional weapons, land attack with mortars or small arms, CWs attack, and so forth) and an attack's duration. Observation and reporting are incidental to the primary purpose of surviving and must not put firefighters at risk. A runner or a secure voice radio should relay the information once an attack is over.

4-12. All personnel must be protected with appropriate equipment, according to the threat. These measures may have been inhibited during preattack actions if advance attack warning was available. However, firefighters must be prepared to cease operations instantly and don their protective equipment in case of a surprise attack. During an attack, survival takes priority over all other activities, including fire fighting and rescue.

4-13. Fire-protection vehicles and personnel should remain dispersed and protected during an attack and a reattack. They should not perform fire-fighting or rescue operations except immediate-area buddy-care activities. Fire-protection personnel should not take cover—

- Inside or beneath a fire vehicle unless it is located in a protected dispersal location.
- Within 300 feet of priority 1 facilities, except for fire stations.
- Within 500 feet of aircraft.
- Within 1,000 feet of POL- or munitions-storage areas.

POSTATTACK

4-14. The postattack time period immediately follows an attack on a base. A base is vulnerable to air, ground, and combined air and ground attacks, with a variety of ordnance. Fire-department operations in the postattack environment are critical to base operations and to generating combat sorties as soon as possible.

TRANSITION TO BASE OPERABILITY (BO)

4-15. SFOs must constantly be aware of the need to recover combat capabilities. Transitioning to BO must begin immediately following an attack. As BO progresses through the various phases, significant attrition of firefighters, equipment, and agents can be expected. Fire-protection personnel should be trained for their involvement in the preattack, transattack, postattack, and reattack phases of BO. MACOMs and commanders at all levels should supplement this concept with guidance that is applicable to their missions and TOs. BO plans should provide a smooth transition to recovery operations following an attack. They should address the transition to BO in environments where communications are intact, interrupted, or totally destroyed.

LOCATION OF A FIRE CHIEF

4-16. A fire chief should be located where communications facilities are available to control fire-protection resources and where physical security is in place. A fire chief directs allocating the fire-fighting resources in concert with command priorities and concurrent BO and base-recovery operations. A chain

of command is normally established locally, with a fire chief normally reporting to a base commander.

CONSIDERATIONS

4-17. After an attack, existing base roadways and taxiways may be impassable because of denial munitions, bomb craters, wreckage, and other debris. Therefore, fire vehicles may have to operate fully loaded off hard surfaces or in sand, snow, mud, rocky soil, or boggy areas. Such conditions will make submunition detection more difficult; therefore, fire crews must be careful to avoid rendering fire vehicles incapable of supporting BO.

4-18. Firefighters will be faced with numerous fires, extensive damage, and injured personnel who require emergency rescue and life-saving care. Deploying to fire-fighting and rescue locations may be complicated by UXO, craters, pavement damage, and facility debris. Fire-fighting and rescue operations may have to be accomplished with limited numbers of people, equipment, and materials. Attrition will decrease the availability of firefighters, fire vehicles, and agent levels. Commanders, in concert with fire chiefs, must decide which fires to fight and which to let burn and which people to rescue and which to leave to buddy care. General considerations during a conventional attack are discussed in the following paragraphs:

Fire Spread

4-19. Fire spread within an aircraft-shelter complex is unlikely because of the distance where hardened shelters are available. Fire spread from one munitions storage facility to another is unlikely because of the distance between facilities when concrete, igloo, or earth-covered construction is used. However, fire spread of more than one storage igloo could occur if stored munitions are detonated. When facilities are not available (such as in BB operations), greater separation and expedient earth-berming are needed to prevent fire spread.

4-20. Fire spread from one base structure to another in the containment areas is possible, although less probable than in World War II. Modern facilities do not have the surface density of wood to support sustained fire spread or fire storms. When temporary construction (using wood) is used, fire spread is possible unless facilities are properly separated. For tent cities, training occupants about proper fire procedures could limit fires to one tent.

4-21. When POL tanks are ignited, unburned fuel should be pumped or drained from the tanks if the distribution system remains relatively intact and if a receiver for the fuel is available. Such action will reduce extinguishment time and result in a shorter burn time, if the tanks are allowed to burn until self-extinguishment occurs. Draining the tanks away from other storage tanks can reduce the risk of fire spread. Bladder tanks are less of a problem. They are located at ground level and are normally bermed to contain any spill. If properly planned, they should be separated sufficiently to prevent fire spread. If they are not, fire spread on open ramps with multiple aircraft could occur.

Damaged Facility Fires

4-22. Success in stopping fire spread depends on the available number of vehicles and personnel and their capabilities and how rapidly firefighters engage the fires. Fire fighting is impractical when burning buildings are exposed to neighboring fires from which the heat is intense enough to sustain the fire and reignite the building. When fires have spread through a major portion of a building (including the spaces between the walls), the structure will probably burn completely and cease to be a further fire threat in less time than it would take to extinguish the fire.

4-23. Blast-damage structures can be expected to burn in one-third to one-half the time required for undamaged structures. If a significant loss of compartment integrity occurs (damage to interior walls), a fire will spread faster than it would have in an undamaged structure. Blast damage will change a fire's environment and provide easy routes for fire spread to adjacent compartments. Fire spread in damaged buildings will be rapid and simultaneous, in all directions, with large flame areas. The intensity of a fire and the need for fire suppression will be lessened by keeping a fire from penetrating into concealed spaces.

4-24. Occupants of mission-essential critical facilities must be aggressive in first-aid fire fighting as fire-department response may be delayed. Peacetime workplace-safety training prepares occupants for this task.

Vehicle Operability

4-25. During BO operations, fire vehicles must be maintained and repaired as quickly as possible. Repairs should mainly consist of removing and replacing components rather than lengthy troubleshooting and repairs. Repairing components should occur only when time permits and vehicle downtime cannot be improved by replacement. Major components or subsystems expected to fail must be identified, stocked, and protected at all MOBs. Spare parts to support collocated operating bases (COBs) and BBs normally come from MOBs.

Explosive Ordnance Reconnaissance

4-26. Explosive-ordnance-disposal (EOD) personnel will not be available immediately to clear response routes from a dispersed location to fire and rescue sites. The level of EOR training provided in peacetime prepares firefighters to recognize ordnances. Therefore, firefighters must perform EOR during response.

Decontamination

4-27. If contamination occurs, decontamination must take place. However, do not decontaminate when it will cause a delay in response to critical fire-fighting and rescue operations. Firefighters must remain fully protected with the appropriate CW defense ensemble before starting decontamination procedures.

4-28. Fire-fighting resources may be needed for personnel and large-area decontamination under extreme conditions. However, depleting fire-fighting resources must be considered. They should be used only when all other sources have been exhausted.

Contamination Avoidance

4-29. If attacks include CWs, firefighters must—

- Avoid driving or walking through suspected chemical-agent puddles, mists, and so forth.
- Stay under a shelter, when possible.
- Avoid leaving their vehicle during operations except to conduct a rescue or take cover during MOPP level 4.
- Approach fires from upwind.
- Identify and isolate contaminated areas, if possible.
- Avoid dispersing chemical-agent puddles, mists, and so forth.

4-30. These measures, at a minimum, will reduce unnecessary and lengthy decontamination procedures and allow quicker recovery after an attack.

FIRE-DEPARTMENT OPERATION PROCEDURES

4-31. Fire-department personnel will immediately assess and report damages in their vicinity, including the presence or lack of chemicals, submunitions, and other UXO. At the conclusion of an attack, fire crews will immediately report the status of personnel, agents, and vehicles. War plans must address accomplishing this task with both normal and interrupted or nonexistent radio communications.

4-32. A fire chief directs fire vehicles to fire-fighting or rescue operations and provides on-scene C². He provides the base-defense operations-center (BDOC) staff with a situation assessment regarding structural and aircraft fires; UXO risks; vehicle, personnel, and agent status and attrition; water and agent availability; the presence or lack of chemicals; and pavement damage. A fire chief receives directions from a BDOC or commander and advises the commander on whether or not to commit fire equipment. He will then employ fire-fighting forces, as directed. If communications are out or fail, the senior fire-protection person available at the scene will direct employing the fire-protection resources based on information provided during preattack training. However, he should not employ fire-fighting resources to save totally involved aircraft or POL and other facilities. Such operations only deplete fire-fighting resources.

4-33. Employing fire-department assets will be based on the relative value of the response to sortie generation. Forces must be employed according to the priority listing, which is aircraft and aircraft-support facilities. Given a choice, a fire chief should respond to a critical aircraft-maintenance facility rather than a single burning aircraft.

4-34. During a response, firefighters must proceed with extreme caution from dispersed areas because of UXO. If UXO makes travel by one route impossible, they must take alternate routes. The objective is to take the shortest possible route with minimum UXO exposures.

4-35. To ensure that fire-department resources are expanded for maximum support of sortie generation, the commander will direct firefighters when to

carry out non-fire-related operations. After each attack, the priority list should be revised and distributed to all concerned.

REATTACK

4-36. After receiving a reattack notice, firefighters will cease all fire-fighting actions and take cover. With no protection for fire-department assets, aircraft, facilities, and lives could be lost. This doctrine must be clearly stated and understood at all levels of command. If time, distance, and UXO do not allow the return to splinter protection, crews should take advantage of the nearest available cover and wait out an attack. During a reattack, firefighters should make observations and complete the reports that were discussed earlier. They must make these observations, however, without risk of injury. At the end of a reattack, recovery actions are the same as discussed earlier except for previously safe routes and a facility-priority list.

VEHICLE AND MANPOWER CALCULATION

4-37. Tables 4-1 and 4-2 are from Department of Defense Instruction (DODI) 6055.6. They list the minimum number of fire trucks that are required to support aircraft which are used during stability operations, support operations, and regional conflicts. Tables 4-3 through 4-5, pages 4-13 and 4-14, describe the individual TOE fire-fighting-unit authorizations for manpower and equipment.

Table 4-1. Classification of common military and civilian aircraft

Group 1: Small-Frame Aircraft (less than 4,000 gallons)	Group 2: Medium-Frame Aircraft (4,001 to 15,000 gallons)	Group 3: Large-Frame Aircraft (15,001 or more gallons)
A-7, A-10, A-37, AH-1G, AH-46	B-72, B-737	B-1, B-2, B-52, B-707, B-720, B-747
C-7, C-12, C-26, C-23A, C-131, C-140, CH-47, CH-54	C-9, C-20, C-130	
	DC-9	C-5, C-135, C-137, C-141
DC-8	F-111, FB-111	DC-10
F-4, F-15, F-16, F-27, F-117, FH-227	L-188	E3-A, E-4
HH-1H, HH-53, HU-16		KC-10
O-2, OH-6, OH-58, OV-1, OV-10		L-1011
T-37, T-41, T-42, T-43, TA-55, TR-1		
U-1, U-3, U-4, U-6, U-8, U-9, U-10, U-17, U-21, UH-1, UH-21, UH-60A		
WU-2		
NOTE: Aircraft groupings are categorized by aircraft fuel load, to include tip and drop-off tanks.		

Table 4-2. DOD minimum aircraft rescue fire-fighting vehicle allowances

Airfields Operating Description	Vehicle Allowance
Permanently assigned aircraft having less than 1,000-gallon fuel capacity and all helicopters	To be determined by DOD component
Permanently assigned aircraft, less than 75 feet in length or carrying ordnance	Two, with 2,000-gallon total capacity
Permanently assigned aircraft, less than 100 feet in length or carrying ordnance	Three, with 3,000-gallon total capacity
Permanently assigned aircraft, less than 175 feet in length: ordnance, hazardous, or high-value cargo	Three, with 9,000-gallon total capacity
Permanently assigned aircraft, greater than 175 feet in length: ordnance, hazardous, or high-value cargo	Four, with 12,000-gallon total capacity
NOTE: These minimum allowances do not include specialized ARFF vehicle requirements for airfields, such as twin agent units, rescue vehicles, and rapid intervention vehicles.	

Table 4-3. Engineer fire-fighting HQ team (TOE 05-510LA00)

Personnel			
Job Title	MOS	Rank	Quantity
Fire marshal/detachment commander	21B00	1LT	1
Fire inspector	51M30	SSG	1
Fire-team chief	51M30	SSG	1
Administrative clerk	71L10	PFC	1
Total			4
Equipment			
Line Number	Description	Quantity	
C68719	Cable telephone: WD-1/TT DR-8, 1/2 kilometer	1	
C74517	Compressor unit RCP: air, 5 hp, gas- and diesel-driven, 5.1 cfm, 3,200 psi	1	
H88468	Forced-entry-and-rescue equipment set: aircraft crash	1	
J71543	Installation kit: MK-2147/VRC F/KY-57 W/AN/VRC-43 or AN/VRC-46	1	
J88275	Installation kit, electronic equipment: MK-2418/VRC F/AN/VRC-46/64 or AN/GRC-160	1	
M11895	Mask, CBR: protective field	4	
Q20935	Radiacmeter: IM-93/UD	2	
Q56783	Radio set: AN/VRC-64	1	
R59160	Reeling-machine cable hand: RL-39	1	
R72484	Repair and refilling kit: hose repair and dioxide fire extinguisher	1	
R94977	Rifle, 5.56 millimeters: M16A1	4	
T05028	Truck, utility: tactical, 3/4 ton, W/E M1009	1	
T59482	Truck, Cargo: tactical, 5/4 ton, 4 by 4, W/E M1008	1	
T62101	Siren, electric, motor operated: bracket mounted, W/D light, weatherproof	2	
V31211	Telephone set: TA-312/PT	1	

Table 4-4. Engineer fire-fighting fire-truck team (TOE 05-510LB00)

Personnel			
Job Title	MOS	Rank	Quantity
Crash-rescue sergeant	51M20	SGT	1
Crash-rescue specialist	51M10	SPC	2
Fire-truck operator	51M10	PFC	3
Total			6
Equipment			
Line Number	Description		Quantity
C68719	Cable telephone: WD-1/TT DR-8, 1/2 kilometer		1
E00533	Charger, radiac detector: PP-1578/PD		1
H56391	Fire-fighting equipment set: truck mounted, multipurpose		1
K87338	Installation kit: MK-1454/U F/VRC-53 64 CRC125, 160 inches, not covered by spec kit		1
M11895	Mask, CBR: protective field		6
Q20935	Radiacmeter: IM-93/UD		1
Q56783	Radio set: AN/VRC-64		1
R59160	Reeling-machine cable hand: RL-39		1
R94977	Rifle, 5.56 millimeters: M16A1		6
T59482	Truck, cargo: tactical, 5/4 ton, 4 by 4, W/E M1008		1
T62101	Siren, electric, motor operated: bracket mounted, W/D light, weatherproof		2
V31211	Telephone set: TA-312/PT		2

Table 4-5. Engineer fire-fighting water-truck team (TOE 05-510LC00)

Personnel			
Job Title	MOS	Rank	Quantity
Firefighter crash/rescue specialist	51M10	SPC	1
Firefighter fire-truck operator	51M10	PFC	1
Total			2
Equipment			
Line Number	Description		Quantity
028318	Distributor, water-tank type: 6,000 gallons, semitrailer mounted (CCE)		1
K87338	Installation kit: MK-1454/U F/VRC-53 64 CRC125, 160 inches, not covered by spec kit		1
M11895	Mask, CBR: protective field		2
Q20935	Radiacmeter: IM-93/UD		1
Q56783	Radio set: AN/VRC-64		1
R94977	Rifle, 5.56 millimeters: M16A1		2
T61171	Truck, tractor: MET 8 by 6, 75,000 GVW, W/W, C/S		1