HEADQUARTERS, III CORPS AND FORT HOOD

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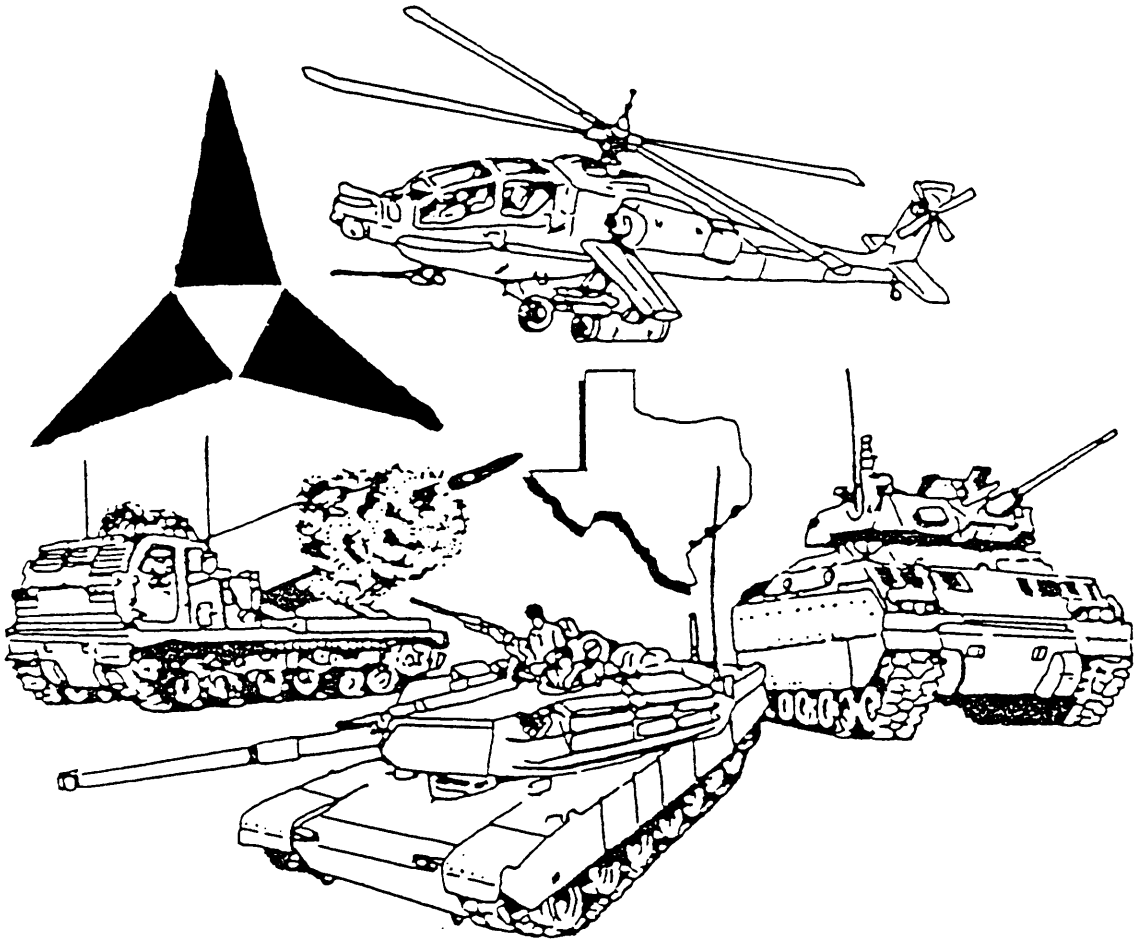

TACTICAL SAFETY PAMPHLET

Fort Hood, Texas

DEPARTMENT OF THE ARMY
HEADQUARTERS, III CORPS AND FORT HOOD
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Safety
Tactical Safety

SUMMARY. This is the first printing of this pamphlet. This pamphlet provides leaders with information on the prevention of accidents and specific reporting requirements thereto.

APPLICABILITY. This pamphlet is applicable to all III Corps units assigned, attached or Operational Control/Operational Command (OPCON/OPCOM) during combat or field training exercises at Fort Hood and to U.S. Army Reserve and National Guard units conducting annual training at Fort Hood.

INTERIM CHANGES. Interim changes to this pamphlet are not official unless they are authenticated by the Directorate of Information Management (DOIM). Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

SUGGESTED IMPROVEMENTS. The proponent for this pamphlet is the III Corps ACofS G1 Safety. Users are invited to send comments and suggested improvements to Commander, III Corps and Fort Hood, ATTN: AFZF-GA-SAFE-G.

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Chapter 1
RISK MANAGEMENT

1. Army readiness training has become increasingly demanding and safety risks have risen. It is necessary to balance mission accomplishment with the risks involved. Safety and realistic combat training must not be viewed separately, but as compatible partners. Safety must not be seen as an inhibitor to training. Training can be conducted with an acceptable risk factor. Simply stated, safety is a by-product of risk reduction. A high degree of safety can be achieved by systematically managing risks. That is where risk management enters. The risk management approach is defined as the identification of risks associated with a particular operation and the requirement to weigh these risks against overall training to be gained: The more difficult the mission, the more risk involved.

2. The rules of risk management are to integrate into the planning cycle early, accept no unnecessary risks, make risk decisions at the proper level, and accept risk if the benefits outweigh the costs.

3. The risk management process is:

a. Identify the hazards. Hazards are potential sources of danger that could be encountered while performing a task. There could be other, less obvious hazards that could become apparent during planning. Leaders should seek to identify these hazards in their respective operations.

b. Assess the hazards. Make an assessment of the hazards to determine the probability of a problem arising and the severity of the consequences should such a problem occur. This allows leaders to perform a risk assessment that describes the impact of the combined hazards. The result is a statement that quantifies the risk associated with the operation (high-medium-low).

c. Make a risk decision. Most of the time the mission must be accomplished and leaders must decide the safest way to do it. Risk decisions make it possible to eliminate or control the hazards. The risk decision should be made at the proper level. The higher the risk involved, the higher the level of authority required to make the decision.

d. Implement controls. This is where supervisors and leaders take steps to eliminate or reduce the hazards. Controls may be as substantial as writing a Standing Operating Procedure (SOP) or as simple as conducting a short safety briefing.

e. Supervise. Supervision is more than just seeing that people do their jobs; supervision also means following up and continuously evaluating, fine tuning, and incorporating lessons learned.

Chapter 2
VEHICLE OPERATION

1. General Safety Precautions.

a. Drivers must be trained and licensed.

b. Use available seatbelts.

c. Check clearance and give a warning before backing. Use front and rear ground guides for 2 and 1/2 ton trucks or larger.

d. When transporting personnel, the tailgate must be up and the restraining strap secured.

e. Riding on top of a loaded cargo vehicle or outside of a vehicle is not permitted.

f. Maintain good preventive maintenance checks and services (PMCS).

g. Use chock blocks when parked on inclines or whenever maintenance is being performed.

h. Equip roadguards with reflective vests and flashlights during hours of darkness.

i. Troops will not dismount until the vehicle has stopped, the restraining strap has been unfastened, and the tailgate lowered.

j. Operators and passengers must wear load bearing equipment (LBE) and kevlar helmets with the chin strap securely fastened when tactical vehicles cross cattle guards and enter training areas.

k. Approved eye protection (goggles) must be worn by drivers and passengers of combat tactical vehicles not equipped with a windshield, or in which the windshield is in the down position.

l. Whip radio antennas on vehicles should be tied-down while vehicles are operated in towns and in Garrison.

m. Do not sleep under or near wheeled or tracked vehicles, nor sleep in, on, or near vehicles with engines running. Vehicles with engines running at night should be checked by security guards.

n. Slave start vehicles parallel, never front to front.

o. Operators of vehicles will start the engine only while positioned at the steering wheel and controls of the vehicle.

p. Do not stand or walk between two closely parked vehicles when the engine of one or both is running.

q. Caution drivers to be aware of livestock often found on roadways in the training area.

r. Drivers must follow instructions on signs posted at low water crossings and must not attempt to cross low water crossings when any water flows over the road.

s. Do not drive vehicles outside training areas while wearing a protective mask.

t. Ensure fire extinguisher is accessible and warning triangles are available.

u. Fording is not possible at Curry Crossing on Cowhouse Creek in Training Area 8.

v. Restrict the number of persons that can safely ride in a vehicle cab when load bearing equipment is being worn.

w. Blackout driving is permitted in training areas only. Ft Hood roads on which blackout driving is prohibited are listed in Ft Hood Reg 55-1.

x. Crewmembers should not jump from vehicles, but should get down inside the tracked vehicle if roll over begins. Roll over crew drills should be practiced in accordance with (IAW) FM 21-306.

y. Ensure hatch cover safety pins are present, operational, and used. Crews should check hatch, latch, and safety pin function throughout the mission.

z. Require complete electrical inspection (no loose connections or frayed/worn wires, and no wires that runover hot or sharp objects) to guard against possible tank fires. Check wires from the battery box. Inspect fuel systems for leaks. Ensure crew is proficient in proper extinguisher operations, fire precaution procedures and fire evacuation drills.

aa. Vehicles transporting hazardous materials will be appropriately placarded.

bb. An assistant driver should be used when transporting hazardous materials.

cc. Vehicle operators must ensure all loads are properly secured.

dd. Operators transporting hazardous materials will be properly trained, certified, and know what procedures to follow in case of an emergency.

ee. Vehicle operator is not permitted to wear portable radio headphones.

ff. Smoking inside a vehicle is prohibited.

gg. Maintain one vehicle width between parked vehicles.

hh. Before a tracked vehicle is started in an assembly area, a crewmember must walk completely around the vehicle to ensure the vehicle is safe to move.

ii. When crossing bridges with tracked vehicles, post road guards at both ends.

jj. Crewmembers must wear combat vehicle crewman (CVC) helmets and communication equipment before movement (tracked vehicles).

kk. Vehicles stopped on or on the side of public roads will be properly marked and illuminated.

ll. Gun tubes must be locked to front or rear in the cantonment area.

mm. Avoid steep slopes and narrow trails.

nn. Avoid operating too close to drop offs/ditches that might collapse due to recent heavy rains.

oo. Know emergency response actions in case of compartment fires. Be proficient in fire extinguishing system operations.

pp. Avoid panic evacuation if halon system is discharged. Halon is not fatal when inhaled but will cause respiratory irritation. Crew must coordinate emergency evacuation.

qq. Track Commanders (TC) should ride no higher than name tag defilade.

rr. Maintain three points of contact when working on top of vehicles and when mounting/dismounting.

2. Senior vehicle occupant responsibilities.

a. Is responsible for safe operation of vehicle.

b. Should not permit a driver who appears fatigued or physically, mentally, or emotionally impaired to operate a vehicle.

c. Ensures use of seatbelts, if provided.

d. Assists the driver in backing or executing other difficult maneuvers when an assistant driver is not available.

e. Enforces compliance with road signs and speed limits.

f. Ensures highway warning devices are properly displayed when the vehicle is stopped or broken down.

g. Posts personnel, if available, to warn approaching traffic when the vehicle is halted or disabled in a location that might obstruct traffic.

3. Convoy Operations.

a. Provide an orientation to drivers concerning potential safety hazards. A physical reconnaissance of the route should be taken to identify existing hzards such as rough terrain, steep hills, narrow roads/tank trails, drop-offs, etc.

b. Each driver should be given a strip map.

c. Use headlights during movement on public roads.

d. Equip all vehicles with highway warning kits.

e. No troops/hazardous material in last vehicle.

f. Establish emergency/accident procedures.

Chapter 3
PETROLEUM PRODUCTS

1. Gasoline will not be used as a cleaning agent.

2. Do not light or refuel stoves in any enclosed area.

3. Fuel fired equipment operators must be properly licensed and training annotated on Optional Form (OF) 346 (E).

4. Mark fuel cans properly (i.e., diesel, mogas, JP8, etc.)

5. Turn off burner unit and allow to cool before refueling.

6. Establish adequte spacing for refueling points from storage operation (100 feet), between refueling points (40 feet) and from refueling points to pumps (50 feet).

7. Ensure proper grounding and bonding anytime fuel operations are being accomplished. Use only the ground rod issued with theHeavy Expanded Mobility Tactical Truck (HEMTT). Rod, Grounding NSN 5975-00-224-5260 or NSN 5875-00-404-2684 may be used in other cases.

8. IAW AR 420-90, a potassium carbonate base dry chemical extinguisher will be avilable at each tanker and pump unit.

9. During night operations, mark hazards using reflective tape. Personnel manning the fuel point should wear reflective clothing. Lighting must be explosion proof.

10. Place the following signs no less than 50 feet from refueling points and fuel tanks:

FLAMMABLE (6 inch letters)
NO SMOKING WITHIN 50 FEET (3 inch letters)

11. Type fuel (MOGAS, DIESEL) must be marked at fuel points.

12. Cease fueling operations if thunderstorms are within a 5 mile radius.

13. Immediately stop fueling operations if a potential hazard is recognized, i.e., spills, leaks, lack of fire extinguishers. Fuel handlers require fuel handler's cards.

14. Inspect slave cables for exposed live electrical wiring to prevent against arcing/sparking. Inspect emergency on/off switch, cables, tanks, hoses, pumps, filters, and hose joints, etc.

15. When transferring bulk fuel from one carrier to another, the bottom load method is preferred to prevent build up of static electricity. Top loading should be done only in emergency situations by order of the unit commnder.

16. Ensure that drip pans and dry sweep are available and used at fuel site.

17. Take action to prevent environmental contamination and report fuel spills as required.

Chapter 4
AMMUNITION AND EXPLOSIVES

1. General safety precautions.

a. Do not cut or break open pyrotechnics and light powder.

b. Vehicles must be properly placarded.

c. Vehicles transporting explosives must be equipped with two fire extinguishers; one must be a 10-BC rated carbon dioxide or dry chemical extinguisher if transporting chemical munitions.

d. Move explosive-laden vehicles on preapproved routes.

e. Vehicle fuel lines, hydraulic systems, heaters etc., must be inspected regularly on vehicles used to carry ammunition (e.g., Field Ammunition Support Vehicle (FAASV) heaters) for leaks and possible electrical problems.

f. Keep away flammable and spark producing materials.

g. Ensure fire extinguishers are present whenever ammunition is handled, stored or transported.

h. Protect ammunition from direct sun.

i. Account for all unexpended ordinance (including simulators).

j. Mark location of found ordinance and notify authorities.

2. The following precautions must be observed when using pyrotechnics:

a. When simulating an activity (artillery fire, etc.), the controller, not the driver, will throw the pyrotechnics.

b. Plans for the use of pyrotechnics should include provisions for complete accountability to include expenditure of turn-in within 1,000 meters of ammunition storage, fuel, dwellings, or cantonment area.

d. Pyrotechnics will not be fired at aircraft. Obtain clearance from Range Control before using aerial flares.

e. Do not expose simulators to intense heat and direct sun.

f. Do not throw/detonate simulators, flares or smoke devices near troops, tents, vehicles, or other flammable materials.

g. Roll down sleeves, use gloves and wear kevlar helmets when loading/handling simulators.

h. Be aware of the dangers of inhaling HC (hexachlorethane) smoke. When in doubt, wear protective masks. Never throw HC smoke grenades into tents or other confined areas or from moving vehicles.

i. Blank ammunition must not be fired directly at a person who is closer than 30 meters. Blank artillery ammunition cannot be fired at persons closer than 120 meters.

j. When firing the Hoffman devise, the personnel danger areas are 50 meters forward and 5 meters to each side.

k. Clear to the rear when using Antitank Weapons Effects Signature System (ATWESS).

l. Provide amnesty boxes at the end of firing.

m. Store live and blank ammunition separately.

n. Never store or transport corrosives, flammables, and ammunition together.

Chapter 5
FIRE PREVENTION AND CONTROL

1. General safety precautions:

a. Instruct personnel in the operation and care of tent stoves and the hazards of fires in vehicles, Petroleum Oils and Lubricants (POL) storage and tentage.

b. Use only approved fuels in tent space heaters.

c. Fuel containers for space heaters must be clearly marked and separated from gasoline and water containers.

d. Do not store fuel containers inside tents, vehicles, or buildings.

e. Avoid refueling lanterns near space heaters.

f. Personnel fueling/operating tent stoves must be properly trained and licensed.

g. Examine fuel cans, lines, and carburetors for leaks, ruptures, or malfunctions. Do not use if damaged.

h. Never operate tent heaters at full capacity.

i. Metal shield of stovepipe outlet must be in place.

j. Tents with canvas or wooden floors will have a sandbase box on which heaters are to be placed.

k. Keep tent aisles clear. Equipment, including cots, must be kept at least three feet from stoves. Field electrical wiring that passes under cots should be kept at least two feet from stoves.

l. Containers used to heat water on stovetops will not be tightly capped.

m. Do not mix diesel fuel and gasoline.

n. Ensure tent flaps are rolled back and tied.

o. Appoint fire guards when tent heaters are being used.

p. Fire extinguishers (CO2) must be accessible.

q. When operating electrical heaters, ensure cords are not frayed and check circuits routinely for possible overload condition.

r. Allow for adequate ventilation when using tent heaters to prevent carbon monoxide poisoning.

s. When heaters are operating, a CO2 fire extinguisher must be available in the tent.

t. Never use gasoline as a cleaning solvent or fuel starter.

2. Field kitchen precautions:

a. Fuel must be stored at least 50 feet from the mess area.

b. All storage areas must be free of combustible materials.

c. Use only approved fuels in field mess ranges and immersion heaters.

d. Refueling should be accomplished only by thoroughly knowledgeable and licensed personnel.

e. Fire extinguishers must be made available in mess tent, stove lighting, and fuel storage area.

Chapter 6
COMMUNICATION AND ELECTRONICS

1. Before erecting antenna, inspect the immediate overhead area to prevent accidental contact with power lines.

2. Antenna structures must be located from overhead electrical power lines equal to twice the height of the structure erected.

3. Signal shelters and generators must be properly grounded with 5 foot grounding rods all the way in the ground, and bonded to shelter, or a generator, with tight fitting clamps, straps, or cables.

4. If two or more signal shelters are to be located close together, proper grounding and bonding must be present.

5. Personnel with back-carried portable radio sets with whip antennas must continually watch for and avoid low hanging overhead electrical power lines.

6. Field wire must not be strung over or come in contact with electrical power lines.

7. Vehicle operators must ensure that antennas are properly secured and tied down while operating in cantonment area.

8. Antenna tip caps (NSN 5985-00-930-7223), or other suitable tip caps, must be in place to prevent serious eye injury.

9. Eye and head protection must be worn when erecting and lowering antennas. (OE-254, RCS-292 and RAU.)

10. Use antenna mast sections (camouflage poles have been a fatal alternative).

11. Stress that soldiers have been killed by falling antenna head sections.

Chapter 7
INDIVIDUAL GENERAL SAFETY

1. Do not sleep, nap, or doze under, in, or near vehicles, parking areas or trails.

2. Check sleep and work areas for exhaust fumes (carbon monoxide poisoning).

3. Do not stand or walk between two vehicles when the engine of one or both is running.

4. Bodies of water not under control or supervision of military authorities are off-limits for swimming.

5. Sleep plans and sites must be developed and enforced.

6. Fighting positions should be manned by at least two people.

7. Be watchful for poisonous snakes (Rattlesnakes, Copperheads, Water Moccasins and Coral Snakes), spiders (Black Widow and Brown Recluse) and poisonous plants (Poison Ivy and Poison Oak).

8. Wear kevlar helmets when setting up tents and camouflage.

9. Rings should be removed when in the field. Soldiers frequently catch rings on the vehicle tailgates while dismounting, causing severe finger injuries.

10. Ensure protective mask is worn when conducting training using HC smoke.

11. Do not get in a hurry or take short cuts; continue to perform to standard.

12. Know your limitatioins; get help when lifting heavy equipment/objects.

Chapter 8
AMPHIBIOUS OPERATIONS

1. Prior to and during amphibous operations.

a. Select a crossing site commander.

b. Appoint a crossing safety officer and Noncommissioned Officer (NCO) with no other duties except to ensure safe practices are followed.

c. Provide a safety briefing for all personnel engaged in the operation to ensure that safe practices are known and followed.

d. Select entrance and exit points on firm ground, free of rocks, stumps, and other debris.

e. Be especially alert for undercutting or other conditions which could cause vehicles to topple or sink near the water edge.

f. Mark entrance points, lanes, and exit points properly.

g. Prepare vehicles for amphibious operations IAW the appropriate TM, including amphibious operation checks.

h. Equipment must be evenly distributed within the vehicle to ensure even balance.

i. Ensure emergency illumination is available for rescue operations (i.e., shore lighting equipment, vehicle lights or tank spotlight, etc.) Equip safety boats with searchlights and running lights. Floodlights on safety boats and vehicle lights on the banks are minimum.

2. Safety briefings should include, but are not limited to:

a. LBE, overshoes, protective masks or other heavy equipment that would decrease buoyancy or hinder movement must be removed.

b. Weapons should be secured to the vehicle so that they will not be lost in the event of sinking.

c. Procedures to follow in the event of emergency.

d. Location and mission of the safety boat.

e. Loading and dismount procedures of personnel and equipment.

f. Identification of weak or non-swimmers.

g. Conduct of emergency abandonment drills.

3. Fording.

a. Stream bottom should be sufficiently firm to provide adequate support to all vehicles participating in the operation.

b. Water depth must be within vehicle fording limits. Follow fording instructions IAW applicable TM. Following is a guide:

TYPE TRAFFIC	UNIMPROVED ROCK	UNIMPROVED MUD/SAND	IMPROVED	MINIMUM WIDTH	CURRENT SPEED
Foot	39"	39"	39"	NA	3FPS
Wheel 3/4 ton & less	12"	6"	water over runway	12ft	5FPS
Wheel more than 3/4 ton	18"	10"	1 ft on flood gauge	12ft	5FPS
Tracked	39"	24"	2 1/2 ft on flood gauge	14 ft	6FPS

4. Swimming.

a. All vehicles should be pre-dipped within 72 hours of a swim operation and inspected IAW pre-swim operation checks.

b. Instruct drivers how to operate vehicles during water operations.

c. A recovery vehicle winch cable will be attached to the swim vehicle before it enters the water. Visually check to ensure there are no leaks, verify load distribution and bilge pump operation. The swim vehicle will then be pulled ashore. After a vehicle has been pre-dipped, the ramp will not be lowered until after the swim operation. If the ramp is lowered prior to swimming, the vehicle must be pre-dipped again.

c. Any vehicle which has a non-operational bilge pump, dead batteries or batteries that will not hold a charge or with gaskets, seals, air intake parts, drain plugs or inspection plates missing will not be allowed to swim.

d. An empty, air tight, 5 gallon water can or wood float (4" x 4" x 18") painted yellow will be tied to the left rear lifting eye (attach to left rear stowage box light guard (M2/M3 Bradley), with a 1/2" nylon rope, at least 50 feet long, to mark the position of the vehicle and the rear door should the vehicle sink.

e. Life preservers will be issued and worn by all personnel before any vehicle enters the water for any purpose (i.e., pre-dip, floating or swimming.)

f. Move the inside personnel ramp door lock to the "open" position during actual in water operation to enhance vehicle abandonment.

g. A safety boat must be positioned near midstream and downstream from crossing sites during all crossing operations.

h. Safety boat equipment will include at least two qualified lifeguards, a life ring, 3/4" or thicker rope, a boat hook, a lifebouy with a minimum of 50 feet of 3/4" nylon rope attached securely to the boat. An anchor appropriate for the size of the boat used will be attached by a line of sufficient length, which will allow it to rest on the bottom, two paddles, power megaphone, flood lights, searchlights, and/or running lights for night operations, a minimum of one radio for control purposes, and flares.

i. The safety officer should have radio contact with safety boats and vehicles conducting swimming operations.

j. Close all hatches, except the drivers hatch, as the vehicle enters the water. As soon as the vehicle floats, the hatches should be opened and locked. M2/3 hatches should be open at all times.

k. Position personnel at the water exit points with flags or other eye catching means for directing the swimming vehicles to the exact exit point. Vehicles approaching at the wrong angle will be waved off, and instructed to swim upstream before making another exit attempt.

l. Personnel should be positioned, ready to assist in recovering stalled or sunken vehicles.

5. Rafting.

a. Follow all instructions given by the raft commander.

b. DO NOT overload the raft: Load rafts IAW the raft commander's guidance.

c. Swift currents require raft loads to be reduced.

d. DO NOT operate the raft upstream of floating bridge, cable, pier, or other obstacle.

e. Place wheel chocks as soon as the load is in position.

6. Driver Responsibilities.

a. Drive vehicles in low range. Multi-drive wheeled vehicles (4x4, 6x6, etc) must have all wheels engaged while driving up the roll on/roll off ramps of the raft.

b. Drive slowly and steadily, stopping with wheels against chocks. Do not make any sudden stops, accelerations, or turns.

c. Leave brakes on and motor running. Stay in driver's seat and never use neutral or pivot steers while on the raft.

d. Tracked vehicle crews must remain standing in open hatches. For tanks, the loader sits on top of the tank with feet inside the hatch, and the gunner stands in the loader's hatch.

e. Wheeled vehicle crews stay in vehicles with windows down.

f. Life preservers must be worn by all personnel.

g. Position safety boat as in paragraph 4g above.

h. Maintain radio contact with safety boats and rafts.

i. Keep vehicle loads within vehicle weight limits.

7. Bridging.

a. Use low gear range and all wheels engaged (4x4, 6x6, etc.)

b. Maintain a constant speed.

c. No sudden accelerations, stops or turns on the bridge.

d. Keep vehicle loads within the vehicle weight limits.

e. No neutral or pivot steers on the bridge.

f. Crews should take all instructions from bridge guides.

g. Provide safety boats when personnel are working over water.

8. Personnel Stream Crossing.

a. Identify weak/non-swimmers and place between strong swimmers.

b. Select a strong swimmer to lead the crossing.

c. Place a cross stream safety line of buoyant (3/8" or 1/2") material downstream and anchor securely.

d. If possible, position a rescue boat equipped with a life ring, safety line, and boat hook manned by two qualified lifeguards or strong swimmers downstream from the crossing site.

e. Carry heavy loads of equipment across on lines and buoyant material.

f. Conduct safety briefing and instruct personnel on emergency procedures.

g. Do not sacrifice mission safety for speed. No shortcuts!

Chapter 9
RAIL OPERATIONS

1. General.

   a. Commanders must appoint a train commander.

   b. Ensure medical support is available.

   c. Designate break areas.

   d. Provide adequate command and control.

   e. Plan adequate life support (water, food, heat, lights, etc.)

2. Safety Requirements.

   a. Do not jump on or off railcars; use steps on each end.

   b. Do not sit under railcars.

   c. Wear gloves when blocking, bracing, handling spanners,or tying down equipment.

   d. Wear kevlars when working on railcars or between tracks.

   e. Do not ride on outside of vehicles, cranes, forklifts, etc.

   f. Smoke in designated smoking areas only.

   g. Cease operations if an electrical storm approaches.

   h. Ground LBE and weapons before conducting operations.

3. Vehicle movement.

   a. Speed limits are 20 miles per hour (mph) between ramps and staging areas, 3 mph on railcars and 10 mph between tracks.

   b. Vehicle antennas must be removed prior to loading railcars.

   c. Do not move vehicles forward or backwards on railcars to tighten or loosen chains.

4. Vehicle operators must:

a. Start and drive only vehicles for which they are licensed.

b. Operate vehicles in lowest gear while moving on railcar.

c. Move a vehicle on a railcar only if being ground guided.

d. Know hand signals and follow instructions from one guide.

e. Stop the vehicle if visual contact is lost with the guide.

f. Not wear radio headphones or smoke while driving.

g. Not position themselves under, in front of or behind a vehicle with the engine running to move spanners.

h. Wear kevlar helmets and not allow passengers in their vehicles when driving on or off railcars.

5. Ground Guides.

a. Must know standard hand signals used for guiding vehicles.

b. Do not walk backwards while guiding or run on railcars.

c. Have continuous eye-to-eye contact with vehicle operators.

d. Do not stand between vehicles while guiding.

e. Are not on the same railcar as the vehicle being moved.

f. Reposition and secure spanners between railcars.

g. Stop operation when an unsafe act is observed.

h. Stop vehicles completely before repositioning or handing off to another ground guide.

Chapter 10
LASER SAFETY

1. General. The hazard from laser devices is limited to exposure to the unprotected eyes of individuals within the direct laser beam, or a laser reflected from specular surfaces. Serious eye damage with permanent impairment of vision can result to unprotected personnel exposed to the laser beam. The laser beam travels in a straight line, therefore, it is necessary to provide a backstop (such as a hill behind the target during laser firing). Every object the laser beam strikes will reflect some energy back toward the laser. Shiny reflecting surfaces must be avoided as targets to prevent reflection of a hazardous amount of radiation.

2. Safety requirements.

a. The use of optical devices to observe the target during laser operations should not be permitted unless appropriate laser safety filters are placed in the optical train of the binoculars, telescope, or laser itself.

b. When in doubt, require the use of laser safety eyewear.

c. Treat handheld laser devices as a loaded weapon.

d. Do not aim laser rangefinders or target designators at non-target personnel, vehicles, or passing aircraft.

e. Do not place hands in front of any laser device.

f. Do not perform maintenance work on laser systems until power is off and residual charge in any power supply capacitors has been bled off. When maintenance must be performed on "on line" laser systems, output must be blocked or enclosed.

g. Use only trained personnel to operate/handle lasers.

h. Never fire lasers at specular surfaces such as glass, mirrors, and windows.

i. Conduct safety briefings specifying required eye protection and viewing limitations.

j. Never stare directly into a laser.

k. If you work with Class III or IV lasers, you should receive a biennial laser worker eye exam by Occupational Health, Medical Department Activity (MEDDAC) IAW C1 to AR 40-46.

NOTE: The laser system, except for its inability to penetrate targets, should be treated as a direct-fire, line-of-sight weapon, such as a rifle or machine gun.

Chapter 11
COLD WEATHER INJURY PREVENTION

1. All personnel are susceptible to cold injury; however, certain factors increase the liklihood of sustaining injury:

a. A previous cold injury greatly increases the risk.

b. Fatigue is a factor contributing to cold weather injury.

c. A black soldier is more vulnerable to cold injury.

d. Tobacco/alcohol use increases the danger of cold injury.

e. Physical activity, too little or too great, contributes to cold injury. Overactivity can cause the loss of large amounts of body heat; immobility causes decreased body heat production.

2. Preventive Measures:

a. Soldiers must be briefed on the prevention, recognition and treatment of cold weather injuries as listed in TB Med 81.

b. Issue and use appropriate cold weather gear.

c. Wear one pair of socks and glove inserts at a time. Wear loose layers of clothing. Protect ears and nose. Wear insulated boots in cold, damp weather, and in snow, slush, or on frozen ground.

d. Keep feet clean and dry and change socks frequently.

e. When possible, eat hot foods and drink warm liquids.

f. Sit or stand on insulating material such as weeds or cardboard instead of cold or wet ground.

g. Avoid handling cold materials/equipment with bare hands.

h. When extremely cold, tighten and relax arm and leg muscles, do knee bends, stomp feet, run in place, or wiggle toes and fingers.

i. Remove boots before getting into sleeping bag.

j. Use the buddy system to observe evidence of cold injury.

3. Signs and Symptoms of Cold Weather Injuries.

a. A tingling sensation, aching or cramping pain. Any part of skin may turn red, and more severely, pale and waxy.

b. Loss of sensation in affected area.

c. Tender, hot skin usually accompanied by itching.

d. Immersion Foot. The sole of the foot may appear white and wrinkled; walking or standing becomes extremely painful.

4. Basic First Aid.

a. Move the victim to the most sheltered area. Cover with a blanket. Ensure the blanket is under as well as over the patient.

b. Treat superficial frostbitten area by using body heat.

1) Cover frostbitten face with bare hands until color returns.

2) Treat frostbitten hands by placing hand(s) under armpit(s). Close field jacket and shirt to prevent further exposure.

3) Treat frostbitten feet by removing boot(s), and place exposed foot/feet under clothing and against body of another soldier.

c. To treat snow blindness, eliminate all light to the eyes.

d. Do not smoke or drink alcohol.

Chapter 12
HOT WEATHER INJURY PREVENTION

1. Certain individuals are at high risk of becoming heat casualties. These include personnel who are not acclimatized to heavy work in a hot environment, do unusually heavy work, are obese or in poor physical condition, have a history of previous heat injury, have other medical problems such as hypertension, diabetes, or a common cold.

2. Three distinct types of heat injury are heat cramps, heat exhaustion, and heat stroke (sunstroke):

a. Heat cramps are painful muscle spasms in the arms, legs and belly wall, resulting from an extreme loss of salt from the body.

b. Heat exhaustion is a more serious condition resulting from excessive loss of water and salt from the body. The victim is dizzy, perspires profusely and the skin is pale, cold, moist, and clammy. The victim may also be nauseated and vomit.

c. Heat stroke (sunstroke) is the most serious form of heat injury and may lead to death if not recognized and treated early. It is caused by damage to the heat regulation mechanism of the brain, resulting from prolonged exposure to high temperature. The chance of death increases when temperature remains high for extended periods; therefore, the main objective in the management of sunstroke is to lower the victim's body temperature as rapidly as possible.

3. Prevention of heat cramp, heat exhaustion and heat stroke:

a. Allow for proper acclimatization (14 days).

b. Receive adequate water intake (1 quart of water per hour during the hot hours of the day). Soldiers must drink water even if they are not thirsty.

c. Ensure continual surveillance of all personnel to detect early symptoms of heat illness (use the buddy system)

d. Eat regular meals to replace salt lost through perspiration.

4. Treatment.

a. Heat cramps. Move victim to a cool, shaded area. Loosen clothing. Give water to drink.

b. Heat exhaustion. Remove victim to cool place and elevate victims legs. Cool body with water and by fanning. Open clothing. Sip water slowly.

c. Heatstroke. (This is medical emergency and can be fatal if not treated promptly and correctly). Cool victim by:

1) Removing outer garmets and/or protective clothing.
2) Immersing victim's trunk in cool water, being careful not to overcool, thus causing temperature to dip.
3) Massaging the victim while immersed in cool water to help (capillaries) transport cooling effect.
4) Pouring cool water over the victim and fanning to permit skin cooling effect of evaporation. Place under a cool shower, if possible.
5) Keeping victim in the shade
6) Using icebags, if available, at the sides of the neck and underarms during transportation to medical treatment facility to maintain cooling effect.
7) Transport victim to medical treatment facility.

5. Mission Oriented Protective Posture (MOPP) Training. Commanders must consult with medical personnel if training in MOPP gear at temperature levels above 80 degrees farenheit (F). Further guidance on use of MOPP gear during hot weather is provided in FM 21-40. Train in early morning or late evening hours in MOPP.

6. Monitoring temperature. During high temperatures, periodic wet bulb globe temperature (WBGT) readings should be taken and water intake and work/rest cycle adjusted accordingly. A wet bulb reading is not the same as air temperature. Commanders must determine when to implement the training modifications, considering the heat stress requirements of the training mission. The following information (extract from FH Reg 350-16) is provided:

HEAT INJURY PREVENTIVE MEASURES

HEAT CONDITION/ CATEGORY	WBGT-F	WATER INTAKE QUARTER/HOUR	WORK/REST CYCLE (MIN)
1* (WHITE)	78-81.9	AT LEAST 1/2	CONTINUOUS
2 (GREEN)	82-84.9	AT LEAST 1/2	50/10
3 (YELLOW)	85-87.9	AT LEAST 1	45/15
4 (RED)	88-89.9	AT LEAST 1 1/2	30/30
5**(BLACK)	90 AND ABOVE	MORE THAN 2	20/40

*MOPP Gear or body armor adds at least 10 degrees F to the WBGT index.
**Suspended physical training and strenuous activity. If operational (non-training) mission requires strenuous activity, enforce water intake to minimize expected heat injuries.

NOTE: "Rest" means minimal physical activity. Rest should be accomplished in the shade if possible. Any activity requiring only minimal physical activity can be performed during rest periods.

Examples: Training by lecture or demonstration, minor maintenance procedures on vehicles or weapons, personal hygiene activities, such as skin and foot care. Examples of "strenuous activity" are outdoor physical training (PT), road march with LBE, entrenching, forced march, and prolonged standing in formations or parades.

Chapter 13
MICROWAVE//RADIOFREQUENCY (RF) RADIATION PROTECTION

1. General. Microwave equipment produces intense radiation. Standards and safeguards for microwave radiation have been incorporated into systems development, equipment-manufacturer operating techniques, and maintenance procedures.

2. General safety hazards.

a. Microwaves exhibit characteristics common to very high frequency (VHF) radio and infrared energey, resulting in the combined effects of heating and penetration on biological systems such as the human body.

b. Microwave radiation produces electrical and magnetic forces and generates heat. These effects are useful (i.e., microwave ovens) but potentially dangerous.

c. Microwave and RF radiation causes atoms to vibrate and generate heat. Body temperatures may rise when such microwave and RF radiation is absorbed.

d. Testicles and eyes are more susceptible to heat and damage.

3. Control Measures.

a. Engineering controls is the best prevention. Control may range from restricting azimuth and elevation settings on radar antenna to completely shielding and enclosing the radiation generating sources in communications and navigational equipment.

b. Maintaining strict standards for communications equipment may prevent microwave and RF radiation hazards to personnel operating or servicing equipment. Varying strict standards when installing, moving, or modifying equipment has been hazardous to site personnel. Post RF warning signs and control access routes.

c. Leaders must establish measures to control exposing personnel to microwave and RF radiation and monitor the work procedures of operators and maintenance personnel.

d. Develop checklists and inspect equipment on a regular schedule at least once a week. Maintain records at site.

e. Ensure microwave and RF equipment componenets are inspected each day for breaks, cracks, fatigue, flange assembly damage, flange thread stripping, gasket condition and overstressing.

f. Conduct initial and periodic briefings on radiation safety for personnel working around microwave or RF radiating equipment. Discuss potential health hazards associated with overexposure.

g. Prescribe condidtions under which interlocks (limiting or warning devices installed on equipment) may be bypassed or overridden during combat alerts and training exercises.

h. Publish and enforce general and specific SOPs for the control, positioning, antenna elevations, interlock functions, and operation of microwave and RF radiation generating equipment/devices.

Chapter 14
RADIATION SAFETY

1. General. The mission of the Army requires the use of certain items of equipment that contain radioactive materials. These items usually contain sealed radioactive sources that pose no significant harmful effects unless the seal or container is broken or damaged. When this happens, specific safety precautions must be taken to ensure limited exposure to personnel and minimal contamination.

2. Common types of military equipment containing radioactive materials are chemical agent alarms/detectors, chemical agent monitors, muzzle reference sensors, illuminating sighting/fire control devices containing tritium (i.e., collimators), radiation surveying meters, calibration sources, radiac meters, and compasses and watches containing tritium or radium paint dials. A more detailed list of items containing radioactive materials in the Army inventory can be found in TB 43-0116. Additionally, each item containing a radioactive material must contain a radioactive warning label.

3. When any of the items mentioned above becomes lost, damaged, or stolen, you should place the item in a double-wrapped plastic bag and call the Fort Hood Safety Office (287-3725/4261) immediately. Personnel handling the device must wear rubber or latex gloves. The gloves should be dropped inside the plastic bag and hands washed. Unit NBC personnel should be notified when chemical equipment is involved.

BASIC SAFETY RULE: When in doubt; bag it, tag it, and call the Safety Office.

Chapter 15
AVIATION SAFETY

1. Aviation unit commanders

a. Establish and enforce the commander's aviation accident prevention program.

b. Report aviation accidents (see chapter 16).

c. Provide safety briefings to ground troops prior to supporting ground units.

2. Operations in and around aircraft.

a. Install only "tape" antennas on PRC-77/119 radios when soldiers maneuver in close proximity to aircraft.

b. Approach/depart aircraft at a crouch from front or side, and only after being told by a crew member.

c. Remain clear of tail rotor and rear of aircraft.

d. Secure lightweight or loose objects (ponchos, blankets, tents, etc.), in landing zone and inside aircraft.

e. Smoking is prohibited inside or within 50 feet of aircraft.

f. Vehicles within 50 feet of aircraft must have a ground guide.

g. Do not drive vehicles under turning rotor blades.

h. Vehicular radio antennas must be tied down.

i. Carry weapons muzzle down in aircraft and remove clips.

j. Hearing protection is required.

k. Passengers must be seated in authorized aircraft seats and restrained with seat belts. Exceptions are aircraft that are rigged for para drop or rappelling missions.

l. Pilot in command is responsible and has final authority for safety and the operation of the aircraft.

m. Shirt sleeves must be rolled down prior to entering aircraft.

n. Do not remove seatbelt prior to receiving permission from a crewmember.

3. Preaccident Planning. Each aviation unit must develop and publish a tactical preaccident plan. This tactical preaccident plan should include:

a. Telephone numbers to expedite notification of Crash Rescue, MEDEVAC, fire/police, and chain of command personnel.

b. Information listing the location and telephone number of nearest military and civilian medical treatment facilities.

c. Accident site security.

4. Experience from previous major field training exercises indicates that the following topics require additional emphasis:

a. Wire strike/tree strike prevention.

b. Environmental conditions (e.g., snow, dust, ice) restriction to visibility.

c. Inadvertent instrument meterological conditions (IMC) procedures.

d. Crew Endurance Criteria (compliance with unit SOP; entension should be the exception, not the rule).

e. Crew selection (mix experienced and inexperienced personnel).

f. Accident reporting procedures.

g. Pre-mission planning.

h. Designate helicopter landing facilities, helipads and parking aprons.

i. Risk reduction techniques.

j. Risk management.

k. Forward Area Arming and Refuel Point (FAARP) set up and inspection.

l. Select, survey and mark helicopter landing areas to avoid known major hazards.

Chapter 16
ACCIDENTS AND ACCIDENT REPORTING
(RCS CS0C5-308)

1. Accidents and injuries must be recorded on DA Form 285 (Accident Investigation Report) to the parent command by the unit involved. Report all accidents IAW the provisions of AR 385-40 DA Pam 385-40.

2. Accidents involving death, possible death, or $200,000.00 damage or more must be immediately reported telephonically to the III Corps Safety Office, 287-3725, and the III Corps Operations Center (COC), 287-2506/2520. Provide date, time and location of accident; names, grades and units of personnel involved; nomenclature of vehicle/equipment involved; extent of injuries and/or damage to property; and a narrative of the accident.

3. The unit commander will take charge of the accident site and accomplish the following:

a. Assist MP/CID/Safety investigators.

b. Provide guards to secure the accident site and wreckage until released by the III Corps safety representative or Centralized Accident Investigation board president.

c. Arrange for transportation of equipment operators and other Army personnel involved, but not injured, to Darnall Army Community Hospital (DACH) Emergency Room for blood and urine samples.

e. Make available to the investigation board operational, maintenance, and historical records of all equipment involved.

f. Make available to the investigation board medical, training, and personnel records for all personnel involved in the accident.

g. Obtain fuel and oil samples from equipment involved in the accident and provide samples to the investigation board.

h. Recover equipment after it has been released by the III Corps safety representatives or the investigation board president. (Accident site and wreckage must not be moved or disturbed except to facilitate the removal of injured or deceased personnel, assist in criminal investigation, or to alleviate another emergency.)

GLOSSARY

ACofS	Assistant Chief of Staff
ATWESS	Antitank Weapons Effects Signature System
BFV	Bradley Fighting Vehicle
CVC	Combat Vehicle Crewman
CO2	carbon dioxide
COC	Corps Operations Center
DACH	Darnall Army Community Hospital
F	farenheit
FAASV	Field Artillery Ammunition Support Vehicle
FAARP	Forware Area Arming and Refuel Point
FM	field manual
HC	hexachlorethane
HEMTT	Heavy Expanded Mobility Tactical Truck
IAW	in accordance with
IMC	instrument meteroligical conditions
LBE	load bearing equipment
MEDEVAC	medical evacuation
MOPP	Mission Oriented Protective Posture
MP/CID	Military Police/Criminal Investigation Division
MPH	miles per hour
NBC	nuclear, biological, chemical
NCO	Noncommissioned Officer
NSN	national stock number
OPCON/OPCOM	Operational Control/Operational Command
PMCS	preventive maintenance checks and service
POC	point of contact
POL	petroleum, oils and lubricants
PT	physical training
RF	microwave/radio frequency
SOP	standing operating procedure
TC	track commander
TM	technical manual
WBGT	wet bulb globe temperature

The proponent of this pamphlet is the ACofS G1, Safety Office

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