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DEPARTMENT OF THE AIR FORCE
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AIRDROP DERIGGING AND RECOVERY PROCEDURES

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*This publication supersedes TM 10-500-7/TO 13C7-1-10, 17 May 1966.

Preface

Purpose and Scope

This manual gives the latest approved doctrine for derigging, recovery, and evacuation of airdrop supplies and equipment. It is to be used by acting recovery NCOICs or officers for a unit receiving airdrop supplies. This manual provides critical instructions for recovery of airdrop and supplies and equipment. The instructions include: derigging, recovery, and evacuation responsibilities; identification of airdrop items and components; methods of collecting and handling parachutes and related airdrop equipment for recovery and evacuation; derigging and recovery support requirements; and derigging and recovery under special conditions. Army Television Tape 10-93, 706379 DA PIN, *Air Delivery Recovery Procedures,* illustrates these procedures.

Reference Information

The reference list in this manual contains the references to be used with this manual. Use command and local unit-level standing operating procedures dealing with recovery operations also.

Special Considerations

All dangerous materials must be packaged, marked, and labeled in compliance with TM 38-250/AFR 71-4. Unpack and move dangerous materials with caution.

User Information

The proponent for this publication is HQ TRADOC. You are encouraged to report any errors or omissions and suggest ways to improve this manual. ARMY personnel, send your comments on DA Form 2028 directly to:

Commander
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Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

CHAPTER 1

Responsibilities and Cautions

1-1. Responsibilities

Much of the damage to airdrop equipment and supplies occurs during derigging. Airdrop equipment must be derigged and recovered correctly to prevent damage to the fragile nylon airdrop items from cuts, water, and mildew; petroleum product contamination; and excessive exposure to sunlight. Recovery team personnel should be trained by parachute riggers (MOS 43E) prior to an airdrop operation. Riggers may be requested to assist the recovery OIC or NCOIC and to provide technical assistance. Riggers are not responsible for the recovery of airdrop equipment and supplies. The responsibility for recovery are described below.

a. The Commander of the Receiving Unit. The commander is responsible for appointing an OIC, NCOIC, or a supervisor. He is also responsible for organizing teams to recover the supplies and equipment, providing temporary storage if needed, and evacuating all airdrop rigging equipment.

b. Recovery OIC or NCOIC. The recovery OIC or NCOIC is responsible for planning and supervising the operation. He supervises the teams needed to recover and evacuate parachutes and related airdrop equipment.

c. The Receiving Unit. The unit should be capable of conducting the recovery. It is responsible for returning the airdrop equipment to the unit to which it belongs in proper condition as detailed in this manual. The unit can be held accountable for damage to the airdrop equipment as a result of negligence or failure to follow the procedures in this manual.

1-2. Cautions

A majority of airdrop equipment is made of nylon. Nylon is subject to being degraded by sunlight and some types of artificial lighting. Exposure to sunlight, especially for parachutes, must be minimized. Petroleum products such as diesel fuel, gasoline, grease, and oil also have a degrading effect on nylon. Nylon airdrop items may fail or lose strength if they are contaminated with petroleum products. Avoid the use of knives while performing recovery procedures. Airdrop equipment systems generally do not require knives for recovery and derigging. If nylon, dacron, or rayon airdrop items are immersed in salt water they must be evacuated immediately. They should also be rinsed within 48 hours, under the supervision of a qualified parachute rigger, to avoid the possibility of having to condemn the equipment. In the process of recovery, especially in arid climates exercise caution when recovering airdrop equipment, particularly parachutes. Also, small creatures, such as snakes and insects (some poisonous), often seek shelter in the equipment, and they may be evacuated with the airdrop equipment. Take extreme care when recovering damaged airdrop loads containing hazardous materials (ammunition, pyrotechnics, and similar items). Notify Explosive Ordinance Disposal (EOD) personnel before recovery of damaged airdrop loads containing hazardous materials.

CHAPTER 2

Airdrop Rigging Components

2-1. General

Airdrop loads require special rigging equipment for delivery to a designated area. The type and size of the load to be delivered in airdrop containers or on airdrop platforms determines the quantity of equipment required. Basic airdrop rigging components are described in this chapter and in FM 10-500-2/TO 13C7-1-5.

2-2. Types of Airdrop Platforms

Types of airdrop platforms commonly used are shown in Figure 2-1.

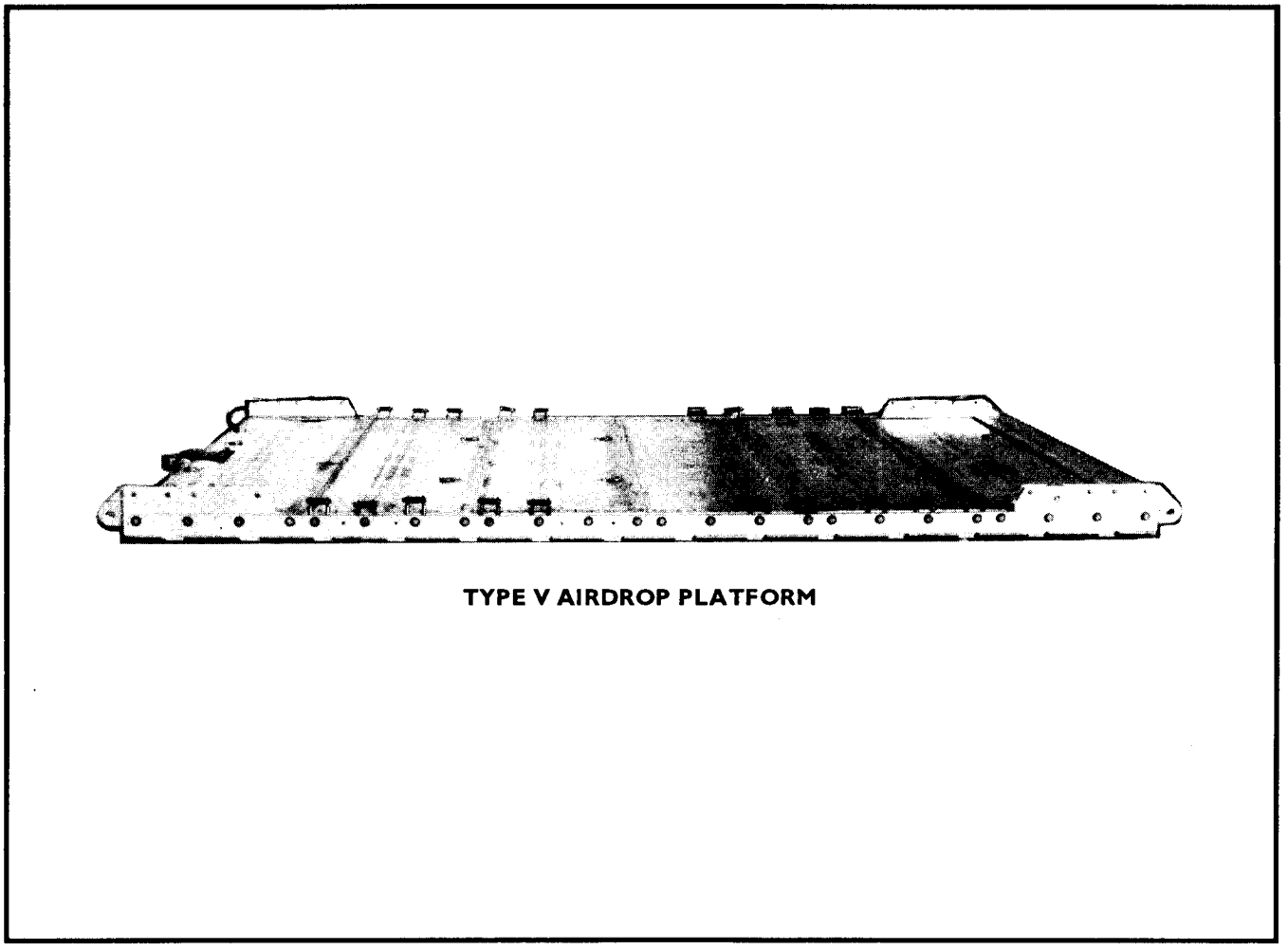
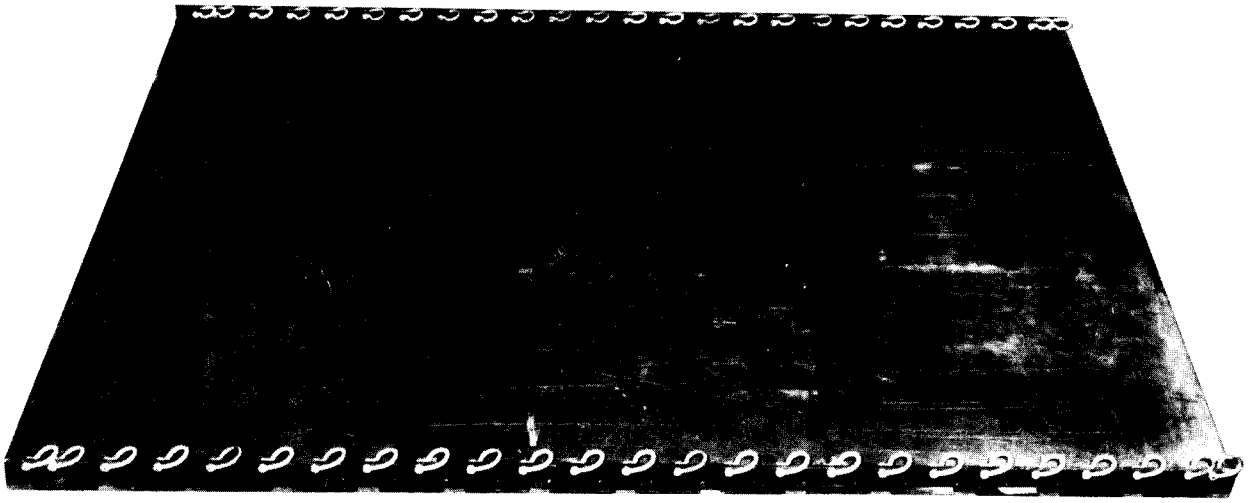
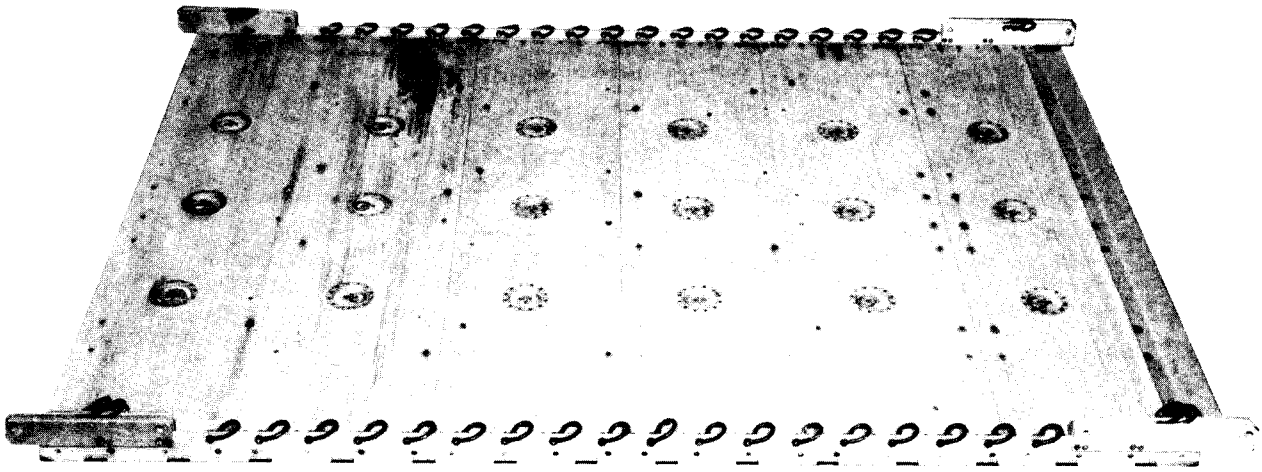


Figure 2-1. Airdrop platforms



TYPE II MODULAR PLATFORM



LAPE MODULAR PLATFORM

Figure 2-1. Airdrop platforms (continued)

2-3. Cargo Slings

Cargo slings are used for various purposes such as deployment or extraction lines, suspension or lifting slings, and riser extensions. The slings are available in 3-, 9-, 11-, 12-, 16-, 20-, 28-, 60-, 120-, 140-, and 160-foot lengths and various plies or loops (Figure 2-2).

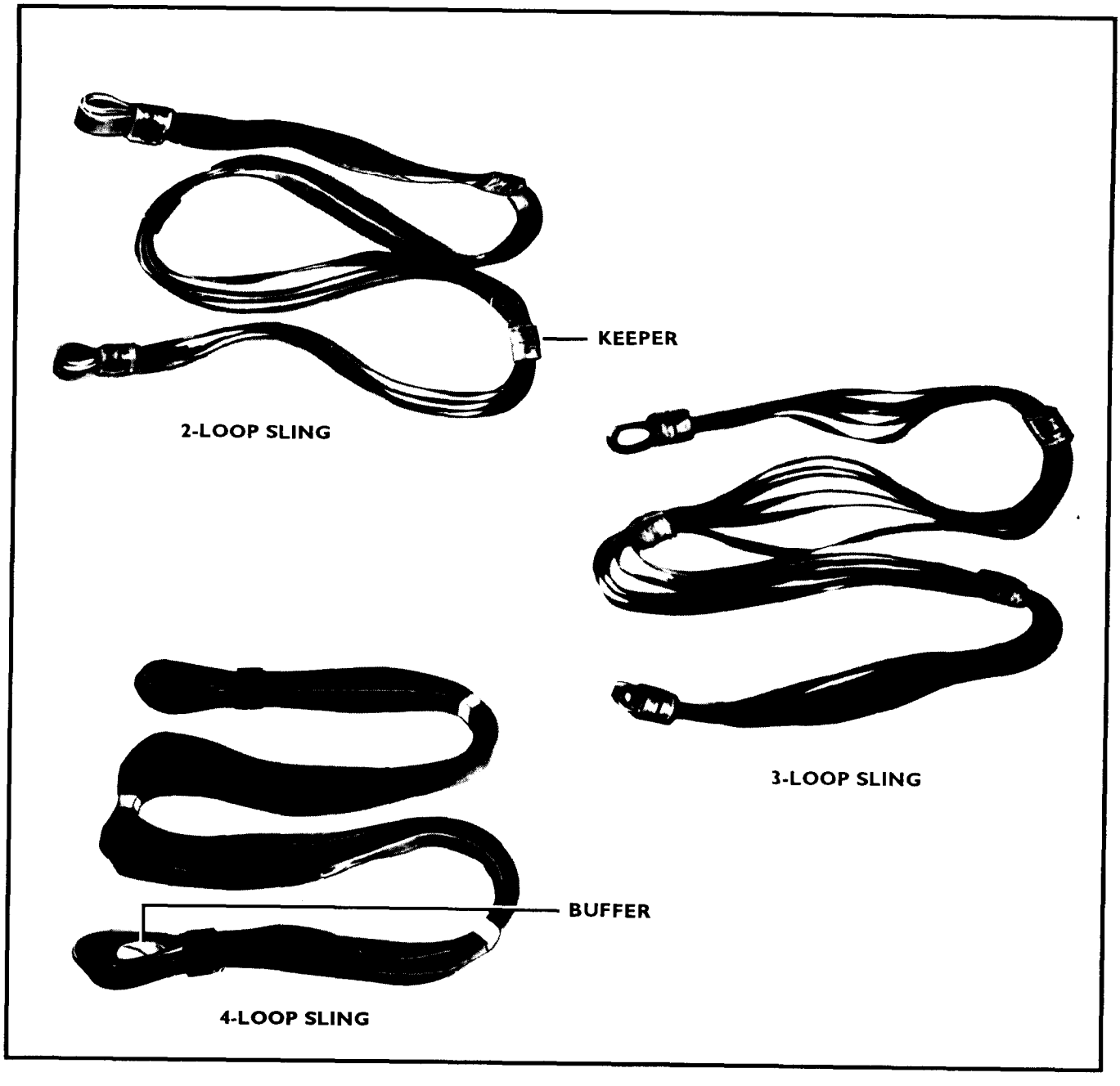


Figure 2-2. Cargo slings

2-4. Cargo Parachute Release Assemblies

Cargo parachute release assemblies are mechanical devices designed to free the cargo parachute automatically when the airdrop load reaches the ground. The assemblies and components are shown in Figure 2-3.

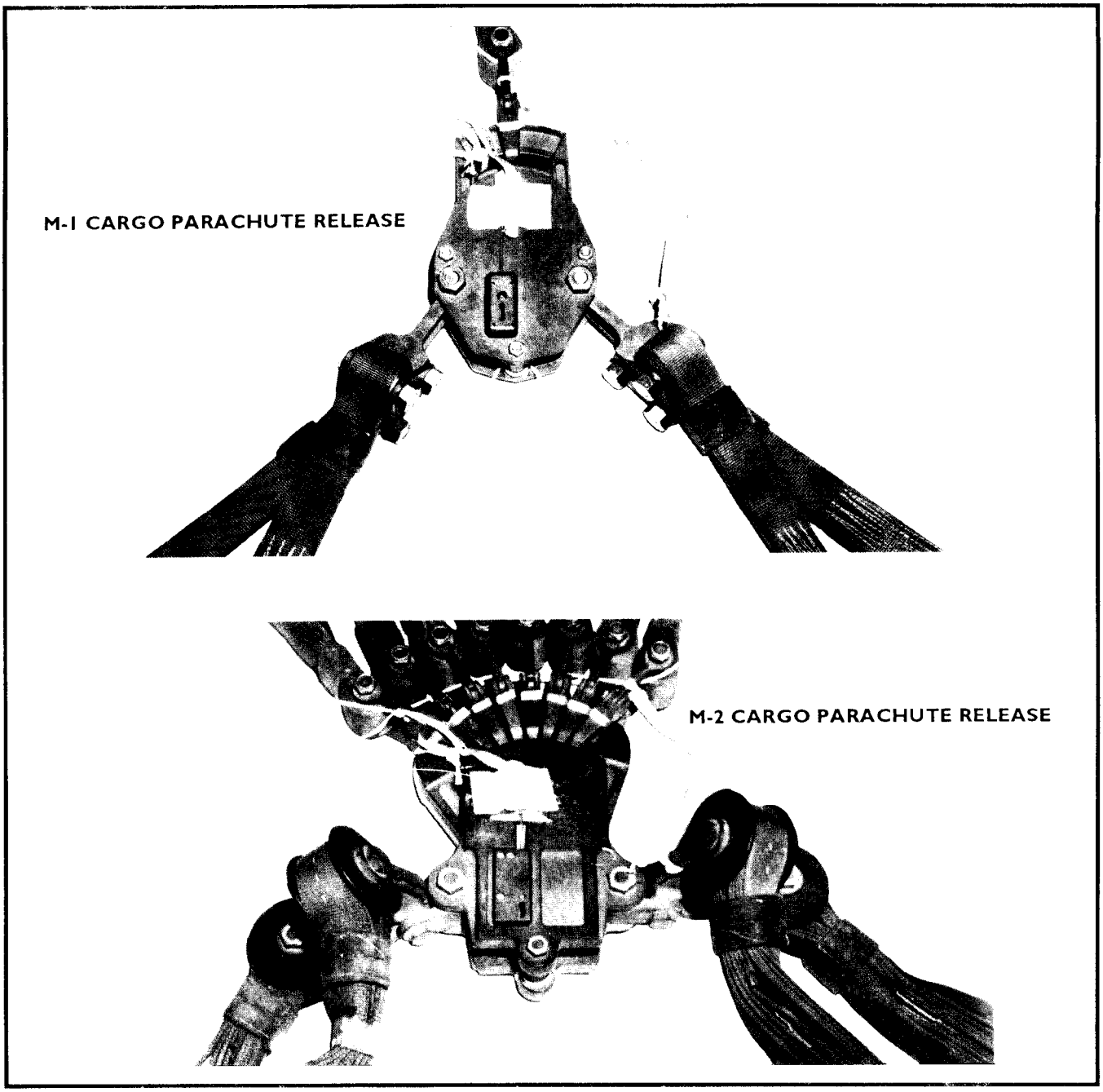


Figure 2-3. Parachute release assemblies

2-5. Link Assemblies

Link assemblies (Figure 2-4) are used to join cargo slings in forming suspension slings and riser extensions of a desired length. They are used also in the formation of the extraction system.

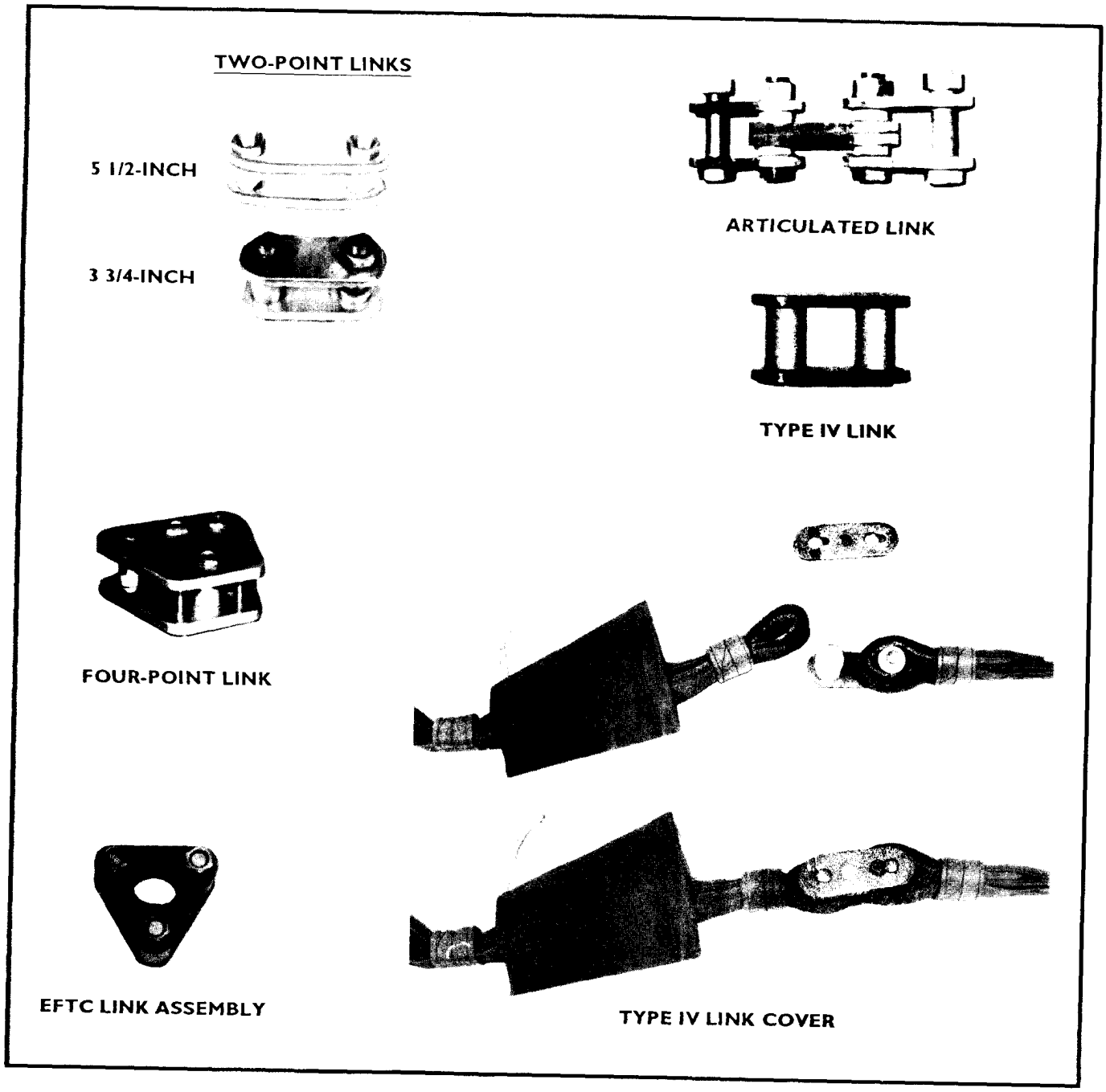


Figure 2-4. Link assemblies and link covers

2-6. Clevis Assemblies

Clevis assemblies (Figure 2-5) are used in forming suspension systems and extraction systems, in grouping cargo parachute bridles, and in attaching slings and parachute release assemblies. They are used also for other purposes specified in the manual covering the rigging procedures for individual platform loads.

2-7. Covers

Link and clevis covers are used to prevent metal-to-metal contact which may cause damage (Figure 2-4, page 2-5, and Figure 2-5).

2-8. Modification Hardware Items

Hardware items of metallic fabrication are used to modify certain airdrop items as specified in the manual covering the rigging procedures of an individual airdrop load.

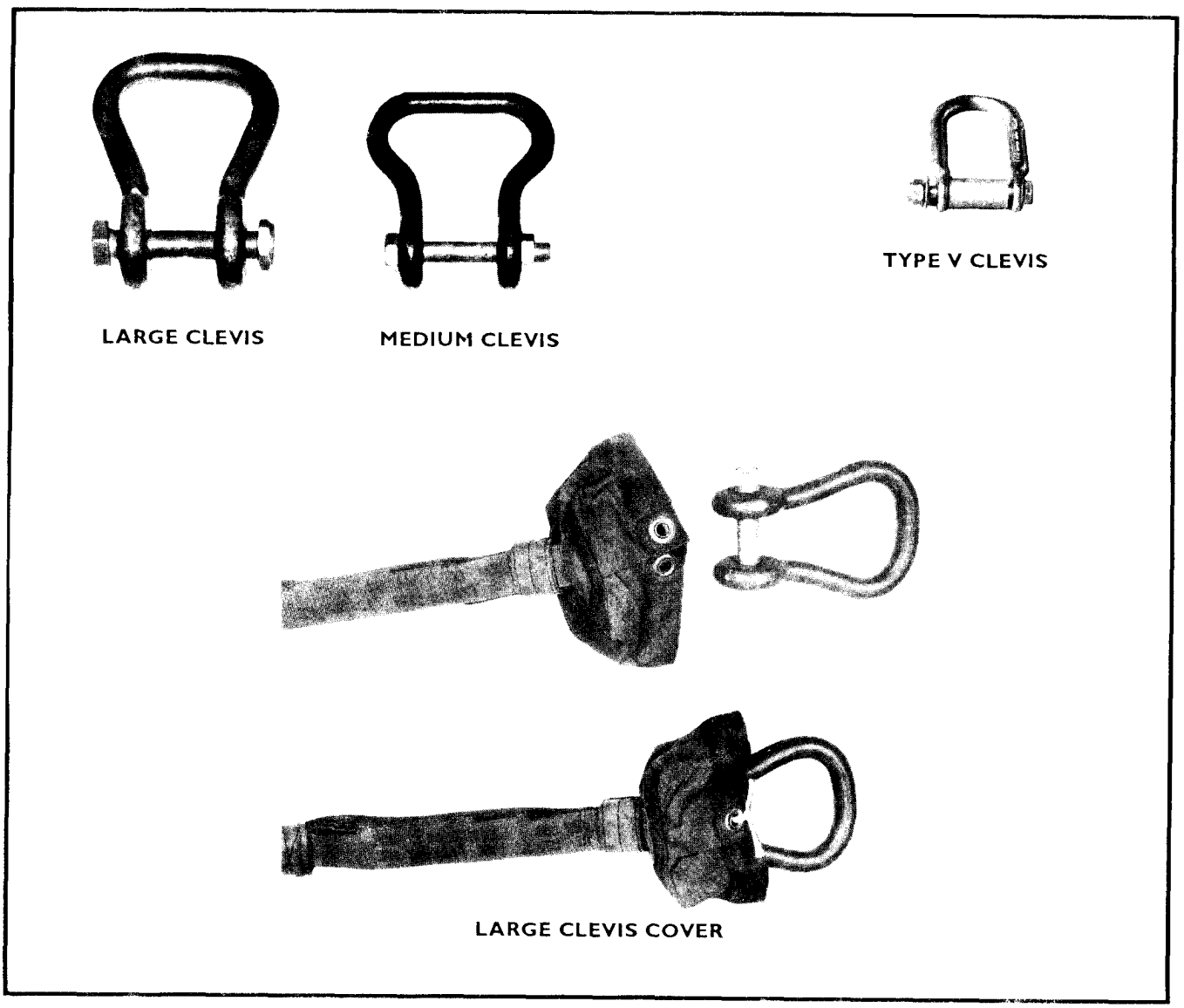


Figure 2-5. Clevis assemblies and clevis cover

2-9. Common Hardware Items

Common hardware items (Figure 2-6) of metallic fabrication are used in rigging airdrop loads as specified in the manual covering the rigging procedures.

2-10. Cargo Covers

Side and end cargo covers and tarpaulins are commonly used to protect and secure bulk loads of supplies or combination loads of supplies and equipment rigged on airdrop platforms.

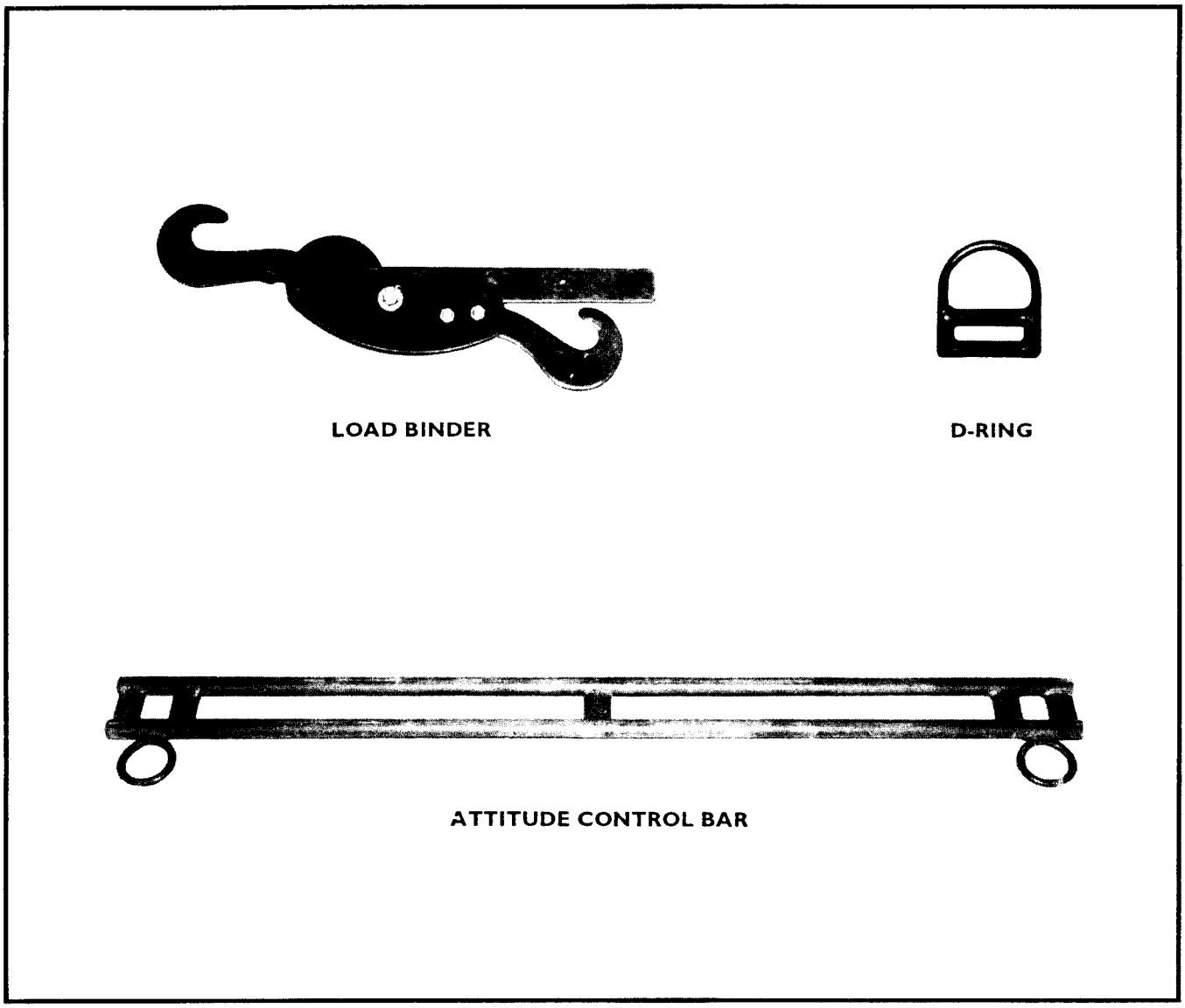


Figure 2-6. Common hardware items

2-11. Heavy Drop Derigging System

The HDDS is an upgraded version of the drive-off aid used to assist a vehicle to clear the honeycomb and platform. It winds around the wheel of the vehicle being driven (Figure 2-7).

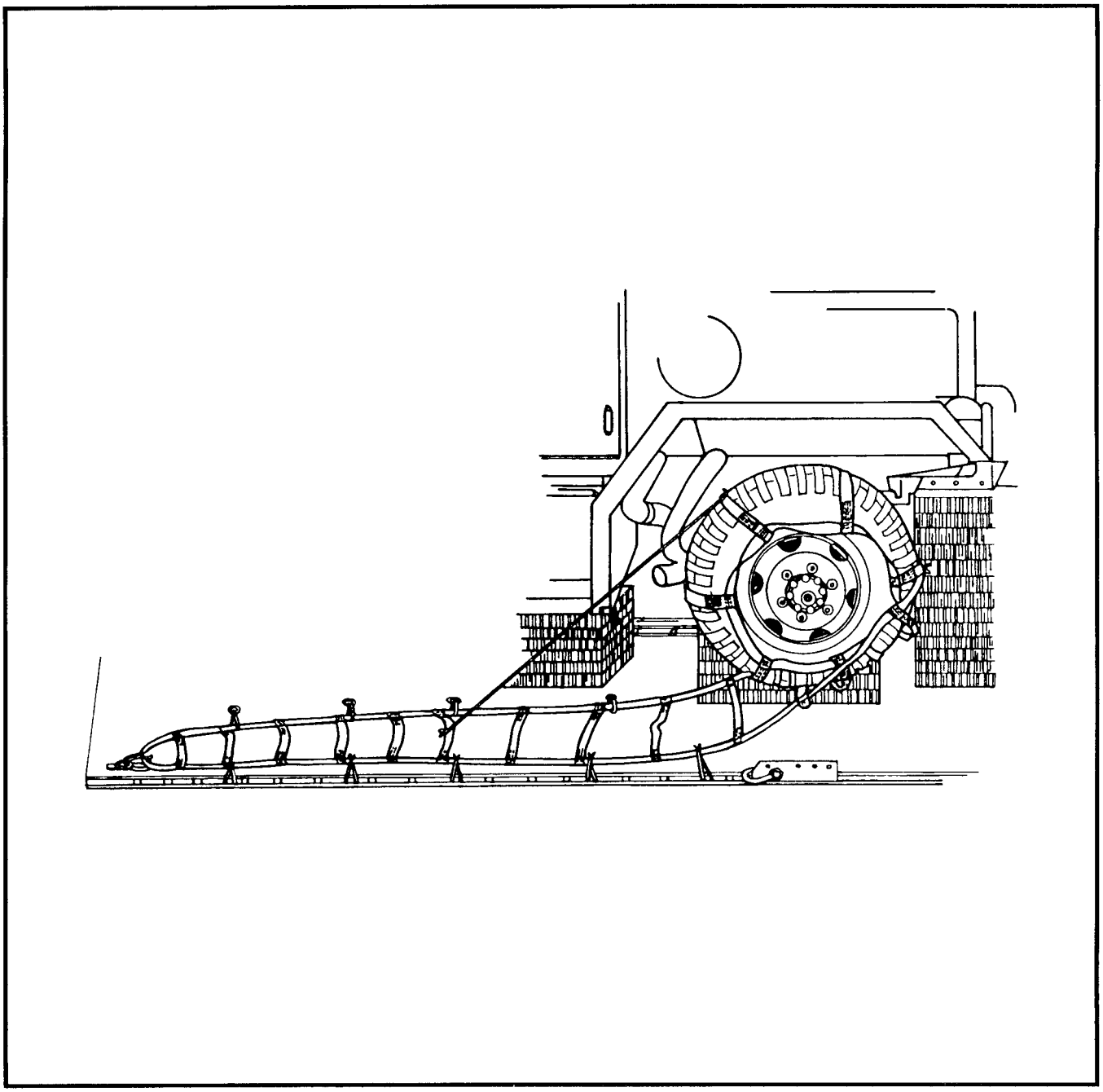


Figure 2-7. Heavy drop derigging system

2-12. Straps and Webbing

Straps and webbing (Figure 2-8) are used for lashing the load to the platform, for suspending the load as specified in the manual covering the rigging procedures of an individual platform or container load, for restraining the load or parachute, and for parachute release with knife and strap systems.

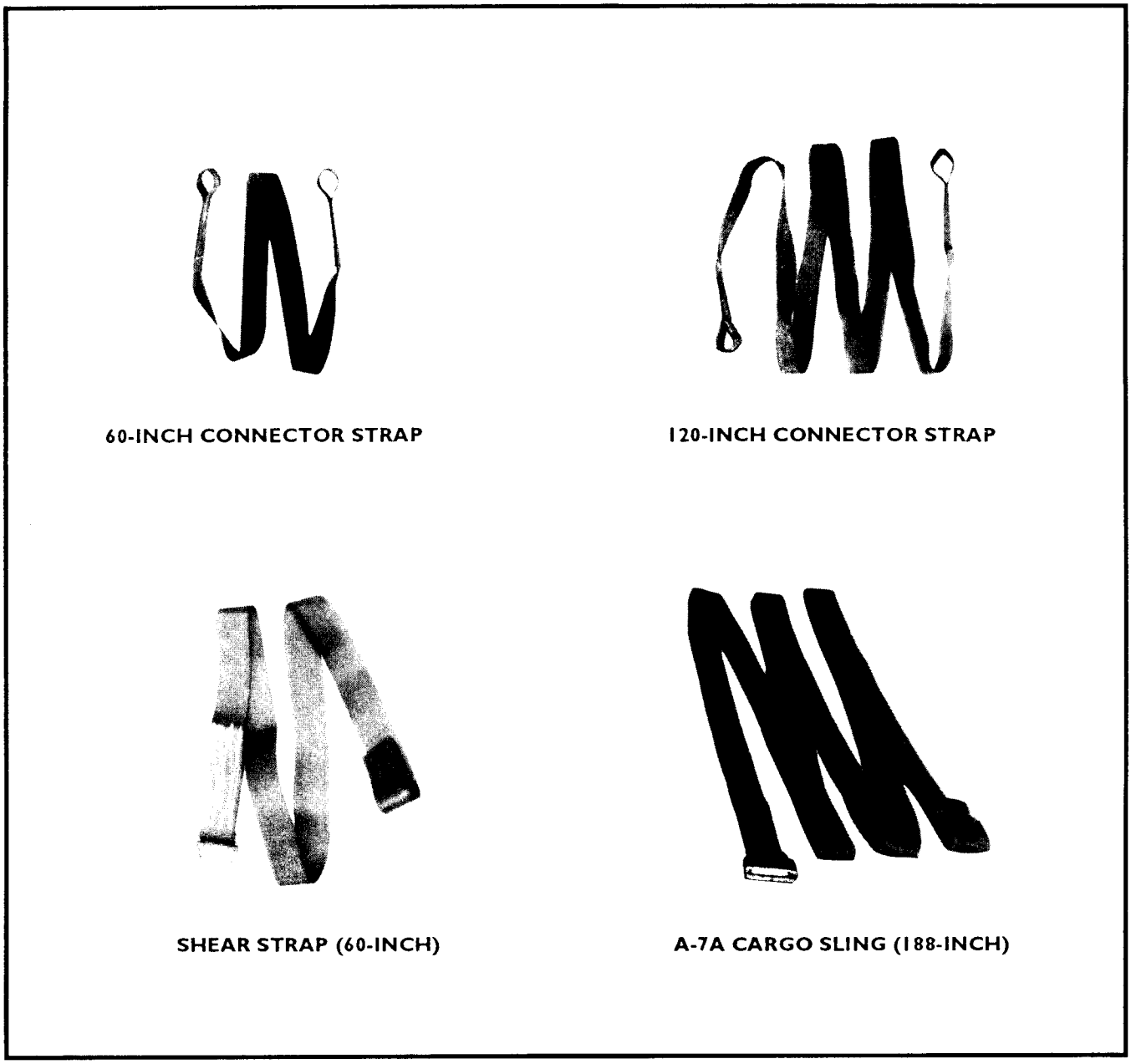
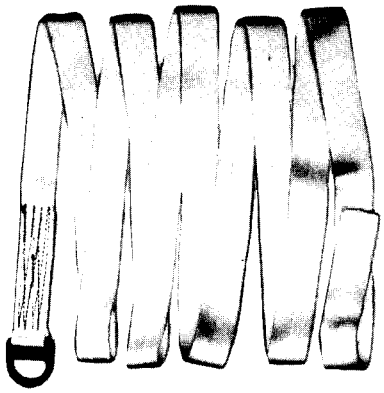
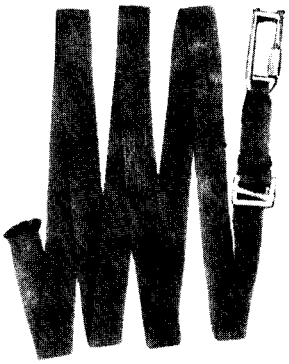


Figure 2-8. Straps and webbing

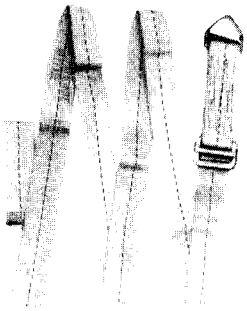
15-FOOT TIE-DOWN (LASHING ONLY)



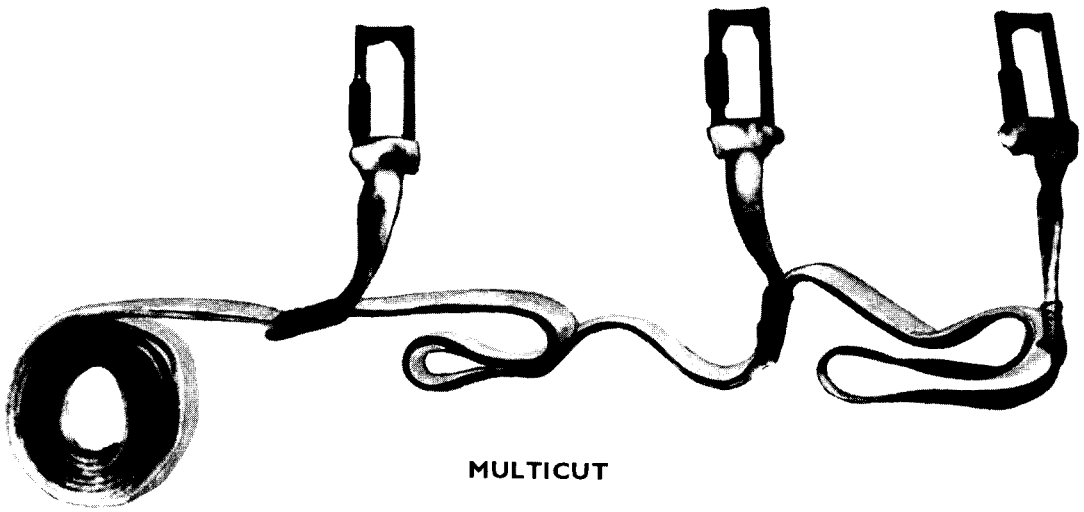
PARACHUTE RELEASE STRAPS



GUILLOTINE KNIFE



V-KNIFE



MULTICUT

Figure 2-8. Straps and webbing (continued)

CHAPTER 3

Airdrop Derigging Procedures

3-1. General

Much of the damage to airdrop equipment occurs during derigging. Follow specific procedures to prevent unnecessary damage and loss of vital airdrop equipment. Derigging procedures and special tools needed for the derigging of airdrop loads are described in this chapter.

3-2. Airdrop Platform Load Derigging Procedures

Derigging procedures consist primarily of removing the basic components of the rigging equipment from the load so that the airdrop items maybe moved quickly from the drop zone and put into use. For reasons of supply economy, ensure that the airdrop rigging equipment is removed properly during derigging.

a. Removing Suspension Groups. The derigging of the suspension group (Figure 3-1) includes removal of the suspension slings and other items of equipment which connect the suspension slings to the load or cargo parachutes. Remove the rigging equipment as follows:

(1) *Platjorm-suspended loads.* Remove the components of the parachute release from the suspension slings on platform-suspended loads before the airdrop load is removed from the platform (Figure 2-3, page 2-4 and Figure 3-l). The suspension slings may remain attached to the platform and may be removed when time permits.

(2) *Item-suspended loads.* Remove the tension slings from the item before it is removed from the platform. In some cases, the suspension slings must be removed from the suspension clevises before they can be disconnected from the item. In any event, exercise extreme caution when removing the suspension group so that this equipment will not suffer damage which would prevent its reuse.

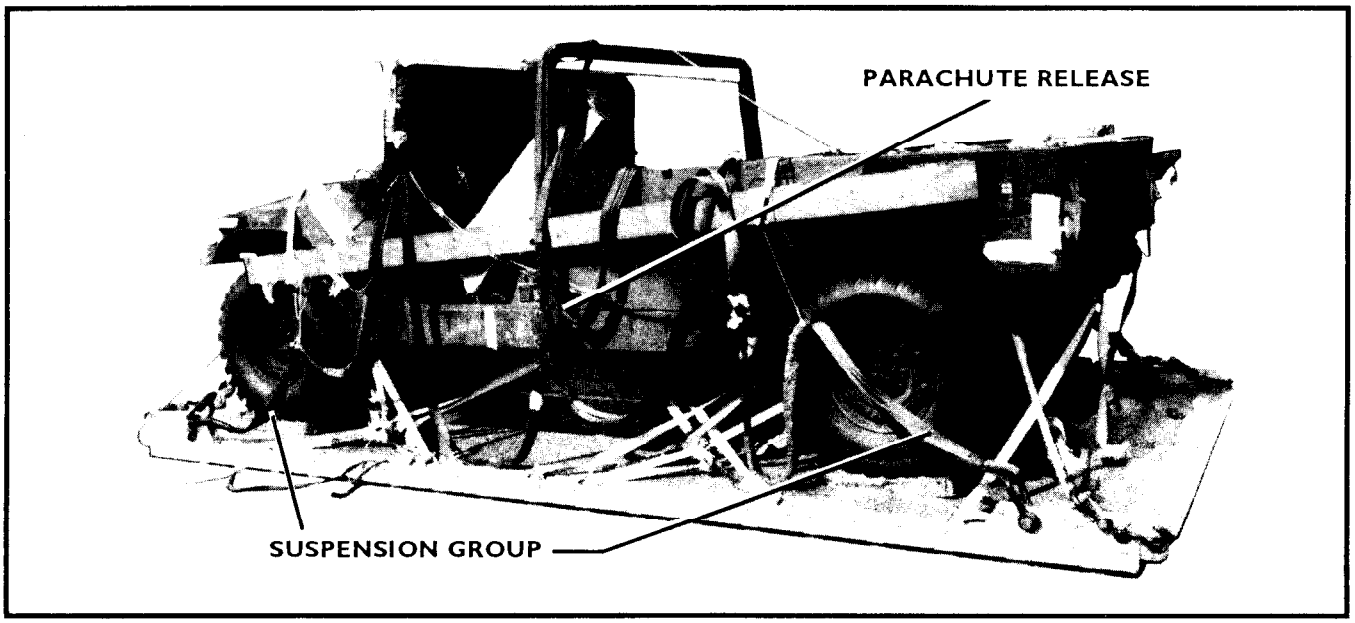


Figure 3-1. Suspension group

b. Removing Tie-Down Group. The derigging of the tie-down group (Figure 3-2) includes removal of the tie-down straps, load binders, ratchet tie-downs, and quick-fit strap fasteners. When the load is rigged, the tie-down straps and the load binders or ratchet tie-downs which secure the load to the airdrop platform are extremely tight. However, after the load hits the ground, the tie-down straps are usually loose enough to be removed easily. Tie-down straps and load binders that are still under tension must be removed as follows:

NOTE: DO NOT cut tie-down assembly straps.

(1) Release the load binder handle by removing the tape or type I, 1/4 inch cotton webbing around the load binder, load binder handle, and excess tie-down strap fold as shown in Figure 3-3.

(2) Pull the strap free from the tie-down provision, and remove the tie-down strap and load binder from the airdrop item and airdrop platform (Figure 3-3).

c. Removing Accompanying Load. When an accompanying load and/or related airdrop equipment is used, remove the tie-down group the same way as explained above. Remove the accompanying load and/or related airdrop equipment from the airdrop item or platform.

d. Removing Energy-Dissipating Materiul. The energy-dissipating material (Figure 3-1, page 3-1 and Figure 3-2) consists primarily of honeycomb used to absorb the shock of landing on ground impact. On most loads, the honeycomb can be kicked free from the airdrop item or the item can be driven or towed off the platform.

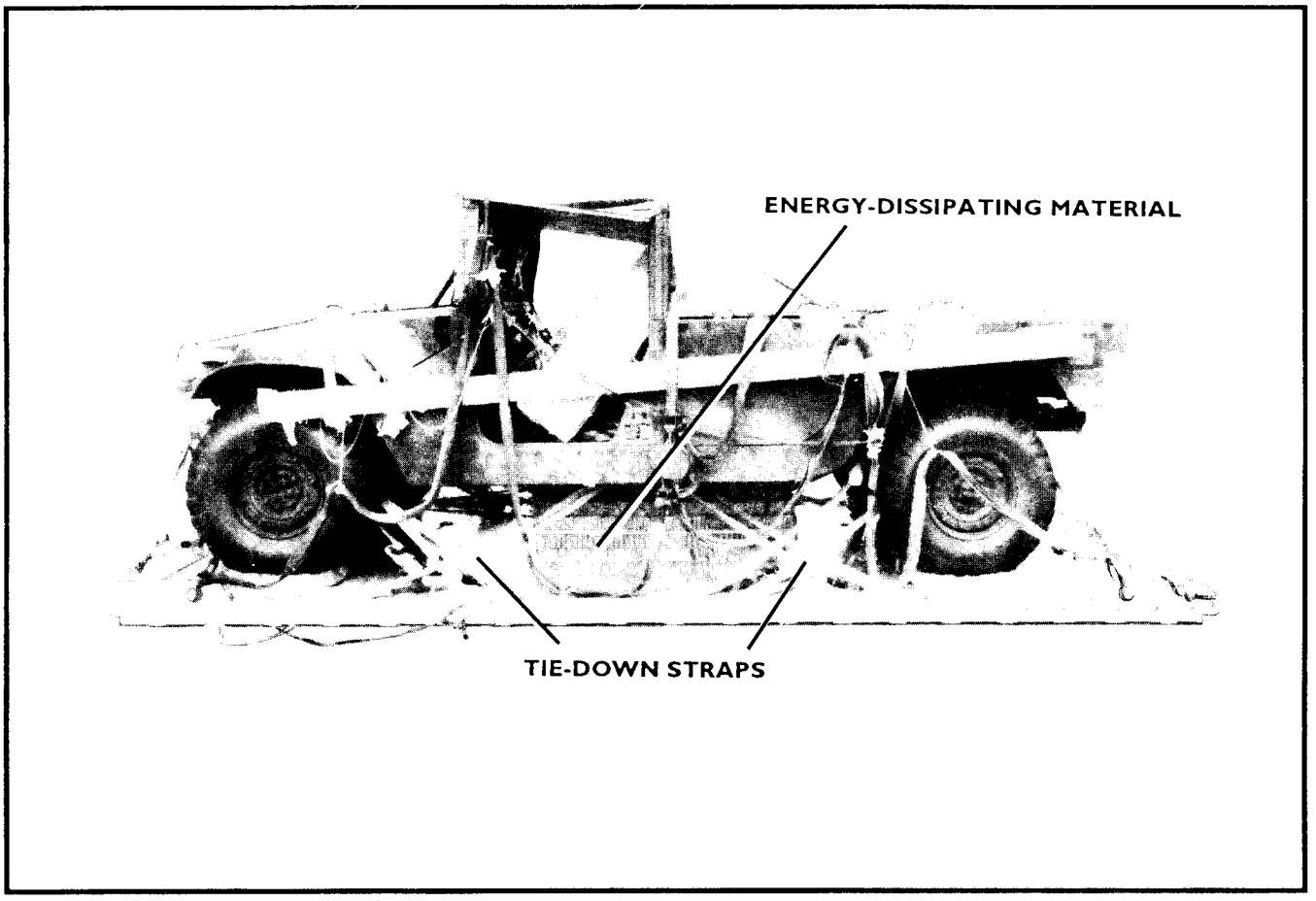
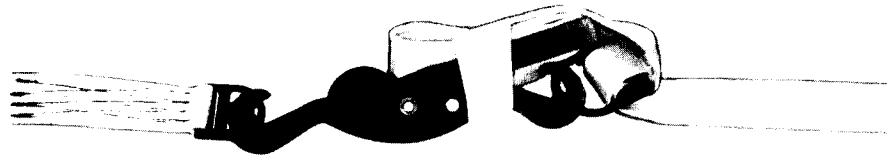
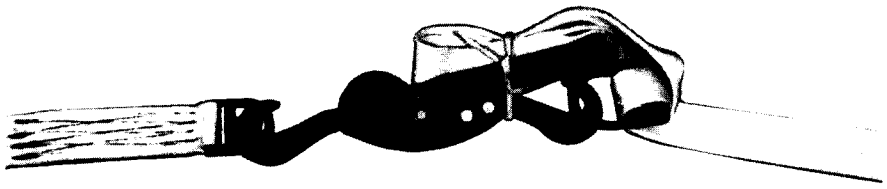


Figure 3-2. Tie-down group



TAPE



TYPE I, 1/4-INCH COTTON WEBBING TIE

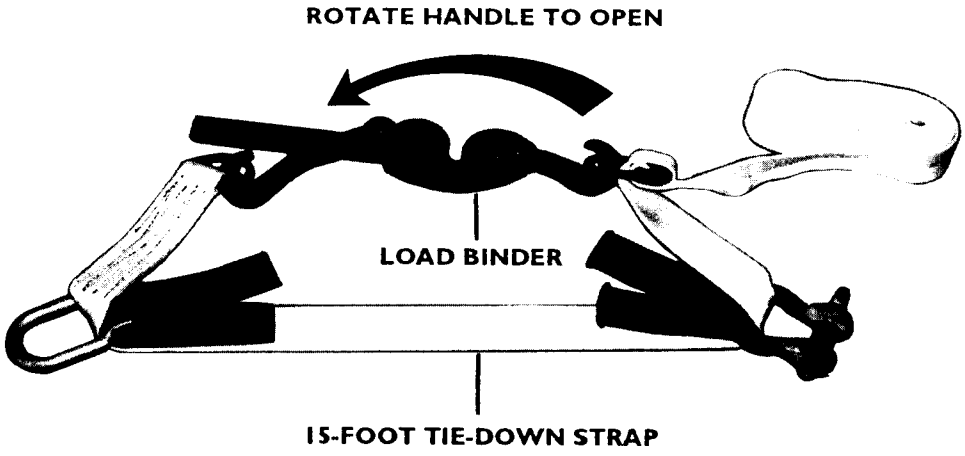


Figure 3-3. Removing lashings

e. Removing Vehicles with the Heavy Drop Derigging System. The HDDS is an upgraded version of the drive-off aid. It can be used with the HMMWV, 2-l/2-ton truck and the 5-ton, 900-series truck. The vehicle (with tie-down assemblies removed) when powered up, will progressively wrap the webbed ladder around the two wheels (using the platform for leverage) and pull itself clear of the honeycomb (Figure 2-7, page 2-8).

CAUTIONS

1. The wheels with the HDDS installed must not be driven clear of the end of the platform.

2. DO NOT SPIN THE WHEELS OF THE VEHICLE. If the honeycomb is not completely collapsed the friction can ignite the paper of the honeycomb or melt the nylon webbing of the HDDS ladder.

3. The HDDS can slip off the wheel and wrap around the axle if the vehicle is not driven off straight.

4. The HDDS ladder can hang in the wheel lugs and cause damage.

5. The 900-series 5-ton truck will be seriously damaged if operated in low-range, all-wheel-drive, REVERSE gear. See operator caution on the dashboard and the operator's manual.

Drive the vehicle only enough to free it from the honeycomb so the vehicle will be able to move under its own traction. Stop the vehicle, place it in a neutral gear, and engage the emergency brake. Carefully remove all loose honeycomb and wood items. If the items are not completely loose, do not continue to bother with them. Release the emergency brake and carefully drive the vehicle onto the platform, slowly unwrapping the HDDS from the wheels, thus separating the vehicle from the platform. The type I, l/4-inch cotton webbing will break when the vehicle reaches the end of the HDDS.

f. Removing the EFTC. Remove the EFTA, and its bracket (if feasible), to avoid damage when the platforms are stacked. Disconnect the latch assembly at the bolt connected to the platform extraction bracket (Figure 3-4).

NOTE: DO NOT disconnect the cable from the actuator or latch assembly.

g. Removing Miscellaneous Items. After you remove the tie-down group you should derig and replace or remove the following items as time and need permit:

- Parachute stowage platform.
- Engine support strap (remove before starting engine).
- Engine restraint strap (remove before starting engine).
- Gasoline tank support strap.
- Tarpaulin and bows.
- Spare wheel.
- Battery box support.
- Draw-bar.
- Towing tongue.
- Gasoline cans.
- Windshield protector.
- Other items.

NOTE: When you derig tandem load LAPE airdrop platforms, the articulated links must be removed from the platforms. DO NOT fold platforms over onto one another with the articulated links connected. This could result in damage to the airdrop equipment.

3-3. Airdrop Container Load Derigging Procedures

Airdrop containers consist of the A-7A cargo sling, A-21 cargo bag, and the A-22-series cargo bag. In addition, flat steel strapping may be used to bind a container load. The following procedures are used to derig a container load:

a. Disconnecting Cargo Parachutes. To disconnect the 68-inch pilot, G-13 or G-14 cargo, 12-foot high-velocity, and 15-foot extraction parachutes from the A-7A cargo sling or A-21 cargo bag, disconnect the

parachute risers from the D-rings, and remove the cargo parachutes from the containers. The G-12, G-13, or G-14 cargo, 26-foot high-velocity, and 22-foot extraction parachutes are used on the A-22 cargo bag. Disconnect the cargo clevis from the suspension webs, and remove the cargo parachute.

b. Unpacking Airdrop Containers.

(1) A-7A *cargo sling.* Remove the tape or type I, l/4-inch cotton webbing on sling strap folds. Loosen and pull all sling straps from strap fasteners. Lay the sling straps on the ground, and remove the load from the cargo sling.

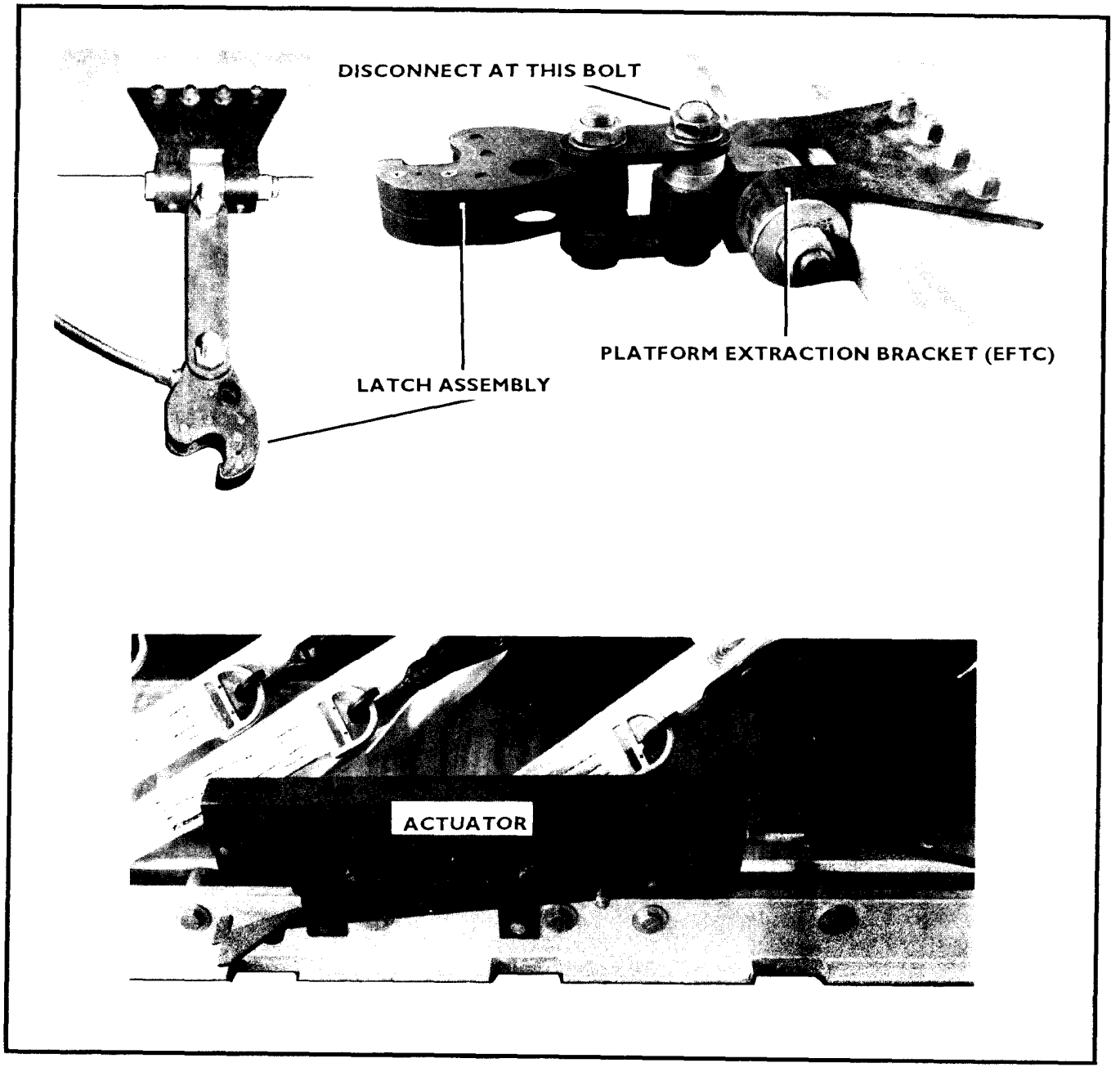


Figure 3-4. Removing the EFTC

(2) A-21 cargo bag. Unfasten and remove the safety clip, turn the quick release assembly disk one-quarter turn clockwise, strike the quick-release firmly, and pull the straps free from the container. Open the cover to remove the load from cargo bag (Figure 3-5).

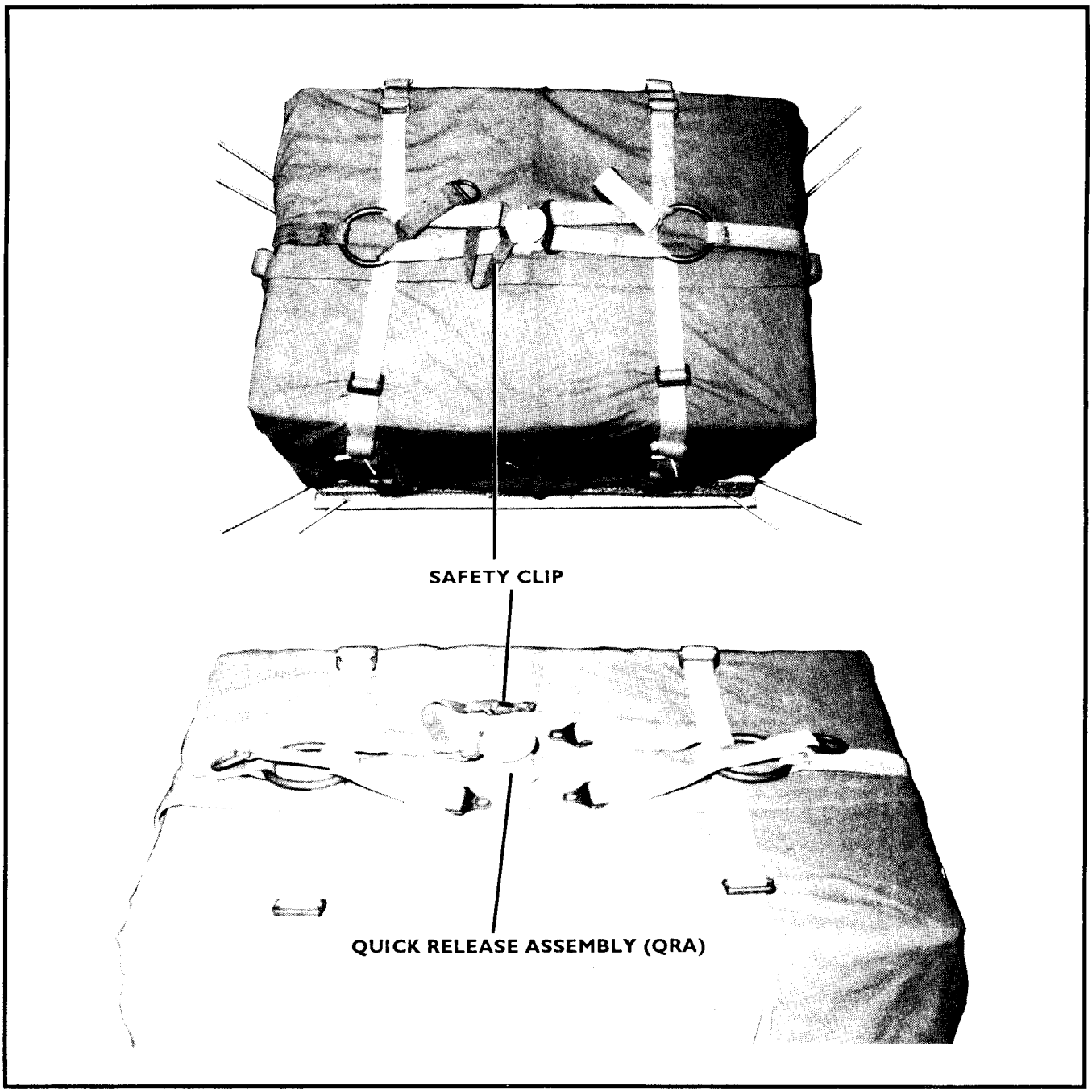


Figure 3-5. A-21 cargo bag

(3) *A-22 cargo bag.* Disconnect suspension web D-rings from cargo clevis, loosen and pull all container straps from strap fasteners, and remove all lacing cord from lacing cord loops at all corners of cover. Open cover fully, and remove load from cargo bag (Figure 3-6).

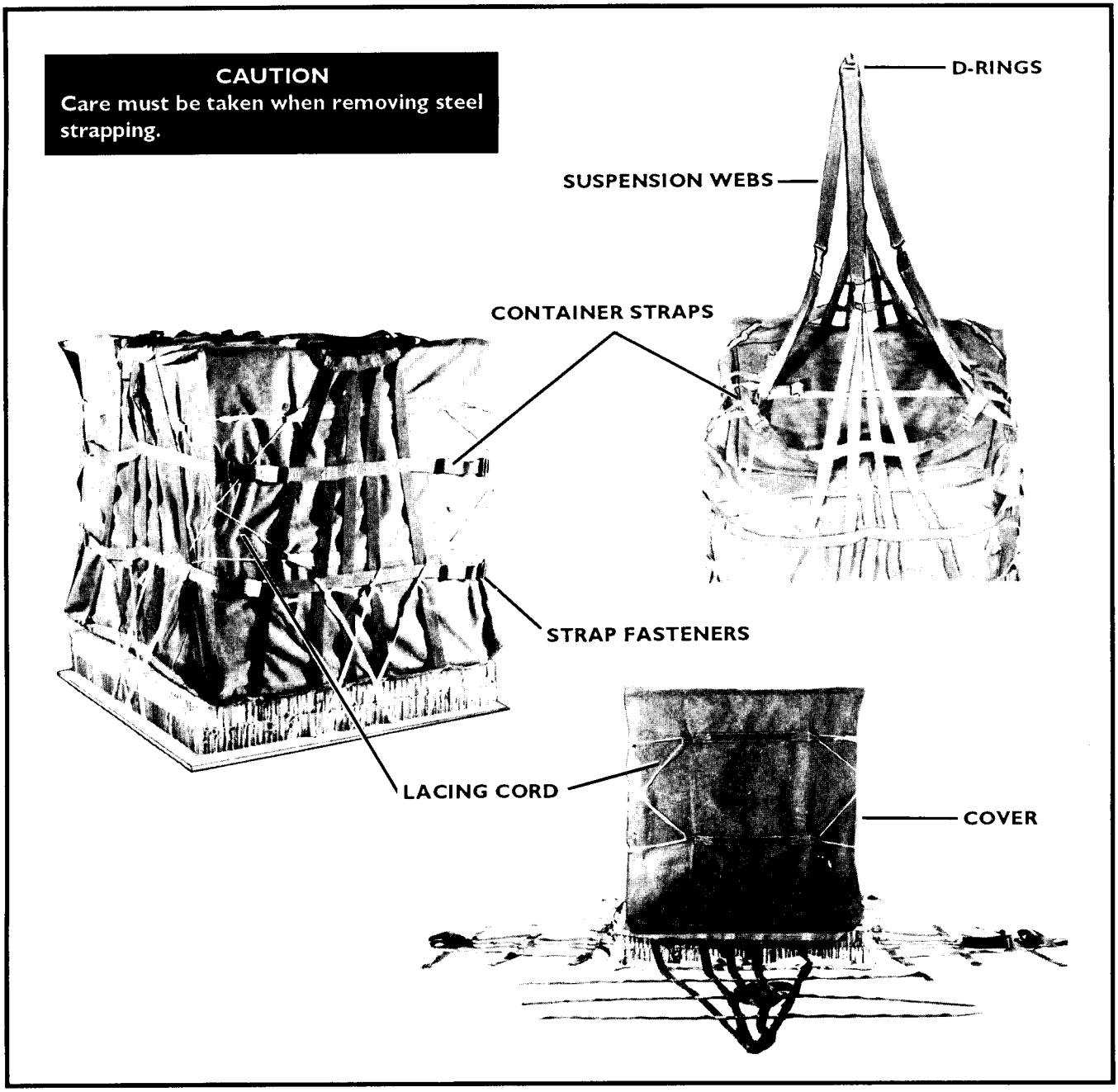


Figure 3-6. A-22 cargo bag

3-4. Tools Used for Derigging

A suggested list of tools and equipment is in Table 3-1. This is neither a mandatory list nor a complete list. It is only intended to help you select a minimum of tools to be included in a derigging and recovery tool kit, if needed. Tree climbing and cutting equipment may also be included for use on loads that land in the trees.

Table 3-1. Tools used for derigging

Quantity	Tool	Item used for
1	*Knife	As required
1	Screwdriver, flat tip (large)	Parachute release
1	Screwdriver,flat tip (medium)	Connector link
1	Adjustable wrench	As required
2	1 1/2-inch wrench, combination	Large clevis EFTC link assembly adapter Two-point link Articulated link
2	1 7/16-inch wrench, combination	Two-point link
2	1 1/8-inch wrench, combination	Medium clevis
1	1-inch wrench, combination	Parachute release
2	5/8-inch wrench, combination	Type V clevis
2	9/16-inch wrench, combination	EFTA bracket Type II clevis
1	Tin snips	Steel banding
1	Hammer	As required
As required	Heavy duty plastic bags	Parachutes (and so forth)

***DO NOT cut lashings, straps, parachute release arming lanyards, or any other airdrop items. Use knives for cutting nylon or cotton webbing ties and tape only.**

CHAPTER 4

Airdrop Equipment Recovery Procedures

4-1. General

Recovery procedures are designed to ensure, in the interest of supply economy, the maximum recovery of parachutes and related airdrop equipment used to deliver personnel, supplies, and equipment during airborne operations.

4-2. Preparation for Recovery Operations

a. Responsibilities. The commander of the receiving unit is responsible for appointing a recovery NCO or officer from within his own unit. The recovery NCO or officer plans and supervises the operation and organizes the needed teams to recover and evacuate parachutes and related airdrop equipment. The receiving unit should be capable of conducting the recovery according to this manual.

b. Personnel Coordinations. The success of the recovery mission depends on the support of the combat unit securing the perimeter, communication control to provide for evacuation of the mission in minimum time, and proper briefings of recovery personnel on the tactical situation. It depends also on the experience of available personnel on recovery teams and available transportation. Coordination among the combat unit, unit recovery officer, recovery supervisors, team personnel, and transportation is necessary for a successful recovery mission.

c. Special Considerations. Some special areas you should consider are listed below.

(1) Tactical situation. Prior to recovery operations, all personnel involved in the recovery must be briefed thoroughly on the tactical and alternate plans so they will be prepared for any contingencies that may occur.

(2) Types of terrain. Recovery time and effort may be increased or decreased according to undergrowth, obstacles, and texture of the soil (such as mud and ruts).

(3) *Weather.* Recovery operations must be adjusted according to existing weather conditions.

(4) *Size and number of drop zones.* The drop zone may consist of a number of small drop zones over a large area or it may consist of one or two large ones. The number of personnel and vehicles required for recovery depends on the area of the drop zone.

(5) Quantity and type of equipment. The quantity and type of equipment to be recovered is an important factor in overall recovery planning. Containers must be provided for packaging small, loose metal and fabric components (such as clevises, connector links, and load binders).

(6) Communications. Communications is needed between recovery team supervisors and the recovery officer and between the combat unit and the recovery officer in the event of possible changes in the tactical situation.

(7) Technical supervision. The recovery officer is responsible for acquiring the needed technical supervision according to the size and amount of supplies and equipment.

(8) Equipment and available personnel. The number and type of vehicles and the number and caliber of personnel available may affect recovery time.

(9) Methods of recovery and evacuation. The methods of recovery and evacuation of equipment depend on local conditions, available personnel, transportation, and the destination of the recovered equipment and supplies.

4-3. Principles of Recovery and Evacuation

a. General Airdrop Recovery Planning Factors. Airdrop equipment is expensive and in short supply. The unit receiving airdrop resupply must attempt to recover, protect, and retrograde this equipment. Receiving units must use air delivery recovery data to

compute estimated quantities (volume/weight) of equipment to be retrograded. FM 101-10-1/2 (Volume 2) contains these data and detailed information on how to use them. If the tactical situation prevents recovery, destroy the airdrop equipment according to TM 43-0002-1 to prevent enemy forces from using it. Prepare contingency plans for airdrops involving unusual or unforeseen circumstances where special techniques may have to be used. For example, plan what to do when drops occur off the drop zone or in trees, or when the receiving unit or party is not US military or military of other nations.

b. Recovery Priorities. Airdrop equipment should be recovered and evacuated in the following order of priority:

(1) Personnel parachutes.

(2) Cargo parachutes.

(3) Airdrop containers.

(4) Airdrop platforms.

(5) Related airdrop rigging equipment.

c. Recovery Accountability Reporting. Receiving units must turn in equipment to the supplying unit as quickly as possible. The turn-in must be within 48 hours, or sooner, to avoid possible damage from improper storage conditions and to speed the return of air items for future reuse. Units should establish, through SOPs, how a receiving unit needs to report disposition of items recovered. Receiving units are responsible for equipment until it is delivered in proper condition to the supplying unit. Parachute riggers are not responsible for safeguarding and protecting air equipment from pilferage. Air items suspected of being damaged due to willful negligence or deliberate actions will be identified and segregated for disposition and determination of actions. Plans must also be made for the recovery and turn-in of residual air equipment on board the aircraft.

d Recovery Plans. Ensure requirements for the recovery of air items are met, as described below.

(1) *Plans, including major factors.*

(a) Plan for security of drop zone.

(b) Plan for equipment recovery according to this manual.

(c) Plan for recovery of items at airfield.

(d) Plan for safeguarding of air items at airfield.

(e) Plan for MHE and transportation.

(f) Plan for tree-cutting and climbing equipment.

(g) Plan for segregation of air items by type prior to turn-in.

(2) *Preparations and actions prior to airdrop.*

(a) Designate and assign a team for recovery.

(b) Organize, train, and brief recovery detail to ensure quick recovery of air equipment, or coordinate for parachute riggers to train team prior to airdrop.

(c) Ensure necessary derigging tools and recovery equipment are available.

(d) Ensure tarpaulins or plastic bags are available in case of inclement weather.

(3) *Actions after airdrop.*

(a) Account for items issued but not delivered to the DZ.

(b) Coordinate with individuals responsible for issue and recovery to determine shortages.

(c) Expedite turn-in of all air items, and resolve all shortages immediately.

e. Evacuation, Transportation, and Storage. The recovery NCOIC or OIC supervises the evacuation of parachutes and related airdrop equipment from the drop zone to the central and/or rear area, depending on the tactical situation. Available transportation will be used for evacuation. Sling-loading of airdrop loads by helicopter is an optional means of transport. Transportation used for air items will be inspected prior to loading items. Vehicles must have clean, dry cargo beds and sufficient tarpaulins or plastic to protect air equipment from inclement weather or contamination. The recovery unit is responsible for preventing air items from becoming contaminated by fuels, such as diesel or oil, in vehicle beds. Parachutes need special attention to keep them from becoming soiled or wet. Clean air items should be segregated from contaminated items to keep from spreading the contamination. Air items should be placed into plastic bags to prevent

contamination from fuel, dirt, and water. Ensure transport vehicles are equipped with adequate means to secure platforms to the vehicle, such as chains or tie-down straps. When evacuation is by ground, receiving units should provide a guard detail to accompany each load to prevent sabotage or pilferage en route. Under all conditions, ensure evacuation as rapidly and directly as possible, since additional airdrop of supplies and equipment may depend upon the availability of parachutes and related airdrop rigging equipment.

4-4. Recovery Procedures

Remove the extraction force transfer coupling (EFTC) from the extraction bracket at the rear of the platform. (See Figure 3-4, page 3-7.) Remove the actuator from the brackets located near the front of the platform on the side rail. (See Figure 3-4, page 3-7.) Coil the actuator, cable, and latch with link and protect them from harm during transport.

a. Prohibited Actions. The following actions are prohibited:

(1) Do not drag personnel parachutes or cargo parachutes from trees, obstructions, or along the ground during recovery.

(2) Do not cut parachute suspension lines to aid recovery unless all other efforts fail.

(3) Do not drag air delivery platforms and related equipment across the ground to speed recovery.

(4) Do not activate canopy releases on personnel parachutes.

(5) *DO NOT cut or use the arming wire lanyard* of the Ml and M2 parachute release assembly to speed recovery. Remove them from the cargo parachute deployment bag, and tie them to the release.

(6) Do not disassemble the release assembly body when removing suspension slings. Once the suspension slings are removed, place the suspension link bolts back on the assembly.

(7) Do not empty ballast sand boxes on drop zones.

(8) Do not stack airdrop platforms without two layers of honeycomb, or dunnage between each platform to prevent damage caused by metal-to-metal contact.

b. Heavy Cargo Parachutes.

(1) *Recovery of cargo parachute deployment bags.*

(a) Prior to drop, the recovery NCOIC or OIC will designate a spotter for extraction parachutes and deployment bags.

(b) The spotter will observe the extraction parachute and deployment bag of the heavy drop load. He must visually follow the descent of the extraction parachute and deployment bag so they can be located during recovery.

(c) There covered deployment bag will be taken to the site of the cargo parachute, and the recovery team will use it to stow the cargo parachute.

(d) The recovery team will ensure that the cargo parachutes are stowed in their corresponding type of deployment bag (for example, G-11 in the large cotton duck or nylon bag, G-12 in the smaller nylon deployment bag, and so forth).

(2) *Techniques for recovery of G-11 and G-12 cargo parachutes.*

(a) Recover the deployment bag and extraction/pilot parachute.

(b) Use four-man teams and elongate the canopy, lines, and risers. Do not drag the parachute and lines along the ground.

(c) Remove riser extensions and center lines at the large clevis or type IV link assembly and parachute connector (release finger), if used, and leave the clevis on the riser assembly.

(d) Daisy chain the suspension lines and risers. Do not separate suspension lines and risers at the connector links.

(e) Insert the canopy apex lines through the slot in the top of the deployment bag and S-fold the canopy, suspension lines, and risers into the deployment bag.

(f) Close and secure the deployment bag with available cord. *DO NOT use arming wire lanyards.*

c. Pilot and Extraction Parachutes. The 68-inch pilot and extraction parachutes may be rolled and placed inside the deployment bag or rolled and tied separately, and then placed in the deployment bag. It

is recommended that the 68-inch pilot parachute be placed on top of the G-12 parachute, inside and still connected to the deployment bag.

d. Light-Cargo Parachute. The light-cargo parachute (G-13, G-14, 22-foot extraction, and 26- or 12-foot high-velocity) and the deployment bag are connected to the airdrop container. Detach the deployment bag and parachute from the container. Recover the parachute as follows:

(1) Spread the canopy lengthwise on the ground, and straighten the suspension lines and risers. S-fold the canopy, suspension lines, and risers into the deployment bag.

(2) Secure deployment bag with available cord.

e. Extraction Line Bag. Place inside the line bag panels all extraction line bag components and items connected to the line bag systems (such as all metal hardware: type IV link assembly, EFTC link assembly, four-point link assembly, any other link assemblies, or large clevises--for clustered parachutes, and deployment and extraction lines). Tie the panels together with available ties.

f. Airdrop Containers. Place all loose components of the A-7A cargo sling, and A-21 and A-22 cargo bag in the center of the container, and fold and secure the container in a convenient manner.

g. Airdrop Platform Load Components.

(1) *Airdrop platforms.* Airdrop platforms to be recovered for evacuation should be separated by size and type. Place dunnage between stacked platforms to prevent damage (honeycomb works well.)

(2) *Webbing.* Recover and set aside all suspension slings, riser extensions, and tie-down straps for evacuation.

(3) *Hardware.* Recover and package all hardware components as time permits, and set them aside for evacuation.

(4) *Wood components.* Recover and return wood products. The wood components include lumber, wood blocks, plywood (stowage platform, and so forth), and the combat-expendable platform which consists of all of the above.

(5) *Energy-dissipating material.* The energy-dissipating material (honeycomb) can be reused. However, if it is damaged beyond use it is expendable and may be disposed of accordingly.

h. Miscellaneous Airdrop Equipment. All release assemblies and components should be recovered with riser extensions and arming lanyards, and packaged for evacuation.

NOTE: DO NOT cut the 1/2-inch tubular nylon arming lanyards or use them for tying items.

4-5. Destruction of Airdrop Equipment

Airdrop equipment that cannot be recovered, because of severe damage or because of the tactical situation, should be destroyed according to TM 43-0002-1 to prevent enemy use.

4-6. Temporary Storage of Parachutes and Related Airdrop Equipment

The receiving unit is responsible for providing field storage facilities for recovered parachutes and related airdrop rigging equipment awaiting evacuation to a rear area. A permanent building with a dry floor is desirable for storage because it protects against moisture. Tents with wooden floors are a second choice for storage. It is not likely, however, that you will find ideal storage facilities near a drop zone. The recovery officer must devise various field expedients to protect the parachutes and related airdrop rigging equipment during the period prior to evacuation to a rear area. To safeguard the recovered items, the recovery officer may use various pieces of canvas; all expendable wood components, including combat-expendable platforms; and the covers from the A-21 and A-22 airdrop containers. The canvas covers make suitable tarpaulins to protect the parachutes from rain and sunlight. The parachute stowage platforms and all airdrop platforms

may be used for pallets or temporary shelters. The recovery officer should consider the following:

a. Parachutes. Parachutes should be stored--

- In a dry area.
- Out of direct sunlight.
- Free of contact with the ground.
- In a central assembly area.
- In stacks, separated by types; for example, heavy cargo, light cargo, personnel, extraction, and pilot parachutes. If possible, store wet and dry parachutes separately.
- Under camouflage to protect against detection.
- Under guard to protect against sabotage and pilferage.

b. Airdrop Platforms. Airdrop platforms should be stored on honeycomb or dunnage to prevent deterioration.

c. Webbing. Webbing should be protected from excess moisture, and nylon webbing should be shielded from direct sunlight.

d. Hardware. Protect hardware from excess moisture by placing a protective cover over hardware whenever possible.

e. Canvas. The canvas used with airdrop containers and platforms is usually a mildew- and water-resistant cotton duck Use it to cover the more critical items of recovered airdrop rigging equipment.

f. Releases. Place all releases in boxes, if possible, and store them in a dry area that is free of rain or moisture.

CHAPTER 5

Derigging and Recovery Under Special Conditions

5-1. General

You must consider unusual geographic, climatic, and weather conditions when you plan and conduct airdrops. Extreme geographic and climatic conditions (such as polar, tropical, desert, marine, and mountainous) will drastically increase completion times of airdrop missions. Factors to consider when derigging and recovering air items in these unusual conditions, such as transportation difficulties, remote and limited facilities, and increased work completion time, are described in this chapter.

5-2. Polar Conditions

You must take the factors listed below into account when you plan and conduct derigging and recovery operations under polar conditions:

- Weather conditions.
- Drop zones.
- Drop zone recovery.
- Remote and limited facilities.
- Transportation difficulties.
- Limitations of air delivery method.

a. Weather Conditions. Both extreme cold and weather are overriding factors when you plan and conduct an operation in polar areas. The weather can change in a moment. Sudden changes from -10 degrees Fahrenheit, no wind, and unlimited visibility to -150 degrees Fahrenheit, 40 knot winds, and zero visibility are not uncommon. The weather phenomenon known as whiteout is an extreme danger to be considered in cold weather operations. Anyone caught unsheltered in a whiteout, probably will not survive.

b. Drop Zones. Because of weather conditions, aircraft may have to be guided exclusively by radio. Weather and solar activity (solar flares and sunspots) interfere with radio transmissions in arctic conditions. Recovery teams must be prepared for the possibility that they may have to recover airdrop items from other than the designated locations and drop zones. In the arctic all drop zones are unimproved. It is unusual to find a DZ free of snow, ice mounds, and pressure ridges (long ridges of ice pushed up when ice floes collide).

c. DZ Recovery. Due to temperature variations, a thawing and freezing process occurs when air items move from a warm environment (inside) to a cold environment (outside) and vice versa. Metal components and bolts on the airdrop loads and parachutes can freeze, and tools may be needed to loosen and remove the items. Each mission will require special tools to help with the recovery due to the extreme cold. Personnel will have to use wrenches to remove nuts and bolts, pliers to remove safety pins, and screwdrivers to pry frozen items apart. Once air items are recovered and moved to warm locations, the ice and snow melt and saturate them with water, which will damage the items unless personnel take care of them. With the weather being unpredictable and severe, under almost all conditions except whiteout, recovery teams must disconnect the parachutes and recover them immediately after the drop. Otherwise, the parachutes will become buried under snow, and recovering them without damage will be nearly impossible. The process of digging the parachutes out damages them. Polar conditions are extremely hard on personnel. Clothing required for the extreme cold severely limits movement and sight. Mission completion time will be lengthened accordingly.

d. Remote and Limited Facilities. In the polar regions, most airdrops take place in extremely remote locations. As a rule there will be no roads or rails to these locations, and the sites will have limited facilities. Because of these factors, any items that are

determined to be not returnable, such as parachutes, burst fuel drums, honeycomb, and skid boards, should be consolidated and destroyed. The preferred way to destroy them is by burning. However, you must take environmental and tactical considerations into account.

e. Transportation Difficulties. Place recovered items individually in heavy-duty plastic bags fortransport. Plastic bags prevent the spreading of contamination (from damaged fuel drum loads, for example), which is difficult to detect due to weather conditions. Recovery vehicles are often limited to sleds and snow vehicles which must make repeated shuttles. The repeated use of the same vehicles may contaminate airdrop equipment if plastic bags are not used.

f. Limitations of Air Delivery Method. Almost all heavy-volume supplies will be brought by airdrop. When personnel recover air items, usually the only way they can move them in polar conditions is by small, light aircraft. Therefore, the use of container delivery systems is the usual method of supply.

5-3. Tropical Conditions

You must take the unique factors listed below into account when you plan and conduct derigging and recovery operations under tropical conditions:

- High humidity.
- Dense vegetation in and around drop zones.
- Large amounts of precipitation.

These factors are typical of a tropical environment and can affect the completion time of an airdrop recovery mission.

5-4. Desert Conditions

You must take the unique factors listed below into account when you plan and conduct derigging and recovery operations under desert conditions:

- Intense sunlight.
- High temperatures.
- Sudden sandstorms.
- Creatures (some dangerous) seeking shelter from the heat in and under items awaiting to be recovered.

These factors are typical of a desert environment and can affect the completion time of an airdrop recovery mission.

5-5. Marine Conditions

You must take the unique factors listed below into account when you plan and conduct derigging and recovery operations under marine conditions:

- Recovery vehicle used (type of boat).
- Prior coordination for rinsing of parachutes (should bean integral part of the recovery plan).

These factors are typical of a marine environment and can affect the completion time of an airdrop recovery mission.

5-6. Mountainous Conditions

You must take the unique factors listed below into account when you plan and conduct derigging and recovery operations under mountainous conditions:

- High elevations.
- Extremely uneven surfaces.
- Rough terrain.
- Severe cold temperatures.
- High winds.

These factors are typical of a mountainous environment and can affect the completion time of an airdrop recovery mission.

Glossary

AFB Air Force Base

AFTO Air Force technical order

ARNG Army National Guard

attn attention

CDS container delivery system

DA Department of the Army

DC District of Columbia

DZ drop zone

EFTA extraction force transfer actuator

EFTC extraction force transfer coupling

EOD explosive ordnance disposal

FM field manual

HDDS heavy drop derigging system

HMMWV high-mobility multipurpose wheeled vehicle

HQ headquarters

LAPE low-altitude parachute extraction

MHE materials-handling equipment

MOS military occupational specialty

NCO noncommissioned officer

NCOIC noncommissioned officer in charge

no number

OIC officer in charge

QRA quick release assembly

SOP standing operating procedure

TM technical manual

TO technical order

TRADOC United States Army Training and Doctrine Command

TVT television tape

US United States

USAR United States Army Reserve

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Documents Needed

These documents must be available to the intended user of this publication.

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