

CHAPTER 1

FUNDAMENTAL PRINCIPLES

1-1. INTRODUCTION

This chapter contains general information about certification for helicopter sling load and explains the role of the Military Traffic Management Command Transportation Engineering Agency (MTMCTEA) and the Department of Defense (DOD) sling load certification authority. This authority rests with the US Army Soldier Systems Center (SSC). This chapter also explains the information contained in the equipment rigging procedures and gives some general rigging instructions.

1-2. CLASSIFICATION DEFINITIONS OF SLING LOADS

a. Certified Sling Loads. Certified sling loads are those items of equipment and their associated rigging procedures which have completed the evaluation and testing required by SSC for sling load certification. These rigging procedures are in Chapters 2 through 13. Only certified sling loads are authorized for the Marine Corps. The following restrictions apply for dual point sling load certification to remain in effect:

(1) The load must be within the lifting capability of the desired helicopter model.

(2) The load shall be rigged in accordance with the certified dual point rigging procedure.

(3) The recommended stable airspeed specified for the load in the applicability section of the rigging procedure is a recommendation and not a restriction, unless so stated.

(4) This certification does not apply to helicopters of different designations (for example, CH-47 versus CH-53E helicopter) because of possible differences in dynamic vibration, helicopter/load mass differential, and rotor wash pattern.

b. Suitable Sling Loads. Suitable sling loads are those

items of equipment and their associated rigging procedures that have not been certified but have demonstrated acceptable static lift and flight characteristics. In most cases these loads were not pull tested in accordance with MIL STD 913, but are known loads which have been flown without incident for years and which SSC considers to be proven safe. These rigging procedures are in Chapter 14.

c. Unique Sling Loads. Unique loads are also equipment carried on a one time or low-frequency basis, such as telephone poles, artillery targets, or barrier material. The lack of sling load certification in itself does not preclude a unit commander from carrying a load that is not certified. Each service is responsible for determining its policy on carrying loads that have not been certified for sling load.

d. Prohibited Sling Loads. Prohibited sling loads are items of equipment that are prohibited from sling loading as determined by each service. These loads have been denied sling load certification and are a safety hazard if carried. They have either structural deficiencies or have exhibited unstable flight characteristics during flight testing. Each service will identify these loads and transmit this information by separate list. Contact your service point of contact identified in the Preface if you have any questions regarding the classification of a particular load.

1-3. CERTIFICATION OF EQUIPMENT FOR HELICOPTER SLING LOAD

a. Objective. The objective of helicopter sling load certification is to assure the user that the equipment being transported can withstand the stresses of a sling load flight environment. Certification for sling load assures the user that the item has met minimum standards for structural integrity and that the associated rigging procedures have been developed specifically for that item.

b. Responsibilities. Within the US Army, the MTMCTEA is responsible for transportability approval of developmental equipment. Within the DOD, SSC is the lead activity responsible for providing sling load certifica-

tion and rigging procedures for military equipment. When an item is certified for sling load, it means that SSC, in cooperation with various test activities, has:

- (1) Conducted an engineering analysis of the load and lifting provisions for structural adequacy during sling loading.
- (2) Verified that the lift provisions meet the strength requirements of the applicable military standard by means of proof load testing.
- (3) Developed and/or validated sling load rigging procedures through static lift testing.
- (4) Evaluated flight reports and determined that the particular load meets acceptable flight characteristics with the type helicopter flown during the flight test.
- (5) Issued a statement of sling load certification for the particular load, including load configuration(s), weight(s), types of helicopter(s), and recommended airspeed(s) as attained during the flight evaluation(s). Certification is valid only for the conditions specified in the rigging procedures.

1-4. REQUESTS FOR SLING LOAD CERTIFICATION

a. Fielded Equipment. Each service headquarters must designate, request, and prioritize the fielded equipment to be evaluated by SSC for sling load certification. Individual units can request sling load certification for fielded equipment through the appropriate service agency which will add the item to the prioritized list. The SSC will evaluate the equipment on a priority basis. The following agencies are responsible for their branch of service:

- (1) US Army - Commander, Combined Arms Support Command, ATTN: QM Combat Developments, Suite 250, 3901 A Avenue, Fort Lee, VA 23801-1809.
- (2) US Marine Corps - Commanding General, Marine Corps System Command (PSE) Quantico, VA 22134-5021.
- (3) US Navy - Naval Air Systems Command (NAVAIR).
- (4) US Air Force - US Air Force Systems Command.

b. Previously Certified Single-Point Loads. Single point loads which have been certified under any DOD helicopter may be flown in the single point configuration by any DOD helicopter with suitable lift capability.

c. Previously Certified Dual-Point Loads. Loads cannot be certified for dual-point lift based on previously certified dual-point rigging procedures because of the differences in dual hook helicopters, such as the distance between the two cargo hooks. Rigging procedures for dual-point loads must be developed and/or approved by SSC before the evaluation flight.

1-5. UNIQUE ITEMS OF EQUIPMENT OR OPERATIONAL REQUIREMENTS

Helicopter sling loading of unique items, due to operational requirements, will be at the discretion of the commander. Equipment not listed in this manual should be static lifted (when possible) by a crane to determine proper rigging and stability characteristics. Personnel thoroughly familiar with sling load rigging procedures should assist in the static lift testing. Flight evaluating may be conducted after a satisfactory static rigging configuration has been determined.

NOTE: Low density equipment with low weight and large surface area (flat surfaces), such as shelters, empty trailers, pallet loads, boat shaped items, and empty fuel or water drums, are likely to become extremely unstable when flown during sling load operations, even at low airspeeds, and should be flown with extreme caution.

1-6. EQUIPMENT RIGGING PROCEDURES

This section explains the information that is contained in the rigging procedures for each load. Chapters 2 through 13 contain the rigging procedures for certified dual-point loads and chapter 14 contains the rigging procedures for suitable dual-point loads.

a. Applicability Paragraph. The applicability paragraph states whether a load is "certified" or "suitable" for sling load. It also contains the helicopter types and recommended airspeeds for each helicopter type. For certified loads, this airspeed is the maximum airspeed attained by the helicopter during the evaluation flight before the load became unstable or before the aircraft power requirements were exceeded. For suitable loads, the rec-

ommended airspeed is based on previous experience with this helicopter/load combination. **For either certified or suitable loads, the airspeed listed is a recommendation and not a restriction, unless so stated. The aircrew should closely monitor the load during the flight, especially if the helicopter exceeds the recommended airspeed.**

b. Load Description. The load description paragraph identifies the load, model, or other identification, and the weight of the load for certification.

(1) The actual weight of the equipment may vary somewhat from the actual rigged weight during the flight evaluation due to equipment modifications, fuel, equipment added to the load, or different models of the same item. The load weight on the equipment data plate or in the operator's manual takes precedence over the load weight in this manual. Weigh the load if there is any doubt about its actual weight. If the load weight exceeds the weight listed in the load description paragraph, the load becomes a unique load. Contact your service point of contact if you have any questions about the load description or weight.

(2) Equipment such as cargo trailers and cargo trucks contain descriptions of the allowable additional cargo weight. Do not exceed the fully loaded weight. Some loads become extremely unstable at low weights; therefore, a minimum weight is identified. If your trailer is below that weight, add more cargo or dummy weight as close to the center of the trailer as possible until you reach the minimum weight.

c. Preparation. The preparation steps are intended to reduce the possibility of damage to the equipment caused by sling leg entanglement during the hookup and lift-off operation or by wind resistance encountered during the flight. Since these preparation steps are not directive in nature, the commander assumes responsibility for any damage to the equipment caused by deviation from the preparation steps.

d. Rigging. The rigging steps give information as to the position of the apex fitting on the load, routing orientation of the sling legs, location of the lift provisions, chain link number for each sling leg, and steps required to prevent the sling legs from becoming entangled on the load. Do not change the chain link number in the rigging proce-

dures under any circumstances as it may change sling leg loading and cause lift provision failure.

(1) The purpose of the illustration accompanying the rigging procedures is to depict what a properly rigged load looks like with the slack removed from the sling legs. The arrow identifies the direction of flight.

(2) Appendix A contains NSN component listings for slings, sling sets, cargo nets, and other miscellaneous equipment and materials.

1-7. GENERAL RIGGING INSTRUCTIONS

CAUTION

Inspect lifting provisions and supporting structure for damage or degradation prior to sling loading. Do not transport loads with damaged or degraded lift provisions.

a. Preparing the Load. Prepare the load to be transported by following the preparation and rigging instructions for each item. Typical preparation instructions will provide information to secure loose items, remove or secure canvas covers, and remove obstructions, such as antennas. Place protective padding on windshields and other components that could be damaged by the metal parts of the sling set during hookup or release. The load should be secure enough to withstand winds in excess of 120 knots caused by the forward airspeed of the aircraft. If possible, position the load in the takeoff direction so the pilot does not have to pick the load up and then turn the aircraft into the takeoff direction.

b. Preparing the Equipment. Inspect and assemble the slings and miscellaneous equipment required to prepare and rig the load. Following the instructions in Chapter 6 of FM 10-450-3/MCRP 4-23E, VOL I/NWP 3-04.11/AFJMAN 11-223, VOL I/COMDTINST M13482.2A, add or remove sling legs, chains, or apex fittings as required. Never exceed the capacity of the sling legs or apex fitting/web ring. If you have a sling set with a higher capacity than the sling set prescribed, use the chain link conversion chart in Appendix B to determine the corresponding chain link for your sling set.

c. Positioning and Attaching the Sling Set. Position the sling set near the load. The sling legs for a typical load

with four lifting points are routed as shown in Figure 1-1.

(1) Rigging a typical load with four lifting points is begun by connecting -

- (a) Sling leg 1 to the left front lifting provision.
- (b) Sling leg 2 to the right front lifting provision.
- (c) Sling leg 3 to the left rear lifting provision.
- (d) Sling leg 4 to the right rear lifting provision.

(2) If a six-leg sling set is required, the innermost sling legs, 5 and 6, are connected to the left and right middle lift provisions.

NOTE: Odd numbered sling legs go to the same side of the load.

(3) Following the equipment rigging procedures, loop the free end of the chain end through the lift provision and insert the specified chain link in the grabhook/grab link. Tie or tape the excess chain end to prevent the unre-

strained chain from damaging the load. If necessary, wrap padding around the chain or rope assembly to prevent damage to the load or sling set. If the procedures prescribe a spreader bar, install and pad it according to the rigging instructions.

(4) Breakaway safety ties are used to temporarily restrain the sling legs to keep them from becoming entangled on the load as the helicopter lifts the load. These safety ties are made of Type I, 1/4-inch cotton webbing or duct tape.

d. Viewing the Load. Left, right, front, and rear directions are designated from the driver's perspective for vehicles and towed equipment. Howitzer gun tubes are considered the front of the load. The front or rear is identified on other items of equipment. The sling leg numbering system prevents sling legs from crossing each other and causing damage to the sling legs or causing the load to twist in flight. To improve flight stability, some loads are transported backwards. Do not confuse the front of the load as it is carried with the end designated as the front for rigging purposes. The arrow shown in the illustration identifies the direction of flight.

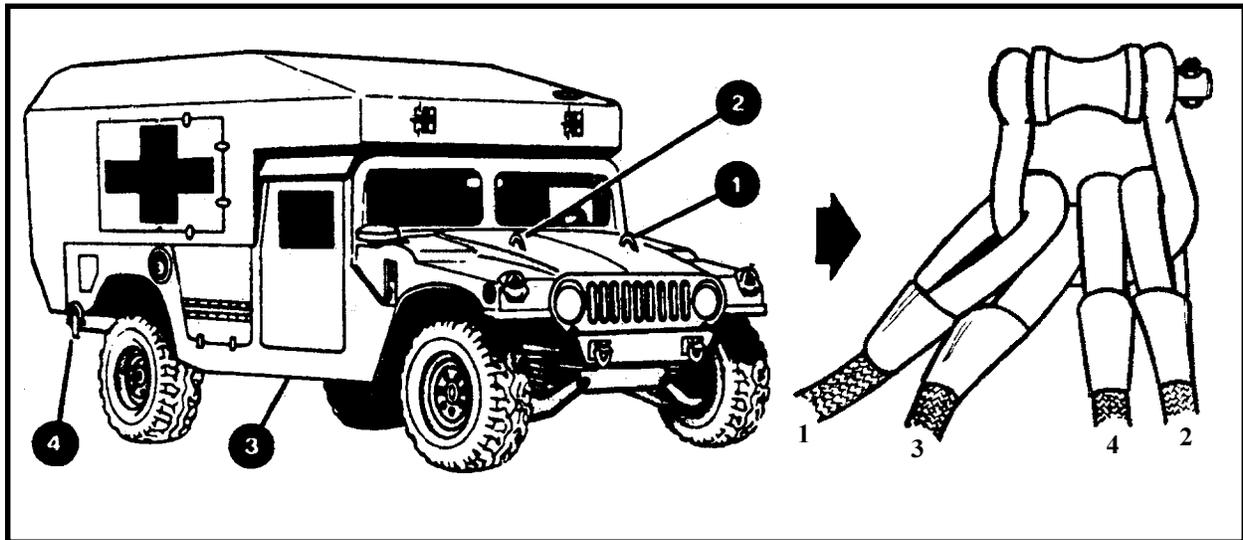


Figure 1-1. Sling Leg Lifting Point Designation

Table 10-5. 8-x 8-x 20-Foot Shelters (continued)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Non-Divisional AVIM Shop, Electrical / Instrument Shop	Min-11,000 Max-13,200	25K	Door is Aft 5/5	CH-47	120
Non-Divisional AVIM Shop, Production / Quality Control Shop	Min-11,000 Max-13,200	25K	Door is Aft 5/5	CH-47	120
AN/TSQ-108A(V)2	13,050	15K	ECU is Aft 3-20	CH-53	80
Improved Direct Air Support Center	10,000	15K	Door is Front 9-Left Side 3-Right Side	CH-53	70
Shop Set, Maintenance Facility Night Sight, E1713	8,400	15K	Door is Front 3/35	CH-53	80
Shop Set, Maintenance Artillery, E1712	8,400	15K	Door is Front 3/35	CH-53	80
Shop Set, Maintenance Small Arms, E1714	8,400	15K	Door is Front 3/40	CH-53	80
Trojan Transportable Mini-Switch (TTMS) ISO Shelter	14,700	25K	Door is Front 3/3	CH-47	75
EMI, EMC, S717T, Communications, TAMCN A2336	6,400	15K	Door is Front 3/3	CH-53	80
Non-Expandable Communications, TAMCN A2337	10,000	15K	Door is Front 3/3	CH-53	80
Tactical Reconnaissance Processing Evaluation System (TERPES)	13,200	15K	Door is Front 15/3	CH-53	80
Trojan Air Transportable Electronic Reconnaissance System (TATERS), SCINS Communications Subsystem Shelter	13,320	25K	Data Plate is Front 3/20	CH-47	110
Trojan Air Transportable Electronic Reconnaissance System (TATERS), CHIPS Receiver Group Shelter	14,220	25K	Data Plate is 3/20	CH-47	90
Trojan Air Transportable Electronic Reconnaissance System (TATERS), PEELS Electric Power Plant Shelter	15,100	25K	Data Plate is Front 3/20	CH-47	80
Trojan Air Transportable Electronic Reconnaissance System (TATERS), TOTS Nonexpandable Shelter	10,720	25K	Data Plate is Front 3/20	CH-47	60
Containerized Shower (CS)	10,070	25K	Data Plate is Front 3/20	CH-47	60

b. Materials. The following materials are required to rig this load:

(1) Sling set (as listed in Table 10-5) with one additional apex fitting.

OR

(2) Sling set (15,000-pound capacity) (2 each).

(3) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(4) Cord, nylon, Type III, 550-pound breaking strength.

(5) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

c. Personnel. Two persons can prepare and rig this load in 20 minutes.

d. Procedures. The following procedures apply to this load:

(1) **Preparation.** Prepare the load using the following steps:

(a) Secure all loose equipment inside the shelter with tape or Type III nylon cord.

(b) Close and secure all doors, vents, hatches, and

caps with tape or Type III nylon cord.

(c) Secure the Environmental Control Unit's cover with tape or Type III nylon cord. Ensure the ECU frame mounting bolts are tight.

(2) **Rigging.** Rig the load according to the steps in Figure 10-5.

NOTE: When using the 15,000-pound capacity multileg sling set, tie or tape the inner sling legs to the outer sling legs.

(3) **Hookup.** Two hookup teams stand on the roof of the shelter. The static discharge person discharges the static electricity. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup teams then carefully dismount the load and remain close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup teams quickly exit the area underneath the helicopter to the designated rendezvous point.

NOTE: Brief the helicopter crew to relax the sling leg tension and hover to the side of the load when releasing the apex fitting.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).

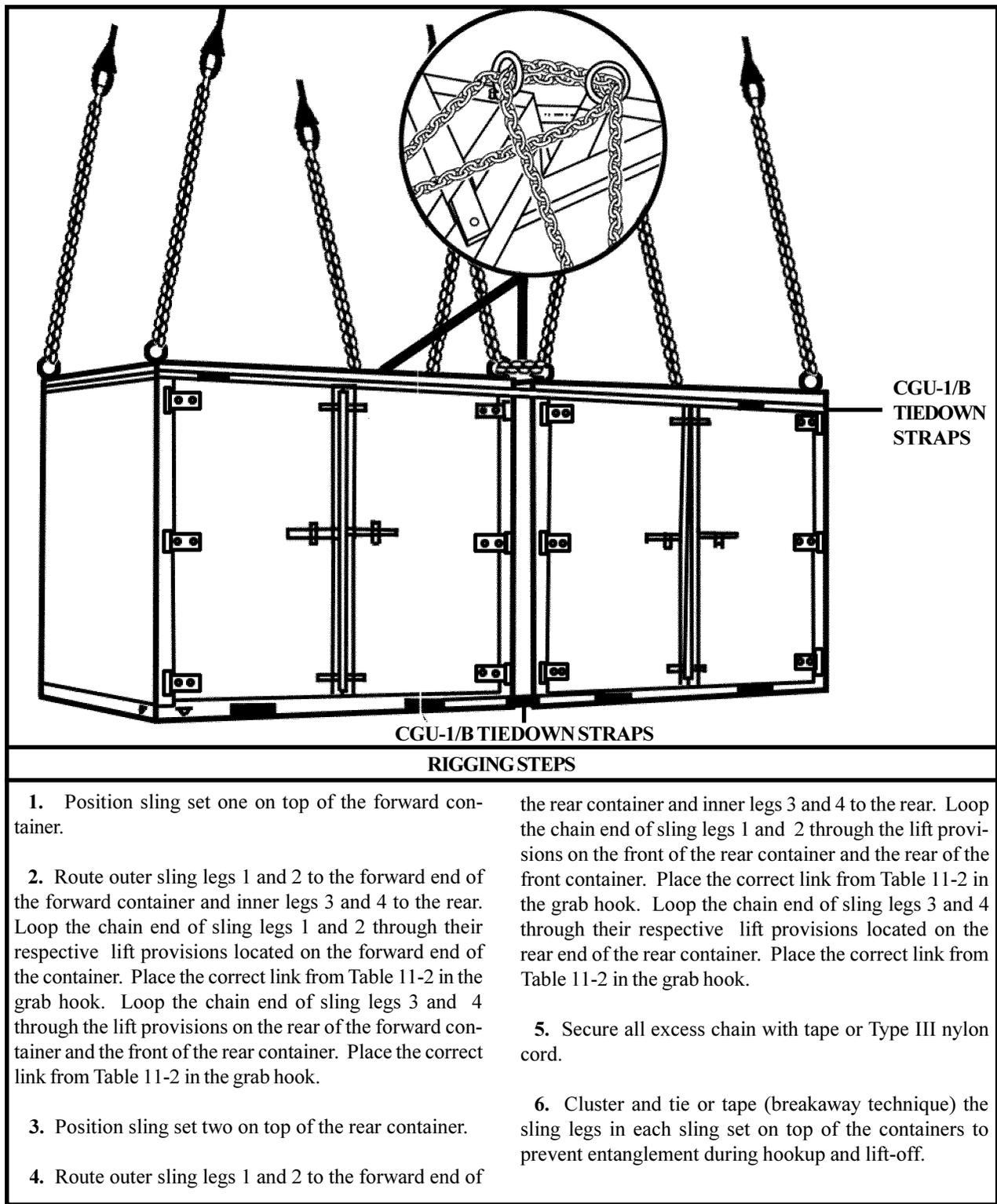


Figure 11-2. Two ISU-90 Shipping/Storage Containers

11-4. Army Tactical Missile Systems Multiple Launch Rocket System or Guided Missile Launch Assembly, Two Containers

a. Applicability. The following items in Table 11-3 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 11-3. Army Tactical Missile Systems Multiple Launch Rocket System or Guided Missile Launch Assembly, Two Containers

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Multiple Launch Rocket System with Two Rocket Pods/Containers, (with Six Rockets)	10,010	25K	3/3	CH-47	110
Two Enclosure Assembly Launch Pods, Guided Missile Launch Assembly	10,222	25K	3/3	CH-47	110

b. Materials. The following materials are required to rig this load:

- (1) Sling set (25,000-pound capacity) with one additional apex fitting.
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.
- (5) Strap, cargo, tiedown, CGU-1/B (as required).
- (6) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

d. Procedures. The following procedures apply to this load:

(1) **Preparation.** Prepare the load using the following steps:

(a) Prepare GMLAs/RPCs for travel in accordance with standard procedures.

CAUTION
Do not mix the MLRS and the GMLA in the same load.

(b) Stack the GMLAs/RPCs one on top of the other ensuring both GMLAs/RPCs are facing the same direction.

(c) Lash the stacks of GMLAs/RPCs together using the CGU-1/B tiedown straps. Two of the straps should run through both sets of lifting provisions on each end of the GMLAs/RPCs, to keep them aligned during flight. Evenly space the remaining two straps between the lifting provisions, running them around the GMLAs/RPCs. **DO NOT ROUTE THE STRAPS OVER THE ROCKET TUBES.** Pad all straps in the area where they contact the edges of the GMLAs/RPCs.

(2) **Rigging.** Rig the load according to the steps in Figure 11-3.

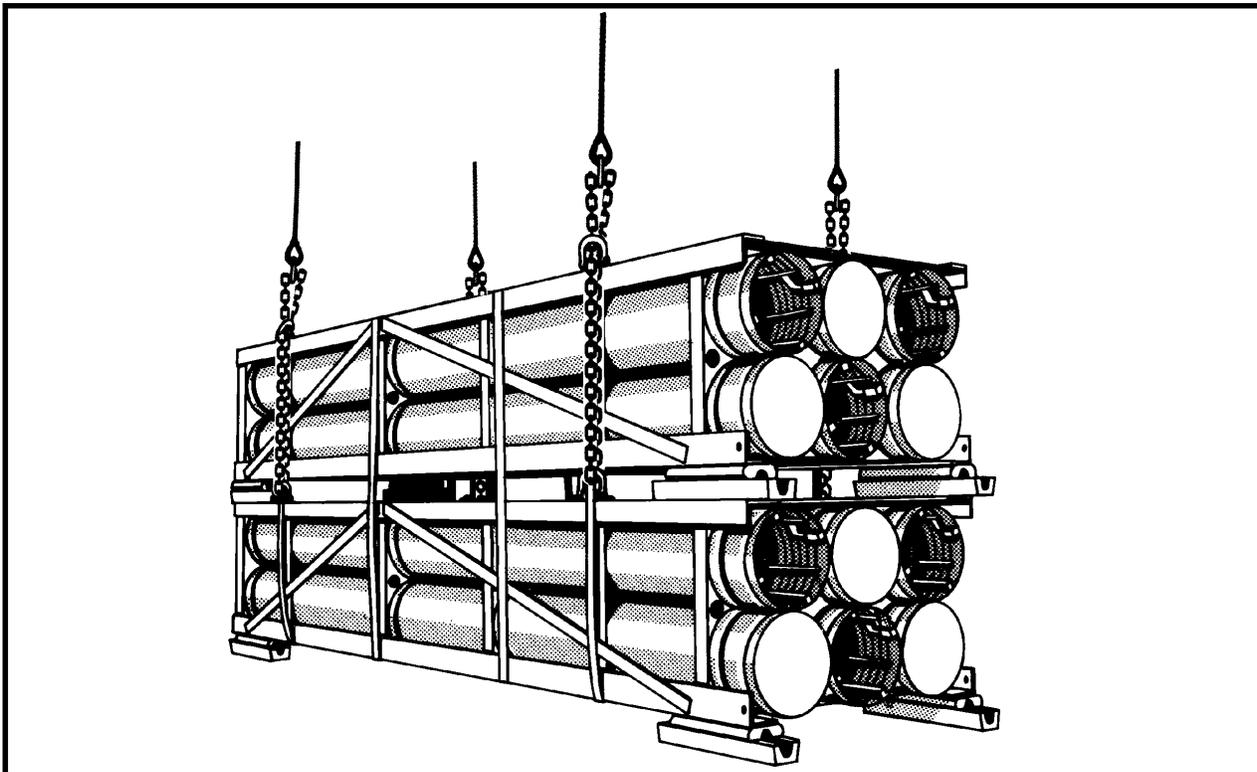
NOTE: The firing end is considered to be the front of the load.

(3) **Hookup.** Two hookup teams stand on top of the

container. The static discharge person discharges the static electricity. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup teams then carefully dismount the container and remain close to the load as the helicopter removes slack

from the sling legs. When successful hookup is assured, the hookup teams quickly exit the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Place two sling legs on apex fitting number 1. Position apex fitting number 1 on top of the forward end of the GMLAs/RPCs.

2. Loop the chain end of the left and right sling legs through their respective top front lift provisions of the GMLAs/RPCs, through the front lifting provision on the bottom GMLAs/RPCs, and back through the front top lift provision on the top RP/C. Place the correct link from Table 11-3 in the grab hook.

3. Place two sling legs on apex fitting number 2. Position apex fitting number 1 on top of the aft end of the

GMLAs/RPCs.

4. Loop the chain end of the left and right sling legs through their respective top rear lift provisions of the GMLAs/RPCs, through the rear lifting provision on the bottom GMLAs/RPCs, and back through the rear top lift provision on the top GMLAs/RPCs. Place the correct link from Table 11-3 in the grab hook.

5. Raise the apex fittings above the shelter. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

Figure 11-3. Army Tactical Missile Systems Multiple Launch Rocket System or Guided Missile Launch Assembly, Two Containers

11-5. Army Tactical Missile Systems Multiple Launch Rocket System or Guided Missile Launch Assembly, Four Containers

a. Applicability. The following items in Table 11-4 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 11-4. Army Tactical Missile Systems Multiple Launch Rocket System or Guided Missile Launch Assembly, Four Containers

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT OUTER/ INNER	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Multiple Launch Rocket System (MLRS) Four Enclosure Assembly Launch Pods	20,020	25K	3/14	CH-47	120
Guided Missile Launch Assembly (GMLA), Four Enclosure Assembly Launch Pods	20,444	25K	3/14	CH-47	120

b. Materials. The following materials are required to rig this load:

- (1) Sling set (25,000-pound capacity) (2 each).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.
- (5) Strap, cargo, tiedown, CGU-1/B (16 each).
- (6) Lumber, 2 X 4 X 65-inches (4 each).
- (7) Nails, eightpenny (as required).
- (8) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.
- (9) Crane or forklift (15,000-pound capacity or larger).

c. Personnel. Four persons can prepare and rig this load in 30 minutes.

d. Procedures. The following procedures apply to this load:

- (1) **Preparation.** Prepare the load using the following steps:
 - (a) Prepare the GMLAs/RPCs for sling loading in accordance with standard procedures.
 - (b) Prepare two pieces of dunnage to protect the GMLAs/RPCs by nailing two pieces of 2 X 4 X 65-inch lumber together, wide side to wide side.
 - (c) Make two stacks of GMLAs/RPCs. Use the crane or forklift to stack one stack of GMLAs/RPCs on top of the other with the projectiles facing the same direction. Label the stacks #1 and #2.

CAUTION
Do not mix the MLRS and the GMLA in the same load.

- (d) Lash stack #1 together using four tiedown straps. Route a tiedown strap through both sets of lifting provisions on each end of the GMLAs/RPCs. Evenly space the remaining two tiedown straps between the lifting pro-

visions, routing the straps around the GMLAs/RPCs. **DO NOT ROUTE THE STRAPS OVER THE ROCKET TUBES.** Pad the straps where they contact the edges of the EALP.

(e) Lash stack #2 using the above procedures for stack #1.

(f) Position the two pieces of dunnage near the lifting provisions on each end of the GMLAs/RPCs. Secure the dunnage to the GMLAs/RPCs with Type III nylon cord.

(g) Position stack #1 against stack #2 using the crane or forklift. Ensure the dunnage is between the loads.

(h) Lash the top two GMLAs/RPCs together on each end. Connect two tiedown straps together to form each lashing.

(i) Lash the bottom two GMLAs/RPCs together on each end. Connect two tiedown straps together to form each lashing.

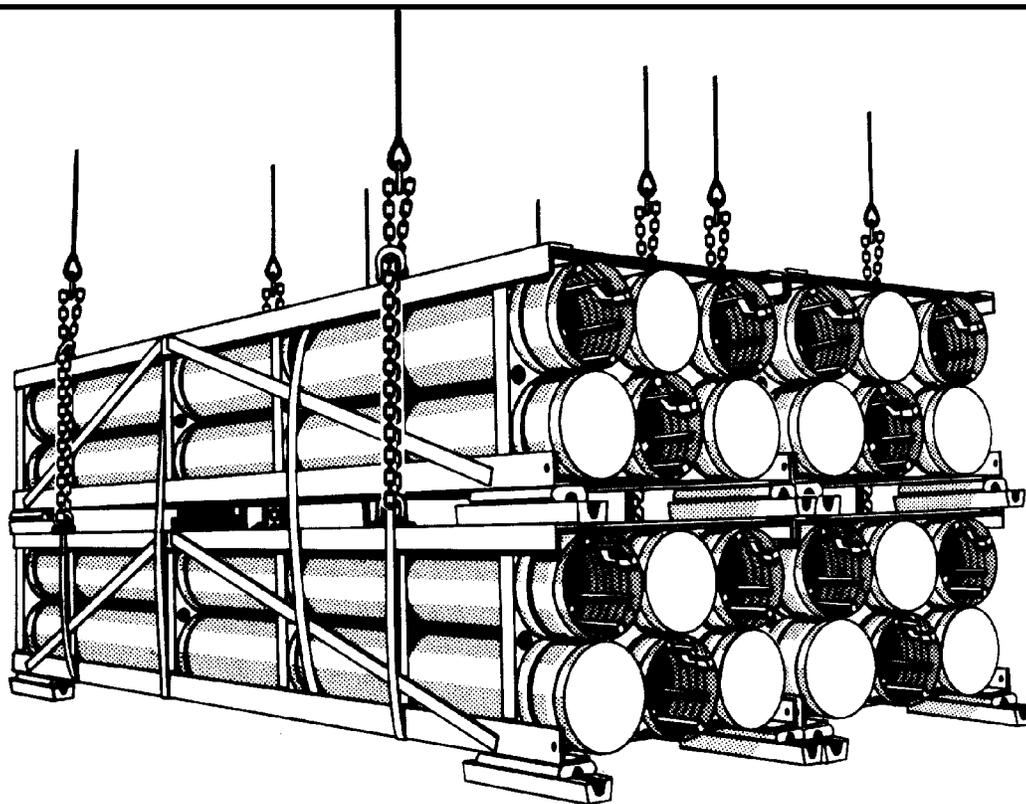
(j) Pad the straps where they contact the edges of the GMLAs/RPCs

(2) **Rigging.** Rig the load according to the steps in Figure 11-4.

NOTE: The firing end is considered the front of the load.

(3) **Hookup.** Two hookup teams stand on top of the container. The static discharge person discharges the static electricity. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup teams then carefully dismount the container and remain close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup teams quickly exit the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



RIGGING STEPS

1. Position sling set number 1 on top of the forward end of the GMLAs/RPCs.
2. Loop the chain end of outer sling legs 1 and 2 through their respective top front lift provisions of the top GMLAs/RPCs, through the front lifting provision on the bottom GMLAs/RPCs, and back through the front top lift provision on the top GMLAs/RPCs. Place the correct link from Table 11-4 in the grab hook.
3. Loop the chain end of inner sling legs 3 and 4 through their respective top front lift provisions of the top , through the front lifting provision on the bottom GMLAs/RPCs, and back through the front top lift provision on the top GMLAs/RPCs. Place the correct link from Table 11-4 in the grab hook. Secure the excess chain with tape or Type III nylon cord.
4. Position sling set number 2 on top of the aft end of the GMLAs/RPCs.
5. Loop the chain end of outer sling legs 1 and 2 through their respective top rear lift provisions of the top GMLAs/RPCs, through the rear lifting provision on the bottom GMLAs/RPCs, and back through the rear top lift provision on the top GMLAs/RPCs. Place the correct link from Table 11-4 in the grab hook.
6. Loop the chain end of inner sling legs 3 and 4 through their respective top rear lift provisions of the top GMLAs/RPCs, through the rear lifting provision on the bottom GMLAs/RPCs, and back through the rear top lift provision on the top GMLAs/RPCs. Place the correct link from Table 11-4 in the grab hook. Secure the excess chain with tape or Type III nylon cord.
7. Raise the apex fittings above the container. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

Figure 11-4. Army Tactical Missile Systems Multiple Launch Rocket System or Guided Missile Launch Assembly, Four Containers