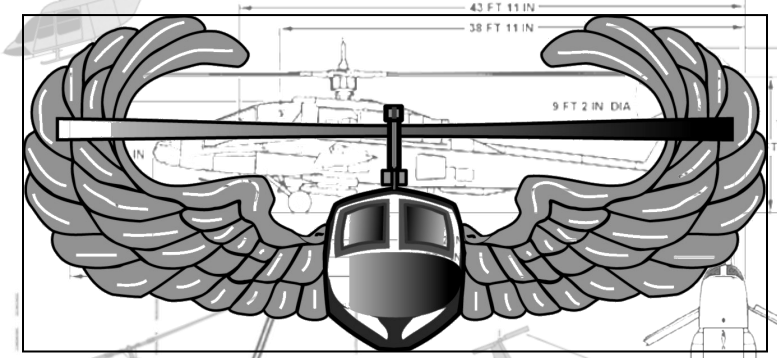
WARRIOR TRAINING CENTER

AIR ASSAULT SCHOOL

HANDBOOK



"WHEN THE WILL IS STRONG, EVERYTHING IS EASY"

FY2013

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CHAPTER 1

AIR ASSAULT OPERATIONS

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ATTP 3-18.12, Air Assault Operations, March 2011

FM 3-21.38, Pathfinder Operations, 25 April 2006

FM 4-02.2, Medical Evacuation, 8 May 2007
(w/ change 1, July 2009)

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(w/ change 4, dated 15 March 2010)

TM 1-1520-237-10, Army Model UH-60A/L Helicopter, 25 September 2009
(w/ change 1, dated 11 June 2010)

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TM 1-1520-251-10-2, Army Model AH-64D Helicopter, Block II dated 30 June 2010

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ITM 1-1520-252-10, Army Model MH-47E Helicopter, 28 June 1995
(w/ changes 22, dated 31 October 2008)

FM 3-04.111, Aviation Brigades, 7 December 2007

FM 3-04.126, Attack Reconnaissance Helicopter Operations, 16 February 2007

FM 3-04.113, Utility and Cargo Helicopter Operations, 7 December 2007

FM 3-21.8, Infantry Rifle Platoon and Squad, 28 March 2007

FM 7-92, Infantry Reconnaissance Platoon and Squad (Airborne, Air Assault, Light Infantry), 23 December 1992

PART I

HISTORY OF AIR ASSAULT

Air Assault is a combat insertion unit using helicopters to transport and insert soldiers into battle, provide medical evacuation, provide close air support, provide resupply operations. It is usually a company or battalion sized element.

The term Air Assault derives from two types of operations known as Air Mobility and Vertical Envelopment. Air Mobility Operations were developed by the German Army during WWII in the 1930's. The US Army soon adopted this method of offensive operations in 1941 using wooden gliders. The glider was assisted into the air by being towed by a larger aircraft and then released. The pilot had to navigate the large glider loaded with a team of infantry soldiers to the landing zone behind enemy lines, at night and attempt to land safely. Once the pilot landed the glider, he would join the mission as another infantry soldier with the team that he flew in.

Although the gliders and techniques used were advanced for that time period they did pose some disadvantages. Once the aircraft was landed safely that team of soldiers were cut off from allied troops. Pilots had to be cross trained with infantry tactics so he could operate as both roles. The air mobility glider was abandoned after WWII after the invention of the helicopter.



WWII Wooden Air Mobility Glider

Vertical Envelopment is a tactical maneuver in which troops are air dropped or landed to attack an enemy's rear, flanks, or to cut off the enemy's ability to resupply or withdraw. Vertical Envelopment was developed in 1946 after US Marine Corps Lieutenant General Roy S Geiger witnessed atom bomb testing. Small nuclear weapons posed as a great threat to amphibious frontal attacks and landings by the US Marine Corp in which they were famous for. A small nuclear weapon had the ability to destroy most of , if not all of the main attack force since they were typically centralized to one beachhead. To address this issue the a special board called the "Hogaboom Board" was convened at order of the Commandant of the Marine Corps Alex Vandergrift. After deliberations the board recommends the use of helicopters and develops special requirements named "Vertical Envelopment." The helicopter squadron HMX-1 is commissioned 1 December 1947 to support this new type of operation. The Helicopter assigned to this unit is the Sikorsky HO3S-1.



Sikorsky HO3S-1

The first Vertical Envelopment mission was performed by the Marine Transport Helicopter Squadron HMR-161 during Operation Summit, Korea on 20 September 1951. The operation's objective was to secure Hill 884. There were a total of 224 combat equipped troops and 17,772 lbs of cargo inserted for the mission which took a total of 65 lifts to complete. The helicopter used was the HRS-1.



Sikorsky HRS-1

With the successful vertical envelopment missions in Korea, these techniques were immediately put into use during the Vietnam Conflict on 15 April 1962 using Marine Corps helicopters to insert friendly Vietnamese forces in Operation Shufly. After many successful missions North Vietnamese troops began to develop techniques to take down the Marine helicopters. The Army began to support these efforts using their UH-1A armed attack helicopters. The North Vietnamese troops began to develop even further.

In response to the Enemy's new methods and the success of Vertical Envelopment, the US Army, began developing their own template for Air Mobile operational techniques and formed their first experimental unit on 7 January 1963. This new unit was activated at Ft Benning, Georgia on 15 February 1963. It was named the 11th Air Assault Division. The 11th Air Assault Division consisted of one infantry battalion and was supported by the 10th Air Transport Brigade. After two years of training and development, the 11th Air Assault Division was officially activated as a full fledged fighting force structure on 1 July 1965 with orders to Vietnam. They were renamed the 1st Calvary Division (Air Mobile) commanded by Major General Harry Kinnard. The 1st Cavalry was faced with a few challenges just prior to their deployment. After news of their deployment fifty percent of their unit was un-deployable. Replacements for these soldiers had to be training in ninety days. The 1st Cavalry was also issued the first M16 Rifles only ten days before leaving.

The 1st Cavalry arrive in Vietnam on 25 August 1965. They immediately had to clear a golf course to be used as the worlds largest helipad. During preparations, they would loose one thousand more soldiers to a peculiar strain of malaria.

The first unit to see action against NVA forces was the 1st Squadron, 7th Cavalry Regiment, led by Lieutenant Colonel Harold G Moore. This would be the first large unit engagement of the Vietnam War. It took place near the Chu Pong Massif close to the Vietnam-Cambodian Border. It is known as “The Battle of Ia Drang Valley.” The battle at LZ X-Ray lasted three days. NVA casualties were reported to be 834 counted and 1215 estimated dead and 6 captured and forced the NVA withdraw from LZ X-Ray. American casualties were calculated to be 79 dead and 125 wounded.



Air Cavalry Soldiers during the Battle of Ia Drang Valley

Air Mobile Operations proved to be invaluable on the modern battlefield. During the Vietnam War the 101st Airborne Division was transformed in an Air Mobile Division. After returning to Ft Campbell, Kentucky, they wound soon establish the first official Air Assault School. The first class began on 26 March 1974. The classes were intended for only 10st soldiers. Air Assault qualifications quickly became known as a much needed skill set so the Army opened the school to all soldiers and authorized the order of the Air Assault badge.

The Air Assault Badge

During the days of the 11th Air Assault Division Training, General Kinnard wanted his men to have a sense of pride in being one his nicknamed, ”Sky Soldiers,” so the Air Mobility Badge was made. The Badge was originally made from excess tooth fillings and formed for wear. Although the badge was never officially authorized for wear with the Army uniform, it did require soldiers of the 11th Air Assault Division to meet certain standards to earn the badge. These qualifications have not changed much from the original requirements even in today’s Air Assault Schools.

Qualifications included:

3 Helicopter Rappels from 60 ft AGL
2 Helicopter Rappels from 120 ft AGL
Aircraft Safety Procedures
Aircraft Orientation
Hand and Arm Signals
Preparation, rigging and inspecting sling loads
Lash down internal helicopter loads



Air Mobility Badge

The current and official version on the Air Assault badge was designed by Major Jack R. Rickman while serving in Vietnam in 1971. He combined the WWII Glider badge with the Parachutist Badge. He never got to wear the badge.

The Air Assault Badge was approved for wear in the Army on 18 January 1978 and was backdated to 1 April 1974 to the first Air Assault Class. The first recipient of the Air Assault Badge was Major James Dailey who was the commander of the Air Assault School.



Official Air Assault Badge

Air Assault Schools

Warrior Training Center Air Assault School

by *Army National Guard* located at Ft Benning, GA (Tradoc Proponent)

Sabalauski Air Assault School

at the 101st Airborne Division located at Ft Campbell, KY

Light Fighters School

at the *10th Mountain Division* located at Ft Drum, NY

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- Marines and Helicopters 1946-1962 Washington D.C.:
  History and Museums Division, Headquarters, U.S. Marine Corps,1976

- Manion, Michael. *Gliders Of World War II:* "*THE BASTARDS NO ONE WANTED."* (2008)

- US Army Center of Military History. *Airmobile: The Early Years in the United States, 1963 – 1965* (Chap 3)

- LTC Kenneth R Pierce. *The Battle Of Ia Drang Valley.*

- Harol G Moore, Joseph L Galloway. *We Were Soldiers Once...And Young.*

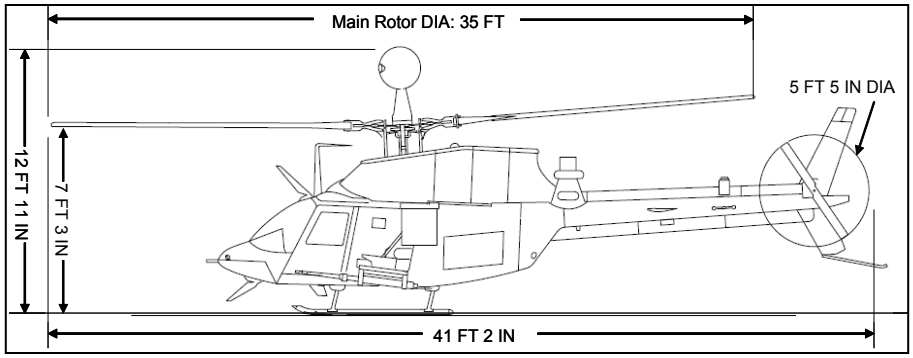
- Llieutenant General John J Tolson, 1989. Vietnam Studies: Air Mobility 1961-1971

NOTES

PART II

INTRODUCTION TO ROTARY WING AIRCRAFT

ATTACK/RECONNAISSANCE AIRCRAFT



OH-58D KIOWA WARRIOR

Reference: TM 1-1520-248-10 & FM 3-04.126

Airspeed: Maximum 125 knots
Cruise 80 knots

Flight time: 2 hrs, 30 min.

Crew: Pilot, Co-Pilot

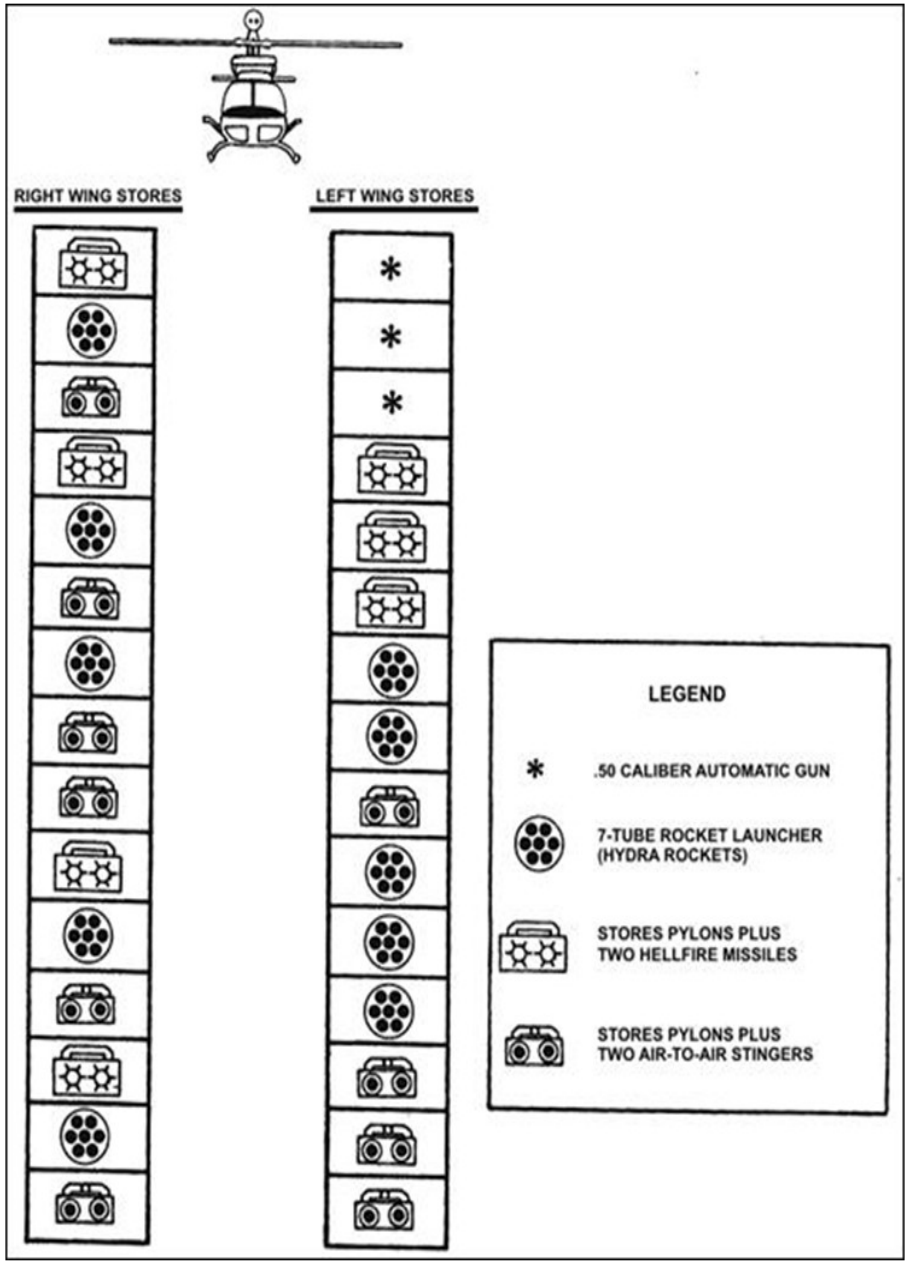
Allowable Cargo Load (ACL): 0

Missions:
Reconnaissance
Security
Target acquisition/designation
Defensive air-to-air combat

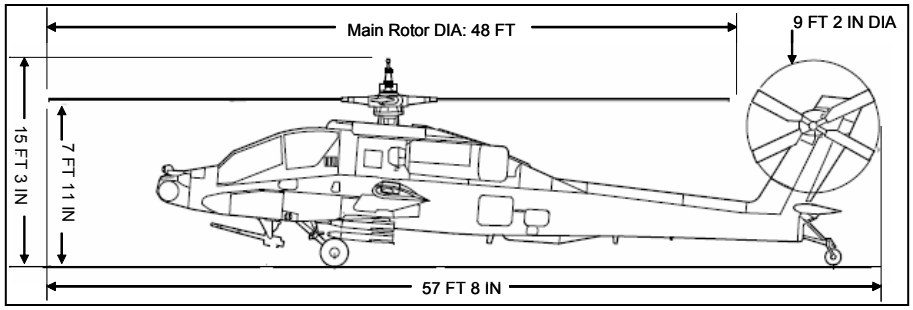
Armament:	MAX LOAD	RANGES MIN	RANGES MAX	MAX EFFECT
.50 cal (left side only)	500 rds			2000 m
2.75 FFAR	14 rds		9000 m	2-5000 m
Hellfire II Missile - LG	4 rds	500 m		8000 m
Stinger Air to Air Missile	4 rds			1-8 km

Digital call for fire capability (to Artillery, AH-64D, other OH-58's)

OH-58D ARMAMENT CONFIGURATIONS



ATTACK/RECONNAISSANCE AIRCRAFT



AH-64A Apache

Reference: TM 1-1520-238-10 &
FM 3-04.126 Appx A

Airspeed: Maximum 164 knots
Cruise 120 knots

Flight Time: 2 hrs (Avg.)

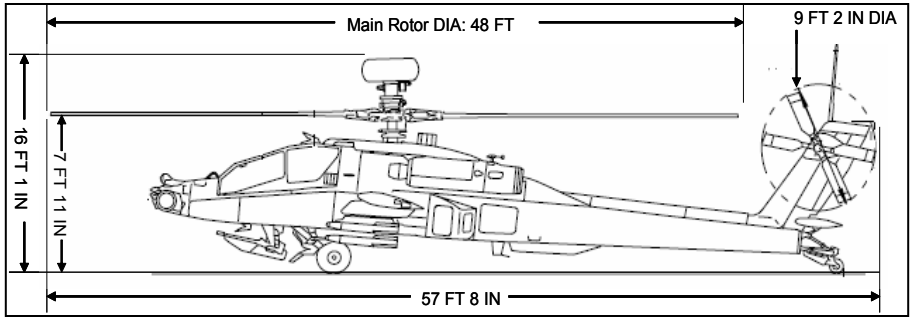
Crew: 2 (Pilot- rear, Co-pilot/
gunner-front)

Missions: Anti-armor (primary)
Close air support
Reconnaissance
Air to air combat

Armament	MAX LOAD	RANGES MIN	RANGES MAX	MAX EFFECT
30mm Chain Gun	1200 rds		4000 m	1500 m Point 3000 m Area
2.75 FFAR	76 rds		9000 m	3-5000 m
Hellfire II Missile - LG	16 rds	500 m		8000 m

CAN CARRY BUT NOT AUTHORIZED

Stinger ATA Missile	4 rds	1-8 km
Sidewinder ATA Missile	2 rds	10-18 mi



AH-64D Longbow Apache

Reference:	TM 1-1520-251-10-1 FM 3-04.126 Appx A
Airspeed:	Maximum 164 knots Cruise 120 knots
Flight Time:	2 hrs (Avg.)
Crew:	2 (Pilot- rear, Co-pilot/ gunner-front)
Missions:	Anti-armor (primary) Close air support Reconnaissance Air to air combat

Armament	MAX LOAD	RANGES MIN	RANGES MAX	MAX EFFECT
30mm Chain Gun	1200 rds		4000 m	15-1700 m
2.75 FFAR	76 rds		9000 m	3-4000m
Hellfire II Missile - LG	16 rds	500 m		8000 m
Longbow Hellfire F&F	16 rds	500 m		8000 m

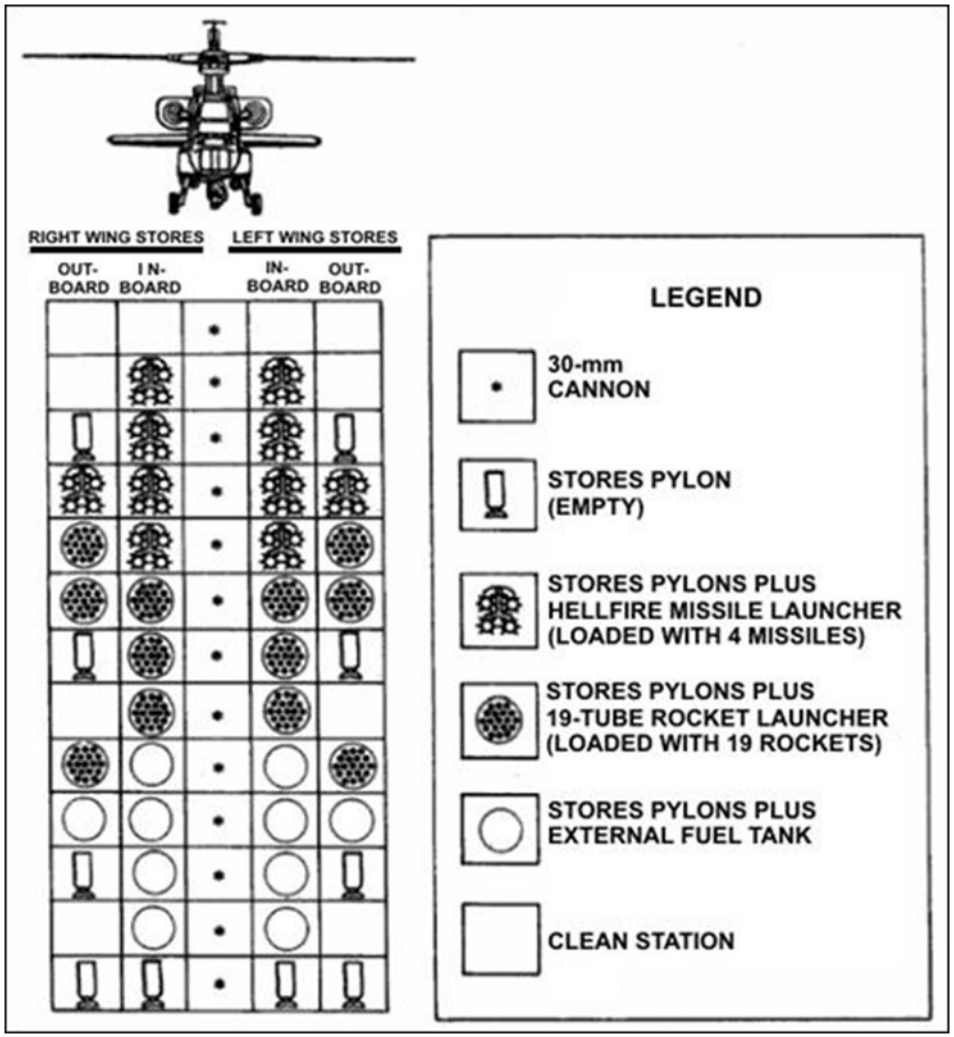
CAN CARRY BUT NOT AUTHORIZED

Stinger ATA Missile	4 rds—can carry but not auth	1-8 km
Sidewinder ATA Missile	2 rds—can carry but not auth	10-18 mi

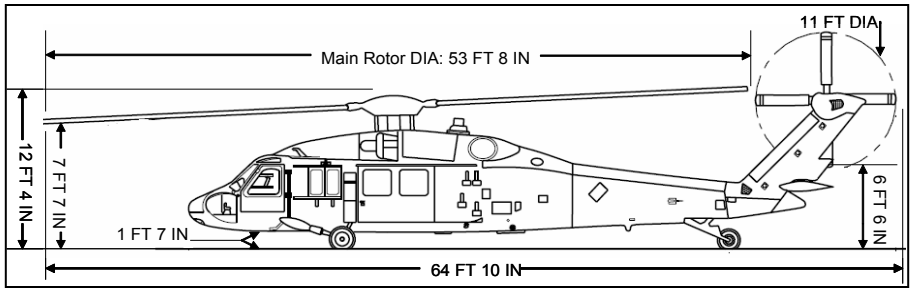
FIRE CONTROL RADAR

May have the Fire Control Radar (FCR) mounted on rotor mast
The FCR can track up to 126 targets and prioritize the top 16.
***(If there is no FCR, the top of the rotor mast will be flat)**

AH-64 ARMAMENT CONFIGURATIONS



ASSAULT / LIFT AIRCRAFT



UH-60A/L/M Blackhawk

Reference	TM 1-1520-237-10 & FM 3-04.113 Appx C
Airspeed:	Maximum 156 knots Cruise 130 knots
Flight Time:	2 hrs, 30 min
Crew for tactical operations:	(4) Pilot, Co-pilot, 2 x Crew Chiefs
ACL (Combat equipped troops):	(11 Pax) w/ seats (16 Pax) w/out seats
Cargo Hook Capacity:	UH-60A 8,000 lbs UH-60L/M 9,000 lbs
Max Gross Weight for:	UH-60A 22,000 lbs UH-60L/M 23,500 lbs

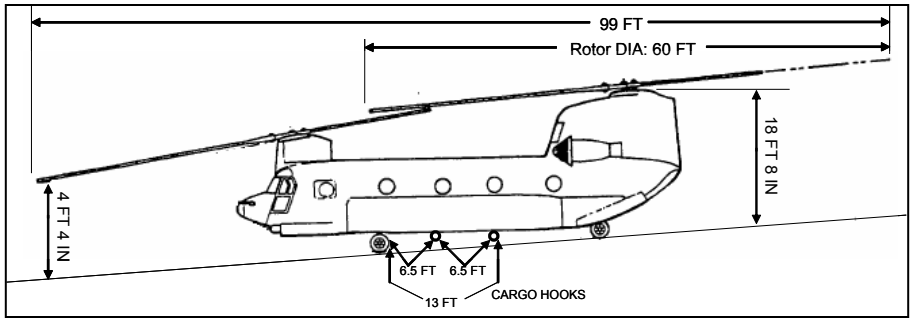
Missions: Air Assault & Air Movement
Casualty Evacuation / Aero-Medical Evacuation
Sling load & Re-supply Operations
FRIES/SPIES, Rappelling and Parachute Operations

Armament: Deployment of the Volcano Mine Dispensing System
(960 Mines) 800 AT and 160 AP
Can be set to self-destruct in 4 hrs, 48 hrs, or 15 days

UH-60M unique characteristics:

Upgraded avionics and engines (Full digital cockpit)
Fly-by-Wire System
Main rotor blades are angled down at the ends for better lift.

ASSAULT SUPPORT AIRCRAFT



CH-47D/F Chinook

Reference: TM 1-1520-240-10 & FM 3-04.113

Airspeed:
Maximum 170 knots
Cruise 130 knots

Flight time (Avg): 2 hrs, 30 min

Crew for tactical operations: 4- Pilot, Co-pilot, Flight Engineer, Crew Chief

ACL:
Combat Equipped Troops 33 Pax
Maximum Litter Capacity 24 Pax

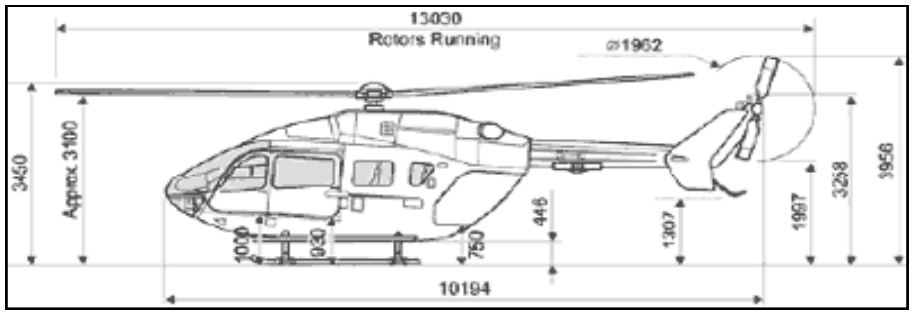
Cargo Hook Capacity:

Front Hook	17,000 lbs
Rear Hook	17,000 lbs
Center Hook	26,000 lbs
Dual Hook Load (fore & aft combined)	25,000 lbs

Planning Weight: 19,000 lbs
Maximum Gross Weight: 50,000 lbs

Missions:
Troop and Cargo Transport
Sling load Operations
Waterborne Operations
Mass casualty evacuation when used during CASEVAC missions

"F" Model has improved avionics, upgraded engine and digital cockpit (fly-by-wire)



UH-72A Lakota Light Utility Helicopter (LUH)

Reference:

Airspeed: Maximum 145 knots
Cruise 133 knots

Crew for tactical operations: 3- Pilot, Co-pilot, Crew Chief

ACL: Combat Equipped Troops 8 Pax
Number of litters can carry with med crew 2 Pax

Cargo Hook Capacity: 3953 lbs

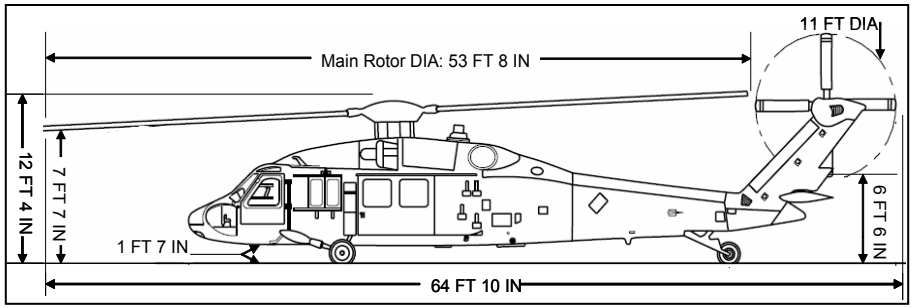
Max gross weight: 7903 lbs

Characteristics:
2 Turbo shaft engines
4 Main rotor blades
2 Tail rotor blades
3 Vertical stabilizers
Skids for landing gear
Fly-by-wire

Missions:
Homeland Security
Drug Interdiction
General Support
Logistics
MEDEVAC

Armed Version: AAS-72X (Armed Aerial Scout) **Service Date is 2016*
1HMP (Heavy Machine-Gun Pod) .05 Cal Machine Gun
14 2.75 Inch FFAR (Folding Fin Areal Rocket)
4 Hellfire II Laser Guided Missiles
TAD-1 System

MEDEVAC AIRCRAFT



HH-60M Blackhawk

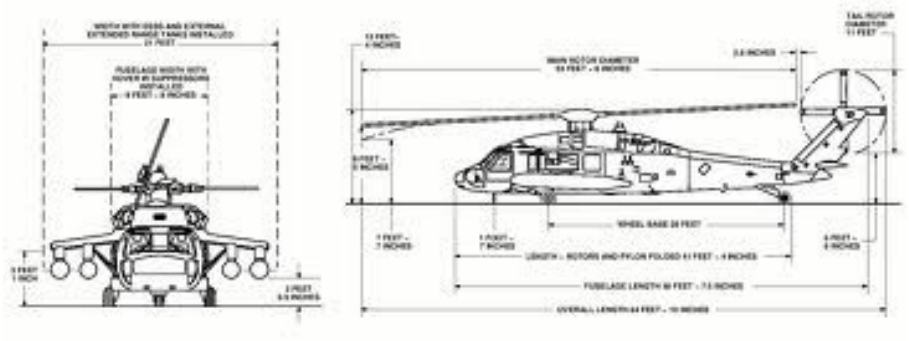
Reference	TM 1-1520-237-10 & FM 3-04.113 Appx C
Airspeed:	Maximum 156 knots Cruise 130 knots
Flight Time:	2 hrs, 30 min
Crew for tactical operations:	(4) Pilot, Co-pilot, 2 x Crew Chiefs
ACL (Combat equipped troops):	(11 Pax) w/ seats (16 Pax) w/out seats
Cargo Hook Capacity:	UH-60A 8,000 lbs UH-60L/M 9,000 lbs
Max Gross Weight for:	UH-60A 22,000 lbs UH-60L/M 23,500 lbs

Missions: Air Assault & Air Movement
Casualty Evacuation / Aero-Medical Evacuation
Sling load & Re-supply Operations
FRIES/SPIES, Rappelling and Parachute Operations

Armament: Deployment of the Volcano Mine Dispensing System
(960 Mines) 800 AT and 160 AP
Can be set to self-destruct in 4 hrs, 48 hrs, or 15 days
Battlehawk optional package

UH-60M unique characteristics:
Upgraded avionics and engines (Full digital cockpit)
Fly-by-Wire System

MULTIMISSION AIRCRAFT



UH-60M Battlehawk

Reference TM 1-1520-237-10 & FM

Airspeed: Maximum 156 knots
Cruise 130 knots

Flight Time: 2 hrs, 30 min

Crew for tactical operations: (4) Pilot, Co-pilot, 2 x Crew Chiefs

ACL (Combat equipped troops): (6 Pax) w/ seats

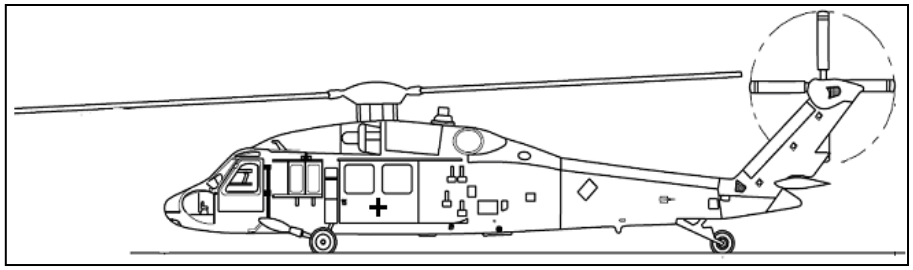
Cargo Hook Capacity: 9,000 lbs
Max Gross Weight for: 23,500 lbs

Missions:
Air Assault & Air Movement
Casualty Evacuation / Aero-Medical Evacuation
Sling load & Re-supply Operations
Close Air Support

Armament:
.50 Cal Machine Guns
20mm Canon
76 2.75” FFAR
16 Hellfire II or Fire and forget Missiles

Unique characteristics:
Upgraded avionics and engines (Full digital cockpit)
Fly-by-Wire System
Helmet Mounted Sighting
External Store Support System
FLIR
Weather Radar
Armored Crew Seats

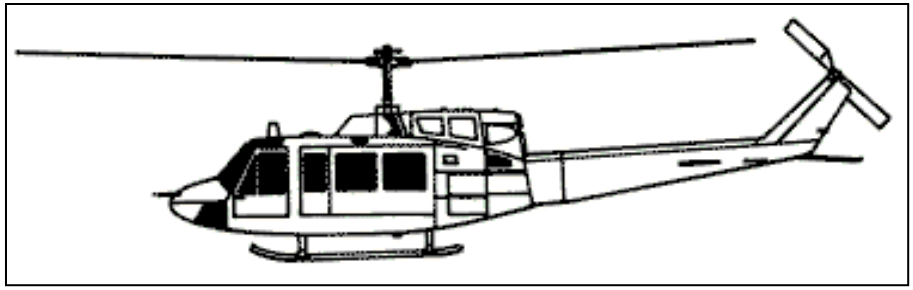
MEDEVAC AIRCRAFT



UH-60Q Blackhawk MEDEVAC

Reference:	TM 1-1520-237-10 & FM 4-02.2
Maximum Airspeed:	193 knots
Flight Time:	2 hrs, 30 min
Crew:	4 (Pilot, Co-pilot, Crew chief and In-flight Medic)
Internal Rescue Hoist Capability:	600 lbs
Hoist Cable Length:	256 ft. total, 250 ft. usable
Normal Configuration:	4 litter patients and 1 ambulatory patients
Maximum Configuration: (w/out Hoist)	6 litter & 1 Ambulatory or 7 ambulatory
(w/Hoist)	3 litter & 1 Ambulatory or 4 Ambulatory

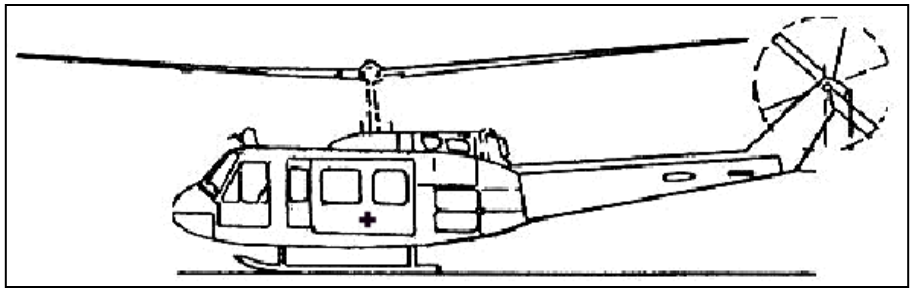
ADDITIONAL MILITARY AIRCRAFT



UH-1H Iroquois

Reference:	TM 1-1520-22-010 & FM 3-04.113
Maximum Airspeed:	124 knots
Crew for tactical operations:	3 (Pilot, Co-pilot, Crew Chief)
ACL Combat equipped troops:	10 with seats
Cargo Hook Capacity:	4,000 lbs
Planning Weight:	2,300 lbs
Max Gross Weight:	9,500 lbs
Flight Time:	2 hrs, 30 min

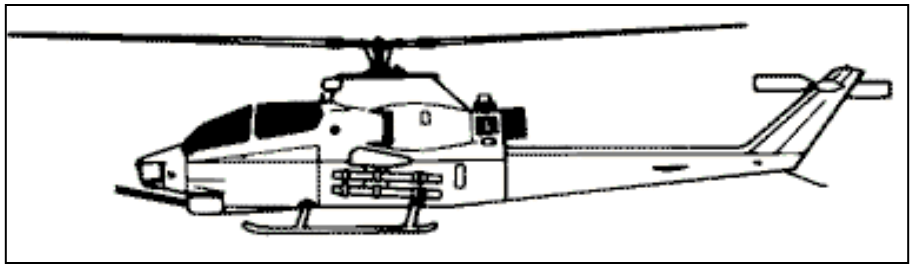
Missions: Combat Assault
Casualty Evacuation
Sling load & re-supply operations



UH-1V Iroquois MEDEVAC

Reference:	TM 10-1520-210-10 FM 4-02.2
Maximum Airspeed:	124 knots
Flight Time:	2 hrs, 20 min
Crew:	4 (Pilot, Co-pilot, Crew chief, and Medic)
Internal Hoist Capacity:	600 lbs
Hoist Cable Length:	256 ft. total, 250 ft. usable
Normal Configuration:	3 litter patients and 4 ambulatory patients
Maximum Configuration:	6 litter or 9 ambulatory with prior notice

USMC



AH-1W Super Cobra

Reference: TM 1-1520-236-10
FM 3-04.113

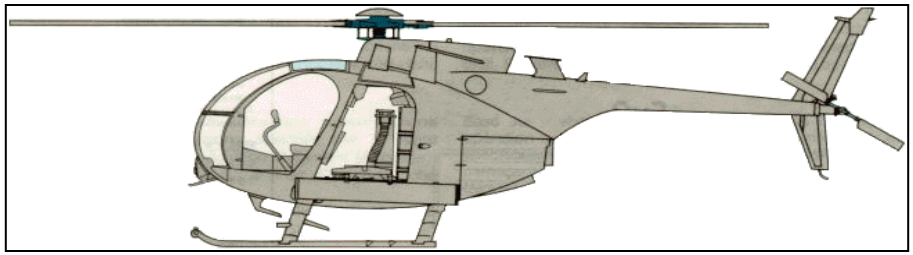
Airspeed: Maximum 170 knots
Cruise 152 knots

Flight Time: 2 hr, 20 min

Crew: 2 (Pilot- rear, Co-pilot/ gunner-front)

Missions:
Anti-armor (primary)
Close air support
Air to air combat
Armed escort

Armament:	MAX LOAD	RANGES MIN	RANGES MAX	MAX EFFECT
20 mm Gatling Gun	750 rds			
2.75 FFAR	76 rds		9000 m	3-5000m
Hellfire II Missile - LG	16 rds	500 m		8000 m
Sidewinder ATA Missile	1 rds			10-18 mi
TOW Missile	4 rds		3750 m	3750 m

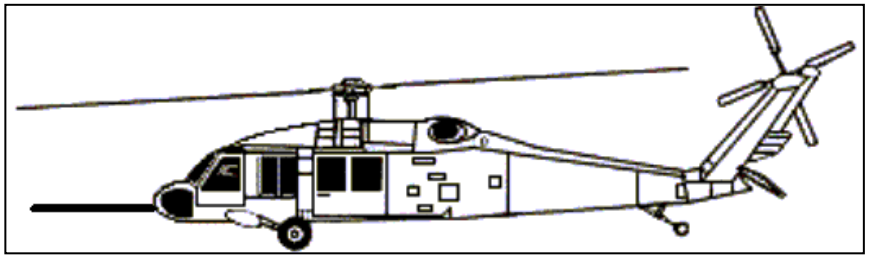


AH-6J/MH-6J Little Bird

Reference:	TC 1-21-1	
Airspeed:	Maximum	152 knots
	Cruise	135 knots
Crew:	2 pilots	
ACL:	up to six personnel on outboard seats	

Missions: Perform infiltration, ex-filtration and close air support of special operations forces.

Available Armament:
14 x 2.75 inch rocket launchers
2 x 7.62mm M134 "miniguns"
.50 Cal. machine guns
MK19 40mm grenade machine gun
Hellfire missiles
Air-to-Air Stinger (ATAS) missiles.





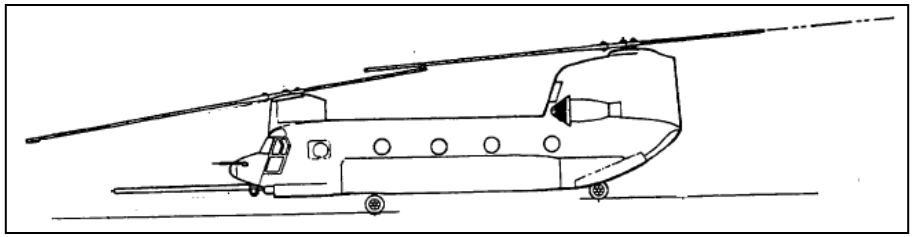
MH-60 L/K Direct Action Penetrator (DAP)

Reference:	TC 1-21-1	
Airspeed:	Maximum	159 knots
	Cruise	150 knots

Crew: 4 (Pilot, Co-pilot, 2 Crew chiefs/gunners)

Missions: Overt or covert infiltration, ex-filtration, and resupply of special operations forces in day, night or adverse weather conditions.

DAP mission: Conduct attack helicopter operations utilizing area fire or precision guided munitions and armed infiltration or ex-filtration of small units.



MH-47D/E Chinook

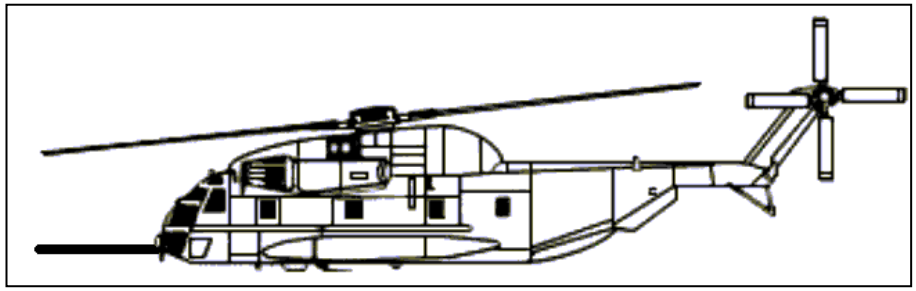
Reference: TM 1-1520-252-10

Airspeed: Maximum 170 knots
Cruise 120 knots

Internal rescue hoist with a 600 lb capacity

Missions: Overt and covert infiltration, exfiltration, air assault, resupply, and sling operations in support of special operations forces in all terrain and environments.

Defensive armament: 2 x M-134 machine-guns
M-60D machine-gun



MH-53J Pave Low III

Reference: Sikorsky CH-53E Operation Manual

Airspeed:

Maximum	170 knots
Cruise	150 knots

Crew: (6) Two officers (pilots); four enlisted (two flight engineers, two aerial gunners)

ACL:

Combat Equipped Troops	37 Pax (55 w/ center seating)
Litter Capacity	14 Litter
Cargo Hook Capacity:	20,000 lbs

Missions: Perform low-level, long-range, undetected penetration into denied areas, day or night, in adverse weather, for infiltration, exfiltration and resupply of special operations forces.

Armament: Combination of 3 x 7.62mm miniguns or .50 caliber machine guns.

ASAF/USMC



MV-22 OSPREY

Reference: TC 1-21-1

Airspeed: Maximum 275 knots
Cruise 241 knots

Crew: 2 pilots

ACL: Combat equipped troops 24 Pax w seats
32 Pax w/out seats
Internal Equipment Load 20,000 lbs
External Load 15,000 lbs (dual hook)
1 x Growler (Light internally transportable ground vehicle



Missions: Perform infiltration, exfiltration, air assault, resupply, and sling operations in support of US Forces in all terrain and environments.

Available Armament: 1 x 7.62 mm M240 Machine Gun
1 x .50 Cal M2 Browning Machine Gun
1 x 7.62 mm GAU-17 Retractable Belly Mounted Minigun (Remote Guardian System)

Rotary Wing Aircraft Overview

Reference: AR 70-50, DESIGNATING AND NAMING DEFENSE MILITARY AEROSPACE VEHICLES, 14 March 2005

First Letter designator indicates basic mission:
- AH = Attack Helicopter
- OH = Observation Helicopter
- CH = Transport / Cargo Helicopter
- UH = Utility Helicopter
- MH = Multi-mission Helicopter

Second Letter designator indicates basic type:
- OH-58 = Helicopter

Two number designator indicates design number of aircraft:
- UH-60 = Blackhawk
- AH-64 = Apache
- OH-58 = Kiowa

Letter Designator after numbers indicates series / model:
- OH-58A = Kiowa
- OH-58D = Kiowa Warrior

Primary Rotary Wing Aircraft in the Army:
- UH-60A/L/M Blackhawk
- HH-60M Blackhawk MEDEVAC
- CH-47D Chinook
- OH-58D Kiowa Warrior
- AH-64D Apache
- UH-72A Lakota

PART III

AIRCRAFT SAFETY

REFERENCE: ATTP 3-18.12 Air Assault Operations

SAFETY BRIEFING CHECKLIST

1. **Items needed at all times include:**
   a. ID card
   b. ID tags
   c. Earplugs

2. **Helmet on with chinstrap fastened and free of twists and tape**
   (No tape allows for spot corrections)

3. **Weapons are carried muzzle pointed down, with no rounds chambered and selector switch on SAFE**

4. **Sleeves will be rolled down:**
   a. Protects from flying debris
   b. Protects from flash fires

5. **Secure loose equipment:**
   a. IAW unit SOP
   b. Grenades secured
   c. Antennas tied down or removed
   d. Unfix bayonets

6. **Approach/Departure directions to/from Aircraft:**
   a. From DOWN slope side
   b. UH-60: 90 degrees from side. Away from tail rotor & front
      (the front is the lowest main rotor position)
   c. UH-1H: 45 degrees from the front
   d. CH-47: 45 degrees from rear. Away from engine exhaust

7. **Bend forward at the waist when approaching Aircraft:**
   a. Added stability
   b. Maintain low silhouette
   c. Stay clear of main rotor blades

8. **FASTEN SEAT BELT**

9. **Crash positions:** *(Magazine well facing away from body)*
   a. UH-60L: Sit upright, muzzle pointed down
   b. UH-1H: Bend forward at waist, muzzle pointed up
   c. CH-47D: Bend forward at waist, muzzle pointed down

	EMERGENCY EXITS	FIRST AID KITS	FIRE EXTINGUISHERS
UH-60L	4 Windows fall out	3	2
UH-1H	4 Windows fall in	4	1
CH-47D	10 Windows fall out	7	3

10. **CRASH PROCEDURES:**

Take commands from crew, wait for rotor blades to stop, exit 3, 9, 12, o'clock (6 o'clock for CH-47 and CH-53) and move 500 meters away from the crash site. In case of fire; exit immediately and secure fire extinguishers, first aid kits, and unconscious personnel. In water landing; wait for aircraft to stop rolling, exit, and swim up stream to avoid flammable POL.

Fire extinguishers are for personnel ONLY. **NEVER** attempt to extinguish a fire on the Aircraft. It could worsen the fire do to the incorrect category of the extinguisher; i.e. electrical fires.

PART IV

AEROMEDICAL EVACUATION

REFERENCE: FM 4-02.2 Medical Evacuation in a Theatre of Operation, Tactics, Techniques, & Procedures

DEFINITIONS:

MEDEVAC (Medical Evacuation): Movement and en route care by medical personnel of wounded, injured, or ill persons from the battlefield and/or other locations to Medical Treatment Facilities on a designated medical vehicle or aircraft.

CASEVAC (Casualty Evacuation): Movement of casualties aboard non-medical vehicles or aircraft. Casualties transported in this manner do not receive en route medical care.

MASCAS (Mass Casualty): Any large number of casualties produced in a relatively short period of time, that exceeds unit support capabilities.

MASCAL (Mass Casualties): Large number of casualties that exceeds the capabilities of the medical support.

MTF: Medical Treatment Facility

HISTORY OF AEROMEDICAL EVEACUATION:

The first Army medevac helicopter was the OH-13 Sioux. Infantry soldiers gave it the nickname, “Angel of Mercy.” Despite the extreme advantage gained by this new method of extraction, the OH-13 had some distinct disadvantages:

1. Casualties received no in-flight medical care
2. Casualties were exposed to rain and sub-freezing temperatures
3. Casualties were exposed to enemy fire

5. Fewer and less frequent movement of MTFs

ADVANTAGES OF AEROMEDICAL EVACUATION:

The speed, range, flexibility, and versatility of Aeromedevac Ops allow:

1. Timely treatment, contributing to saving lives and reducing permanent disability
2. Movement of patients over relatively long distances in short periods of time
3. Movement of patients over terrain where ground evacuation would be difficult or impossible
4. Patients can be moved directly to the MTF best equipped to deal with their condition

BASIC AEROMEDEVAC MISSIONS/CAPABILITIES:

1. Delivery of whole blood and biological
2. Air-crash rescue support
3. Movement of medical personnel and supplies
4. Evacuation of selected casualties

AEROMEDEVAC AIRCRAFT

UH-1V:

Red Cross markings: (4) 1 each cargo door, 1 nose, 1 belly
Crew: (4) Pilot, Co-pilot, Crew Chief, In-flight Medic
ACL: Normal Configuration
3 litters and 4 ambulatory
Prior Notification
6 litters
9 ambulatory
Loading Sequence: Ambulatory patients are loaded either first or last. Litter patients are loaded from top to bottom. Most seriously injured are loaded last. This allows them to be unloaded first.

HH-60M:

Red Cross markings: (5) 1 each cargo door, 1 nose, 1 belly, 1 top
Crew: (4) Pilot, Co-pilot, Crew Chief, In-flight Medic
ACL: Patient Configuration
(w/hoist) 6 litters
6 ambulatory
3 litter and 3 ambulatory

Loading Sequence: Ambulatory patients are loaded either first or last. Litter patients are loaded from top to bottom in a "Z" pattern. Most seriously injured are loaded last. This allows them to be unloaded first.

Updated equipment includes: Air conditioning, oxygen generating system, trauma suction, patient vital monitoring systems, and crew bubble window. Flight crew window/door removed to maximize space.

UH-60Q:

Red Cross markings: (5) 1 each cargo door, 1 nose, 1 belly, 1 top
Crew: (4) Pilot, Co-pilot, Crew Chief, In-flight Medic
ACL: Normal Configuration
4 litters and 1 ambulatory
Prior Notification
(w/out hoist) 6 litters & 1 ambulatory
7 ambulatory
(w/hoist) 3 litters & 1 ambulatory
4 ambulatory

Loading Sequence: Ambulatory patients are loaded either first or last. Litter patients are loaded from top to bottom in a "Z" pattern. Most seriously injured are loaded last. This allows them to be unloaded first.

CH-47:

Primary use: Mass casualty evacuation
Red Cross markings: (0)
Crew: (4) Pilot, Co-pilot, Crew Chief, In-flight Engineer
ACL: 24 litter
31 ambulatory
Medic to casualty ratio: 1 medic per 6 patients

Loading Sequence: Ambulatory patients are loaded either first or last. Litter patients are loaded from front to back and top to bottom in a "Z" pattern. Most seriously injured are loaded last. This allows them to be unloaded first.

METHODS OF CASUALTY EXTRACTION

Sit Down Method: When the aircraft has a suitable landing zone
Hoist Method: When the aircraft does not have a landing zone

SPECIAL EQUIPMENT

High Performance Utility Hoist
Tensile Strength: 600 lbs
Hoist Cable Tensile Strength: 600 Lbs
Hoist Cable Length: 256 ft **(250 ft is usable)*
Slow Speed: Lift 600 lbs at a rate of 125 ft per min
Fast Speed: Lift 300 lbs at a rate of 250 ft per min

Jungle Forest Penetrator
Primary use: Evacuation of casualties through thick vegetation
Tensile strength: 600 lbs
ACL: 3 ambulatory casualties

Kendrick's Extrication Device
Primary use: Casualty with suspected spinal injury
Tensile strength: 400 lbs
ACL: 1

Basic Rigged Litter
Primary use: Ground evacuation (sit down mission)
Tensile strength: 400 lbs
ACL: 1

Sked Rescue System
Primary use: Ground/water evacuation (sit down or hoist mission)
Tensile strength: 400 lbs
ACL: 1

NOTE: *ACL of all litters (1) Tensile strength of all litters (400 lbs)*

MEDEVAC REQUEST

PATIENT CLASSIFICATION BY TYPE:

Litter Patients: Patients who are unable to walk, i.e. head, neck, or back injury

Ambulatory Patients: Patients who are injured but can still walk

PATIENT CLASSIFICATION BY PRECEDENCE:

A: URGENT- Immediate evacuation is necessary to save life, limb, or eyesight within 1 hour.

B: URGENT SURGICAL- Must receive far forward surgical intervenetion to save life and to stabilize them for further evacuation within 1 hour.

C: PRIORITY- Evacuation is required as soon as possible. Life, limb, or eyesight are not in immediate danger. Evacuation should be within 4 hours.

D: ROUTINE - Evacuation is required, but it may be delayed up to 24 hours.

E: CONVENIENCE - Evacuation is not urgent nor priority, but it is required so as not to endanger the accomplishment of the unit tactical mission.

NINE LINE REQUEST FOR AEROMEDEVAC

LINE 1: Location of pick up site. Use grid location.

LINE 2: Radio Frequency & Call sign and Suffix. (requesting unit)

LINE 3: Number of patients by precedence.
- A. Urgent
- B. Urgent surgical
- C. Priority
- D. Routine
- E. Convenience

LINE 4: Special Equipment needed.
- A. None
- B. Hoist
- C. extraction equipment
- D. ventilator

LINE 5: Number of patients by type of casualty (litter or ambulatory).
- L + # of patients (Litter)
- A + # of patients (Ambulatory)

LINE 6: Security of the Pickup Site *Wartime*.
- N= No enemy troops in area
- P= Possible enemy troops in area
- E= Enemy troops in area
- X= Armed escort required

Number and type of wounds, injuries, and illness *Peacetime*.

LINE 7: Method of marking pick up site.
- A. Panels
- B. Smoke
- C. None
- D. Pyrotechnic
- E. Other

LINE 8: Casualty Nationality and status.
- A. US Military
- B. US Civilian
- C. Non-US Military
- D. Non- US Civilian
- E. Enemy Prisoner of War (EPW)

LINE 9: CBRN Contamination *Wartime*.
- C. Chemical
- B. Biological
- R. Radiological
- N. Nuclear

Terrain Description *Peacetime*.

NOTE: *Line 1-5 to get aircraft into air. Lines 6-9 can be sent while A/C is en route.*

PATHFINDER OPERATIONS

REFERENCES: FM 3-21.38 (FM 57-38) Pathfinder Operations
FM 4-20.197, July 2006, Multi Service Helicopter Sling Load: Basic Operations and Equipment
FM 3-18.12, March 2011 Air Assault Operations

DEFINITION:
To provide navigational assistance and air traffic advisories to army aircraft that encompass selecting, improving, marking, and controlling PZ/LZ that supports any phase of an air assault or ground operation.

PHASES OF LZ/PZ OPERATIONS:
Selecting
Marking
Controlling

SELECTION PHASE

Landing Point: Cleared circular area that can support 1 Aircraft
Five sizes of Landing Points (LP) or Touch Down Points (TDP)

Size 1:	25 meters	OH-58D, MH-6J, UH-72A
Size 2:	35 meters	UH-1H, AH-1
Size 3:	50 meters	UH-60, AH-64
Size 4:	80 meters	CH-47
Size 5:	100 meters	All sling load and unknown A/C

Landing Site: One or more landing points (must have control facilities)

Landing Zone: One or more landing sites (may or may not have control facilities)

Landing Zone Considerations:

PZ/LZ must support both number and type of A/C
Flying and Landing Formations (9):

Trail	Staggered trail left/right
Echelon Left/Right	Vee
Heavy Left/Right	Diamond

Surface Conditions: Must support the weight of the A/C and be free of debris.

Ground Slope: Land on an up-slope whenever possible. Avoid down slope. If slope exceeds 7 degree's Aircraft with skids cannot land. No A/C can land if the slope exceeds 15 degrees, terminate at hover.

Approach and Departure Routes: (Preferred)

Into the wind
Over lowest obstacles
Along the long axis of the PZ / LZ

Prevailing Winds: Head Wind, Cross Wind, Tail Wind

0-5 knots: A/C can land in any direction
6-9 knots: Must land head or cross wind
Maximum varies by Aircraft

Density Altitude: As these factors increase, the A/C performance decreases

Humidity
Altitude above sea level
Temperature

Loads Considerations:

Weight of load	Internal or external
Personnel and/or equipment	Insertion or extraction

Obstacles: An obstacle is anything that is 18 inches (or greater) high, wide or deep

Obstacle ratio: 10:1

Dealing with obstacles: 4 "R"s	Remove
	Reduce
	Red (mark it)
	Radio (advise pilot)

MARKING PHASE

Marking the Landing Zone: Use minimum identifiable means

Basic Equipment:

Anemometer; wind-measuring device
Goggles
FM Communications
Map and compass
Daytime marking; VS-17 panel
Night time marking Lights (i.e. Chem-lites or strobe lights)

CONTROLLING PHASE: Visual
Electronic
Verbal

HLZ Setup (5) Steps (Record on LZ/PZ Sketch as completed)

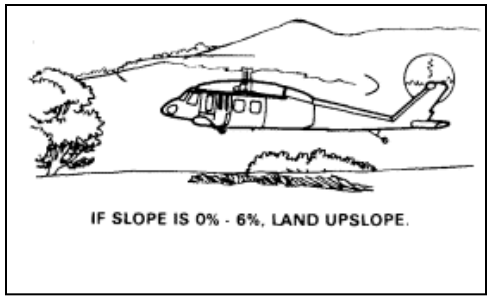
1. Establish control facilities:
   Must have “Ground To Air” communications (GTA)
   Must be able to observe the entire PZ/LZ
   Must be able to see incoming A/C

2. Determine length and width of LZ/PZ:
   Pace both and make a record of it

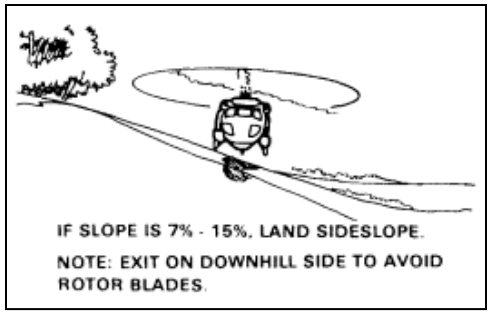
3. Obstacles: 4 “R”s: (**R**emove, **R**educe, mark in **R**ed, **R**adio the pilot)

4. Determine area of unusable:
   10:1 ratio, straight edge method
   #1 TDP at edge of unusable (can be on the line)

5. Mark and Clear TDP’s

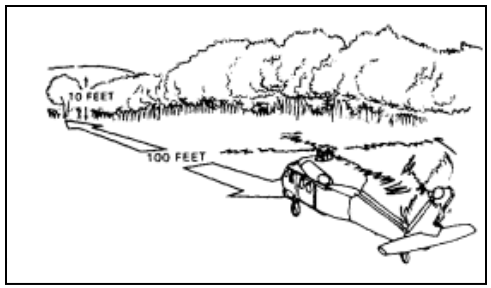


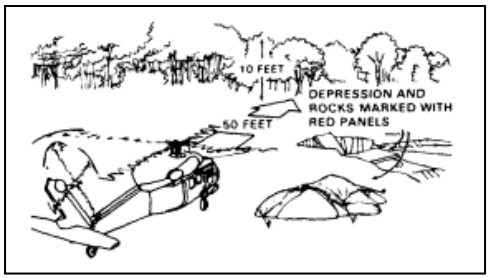
IF SLOPE IS 0% - 6%, LAND UPSLOPE.



IF SLOPE IS 7% - 15%, LAND SIDESLOPE.

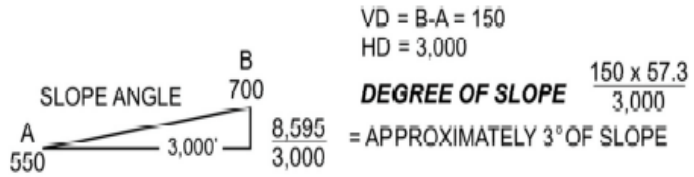
NOTE: EXIT ON DOWNHILL SIDE TO AVOID ROTOR BLADES.





GROUND SLOPE EXPRESSED IN DEGREES

The approximate slope angle may be calculated by multiplying the gradient by 57.3. This method is reasonably accurate for slope angles under 20 degrees.

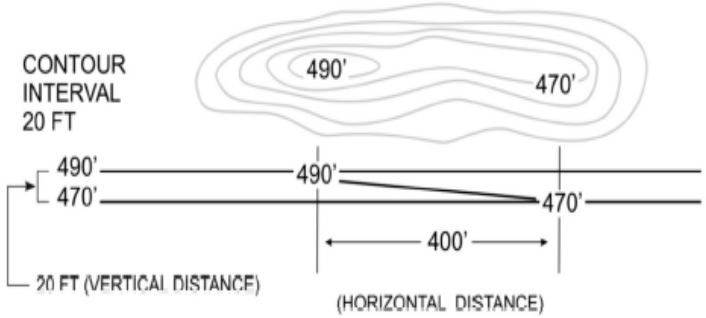


GROUND SLOPE EXPRESSED AS PERCENTAGE

To determine the percent of ground slope, divide the vertical distance (VD) by the horizontal distance (HD) and multiply by 100.

$$\text{PERCENT of SLOPE} = \frac{VD}{HD} \times 100$$

Verticle distance is the difference in field elevation between the two ends of the landing site. Always round number up to the next whole number.



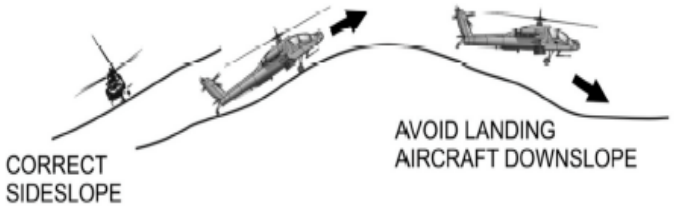
$$400 \overline{)\,20.00} \quad .05 \qquad .05 \times 100 = 05.00 = 5 \text{ PERCENT}$$

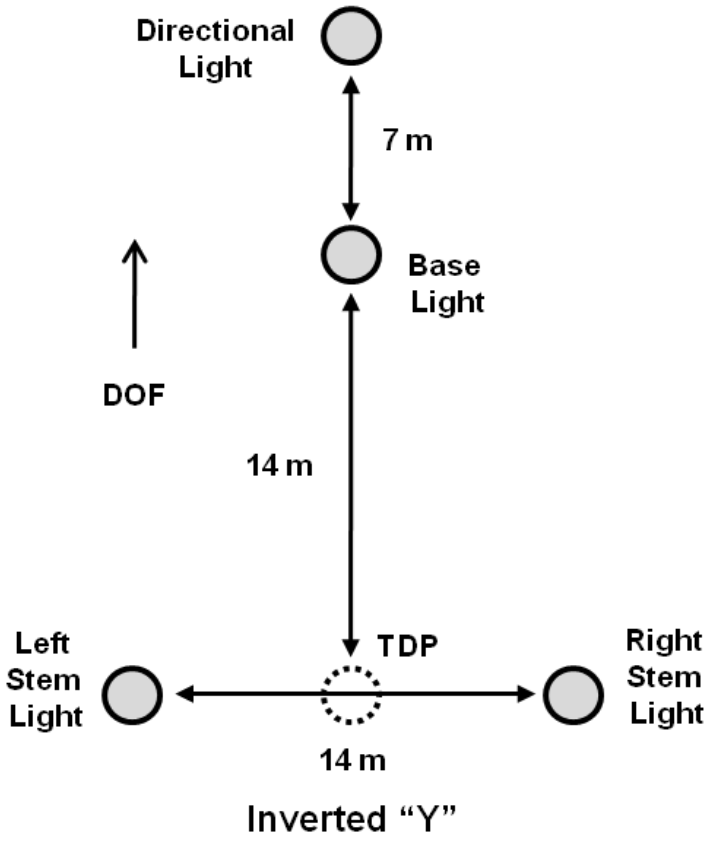
PATHFINDER SLOPE LANDING RULES

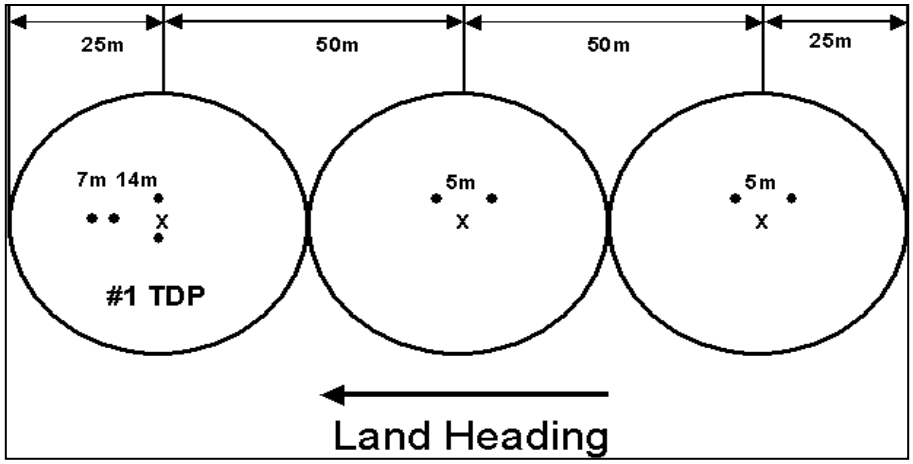
Do not land small utility and observation aircraft on slopes exceeding 7 degrees.

Give large utility and cargo aircraft an advisory if ground-slope is between 7 and 15 degrees.

Always advise pilot when landing wheeled aircraft on a sideslope.

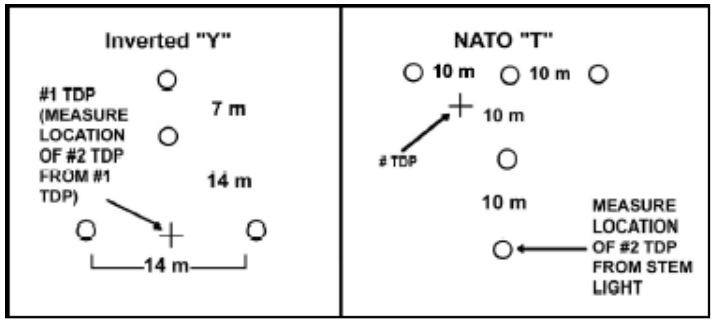




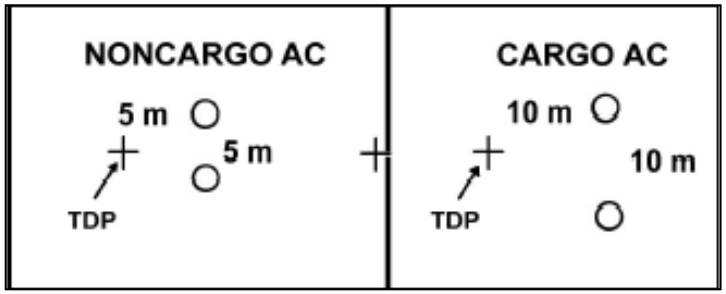


EXAMPLE LANDING ZONE FOR THREE SIZE 3 AIRCRAFT IN A TRAIL FORMATION

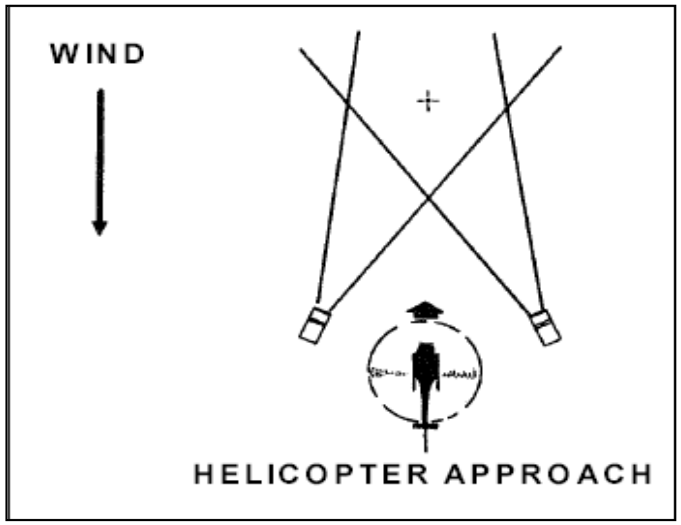
COMMON PATHFINDER LANDING SYMBOLS



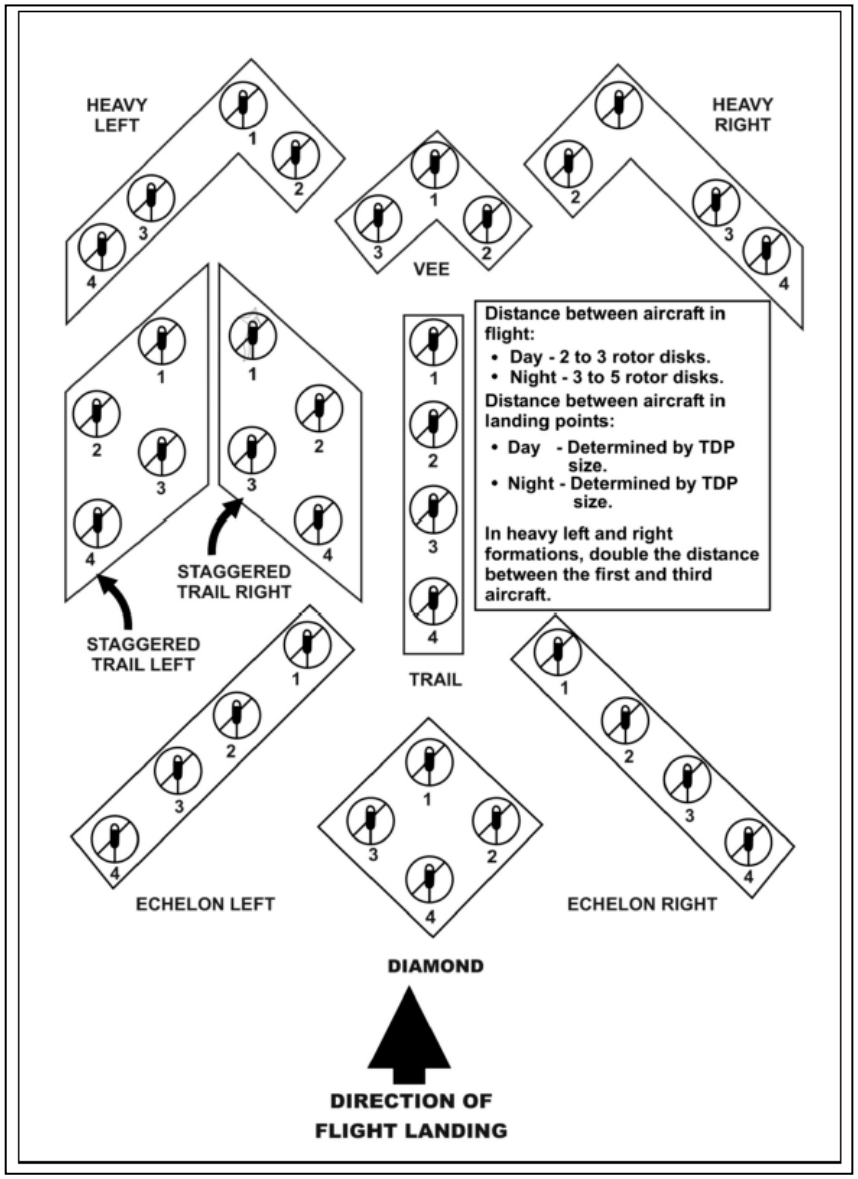
#1 TDP Marking Methods



ADDITIONAL TDP LIGHTS



EMERGENCY LIGHTING



AIRCRAFT FORMATIONS

AIRCRAFT ARE SPACED ACCORDING TO LANDING POINT SIZE

*DISTANCE BETWEEN A/C IN FLIGHT IS 2-3 ROTOR DISKS

Flying and Landing formations (Advantages and Disadvantages)

Trail Formation:

Advantages
- Suitable for long narrow LZs
- Each aircraft has the freedom of lateral movement
- Allows unrestricted fire for door gunners.
- Simple for troop line-up on PZ
- Allows the infantry assault element to depart in a file

Disadvantages
- The highest vulnerability to enemy fire of any formation
- Length of formation causes more time to cross HLZ
- The use of identical ground track for all aircraft
- Requires step-up due to rotor wash
- Requires a long LZ
- Hazardous during take off and landing due to rotor wash and stacking on the final approach

Echelon Left/Right:

Advantages
- Each aircraft has freedom of lateral movement
- No rotor wash encountered by trailing aircraft
- No step-up required
- Formation take-off possible
- Separate ground tracks for all aircraft
- Suitable for low-level flight

Disadvantages
- Requires relatively large loading zones
- Difficult to hold positions in turns
- Requires special training of troops to line-up on the PZ
- Difficult for attack helicopter escort to cover

Heavy Left/Right:

Advantages
- Each aircraft has freedom of lateral movement
- No rotor wash encountered by trailing aircraft
- No step-up required
- Separate ground tracks for all aircraft
- Suitable for low-level flying
- Formation take-off possible
- Short turning radius

Disadvantages
- Requires relatively large LZs
- Some restrictions to inboard gunners
- Requires special training of troops to line-up on the PZ

Staggered Trail Left/Right:

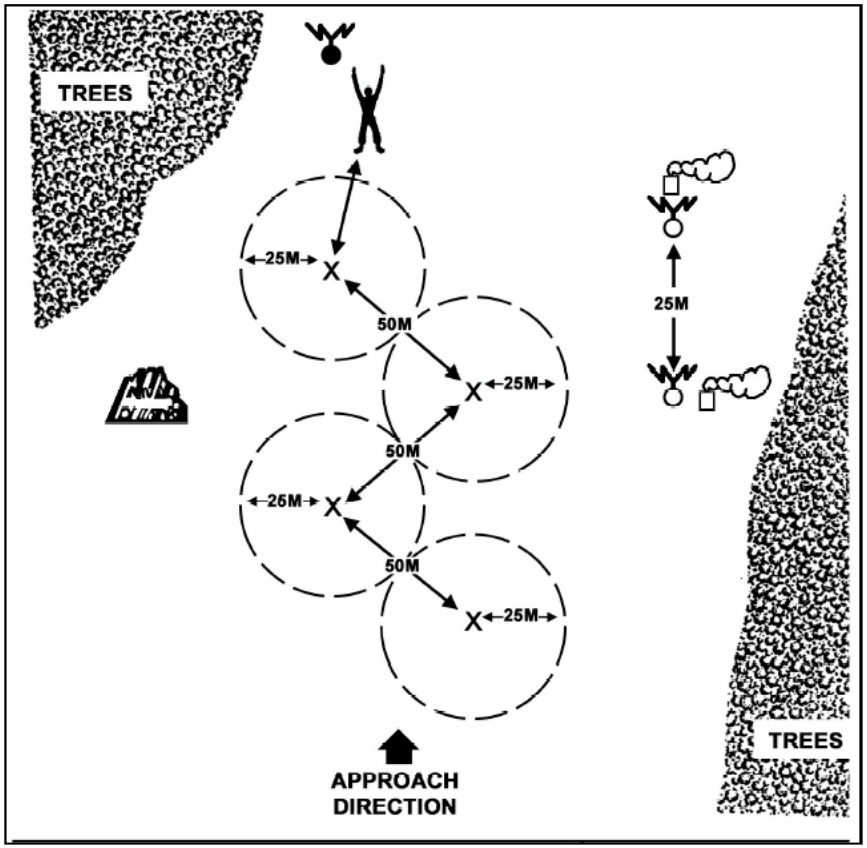
Advantages
- Provides shorter linear disposition of aircraft and vulnerability to enemy fire as compared to trail.
- Offers flexibility
- Simple for infantry to load

Disadvantages
- Long time to cross an area due to the length of the formation
- Requires step-up due to rotor wash
- The use of the same ground track by trailing aircraft
- Hazardous during take-off and landing due to rotor wash and stacking on the final approach
- Restrictions to inboard gunners
- Vulnerable to enemy fire
- Requires a wider area for a LZ

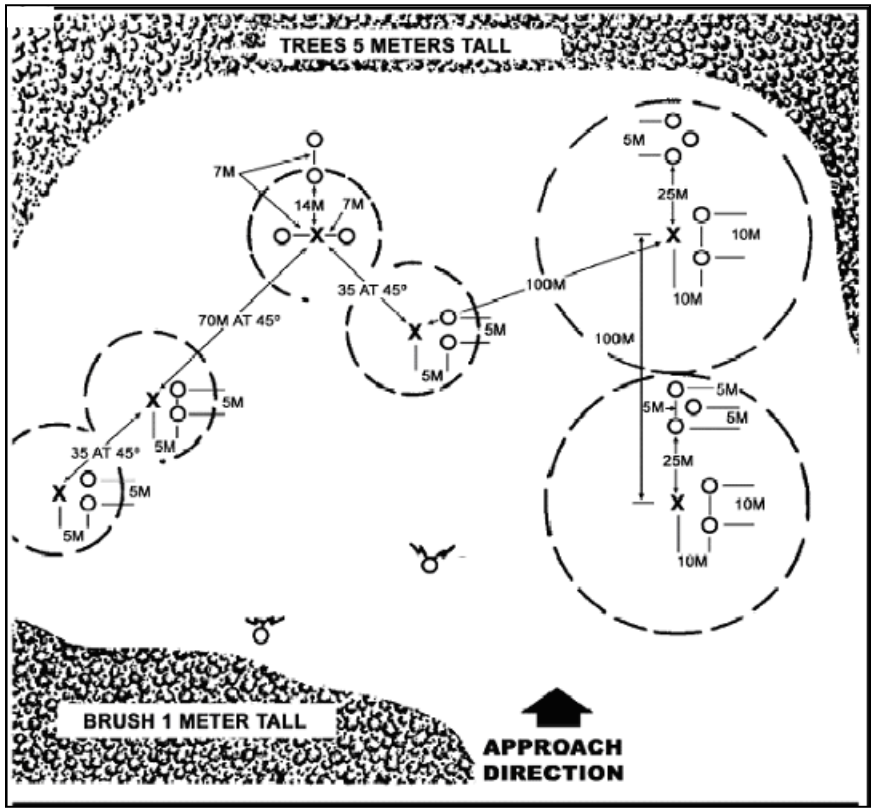
Vee Formation:

Advantages
- No rotor wash encountered by trailing aircraft
- No-step required
- Formation take-off possible
- Separate ground tracks for all aircraft
- Formation allows for faster HLZ crossing
- Ease of escort by attack helicopters

Disadvantages
- Air maneuverability limited
- Need wider LZ
- Control is more difficult.



FOUR SIZE 3 AIRCRAFT
IN A STAGGERED TRAIL RIGHT



FOUR SIZE 2 AIRCRAFT
IN A HEAVY LEFT FORMATION
ALSO TWO SIZE 4 AIRCRAFT IN TRAIL WITH SLING LOAD
(SLING LOAD AIRCRAFT NOT LANDING)
SHOWING 100-METER SEPARATION
BETWEEN AIRCRAFT OF DIFFERENT SIZE LANDING POINTS

PART VI

HAND AND ARM SIGNALS

Reference FM 3-21.38

Standard hand-and-arm signals may be used to assist in landing and moving aircraft.

Position of the signal person:

The signal person is located at a predetermined location outside the rotor disk diameter of the aircraft. Generally forty meters in front of the aircraft and twenty meters to the pilot's right.

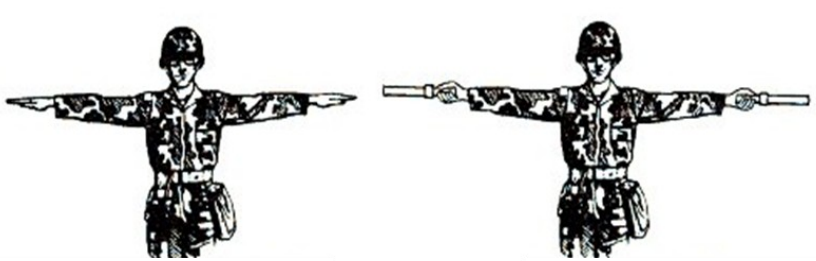
The signal person must maintain eye-to-eye contact with the pilot at all times.

Signals at night are given by using lighted batons/chem-lights or flashlights in each hand. Signals at night are the same as daytime.



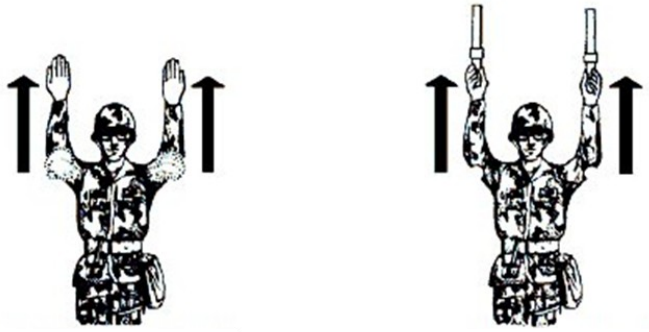
ASSUME GUIDANCE

The arms are extended above the head in vertical position with the palms facing forward.



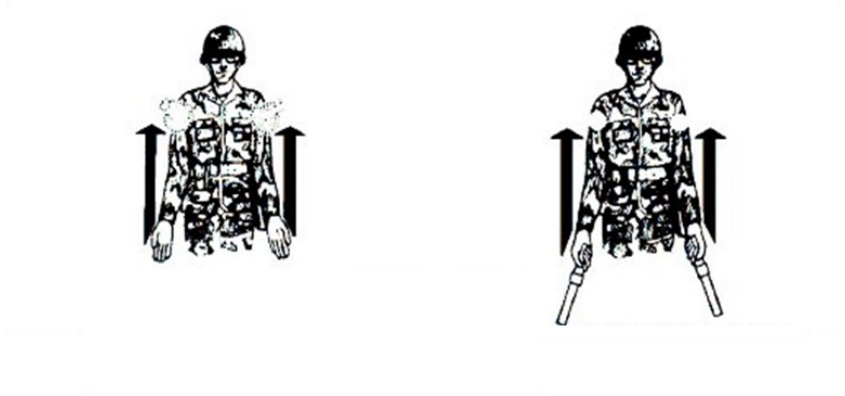
HOVER

The arms are extended horizontally towards the sides at shoulder level with the palms facing downward.



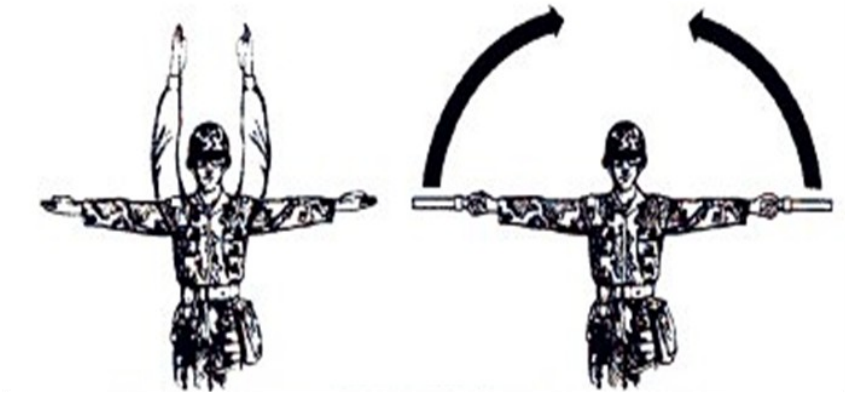
MOVE AIRCRAFT FORWARD

The arms are pointed directly forward at shoulder height with the palms facing upward. The forearms are repeatedly moved upwards and to the rear by breaking at the elbows.



MOVE AIRCRAFT BACKWARD

The arms by the side of the body with the palms facing forward. The arms are swept forward and upward repeatedly to shoulder height.



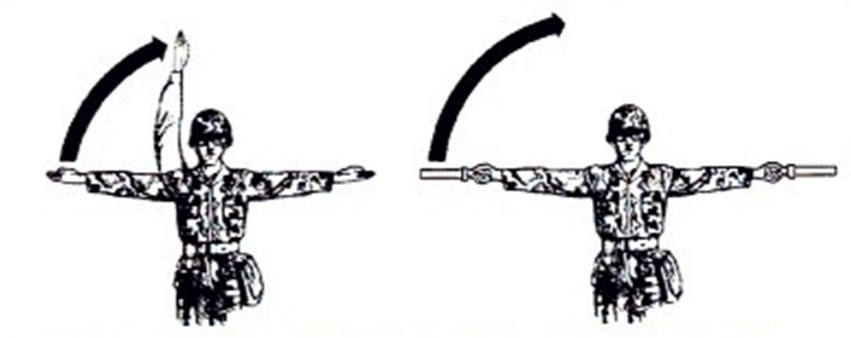
MOVE AIRCRAFT UPWARDS

The arms are extended horizontally sideways at the shoulders. The arms are repeatedly moved with the palms turned up. The hands should not touch above the head.



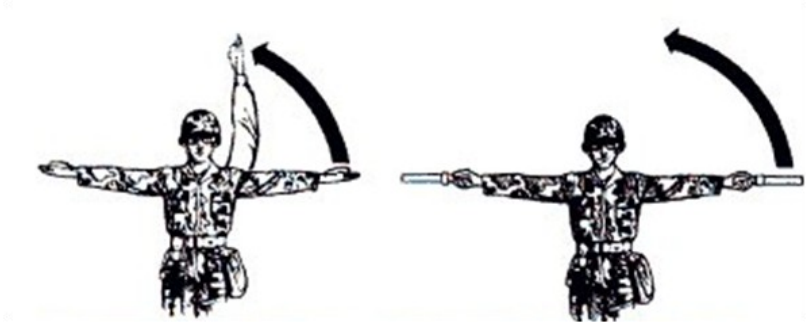
MOVE AIRCRAFT DOWNWARD

The arms are extended horizontally sideways at the shoulders. The arms are repeatedly moved with the palms turned down.



MOVE AIRCRAFT RIGHT

The arms are extended horizontally sideways with the palms facing upwards. The right arm is repeatedly raised from the horizontal position by breaking at the shoulder.



MOVE AIRCRAFT LEFT

The arms are extended horizontally sideways with the palms facing upwards. The left arm is repeatedly raised to the horizontal position by breaking at the shoulder.



HOOKUP COMPLETE

The right fist is placed on the top of the head and the left fist is placed over the right fist in a rope climbing motion.



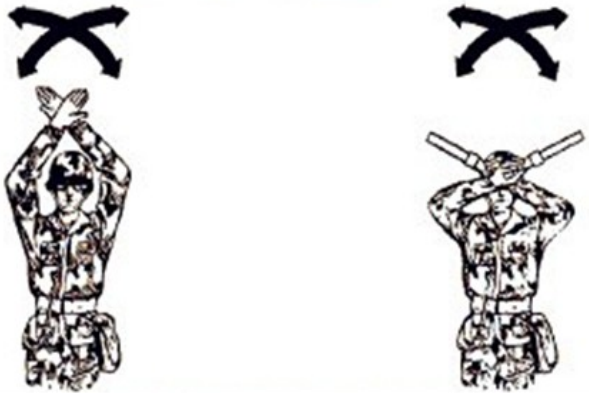
TAKE OFF

Place his left hand at his side. At the same time, a circular motion is made with the right arm over the head and then the right arm is thrust in the direction of take off. If it is take off to the 12 o'clock he steps off with the right foot in the direction of take off.



LAND

The arms are extended in front of the body and the wrists are crossed. Fingers are extended and joined.



WAVE OFF—DO NOT LAND

The arms are repeatedly crossed in a waving motion above the head.



CUT SLING LOAD

The left arm is extended horizontally with a clenched fist toward the sling load while the right arm with palm facing down makes a horizontally slicing motion under the left arm. The left foot is planted 10 - 12 inches to the front.



SPOT TURN

Both arms are extended to the front. The palm of the hand nearest the desired direction of tail movement is turned upwards and the forearm is repeatedly moved upwards and backwards from the horizontal position by breaking the elbow. The other arm should remain extended to the front with the palm facing down. The signalman rotates with the aircraft by stepping off in the direction of tail movement.

An example series of hand signals for a pickup zone during a one aircraft operation.

ASSUME GUIDANCE



MOVE YOUR AIRCRAFT



LEFT



RIGHT



BACK



FORWARD



HOVER



HOOKUP COMPLETE



MOVE UPWARD



TAKE OFF

If a problem occurs on a load when the aircraft raises up and the slings tighten, follow these directions:



STEP 1 (HOVER)



STEP 2 (MOVE AIRCRAFT DOWNWARD)



STEP 3 (CUT SLING LOAD)

Once the load is corrected go back to normal hook up procedures.

If the problem cannot be corrected by this method, give the pilot the "release the load" signal.

PART VII

COMBAT ASSAULT

REFERENCES ATTP 3-18.12 Air Assault Operations

Air Assault: Operations in which assault forces (combat, combat support, and combat service support), using the firepower, mobility, and total integration of helicopter assets maneuver on the battlefield under the control of the ground or air maneuver commander to engage and destroy enemy forces or to seize and hold key terrain.

Capabilities:

- Attack enemy positions from any direction
- Conduct exploitation and pursuit operations
- Over fly or bypass enemy positions, barriers, and strike objectives in otherwise inaccessible positions.
- Conduct attacks and raids well beyond the operational area
- Provide responsive reserves, allowing commanders to commit a larger portion of his force to action.
- React rapidly to tactical opportunities, necessities, and threats in unassigned areas.
- Rapidly place forces at tactically decisive points in the AO.
- Conduct and support deception with false insertions
- Rapidly reinforce committed units
- Rapidly secure and depend key terrain
- Delay a much larger force without becoming decisively engaged

Limitations:

- Adverse weather
- Reliance on air lines of communications
- Threat aircraft, air defense, and electronic warfare action
- LZ/PZ availability
- Availability of air routes
- High fuel and ammunition consumption
- Reduced ground mobility after insertion
- Availability of chemical, biological, radiological, and nuclear (CBRN) protection and decontamination equipment
- Battlefield obscuration that limits helicopter flights
- Availability of organic fires, sustainment assets, and protection

Vulnerabilities:

- Attack by ground, air, artillery on PZ/LZ
- Attack by A/C or ADA during movement
- Attack by CBRN
- Electronic warfare including jamming of communications and navigation systems, and aircraft survivability equipment
- Small arms fire during movement and landing
- Air strikes due to limited ADA

Tactical Employment:

An AATF is best employed in situations that provide a calculated advantage due to surprise, terrain, threat, or mobility. Missions that require the following:

- Mass or shift combat power rapidly
- Use of surprise
- Flexibility, mobility, speed
- Gain and maintain initiative

There are four basic considerations for planning and execution of air assaults:

1. Best conducted at night or during obscuration of enemy's obser vation.
2. Fire support planning must provide for suppressive fires along air routes and LZ's.
3. Infantry unit operations are not fundamentally changed by inte grating with aviation units, but tempo and distance are dramati cally changed.
4. Ground and aerial reconnaissance units should be deployed as earliest as possible.

AIR ASSAULT TASK FORCE

Assets that make up an AATF (8):

1. INFANTRY: Nucleus of an AIR ASSAULT TASK FORCE
2. AVIATION: Attack/reconnaissance, assault, and assault support aircraft under the control of the AATFC
3. ARTILLERY: Provide fire support if contact is made
4. ENGINEER: Emplace/ breach obstacles/ minefields
5. AIR DEFENSE ARTILLERY: Ground to air fire support
6. MILITARY INTELLIGENCE: Conduct electronic warfare, collect and disseminate information
7. RESERVE: AATF requires fewer reserve forces due to superior mobility, flexibility, and speed
8. COMBAT SUPPORT: Mission specific support

Levels of Air Assault operations

A **Division** is the lowest level of military hierarchy that has the assets to conduct an air assault.

A **Battalion** is the lowest level with the ability to plan or coordinate an air assault. An air assault mission is always planned one level higher than the level that will execute the operation. For example, if the mission is a brigade-sized air assault, thn the mission will be planned and coordinated at division level.

A **Company** is the lowest level that can execute an air assault.

Air Assault Planning

A successful air assault execution is based on a careful analysis of METT-TC and detailed, precise, reverse planning. There are five basic plans that make up the reverse planning sequence. They are developed for each air assault operation separately.

METT-TC: Factors that are used to analyze your mission.

The acronym stands for:

Mission - Commander's intent...
Enemy - Size, strength, organization, etc…
Terrain and weather - How do they effect the mission...
Troops - Weapons, strength, and size of friendly forces...
Time - How much time is there to complete the mission...
Civilian - How the mission will effect the civilian population...

Five stages of reverse planning

Ground Tactical Plan: All actions on the objective
All planning times based from H-Hour. H-Hour is defined as the time that first A/C of the first lift touches down on the LZ

Landing Plan: All actions on the Landing Zone. The landing plan must support ground tactical plan. It ensures units arrive at designated loca tions and times prepared to execute the ground tactical plan.
General considerations for the Landing Plan include:
The availability, location, and size of LZs
All elements land with Tactical Integrity
Troops are kept informed of changes and land prepared to fight in any direction.
Fire Support must be planned in and around each LZ.
The landing plan includes plans resupply and aeromedical evacuation
Alternate LZs should be planned for each primary LZ to ensure flexibility

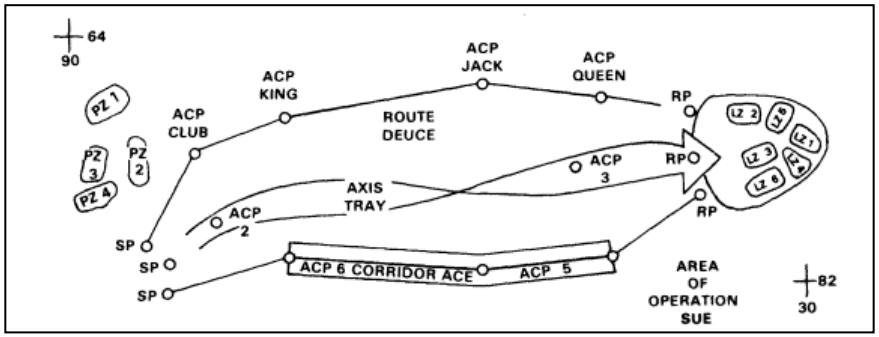
Air Movement Plan: All actions during flight. It specifies the schedule and instruction of the air movement of troops, equipment, and supplies from SP to RP. It provides instructions regarding flight routes, con- trol points, and aircraft speed, altitudes, and formations including the use of attack/reconnaissance aircraft. The air movement plan is based off of the landing plan and ground tactical plan. The air movement plan is planned at aviation level while keeping in con- stant contact with the AATFC with the help of an aviation liaison officer.

Flight Routes:
Restricted - Formation is assigned a constant speed, heading, and altitude.

Corridor - The flight route is assigned a limited flight area or corri dor to fly through. The area is five hundred feet AGL above and below and the route. It also has left and right limits of two to three hundred meters. The Corridor flight route is assigned when there is a competition for air space.

Axis - This route has the same left and right limits as a corridor route but has no altitude restrictions. This allows the pilot in charge to make adjustments in altitude in case of enemy or terrain issues. This route cannot have competition for air space.

Expedient - This route is used when there is insufficient time to plan a formal flight route. It uses terrain features that can be seen from the air to navigate to and from the objective.



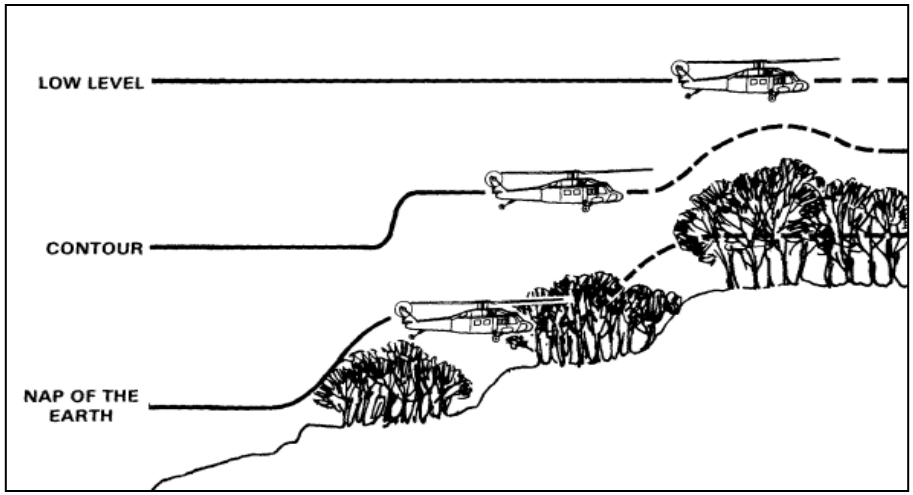
Example of Flight Routes

Terrain flight modes: Pilots may use different flight modes as dictated by the mission and enemy threat.

NAP of the earth (Near As Possible): Various speeds, attitudes flying near as possible to the surface of the earth. This is the slow est flight mode but is the most tactical. It uses the terrain to mask the aircraft sound while staying out of the view of the enemy.

Contour: Various speeds, altitudes, generally conforming to the curvature of the earth.

Low level flight: Constant speed, heading, and altitude. This is the highest and fastest flight mode but it is also the most vulnerable to enemy fire.



Example of Terrain flight modes

Air Movement Table: Regulated the sequence of events during flight operations. Detailed list of units, aircraft, routes, PZ/LZs, and times. All times are subtracted from H-hour.

Air movement table

Line #	Avn Unit	Lifted Unit	Lift #	Serial	Chalk	PZ	PZ Arr/ Load Time	T/O Time	SP Time	RP Time	LZ	LZ Time	LZ Hdg	LZ Form	Routes		Load		Remarks
															Ingress	Egress	PAX	Sling	
1	4-379	SCT/1-603 IN				As per coord	As per coord				Raven	H-36+00:00	As per PIC	As per PIC	As per PIC	As per PIC	16		False into Lark. To recon Robin
2	4-354	SCT/2-603 IN				As per coord	As per coord				Oriole	H-35+59:00	As per PIC	As per PIC	As per PIC	As per PIC	16		False into Bluejay To recon Sparrow
3	3-354	2/C/5-4 CAV (-)				As per coord	As per coord				Pelican	H-35+58:00	As per PIC	As per PIC	As per PIC	As per PIC	20		False into Emu To recon Crow
4	3-354	2/C/5-4 CAV (-)				As per coord	As per coord				Dove	H-35+57:00	As per PIC	As per PIC	As per PIC	As per PIC	8		False into Cardinal To recon Eagle
5	2-344	A/5-4 CAV	1	1	1-5	Oak	H-3+00:00	H-48:40	H-44:21	H+02:22	Crow	H+Hour	134	TRL	Gold (Crow)	Silver (Crow)	6 per a/c (30)	10x M1151	Refuel FARP EXXON
6	2-344	A/5-4 CAV	1	2	6-9	Oak	H-3+00:00	H-47:40	H-43:21	H+01:22	Crow	H+ 01:00	134	TRL	Gold (Crow)	Silver (Crow)	6 per a/c (24)	8x M1151	Refuel FARP EXXON
7	2-344	C/5-4 CAV (-)	1	3	10-12	Oak	H-3+00:00	H-46:40	H-42:21	H+00:22	Crow	H+ 02:00	134	TRL	Gold (Crow)	Silver (Crow)	6 per a/c + 40 (52)	4x M998	Refuel FARP EXXON
8	**4-379**	**A/1-603 IN**	**2**	**1**	**1-5**	**Maple**	**H-2+00:00**	**H-44:40**	**H-40:21**	**H+ 01:38**	**Robin**	**H+ 02:58**	**112**	**TRL**	**Gold (Robin)**	**Silver (Robin)**	**5x16 (80)**		
9	**4-379**	**A/1-603 IN, HHC/1-603 IN**	**2**	**2**	**6-9**	**Maple**	**H-2+00:00**	**H-43:40**	**H-39:21**	**H+ 02:38**	**Robin**	**H+ 03:58**	**112**	**TRL**	**Gold (Robin)**	**Silver (Robin)**	**4x16 (64)**		**Chalk 9 is the BN CP**
10	4-379	B/1-603 IN	2	3	10-14	Maple	H-2+00:00	H-42:40	H-38:21	H+ 03:38	Robin	H+ 04:58	112	TRL	Gold (Robin)	Silver (Robin)	5x16 (80)		
11	4-379	B/1-603 IN, 1/E/603 EN	2	4	13-16	Maple	H-2+00:00	H-41:40	H-37:21	H+ 04:38	Robin	H+ 05:58	112	TRL	Gold (Robin)	Silver (Robin)	4x16 (64)		Chalk 16 is 1/E/603 EN
12	3-354	D/1-603 IN	3	1	13-16	Oak	H-3+00:00	H-40:40	H-36:21	H+ 05:38	Robin	H+ 06:58	112	TRL	Gold (Robin)	Silver (Robin)	8 per a/c (32)	8x M1151	Refuel FARP EXXON

Example of Air Movement Table

Loading Plan: All actions on the PZ

Ensures that troops, equipment, and supplies are loaded on the correct aircraft. It is based on the Air Movement Plan.

Considerations when developing the Loading Plan:

Tactical Integrity: Load a complete tactical unit, such as a fire team or squad on the same aircraft or a platoon in the same serial to ensure integrity as a fighting unit upon landing.

Self Sufficiency of loads: ensure that each unit load has everything required (weapons, crew and ammunition) to be operational upon reaching its destination.

The prime mover accompanies every towed item.
Crews are loaded with their vehicle or weapon.
Sufficient personnel are onboard to unload cargo carried.

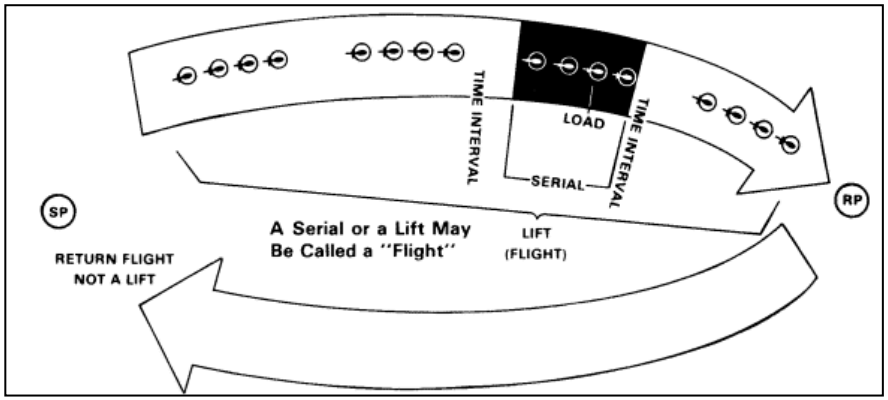
Cross Loading: Plane loads so that key personnel and critical equipment, i.e. crew-served weapons, are not loaded on to the same aircraft. If that aircraft is not able to complete the mission, the main effort is not hampered.

Bump Plan: Ensures that the most essential personnel and equip ment arrive at the objective area. It specifies personnel and equip ment that may be bumped from an aircraft or serial and delivered later. Bumped personnel and equipment are rescheduled by the PZ control officer.

PZ Control Party is made up of the following:

OIC (XO of the unit performing the Air Assault)
NCOIC
RTO
Chalk guide (takes parties to their designated area for pick-up)
Signal person and hook-up team (Sling load Ops)
Frustrated Cargo (Load that is improper weight or fails inspection)

To maximize efficiency on the PZ, Personnel and equipment are organized according to Lifts, Serials, and Loads.



LIFTS, SERIALS, AND LOADS

Lift: A lift is one sortie of all utility and cargo aircraft assigned to a mission. Each time all assigned aircraft pick up troops and/or equipment and set them down on the LZ, one lift is completed. The second lift begins when an aircraft returns to the PZ for a second load.
Serial: There may be times when a lift has too many aircraft to fly in one formation. In such cases, the lift is organized into a number of serials. A serial is a tactical grouping of two or more aircraft under the control of a serial commander (aviator), and separated from other tactical groupings within the lift by time or space. The use of serials may be necessary to maintain effective control of aviation assets. For example, if a NOE flight were used, it would be difficult to control sixteen aircraft as a single increment. However, a sixteen aircraft lift with four serials of four aircraft with a 2-minute time separation is more easily controlled.

Serials may also be required when the capacity of available PZs or LZs is limited. If there is a lift of sixteen aircraft and available PZs and/or LZs will accommodate only four aircraft, it is best to organize into four serials of four aircraft each.

Serials are also employed to allow flexibility with flight routes. If there are several acceptable flight routes, the AATFC may choose to employ serials to avoid concentrating his force along one flight route. If the commander wants all his forces to land simultaneously in a single LZ, he does so by having the serials converge at a aerial rally point before landing. With a lift of sixteen aircraft and four available flight routes, the AATFC could use four serials of four aircraft each. Each serial should use a different flight mode. Each time there is a new lift a new serial begins. For example, in lift one there are serials one through four. In lift two, serials again start with one.

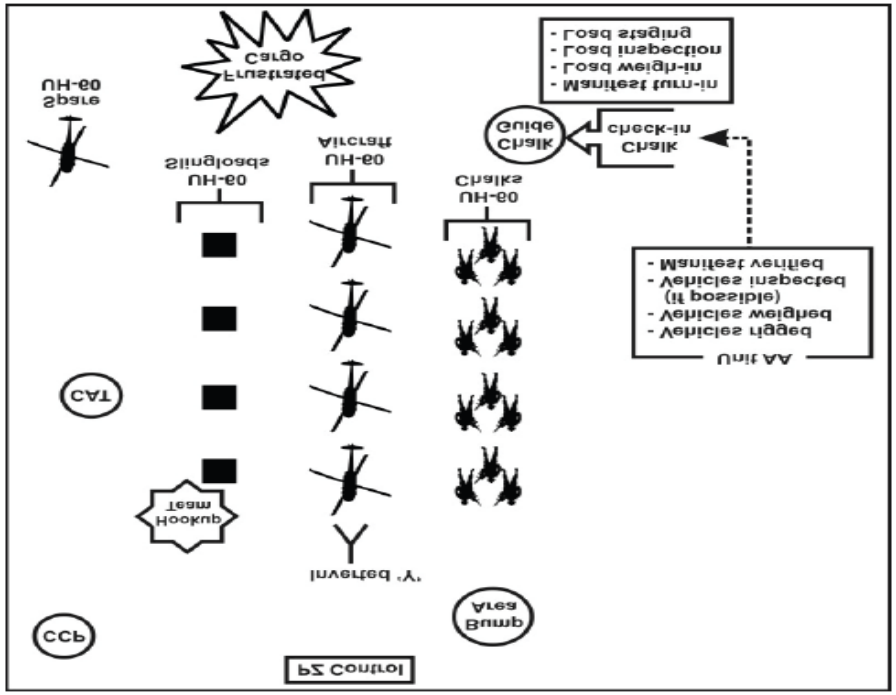
Load: Within each lift there is also a specific number of loads. A load is personnel and/or equipment designated to be moved by a specific aircraft. When planning the air movement, each aircraft is termed a load. For example, within a lift of ten aircraft, the loads are numbered one through ten. For each lift thereafter, the loads remain one through ten. For example, lift one loads are numbered one through ten; next lift is lift two, loads are numbered one through ten.

An aircraft load may also be referred to as a "chalk load," "chalk number," or a "chalk." Loads also must be designated within serials just as they are within lifts. Counting within the serials is continuous up to the total number of aircraft in the lift.

For example, in a lift of sixteen aircraft with four serials of four aircraft. Serial two's loads are numbered five through eight. In lift one, serial three, loads are numbered nine through twelve. Finally, in lift one, serial four, loads are numbered thirteen through sixteen (Figure 1-5).

Staging Plan: All actions prior to mission.

Troops, equipment, and supplies at the PZ in the proper order for movement. Units should be in PZ posture fifteen minutes before aircraft arrive.



Example of Pick-up Zone Diagram

Air Loading Table: An air loading table assigns personnel and major items of equipment or supplies to a specific aircraft at the company and below level. It is an accountability tool, a loading manifest, for each aircraft. The personnel and equipment designated to the bump plan are added to the remarks section.

Line #	Avn Unit	Lifted Unit	Lift	Serial	Chalk	PZ	PZ Arr/ Load Time	T/O Time	SP	RP	LZ	LZ Time	Load		Remarks
													PAX	Sling	
1	2-344	A/1-603 IN	2	1	1-4	Maple	H-2+00:00	H-44:40	H-40:21	H-01:38	Robin	H+02:58	4x11 (44)		
2	2-344	A/1-603 IN	2	2	5-8	Maple	H-2+00:00	H-43:40	H-39:21	H+02:38	Robin	H+03:58	4x11 (44)		
3	2-344	A/1-603 IN	2	3	9-12	Maple	H-2+00:00	H-42:40	H-38:21	H+03:38	Robin	H+04:58	4x11 (44)		
4	2-344	A/1-603 IN, HHC 1-603 IN	2	4	13-16	Maple	H-2+00:00	H-41:40	H-37:21	H+04:38	Robin	H+05:58	4x11 (44)		Chalk 13 is the TAC CP

Example of Air Loading Table

Air Mission Brief (AMB): The AMB is a coordinated staff effort during which the AATFC approves the air assault plan. The AMB is the last face to face meeting of key personnel involved in planning an AASLT mission. It follows the 1/3rds-2/3rds rule. Finalizes details of the mission.

The AMB highlights air assault requirements to the AATF, aviation, and ground units. It should not be a working meeting. It is essentially a back brief to the AATFC and, equally important, to the key subordinate aviation and ground unit leaders who will execute the mission. The CAB or supporting unit staff plays a vital role in the AMB process.

The AMB should focus on assault concepts, sequence of events, and the reasoning for the mission's sequence. All changes bust be approved by the AATFC. It is very difficult to resynchronize war fighting functions with little time.

DUTIES AND RESPOSIBILITIES

Platoon Leader:

- Overall responsibility for his unit's mission
- Plans operation at that level
- Issues the operations order and conducts rehearsals
- Briefs leaders
- Maintains communications with HQ

Platoon Sergeant:

- Overall responsibility for the platoon on the PZ
- Sets up the PZ
- Briefs chalk leaders
- Devises and disseminates bump plan
- Ensures everything has cleared the PZ
- Rides in last A/C for control purposes

Chalk Leader:

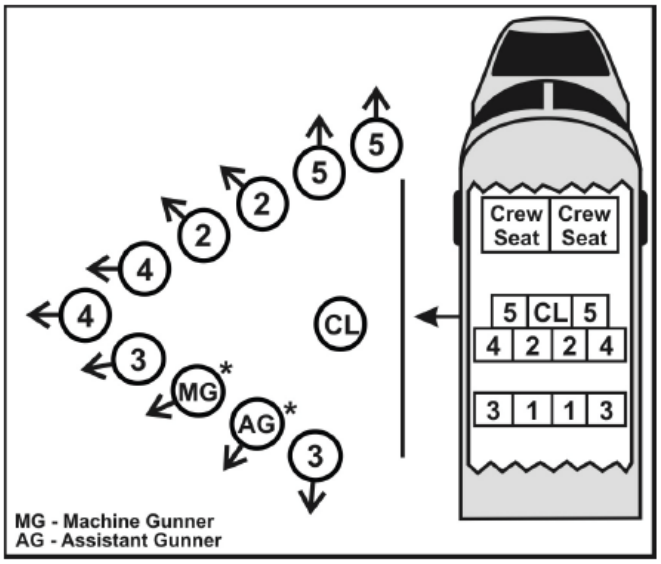
- Ensures his personnel know their tasks and position on the A/C
- Ensures lights or panels for A/C are emplaced
- Assigns area of security to his personnel and supervises the areas
- Supervises everyone on A/C while in flight
- Ensures rapid off loading and security for the A/C

Exiting UH-60 Blackhawk:

There are two techniques to exiting UH-60's. They are one-side and two-side off-loading. Soldiers exiting a CH-47 should do so from the rear ramp.

One-Side Off-Load:

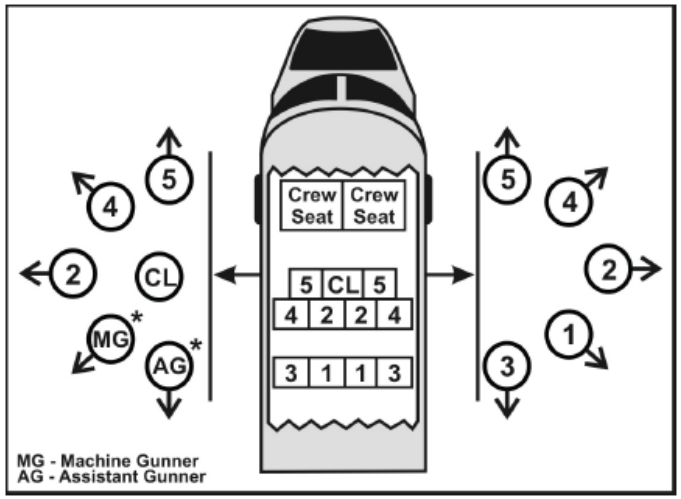
A unit plans to execute a one-side off-load on the side away from known or potential enemy positions but may be forced to exit the aircraft on the opposite side due to the enemy or other METT-TC considerations once the aircraft has landed.



Example of One-Side Off-Load of a UH-60

Two-Side Off-Load:

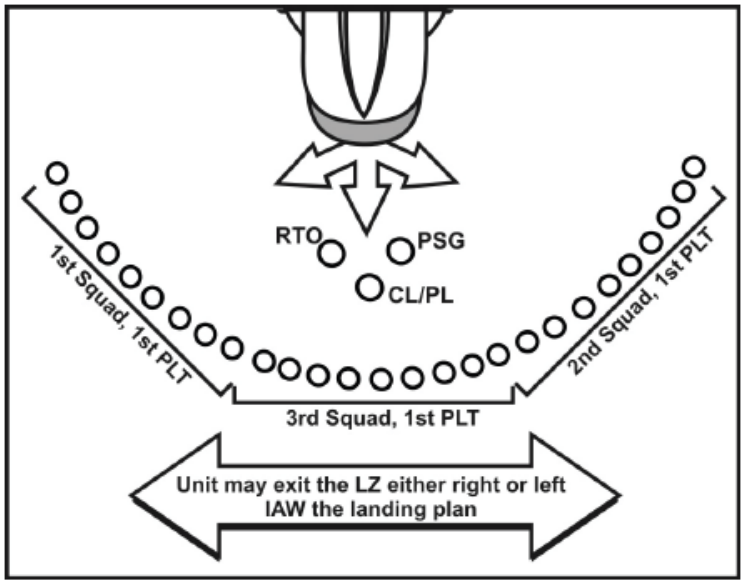
In this technique, Soldiers exit from both sides of the aircraft. Soldiers exiting should step outward and take up a prone position, forming a 180 degree security on the that side of the aircraft, yet remaining under the main rotor system and outside of the landing gear. Soldiers should remain in the prone until the aircraft has lifted off before leaving the LZ. Soldiers should ensure not to flag other soldiers with their weapon system.



Example of Two-Side Off-Load of a UH-60

Off-Load of a CH-47:

Soldiers exit from the rear ramp of a CH-47. Soldiers move outward away from the aircraft establishing a 360 degree security until the aircraft lifts off of the LZ. Once the aircraft departs, the unit can spit up for a two-sided rush or one-sided rush according to the landing plan.



Example of a Rear Ramp Off-Load of a CH-47

Example Diagram of the Five Stages of Reverse Planning Sequence

CLOSE COMBAT ATTACK

Reference: ATTP 3-18.12

CCA is a technique to control attack helicopters (AH-64 or OH-58D) in a close air support role, usually very near to friendly troops In contact. It is a method to get the pilot to see the target that you are seeing.

Steps to control CCA:

1. Gain communication with pilot
2. Describe your location on the ground and mark it
3. Describe the enemy location and mark it
4. After the target is engaged, give the pilot feedback and adjustments (Battle Damage Assessment)
5. Remarks (i.e. threats, danger close, restriction, at my command)
6. Battle Damage Assessment

Gain communication with pilot:

Frequency & Call signs, use prearranged frequency. It is preferred that the AVN unit changes to the frequency of the ground unit.

Describe and mark your location on the ground:

The critical aspect is for the pilot to identify your location. Once that happens, you can use your position as a reference (i.e. the enemy is 180 degrees, 400 meters, from my position). If the ground unit can see the aircraft, they can give reference from the aircrafts position (i.e. I am at your 9 o'clock at 1400 meters) Do not mark your location until the pilot requests. Once your position is verified, stop marking your location.

Give enemy location: Either distance and direction or grid location, etc…

Give target description and mark it's location.

Remarks: On this step, the ground unit will give any other necessary infor mation. If a danger close mission, "danger close" will be stated on this step. During a danger close mission, the observer/commander must accept responsibility for the increased risk. If an, "at my com mand" cal is needed, it will be stated on this step also. The pilot will call, Ready for Fire, " when ready.

*The Call for fire is clearance for the fire mission unless danger close.

Battle Damage Assessment: After the attack aircraft complete the re quested CCA mission, the aircrew provides a BDA to the ground commander. Based on the ground maneuver commander deter mines if another attack is required to achieve his desired end state.

Format 12. Close Combat Attack Briefing – Ground to Air (5-Line)

1. Observer / Warning Order

"_____, this is _____, Fire Mission, Over"

(Aircraft Call Sign) (Observer Call Sign)

2. Friendly Location / Mark

"My position _____, marked by _____"

(TRP, Grid, etc.) (Strobe, Beacon, IR Strobe, etc.)

3. Target Location

"Target Location _____"

(Bearing [magnetic] and Range [meters], TRP, Grid, etc.)

4. Target Description / Mark

"_____, marked by _____"

(Target Description) (IR Pointer, Tracer, etc.)

5. Remarks (Threats, Danger Close Clearance, Restriction, At My Command, etc.) **"Over"**

AS REQUIRED:

1. Clearance: Transmission of the 5-Line CCA Brief is clearance to fire (unless danger close.) For closer fire, the observer/commander must accept responsibility for increased risk. State "Cleared Danger Close" in line 5. This clearance may be preplanned.

2. At My Command: For positive control of the aircraft, state **"At My Command" on line 5. The aircraft will call "Ready for Fire" when ready.**

Example of a CCA request

METHOD	DAY	NIGHT	NVG	NVS	FRIENDLY MARKS	TARGET MARKS	REMARKS
Smoke	Go	No Go	Marginal	No Go	Good	Good	Easy ID. May compromise friendly positions, obscure target, or warn of FS employment. Placement may be difficult because of terrain, trees, or structures.
Smoke (IR)	Go	Go	Go	No Go	Good	Good	Easy ID. May compromise friendly positions, obscure target, or warn of FS employment. Placement may be difficult because of terrain, trees, or structures. Night marking is greatly enhanced through use of IR reflective smoke.
Illumination, Ground Burst	Go	Go	Go	No Go	NA	Good	Easy ID. May wash out NVDs.
Signal Mirror	Go	No Go	No Go	No Go	Good	NA	Avoids compromise of friendly location. Depends on weather and available light. May be lost in reflections from other reflective surfaces such as windshields, windows, or water.
Spot Light	No Go	Go	Go	No Go	Good	Marginal	Highly visible to all. Compromises friendly position and warns of FS employment. Effectiveness depends on the degree of ambient lighting.
IR Spot Light	No Go	No Go	Go	No Go	Good	Marginal	Visible to all NVGs. Effectiveness depends on the degree of ambient lighting.
IR Laser Pointer (below .4 watts)	No Go	No Go	Go	No Go	Good	Marginal	Effectiveness depends on the degree of ambient lighting.
IR Laser Pointer (above .4 watts)	No Go	No Go	Go	No Go	Good	Good	Less affected by ambient light and weather conditions. Highly effective under all but the most highly lit or worst weather conditions. IZLID-2 is the curent example.
Visual Laser	No Go	Go	Go	No Go	Good	Marginal	Highly visible to all. High risk of compromise. Effective, depending upon degree of ambient light.
Laser Designator	Go	Go	No Go	Go	NA	Good	Highly effective with precision-guided munitions. Very restrictive laser-acquisition cone and requires LOS to target. May require precoord-ination of laser codes. Requires PGM or LST equipped.
Electronic Beacon	NA	NA	NA	NA	Excellent	Good	Ideal friendly marking for AC-130 and some USAF CAS. Not compatible with Navy/Marines. Can be used as a TRP. Coordination with aircrew essential.

Example of Friendly and Enemy Markings

METHOD	DAY	NIGHT	NVG	NVS	FRIENDLY MARKS	TARGET MARKS	REMARKS
Tracers	Go	Go	Go	No Go	No Go	Marginal	May compromise position. May be difficult to distinguish mark from other gunfire. During daytime use, may be more effective to kick up dust surrounding target.
VS-17 Panel	Go	No Go	No Go	No Go	Good	NA	Easy to see when visibility is good. Must be shielded from the enemy.
IR Paper	No Go	No Go	No Go	Go	Good	NA	Must be shielded from the enemy. Affected by ambient temperature.
AN/PAQ-4C IR Aiming Light	No Go	No Go	Go	No Go	NA	Good	Effective to about 600 meters.
AN/PEQ-2A IR Aiming Light Pointer, Illuminator	No Go	No Go	Go	No Go	NA	Good	Effective to about 1,300 meters. Can illuminate the target.
Chem Light	No Go	Go	Go	No Go	Good	NA	Must be shielded from enemy enemy observation. Affected by ambient light. Spin to give unique signature.
IR Chem Light	No Go	No Go	Go	No Go	Good	NA	Must be shielded from enemy observation. Affected by ambient light. Spin to give unique signature.
Strobe	No Go	Go	Go	No Go	Excellent	NA	Visible to all. Affected by ambient light.
IR Strobe	No Go	No Go	Go	No Go	Excellent	NA	Effective depends on ambient light. Coded strobes aid acquisition. Visible to all with NVGs.
Flare	Go	Go	Go	Marginal	Excellent	NA	Visible to all. Easily seen by aircrew.
IR Flare	No Go	No Go	Go	No Go	Excellent	NA	Easily seen by aircrews with NVGs.
Glint/IR Panel	No Go	No Go	No Go	Go	Good	NA	Not readily detected by enemy. Effective except in high ambient light.
Combat ID Panel	Go	No Go	No Go	No Go	Good	NA	Provides temperature contrast on vehicles or building.
Chemical Heat Sources, MRE Heater	No Go	No Go	No Go	Go	Poor	NA	Can be lost in thermal clutter. Difficult to acquire. Best to contrast on a cold background.
Briefing Pointer	No Go	Go	Go	No Go	Fair	Poor	Short range.
Hydra 70 Illumination	Go	Go	Go	Go	NA	Good	Assists with direct fire and adjustment of indirect fire.

Example of Friendly and Enemy Markings (cont)

The BEST technique is to have all signals pre-coordinated between the ground and aviation units BEFORE the mission. Additionally, you should have multiple means for marking available, and talk it out over the radio.

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CHAPTER TWO

HELICOPTER EXTERNAL LOAD OPERATIONS

A. REFERENCES
1. FM 4-20.197 (FM 10-450-3), Multi Service Helicopter Sling Load: Basic Operations and Equipment, July 2006
2. FM 4-20.198, Single-Point Load Rigging Procedures w/ change 20 February 2009
3. FM 4-20.199, Dual-Point Load Rigging Procedures w/ change 20 February 2009
4. TM 10-1670-295-23&P. Technical Manual for 10,000 lb. & 25,000 lb
5. External Transport Sling Assembly and 5,000 lb. & 10,000 lb. External Transport Cargo Net, dated 22 May 1991
6. ATTP 3-18.12 Air Assault Operations, dated March 2011
7. FM 3-21.38 Pathfinder Operations, dated April 2006

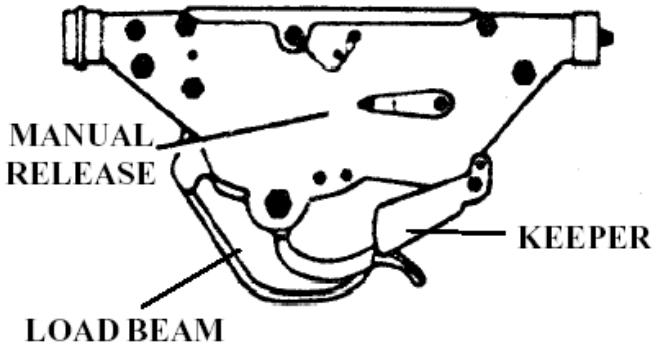
B. INTRODUCTION
1. The helicopter sling load method of carrying cargo and equipment overcomes many of the obstacles that hinder other modes of movement. Helicopters move cargo by external sling load when
   a. the cargo compartment cannot hold the load
   b. the load exceeds the helicopter's internal load limitation
   c. the ground crew must load or unload the cargo at once
   d. landing zone conditions prevent the aircraft from touching down

C. EMPLOYMENT CONSIDERATIONS
1. Advantages of Sling Load
   a. allows rapid movement of heavy, oversized equipment, or emergency supplies directly to the user
   b. the rapid relocation of supplies and equipment
   c. the ability to bypass surface obstacles
   d. the use of multiple flight routes and landing sites to enhance sustainability and security of ground units
   e. the establishment of multiple landing sites to support the maneuvering unit requirements
   f. greater movement flexibility for the ground commander to accomplish the tactical mission

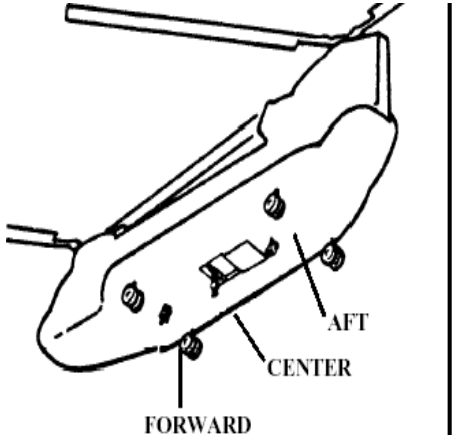
2. Limitations of Sling Load
    a. the weight of the load is restricted to the aircraft's operating capability.
    b. load instability during flight may restrict aircraft air speed or maneuvering capabilities.
    c. adverse weather and darkness (low visibility) may limit sling load operations.
    d. atmospheric conditions (pressure, altitude, temperature, and winds) affect the helicopter's lift capacity.
    e. a limited number of helicopters are available for sling load missions.
    f. landing site surface conditions may restrict helicopter operation. Loose debris, dust, and snow are safety hazards that also limit pilot visibility.
    g. landing site size must be increased during the hours of darkness or reduced visibility to allow the pilot more room to maneuver.

D. AIRCRAFT
1. Allowable Cargo Load (ACL) for external loads
    a. actual maximum weight is determined by factors such as fuel (7 lbs per gallon) in A/C, distance to be flown, density altitude, temperature, altitude, humidity, and airframe.
        (1) UH-60A: 8000 lbs
        (2) UH-60L: 9000 lbs
        (3) CH-47D:
            (a) 17,000 lbs front or rear hook
            (b) 26,000 lbs center hook
            (c) 25,000 lbs combination of front and rear hooks
2. Cargo Hook Release
    a. ground crew may manually release cargo hook. Only done when the hook malfunctions & will not release by other means
        (1) UH-60
            (a) pilot or crew chief can release hook electronically; manual release lever on right side
        (2) CH-47D
            (a) pilot or crew chief can release all hooks electronically
            (b) crew can release all hooks manually from inside
            (c) fore & Aft hooks have manual release knob on right side; turn counter-clockwise to activate; they are 13 ft apart.

Center hook has no release lever for ground crew. Manually depress the spring loaded keeper & remove apex.



UH-60 CARGO HOOK



CH 47 CARGO HOOK LOCATIONS



CH-47 FORE & AFT HOOKS

E. UNITS

1. There are normally three different units involved in a sling load operation: supported unit, aviation unit, and receiving unit. Their responsibilities are:

2. SUPPORTED UNIT
    a. selecting, preparing, and controlling the PZ
    b. requisitioning all the equipment needed for sling load operations
    c. storing, inspecting, and maintaining all sling load equipment
    d. providing trained ground crews for rigging and inspecting and inspection forms, controlling aircraft, aircraft guides, hooking up loads, and clearing the aircraft for departure
    e. securing and protecting all sensitive items
    f. providing load dispositions and instructions to the aviation and receiving unit for the sling load equipment
    g. verify the load weight (to include rigging equipment)
    h. designate a safe rendezvous point in case of in flight emergency
3. AVIATION UNIT
    a. establish coordination with the supported and receiving units
    b. advises the supported unit on load limitations
    c. advises the supported and receiving units on the suitability of selected LZ's and PZ's
    d. provides assistance in the recovery and return of sling load equipment
    e. establishes safety procedures and understanding of duties and responsibility between the flight crew and ground crew

NOTE : The pilots make the final decision on whether the cargo will be moved.

4. RECEIVING UNIT
    a. selects, prepares, and controls the LZ
    b. provides trained ground crews to guide the aircraft and de-rig the loads
    c. coordinates with the supporting unit for the control and return of the sling load equipment
    d. inspects the rigging of back loads (sling load equipment returning to supporting unit)

NOTE: See FM 4-20.197, FM 4-20-198/199 and ATTP 3-18.12 for additional information on these procedures.

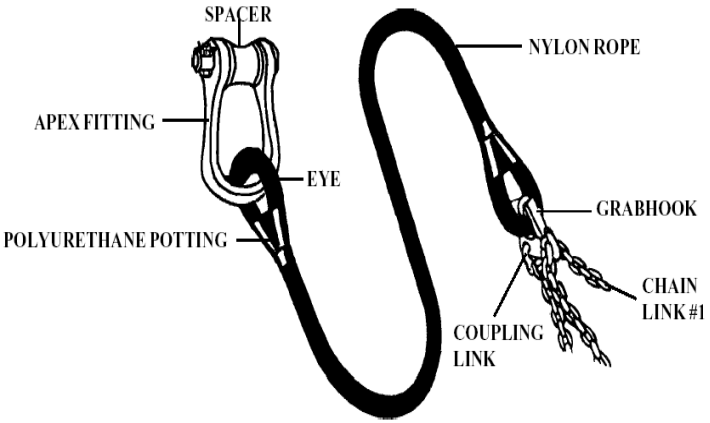
F. EQUIPMENT

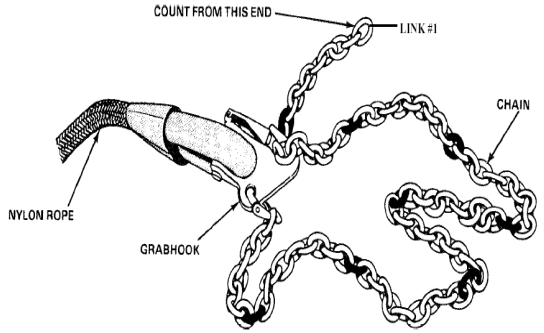
1. Helicopter sling sets
    a. Items
        (1) Sling set, helicopter, 10,000 lbs. capacity, NSN 1607-01-027-2902
        (2) Sling set, helicopter, 25,000 lbs. capacity, NSN 1670-01-027-2900

Data: There are two models, a 10,000 lbs. and a 25,000 lbs capacity. Both sets consist of a metal apex fitting assembly, four sling leg assemblies, and an aviator's kit bag.

2. 10,000 lbs. set
    a. Rope
        (1) Double-braided nylon
        (2) Olive drab colored
        (3) 7/8 inch in diameter
        (4) 12 feet long
        (5) Chain and grab hook assemblies
            aa. Forged steel
            bb. 8 feet long (chain)
            cc. 110-115 chain links
        (6) Apex fitting is dull gray aluminum.
        (7) The pin portion is 1 1/8 inches in diameter.
        (8) Weight is 52 pounds (with four leg assemblies).
3. 25,000 lbs. set
    a. Rope
        (1) Double-braided nylon
        (2) Black colored
        (3) 1 1/4 inch in diameter
        (4) 12 feet long
        (5) Chain and grab hook assemblies
            aa. Forged steel
            bb. 8 feet long (chain)
            cc. 84-88 chain links
        (6) Apex fitting is gold colored steel
        (7) The pin portion is 1 1/2 inches in diameter.
        (8) Weight is 114 pounds (with four leg assemblies).
4. Storage
    a. Sling sets should be stored in the aviator's kit bag, which is furnished with each set
    b. The kit bag should be stored in a dry place, off of concrete floors an out of direct sunlight.

5. Inspection
    a. Inspect equipment IAW FM 4-20.197, damage criteria-chart in Chapter 6
    b. Inspect before and after every use or every 6 months
    c. Inspect metal for rusts, nicks, burrs, cracks, dents, metal distortion, and proper operation.
    d. Inspect nylon portion for grease, oil, and acid, foreign matter.
6. Maintenance
    a. Wash off dirt and all substances with a mild detergent and/or soap.
    b. After washing, rinse thoroughly and then air dry. Do not wring water out or dry in the sun.
    c. Remove corrosion from metal part with a wire brush, emery cloth, or similar material.
    d. Remove burrs or sharp edges from metal parts with a file. 1/8 in dents or metal distortion or missing components will render equipment unserviceable.
    e. Replace any defective components





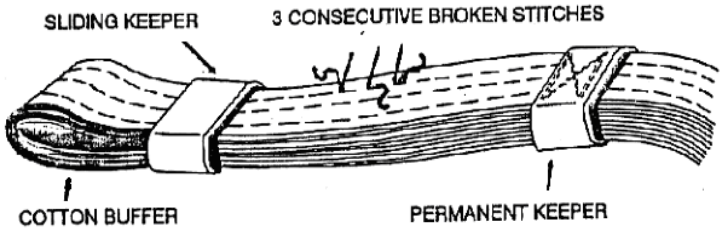
7. COMMON ADDITIONAL EQUIPMENT
    a. Two-inch tape:
        (1) rated capacity, 80 lbs per wrap
        (2) Used to shatterproof glass and plastic surfaces and for padding material. It is also used to secure most excess on loads.
        (3) Can be used as a breakaway
    b. Type III nylon:
        (1) Rated Capacity, 550 lbs
        (2) Used as a permanent tie and to secure portions of different loads
        (3) It is round and smooth to the touch
    c. ¼ inch cotton webbing:
        (1) Rated Capacity: 80 lbs
        (2) Used as breakaway material on various loads. Breakaway material prevents sling legs from becoming misrouted or tangled during sling load operations.
        (3) It is flat and rough to the touch
    d. 3/8 inch hemp rope:
        (1) Rated Capacity: 3,180 lbs
        (2) Used to secure items
    e. 7/16 inch nylon rope:
        (1) Rated Capacity: 4,500 lbs
        (2) Used as a collar on the Cargo Net, to secure items, rappelling, and hip rappel seats.
    f. CGU-1B:
        (1) Rated capacity: 5000 lbs
        (2) Used to secure two items together and to secure cargo in vehicles and trailers
    g. Static Probe:
        (1) Used to protect the hook-up person from static electricity during sling load operations. FM 4-20.197, Appendix D, provides instructions needed to fabricate a field expedient static discharge wand.
    h. Cargo Hook Reach Pendant:
        (1) Rated capacity: 11,000 lbs (Green bottom loop), 25,000 lbs (black bottom loop).
        (2) The large looped end is attached to the apex and the small looped end is placed into the cargo hook of the aircraft. The CHRP is approved for use with all loads and all aircraft. The CHRP reduces hook up time and gives the hook up team more room & safety. Reach pendants should not be used on loads that have a tendency to spin during flight. A static discharge person is not required when using a CHRP.

8. OTHER EQUIPMENT:

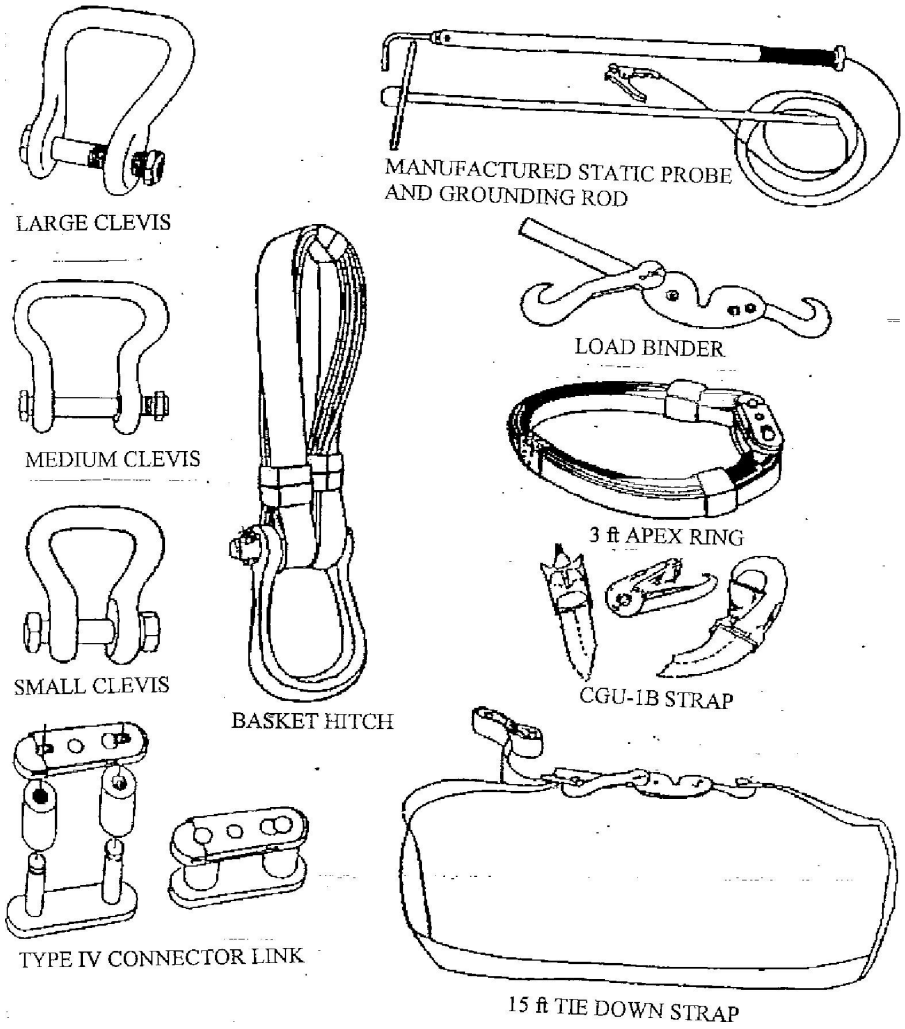
a. Clevises
(1) Large clevis:
aa. rated capacity- 12,500 lbs.
bb. Used as a field expedient apex.
(2) Medium clevis:
aa. rated capacity- 6,250 lbs.
bb. Used on the A-22 cargo bag.
(3) Small clevis:
aa. rated capacity- 6,250 lbs.
bb. Used as a lift point.
(4) 5/8 in screw pin clevis:
aa. rated capacity- 4,420 lbs.
bb. Used as a lift point on fuel blivets.
(5) Small screw pin clevis:
aa. rated capacity- 8,650 lbs.
bb. Used as a tie down or lift point.
(6) Platform clevis:
aa. rated capacity: 7,000 lbs.
bb. Used on Air Force pallets.
(7) Manufactured Apex:
aa. rated capacity- 10,000 lbs.
bb. Used on 5,000 lbs and 10,000 lbs cargo nets.
(8) ½ inch Tubular Nylon:
aa. Rated Capacity: 1,000 lbs
bb. Used for securing equipment and excess. Used to secure links on the 119 Howitzer.
(9) ADS (Aerial Delivery Sling) Type XXVI Multi-loop line:
aa. rated capacity, 10,000 lbs
bb. Available in varying lengths
1. 3 ft ADS is used in conjunction with the Type IV connector link to construct a 3' apex ring.
(10) Type IV connector link:
aa. Rated capacity: 12,500 lbs
bb. Used to construct a three foot apex ring or connect ADS slings
1. Component parts:
(a) Base plate
(b) 2 aluminum rollers
(c) 1 locking plate

9. INSPECTION OF THE AERIAL DELIVERY SLING
    a. The unit will inspect all ADS before and after every use and every six months
    b. Serviceable slings will be stenciled with the inspection month and year using one (1) inch stencils and parachute marking black or blue ink
    c. Unserviceable slings will be stenciled "unserviceable" and disposed of according to unit SOP
10. CRITERIA FOR UNSERVICEABILITY
    a. Three or more consecutive loose or broken stitches or five stitches loose or broken in a row in the same area,
    b. Petroleum, rust or mildew stains that cannot be removed
    c. Any cuts
    d. Excessively worn or frayed
    e. Missing cotton buffers
    f. Missing keepers

NOTE: Tetrachlolethylene (dry cleaning solvent) should be used to clean slings, A-22 bags or ADS. Use only in well vented areas.



AIR DELIVERY SLING W/ BROKEN OR LOOSE STITCHES



11. PERSONNEL REQUIRED FOR SLINGLOAD OPERATIONS
    a. General Three personnel are normally used for the ground crew in external helicopter rations on the PZ/LZ: a signal person, a static probe person and a hookup person.
    b. Static Probe Equipment The static electricity probe consists of an insulated contact rod joined by a length of metallic tape or electrical wire to a ground rod, NSN 1670-01-194-0926. The ground rod is driven into the ground and the hookup team's static probe person holds the contact rod to the cargo hook of the aircraft.
    c. Protective Equipment. All ground crew personnel will wear the following equipment:
        (1) ACH, chinstrap fastened
        (2) Goggles
        (3) Earplugs
        (4) Gloves
        (5) Sleeves rolled down and buttoned
    d. Ground Crew Emergency Procedures. In an emergency, the ground crew will move to a pre-designated rendezvous point identified by prior coordination with the aviation unit.
12. HOOKUP PROCEDURES
    a. General The aircraft approaches the hookup site and is guided into position over the load by the signal person. The static probe person discharges the static electricity from the aircraft cargo hook. The hookup person then attaches the apex fitting to the aircraft cargo hook.
    b. Duties of the Hookup Team Before the arrival of the aircraft, the signal person directs the spotting of the sling load for hookup, inspects the load to ensure that the slings are not fouled and ensures that the load is ready for hookup. Prior to the aircraft approaching the hookup site, the hookup team dons their protective equipment and the signal person positions himself at the pre-coordinated location so that he maintains eye-to-eye contact with the pilot. He must stay outside of the rotor disk diameter of the aircraft at all times. The hookup team will position themselves next to the load on the assembly area side. The hookup person will stand next to the load, with the sling legs between the load and themselves. They will hold the bell portion of the apex high above their head and will ensure the pin portion of the apex is skyward and the sling legs are not routed or tangled around their body.

The static probe person stands next to the hookup person, closest to the assembly area.

The static probe person will wrap their arm around the waist of the hookup person for added stability. With their outside hand, the static probe person will hold the static probe high above their head.

The signal person must station himself so that the pilot can plan his approach on him He remains in this position unless terrain features or obstructions prevent an upwind approach. If this occurs, the signal person observes the approaching helicopter and moves to a position, which will allow the pilot to guide in on him. As the pilot maneuvers the aircraft into the wind, the signal person adjusts his position to remain to the front of the aircraft and in view of the pilot.

The signal person guides the aircraft until the air craft is approximately centered over the load. The signal person gives the hand and arm signal of hover. At this time, the pilots will use the signal person as a reference point. The crew chief or flight engineer will guide the air craft over the load.

Once the cargo hook is within reach, the static probe person will place the static probe into the cargo hook of the aircraft discharging all static electricity. The static probe person will maintain constant contact with the cargo hook. The hookup person will then place the pin portion of the apex into the cargo hook of the aircraft. The hookup person will ensure the pin portion of the apex is seated properly, and will release the apex. At this time, the static probe can be removed from the cargo hook. Both the static probe person and the hook up person will then police up the static probe and double time toward the assembly area. Once they are a safe distance outside the rotor disk diameter of the aircraft, they will turn, face the load, and kneel. When the hookup team is clear of the aircraft, the signal person gives the pilot the "hookup complete" signal, then the "move upward" signal. This signal is given so that the aircraft rises slowly taking up slack in the slings, and the load is six to eight inches off the ground. The signal person is alert to ensure that the sling legs are not fouled and the load is properly attached to the cargo hook.

If the legs are fouled or if the load is improperly suspended, the signal person gives the "move downward" signal and directs the release of the load. The hookup person and the static probe person will conduct an inspection of the load from their position. If everything looks proper and the load appears safe to fly, they will give the "thumbs up" signal to the signal per son. After the signal person ensures the loads correctly suspended, he gives the pilot the "takeoff" signal.

13. RELEASE PROCEDURES

A. General:

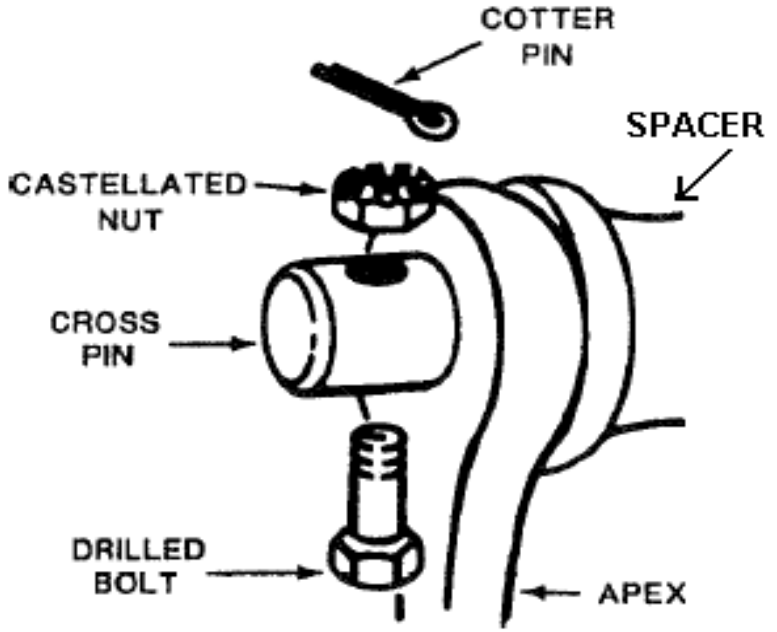
The aircraft approaches the release site and is guided into position by the signal person. The hookup release team stands by, but is not actively employed unless the slings cannot be released from the aircraft. Normally, the ground crew consists of one signal person and two release personnel.

B. Duties of the Signal person:

As the aircraft approaches the cargo release site, the signal person positions himself as he would for a hook-up. Using appropriate hand and arm signals, the signal person guides the pilot in maneuvering the aircraft until the sling load is positioned a few feet above the cargo release points. He directs a gentle lowering of the aircraft until the load rests firmly on the ground. After the cargo load is safety landed and there is slack in the sling legs the signal person gives the pilot the "release sling load" signal. The signal person ensures that the load is properly on the ground and that the sling load is released entirely from the hook. When the load is free of the hook, the signal person gives the pilot the "takeoff" signal.

C. Duties of the Release Team:
Prior to the aircraft approaching the cargo release site, the release team dons protective equipment and moves to their pre-coordinated positions. The cargo release team remains in this position unless directed by the signal per son to move under the aircraft and manually release the load from the fouled or jammed cargo hook. If directed by the signal person, both soldiers move in under the helicopter. The soldier handling the static electricity probe grounds the cargo hook by contacting it with the probe, then grabs the hook. The second soldier manually operates the cargo hook release or disengages the fouled sling from the hook. If required, both solders work to accomplish cargo release. When the sling load is released from the hook, the soldiers move quickly aside of the aircraft take-off path. Night Operations- Greater care and thorough planning must be taken for night operations. The signal person will use baton flashlights and the release team will carry flashlights.

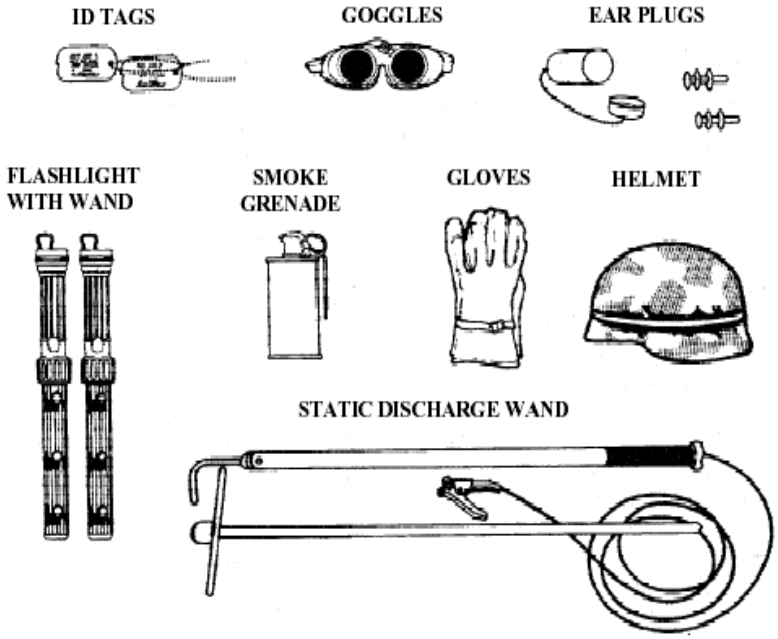
Six components of the Apex



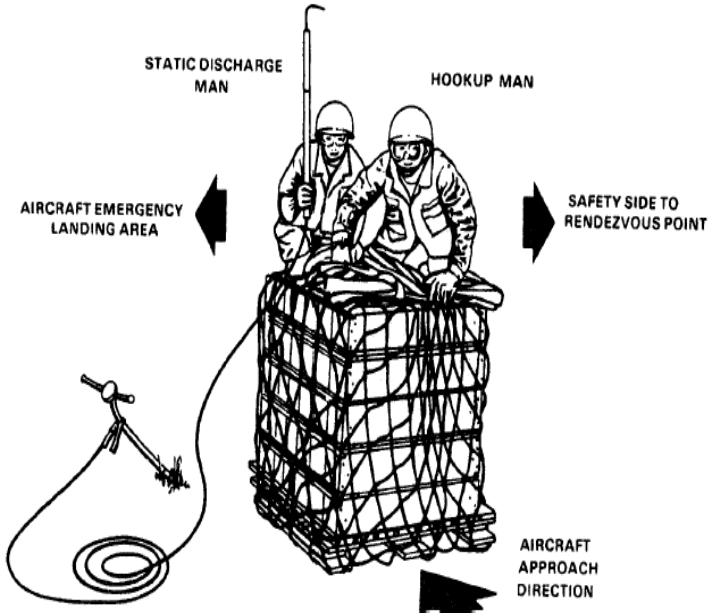
14. APEX SET UP
    a. UH-60 requires an aluminum spacer when using a 10,000lb apex
    b. CH-47 has no special apex requirement
    c. The apex will ALWAYS be configured with the pin facing up (toward the aircraft)

NOTE: When using a 25K sling set on a UH-60 the aluminum spacer must be removed.

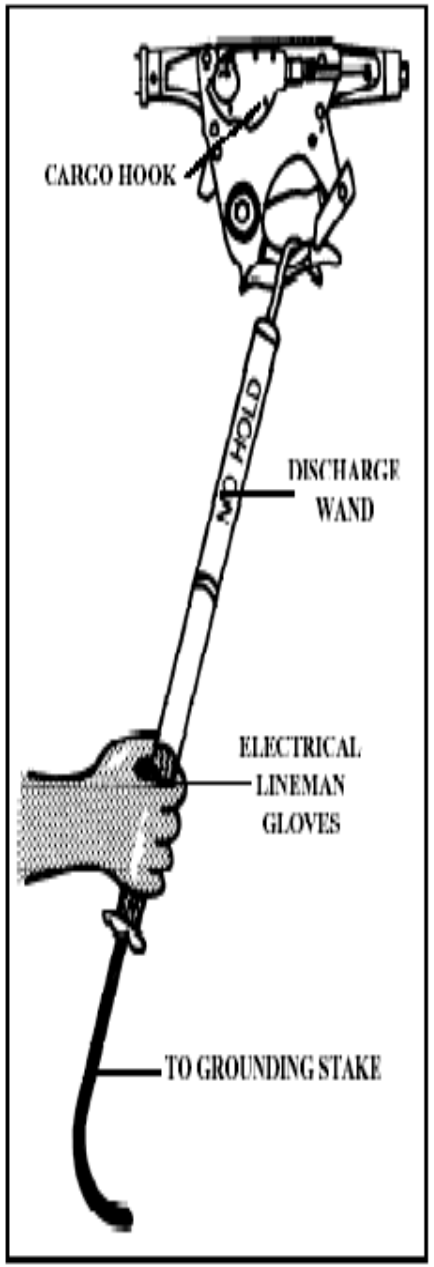
15. SAFETY CONSIDERATIONS:
    a. Protective Equipment All ground crew personnel will wear the following equipment:
        (1) Kevlar helmet, chinstrap fastened
        (2) Goggles
        (3) Earplugs
        (4) Gloves
        (5) Sleeves rolled down and buttoned
        (6) ID card and tags
    b. Stay away from the tail rotor of all aircraft.
    c. Stay away from the main exhaust of the CH-47
    d. Ground Crew Emergency Procedures
        (1) In an emergency, the ground crew will move to a pre-designated rendezvous point identified by prior coordination with the aviation unit.



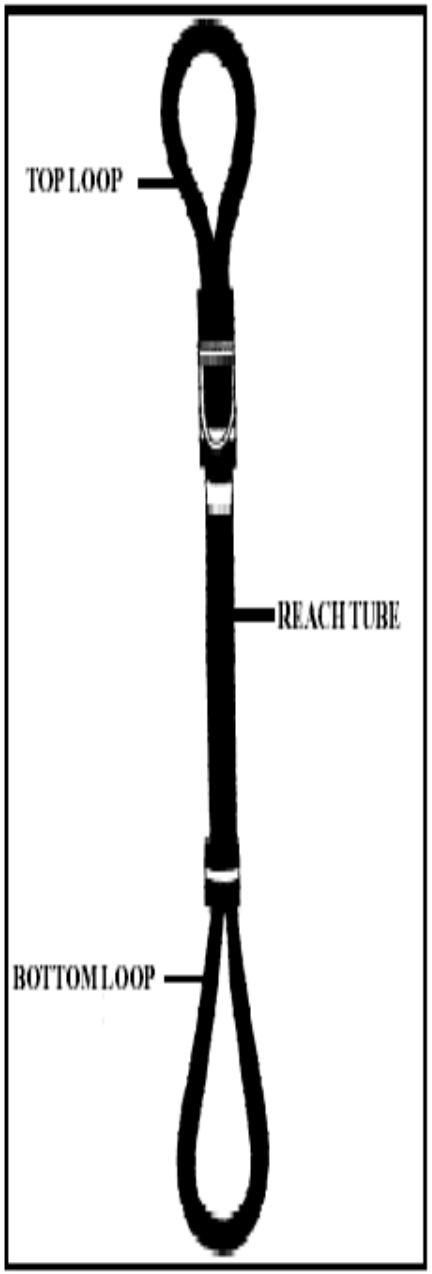
PERSONAL PROTECTIVE EQUIPMENT



HOOK UP TEAM POSITION



STATIC PROBE



CARGO HOOK REACH PENDANT

16. PHASES OF A SLINGLOAD OPERATION

a. There are three phases to external load operations:

(1) Phase I: Preparation and Rigging - Loads are prepared and rigged IAW the proper manuals. Section II and III of this chapter outline preparation and rigging of selected loads.

(2) Phase II: Inspection - A Pathfinder School Graduate, SLICC (Sling Load Inspector Certification Course) Graduate, or an Air Assault School Graduate in the rank of E-4 and above. All loads will be inspected a minimum of two times. Individual who rigged the load cannot inspect same load. Recorded on a DA FORM 7382-R Sling Load Inspection Record

(3) Phase III: Sling Load Operation - trained ground crews hook up loads.

A. GENERAL:

All procedures outlined in this chapter are in accordance with FM 4-20.197, FM 4-20.198/199 Additional safety requirements have been added to the preparation and rigging procedures outlined in the reference material. Inspection sequences discussed in this chapter are the recommended procedures for use at The Air Assault School.

B. GENERAL RIGGING INSTRUCTIONS:

1. 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. Typical preparation instructions will provide information to secure loose items, remove and 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.
2. 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 procedures under any circumstances as it may change sling leg loading and cause lift provision failure.
3. Breakaway safety ties: 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 2” (duct) tape.

4. View of 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. 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.
5. Sling Load Inspection Record: Load verified as safe by a qualified inspector
   a. give a copy to the supporting aviation unit (not necessarily the pilot)
   b. securely tape or tie a copy to the load
   c. give a copy to the supported unit
6. Factors of In-flight Stability:
   a. Proper weight
      (1). Minimum weight for any sling load is 500lbs
      (2) The maximum weight cannot exceed the lift capacity or the hook tensile strength of the aircraft or the maximum rated capacity of the load/rigging.
   b. Proper drag surface:
      (1). load must be as aerodynamic as possible
      (2). balanced loads fly best when level
      (3). unbalanced loads must have a nose (heavy end) down attitude which is achieved by the proper link count
   c. Proper air speed: Determined by the Aviation Unit Commander or, in his/her absence, the pilot in command.
   d. To improve in-flight stability:
      (1). increase weight of load
      (2). redistribute weight (load plan)
      (3). alter drag surface (link count)
      (4). install drogue chute
      (5). reduce airspeed (least preferred)

CLASSIFICATION OF SLING LOADS

A. CLASSIFICATION DEFINITIONS OF SLING LOADS

1. Certified Sling Loads:
   a. Certified sling loads are those items of equipment an their associated rigging procedures which have completed the evaluation and testing required for sling load certification. These rigging procedures are in FM 4- 20.197, FM 4-20.198/199.
   b. The following restrictions apply to certified for sling loads:
      (1) The load must be within the lifting capability of the desired helicopter model and not exceed the rated capacity of the sling set being used.
      (2) The load shall be rigged in accordance with the certified 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.

NOTE: When carrying loads at weights close to the aircraft hook limitations, close coordination with the aviation unit is required.

2. Suitable Sling Loads:
   a. 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 during a flight test. 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 are considered to be proven safe. These rigging procedures can be found in FM 4-20.197, FM 4-20.198/199.
3. Unique Sling Loads:
   a. Unique loads are equipment carried on a one time or low-frequency basis, such as telephone poles, artillery tar gets, 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. The movement of unique loads should be approved by the high risk approving authority.

4. Prohibited Sling Loads:

a. Prohibited sling loads are items of equipment that are prohibited from sling loading. These loads have been de nied sling load certification and are a safety hazard if car ried. They have either structural deficiencies or have ex hibited unstable flight characteristics during flight testing.

B. SLING LOAD OF UNIQUE ITEMS OF EQUIPMENT:
Helicopter sling loading of unique items, due to operational requirements, will be at the discretion of the commander. Equipment not listed in FM 4-20.198, 4-20.199 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 / rigging and hookup. Flight evaluating may be conducted after a satisfactory static rigging configuration has been determined.

Other examples of unique sling loads:

Destroyed or mined vehicles
Construction materials

Downed aircraft will be rigged using procedures in FM 3-04.513 Battlefield Recovery and Evacuation of Aircraft, dated 27 September 2000.

C. TECHNIQUES FOR RIGGING A UNIQUE LOAD:

SAFETY NOTE: This is only a technique and not a doctrinal method of conducting sling load operations. The Warrior Training Center (Air Assault) assume no liability in the sling load of unique loads while using this technique. Rigging and sling loading unique loads is inherently dangerous and should only be conducted by the most qualified and experienced personnel and crews, when the mission dictates, there is no other way to accomplish the same mission, and the commander has conducted a thorough risk assessment with appropriate risk reduction measures applied. The commander with “high” risk approval authority (O-6) is the approval authority for flying non-standard loads.

1. Acquire suitable air items and special equipment such as a sling set of appropriate capacity, applicable apex setup for the aircraft to be used, additional chains, tie down and break away material, A7A straps, ADS slings, clevises, etc.
2. Determine if the load is structurally sound and strong enough to be lifted and sling loaded.
3. Determine center of balance of load. Consider that the heaviest portion will fly forward.
4. Determine suitable lifting points on the load. Must be strong enough to lift the load and will allow the air items (sling legs and chains) to routed in a manner that will not damage them.
5. Determine link count. Start with 3. This will provide the most distance between the load and the aircraft on the initial pick up attempt in the event the load shifts or rolls. It also makes adjustments quickly and easily because the hookup team will only need to shorten the appropriate legs, if required, instead of both lengthening & shortening.
6. Use extended sling legs if possible/feasible. This will reduce the amount of time the A/C needs to spend hovering over the load, as it can land next to the load while link count & rigging procedures are modified, and creates more space between the load & A/C.
7. Hook up using the appropriate techniques then clear the hookup team from the load. The signal person then has the aircraft move upward slowly, take up slack in the sling legs, and begin to lift the load. At the same time, all hookup team members observe the load. If at anytime the load appears to become unstable, unbalanced, or structurally weak, the signal person will immediately indicate to move the load back down, and cut sling load. The hookup team moves back to the load, and attempts to fix the problem, if possible. This process may have to be repeated several times until the desired result is achieved. Whenever possible, there should be ground to air communication between the ground crew and pilot.

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.

CARGO NETS
5,000 AND 10,000 POUND CAPACITY

A. LOAD DESCRIPTION: Cargo Net, 5,000 lbs and 10,000 lbs
   1. Characteristics: 5,000 lbs capacity
      a. Weight- 58 lbs
      b. Size- 15 ft x 15 ft
      c. Load bearing zone- 5 ft x 5 ft
      d. Mesh size- 6 in x 6 in
      e. Color- OD Green (when new) Yellow (when used)
   2. Characteristics: 10,000 lbs capacity:
      a. Weight- 96 lbs
      b. Size- 18 ft x 18 ft
      c. Load bearing zone- 6 ft x 6 ft
      d. Mesh size- 7.5 in x 7.5 in
      e. Color- Black (when new) Grey (when used)

B. MATERIALS.
   1. Sling set with one to four sling legs dependent on load weight
   2. One 5,000 lbs. or 10,000 lbs. capacity cargo net
   3. 2" Adhesive Tape, rated capacity of 80 lbs. per wrap
   4. ¼ inch Cotton Webbing, rated capacity 80 lbs
   5. Minimum of 12 feet, rope or strap with a rated capacity of 550 lbs. or greater.(i.e. 7/16 inch nylon rope, 3/8 inch hemp rope, or A7A strap)

C. PERSONNEL: Four personnel can prepare and rig this load in 5 minutes

PHASE I (PART 1)

PREPARATION

A. To prepare the cargo net, you must first lay it out flat on the ground. You will then place your cargo in the net so that 75% or more of the cargo is inside of the (LBZ) Load bearing zone. Ensure you have a minimum weight of 500 lbs. Now, pull the net up around the sides of the load ensuring all slack is pulled tight. Next, thread a piece of the 7/16 or 3/8 nylon or hemp rope (or A7A strap) through the web portion of the net approximately every 3rd to 5th square . Tighten the rope so that the hole created is smaller than the smallest object inside the net, and tie the rope in a square knot. Roll and tape excess to itself.

You are now ready to place your hooks on the manufactured apex. The hooks are numbered in a clockwise, or counter clockwise direction, starting from the number 1 hook. Remember, the #1 hook will have the manufactured apex tied to it with a piece of type III nylon. The hook sequence will be 1, 3, 4, 2 or 1, 3, 2, 4. The hook openings should be alternated on the manufactured apex. Place your #1 hook on the apex. Then go to the opposite side of the load and place the #3 hook on the apex. Move to either the left or the right side of the load and place either the #2 or the #4 hook on the apex. Finally, take a piece of 2-inch tape and tape around all the hooks so they will not come off the apex. You are now ready to tie your three mandatory breakaways. You will take 3 pieces of ¼ inch cotton webbing and tie them around all the lifting legs on the cargo net approximately 3 feet apart. You have just completed part one of Phase I, Preparation.

PHASE I (PART 2)

RIGGING

A. You will use the appropriate number of sling legs for the weight in the cargo net. One sling leg of a 10K set has the rated capacity of 2,500 lbs. One sling leg of a 25K set has the rated capacity of 6,250 lbs Take the free running end of the chain and route it through the manufactured apex 1 time and 1 time only and secure a link count of 3 by dropping the third link into the keeper portion of the grab hook assembly.

B. The final step for rigging is to check the apex on the 10,000 lbs sling set. If you have a UH-60A Blackhawk coming to pick up the load, you must have an aluminum spacer on the pin portion of the apex. For a UH-1H, you need a donut ring or a basket hitch on the pin portion of the apex. A CH-47 does not need any additional equipment. Check the pin to ensure it has been secured with a bolt.

C. The bolt has been secured with a castellated nut facing outward; cotter pin must be present.

PHASE II

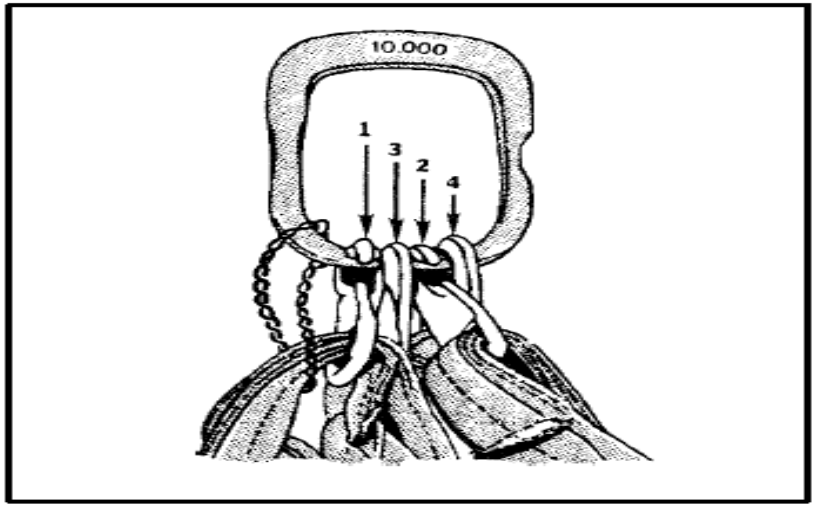
INSPECTION OF PREPARATION AND RIGGING

A. There are three personnel who can inspect a sling load. They are a Pathfinder School Graduate, SLICC (Sling Load Inspector Certification Course) Graduate, and an Air Assault School Graduate. When you inspect a sling load you will inspect it a minimum of 2 times or until you are 100% sure the load will fly safely.
B. To inspect a sling load you will start at one point and work your way around the load in a clockwise or counter-clockwise method. You will correct all preparation and rigging deficiencies when you come to them. After correcting a deficiency, that point will become your new start point.
C. Start at the apex of the cargo net. You will check the apex for the following: If a UH-60A Blackhawk is picking up the load, it must have an aluminum spacer when using the 10K apex. A CH-47 does not need a spacer, but you can pick up the load if one is present. Ensure that the pin of the apex has been secured with a bolt. The castellated nut facing outward; cotter pin must be present.
D. You then should determine if you have enough sling legs to support the weight of the cargo inside the net. One sling has a rated capacity of 2,500 lbs. For accountability purposes, it is best to rig the cargo net with all four sling legs, but is not mandatory.
E. You can then move to the grab hook assembly on your sling leg. Ensure the grab hook assembly is not inverted and you should have a link count of 3. Remember, if you use all four sling legs, the chain link count will be 3 for all sling legs. Continue to follow the chain down to the manufactured apex to ensure the chain or chains have been routed through the manufactured apex 1 time and 1 time only.
F. Check the hook sequence on the manufactured apex. To do this, determine which side of the apex has the small indentation/notch on it. Then go to the hooks, the #1 hook or the one with the lanyard tied to it should be the farthest from the indentation/notch with the #3 hook being next. The last two hooks will be #2 and #4 in any order. To ensure the lifting legs are in the correct sequence, you will slightly pull on one of the lifting legs on the #1 hook and see where the movement of the lifting leg came from. You will then check the next hook which is the # 3 hook and slightly pull on one of the lifting legs to make sure the movement of the leg comes from the opposite side of the #1 lifting legs. You also want to ensure that the hooks have been taped with 2-inch tape; this is so the hooks will not come off the apex. Lastly ensure that the hooks are facing in alternating directions. Now, you are ready to check your mandatory breakaways. They must be 1/4 inch cotton webbing and must be tied around all of the lifting legs in three places.

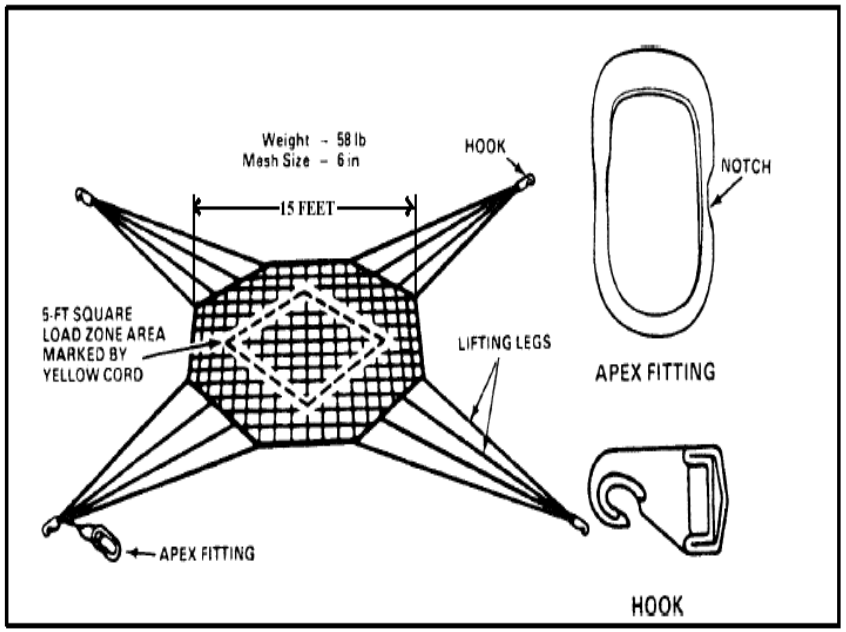
G. You are ready to inspect the net itself. First, check the securing collar on top of the load to make sure the rope isn't routed through any excess net or through a lifting leg. Next, make sure none of the lifting legs are routed through any of the mesh squares of the Cargo Net. The rope should be tightened down so that the hole is smaller than the smallest object inside of the net. Also, check the knot to ensure it is a square knot and that all excess rope has been secured to itself with 2-inch tape.

H. The final check is to ensure that the load is centered. At least 75% or more of the cargo must be inside the LBZ and nothing can be protruding from the net.

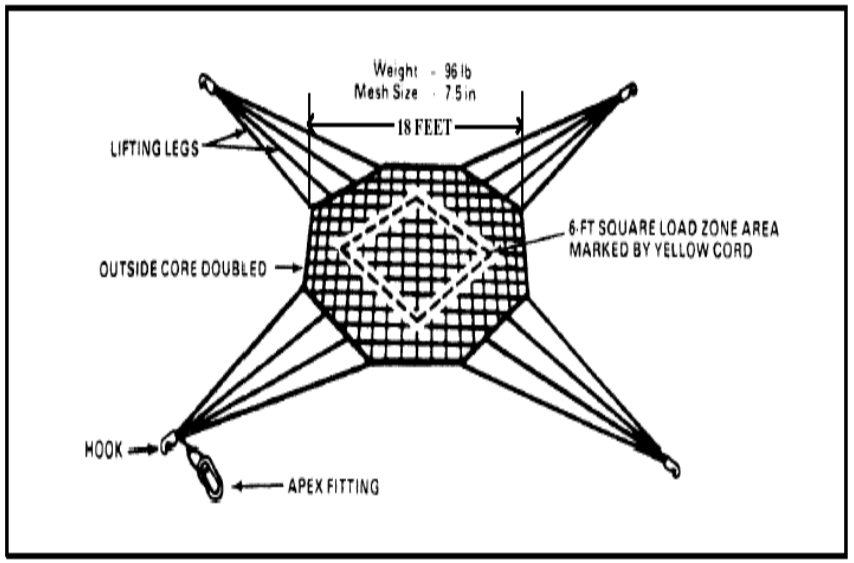
NOTE: DA Form 7382-R must be filled out IAW FM 4-20.197 see Appendix I.



CARGO NET HOOK SEQUENCE (before taping)



5000 LB CARGO NET



10,000 LB CARGO NET

NOTES

A-22 CARGO BAG

A. LOAD DESCRIPTION: The A22 Cargo Bag is an adjustable cotton duck cotton / nylon and nylon webbing container consisting of a sling assembly, cover, and four suspension webs. The weight of the A22 Cargo Bag is 58 lbs.

B. MATERIALS.

1. Sling set with one sling leg
2. One A22 Cargo Bag, with or without dust cover, maximum weight of 2,200 lbs
3. 2" Adhesive Tape, rated capacity of 80 lbs. per wrap
4. Type III Nylon, four sections twelve foot in length, rated capacity of 550 lbs.

C. PERSONNEL: Two personnel can prepare and rig this load in 15 minutes

SERVICEABILITY AND ACCOUNTABILITY INSPECTION

A. The minimum safe sling load weight for the A-22 bag is 500 lbs. The maximum weight is 2,200 lbs.

B. Prior to preparing or rigging the A-22 bag for a sling load operation, you must inspect all of its component parts for serviceability and accountability.

C. Inspect all nylon/canvas for holes, rips, or frays in excess of a 1/4 inch. If any holes, rips, or frays are present, you must replace or repair that component.

D. Inspect for petroleum based stains, rust, or mildew. If these are present, attempt to remove them with warm soapy water and a stiff brush.

E. Inspect all stitching for loose or broken stitches. Utilize the stitch rule: If 3 consecutive stitches or 5 in one area are loose or broken, you must repair or replace the component.

F. Inspect the lacing loops to ensure that they have not been sewn closed and are present.

G. Inspect the rectangular portion of the canvas cover for a current inspection date. It must be current within 6 months of the inspection date. It will be in 1 inch block letters (in black or blue parachute rigging ink) indicating the month and year it was inspected.

H. Inspect the metal portions of the A-22 bag for rust, cracks, dents, nicks, or burns.

I. Inspect the suspension webbing straps. There should be 4. Each strap has a rated capacity of 2,200 lbs. There are two types of straps. They are cotton and nylon. You will never mix the two types of straps. You can identify a cotton strap by its off white color and the red stitching. The nylon strap is OD green in color .

J. Ensure butterfly hooks are spring loaded and move freely.
K. There are three types of lacing cords that can be used with the A-22 bag. They are 3/8 inch hemp rope, 7/16 inch nylon rope, and type III nylon. A total of four cords are needed.
L. The rated capacity 3/8 inch hemp rope is 3,180 lbs. The rated capacity for 7/8 inch nylon rope is 4,500 lbs. Type III nylon has a rated capacity of 550 lbs.
M. Inspect the free running ends of your ropes to ensure that they are not excessively frayed, and have been secured with 2 inch tape or have been whipped and dipped. When using 3/8 inch hemp rope or 7/16 inch nylon rope
N. Inspect each strand of rope to ensure it is not cut or frayed more than half the diameter of an individual strand.
O. Check the medium clevis (FIG 2-22) for rust, cracks, nicks, dents, and burrs. Also, ensure the clevis has the bolt and nut and that they are not stripped out.

PHASE I (PART 1)

PREPARATION

A. Fold the canvas over the top of the load. Fold any excess cover material under the top flaps.
B. Secure the corners with the lacing types. To do this, you will route your lacing rope from ground skyward through the bottom two loops. Then form an X with the lacing rope and route the free running ends through the top two lacing loops from ground skyward. You will then secure the rope with a bow knot and tape the excess rope with 2 inch tape and ensure to leave a buddy tab
C. Secure the 188 inch straps across the load so that they form a cross. Then locate the friction adapter buckle opposite of each strap. Route the 188 inch strap through the friction adapter and then tighten down. Do not incorporate any twists. Secure the excess strap with 2 inch tape or 1/4 inch cotton webbing.
D. Route the lateral straps to their friction adapters. To tighten, start from the bottom and move to the top. Tighten down opposite corners at the same time. You will then roll and tape all excess straps; Do not incorporate any twists.
E. Place your suspension webbing straps onto your suspension webbing D-rings. To do this, hook your butterfly fasteners onto the D-rings with the hooks facing down toward the load and tape the hooks with 2 inch tape.
F. Attach the D-rings of all four suspension webs, to the bolt of the med. clevis, in a clock wise or counter clock wise sequence. Ensure that the straps are not twisted more than a half twist.
G. Secure the bolt with the nut and tape both ends of the bolt with 2 inch tape.

PHASE I (PART 2)

RIGGING

A. Route the free running end of the chain from the sling leg through the medium clevis and place a chain link count of 3 into the keeper portion of the grab hook assembly for a 10k sling set or link 5 for 25k.

B. Rig the apex of the sling leg for the type of aircraft that will be picking up the load. A UH-60 Blackhawk must have an aluminum spacer on it, and a UH-1H must have an apex ring or a basket hitch. A CH-47 does not require any additional items on the apex. Check the nut on the apex. The castellated nut must have a cotter pin in it.

PHASE II

INSPECTION OF PREPARATION AND RIGGING

A. There are three personnel who can inspect a sling load. They are a Pathfinder School Graduate, SLICC (Sling Load Inspector Certification Course) Graduate, and an Air Assault School Graduate. When you inspect a sling load you will inspect it a minimum of 2 times or until you are 100% sure the load will fly safely.
B. Start your inspection at the apex. Check to ensure the bolt is present and secured with a nut. The castellated nut must have a cotter pin in it. Inspect to ensure that the apex is setup for the appropriate inbound aircraft. A UH-60 aluminum spacer, UH-1H basket hitch or donut ring, CH-47 does not require additional items on the apex.
C. Check to make sure the grab hook assembly is not inverted and you have a link count of three.
D. Check the medium clevis to ensure it has tape on both ends of the bolt and that the D-rings are on the bolt and in the proper sequence.
E. Check to ensure your suspension webbing straps are all of the same type (either all cotton or all nylon). Check the butterfly snap hooks to ensure that they are all facing down toward the load and taped with 2 inch tape.
F. Check the 188 inch straps to ensure they form a cross on top of the load. Ensure they are routed under the lateral straps. Also, check to ensure they have been tightened down, free of twists and do not have quick releases. Ensure that all of the excess strap has been taped with 2 inch tape.

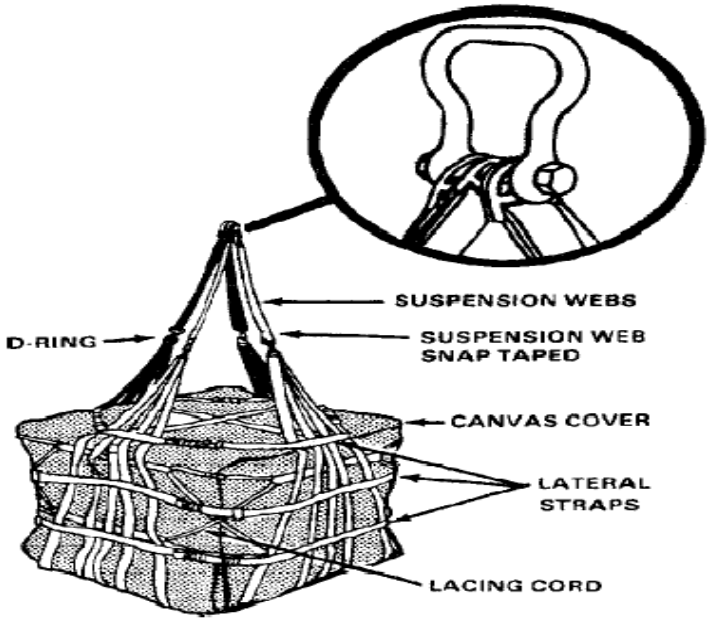
G. You will move to one corner and start at the top. Check the lateral strap for proper routing, it is free of twists, and verify that it has been tightened down and excess strap has been taped with 2 inch tape. Check the middle and bottom strap for the same things. Remember, if one strap has a quick release, all lateral straps must have a quick release.

H. Check the lacing rope to ensure it has been properly routed through the lacing loops from ground to the sky. Check that the rope forms an X and is routed properly through the top lacing loops.

I. Finally, check the rope to ensure it has been secured with a bow knot, and that the excess rope has been secured with 2 inch tape leaving a buddy tab.

J. Inspect the other three corners in the same manner.

A-22 BAG



NOTES

ONE TO FOUR 500 GALLON FUEL DRUMS

A. APPLICABILITY:
   1. One fuel drum is certified by the U. S. Army NATICK for UH-60 and CH-53A/D/E helicopters at airspeeds up to and including 80 and 120 knots, respectively. One to four fuel drums is a suitable load for the CH-47 helicopter at airspeeds up to and including 80 knots.

B. LOAD DESCRIPTION:
   1. Drum
   2. fabric
   3. fuel
   4. 500 gallons capacity

C. WEIGHT:
   1. Drum- empty, 275 lbs
   2. One drum, maximum weight 4,200 lbs
   3. Two drums maximum weight 8,400 lbs
   4. Three drums maximum weight 12,600 lbs
   5. Four drums maximum weight 16,800 lbs

D. MATERIALS:
   a. Sling sets
      (1) One drum, 10,000 or 25,000 lbs. capacity
      (2) Two drums, 10,000 or 25,000 lbs. capacity
      (3) Three drums, 25,000 lbs. capacity
      (4) Four drums, 25,000 lbs. capacity
   b. Tape, adhesive, pressure-sensitive, 2 inch wide roll
   c. Webbing, cotton, 1/4 inch, 80 lbs. breaking strength
   d. Cord, nylon, Type III, 550 lbs. breaking strength

E. PERSONNEL: Two people can rig one to four drums in 5 to 15 minutes.

NOTE: Exact weight of each drum may vary depending on type and amount of fuel and you must have a minimum of 6 blivets to fly empty.

SERVICEABILITY AND ACCOUNTABILITY INSPECTION

A. When preparing the fuel blivets, you must conduct a serviceability inspection. The three sections you will inspect are as follows,
    1. Front circular portion
    2. Rear circular portion
    3. Black rubber portion

B. When inspecting the front circular portion, you will look for the following:
    1. Fuel nozzle
        a. Foreign materials (if any, remove it).
        b. Ensure black rubber gasket inside is present.
    2. Fuel cap
        a. If the fuel cap is not present, cover fuel opening with 2 inch tape.
        b. When the locking levers are folded to the sides, the cap is in the locked position. When the locking levers are extended, the cap is in the unlocked position.
    3. Inspect the inside of the cap. The black rubber gasket must be present.
    4. Lift points
        a. Lift points are 5/8 inch screw pin clevis, which has a rated capacity of 4,420 lbs.
        b. Inspect threads of screw pin clevis to ensure they are not stripped and the cotter pin is present.
        c. Inspect for rust, cracks, nicks, dents, and burrs, then take the appropriate action.
    5. Bezel ring
        a. Ensure the bezel ring rotates freely 360 degrees in both directions; because the fuel blivets tend to rotate while in-flight.
        b. Check all hex head bolts to ensure none of them are protruding from the bezel ring or large circular portion.
        c. When inspecting the rear circular portion, it is the same as the front, except there may or may not be a fuel nozzle.
        d. When inspecting the black rubber portion, look for the following: Cuts, cracks, gouges, or areas worn to the white threading. Anything that is leaking or could become a leak, will deem the fuel blivets unserviceable.

PHASE I

PREPARATION AND RIGGING

A. Install all fuel caps and ensure they are secured in the locked position with type III nylon
B. If no dust cover is present, cover the fuel opening with 2 inch tape
C. Ensure screw pin clevises have cotter pins
D. Rigging of the 500 gallon fuel blivets with 25,000 lbs. sling set
    1. One fuel blivet
        a. 2 sling legs with 1 apex
        b. Lift points rotated to the 12 o'clock position
        c. Link count 3 at each lift point
        d. Tie one mandatory breakaway with ¼" cotton webbing

NOTE: General rule, one breakaway for every two sling legs.

    2. Two fuel blivets
        a.. Four sling legs and apex
        b. Apex order as follows
            (1) The center legs to the lightest fuel blivet
            (2) The outer legs to the heaviest fuel blivet
            (3) Link count of three at each lift point

NOTE: If you have a 10,000 lbs. sling set available, you may sling load them exactly the same way you sling load 1 and 2 fuel blivets with a 25,000 lbs. sling set. However, 2 fuel blivets are the maximum you can lift on a 10,000 lbs. sling set with 4 legs.

    3. Two fuel blivets (pilot preferred method)
        a. Two fuel blivets rigged as a dual load on two sling legs from a 25K sling set
        b. Rotate lift points to the 3 o'clock - 9 o'clock position
        c. Route the free running end of the chain through the two inside lift points

NOTE: When routing the chain lift points, go same direction on both(i.e. left to right through lift point at the 9 o'clock position)

        d. Secure a link count of three
        e. Ensure you have no chain to chain contact on both lift points
        f. Apex order is as follows:
            (1) The left sling leg to the left side of the blivets
            (2) The right sling leg to the right side of the blivets

g. There is one mandatory breakaway in the center of the blivets

4. Three fuel blivets:
    a. Configuration: Two blivets in the dual hookup mode (pilot preferred), and one blivet in the single hookup mode
    b. Utilize four sling legs and apex to the 25,000 lbs. sling set only
    c. Apex order is as follows:
        (1) The inside sling legs to the single fuel blivet
        (2) The outside sling legs to the pilot preferred blivets
    d. There are two mandatory breakaways. One breakaway around one set of dual hookups and one between the single hookup.
5. Four fuel blivets
    a. Configuration. Rig two pair of pilot preferred methods.
    b. Utilize four sling legs and apex to the 25,000 lbs. sling set only.
    c. Apex order is as follows:
        (1) The inside sling legs are routed to the lightest pilot preferred blivets
        (2) The outside sling legs are routed to the heaviest pilot preferred blivets
    d. There are two mandatory breakaways. One between each pilot preferred method.

PHASE II

INSPECTION OF PREPARATION AND RIGGING

A. There are three personnel who can inspect a sling load. They are a Pathfinder School Graduate, SLICC (Sling Load Inspector Certification Course) Graduate, and an Air Assault School Graduate. When you inspect a sling load you will inspect it a minimum of 2 times or until you are 100% sure the load will fly safely.

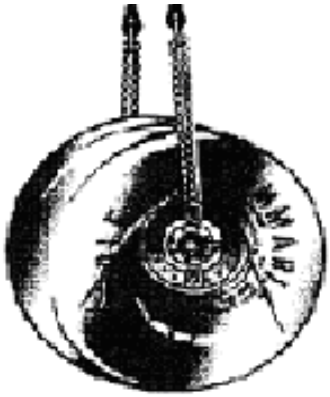
B. When you inspect this load, you will start at one end of the load, and work in a 360 degree manner and from top to bottom. If you find deficiency, you will stop and correct that deficiency, and restart your inspection process from there. Inspect a minimum of two times or until you are 100% sure the load will fly safely.

C. The inspection sequence is as follows
    1. Apex has a castellated nut with cotter pin.
    2. Apex order is as follows:
        a. One blivet:
            (1) The left sling leg to the left side
            (2) The right sling legs to the right side
        b. Two blivets (Four legs):
            (1) The inside sling legs to the lightest blivet
            (2) The outside sling legs to the heaviest blivet (or forward flying blivet)
        c. Three blivets:
            (1) The inside sling legs to the single blivet
            (2) The outside sling legs to the dual blivets
        d. Four blivets
            (1) The inside sling legs to lightest set of blivets
            (2) The outside sling legs to heaviest of blivets (or forward flying blivet)
        e. Sling legs:
            (1) Ensure they are not crossed, misrouted through, or under the triangle on the dual blivets, or out of order
        f. Breakaways:
            (1) Ensure they are made of 1/4 inch cotton webbing. Ensure that there is one breakaway or every two sling legs, tied on top and is in the center of the fuel blivets or between the dual blivets.

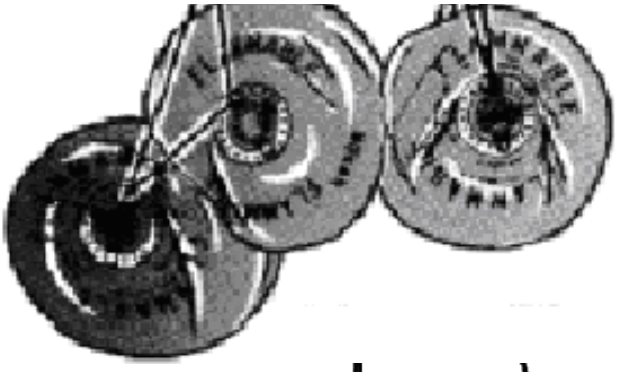
g. Sling leg chains:
    (1) Ensure a link count of 3 (or 55 for a single blivet in a three blivet configuration)
    (2) Ensure the chain passes through one lift point and is not misrouted around the fuel cap/nozzle
    (3) Ensure that the excess link count of 10 or more will be secured with type III nylon
    (4) Ensure there is no chain to chain contact pre sent on the pilot preferred blivets
h. Lift points
    (1) Ensure they are routed to the 12 o'clock position for the single blivet, or 3 to 9 o'clock position for dual blivets.
    (2) Ensure the cotter pin is in the 5/8 inch screw pin clevis
i. Fuel nozzle:
    (1) Ensure the cap is in place and secured properly with type III nylon on the locking arms or with 2 inch tape over the fuel nozzle.

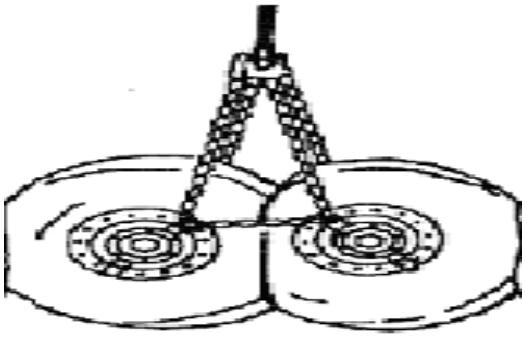
NOTE: Move to the rear of the fuel blivets and inspect it in the same sequence. Keep in mind that the fuel blivets might have a fuel nozzle on both sides. DA Form 7382-R must be filled out IAW FM 4-20.197 see Appendix I)

SINGLE BLIVET

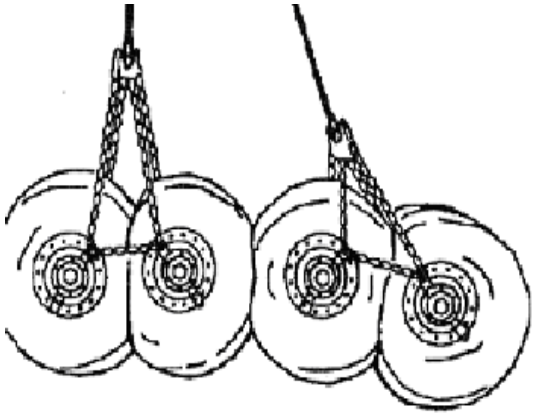


THREE BILVETS PILOT PREFERRED





TWO BLIVETS PILOT PREFERRED



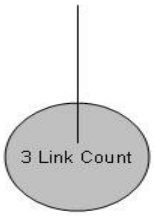
FOUR BLIVETS PILOT PREFERRED

FUEL BLIVET CHART

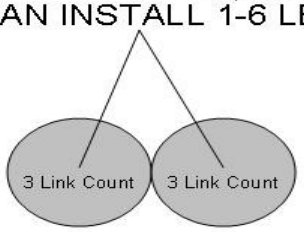
(COMBINATIONS OF BLIVETS AND SLING SETS)

10,000 LBS SLING SET

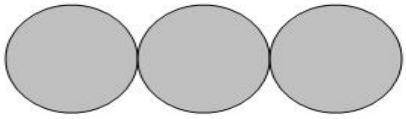
(* CAN INSTALL 1-6 LEGS ON THIS APEX AT ANY TIME)



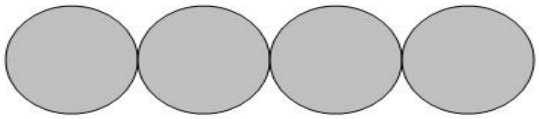
1 Blivet
2 Slinglegs
1 Breakaway



2 Blivets
4 Slinglegs
1 Breakaway (Cluster)



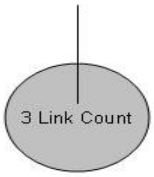
3 Blivets (NOT able to Slingload)



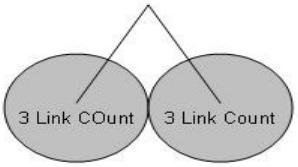
4 Blivets (NOT able to Slingload)

25,000 LBS SLING SET

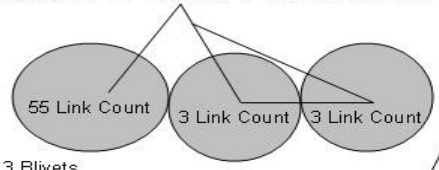
(* CAN INSTALL 1-4 LEGS ON THIS APEX AT ANY TIME)



1 Blivet
2 Slinglegs
1 Breakaway

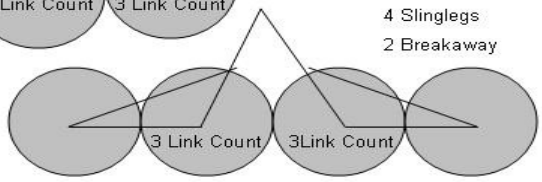


2 Blivets
4 Slinglegs
1 Breakaway (Cluster)



3 Blivets
4 Slinglegs
2 Breakaway

4 Blivets
4 Slinglegs
2 Breakaway



NOTES

M102 105-MM Howitzer

A. APPLICABILITY:
   1. The M102 105-MM Howitzer is certified by the U.S Army NATICK for all helicopters with suitable lift capacity

B. LOAD DESCRIPTION: Cargo Net, 5,000 lbs and 10,000 lbs
   1. Characteristics: 5,000 lbs capacity
      a. Weight– 3,300 lbs
      b. Max Weight—5,830 lbs
      c. Max Accompanying Load—2,500 lbs

C. MATERIALS.
   1. Complete 10K Sling set
   2. 2” Adhesive Tape, rated capacity of 80 lbs. per wrap
   3. Type III Nylon 550-pound breaking strength.
   4. CGU-1B, Tie-down strap

D. PERSONNEL: Two personnel can prepare and rig this load in 10 minutes

PHASE I (PART 1)

PREPARATION

A. Begin preparing the load at any point and continue around in a 360 degree motion until you return to your start point either clockwise or counterclockwise.
B. Place the muzzle cap and the muzzle cover on the muzzle. Shatterproof reflector located on the muzzle. Secure muzzle cover with the strap provided, additionally secure the strap with 2 inch tape. If the strap is missing or damaged secure the muzzle cover with type III nylon and additionally secure the type III nylon with 2 inch tape.
C. Place the sight covers on the sight mount and secure them with the straps that are provided. Additionally secure them with Type III nylon.
D. Secure the section equipment chest on the end of the trails with CGU-1B. Ensure there are no twist in the straps and the hook of the ratchet is facing out. Role the excess strap and secure it to itself. Tape the outward facing hook with two inch adhesive tape.
E. Rotate the tow pintle to the up position and secure it with pin.
F. Place the base plate in the travel configuration.
G. Secure the gun tube is in the travel lock.

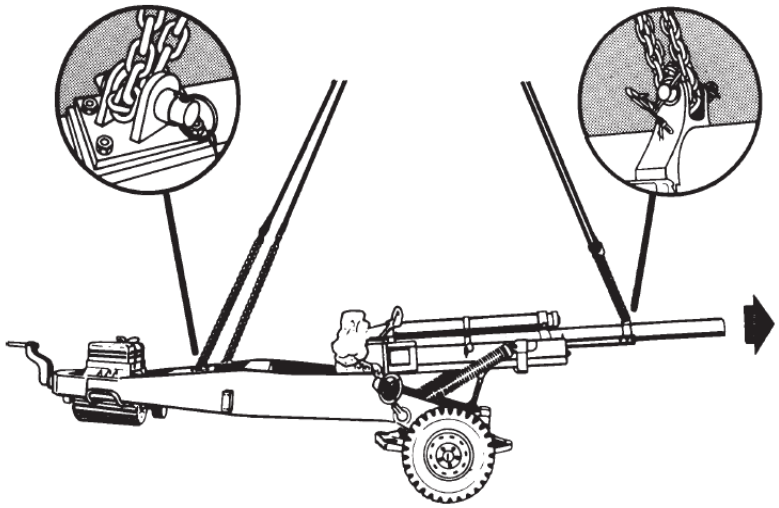
PHASE I (Part 2)

RIGGING

A. Position the apex on top of the breach. Route outer sling legs 1 and 2 to the trails. Route the inner sling legs on the apex to the muzzle. Outside sling legs must be routed to the rear trails of the load.
B. Remove the pin from the lift provision on the left trail. Center the chain end of sling leg in the lift provision. Get a link count of three. Place the third link in the hook portion of the grab hook assembly. Repeat with sling leg on the right trail. Secure the excess chain with type III nylon to one of three places, the eyelet of the grab hook assembly, the coupling link, or to the lifting chain itself. Ensure that you do not secure excess chain to excess chain.
C. Remove the pin from the lift provision on the gun tube. Center the chain end of sling leg/s to the front lift point. Reinstall the pin in the lift provision. Get a link count of 55. Place the 55^{th} link into the hook portion of the grab hook assembly. Secure the excess chain with type III nylon to one of three places, the eyelet of the grab hook assembly, the coupling link, or to the lifting chain itself. Ensure that you do not secure excess chain to excess chain.

D. Tie all sling legs together on top of the howitzer using a cluster break-away to prevent entanglement during hookup and lift off**.**

NOTE: This load may be rigged with only three legs by eliminating one of the sling legs to the gun tube.



PHASE II

INSPECTION OF PREPARATION AND RIGGING

A. There are three personnel qualified to inspect this load. They are as follows:
    1. Pathfinder School Graduate
    2. Air Assault School Graduate
    3. SLICC (Sling Load Inspector Certification Course) Graduate
B. When you inspect this load, you will start at one end of the load and work in a 360 degree manner and from top to bottom. If you find a deficiency, you will stop and correct that deficiency, and restart your inspection process from there. Inspect a minimum of two times and until you are 100% sure the load will fly safely.
C. The inspection sequence is as follows:
    1. Ensure that the reflector on the muzzle cover is shatter proofed. The muzzle cover needs to be secure with the strap provided or with type III nylon. It should also be secured with two inch adhesive tape.
    2. Check the lift point on the gun tube. The sling leg chain should be routed through the lift point one time only. The pin and safety pin needs to be in place. The excess chain must be secured with type III nylon to one of three places. The eyelet of the grab hook assembly, the coupling link, or to the lifting chain. (Do not secure excess chain to excess chain.) The chain must be secured in the hook portion of the grab hook assembly with a link count of 55 and the grab hook assembly must not be inverted.
    3. Ensure that the brakes are engaged. Verify that the travel lock is engaged and the base plate is in the travel configuration.
    4. Inspect at the sight mount covers. They should be in place and secured with the straps provided and additionally secured with type III nylon.
    5. Make sure the equipment chest is secured with the latches provided and additionally secured with two inch tape. A CGU-1B must be wrapped around the chest. There should be no twist in the strap, the hook will be facing out/up, and the hook and excess strap will be padded with 2 inch tape.

6. Inspect the lift points on the trails of the howitzer. The sling leg chains should be routed through the lift point one time only. The pin and safety pins need to be in place. The chain must be secured in the hook portion of the grab hook assembly with a link count of 3 and the grab hook assembly must not be inverted.
7. Ensure sling legs are routed correctly, apex is complete, and all sling legs are secure inside ¼ inch cotton webbing (breakaway). Breakaway will be tied to the plate above the breech.

PHASE III

SLINGLOAD OPERATION

A. The hookup team stands on top of the trails next to the breech. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the helicopter but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

NOTE: DA Form 7382-R three hand written copies must be filled out IAW FM 4-20.197, see Appendix I.

M119A2 105mm HOWITZER

Forward / Firing Position, Platform Down.

A. APPLICABILITY:
   1. Those rigging procedures have been approved by the US Army NATICK for flight by UH-60 & CH-47 at 110 kts.
B. LOAD DESCRIPTION: WEIGHTS
   1. MAXIMUM with 10K sling set: 4400 lbs.
   2. MAXIMUM with accompanying load w/ 25K sling set: 7400lbs.
   3. MAX ACCOMPANYING LOAD: 3000 lbs.
C. MATERIALS:
   1. 10,000lbs capacity sling set
   2. Tape, adhesive, pressure-sensitive, 2 inch wide roll
   3. Webbing, cotton, ¼ inch, 80lbs breaking strength
   4. Cord, nylon, Type III, 550lbs breaking strength
   5. Cord, nylon, Tubular, ½ inch, 1000lbs breaking strength
   6. Appropriate padding material
   7. Strap, tie-down, CGU-1B
   8. Clamp, chain link
D. PERSONNEL: Two people can prepare and rig the load in 30 minutes.

PHASE I (PART 1)

PREPARATION

A. Begin preparing the load at any point and continue around in a 360 degree motion until you return to your start point either clockwise or counterclockwise.
B. You will place the Howitzer in the forward/firing configuration. Place the tube in forward travel lock and secure it with the pushpins.
C. Place the howitzer on the firing platform and secure it with the front and rear stays with push pins, once you tighten your front stays with the saddle clamp, you will secure the clamp with type III nylon.
D. Pad the machined surface on the cross member.
E. Additionally secure the firing platform with a CGU-1B, by routing it through the lifting holes and through the cradle of the howitzer. Ensure the CGU-1B is routed across the padding material on that machined surface.
F. Place the muzzle cover on the muzzle and secure it with the strap provided.
G. Pad the nitrogen reservoir with enough material to protect it from being damaged by the sling legs when the A/C picks up the load.

H. Take a piece of type III nylon, approximately 8 to 10 feet long and route it through the hole portion of the cross bar on either side. Pull it tight and wrap it one complete time around the hex portion of the equilibrator shaft. Keeping it tight, you will wrap it around the buffer assembly. From the buffer you take the type III to the equilibrator shaft on the opposite side, and wrap it one complete time. Take it down through the hole portion of the cross member on the opposite side and secure it with a non-slip secure knot. This is done to prevent the sling legs from becoming caught on the equilibrator shafts and the buffer assembly.
I. Place brakes in the on position.
J. Place covers on equilibrators and secure them with straps provided.
K. Rotate the gunner's site mount all the way back and in. Place the mount cover over the mount and secure it with the strap provided and additionally secure the cover with type III nylon to a fixed portion of the load.
L. Install the run-back stop in the breech, and place the breech cover over it while securing it with the strap provided. Additionally secure cover with type III nylon to a fixed portion of the load. Take a piece of type III nylon, approximately 8 to 10 feet long and tie it to left trail. Pull it tight and place through the hole portion on the back of the equilibrator. Keeping it tight, you will go to the opposite trail. From that trail you will take the nylon through the hole portion of the opposite equilibrator, and tie it back to the original tie down point.
N. Ensure firing platform clamps are hand tight.
O. Jack strut secured with pin and additionally secured with 2" tape.
P. Rear brake assembly padded.
Q. Detachable spade secured with large pins and secured from pin to pin with type III nylon.
R. Trail hand spike placed in the mounts provided and secured in two places with 2" tape.
S. Ensure knock off hub is parallel with the ground.

PHASE I (PART 2)

RIGGING

A. Place three sling legs on the apex. Take fourth sling leg and remove the lifting chain. Add that lifting chain to the middle sling leg on apex. Place the sling set on top of load.
B. Secure the free running end of left sling leg, route the chain around the center portion of the left tire. Secure a link count of 50. Additionally secure chains with chain clamp or ½ tubular nylon. Secure excess links with type III nylon.
C. Secure the free running end of the center sling leg, route the chain through the towing lunette, securing a link count of 35. Additionally secure the excess with type III nylon.
D. Secure the free running end of the right sling leg, route the chain around the knock off hub of right tire. Secure a link count of 55. Additionally securing the excess links with type III nylon. Ensure the knock off hub is parallel to ground.
E. One cluster breakaway located on M90 chronograph mount. Second breakaway located on bar portion of rear travel lock assembly. Third breakaway is located on base portion behind the brake assembly above the lunette.

PHASE II

INSPECTION OF PREPARATION AND RIGGING

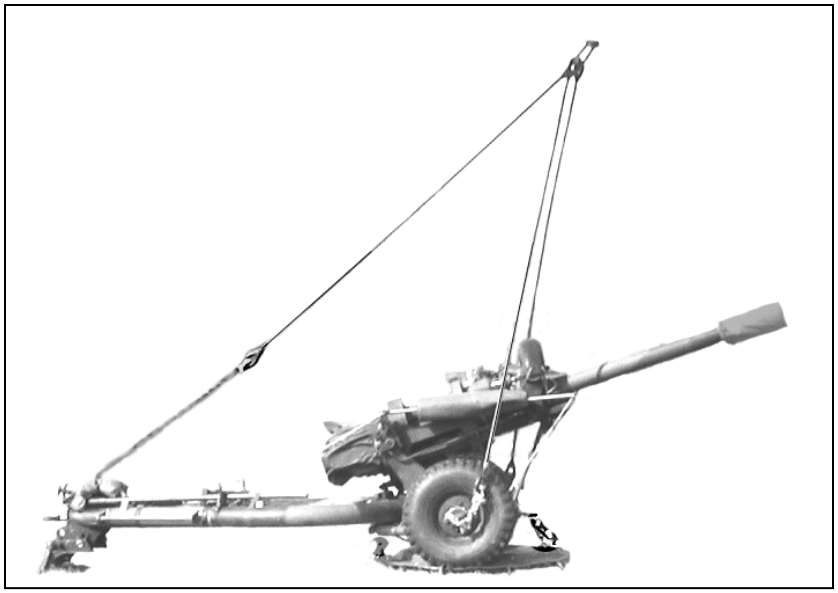
A. There are three personnel who can inspect a sling load. They are a Pathfinder School Graduate, SLICC (Sling Load Inspector Certification Course) Graduate, or an Air Assault School Graduate. When you inspect a sling load you will inspect a minimum of 2 times or until you are 100% sure that it will fly safely. Your inspection will start on the passenger side of the vehicle.

B. When you inspect this load, you will start at one end of the load and work in a 360 degree manner and from top to bottom. If you find a deficiency, you will stop and correct that deficiency, and restart your inspection process from there. Inspect a minimum of two times and until you are 100% sure the load will fly safely.

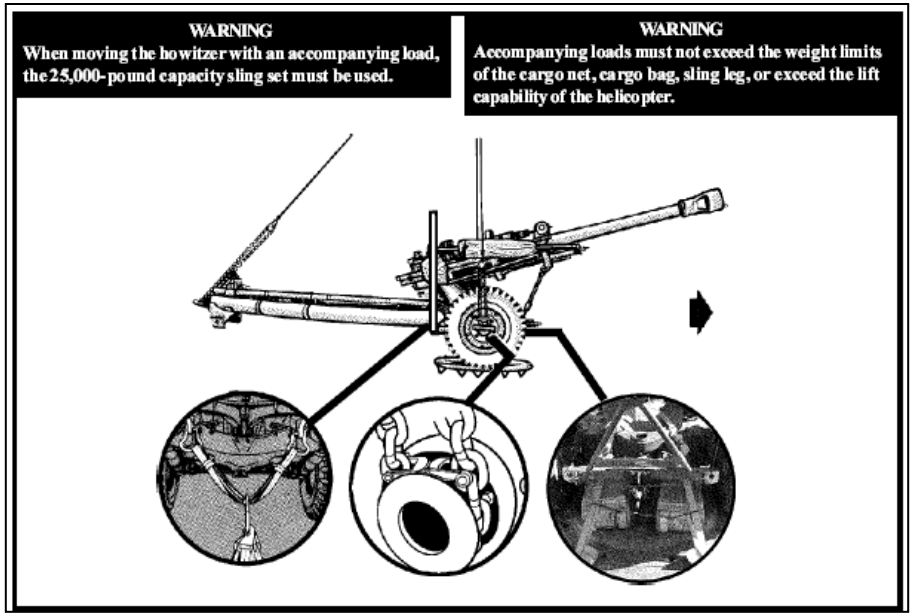
C. The inspection sequence is as follows:

1. Muzzle cover secure on muzzle
2. Recuperate padded and secured with type III nylon
3. Type III nylon spider web present
4. Travel lock secured with push pins provided
5. Saddle clamp in the up position and secured with type III nylon
6. Machined plain padded
7. CGU-1B present with no twist, ratchet portion secured with 2" tape, excess rolled and additionally secure with 2" tape
8. Brake on
9. Link count left side 50, excess secured with type III nylon
10. Chain clamp or ½ tubular nylon (2 square knots) present on chains, additionally secured with 2" tape
11. Equilibrator cover present
12. Castellated nut and cotter pin
13. Apex order, left-to left, right-to-right, center-to-rear
14. Sling legs routed properly
15. Breakaway (each leg wrapped individually)
16. Gunners sight mount cover secured with strap and additionally with type III nylon
17. Rear stays secure with push pins
18. Spider web rear: line X line
19. Breech cover secured with strap and additionally with type III nylon
20. Run back stop present
21. Firing platform clamp secured
22. Jack strut secure and additionally with 2" tape
23. Link count rear 35, excess secured with type III

24. Breakaway around travel lock bar
25. Brake on
26. Brake assembly padded
27. Breakaway
28. 1 chain through rear lift point
29. Detachable spade secured with type III nylon
30. Firing Platform clamp secured
31. Trail hand spike secured in two places with 2" tape
32. Rear stays secure with push pins
33. Equilibrator cover present
34. Brake on
35. Knock off hub parallel to ground
36. Link count right side 55, excess links secured with type III nylon
37. Clamp or ½ tubular nylon (2 square knots)



M119 105mm HOWITZER
Forward / Firing Position, Platform Down.



NOTES

M149-SERIES WATER TRAILER

A. APPLICABILITY:

1. This load is suitable for CH-47 helicopters at airspeeds up to and including 80 knots.

B. LOAD DESCRIPTION:

2. Trailer, water , 400 gallon, M149-series, with original lift provisions, LIN W98825.

Weight:	EMPTY	LOADED
M149	2,540 lbs	6,060 lbs (see Warning)
M149A1	2,540 lbs	6,060 lbs (see Warning)
M149A2	2,800 lbs	6,320 lbs (see Warning)

WARNING

The M149, M149A1, and M149A2 water trailer without modified clevis-type lift provisions are not currently certified for EAT due to inadequate lift provision strength when the trailer is loaded.

C. MATERIALS:

1. Sling set (10,000 lbs. capacity)
2. Tape, adhesive, pressure-sensitive, 2 inch wide roll
3. Cord, nylon, Type III, 550 lbs. breaking strength
4. Webbing, cotton, 1/4 inch, 80 lbs. breaking strength

D. PERSONNEL: Two personnel can prepare and rig this load in 10 minutes.

PROCEDURES

PHASE I (PART 1)

PREPARATION

A. Secure the light cable and air hoses to the drawbar with type III nylon
B. Place the support leg and wheel in the down position
C. Additionally secure faucet boxes with type 3 nylon
D. Shatter proof all glass and plastics
E. Secure jack handle in the bracket provided and additionally secured with type 3 nylon
F. Tape the top edge of the aft end of the water tank to prevent the sling legs from chafing on the top of the tank
G. Engage both hand brakes
H. Make sure that the fill port is securely closed. Tape if necessary.
I. Water trailer must be empty or full

PHASE I (PART 2)

RIGGING

A. Position apex on top of the tank. Route the outer sling legs to the front of the trailer and the inner sling legs to the rear.
B. Route the free running ends of the front chain legs through the lunette front eye from sky to ground and insert a link count of 75 in the grab hook assembly.
C. Using the rear lift provisions as a guide to keep the chains in place, route the free running end of the left chain leg down between the tank and the frame, under the rear frame and back up through the lift provision. Secure a link count of 90 in the grab hook assembly. Repeat the same process on the right side and remember both sides must mirror.
D. Secure all excess chain links of 10 or more with type III nylon.
E. Tie your 1 mandatory cluster breakaway on all four sling legs with a piece of 1/4” cotton webbing on top of water tank to prevent entanglement during hook up.

PHASE II

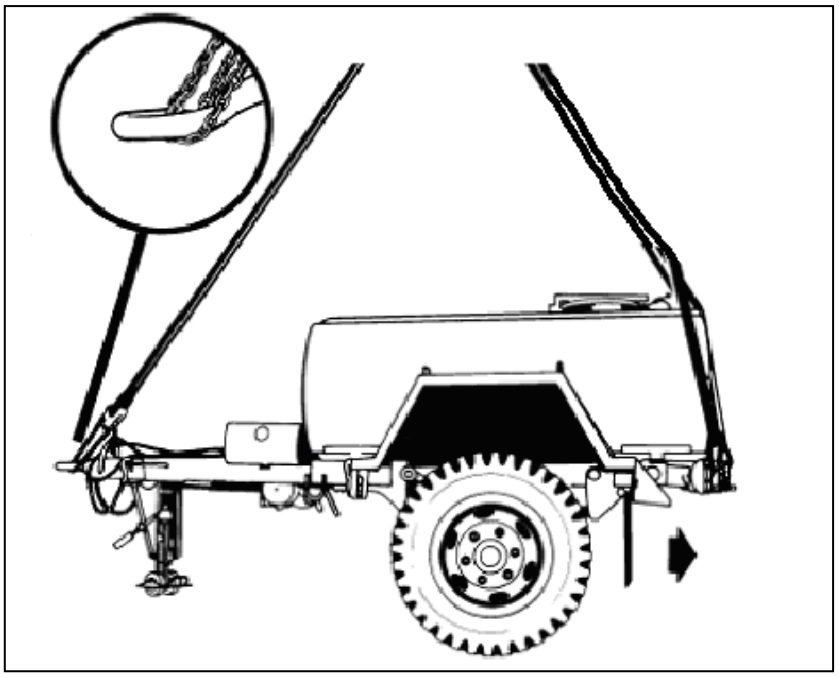
INSPECTION

A. Begin inspection sequence at the towing lunette
    1. Inspect for a link count of 75 on both chain legs
    2. Excess chain secured
    3. Light cable secured
    4. Air hoses secured
    5. Support leg and wheel in down position
    6. Right hand brake engaged
B. Move around the right side of the load
    1. Right rear link count of 90
    2. Excess chain secured
C. Step up onto right rear bumper
    1. Top edge of trailer taped and padded
    2. Fill port secured
    3. Trailer full or empty
    4. Cluster breakaway 1/4 inch cotton webbing around all four sling legs
    5. Apex order, outer front, inner rear
    6. Castellated nut, cotter pin
D. Move to the left rear lift point
    1. Left rear link count 90
    2. Excess chain secured
    3. Left hand brake engaged

PHASE III

SLINGLOAD OPERATION

A. The hookup team stands on each wheel fender. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.



M149 WATER TRAILER

NOTES

M998/M1038 TRUCK, CARGO, 1 1/4-TON (HMMWV)

A. Applicability:
   1. Certified by US Army NATICK for CH-47 helicopter at airspeeds up to and including 90 knots. Both trucks are also certified by NATICK for the UH-60 helicopter with the following limitations:
      a. With a vehicle gross rigged weight of less than 7,300 lbs., the UH-60 is restricted to airspeeds up to and including 100 knots.
      b. With a vehicle gross rigged weight between 7,300 lbs. and 7,700 lbs., the UH-60 is limited to 70 knots.

NOTE: When using UH-60 support, coordinate closely with the aviation unit in reference to the vehicle weight.

   2. Load Description:
      a. M998 truck, 1 1/4 ton (HMMWV)
      b. M1038 truck, 1 1/4 ton (HMMWV)
   3. Weight
      a. Empty, 5,200 lbs.
      b. ACL, 2,500 lbs
      c. Loaded, 7,700 lbs

VEHICLE GROSS RIGGED WEIGHT IS RESTRICTED TO 7,700 LBS

B. Materials:
   1. Sling set (10,000 lbs. capacity) (UH-60 or CH-47)
   2. Tape, adhesive, pressure-sensitive, 2-inch wide roll
   3. Cord, nylon, Type III, 550 lbs. breaking strength
   4. Webbing, cotton, 1/4 inch, 80-pound breaking strength

C. Personnel: Two people can prepare and rig the load in 15 minutes

PHASE I (PART 1)

PREPARATION

A. Begin preparing the load at any point and continue around in a 360-degree motion until you return to your start point either clockwise or counterclockwise. Start at the passenger side windshield.
B. The windshield will be taped and padded IAW your unit SOP. At minimum make an X configuration with two-inch tape both inside and outside. Rotate the mirrors forward towards the windshield and secure them with type III nylon. Inspect your front lift points for any rust, dents, cracks, nicks, and burrs.

C. The hood will be secured with latches provided and additionally secured with two-inch tape. Wheels will be in the straightforward position. All glass and plastic, i.e. turn signals and headlights will be taped IAW your unit SOP. Again, the other side of the hood will be latched and taped with two-inch tape. You now come to the other rearview mirror. It also is rotated forward and secured with type III nylon and the windshield is shatterproof with two-inch tape in an X configuration both inside and outside. The ends of the vehicle bumper guides will be padded with two-inch tape or antenna balls.

D. Now, when preparing the interior of the vehicle, work your way from the inside towards the outside.

E. Start with the transmission and make sure it is in neutral. Check the hand brake and make sure it is in the engaged position. The steering wheel will be secured with type III nylon to a fixed portion of the load in at least two places. Also, make sure that electrical switches and the engine ignition switch are in the off position, and check for a proper fuel level of 75 % or less. The last thing to prepare on the inside is the seat belts. The male portion must be rolled, taped and tucked behind the seat and the female portion will be rotated up behind the data plate and taped in place with two-inch tape. If the vehicle has the three-point lap belt, it will be secured as worn. All canvas doors and other cargo will be secured in the rear of the vehicle.

F. Move towards the rear. The troop seats will be up and secured with the pins provided. If one of the pins is missing, the troop seat will be secured with type III nylon in two places and the seatbelts will be secured as worn.

G. All glass and plastic will be taped and padded IAW your unit SOP. Rotate the tailgate to the up position, secure it with the hooks facing outward and chains provided and secure the hooks with type III nylon. The sling guides will be padded IAW your unit SOP.

H. Inspect your rear lift points for any rust, dents, cracks, nicks, or burrs. If any are present, take the appropriate action. Ensure the towing pintle is closed and secured with a cotter pin, two-inch tape, or type III nylon. The electrical connector needs to be spring loaded and have a rubber gasket in it. If no gasket is found, tape it closed with two-inch tape.

I. Move around the other side of the vehicle and the first thing you should come to is the fuel cap, make sure the cap is hand tight. You will roll, tape and tuck the male portion of the seat belt behind the seat and rotate the female portion up behind the seat and the data plate and tape it with two-inch tape. If the vehicle has the three-point lap belt, it will be secured as worn.

J. The last thing you will prepare is the battery and battery box. The battery will be free from all corrosion and have a good connection. Once the batteries have been checked, close the battery box, latch it and additionally secured with 2 inch tape.

PHASE I (PART 2)

RIGGING

A. Place one 10K sling set on the load with the inner two sling legs routed to the rear of the vehicle and the outer two sling legs routed to the front of the vehicle (FIG 2-19), over the roll bar and secured to the roll bar with ¼ inch cotton webbing, over the windshield and routed to the two lift points. The apex must be secured with the bolt, castellated nut, and cotter pin provided.

B. Move to the front right lift point. The link count to the front is eighty. Grab the free running end of the chain and route it through the lift point, inside out or outside in (it does not matter). Secure a link count of eighty by dropping the 80th link in the keeper portion of the grab hook assembly. Secure all excess links by wrapping the excess around the lifting chains and securing it with type III nylon. Repeat this process on the left front lift point.

C. Move to the rear of the vehicle. Begin with the left rear lift point. Grab the free running end of the chain and route it down through the sling guide, through the lift point and back up through the sling guide (FIG 2-20). Secure a link count of three by dropping the 3rd link into the keeper portion of the grab hook assembly. Repeat this process on the right rear lift point.

D. Next you will tie the appropriate breakaways. All breakaways are tied with one wrap of 1/4" cotton webbing. Before tying the first breakaway, pull all slack toward the rear of the vehicle.
E. The first mandatory breakaway is tied around the roll bar and the front two sling legs centered on the roll bar and tied in a secured knot. If your vehicle is equipped with troop seats, you must tie additional breakaways.
F. Lay the grab hook assembly across the troop seat next to the troop strap retainer ring. Route a piece of 1/4" cotton webbing through the troop strap retainer ring and through both lifting chains and tied in a secured knot.
G. Repeat this process on the opposite side. If the vehicle is not equipped with troop seats you will tie the breakaway to the canvas retaining brackets or the sling guide.
H. Pull all slack upwards on both rear sling legs and pull both grab hook assemblies together.
I. Then tie a breakaway in one of four authorized positions. These are around the sling legs, through the potted eye, through the eye portion of the grab hook assembly or routed through all four lifting chains.

PHASE II

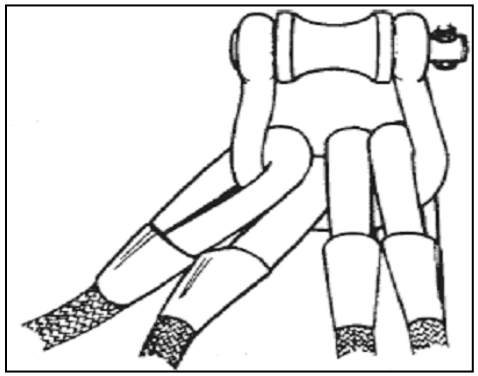
INSPECTION OF PREPARATION AND RIGGING

A. There are three personnel who can inspect a sling load. They are a Pathfinder School Graduate, SLICC (Sling Load Inspector Certification Course) Graduate, or an Air Assault School Graduate. When you inspect a sling load you will inspect a minimum of 2 times or until you are 100% sure that it will fly safely. Your inspection will start on the passenger side of the vehicle.
B. First, inspect the windshield and make sure it is properly shatter-proofed. Then, check the mirrors and make sure they are rotated forward and secured with type III nylon. Check the hood latches to make sure they are secured and taped with two inch tape and that the wheel is straight.
C. Move around to the front and inspect for a link count of 80 and that the excess links are secured with type III nylon. Then check all the glass and plastic in the front and make sure it is taped and padded IAW unit SOP. Moving to the other side you once again check to see that the wheels are straight, the hood is latched and taped with two-inch tape, the mirrors are rotated forward and secured with type III nylon and that the windshield is shatterproof with two-inch tape in an X configuration both inside and out.

D. On the inside of the vehicle check the transmission and make sure that it is in neutral and the parking brake is engaged. Then check all the electrical switches and the engine ignition switch to make sure they are off, and the fuel level is 75 % or less. Check to ensure the steering wheel is secured with type III nylon to a fixed portion of the load and then check the seat belts. Make sure the male portion is rolled, taped and tucked, and that the female portion is rotated up behind the data plate and taped with two-inch tape. If the vehicle has the three-point lap belt, it will be secured as worn. Move to the rear of the load and inspect the troop seats to ensure that they are secured in the up position with the pins provided, or secured in two places with type III nylon. At the rear of the vehicle you will inspect a vehicle with troop seats in a U shaped sequence. Begin by inspecting for a link count of three. Move to the breakaway and inspect for 1/4" cotton webbing. Move down to ensure the chains are routed through the sling guides. Ensure the tailgate is secured with the hooks and chains (hooks are facing outward), and that the hooks are secured with type III nylon. Inspect glass and plastic for tape and padding IAW unit SOP. Ensure chains are routed through the lift point. Inspect the towing pintle to ensure that it is secured closed with the cotter pin or two inch tape or type III nylon. Check the electrical connector for a rubber gasket and ensure it is spring loaded. Moving to the front, ensure the chains are routed through the lift point. Inspect glass and plastic for tape and padding. Ensure the tailgate is secured with the hooks and chains and the hooks are secured with type III nylon. Ensure two chains are routed up through the sling guide. Ensure breakaway is tied with 1/4” cotton webbing. Inspect for a link count of three. If the vehicle is not equipped with troop seats, begin at the breakaway using the same sequence as discussed above. Upon completion of the rear inspection, move down the passenger side ensuring the troop seats are secured with the pins or secured in two places with type III nylon. Ensure the fuel cap is hand tight. Move to the passenger compartment and work from the inside out starting with the engine access panel. If a radio mount is present, you must inspect to ensure all excess cable is wrapped and taped. If no radio mount is present, ensure the panel is secured with two-inch tape. The male seat belt must be rolled, taped, and tucked. Ensure the female seat belt is rotated behind the data panel and taped with two-inch tape. The battery box must be latched with the latches provided and taped with two-inch tape. Move inside the vehicle and inspect the breakaway on the roll bar to ensure it is 1/4” cotton webbing. Grab the apex and ensure the inner legs are to the rear and twist free and the outer legs are to the front and twist free. Inspect the castellated nut for a cotter pin. If the load is rigged with a 10K sling set and apex and being picked up by a UH-60, inspect for an aluminum spacer.

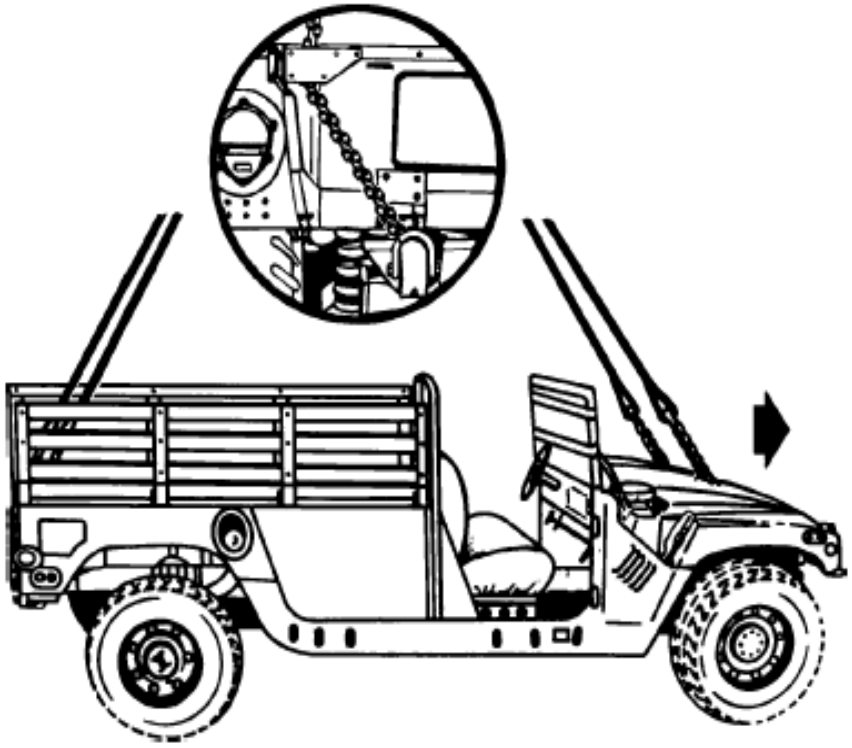
M998 HMMWV SINGLE CONFIGURATION
FIGURE 2-20

APEX ORDER TO THE M998
LEFT & RIGHT ARE DETERMINED BY FACING DIRECTION OF FLIGHT
FIGURE 2-19



LEFT FRONT **RIGHT FRONT**

LEFT REAR **RIGHT REAR**



NOTES

M1097/M1097A2 TRUCK, CARGO, 1 1/4-TON (HMMWV)

A. Applicability:

1. Certified by US Army NATICK for CH-47 helicopter at airspeeds up to and including 90 knots.

NOTE: This vehicle cannot be flown by a UH-60

a. Load Description.
   (1) M1097 truck, 1 1/4 ton (HMMWV)
   (2) M1097A2 truck, 1 1/4 ton (HMMWV)

b. Weight
   (1) Empty: 5,900 lbs
   (2) ACL: 4,100 lbs
   (3) Loaded: 10,000 lbs

WARNING VEHICLE GROSS RIGGED WEIGHT IS RESTRICTED TO 10,001 LBS

c. Materials
   (1) Sling set (25,000 lbs. capacity)
   (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll
   (3) Cord, nylon, Type III, 550 lbs. breaking strength
   (4) Webbing, cotton, 1/4 inch, 80-pound breaking strength
   (5) Personnel
      aa. Two people can prepare and rig the load in 15 minutes.

NOTE: IF 10,000 LB SLINGSET IS USED THE LINK COUNT IS 60 IN THE FRONT AND 3 IN THE REAR.

PHASE I (PART 1)

PREPARATION

A. Begin preparing the load at any point and continue around in a 360-degree motion until you return to your start point either clockwise or counterclockwise. Start at the passenger side windshield.
B. The windshield will be taped and padded IAW your unit SOP. At minimum make an X configuration with two-inch tape both inside and outside. Rotate the mirrors forward towards the windshield and secure them with type III nylon. Inspect your front lift points for any rust, dents, cracks, nicks, and burrs.
C. The hood will be secured with latches provided and two-inch tape. Wheels will be in the straightforward position. All glass and plastic, i.e. turn signals and headlights will be taped IAW your unit SOP. Again, the other side of the hood will be latched and taped with two-inch tape. You now come to the other rearview mirror. It also is rotated forward and secured with type III nylon and the windshield is shatterproof with two-inch tape in an X configuration both inside and outside. The ends of the vehicle bumper guides will be padded with two-inch tape or antenna balls. Now, when preparing the interior of the vehicle, work your way from the inside towards the outside.
D. Start with the transmission and make sure it is in neutral. Check the hand brake and make sure it is in the engaged position. The steering wheel will be secured with type III nylon to a fixed portion of the load in at least two places. Also, make sure that electrical switches and the engine ignition switch are in the off position, and check for a proper fuel level of 75 % or less. The last thing to prepare on the inside is the seat belts. The male portion must be rolled, taped and tucked behind the seat and the female portion will be rotated up behind the data plate and taped in place with two-inch tape. If the vehicle has the three-point lap belt, it will be secured as worn. All canvas doors and other cargo will be secured in the rear of the vehicle.

E. Move towards the rear. The troop seats will be up and secured with the pins provided. If one of the pins is missing, the troop seat will be secured with type III nylon in two places. All glass and plastic will be taped and padded IAW your unit SOP. Rotate the tailgate to the up position, secure it with the hooks and chains provided and secure the hooks with type III nylon. The sling guides will be padded IAW your unit SOP.

F. Inspect your rear lift points for any rust, dents, cracks, nicks, or burrs. If any are present, take the appropriate action. Ensure the towing pintle is closed and secured with a cotter pin, two-inch tape, or type III nylon. The electrical connector needs to be spring loaded and have a rubber gasket in it. If no gasket is found, tape it closed with two-inch tape.

G. Move around the other side of the vehicle and the first thing you should come to is the fuel cap, make sure it is hand tight. You will roll, tape and tuck the male portion of the seat belt behind the seat and rotate the female portion up behind the seat and the data plate and tape it with two-inch tape.

H. If the vehicle has the three-point lap belt, it will be secured as worn.

I. The last thing you will prepare is the battery and battery box. The battery will be free from all corrosion and have a good connection. Once the batteries have been checked, close the battery box, latch it and tape the latches with two-inch tape.

PHASE I (PART 2)

RIGGING

A. Place one 25K sling set on the load with the inner two sling legs routed to the rear of the vehicle and the outer two sling legs routed to the front of the vehicle (FIG 2-19), over the roll bar, over the windshield and routed to the two lift points. The apex must be secured with the bolt, castellated nut, and cotter pin provided.
B. Move to the front right lift point. The link count to the front is 50. Grab the free running end of the chain and route it through the lift point, inside out or outside in (it does not matter). Secure all excess links by wrapping the excess around the lifting chains and securing it with type III nylon. Repeat this process on the left front lift point.
C. Move to the rear of the vehicle. Begin with the left rear lift point. Grab the free running end of the chain and route it down through the sling guide, through the lift point and back up through the sling guide (FIG 2-20). Secure a link count of 3 by placing the 3rd link into the keeper portion of the grab hook assembly. Repeat this process on the left front lift point.
D. Next you will tie the appropriate breakaways. All breakaways are tied with one turn of 1/4" cotton webbing. Before tying the first breakaway, pull all slack toward the rear of the vehicle. The first mandatory breakaway is tied around the roll bar and the front two sling legs centered on the roll bar and tied in a secured knot. If your vehicle is equipped with troop seats, you must tie additional breakaways. Lay the grab hook assembly across the troop seat next to the troop strap retainer ring. Route a piece of 1/4" cotton webbing through the troop strap retainer ring and through both lifting chains and tied in a secured knot. Repeat this process on the opposite side. If the vehicle is not equipped with troop seats you will tie a tight "T." To tie a tight "T," pull all slack upwards on both rear sling legs and pull both grab hook assemblies together. Then tie a breakaway in one of four authorized positions. These are around the sling legs, through the potted eye, through the eye portion of the grab hook assembly or routed through all four lifting chains.

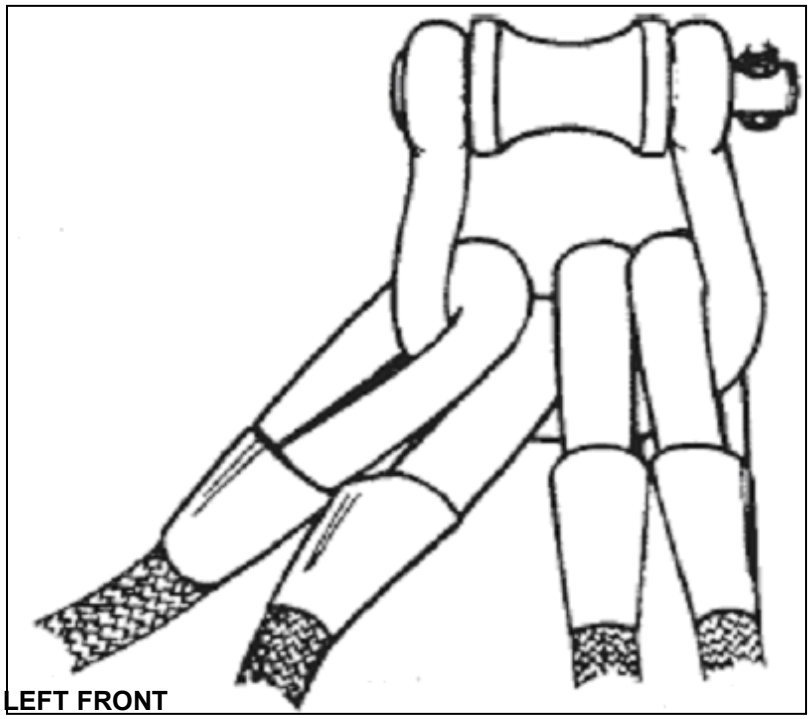
PHASE II

INSPECTION OF PREPARATION AND RIGGING

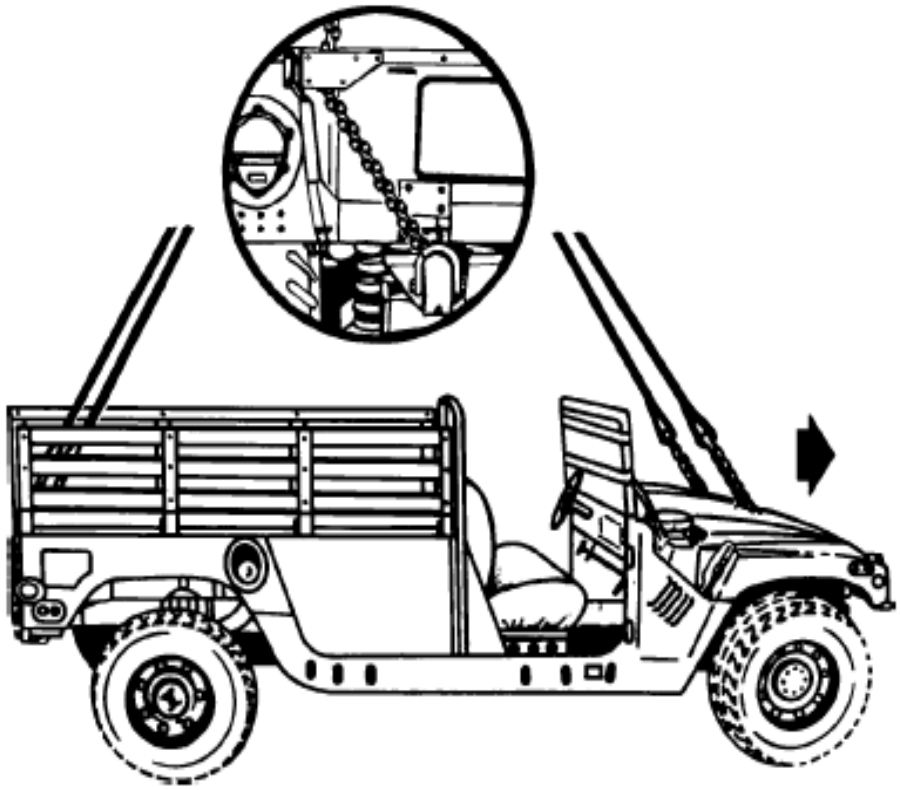
A. The only personnel qualified to inspect this load are a Pathfinder School Graduate, SLICC (Sling Load Inspector Certification Course) Graduate, or an Air Assault School Graduate. You will inspect this load at least twice or until you are 100% sure that it will fly safely. Your inspection will start on the passenger side of the vehicle.
B. First, inspect the windshield and make sure it is properly shatter-proofed. Then, check the mirrors and make sure they are rotated forward and secured with type III nylon. Check the hood latches to make sure they are secured and taped with two inch tape and that the wheel is straight.
C. Move around to the front and inspect for a link count of 80 and that the excess links are secured with type III nylon. Then check all the glass and plastic in the front and make sure it is taped and padded IAW unit SOP. Moving to the other side you once again check to see that the wheels are straight, the hood is latched and taped with two-inch tape, the mirrors are rotated forward and secured with type III nylon and that the windshield is shatterproof with two-inch tape in an X configuration both inside and out.
D. On the inside of the vehicle check the transmission and make sure that it is in neutral and the parking brake is engaged. Then check all the electrical switches and the engine ignition switch to make sure they are off, and the fuel level is 75 % or less. Check to ensure the steering wheel is secured with type III nylon to a fixed portion of the load and then check the seat belts. Make sure the male portion is rolled, taped and tucked, and that the female portion is rotated up behind the data plate and taped with two-inch tape. If the vehicle has the three-point lap belt, it will be secured as worn.
E. Move to the rear of the load and inspect the troop seats to ensure that they are secured in the up position with the pins provided, or secured in two places with type III nylon. At the rear of the vehicle you will inspect a vehicle with troop seats in a U shaped sequence. Begin by inspecting for a link count of three. Move to the breakaway and inspect for 1/4" cotton webbing. Move down to ensure the chains are routed through the sling guides. Ensure the tailgate is secured with the hooks and chains and that the hooks are secured with type III nylon. Inspect glass and plastic for tape and padding IAW unit SOP. Ensure chains are routed through the lift point. Inspect the towing pintle to ensure that it is secured closed with the cotter pin or two inch tape or type III nylon. Check the electrical connector for a rubber gasket and ensure it is spring loaded. Moving to the front, ensure the chains are routed through the lift point. Inspect glass and plastic for tape and padding. Ensure the tailgate is secured with the hooks and

chains and the hooks are secured with type III nylon. Ensure two chains are routed up through the sling guide. Ensure breakaway is tied with 1/4” cotton webbing. Inspect for a link count of three. If the vehicle is not equipped with troop seats, begin at the breakaway using the same sequence as discussed above.

F. Upon completion of the rear inspection, move down the passenger side ensuring the troop seats are secured with the pins or secured in two places with type III nylon. Ensure the fuel cap is hand tight. Move to the passenger compartment and work from the inside out starting with the engine access panel. If a radio mount is present, you must inspect to ensure all excess cable is wrapped and taped. If no radio mount is present, ensure the panel is secured with two-inch tape. The male seat belt must be rolled, taped, and tucked. Ensure the female seat belt is rotated behind the data panel and taped with two-inch tape. The battery box must be latched with the latches provided and taped with two-inch tape. Move inside the vehicle and inspect the breakaway on the roll bar to insure it is 1/4” cotton webbing. Grab the apex and ensure the inner legs are to the rear and twist free and the outer legs are to the front and twist free. Inspect the castellated nut for a cotter pin.



APEX ORDER TO THE M1097
LEFT & RIGHT ARE DETERMINED BY FACING DIRECTION OF FLIGHT
FIGURE 2-19



M1097 HMMWV SINGLE CONFIGURATION
FIGURE 2-20

NOTES

DUAL HMMWV SIDE BY SIDE (SHOTGUN) RIGGING PROCEDURES FOR THE M998/M1038 CARGO/TROOP CARRIER (HMMWV) M996/M1036/M1045/M1046 TOW MISSILE CARRIER (HMMWV) LMTV

A. APPLICABILITY:
Those rigging procedures have been approved by the U. S. Army NATICK for flight testing by CH-47D helicopters at the appropriated speeds.

B. LOAD DESCRIPTION:

1. Cargo/Troop Carrier (HMMWV)
   a. M996, NSN 2320-01-107-7155
   b. M1038, NSN 2320-01-107-7156
2. TOW Missile Carrier (HMMWV)
   a. M996, NSN 2320-01-107-7155
   b. M1026, NSN 2320-01-107-7154
   c. M1045, NSN 2320-01-146-7191
   d. M1046, NSN 2320-01-146-7188
3. Armament Carrier (HMMWV)
   a. M1025, NSN 2320-01-128-9551
   b. M1026, NSN 2320-01-128-0552
   c. M1043, NSN 2320-01-146-7190
   d. M1044, NSN 2320-01-146-7188

C. WEIGHTS:

VARIANTS	CURB WEIGHT(lbs)	MAXIMUM WEIGHT
M998	5,200	7,700
M1038	5,200	7,700
M996	5,913	8,200
M1036	6,040	8,400
M1045	6,364	8,400
M1046	6,491	8,400
M1025	5,822	8,200
M1026	5,949	8,200
M1043	6,273	8,400
M1044	6,400	8,400

C. MATERIALS:

1. Sling set, 10,000 lbs. capacity, 2 each
2. Tape, adhesive, pressure-sensitive, 2 inch roll
3. Webbing, nylon, type III, 550 lbs. breaking strength
4. Strap, tie-down, CGU-1B, 2 each

D. PERSONNEL: Four personnel can prepare and rig the load in 15 minutes.

PHASE I

PREPARATION AND RIGGING

A. Prepare both HMMWVs in the same manner as you would for single load. However, You must ensure that the front lifting points have been replaced. You must take off the 5/8 inch lift and replace them with 3/4 inch lift points, if it has not already been done. Once both HMMWVs are prepared, you need to position them side by side.

NOTE: The vehicles must both be the same type.

B. The reason that you will position them in this manner, is to help ease the rigging procedure. The first thing you will do after the HMMWV's have been prepared, is to secure the padding material on each vehicle. Type III nylon is acceptable. One pad will be placed over the gas cap that will end up in the middle of the load. The other pad will be hung from the forward portion of the door under the windshield. The padding will hang vertically.

C. Once the padding material is secured in place, drive the vehicles side by side as close together as possible, ensuring that the bumpers are lined up. Place one 10,000 lbs. sling set on the hood of one vehicle. Route the outer two sling legs to the outermost lifting provisions on the two vehicles and the inner two sling legs to the inner two lifting provisions. The link counts to the front are 30, 50, 50, 30. Begin by grabbing the free running end of the chain on the outer lifting provision and secure a link count of 30 (does not matter routing of the chain, inside out or outside in), by dropping the thirtieth link in the keeper portion of the grab hook assembly. Wrap and secure all excess chain with type III nylon. Grab the free running end of the inner left chain and route it through the inner left lifting provision and secure a link count of 50, by dropping the fiftieth link in the keeper of the grab hook assembly. Wrap and secure all excess chain with type III nylon. Grab the free running end of the inner right chain and route it through the inner right lifting provision, securing a link count of 50 by dropping the fiftieth link in the keeper portion of the grab hook assembly. Wrap and secure all excess chain with type III nylon. Grab the free running end of the outer chain and route it through the outer right lift provisions and secure a link count of 30, by dropping the thirtieth link in the keeper of the grab hook assembly. Wrap and secure all excess chain with type III nylon.

D. There are two mandatory breakaways tied on the front sling set. The first mandatory breakaways is tied on the two inner sling legs. Form a tight T on the inner two sling legs by pulling them together in the center and tying a breakaway through the two potted eyes. This will prevent the inner two legs from becoming entangled with the bumper guides and corners of the vehicles. The second mandatory breakaway will be tied three feet below the apex by clustering all four legs together and tying a breakaway. Next, rotate the inner two towing shackles skyward and route a CGU-1B strap through both of them and secure it to itself being sure to leave the ratchet handle exposed to the outside for tightening. It must be twist free and hand tight. Fold the excess CGU-1B strap on top of itself and tape the excess approximately 12 to 18 inches away from the ratchet assembly.

D. Move to the rear of the two vehicles with a 10,000 lbs. sling set and one CGU-1B strap. For a vehicle with troop seats, route the outer two legs to the outer two lift points and the inner two legs to the inner two lift points. The link count to the rear is 3, 7, 7, 3. Begin on the outer left chain. Route it through the outer left lift point and secure a link count of 3. Grab the free running end of the inner left chain and route it down through the inner left sling guide through the inner left lifting point back up through the inner left sling guide and secure a link count of 7. Grab the free running end of the inner right chain and route it down through the inner right sling guide through the inner right lifting point, back up through the inner ring sling guide and secure a link count of 7. Grab the free running end of the outer right chain and route it through the outer right lifting point and secure a link count of 3.

NOTE: Only the inner two chains are routed through the sling guides.

F. There are five mandatory breakaways on the rear of this load. Begin on the left outer sling leg. Pull the chains to the outer left sling guide and tie a breakaway through the chains and through the sling guide. Move the inner left sling leg. Pull all slack upward and tie a breakaway through the chains and through the troop strap retainer. Repeat this process on the second vehicle. The fifth mandatory breakaway will be tied three feet down from the apex by clustering all sling legs together.

G. For a HMMWV without troop seats, you will have five mandatory breakaways on the rear. The outer two chain sets will have breakaways tied to the outer two sling guides. Pull all slack up through the two inner chain sets and form a tight T in the center by routing 1/4 inch cotton webbing through all four chains. Pull all slack toward the apex and tie a cluster of three feet down from the apex and an additional cluster of three feet down from the apex by clustering all sling legs together.

H. For a M996 , TOW Carrier, the link counts and breakaways are the same as the M998 without troop seats.

1. Route the CGU-1B strap through the two inside lifting points facing skyward ensuring the CGU-1B strap is not misrouted around the chains and attach the same way as the front. Upon completion of rigging, roll the excess CGU-1B strap in the front and the rear and tape the excess to the strap, allowing enough slack for tightening during the hook up operation. A two feet loop of excess should be sufficient.

PHASE II

INSPECTION OF PREPARATION AND RIGGING

A. There are three personnel who can inspect a sling load. They are a Pathfinder School Graduate, SLICC (Sling Load Inspector Certification Course) Graduate, and an Air Assault School Graduate. When you inspect a sling load you will inspect it a minimum of 2 times or until you are 100% sure the load will fly safely.

B. Begin the inspection process at the driver's side of the right vehicle as viewed from the front. You must climb through the two vehicles driver's compartments. Ensure the following has properly been completed:

1. The driver's side windshield is taped in a X configuration
2. Mirrors are secured with type III nylon to a fixed part of the load
3. The electrical switches are off
4. The fuel level is 75% or less
5. The steering wheel is secured with two pieces of type III nylon
6. The driver's side female portion of the seatbelt is rolled up and taped
7. The driver's side male portion of the seat belt is rolled, taped and tucked away

NOTE: 3 point seatbelts will be secured as worn.

8. The hand brake is on
9. The transmission is in the neutral position
10. The engine access panel is secured with the latches and taped with two inch tape (If radio mount is present latches do not have to be taped)
11. If radio mounts are present, all excess cable is secured
12. The passenger's side windshield is taped in a X configuration
13. Mirrors are secured with type III nylon to a fixed portion of the load
14. The passenger's side female portion of the seat belt is routed up and taped
15. The passenger's side male portion of the seat belt is rolled, taped, and tucked away (If 3 point they will be secured as worn)
16. The battery box is latched and taped

NOTE: Continue the same sequence through the second vehicle.

C. Upon completing the inspection process of the interior of the vehicles, begin the exterior process sequence from the passenger's side mirror. Ensure the following has been properly completed:
    1. The hood is latched and taped with two inch tape
    2. The wheels are straight in the forward position
    3. The bumper guides are removed or padded
    4. The outer link count is 30, and the excess is secured
    5. The inner link count is fifty, and the excess is secured
    6. The breakaways are tied on the inner two sling legs
    7. The cluster breakaways are tied three feet below the apex
    8. The apex order is correct
    9. The castellated nut has the cotter pin in place
    10. The CGU-1B is twist free and hand tight, the excess is secured, and the ratchet is exposed
    11. The glass and plastic is taped and padded IAW your unit's SOP
    12. The inner link count is 50, and the excess is secured
    13. The outer link count is 30, and the excess is secured
    14. Move towards the rear of the vehicles
    15. The troop seats are secured with the cotter pins, or secured in two places with type III nylon
    16. Start the inspection process at the right rear on the outside
    17. The grab hook assembly is present and not inverted
    18. The link count is 3, and excess is secured
    19. The breakaways are tied to the sling guides

20. The chains are not routed through the sling guides
21. The tailgate is secured with the chains and hooks
22. The hooks are secured with type III nylon
23. The chains are routed through the lifting point
24. The towing pintle is secured with the cotter pin, two inch tape, or type III nylon
25. The electrical connector is spring loaded with the rubber gasket
26. The chains are routed through the lift point
27. The tailgate is secured with chains and hooks
28. The hooks are secure with type III nylon
29. The chains are routed through the sling guides
30. The breakaways are tied to the troop strap retainer ring
31. The link count is 7, and the excess is secured
32. The cluster breakaway is three feet below the apex
33. The castellated nut has the cotter pin in place
34. The CGU-1B is twist free and hand tight, the excess is secured, and the ratchet is exposed
35. The inner troop seats are secured with cotter pins or secured in two places with type III nylon
36. Move down the passenger's side of second vehicle
37. The troop seats are secured with cotter pins or secured in two places with type III nylon
38. The fuel cap is hand tight

NOTE: Inspect the second vehicle using the same sequence.

NOTE: DA Form 7382-R must be filled out IAW FM 4-20.197 see Appendix I

During Hookup: Once A/C lifts load, CGU-1Bs must be re-tightened.

Q. Grab the rear apex. Make sure that it has a pin, a spacer (if the front apex has a spacer), a case-hardened steel bolt, a castellated nut with the castle portion facing out, and a cotter pin. Ensure the sling legs are secured with ¼-inch cotton webbing in a figure 8. Also, ensure both sling legs are routed over the cargo bed.

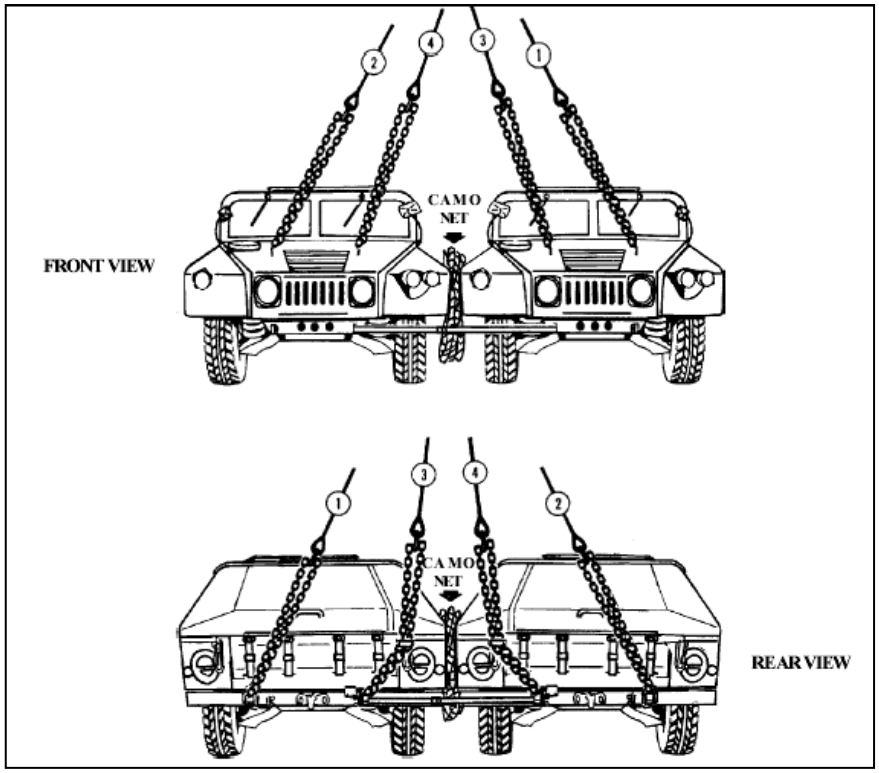
R. Move under sling legs to front set of sling legs. Grab the front apex. Make sure that it has a pin, a spacer (if the rear apex has a spacer), a case-hardened steel bolt, a castellated nut with the castle portion facing out, and a cotter pin. Ensure the sling legs are secured with ¼-inch cotton webbing to the tire bracket. Also, ensure that the driver side sling leg is routed between the cab and the intake stack and that the passenger sling leg is routed over the tire.

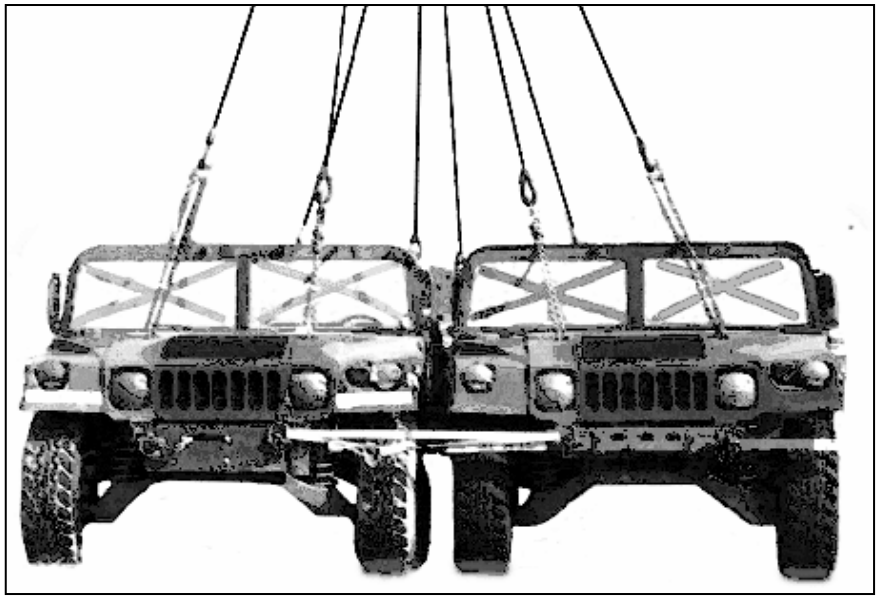
S. Verify that the intake stack hole is covered with 2-inch tape.

PHASE III

SLINGLOAD OPERATION

A. The hookup team stands in the bed of the vehicle. The static wand person discharges the static electricity with the static wand. 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 team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.





DUAL HMMWV SIDE-BY SIDE (SHOTGUN) RIGGING

A. Applicability:
1. Certified by US Army NATICK for CH-47 helicopter at airspeed up to and including 110 knots.

NOTE: When using CH-47 support, coordinate closely with the aviation unit in reference to the vehicle weight.

B. Load Description;
1. M1078, 2 ½ ton (LMTV)
2. M1078A1 , 2 ½ ton (LMTV)
3. M1079A1, 2 ½ ton (LMTV)
4. Weights - M1078 (most common LMTV)
   a. Empty, 17,770 lbs
   b. ACL, 5,000 lbs
   c. Max weight, 22,770 lbs

WARNING: VEHICLE GROSS RIGGED WEIGHT IS RESTRICTED TO 22,770 LBS

C. Materials:
1. Sling set (25,000 lbs. capacity) (CH-47)
2. Tape, adhesive, pressure-sensitive, 2-inch wide roll
3. Cord, nylon, Type III, 550 lbs. breaking strength
   a. Webbing, cotton, 1/4 inch, 80-pound breaking strength
   b. Chain link From a 25,000 lbs sling set (6 each)
   c. Coupling link from a 25,000 lbs sling set (6 each)

D. Personnel: Two people can prepare and rig the load in 15 minutes

PHASE I (PART 1)

PREPARATION

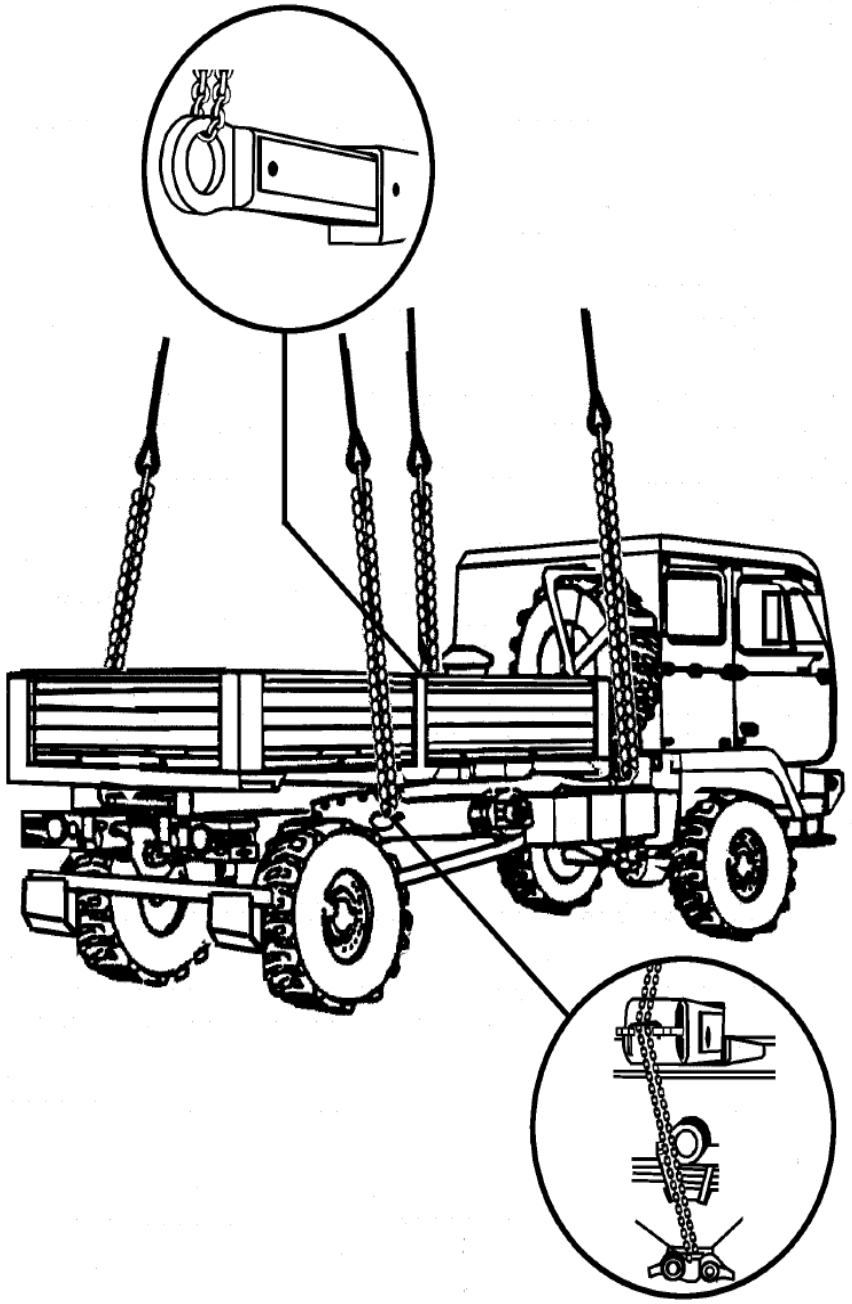
A. Begin preparing the load at the passenger side mud flaps. Stow the mud flaps by bending and hooking on the mud flap hooks.
B. Extend the load spreader and secure with pin and secure pin with safety pin.
C. Mud flaps will be secured in bracket provided. If bracket is missing the mud flaps will be rolled and secured with 2-inch tape to a fixed portion on the load.
E. Safety the cargo bed walls securing clips in the secured position and additional secure with 2-inch tape. (Only if the cargo bed walls are not stowed in the racks under the bed.)
F. Ensure the fuel tank is not over ¾ full. Inspect the fuel tank cap for proper installation.
G. All glass will be taped and padded IAW your unit SOP. At minimum make an X configuration with 2 inch tape both inside and outside. Rotate the mirrors inward and secure them with type III nylon to fixed portion of the inside door.
H. Engage the vehicle parking brake and put the transmission in neutral.
I. Ensure the front wheels are pointed straight ahead. Secure the steering wheel using the driver's side seat belt. All other seat belts will be secured as worn.
J. Move to the front of the vehicle and shatter-proof all glass and plastic, i.e. turn signals, headlights, and running lights will be taped IAW your unit SOP.
K. Pad the filler pipes behind the cab on the driver's side door to create a buffer that will prevent the sling legs from becoming entangled.
L. Extend the front lift provisions and lock in place using the attached pip pin and safety pin.
M. Ensure the battery box is secured with latches provided and additional secured with two-inch tape.
N. Ensure the cap on the slave receptacle is in place and hand tight. (If the cap is missing, tape over the slave receptacle.)
O. Secure the cargo bed latches in the secured position and additional secure with 2 inch tape.
P. Front mud flaps will be secured in bracket provided. If bracket is missing the mud flaps will be rolled and secured with 2-inch tape to a fixed portion on the load.
Q. Extend the load spreader and secure with pin and secure pin with safety pin.

R. Secure the mud flaps in the rear by bending and hooking on the hooks provided
S. Move to the rear of the vehicle and shatter-proof all glass and plastic, i.e. turn signals, brake lights, and running lights will be taped IAW your unit SOP
T. Ensure that the ladder is secured with securing devices. Tailgate will be placed in the up position and secured with latches provided and additional secured with 2-inch tape
U. Ensure towing pintle is closed and secured with a cotter pin. (If cotter pin is missing, run type III nylon through cotter pin hole and secure it to itself or use 2-inch tape to wrap around tow pintle.)
V. Ensure the intervehicular cable electrical connector is spring-loaded and contains buffer
W. Move into the bed of the vehicle and secure the troop seats in the upright position with straps provided or type III nylon
X. Secure any cargo in the bed of the vehicle
Y. Remove the air intake cowling. Place the cowling in the passenger side seat securing with seat belt
Z. Tape over the intake stack to prevent water from entering

PHASE I (PART 2)

RIGGING

A. Connect two sling legs to the front over the spare tire and connect to the apex.
B. Loop the chain end of the sling legs through their prospective lift provisions located behind the vehicle cab. Get a link count of 30 and place that numbered link in the grab hook assembly and secure all excess chain with type III nylon cord.
C. Cluster tie with ¼-inch cotton webbing (breakaway technique) the sling legs to top of the spare tire retaining bracket to prevent entanglement during hookup and lift-off.
D. Connect two sling legs to apex in the rear. Attach one extra chain length to each existing chain on each slingleg using one coupling link and one additional chain to extend each slingleg in the rear.
E. Route the left and right chains through their respective rear load spreader and loop the chain end of the sling legs through their respective lift rings, located on the frame. Route the chain back through the rear load spreader and get a link count of 20. Place that link in the grab hook assembly. Secure all excess chain with type III nylon cord.
F. Tie sling legs together using ¼-inch cotton webbing in a figure 8 to prevent entanglement during hookup and lift-off.



PHASE II

INSPECTION OF PREPARATION AND RIGGING

A. The only personnel qualified to inspect this load are a Pathfinder School Graduate, SLICC (Sling Load Inspector Certification Course) Graduate, or an Air Assault School Graduate. You will inspect this load at least twice or until you are 100% sure that it will fly safely. Your inspection will start on the rear passenger side of the vehicle.

B. First, inspect the rear mud flap to ensure that it is placed in the hook in the up position. You will ensure the side lights are shatter-proofed. You will ensure that the cargo bed walls are in the up position and they are secured with the latches provided and additional secured with 2-inch tape. Work your way down the load until you get to your center mud flaps and ensure that the mud flaps are secured inside the brackets.

C. Next, you'll ensure that the sling legs are routed over the cargo bed. You'll ensure that the grab hook assembly is not inverted and you have a link count of 2. Next, you will ensure that the excess chain is secured with type III nylon and secured to one of three places, the eyelet of the grab hook assembly, the coupling link, or the lifting chain itself. Do not tie excess to excess. Make sure that the load spreader is in the out position. It is secured with a pin and additional secured safety pin. Make sure chain is routed through the lifting ring one time and one time only.

D. Next, make sure that the center mud flap is secured in bracket provided.

E. Ensure gas cap is hand tight and the fuel level is at 75% or less.

F. Check the routing of the front passenger side lifting leg to make sure the sling leg is routed over the tire. Check to verify that the grab hook assembly is not inverted and there is a link count of 30. Ensure the excess is secured with type III nylon to one of three places, the eyelet of the grab hook assembly, the coupling link, or the lifting chain itself. Do not tie excess to excess. The chain is routed through the lift provision one time and one time only. Next, pull the load spreader to ensure that it is extended and check to make sure that two pip pins are in place.

G. Move to the passenger side of the cab and ensure the windows are shatter-proofed in the X configuration. Then, check the mirrors and make sure they are shatter-proofed in the X configuration. The brackets will be rotated forward and secured with type III nylon to a fixed portion inside the door. Also make sure all reflectors are shatter-proofed.

H. With door open, check seat belts to ensure they are secured as worn. Identify intake cowling is in the passenger seat secured with seat belt. Check inside windshield and windows are shatter-proofed in the X configuration. Make sure that the parking brake is engaged and driver side seat belt is securing steering wheel. Exit the same door and check front tires. They should be in the forward drive configuration.

I. Move around to the front then check all the glass and plastic in the front and make sure it is taped and padded IAW unit SOP.

J. Moving to the other side you once again ensure glass and plastic are shatter-proofed. Take the mirror bracket, press it towards the door, and secure it with type III nylon to a fixed portion of the inside of the door.

K. Move to the rear of the cab. Sling leg should be routed between the cab and the intake stack of the vehicle. Ensure that the grab hook assembly is not inverted and the link count in the grab hook assembly is 30. Excess chain must be secured with type III nylon to one of three places, the eyelet of the grab hook assembly, the coupling link, or to the lifting chain itself. Excess chain will not be secured excess to excess. The chain will be routed through the lift provision one time and one time only. The lift provision should be extended and secured with two pip pins provided.

L. All fuel ports will be buffered.

M. Check battery box latches to ensure latches are secured and additional secured with 2-inch tape. The slave cable receptacle should have a cap or be secured with 2-inch tape. Verify the cargo bed walls are in the up position and that the securing latches are secured and additional secured with 2-inch tape. The center mud flap must be secured inside a bracket.

N. Chain must be routed through the lifting ring one time and one time only. Chain must be routed through the load spreader two times. Load spreader should be extended. There should be a pin secured with a safety pin. Excess chain will be secured to one of three places, the eyelet of the grab hook assembly, the coupling link, or to the lifting chain itself not excess chain to excess chain. The chain will be secured with type III nylon. The link count will be 20 and the grab hook assembly will not be inverted. Ensure that the sling leg is routed over the cargo bed. Check rear driver side mud flap. Mud flap should be secured in the hook provided.

O. Move to the rear of the truck, ensure all glass and plastic are shatter-proofed. Tailgate is in the up position and secured with the latches provided and additional secured with 2-inch tape. Ladder must be secured with the securing device provided. Check tow pintle to make sure it is closed and secured with a cotter pin. Check intervehicular cable electrical connector. It should be spring-loaded and contain a buffer.

P. Climb into the bed of the vehicle and check the troop seats. They should be in the upright position and secured with straps provided or tied with type III nylon.

NOTES

CHAPTER THREE

RAPPELLING

A. REFERENCES:
   1. TC 21-24, RAPPELLING, dated 09 January 2008
   2. USSOCOM Reg 350-6, dated 25 August 2004
   3. FM 3-97.61 Military Mountaineering, dated 26 August 2002

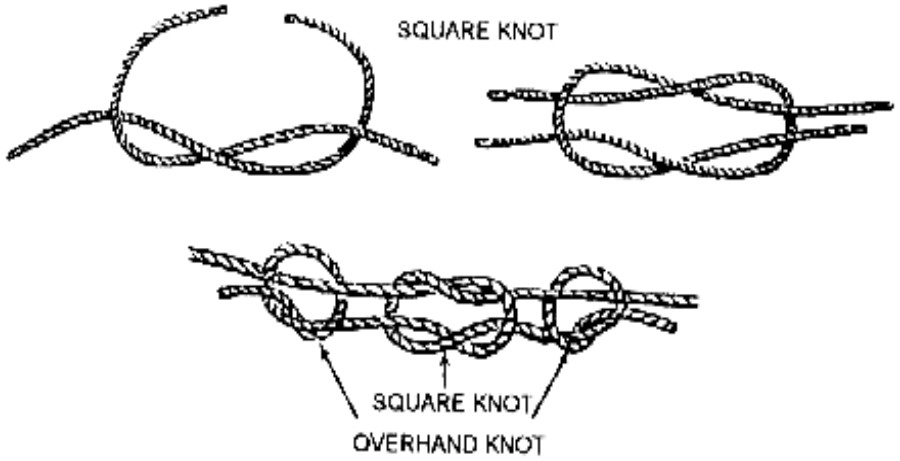
B. EQUIPMENT:
   1. Rope, climbing, nylon, NSN 4020-00-931-8793
      a. 120 feet in length
      b. 7/16 inches in diameter or 11mm Kernmantle
      c. 3 strand, multi-filament, twisted with a right-hand lay or for Kernmantle internal filament with an outer sheath composed of either nylon or polyester.
      d. 4,500 pounds of tensile strength (15 percent less when wet, knotted or frozen)
      e. It will stretch 1/3 of its length
   2. Rope, sling. This is the rope used to construct the Hip and Australian rappel seats. Cut a 120 foot nylon climbing rope into 12 to 15 foot sections to make the seats
   3. Link, snap, mountain piton, NSN 8465-00-360-0228, 2,000 lbs. capacity with the gate closed. Steel, with a locking barrel
   4. Glove, leather, workman's, NSN 8415-00-268-7868
   5. Insert, wool glove, OG-208, NSN 8415-00-682-6577

C. PERSONNEL:
   1. The following are the minimum personnel required to conduct rappelling operations from towers, ground, or aircraft:
      a. Rappel Safety NCOIC or OIC – SFC or above Air Assault or Ranger qualified. Must have commo with A/C and other required agencies, such as range control or higher HQ.

2. Rappel Master – Responsible for safety of rappellers. There must be a qualified Rappel Master in each aircraft and one with each tower rappel site at all times. A qualified Rappel Master must be a CPL or above and graduate of both the Air Assault Course and the Rappel Master Course. A qualified Rappel Master must maintain currency by performing duties at least once every six months. If a rappel master becomes un-current, they must attend a rappel master refresher course conducted by a current rappel master IAW TC 21-24, Chapter 1. The Rappel Master is responsible for all matters of training and safety, to include:
    a. Inspection of all equipment
    b. Inspection of aircraft, tower and ground anchor point rigging
    c. Aircrew briefing and rappel safety briefings
    d. Training of all rappellers, lane NCOs, belaymen, & belay controllers
3. Rappel Lane NCO – Must be a CPL or above and Air Assault or Ranger qualified. Responsible for safety of a rappel lane, to include:
    a. Inspection of proper hook-ups
    b. Rappel commands and control of rappeller
    c. Emergency procedures
4. Belay control - Ensures belay personnel are performing their duties properly. A belay controller must be a graduate of the Air Assault Course or Ranger Course. There must be at least one belay controller for every four ropes during tower and ground rappels. There must be a belay controller for every two sets of rappel ropes on A/C rappels.
5. Belayman - There must be a belayman on every set of rappel ropes. The belayman will wear a helmet for protection from falling objects. The belay will not wear gloves.
6. Medic - A medically qualified individual with a medical aid bag and equipment (backboard, neck brace, etc) will be present at the rappel site at all times. In addition, there must be military transportation for the evacuation of injured personnel at the site.

D. CONSTRUCTION OF THE RAPPEL SEAT:
1. Rappel Seat (seat – hip rappel).
    a. Locate the midpoint (center) of the length of the sling rope and form a 3 to 5 inch bite. Place the midpoint on the guide hand hip (opposite the break hand the brake hand is the strong hand)
    b. Bring the sling rope around the waist above the hip-bone. Tie a double overhand lay above the belt and below the rib cage. This forms the ‘waist-rope.’

c. Let the two free running ends of the sling rope fall to the ground to the front.
d. Bring the two free running ends of the sling rope down between the legs, and up over the buttocks. Ensure that the two free running ends do not cross. The free running ends will form the 'leg-ropes.'
e. Pass the ends of the rope *over* then *behind* the rope that is tied around the waist (waist-rope) at the two points above the centers of the two rear seat pockets, resulting in the 'leg-ropes' being routed from top– to-bottom behind the waist-rope. Ensure that the free running ends are running towards the center of the buttocks, and are between the waist-rope and the rappeller's body.
f. Grab the free end of the rope that is on the left side of the body with the left hand, and the free end of the rope that is on the right side of the body with the right hand.
g. Squat down and simultaneously pull down on both running ends of the ropes and stand up. This will tighten the seat.
h. Take the two free running ends of the rope over to your guide hand side trouser seam.
i. Tie the two running ends into a square knot with over hand knots securing each side of the square knot. The square knot is tied on the opposite side of the body from the brake hand.
j. Place any excess rope in the trouser pocket near the square knot.
k. With the gate down and the hooked end of the snaplink against the navel, place the snaplink through the single rope that is around the waist and the two ropes forming the double overhand lay.
l. Rotate the snaplink a half turn so that the gate is facing up and will open away from the body.



E. RAPPELLER PREPARATION

1. Shirt tails, loose clothing, and equipment straps must be tucked, tied or taped. Sleeves will be rolled down and secured.
2. Helmets will be worn during rappelling. All straps will be properly fastened and the helmet will be in serviceable condition.
3. Heavy leather workman's gloves will be worn when rappelling. Glove inserts are worn when the gloves do not have a friction bearing surface or as
determined by the unit leadership.
4. Rappellers will have identification tags and I. D. card

5. Eye and ear protection will be worn when rappelling from a helicopter.
6. When rappelling with equipment, MOLLE vest will be zipped.. The rucksack should be worn high and tight on the back of the rappeller to allow the brake hand to reach the small of the back. Rucksack adjustment straps will be tied across the chest or tucked away. If not tied across the chest ensure a chest strap is present with either type 3 nylon or a chest strap provided.
7. The rappellers weapon will be slung diagonally across the back, muzzle down near hip on guide hand side, with the weapon's butt stock on the brake hand side near the shoulder.

F. RAPPEL HOOK-UP PROCEDURES:

1. Seat – Hip Rappel Hookup
   a. The rappeller's square knot with two overhand knots should be facing the anchor point.
   b. Grasp the two ropes with both hands and drop the two ropes through the gate of the snaplink. At this point, there should be two (2) ropes running through the snaplink.
   c. Using the guide hand, pull slack towards the anchor point, rotate the slack down, under, and over the top of the snaplink.
   d. Drop the two ropes a second time through the gate of the snaplink. At this point there should be four (4) ropes running through the snaplink.
   e. Place the guide hand on the rope between the anchor point and the snaplink, palm facing upward.
   f. Place the brake hand around the running end of the rope, palm facing downward, and place the brake hand with the rope in the small of the back (knuckle to spine).

G. RAPPEL COMMANDS.

1. Verbal and Hand and Arm Signals for Tower or Ground Rappels.
   a. Get Ready Extend both arms to your front with elbows locked, fists clenched and thumbs pointing upward.
   b. Position
      (1) Primary method. Extend both arms to the front, elbows bent, forearms pointed upward, fists clinched and index fingers pointing upward. Make a circular motion with both forearms rotating in opposite directions.
      (2) Alternate method. Extend both arms to the front with elbows locked, fists clenched and index fingers extended. Bend at the waist so that your arms below your waist. Make a circular motion with arms rotating in opposite directions.

c. Go. Extend an arm with elbow locked, fingers extended and thumb along the index finger and point directly at the rappeller.

2. UH-60 Tactical Rappel Commands:

a. On the UH-60, the edge of the floor along the door of the helicopter is used as a pivot point to assume the **"L"** shaped rappelling position.

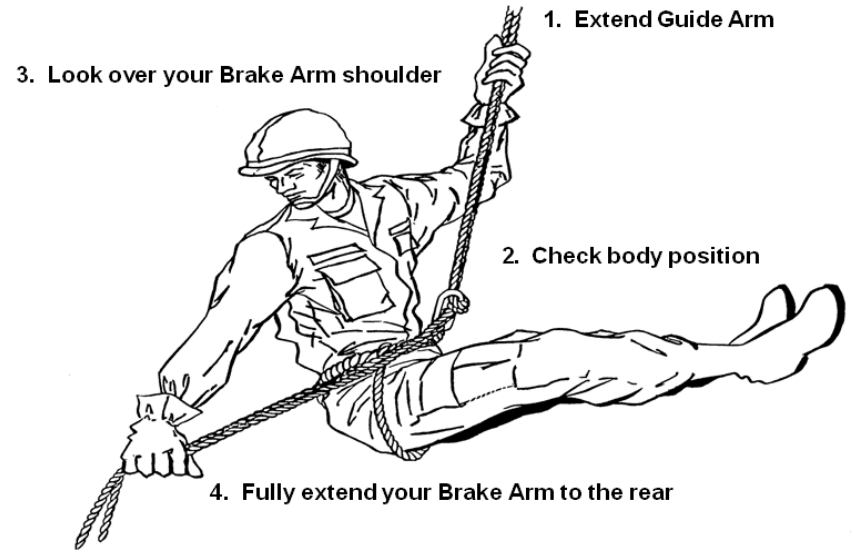
b. The commands for a tactical rappel from a UH-60 are as follows:

(1) Get Ready. alerts the rappeller. The rappeller and the Rappel Master of the hookup, rappel seat, snaplink and equipment should make final checks. The rappeller also checks his deployment bag to ensure that it is not entangled and that it is ready to toss.

(2) Throw Ropes Keeping his brake hand in the small of his back, the rappeller will toss his deployment bag with ropes OUT AND AWAY from the helicopter with his guide hand. The rappeller will observe that the ropes are touching the ground and are not knotted or entangled.

(3) Position Form a squatting position with the brake hand in the small of the back, the rappeller rotates 90 degrees so that he is facing the inside of the aircraft and the Rappel Master. The rappeller then places his heels on the edge of the floor of the helicopter doorway and leans out into a good "L" shaped body position. Feet should be shoulder width apart, balls of the feet on the edge of the doorway, knees locked and body bent at the waist towards the helicopter.

(4) Go Initiates the rappel. The rappeller flexes his knees and jumps vigorously backwards. At the same time the rappeller throws his brake hand out at a 45 degree angle, letting the running ends of the ropes slide through both the brake hand and the guide hand.



3. The commands for basic UH-60 helicopter rappels are the same as for tactical rappel except that the command “THROW ROPES” is omitted. In addition, when the command “GET READY” is given, the rappeller also checks to ensure that there is a belayman on his ropes.

H. EXITING THE AIRCRAFT:

1. There is one way to exit the aircraft
    a. The rappel master will send rappellers diagonally across the aircraft, i.e., left front, right rear, right front, and left rear.
    b. After the final rappeller has exited, the rappel master will ensure that the rappeler has reached the ground safely prior to lowering the A/C.
2. The Rappel Master will maintain a minimum of one (1) second delay between rappellers.

I. CONDUCT THE RAPPEL:

1. The rappeller will approach the helicopter from the sides of the aircraft.
2. Upon boarding the helicopter the rappeller will sit or kneel, hookup and apply his brake hand to the small of his back prior to helicopter ascent.

3. Rappellers will not step over a rappel rope
4. Rappellers will not exit the helicopter until told to do so by the Rappel Master
5. Rappellers will not release their brake hand from the rappel rope while conducting rappelling
6. During the descent the rappeller will keep his feet together and legs straight while maintaining an **"L"** shaped body position by bending at the waist (Figure 3-2)
7. After leaving the aircraft, the rappeller will maintain eye to ground contact while bounding
8. The rappeller will brake a minimum of three (3) times during descent

J. BELAY:

1. A basic rappeller will not be permitted to rappel without a belayman.
2. During helicopter rappelling a minimum of 20 feet of rope will be on the ground. The last 20 feet of rappel rope may be color-coded so the Rappel Master and the rappeller may more rapidly and accurately determine if 20 feet of rope is on the ground. For tower rappelling a minimum of 10 feet of rappel rope will be on the ground.
3. The belayman will grasp the rappel ropes with both hands above head and eye level in such a manner as to allow the rappeller to acquire slack and the belayman the ability to quickly apply a downward pull. Gloves will not normally be worn. If the rappeller states "FALLING", or loses control during descent the belayman will immediately stop the rappeller by pulling the excess slack into their chest and taking a knee.
4. The belayman will position himself below the anchor point.

NOTE: For non-tactical helicopter rappelling, the belayman will maintain control of the ropes at all times. When the aircraft is on the ground the belayman will take a knee 5 meters outside the rotor wash diameter. As the aircraft moves up, the belay will let the rope slide through his hands until the aircraft is 25-30 feet off the ground. At this time the belayman will walk in and position himself under the aircraft. When the aircraft starts down, the belayman will keep the ropes taut and away from the aircraft at a 45 degree angle. Once the aircraft is on the ground, the belayman will work his way to his original position while still maintaining positive control of the rope.

5. The belayman will focus his attention on the rappeller and maintain visual contact with the anchor point.
6. The belayman will wear a correctly fastened kevlar helmet to prevent injuries from falling rappellers, equipment, etc.

K. EMERGENCY PROCEDURES FOR HELICOPTER RAPPELLING.

1. If the helicopter gains altitude above the length of the rappel ropes, the rappeller will immediately brake and lock-in and wait for the descent of the aircraft. Procedures for lock-in are as follows:
    a. Place the brake hand in the small of the back and brake to a complete stop.
    b. Release the guide hand from the ropes.
    c. Bring the guide hand around the back and grasp the running ends of the two rappel ropes behind the brake hand. (Do not release the brake hand.)
    d. Using the guide hand, bring the two running ends of the rappel ropes around to the front of the body.
    e. Secure these two running ends of the rappel ropes with the two anchor ends of the rappel ropes in your guide hand. This is now your NEW brake hand.
    f. Take your old brake hand out of the small of your back. Bring it around to your front and place your previous brake hand above your new brake hand and grasp the two ropes. Your old brake hand is now your NEW guide hand.
    g. Place your head and eyes back on the Rappel Master to continue the descent, bring the new brake hand to a 90 degree angle to the side. When you want to brake, bring the new brake hand around to your front, diagonally across your chest to your guide hand shoulder.
2. In case of an engine failure or an aircraft emergency during rappelling, the rappellers on the ropes will descend as rapidly as possible and move from beneath the aircraft by moving to the sides of the aircraft. If possible, maintain control of the rope to prevent it from entangling in the rotor. The aircraft should move forward and down.

L. MAINTENANCE OF EQUIPMENT.

1. A rappel rope is unserviceable if it is saturated with petroleum products, mildewed, excessively frayed or if one of the three strands is cut more than 1/2 of it's diameter.
2. The life of the rappel rope is directly related to the care that the rope receives. Ropes will remain serviceable for approximately 200 rappels under good conditions. To maximize rope life, follow these simple do's and don't s:
3. Records should be maintained on all rappel ropes to indicate the number of times used and the dates used using a DA Form 5752-R. See Appendix H. Unserviceable ropes will be marked, segregated, and disposed of properly.
4. Gloves will be checked for holes on the friction bearing surfaces and any holes along the seams. Holes in the friction bearing surface or fingers that expose skin will cause the glove to be unserviceable.
5. Snaplinks will be checked for excessive rust and sharp edges inside and out. Opening gates must open and close freely. The pins for the gates must not move left or right and gate must not be able to move past the hook portion. Any of these deficiencies will cause the snaplink to be unserviceable.

<u>DON'T</u>

1. Do not allow a nylon rope to contact heat
2. Do not smoke around the rope
3. Do not allow the rope to come in contact with any petroleum based products
4. Do not store a wet rope without daisy chaining
5. Do not store a dirty rope without cleaning in a mild soap

<u>DO</u>

1. Remove all knots after use
2. Clean and dry after use
3. Store in a ventilated place
4. Mountain coil neatly before storage
5. Inspect the ropes before and after use

M. RAPPEL SAFETY BRIEFING.

1. Prior to the conduct of any rappelling, the Rappel Master should give a safety briefing to all personnel.
2. This briefing should include at a minimum the following instructions:

TOWER RAPPELLING

1. Loose clothing and equipment will be secured.
2. Rappel seats will be tied by the soldier and inspected by a Rappel Master before ascending the tower.
3. Rappellers will ascend the tower only when directed by a Rappel Master.
4. Rappellers will stay in the center of the tower until instructed to move a rappel point.
5. All Rappel Masters, instructors and anyone else standing near the edge of the top of the tower or in the A/C will wear a restraint strap or safety rope at all times to mitigate the falling risk.
6. No one will be allowed to lean or sit on the railings or the banisters of the tower.
7. No one will be allowed within three (3) feet of the edge of the tower without being secured, unless moving to a hookup point.
8. When attaching the rappel rope to the snaplink, the slack will always be pulled towards the anchor point.
9. Only a qualified Rappel Master will hook up an Australian rappeller.
10. Combat equipment will be positioned on the individual so as not to be in the way of the brake hand. The weapon will be slung diagonally across the back with the muzzle pointing down and on the opposite side of the brake hand and the canteen will be worn on the guide hand hip. Ensure that equipment is worn in a manner that nothing interferes with the placement of the brake hand, or the routing of the rappel rope on the brake hand side to the snap link.

11. Heavy duty gloves are required for all rappels
12. Kevlar helmets with chin straps fastened will be worn during rappel training
13. While on the tower or ground hook-up point, the rappeller will maintain eye to eye contact with the Rappel Master and take all commands from him.
14. The rappeller will ensure that he has a belayman on his rope.
15. The belayman will not wear gloves and will keep both hands on the ropes at all times. He will also keep his head and eyes on the rappeller at all times.
16. No slack rappels will be allowed.
17. All tower rappelling will be done with a double strand of rope
18. There will be no running on the tower
19. There will be no smoking or eating near the tower

NOTE: The only slack rappelling to be done will be by a Rappel Master qualified, Air Assault School Instructor for demonstrations and as approved by the Commander of the Air Assault School. When slack rappel is approved, only 8-10 feet of slack will be coiled. Slack rappelling is to be considered dangerous.

NOTE: After each rappel, the rappellers must untie, retie, and get reinspected before conducting another rappel.

HELICOPTER RAPPELLING

(Nontactical)

(These areas which apply will be briefed before tactical rappelling)

1. Loose clothing and equipment will be secured
2. Kevlar helmets will be worn with chin straps fastened
3. Identification tags and earplugs will be worn
4. Sleeves will be rolled down and secured
5. Weapons will be slung diagonally across the back with the muzzle pointing down and on the side opposite the brake hand.
6. A Rappel Master prior to rappelling must inspect all equipment
7. Personnel will approach and depart a UH-60 helicopter at a 90 degree angle from the side of the aircraft. When approaching or departing the helicopter, personnel will also bend their bodies forward at the waist to ensure clearance of the rotor blades. At no time will personnel go near the rear of the aircraft.
8. Upon boarding the aircraft the rappeller will kneel down in the UH-60, hookup, and apply his brake hand to the small of his back.
9. While in the helicopter, the rappeller will maintain eye to eye contact with the Rappel Master and take all commands from him.
10. The rappeller will ensure that he has a belayman on his rope at all times.
11. During descent the rappeller will maintain eye to ground contact.
12. If the rappeller sees his ropes coming off of the ground or sees that his belayman has lost control of his ropes, the rappeller will immediately brake and execute a lock-in. He will then wait for commands from the Rappel Master.
13. The rappeller will brake a minimum of three (3) times during descent.
14. The belayman will not wear gloves and will keep both hands on the ropes at all times. He will also keep his head and eyes on the aircraft at all times. Positive control of the rappel rope will be maintained by the belayman at all times.
15. All rappelling will be conducted using a double strand of rope.
16. While the helicopter is on the ground the belayman and belaymaster will stay outside of the rotor wash.

A. MEDEVAC- The movement and en route care by medical personnel of wounded, injured or ill persons from the battlefield and/or other locations to a Medical treatment facility.
B. CASEVAC- Is the movement of casualties aboard non-medical vehicles or aircraft. Casualties transported in this manner do not receive en route medical care.
C. ARMY AIRCRAFT DESIGNED FOR MEDEVAC:
    1. UH-1V
    2. UH-60A
    3. CH-47

*NOTE: The capacity of all aircraft may be reduced because of temperature, humidity or age of the aircraft. Any aircraft may be used for casevac.

D. THE MISSION OF AEROMEDEVAC, ADVANTAGES AND DISADVANTAGES:
    1. MISSION:
        a. The primary mission of aeromedevac is to move casualties to an area where they can receive proper medical care
        b. Medevac aircraft may be used to move personnel and equipment
        c. Because of the specialized equipment on board a medevac aircraft, it may be used for crash rescue
    2. ADVANTAGES OF AEROMEDEVAC:
        a. Enroute treatment
        b. Speed
        c. Flexibility
    3. DISADVANTAGES OF AEROMEDEVAC:
        a. Weather and limited visibility
        b. Enemy situation
        c. Limited / priority aircraft
    4. RESPONSIBILITIES OF THE REQUESTING UNIT:
        a. Lighting and marking the pick-up site
        b. Tactical support and security
        c. Patient preparation and consolidation
        d. Assignment of litter teams to load the aircraft
        e. Brief the pilot of the enemy situation and any other units in your area of operations if asked
        f. Mark friendly positions when an armed escort is required
        g. Have an English speaking representative present for non U.S. personnel
        h. Guide in aircraft (GTA / Signalman)

THE STANDARDIZED NINE-LINE MEDEVAC REQUEST:

A. Line #1:
    1. 6 digit grid coordinate of the pick-up site to include the grid zone identifier.
B. Line #2:
    1. Radio frequency, call sign and suffix of the requesting unit.
C. Line #3:
    1. Number of patients by precedence.
        a. The purpose of classifying patients by precedence is so that the medevac element can establish a priority as to which patients are to be evacuated first. Normally, time is a factor, which determines the categories of precedence.
        b. There are four priorities of precedence:
            (1) Urgent: Is assigned to emergency cases that should be evacuated as soon as possible and within a maximum of 1 hour to save life, limb or eyesight, to prevent complication of serious illness, or to avoid permanent disability.
            (2) Urgent-Surgical: Is assigned to patients who must receive far forward surgical intervention to SAVE LIFE and stabilize for permanent evacuation. These patients need to be evacuated within a maximum of 1 hour.
            (3) Priority: Is assigned to sick and wounded personnel requiring prompt medical care. This precedence is used when the individual should be evacuated within 4 hours or his/her condition could deteriorate to such a degree that he will become an Urgent precedence, or whose requirements for special treatment are not readily available locally, or who will suffer unnecessary pain or disability.
            (4) Routine: Is assigned to sick and wounded personnel requiring evacuation but whose condition is not expected to deteriorate significantly. The sick and wounded in this category should be evacuated within 24 hours.
            (5) Convenience: Is assigned to patients for whom evacuation by medical vehicle is a matter of medical convenience rather than necessity.

D. Line #4:

1. Special equipment needed:

a. Aircraft Rescue Hoist: Utilized on the UH1V, UH-60 and the CH47D. The cable is 256 feet long with 250 feet of usable cable, with a tensile strength of 600 pounds. The hoist has two settings. A fast and a slow setting; the fast setting can lift 300 pounds at 250 feet per minute, the slow setting can lift 600 pounds at 125 feet per minute. To prepare a patient for rescue via the Stokes Basic Litter, the ground personnel must:

(1) Allow the SBL to touch the ground to discharge any built up static electricity.
(2) Unhook the litter(s) from the helicopter.
(3) Move the suspension cables to the sides of the litter and unfasten the restraining straps.
(4) Place the patient in the litter and fasten the restraining straps.

CAUTION: PATIENT MUST BE REMOVED FROM THE STANDARD OR IMPROVISED LITTER PRIOR TO BEING PLACED IN THE STOKES BASIC LITTER.

(5) Bring the lift rings to the center position and fasten them to the helicopter rescue hoist hook.
(6) Signal the hoist operator when ready to lift. Be prepared to steady the litter to prevent oscillation until it is out of reach.

b. Jungle / Forest Penetrator:

(1) When a landing zone is not available or vegetation is too dense, a Jungle/Forest penetrator can be attached to the rescue hoist. The Penetrator is limited to three (3) casualties or 600 pounds. The Jungle/Forest Penetrator weighs 21 1/2 lb., is 34 in. long and 8 in. in diameter. The three legs are 11 1/2 in. long and 4 3/4 in. wide.
(2) Allow the penetrator to touch the ground to discharge any built up static electricity.
(3) Fold down only wing seats necessary and snap into place.
(4) Unzip one of the protective covers containing a safety strap, remove the strap, placing it around the patient's back and under their arm pits.
(5) Signal the aircrew when the patient is ready to be lifted

c. Semi-Rigid Litter: Used for evacuating casualties with other than back injuries. Limited to one 1 casualty or 400 pounds.
d. Stokes Basic Litter: Used for casualties with injuries to include neck and back requiring immobilization. Is constructed of aluminum or steel framed basket and is 84 in. long 23 in. wide and weighs 31.5 lbs. It is limited to 1 casualty or 400 lbs.
e. Kendrick Extrication Device (KED): Semi-rigid support used to immobilize casualties with minor neck and back injuries, same limitations as the Stokes Basic Litter.

E. Line #5:
1. Number of patients by type:
a. Litter patients
b. Ambulatory patients

F. Line #6:
1. Line #6 is broken into two (2) situations; wartime and peace time
a. Wartime Situation: Security of the Pickup Zone
(1) No enemy troops in the area
(2) Possible enemy troops in the area
(3) Enemy in the area, approach with caution
(4) Enemy troops in the area, armed escort required
b. Peacetime Situation: Type of injury
(1) Gunshot, shrapnel
(2) Broken bones
(3) Illness

G. Line #7: Method of marking the site

H. Line #8: Patient nationality and status
1. U.S. Military
2. U.S. Civilian
3. Non U.S. Military
4. Non U.S. Civilian
5. Prisoner of War

I. Line #9:
1. Like line #6, line #9 has two (2) situations; wartime and peacetime.
a. Wartime Situation: NBC contamination - Report RADS/Hour or type agent used, if known, in the area of the pick-up site.
b. Peacetime Situation: Description of the terrain in and around the pick-up site to aide the pilot in locating your site.

J. Guidelines for loading patients:

1. Patients are normally loaded from the top tier to the bottom tier with the most seriously injured loaded last.
2. Litter patients should be positioned in the helicopter according to the nature of their injuries or conditions. Personnel aboard the helicopter supervise the loading and positioning of the patients.
3. The most seriously injured patients must be on the bottom tiers to permit the onboard medical personnel to provide the necessary in-flight care.
4. Litter patients requiring IV fluids should be positioned as low as possible on the litter rack.
5. Patients in Thomas Leg Splint support and footrest must be loaded last and placed directly on the floor.
6. Loading and securing patients:
7. In loading six litter patients with a 4-man litter squad, the litters are loaded from both sides of the aircraft and from top to bottom.
8. When the helicopter is equipped for mixed loading, 3 litters are loaded crosswise and 4 ambulatory patients are loaded in the side seats.
9. When loading from the left, the litter squad moves to the left side of the helicopter with the litter perpendicular to the cargo compartment, then the squad moves onto the post litter carry. Numbers 1 and 3 give their litter handles to the aircrew who place the handles in the litter support brackets on the far left side of the aircraft. Numbers 2 and 4 secure the foot of the litter.
10. After the first litter is loaded, the squad leaves the helicopter as a team to obtain another litter patient. The second and third litters are loaded in the same way as the first one. After the three litter patients are loaded, the ambulatory patients are loaded. The ambulatory patients are taken to the aircraft and placed in their seats.

K. Unloading patients:

1. The aircraft is unloaded in the reverse order of the loading process. The tiers are unloaded from the bottom to the top on one side and then the other. At the unloading command, the litter squad moves to the helicopter and the bearers take their proper place at the litter. Then each member of the squad then performs his duties in reverse order of the loading sequence.

REFERENCES:

FM 3-21. 38
FM 4-02.2

APPENDIX B

AIR MISSION BRIEFING FORMAT

Reference: ATTP 3-18.12 Air Assault Operations

The following format is a guide. Its use will help ensure that essential in formation is included in air assault mission briefings.

(Classification)
TASK FORCE ORGANIZATION

1 . Situation:
- a. Enemy forces (especially troop concentrations and locations and types of ADA assets)
- b. Friendly forces
- c. Weather (ceiling, visibility, wind, temperature, pressure and density altitude, sunrise and sunset, moonrise and moonset, percent of moon illumination, end evening nautical twilight, beginning morning nautical twilight, PZ and LZ altitudes, and weather outlook)

2. Mission:
- a. Clear, concise statement of the task that is to be accomplished (who, what, and when, and, as appropriate, why and where)

3. Execution:
- a. Ground tactical plan
- b. Fire support plan to include suppression of enemy air defenses
- c. Air defense artillery plans
- d. Engineer support plans
- e. Tactical air support
- f. Aviation unit tasks
- g. Staging plan (both primary and alternate PZs)
  - (1) Pickup zone location
  - (2) Pickup zone time
  - (3) Pickup zone security
  - (4) Flight route to PZ
  - (5) Pickup zone marking and control
  - (6) Landing formation and direction
  - (7) Attack and air reconnaissance helicopter linkup with lift elements
  - (8) Troop and equipment load

h. Air movement plan:
    (1) Primary and alternate flight routes (SPs, ACPS, and RPs)
    (2) Penetration points
    (3) Flight formations) and airspeeds
    (4) Deception measures
    (5) Air reconnaissance and attack helicopter missions
    (6) Abort criteria
    (7) Air movement table

i. Landing plan: (both primary and alternate LZs)
    (1) Landing zone location
    (2) Landing zone time
    (3) Landing formation and direction
    (4) Landing zone marking and control
    (5) Air reconnaissance and attack helicopter missions
    (6) Abort criteria

j. Laager plan: (both primary and alternate laager sites)
    (1) Laager location
    (2) Laager type (air or ground, shut down or running)
    (3) Laager time
    (4) Laager security plan
    (5) Call forward procedure

k. Extraction plan: (both primary and alternate PZs)
    (1) Pickup location
    (2) Pickup time
    (3) Air reconnaissance and attack helicopter missions
    (4) Supporting plans

l. Return air movement plan:
    (1) Primary and alternate flight routes (SPs, ACPS, and RPs).
    (2) Penetration points
    (3) Flight formations and airspeed
    (4) Air reconnaissance and attack helicopter missions
    (5) Landing zone locations
    (6) Landing zone landing formation and direction
    (7) Landing zone marking and control

m. Coordinating instructions
    (1) Mission abort.
    (2) Downed aircraft procedures
    (3) Vertical helicopter instrument flight recovery procedures
    (4) Weather decision by one-hour increments and weather abort time
    (5) Passenger briefing

4. Service Support:
    a. FARP locations (primary and alternate)
    b. Ammunition and fuel requirements
    c. Backup aircraft
    d. Aircraft special equipment requirements, such as cargo hooks and command consoles with headsets
    e. Health service support

5. Command Signal:
    a. Signal
        (1) Radio nets, frequencies, and call signs
        (2) Communications-electronics operation instructions in effect and time of change
        (3) Challenge and password
        (4) Authentication table in effect
        (5) Visual signals
        (6) Navigational aids (frequencies, locations, and operational times)
        (7) Identification friend or foe (radar) codes
        (8) Code words for PZ secure, hot, and clean; abort missions; go to alternate PZ and LZ; fire preparation; request extraction; and use alternate route
    b. Command
        (1) Location of air assault task force commander
        (2) Point where air reconnaissance and attack helicopters come under OPCON as aerial maneuver elements

6. Time Hack:
    a. All watches are synchronized

1	2	3	4	5	6	7	8	9	10	11	12	13
AVN UNIT	LIFTED UNIT	LIFT #	SERIAL	CHALK	PZ	LOAD TIME	LIFT OFF TIME	SP TIME	RP TIME	LZ	LAND TIME	RE-MARKS

1	2	3	4	5	6	7	8	9
PERSON-NEL EQUIP-MENT	PICKUP ZONE	ARRIVAL TIME	LOAD TIME	AVN	LIFT	SERIAL	LOAD	REMARKS
NAME RANK DUTY POSITION	NAME OF PZ FORMATION 8 DIGIT GRID	ARRIVAL TIME OF UNIT TO BE LIFTED	SAME AS AIR MOVEMENT TABLE	SAME AS AIR MOVEMENT TABLE	SAME AS AIR MOVEMENT TABLE	SAME AS AIR MOVEMENT TABLE	SAME AS AIR MOVEMENT TABLE	ANY ADDI-TIONAL INFO TO INCLUSE A BUMP PLAN, PRI-ORITY OF BUMP, SLING LOAD PRIORITY

APPENDIX F

PLANNING WEIGHTS & SPECIAL EQUPIMENT
NEEDED FOR A/C DURING SLINGLOAD OPS

A/C	CARGO HOOK ACL	REQUIRED EQUIPMENT
UH-60A	8,000 lbs	ALUMINUM SPACER on 10K apex
UH-60L	9,000 lbs	ALUMINUM SPACER on 10K apex
CH-47	26,000 lbs Center hook	
	17,000 lbs Fore and Aft hook separate	
	25,000 lbs Fore and Aft hook combined	

M998 HMMWV

EMPTY WEIGHT	5,200 lbs
ACL	2,500 lbs
TOTAL COMBINED WEIGHT	7,700 lbs
LINK COUNT, 10K sling set	80 FRONT / 3 REAR

INSPECTION SEQUENCE:

PASSENGER SIDE WINDSHIELD W/2” TAPE
MIRROR
HOOD LATCH
FRONT WHEEL – PASANGER SIDE
GLASS & PLASTIC SHATTERPROOFED W/ 2” TAPE
FRONT LINK COUNT 80, SECURE
HOOD LATCH – DRIVER SIDE
FRONT WHEEL – DRIVER SIDE
MIRROR
WINDSHIELD – DRIVER SIDE
TROOP SEAT – SECURED IN 2 PLACES
REAR LINK COUNT 3
BREAKAWAY
HOOKS AND CHAINS, SECURED
GLASS AND PLASTIC SHATTERPROOFED W/ 2” TAPE
LIFT POINT
TOWING PINTLE
ELECTRICAL CONNECTOR
LIFT POINT
GLASS AND PLASTIC SHATTERPROOFED W/ 2” TAPE
HOOKS AND CHAINS, SECURED
BREAKAWAY
REAR LINK COUNT 3
TROOP SEAT – SECURED IN 2 PLACES
FUEL CAP
SEATBELT – PASSANGER SIDE
BATTERY BOX
ENGINE ACCESS PANEL

TRANSMISSION SELECTOR LEVER IN NEUTRAL
HAND BREAK
STEERING WHEEL
ELECTRICAL AND IGNITI0N SWITCHES
FUEL LEVEL
SEATBELT – DRIVER SIDE
APEX PIN SECURE
APEX ORDER
BREAKAWAY - ROLLBAR

NOTES

M119A2 105mm HOWITZER

EMPTY WEIGHT	4,400lbs
ACCOMPANYING LOAD	3,000 lbs
TOTAL WEIGHT	7,400 lbs
LINK COUNT, 10K sling set	50 (LEFT); 55 (RIGHT), 35 (REAR)

INSPECTION SEQUENCE:

- MUZZLE COVER
- RECUPERATOR PADDING
- SPIDER WEB (FRONT) - TYPE III NYLON
- TRAVEL LOCK (2 PINS)
- SADDLE CLAMP (FRONT STAYS, TYPE III NYLON)
- MACHINED PLAIN PADDING
- CGU-1B SECURED W/ 2 PIECES OF 2” TAPE
- BRAKES - ON
- APEX SET UP FOR RIGHT A/C
- APEX PIN SECURE
- APEX ORDER
- BREAKAWAY - CLUSTER
- EQUILIBRATOR COVER
- LINK COUNT - 55
- EXCESS LINKS SECURE - TYPE III NYLON
- CHAIN CLAMP OR ½” TUBULAR NYLON
- GUNNERS SIGHT MOUNT SECURE – TYPE III NYLON
- BREECH COVER SECURE – TYPE III NYLON
- RUN BACK STOP
- REAR SPIDER WEB – TYPE III NYLON
- REAR STAY
- FIRING PLATFORM CLAMP HAND TIGHT
- JACK STRUT SECURE W/ 1 PIECE OF 2” TAPE
- BREAKAWAY – TRAVEL LOCK BAR
- EXCESS LINKS SECURE – TYPE III NYLON
- LINK COUNT - 35
- REAR BREAK OFF
- BRAKE ASSEMBLY PADDED
- BREAKAWAY – BEHIND REAR BRAKE ASSEMBLY
- LIFT POINT
- DETACHABLE SPADE SECURE – TYPE III NYLON
- TRAIL HAND SPIKE SECURE W/ 2 PIECES OF 2” TAPE
- FIRING PLATFORM CLAMP HAND TIGHT
- REAR STAY
- EQUILIBRATOR COVER
- LINK COUNT – 50
- EXCESS LINKS SECURE – TYPE III NYLON
- CHAIN CLAMP OR ½” TUBULAR NYLON

NOTES

CARGO NET

MINIMUM WEIGHT	500 lbs
15’ x 15” ACL	5,000 lbs
18’ x 18” ACL	10,000 lbs
LINK COUNT, 10K sling set	3

INSPECTION SEQUENCE:

- APEX PIN SECURE
- APEX SET UP FOR APPROPRIATE A/C
- CORRECT # OF SLINGLEGS TO SUPPORT WEIGHT
- GRABHOOK ASSEMBLY NOT INVERTED
- LINK COUNT, 3
- LIFT POINT
- NUMBER 1 HOOK SECURED TO APEX W/ TYPEIII NYLON
- HOOK ORDER (1,3,2,4 / 1,3,4,2)
- HOOKS TAPED
- HOOKS ALTERNATING
- BREAKAWAYS, 3
- HOLE IN ROPE W/ KNOT (SECURE – NON SLIP)
- EXCESS ROPE SECURE
- FOD
- LOAD CENTERED

NOTES

SHOTGUN

EMPTY WEIGHT	10,400 lbs
ACL	5,000 lbs
TOTAL COMBINED WEIGHT	15,400 lbs
LINK COUNT, -10K sling set	FRONT (30, 50, 50, 30) REAR (3, 7, 7, 3)

INSPECTION SEQUENCE:

- APEX PIN SECURE
- APEX ORDER (OUTER/OUT – INNER/IN)
- BREAKAWAY - CLUSTER
- GLASS AND PLASTIC (FRONT OF RIGHT VEH)
- RIGHT FRONT LINK COUNT – 30 – EXCESS SECURE
- INNER RIGHT LINK COUNT -50- EXCESS SECURE
- INNER LEFT LINK COUNT -50- EXCESS SECURE
- INNER HOOD LATCHES
- BREAKAWAY – TIGHT “T”
- GLASS AND PLASTIC (FRONT OF LEFT VEH)
- CGU-1B
- LEFT FRONT LINK COUNT – 30 EXCESS SECURE
- FRONT WHEEL (LEFT VEH)
- HOOD LATCH – DRIVER SIDE
- WINDSHIELD – DRIVER SIDE
- MIRROR
- SEATBELT – DRIVER SIDE
- ELECTRICAL / IGNITION SWITCHES
- FUEL LEVEL
- STEERING WHEEL
- HAND BRAKE
- TRANSMISSION SELECTOR LEVER IN NEUTRAL
- ENGINE ACCESS PANEL
- WINDSHIELD – PASSANGER SIDE
- BATTERY BOX
- PADDING MATERIAL – TROOP SEATS
- SEATBELT – PASSANGER SIDE
- MIRROR - PASSANGER SIDE
- WINDSHIELD – DRIVER SIDE (RIGHT VEH)
- MIRROR (RIGHT VEH)
- SEATBELT – DRIVER SIDE (RIGHT VEH)
- ELECTRICAL / IGNITION SWITCHES (RIGHT VEH)
- FUEL LEVEL (RIGHT VEH)
- STEERING WHEEL (RIGHT VEH)
- HAND BRAKE (RIGHT VEH)
- TRANSMISSION SELECTOR LEVER IN NEUTRAL (RT VEH)
- ENGINE ACCESS PANEL (RIGHT VEH)
- WINDSHIELD – PASSANGER SIDE (RIGHT VEH)
- BATTERY BOX (RIGHT VEH)
- SEATBELT – PASSANGER SIDE (RIGHT VEH)
- MIRROR - PASSANGER SIDE (RIGHT VEH)
- TROOP SEATS SECURE (LEFT VEH)

REAR OF LOAD

- APEX PIN SECURE - REAR
- APEX ORDER (OUTER/OUT – INNER/IN)
- BREAKAWAY - CLUSTER
- GLASS AND PLASTIC (LEFT SIDE OF VEH)
- OUTER LEFT LINK COUNT - 3
- BREAKAWAY
- CHAINS OUTSIDE THE SLINGLEGS
- HOOKS AND CHAINS - SECURE
- LIFTPOINT
- TOW PINTLE
- ELECTRICAL CONNECTOR ASSEMBLY
- LIFT POINT
- CHAINS IN SLING GUIDE
- HOOKS AND CHAINS SECURE
- BREAKAWAY – TROOP SEAT RETAINING RING
- INNER LEFT LINK COUNT - 7
- INNER TROOP SEATS – BOTH VEHICLES
- GLASS AND PLASTIC (RIGHT SIDE OF VEH)
- CGU-1B
- INNER RIGHT LINK COUNT - 7
- BREAKAWAY – TROOP SEAT RETAINING RING
- CHAIN IN SLING GUIDE
- LIFT POINT
- TOW PINTLE
- CHAINS OUTSIDE SLING GUIDES
- BREAKAWAY
- LINK COUNT - 3
- TROOP SEAT
- FUEL CAP
- HOOD LATCH – PASSANGER SIDE
- FRONT WHEEL (RIGHT VEH)

NOTES

3 FUEL BLIVETS

EMPTY WEIGHT (each)	275lbs
RATED CAPACITY (each)	500 gal
TOTAL WEIGHT (each)	4,200 lbs (full)
LINK COUNT, 25K sling set	3 (DUAL) 55 (SINGLE)

INSPECTION SEQUENCE:

APEX (25 K)
APEX PIN SECURE
APEX ORDER (Single inside, Dual outside)
BREAKAWAY, (Single)
LINK COUNT 55 (SINGLE)
CHAINS ROUTED THRU ONE CLEVIS
EXCESS LINKS SECURE
COTTER PIN, (LIFT POINT)
FUEL CAP
COTTER PIN, (LIFT POINT)
REPEAT STEPS 1-8 (SINGLE) ON OTHER SIDE

COTTER PIN, (LIFT POINT)
FUEL CAP
COTTER PIN (LIFT POINT)
BREAKWAY, (DUAL)
CHECK FOR OPPOSING TRIANGLES
LINK COUNT 3 (DUAL)
CHAIN TO CHAIN CONTACT
SLINGLEGS NOT MISROUTED
COTTER PIN (LIFT POINT)
FUEL CAP
COTTER PIN (LIFT POINT)
REPEAT STEPS 9—18 (DUAL) ON OTHER SIDE

NOTES

M149A2 WATER TRAILER

EMPTY WEIGHT	2,800 lbs
RATED CAPACITY	400 gal
TOTAL WEIGHT	6320lbs
LINK COUNT, 10K sling set	90 (REAR); 75 (FRONT)

INSPECTION SEQUENCE:

CHAIN THROUGH LIFT POINT ONT TIME
LINK COUNT – 75 FRONT EXCESS SECURED W/ TYPE III
SAFETY CHAINS SECURE W/ TYPE III NYLON
AIR/ELECTRICAL HOSES SECURE W/ 2” TAPE
JACK HANDLE SECURE W/ TYPE III NYLON
FAUCET BOX SECURE W/ TYPE III NYLON
REFLECTOR SHATTERPROOFED FAUCET BOX W/ 2” TAPE
HAND BREAK ON
REFLECTOR SHATTERPROOFED – REAR OF WHEEL WELL W/ 2” TAPE
REFLECTOR SHATTERPROOFED – UNDER BRACKET W/ 2” TAPE
BRAKE LIGHT SHATTERPROOFED W/ 2” TAPE
LINK COUNT REAR – 90 EXCESS SECURED W/ TYPE III NYLON
PADDING MATERIAL MADE OUT OF 2” TAPE
LINK COUNT REAR – 90 EXCESS SECURED W/ TYPE III NYLON
BRAKE LIGHT SHATTERPROOFED W/ 2” TAPE
REFLECTOR SHATTERPROOFED – REAR OF WHEEL WELL W/ 2” TAPE
REFLECTOR SHATTERPROOFED – UNDER BRACKET W/ 2” TAPE
APEX SET FOR PROPER A/C
APEX PIN – SECURE
APEX ORDER CORRECT
BREAKAWAY – CLUSTER W/ ¼” COTTON WEBBING
FILL PORT COVER SECURE W/ 2” TAPE
FAUCET BOX SECURE W/ TYPE III NYLON
REFLECTOR SHATTERPROOFED – FAUCET BOX W/ 2” TAPE
HAND BREAK - ON
AIRHOSE SECURE W/ 2” TAPE

A-22 CARGO BAG

MINIMUM FLY WEIGHT	500 lbs
ACL	2200 lbs
LINK COUNT 10K sling set	3
A-22 RULE OF THUMB:	GREEN, GREEN, METAL, GREEN

INSPECTION SEQUENCE:

APEX SET UP FOR PROPER A/C
APEX PIN SECURED
LINK COUNT 3
MEDIUM CLEVIS
LIFT POINT
MEDIUM CLEVIS – BOLT TAPED ON EACH END
SUSPENSION WEBBING-ALL COTTON OR ALL NYLON
SUSPENSION WEBBING-PROPER ORDER
SUSPENSION WEBBING-NO MORE THAN ONE TWIST
BUTTERFLY HOOKS-FACING DOWN AND TOWARDS THE LOAD
BUTTERFLY HOOKS-SECURED WITH 2” TAPE
188” STRAPS-CROSS CONFIGURATION
188” STRAPS-NO QUICK RELEASE
188”STRAPS-NO TWISTS
188”STRAPS-PROPERLY SECURED WITH 2” TAPE
REPEAT STEPS 13-15 FOR 2ND 188” STRAPS
TOP LATERAL STRAP-NO TWISTS
TOP LATERAL STRAP-NO QUICK RELEASE
TOP LATERAL STRAP-PROPERLY SECURED TO SELF WITH 2” TAPE
REPEAT STEPS 17-19 FOR MIDDLE AND BOTTOM STRAPS
LACING ROPE-550 LBS OR MORE
LACING ROPE-ONE TIME THROUGH LACING LOOP
LACING ROPE-GROUND TO SKY THROUGH LACING LOOP
LACING ROPE-MAKES CROSS CORNERS
LACING ROPE-ONE TIME THROUGH LACING LOOP
LACING ROPE-GROUND TO SKY THROUGH LACING LOOP
LACING ROPE-TIED WITH BOW KNOT (NON-SECURE)
EXCESS SECURED WITH 2” TAPE
REPEAT STEPS 21-28 FOR CORNERS 2,3 AND 4
SCUFF PAD NOT INVERTED
NO EXPOSED CARGO

10,000-POUND SLING SET CHAIN LINK NUMBER	25,000-POUND SLING SET CHAIN LINK NUMBER	40,000-POUND SLING SET CHAIN LINK NUMBER	15,000-POUND MULTILEG SLING SET CHAIN LINK NUMBER
	3		51
	4		52
3	5		53
4	6		54
5	6		54
6	7	3	55
7	8	4	56
8	9	4	57
9	9	5	57
10	10	6	58
11	11	6	59
12	11	7	59
13	12	7	60
14	13	8	61
15	14	9	62
16	14	9	62
17	15	10	No further conversions for 15,000-pound multileg sling set
18	16	11	
19	16	11	
20	17	12	
21	18	13	
22	19	13	
23	19	14	
24	20	15	
25	21	15	
26	21	16	
27	22	16	
28	23	17	
29	24	18	
30	24	18	
31	25	19	
32	26	20	
33	27	20	
34	27	21	
35	28	21	
36	29	22	
37	30	22	
38	31	23	
39	31	24	
40	32	24	

10,000-POUND SLING SET CHAIN LINK NUMBER	25,000-POUND SLING SET CHAIN LINK NUMBER	40,000-POUND SLING SET CHAIN LINK NUMBER	15,000-POUND MULTILEG SLING SET CHAIN LINK NUMBER
41	33	25	No further conversion for 15,000-pound multileg sling set
42	34	25	
43	34	26	
44	35	26	
45	36	27	
46	37	28	
47	38	28	
48	39	29	
49	39	29	
50	40	30	
51	41	30	
52	42	31	
53	43	32	
54	44	32	
55	45	33	
56	45	33	
57	46	34	
58	47	34	
59	48	35	
60	49	36	
61	50	36	
62	50	37	
63	51	37	
64	52	38	
65	53	38	
66	54	39	
67	54	40	
68	55	40	
69	56	41	
70	57	41	
71	57	42	
72	58	42	
73	59	43	
74	60	44	
75	61	44	
76	61	45	
77	62	46	
78	63	46	
79	64	47	
80	65	48	

10,000-POUND SLING SET CHAIN LINK NUMBER	25,000-POUND SLING SET CHAIN LINK NUMBER	40,000-POUND SLING SET CHAIN LINK NUMBER	15,000-POUND MULTILEG SLING SET CHAIN LINK NUMBER
81	65	48	No further conversion for 15,000-pound multileg sling set
82	66	49	
83	67	49	
84	68	50	
85	68	51	
86	69	51	
87	70	52	
88	71	53	
89	72	53	
90	72	54	
91	73	55	
92	74	55	
93	75	56	
94	76	57	
95	76	57	
96	77	58	
97	78	58	
98	79	59	
99	79	60	
100	80	60	
101	81	61	
102	82	62	
103	83	62	
104	83	63	
105	84	64	
106		64	
107		65	

APPENDIX H

SLING LOAD INSPECTION RECORD

INTRODUCTION:
In order to improve sling load safety, all Army loads require an inspection by a qualified inspector prior to the arrival of the supporting aircraft using the Sling Load Inspection Record.

INSPECTOR QUALIFICATIONS:
Inspectors must meet the following qualifications:

- Be in the grade of E4 or above AND
- Be a graduate of one of the following courses:
  - Pathfinder
  - Air Assault
  - Sling Load Inspector Certification Course (SLICC)

DISTRIBUTION OF THE SLING LOAD INSPECTION RECORD:
The Sling Load Inspection Record requires three copies.
Distribute the form as follows:

- Copy One - To the supporting aviation unit
- Copy Two - Securely taped or tied to the load
- Copy Three - To the supported unit

The Sling Load Inspection Record form may be reproduced locally pending official distribution.

COMPLETING THE SLING LOAD INSPECTION RECORD:
Procedures for completing the Sling Load Inspection Record are as follows:

- Block 1 - Supported unit identification
- Block 2 - Item description and serial/bumper number
- Block 3 - Weight of load
- Block 4 - Supporting aviation unit identification
- Block 5 - Type of aircraft used
- Block 6 - FM used to rig the load
- Blocks 7 through 10 - Fill out only blocks that pertain to your load. Persons rigging and inspecting the load must INITIAL the appropriate blocks
- Block 11 - Identifies the supported unit person rigging the load and the date the load was rigged
- Block 12 - Identifies the supported unit person inspecting the load and the date the load was inspected
- Remarks - List any deficiencies found in the load

SLING LOAD INSPECTION RECORD

For use of this form, see FM 10-450-3; the proponent agency is TRADOC

1. SUPPORTED UNIT	2. ITEM DESCRIPTION AND SERIAL/BUMPER NO.	3. WEIGHT

4. SUPPORTING AVIATION UNIT	5. TYPE AIRCRAFT	6. RIGGED IAW FM NO

INITIAL ONLY ITEMS APPLICABLE TO YOUR SPECIFIC LOAD	LOAD RIGGED BY	LOAD INSPECTED BY
7. VEHICLE OR LOAD		
A. CORRECTLY POSITIONED		
B. EMERGENCY BRAKE SERVICEABLE AND SET		
C. FUEL LEVEL NOT TO EXCEED 3/4 TANK		
D. PREPARED AND PADDED IAW THE APPROPRIATE FM		
8. SLING SET		
A. CORRECT NUMBER AND SIZE (10K OR 25K)		
B. INSPECTED FOR SERVICEABILITY IAW FM 10-450-3		
C. SLING LEGS PROPERLY ROUTED AND ATTACHED TO LIFT POIN		
D. CORRECT LINK COUNT FRONT AND REAR		
E. CHAIN SECURED IN GRAB LINK		
F. EXCESS CHAIN TIED OR TAPED (10 LINKS OR MORE)		
G. BREAKAWAY TIES INSTALLED		
H. APEX ATTACHED		
I. APEX SPACER INSTALLED IF REQUIRED		
J. REACH PENDANT INSTALLED IF REQUIRED		
9. A-22 CARGO BAG		
A. INSPECTED FOR SERVICEABILITY IAW FM 10-450-3		
B. RIGGED IAW FM 10-450-3		
C. SUSPENSION WEBS ATTACHED TO CONTAINER AND TAPED		
D. CLEVIS BOLT THROUGH SUSPENSION WEB D-RINGS (4 EACH)		
E. CORRECT SLING LEG ATTACHED		
F. APEX ATTACHED (CORRECT TYPE)		
G. APEX SPACER INSTALLED IF REQUIRED		
10. CARGO NETS		
A. CORRECT SIZE (5K OR 10K)		
B. INSPECTED FOR SERVICEABILITY IAW FM 10-450-3		
C. LOAD CORRECTLY POSITIONED		
D. LIFTING LEGS PROPERLY CONNECTED TO APEX FITTING		
E. HOOKS TAPED		
F. LIFTING LEGS TAPED OR TIED (BREAKAWAY)		
G. CORRECT NUMBER AND SIZE SLING LEGS		

REMARKS:

11. LOAD RIGGED BY:

UNIT (PRINT)	NAME (PRINT)	INITIALS	RANK

SIGNATURE	DATE

12. LOAD INSPECTED BY:

UNIT (PRINT)	NAME (PRINT)	INITIALS	RANK

SIGNATURE	DATE

DA FORM 7382-R, MAR 97

ROPE LOG (USAGE AND HISTORY)			UNIT ID MARKING
NSN	DOCUMENT NUMBER	SERIAL NUMBER	MFR LOT NUMBER
DATE OF MFR	ISSUE DATE	DATE OF SERVICE	LENGTH
DIAMETER	FIBER	COLOR	CONSTRUCTION

INSPECT ROPE FOR DAMAGE OR EXCESSIVE WEAR EACH TIME IT IS DEPLOYED AND

DATE USED	LOCATION	TYPE OF USE	ROPE EXPO-SURE	INSPECTOR'S SIGNATURE	ROPE CONDITION AND COMMENTS

Appendix J

Equipment Inspections (Layout)

During equipment inspection Students will neatly place all inspect able items on their poncho as shown. Once complete the Student will stand to the right of the ruck sack facing their equipment prepared for inspection with their ID card in the right hand and ID tags in the left hand.

All items with be of military issue

A	Ruck sack with frame
B	Wet Weather Bag
C	Rubber Duck
D	Desert boots
E	Running Shoes
F	FLC/LBV/LBV
G	Canteen w/ Cup
H	ACH w/ Chin Strap
I	ACU Top X2
J	ACU Bottom X2
K	Gortex or Field Jacket
L	PT Shirt LS
M	PT Shirt SS
N	PT Shorts
O	PT Jacket
P	PT Pants
Q	Brown Towel X2
R	Patrol Cap
S	Reflective Belt or Vest
T	T-Shirt Tan X3
U	Poly Pro or FJ liner
V	AA Handbook
W	Glove Inserts
X	Work Gloves
Y	Watch Cap
Z	Goggles
AA	Flashlight w/ Red Lens
BB	White Socks 1 pr
CC	Belt Black/Tan
DD	Earplugs w/ Case
EE	Socks, Black/Tan X3 pr

T-shirts will have no logo or unit affiliation to include Under Armor.


B
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ARMY
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Z
V
Air Assault School
Handbook
EE
CC
Y
DD
BB
X
W
AA

Equipment Inspection (Worn)

During equipment inspection Students will neatly place all inspect able items on their poncho as shown. Once complete the Student will stand to the right of the ruck sack facing their equipment prepared for inspection with their ID card in the right hand and ID tags in the left hand.

All items with be of military issue

FF	ID Card
GG	ID Tags X2 w/ long and short chain
HH	T-Shirt Tan
II	ACU Top with the following items (no badges)
	US Army Tape
	Name Tape
	Rank
	Unit Patch w/ appropriate tabs
	US Flag (no IR or subdued flags)
JJ	ACU Bottoms
KK	Belt, Tan
LL	Socks, Black/Tan
MM	Boots, Desert

Students who fail to have all items prior to the 12 mile foot march must notify the Cadre prior to the start of the event. Failure to complete the road march with all required items will result in a NO GO for the road march!




HH
FF
GG
WADE
U.S. ARMY
II
KK
JJ
LL
MM