

Summary Report for Individual Task
052-247-1226
Conduct Lifting Operations for a Structural Collapse
Status: Approved

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD1 - The materials contained in this course have been reviewed by the course developers in coordination with the Ft Leonard Wood MO/MSCOE foreign disclosure authority. This course is releasable to students from all requesting foreign countries without restrictions.

Condition: You are a member of an Urban Search and Rescue (US&R) team given pry bars, pneumatic lifting air bags, ratchet jack, hydraulic jack, cribbing material, load to be lifted and personal protective equipment (PPE). This task should not be trained in MOPP 4.

Standard: Lift a load to the desired height using lifting tools. Ensure the load is lifted, stabilized and controlled during the entire operation in accordance with (IAW) National Fire Protection Association (NFPA) 1006 standards.

Special Condition: None

Safety Risk: Medium

MOPP 4: Never

Task Statements

Cue: None

DANGER
None

WARNING
None

CAUTION
None

Remarks: All required references and technical manuals will be provided by the local US&R Command.

Notes: None

Performance Steps

1. Size-up the load to be lifted.
 - a. Calculate the weight of the load to be lifted. (See task 052-247-2106)
 - b. Select the proper material to use for cribbing.
 - c. Choose appropriate lifting tool for the load.
2. Designate a rescuer to perform leader duties.
3. Appoint the following positions.
 - a. Assign two crib builders.
 - b. Assign two rescuers to supply cribbing materials to crib builders.
4. Lift a load using pry bars.
 - a. Prepare to lift the load.
 - (1) Determine the locations for the lifting points and crib beds.
 - (2) Lifters place their pry bars under one side of the load, using a 2x4 as a fulcrum.
Note: Leave enough room to build crib boxes on each corner.
 - b. The leader gives the command "prepare to lift" and the assigned lifters will respond with "ready".
 - c. The leader gives the command "lift".

WARNING

Keep hands and feet clear while the load is being supported by pry bars.

- d. Lift the load.
 - (1) Lift the load until a 4" X 4" crib can be inserted between the ground and the load.

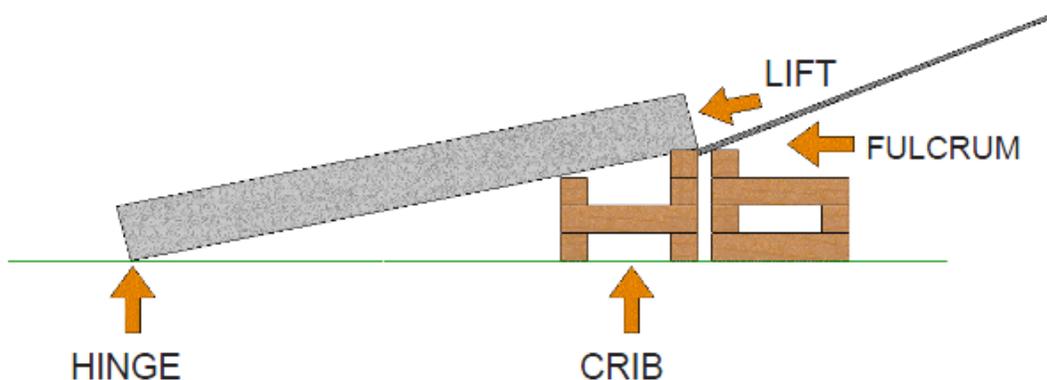


Figure 052-247-1226-1

Pry Bars

(2) Have cribbers slide wedges in as the load is being lifted to avoid any dropping should a pry bar slip.

e. Set the cribs into place. (See task 052-247-1225)

(1) The leader gives the command "hold" until the cribbers can place wedges and cribbing to support the load.

WARNING

Hold the wedges by the sides, (not by the top and bottom) to prevent a crushing injury if the load suddenly drops.

(2) The cribbers give the command "crib set" when the finished cribs are in place.

f. Lower the load onto the cribs.

(1) The leader gives the command "lower load" so the crib beds can support the load.

(2) The lifters lower the load onto the crib beds.

g. Shift the operation to the opposite side of the load and repeat the process.

(1) Lift until the load is 8 inches off the ground.

Note: Each corner of the load should have a stabilizing crib built under it.

(2) Switch sides and lift the first side of the load to 12 inches.

h. Continue alternating sides until the load is raised to the desired height.

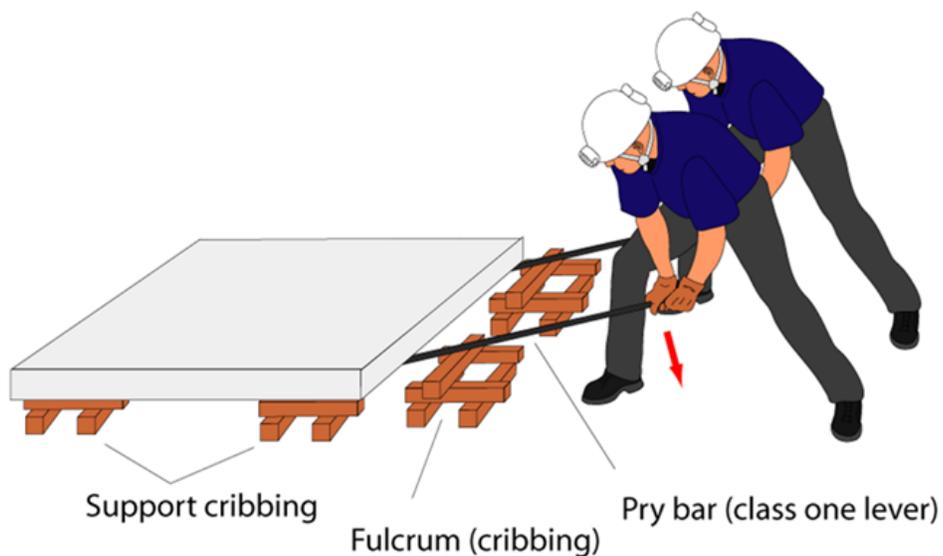


Figure 052-247-1226-2
Lift the Load with Pry Bars

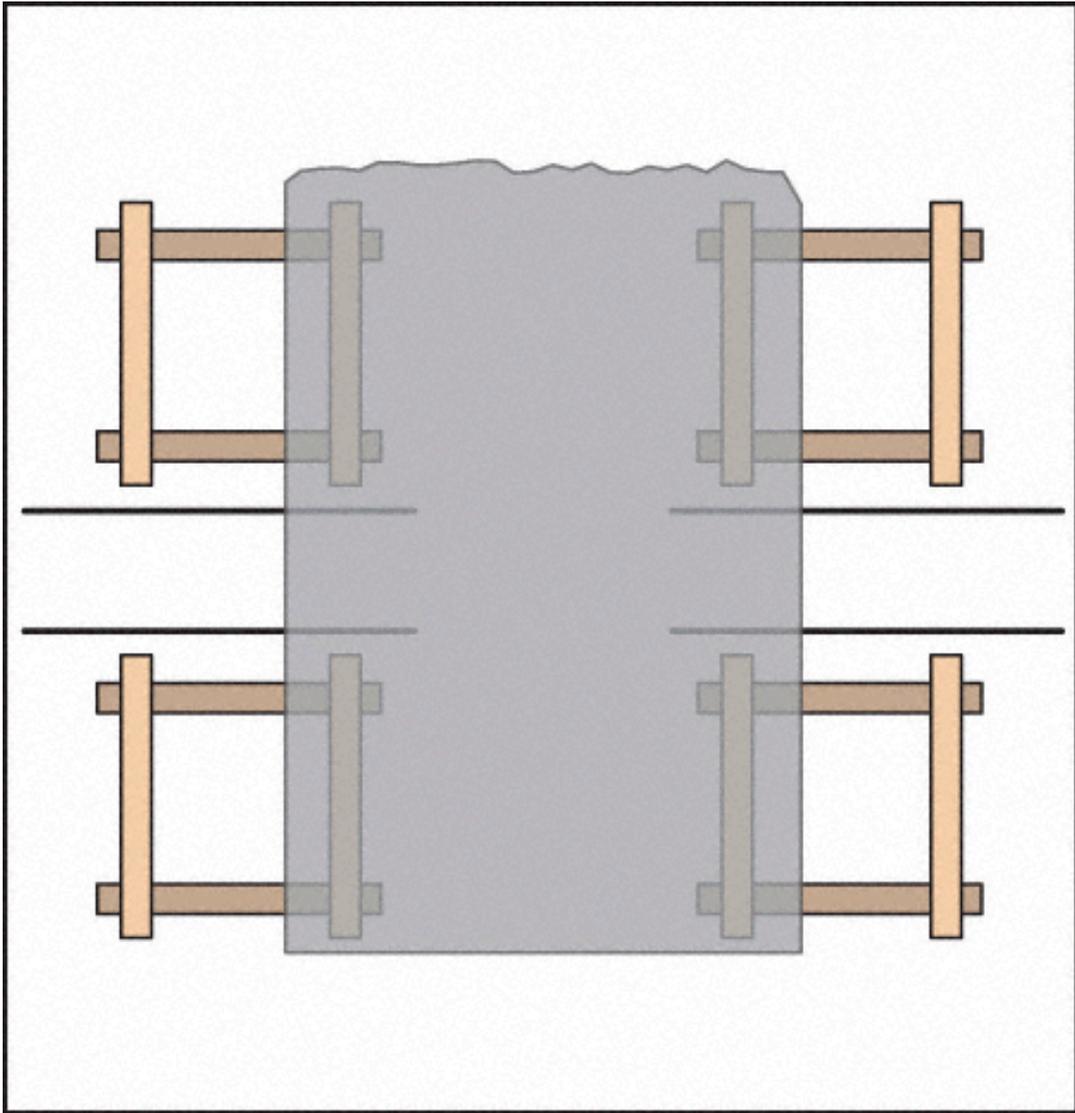


Figure 052-247-1226-3
Stabilize Load Top View

i. Lower the load in the reverse order that it was raised.

5. Lift a load using portable jacks.

a. Lift a load using a hi-lift ratchet jack.

(1) Prepare to lift the load.

(a) Place the jack's base securely on a firm, level and dry surface.

(b) Lift the reversing latch until it locks in the up position.

(c) Lifters grasp the handle or handle socket and raise the lifting mechanism until the large runner is completely and securely under the load.

(2) The leader gives the command "prepare to lift" and the assigned lifters will respond with "ready".

(3) The leader gives the command "lift".

(4) Lift the load.

(a) Grasp the handle firmly with both hands.

Note: Do not use an extension or "cheater" bar on the handle. The load will be raised on each down stroke of the handle. Watch the load and the jack carefully. Stop lifting if either one starts to shift. Do not continue until it is safe to do so. When safe, stabilize and block the load.

(b) Pump the handle up and down to raise the load.

(5) Set the cribs into place. (See task 052-247-1225)

(a) The leader gives the command "hold" until the cribbers can place wedges and cribbing to support the load.

WARNING

Hold the wedges by the sides, (not by the top and bottom) to prevent a crushing injury if the load suddenly drops.

(b) The cribbers give the command "crib set" when the finished cribs are in place.

DANGER

Unexpected movement of the jack handle may result in the user being struck causing serious injury or death. Always keep your head away from and out of the jack handle path of movement. The jack handle may move rapidly when moving the reversing latch and cause serious injury or death. Always place the handle against the steel standard bar with the handle clip spring holding it up before moving the reversing latch. This will prevent the handle from moving up and down rapidly. Securely hold on to the jack handle so your hands do not slip and ensure the handle is not in the horizontal position when moving the reversing latch. Important! During lifting and lowering, the weight of the load pushes up against the jack's handle. If your hands slip off the handle, or if the handle is horizontal when you move the reversing latch, it may move up very quickly.

(6) Lower the load onto the cribs.

Note: The jack must have a load of 150 lbs. or more to lower the load, otherwise, the lifting mechanism will slide down to the base plate, dropping your load. Ensure all bystanders are clear of the load being lowered.

(a) The leader gives the command "lower load" so the crib beds can support the load.

(b) Move the reversing latch to the down position.

(c) Grasp the handle firmly with both hands.

(d) Pump the handle up and down to lower the load.

(e) The lifters lower the load onto the crib beds.

(7) Shift the operation to the opposite side of the load and repeat the process.

(a) Lift until the load is 8 inches off the ground.

Note: Each corner of the load should have a stabilizing crib built under it.

(b) Switch sides and lift the first side of the load to 12 inches.

(8) Continue alternating sides until the load is raised to the desired height.



Figure 052-247-1226-4
Hi Lift Jacks

(9) Lower the load in the reverse order that it was raised.

b. Lift a load using a hydraulic jack.

(1) Prepare to lift the load.

(a) Determine the locations for the lifting points and crib beds.

(b) Screw out ram as needed.

(c) Lock hydraulic valve prior to operating jack by rotating it clockwise using the handle.

(2) The leader gives the command "prepare to lift" and the assigned lifters will respond with "ready".

(3) The leader gives the command "lift".

(4) Lift the load.

(a) Insert handle into the handle socket.

(b) Pump the handle up and down until load reaches the desired height.

(5) Set the cribs into place. (See task 052-247-1225)

- (a) The leader gives the command "hold" until the cribbers can place wedges and cribbing to support load.

WARNING

Hold the wedges by the sides, (not by the top and bottom) to prevent a crushing injury if the load suddenly drops.

- (b) The cribbers give the command "crib set" when finished cribs are in place.

- (6) Lower the load onto the cribs.

- (a) The leader gives the command "lower load" so the crib beds can support the load.

- (b) Turn the hydraulic valve counterclockwise slowly with the handle.

Note: Do not turn the hydraulic valve more than 1/2 full turn. Opening the valve more than 1/2 full turn can result in the load lowering faster than personnel can control.

- (c) The lifters lower the load onto the crib beds.

- (7) Shift the operation to the opposite side of the load and repeat the process.

- (a) Lift until the load is 8 inches off the ground.

Note: Each corner of the load should have a stabilizing crib built under it.

- (b) Switch sides and lift the first side of the load to 12 inches.

- (8) Continue alternating sides until the load is raised to the desired height.

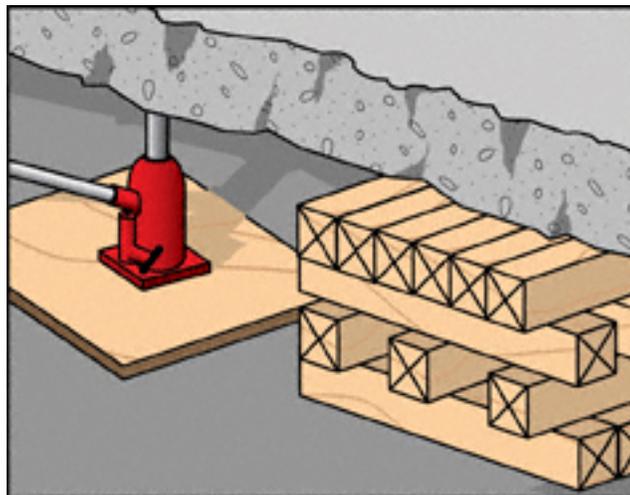


Figure 052-247-1226-5
Hydraulic Jack

- (9) Lower the load in the reverse order that it was raised.

- 6. Lift a load using pneumatic lifting air bags.

- a. Determine number and placement of bag(s) required to lift the load.

Note: Number and placement of bag(s) will depend on weight of the load, space restrictions and equipment available.

Note: Bag(s) can be single, tandem (side-by-side), or stacked. At least 50% of the bag's surface area must be in contact with a solid surface. Bags cannot be stacked more than two high. When stacking bags, place the larger bag on the bottom if they are of unequal size; and the lifting capacity will be equal to that of the smaller bag. If bags are used in tandem, their capacity is equal to the bags added together.

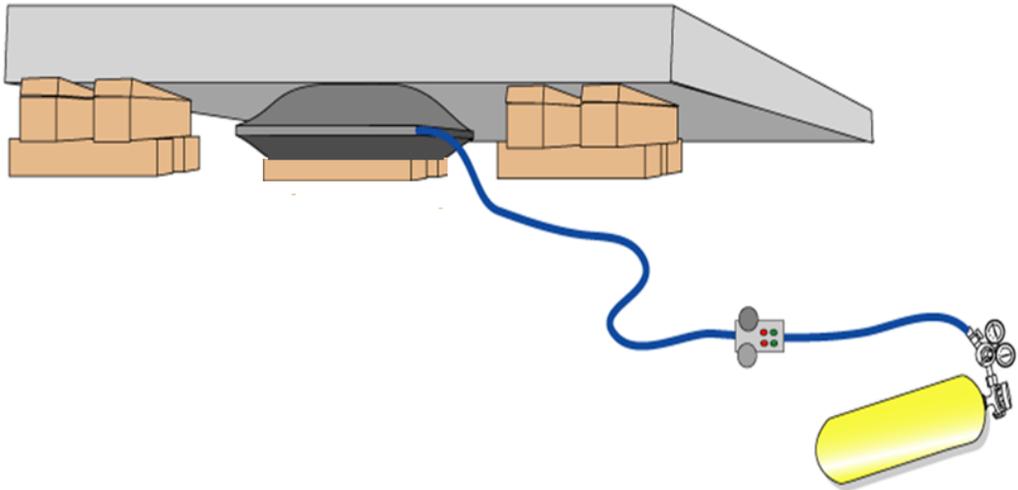


Figure 052-247-1226-6
Single Pneumatic Lifting Air Bag

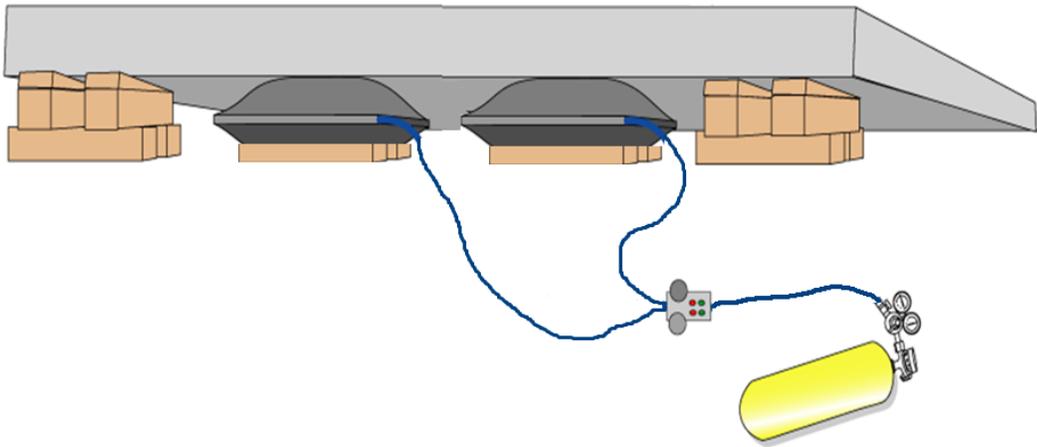


Figure 052-247-1226-7
Tandem Pneumatic Lifting Air Bags



Figure 052-247-1226-8
Stacked Pneumatic Lifting Air Bags

b. Ensure surface area is clean, free of sharp edges and level.

c. Place a solid layer of cribbing in location where bag(s) will be placed.

d. Place lifting air bag on top of crib bed.

Note: Leader gives the command "prepare to lift" and lifters will respond with "ready". Leader gives the command "lift".

e. Inflate the bag(s) and watch for load shift.

Note: If stacking bags, inflate the larger (bottom) bag first until the top bag contacts the load. Inflate the top bag to achieve the desired height.

f. Set cribs into place. (See task 052-247-1225)

Note: Leader gives the command "hold" until cribbing and wedges are in place to support the load. Cribbers give the command "crib set" when cribs are in place.

g. Lower the load onto the cribs.

Note: Leader gives the command "lower load" so crib beds can support the load. The lifters lower the load by deflating the bags.

h. Shift the operation to the opposite side of the load and repeat the process.

Note: Lift 8". Each corner should have a stabilizing crib. Switch sides and lift first side to 12". Continue alternating until load is at desired height.

i. Lower the load in reverse order that it was raised.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score the Soldier GO if all measures are passed (P). Score the Soldier NO-GO if any measure is failed (F). If the Soldier fails any measure, show him how to do it correctly

Evaluation Preparation: Setup: Provide the Soldier with all the items listed in the conditions.
Brief the Soldier: Tell the Soldier to Conduct Lifting Operations for a Structural Collapse.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Sized-up the load to be lifted.			
2. Designated a rescuer to perform leader duties.			
3. Appointed positions.			
4. Lifted a load using pry bars.			
5. Lifted a load using portable jacks.			
6. Lifted a load using pneumatic lifting air bags.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	Corps of Engineers	US Army Corps of Engineers, Urban Search and Rescue, Shoring Operations Guide, 3rd Edition	No	No
	IFSTA	International Fire Service Training Association (IFSTA) Fire Service Search and Rescue, 7th Edition	No	No
	IFSTA - 1st Edition	IFSTA Technical Rescue for Structural Collapse, 1st Edition	No	No
	NFPA 1006	Standard for Rescue Technician Professional Qualifications	Yes	Yes

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

Prerequisite Individual Tasks : None

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
052-247-2106	Calculate the Weight of a Load for Rubble Removal	052 - Engineer (Individual)	Approved
052-247-1225	Construct Cribbing System(s) to Stabilize a Load	052 - Engineer (Individual)	Analysis

Supported Individual Tasks :

Task Number	Title	Proponent	Status
-------------	-------	-----------	--------

052-247-1325	Move a Heavy Load Within a Structural Collapse	052 - Engineer (Individual)	Analysis
052-247-1225	Construct Cribbing System(s) to Stabilize a Load	052 - Engineer (Individual)	Analysis
052-247-1220	Construct Load Stabilization Systems to Lift a Load from a Trench	052 - Engineer (Individual)	Analysis
052-247-1326	Stabilize Vehicles and Machinery	052 - Engineer (Individual)	Analysis

Supported Collective Tasks : None