

Tempe Fire Department Policies and Procedures

Air Bags

405.12

Rev 10-23-97

PURPOSE

The Maxi-force air companies use move, or stabilize

PROCEDURE

The components

A regulator bottle with MSA

A control

3 colored air lines.

Various sizes and capacity Maxi-force bags.

Cribbing: 4 X 4, 2 X 4, and wedges made from Douglas Fir.

Setting up the system

Estimate the weight to be lifted and the distance to be moved.

Weight per cubic foot:

Steel - 490#

Concrete - 150#

Wood - 50#

Lay out the appropriate air bags. Each bag is marked with the lifting height and capacity.

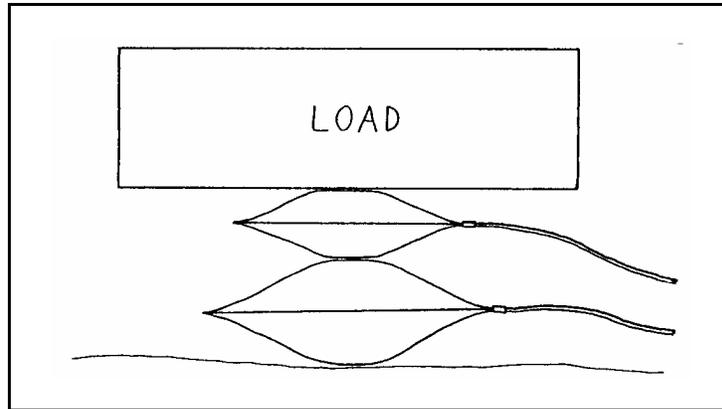
Connect the regulator to a charged SCBA bottle. One bottle will make approx. 2 lifts depending on weight.

Connect the control valve to the regulator via air line. If the air line is needed for extension, the control valve can be connected directly to the regulator. Each connection has a locking ring which is tightened to prevent accidental disconnection.

Connect the air lines from the control valve to the air bags. A maximum of 2 bags can be used in a lift.

Lifting:

Place the bags under the lifting point with the larger bag on the bottom. The "X" on the bag marks the center of the lifting force. Center bag(s) directly under the lifting point. If there are any sharp edges, place cribbing on top of the bag between the bag and lifting point to prevent puncture. Cribbing should also be used to distribute the weight at the lifting point if collapse or deformity is possible due to structural weakness.



A Two Bag Lift

bags carried on our Ladder pneumatic force to lift, large, heavy objects.

of the air bag system are:

that attaches to a SCBA adaptor.

valve with 2 outlets.

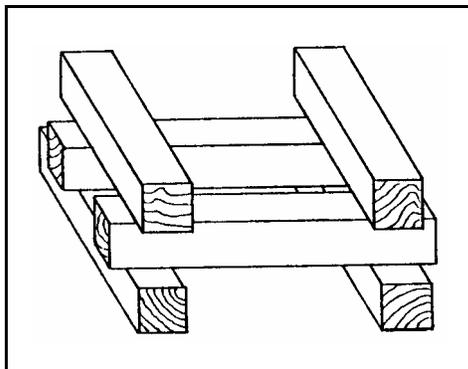
No personnel can be under an object without cribbing in place to prevent being crushed. The Captain will assume or assign a safety officer.

One firefighter will direct the lift, while another works the control valve. The lower bag is inflated first. Some distortion may occur on the top bag as it forms to the lifting point. If so inflate it some to hold somewhat of its shape. Directions are given by hose color. Ex: "Inflate red. That's good. Inflate yellow." Capacity is reached at 118 psi. If attempts are made to surpass this pressure, the safety pop off valves will release excess pressure at the control valve. The gages at the valve are clearly marked from green to red at 118 psi.

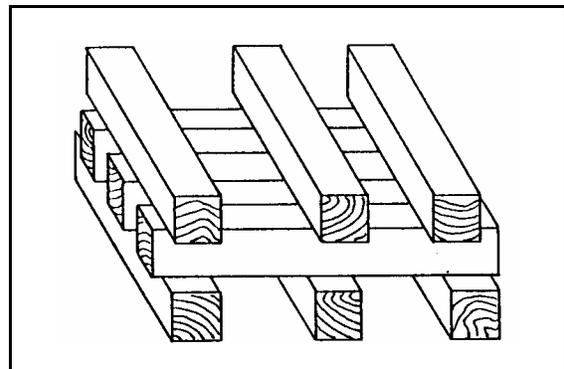
The object must be cribbed before anyone can enter an area where they might be crushed if the load shifted. The air bags themselves are not enough protection. The safety officer must clear anyone in a danger area.

Stabilize the object if it wants to roll or turn with cribbing, chains, ropes or any combination.

If the first lift is not high enough to reach the objective, cribbing can be built under the bags for a second lift. Cribbing must be in place to hold the load while the bags are deflated and reset. The SCBA bottle can be changed without use of pressure.

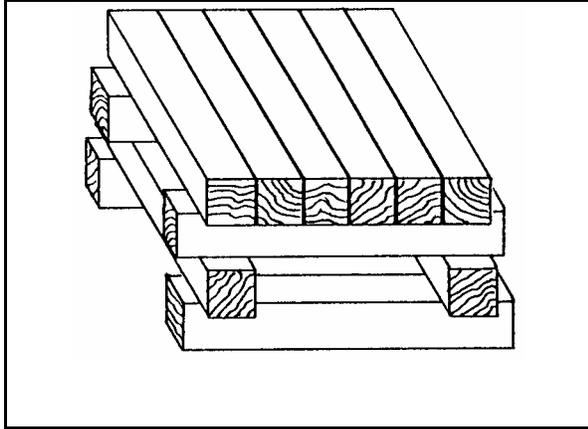


Standard Crib - 24,000#



Reinforced crib - 48,000#
One more 4 x 4 added to each level

Solid top crib for air bag base.



Deflating:

Deflation or lowering is still a 2 firefighter operation; one to direct and one to work the control valve. Deflate the top bag first and then the bottom. Once the process is started it may be desirable to deflate both bags at the same time. Always make sure the pressure is relieved at the gages before any part of the system is disconnected.

Relieve the pressure at the regulator, after turning the SCBA bottle off, with the small valve on the regulator.

The pressure in the line connecting the regulator and the control valve may be relieved by pressing the inflate and deflate buttons at the same time.

Safety Considerations:

- Stabilize the object with cribs, shores, chains, or ropes as needed.
- Have a Safety Officer to watch the operation.
- Do not put personnel under the object until it is stable.
- Protect the bags from puncture.
- Protect the nipples on the bags from being broken off, and from debris.
- All pressure removed from system before disconnection of any part.

Lifting a concrete pipe using angled cribs. On the left the angle

