

has determined that the various structural components will not be overstressed.

(v) No hoisting, lowering, or swinging shall be done while anyone is on the load or hook.

(vi) The operator should avoid carrying loads over people.

(vii) The operator shall test the brakes each time a load approaching the rated load is handled by raising it a few inches and applying the brakes.

(viii) Neither the load nor boom shall be lowered below the point where less than two full wraps of rope remain on their respective drums.

(ix) When rotating a derrick, sudden starts and stops shall be avoided. Rotational speed shall be such that the load does not swing out beyond the radius at which it can be controlled.

(x) Boom and hoisting rope systems shall not be twisted.

(4) *Holding the load.* (i) The operator shall not be allowed to leave his position at the controls while the load is suspended.

(ii) People should not be permitted to stand or pass under a load on the hook.

(iii) If the load must remain suspended for any considerable length of time, a dog, or pawl and ratchet, or other equivalent means, rather than the brake alone, shall be used to hold the load.

(5) *Use of winch heads.* (i) Ropes shall not be handled on a winch head without the knowledge of the operator.

(ii) While a winch head is being used, the operator shall be within convenient reach of the power unit control lever.

(6) *Securing boom.* Dogs, pawls, or other positive holding mechanism on the hoist shall be engaged. When not in use, the derrick boom shall:

(i) Be laid down;

(ii) Be secured to a stationary member, as nearly under the head as possible, by attachment of a sling to the load block; or

(iii) Be hoisted to a vertical position and secured to the mast.

(j) *Other requirements*—(1) *Guards.* (i) Exposed moving parts, such as gears, ropes, setscrews, projecting keys, chains, chain sprockets, and reciprocating components, which constitute a hazard under normal operating conditions shall be guarded.

(ii) Guards shall be securely fastened.

(iii) Each guard shall be capable of supporting without permanent distortion, the weight of a 200-pound person unless the guard is located where it is impossible for a person to step on it.

(2) *Hooks.* (i) Hooks shall meet the manufacturer's recommendations and shall not be overloaded.

(ii) Safety latch type hooks shall be used wherever possible.

(3) *Fire extinguishers.* (i) A carbon dioxide, dry chemical, or equivalent fire extinguisher shall be kept in the immediate vicinity of the derrick.

(ii) Operating and maintenance personnel shall be familiar with the use and care of the fire extinguishers provided.

(4) *Refueling.* (i) Refueling with portable containers shall be done with approved safety type containers equipped with automatic closing cap and flame arrester. Refer to § 1910.155(c)(3) for definition of Approved.

(ii) Machines shall not be refueled with the engine running.

(5) *Operations near overhead lines.* For operations near overhead electric lines, see § 1910.333(c)(3).

(6) *Cab or operating enclosure.* (i) Necessary clothing and personal belongings shall be stored in such a manner as to not interfere with access or operation.

(ii) Tools, oilcans, waste, extra fuses, and other necessary articles shall be stored in the toolbox, and shall not be permitted to lie loose in or about the cab or operating enclosure.

[37 FR 22102, Oct. 18, 1972, as amended at 38 FR 14373, June 1, 1973; 43 FR 49750, Oct. 24, 1978; 49 FR 5323, Feb. 10, 1984; 51 FR 34561, Sept. 29, 1986; 53 FR 12122, Apr. 12, 1988; 55 FR 32015, Aug. 6, 1990; 61 FR 9240, Mar. 7, 1996]

#### § 1910.183 Helicopters.

(a) *Helicopter regulations.* Helicopter cranes shall be expected to comply with any applicable regulations of the Federal Aviation Administration.

(b) *Briefing.* Prior to each day's operation a briefing shall be conducted. This briefing shall set forth the plan of operation for the pilot and ground personnel.

(c) *Slings and tag lines.* Loads shall be properly slung. Tag lines shall be of a length that will not permit their being

drawn up into the rotors. Pressed sleeve, swedged eyes, or equivalent means shall be used for all freely suspended loads to prevent hand splices from spinning open or cable clamps from loosening.

(d) *Cargo hooks.* All electrically operated cargo hooks shall have the electrical activating device so designed and installed as to prevent inadvertent operation. In addition, these cargo hooks shall be equipped with an emergency mechanical control for releasing the load. The employer shall ensure that the hooks are tested prior to each day's operation by a competent person to determine that the release functions properly, both electrically and mechanically.

(e) *Personal protective equipment.* (1) Personal protective equipment shall be provided and the employer shall ensure its use by employees receiving the load. Personal protective equipment shall consist of complete eye protection and hardhats secured by chinstraps.

(2) Loose-fitting clothing likely to flap in rotor downwash, and thus be snagged on the hoist line, may not be worn.

(f) *Loose gear and objects.* The employer shall take all necessary precautions to protect employees from flying objects in the rotor downwash. All loose gear within 100 feet of the place of lifting the load or depositing the load, or within all other areas susceptible to rotor downwash, shall be secured or removed.

(g) *Housekeeping.* Good housekeeping shall be maintained in all helicopter loading and unloading areas.

(h) *Load safety.* The size and weight of loads, and the manner in which loads are connected to the helicopter shall be checked. A lift may not be made if the helicopter operator believes the lift cannot be made safely.

(i) *Hooking and unhooking loads.* When employees perform work under hovering craft, a safe means of access shall be provided for employees to reach the hoist line hook and engage or disengage cargo slings. Employees may not be permitted to perform work under hovering craft except when necessary to hook or unhook loads.

(j) *Static charge.* Static charge on the suspended load shall be dissipated with a grounding device before ground personnel touch the suspended load, unless protective rubber gloves are being worn by all ground personnel who may be required to touch the suspended load.

(k) *Weight limitation.* The weight of an external load shall not exceed the helicopter manufacturer's rating.

(l) *Ground lines.* Hoist wires or other gear, except for pulling lines or conductors that are allowed to "pay out" from a container or roll off a reel, shall not be attached to any fixed ground structure, or allowed to foul on any fixed structure.

(m) *Visibility.* Ground personnel shall be instructed and the employer shall ensure that when visibility is reduced by dust or other conditions, they shall exercise special caution to keep clear of main and stabilizing rotors. Precautions shall also be taken by the employer to eliminate, as far as practical, the dust or other conditions reducing the visibility.

(n) *Signal systems.* The employer shall instruct the aircrew and ground personnel on the signal systems to be used and shall review the system with the employees in advance of hoisting the load. This applies to both radio and hand signal systems. Hand signals, where used, shall be as shown in Figure N-1.

(o) *Approach distance.* No employee shall be permitted to approach within 50 feet of the helicopter when the rotor blades are turning, unless his work duties require his presence in that area.

(p) *Approaching helicopter.* The employer shall instruct employees, and shall ensure, that whenever approaching or leaving a helicopter which has its blades rotating, all employees shall remain in full view of the pilot and keep in a crouched position. No employee shall be permitted to work in the area from the cockpit or cabin rearward while blades are rotating, unless authorized by the helicopter operator to work there.

(q) *Personnel.* Sufficient ground personnel shall be provided to ensure that helicopter loading and unloading operations can be performed safely.

(r) *Communications.* There shall be constant reliable communication between the pilot and a designated employee of the ground crew who acts as a signalman during the period of loading and unloading. The signalman shall

be clearly distinguishable from other ground personnel.

(s) *Fires.* Open fires shall not be permitted in areas where they could be spread by the rotor downwash.

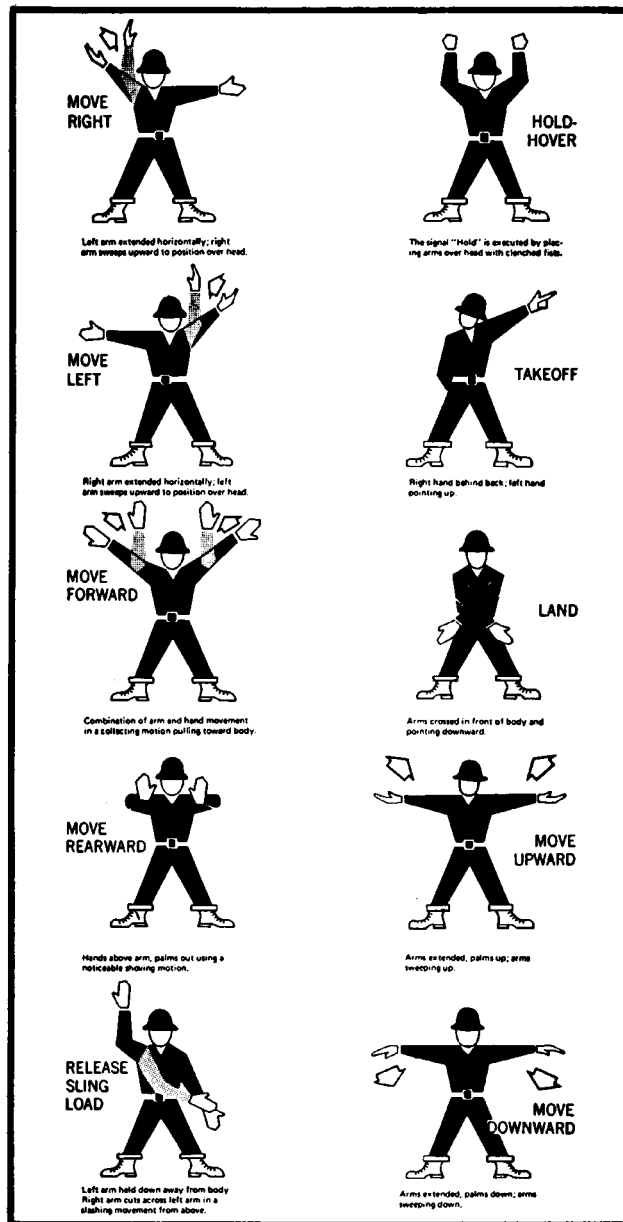


FIGURE N-1 HELICOPTER HAND SIGNAL

[40 FR 13440, Mar. 26, 1975]