



LIFTING CHARTS - Conventional Truck Cranes

GROVE MODEL HL150T - 150 TON CAPACITY

NOTES TO LIFTING CAPACITIES

GENERAL:

1. Rated loads as shown on capacity chart pertain to this crane as originally manufactured and equipped. Modifications to the crane or use of optional equipment other than that specified can result in a reduction of capacity. Use only the jib or boom extension supplied with this crane. Do not substitute jibs or boom extensions without the written approval of Grove Manufacturing Co.
2. Construction equipment can be hazardous if improperly operated or maintained. Operation and maintenance shall be in compliance with the information in the Operator's and Safety Handbook, Service, Parts, and Rooding/Rigging manuals supplied with this crane. If these manuals are missing, order replacements from the manufacturer.
3. The operator and other personnel associated with this crane shall fully acquaint themselves with the latest applicable American National Standards Institute (ANSI) Safety Standards for cranes.
4. **WARNING!** Do not attempt to operate this crane unless you have read and are thoroughly familiar with the Operator's and Safety Handbook, and Rooding/Rigging manuals.

SETUP:

1. The crane shall be leveled on a firm supporting surface. Depending on the nature of the supporting surface, it may be necessary to have structural supports of sufficient strength under the outrigger floats or tires to spread the load to a larger bearing surface.
2. For outrigger operation, outriggers shall be fully extended to 22 ft. 0 in. (6.7 m) width with tires raised free of crane weight before operating boom or lifting loads.
3. The front jack cylinder shall be set in accordance with the written procedure. See Carrier Operator's Safety Handbook Section 4.
4. With certain boom and hoist tackle combinations, maximum capacities may not be obtainable with standard cable lengths.
5. Rotation resistant wire rope is best suited for single line lifting operations. Consult the wire rope manufacturer for specific recommendations concerning multiple part reeving.
6. Consult the Rooding and Rigging Manual for the proper boom-counterweight configuration for jobsite moves.
7. **WARNING!** Never raise boom from ground, operate boom, or rotate upperstructure without consulting Rooding and Rigging manual to assure machine is in proper operating configuration. That is outriggers extended and set, or front axle lockouts engaged, and proper counterweights installed.
8. When lowering boom over rear, caution must be taken to assure boom does not contact carrier deck or rear outrigger. Blocking may be required under boom point.
9. **WARNING:** Never erect jibs unless outriggers are fully extended to 22 ft. 0 in. (6.7 m) and set.
10. **WARNING:** When erecting booms longer than 190 ft. (57.9 m) for 68A boom or 220 ft. (67.1 m) for 76A boom, Mid Point Suspension must be installed. Consult Rooding/Rigging manual for proper location of mid point suspension.

OPERATION:

1. Rated loads at rated radius shall not be exceeded. Do not tip the machine to determine allowable loads. For clamshell and concrete bucket operation, see respective load charts.
2. All rated loads have been tested to and meet minimum requirements of SAE J-987 Crane Structures - Method of Test, and do not exceed the percentage of the tipping load shown on capacity charts as determined by SAE J-765, Crane Stability Test Code.
3. Rated loads include the weight of hook block, slings and auxiliary lifting devices and their combined weights shall be subtracted from the listed ratings to obtain the net load which may be lifted.
4. Load ratings are based on freely suspended loads. No attempt shall be made to move a load horizontally on the ground in any direction.
5. Rated loads do not account for wind on lifted load or boom. It is recommended when wind velocity is above 20 mph (32 km/h), rated loads and boom lengths be appropriately reduced.
6. Rated loads are for lift crane service only.
7. Do not operate at a radius or boom length where capacities are not listed. At these positions, the crane may over turn without any load on the hook.
8. When either boom length or radius or both are between values listed, the smallest load shown at either the next larger radius or boom length shall be used.
9. For safe operation, the user shall make due allowances for his particular job conditions, such as soft or uneven ground, high winds, pendulum action, jerking or sudden stopping of loads, hazardous conditions, experience of personnel, two machine lifts, traveling with loads, electric wires, etc. Side pull on boom or jib is extremely dangerous.
10. Handling of personnel from the boom is strictly prohibited.
11. Keep load handling devices a minimum of 18 in. (45.7 cm) below head at all times.
12. The boom angle before loading should be greater than the loaded boom angle to account for deflection.
13. Capacities appearing above the bold line or within shaded areas are based on structural strength and tipping should not be relied upon as a capacity limitation.
14. Radii less than 40 ft. (12 m) not recommended when lifting over the front of machine.

DEFINITIONS:

1. Operating Radius: Horizontal distance from a projection of the axis of rotation to the supporting surface before loading to the center of the vertical hoist line or tackle with load applied.
2. Loaded Boom Angle: Is the angle between the boom base section and the horizontal after lifting the rated load at the rated radius with the rated boom length.
3. Working Area: Areas measured in a circular arc about the centerline of rotation as shown on the working area diagram.
4. Freely Suspended Load: Load hanging free with no direct external force applied except by the lift cable.
5. Side Load: Horizontal force applied to the lifted load either on the ground or in the air.
6. No Load Stability Limit: The stability limit radius shown on the range diagram is the radius beyond which it is not permitted to position the boom plus block configuration, because machine can overturn without any load on the hook.

STERLING CRANE

LINE PULLS & REEVING INFORMATION

HOISTS	WIRE ROPE SPECIFICATIONS	PERMISSIBLE LINE PULLS
FRONT Model H060A	1 in. 6x19, EIPS, IWRC	29,500 lbs.
REAR Model H060B	1 in. 6x19, EIPS, IWRC	29,500 lbs.
BOOM	1 in. 6x19, EIPS, IWRC	29,500 lbs.
AUXILIARY Model H030C	3/4 in. 6x19, EIPS, IWRC	16,800 lbs.

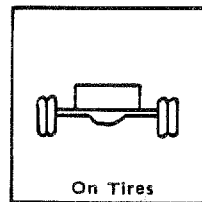
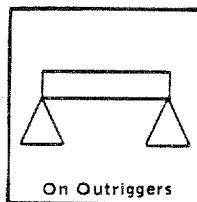
WEIGHT REDUCTIONS FOR LOAD HANDLING DEVICES

HOOKBLOCKS:

150 Ton 6 Sheave . . .	3,600 lbs.
90 Ton 3 Sheave . . .	2,800 lbs.
30 Ton 1 Sheave . . .	1,200 lbs.
15 Ton Weight Hook . . .	1,200 lbs.

NOTE: All Load Handling Devices and Boom Attachments are Considered Part of the Load and Suitable Allowances MUST BE MADE for Their Combined Weights. Weights are for Grove Furnished Equipment.

SYMBOLS



STERLING CRANE

LIFTING CAPACITY NOTES 85% STABILITY ON OUTRIGGERS - 75% STABILITY ON RUBBER 68A BOOM (68" x 76")

GENERAL NOTES FOR BOOM CAPACITY:

1. Rated loads appearing in shaded areas are based on structural strength or other factors and tipping should not be relied upon as a capacity limitation.
2. Rated loads are in pounds and do not exceed 85% of tipping loads on outriggers and 75% of tipping loads on rubber as determined by test in accordance with SAE J765 OCT80.
3. Rated loads are applicable only with machine on a firm level surface.

FOR MACHINE ON OUTRIGGERS:

4. Rated loads are applicable only with outriggers fully extended and set with all tires clear of ground.
5. For 360 degree operation the front jack cylinder must be set in accordance with written procedure. See "Carrier Operator's and Safety Handbook, Section 4".
6. CAUTION: The maximum boom length that can be erected with no counterweight is 140 ft. over side and 150 ft. over rear. Boom lengths longer than those listed below for the specified upper counterweight require 'L' bumper counterweight and/or rear auxiliary stabilizers for erection over rear. Consult Rooding and Rigging Manual, Section 3 for erection capabilities over side. When the 'L' counterweight is required for erection, it should remain installed on the machine during operation. Refer also to the load chart being used for proper counterweight configuration.

Upper Counterweight	Over Side	Over Rear:	'L' Counterweight or Auxiliary Stabilizers Boom	'L' Counterweight and Auxiliary Stabilizers Boom
A	170 ft.		180 ft.	200 ft.
A + C	220 ft.		230 ft.	250 ft.

Auxiliary stabilizers are to be used for erection only and not to increase capacity. With auxiliary stabilizers in place and set, tipping should not be relied upon as a capacity limitation over the rear.

FOR MACHINE ON TIRES (STATIONARY):

4. Rated loads are applicable to machines equipped with 14:00 x 24 (20 ply) bias ply tires at 115 psi cold inflation pressure or radial ply tires at 120 psi cold inflation pressure or 16:00 x 21 (22 ply) radial ply tires at 85 psi cold inflation pressure.
5. All lifting depends on proper tire inflation, capacity, and condition. Rated loads must be reduced for lower tire inflation pressures. Damaged tires are hazardous to safe operation of crane.
6. Rated loads are for a stationary machine. Do not travel with loads.
7. Front axles must be locked on both axles before lifting on tires over side or front.
8. CAUTION: Boom lengths longer than those listed below for the specified upper counterweights require lowering of the outriggers for erection.

Upper Counterweight	Erection Over Side	Erection Over Rear
None	70 ft.	90 ft.
A	110 ft.	120 ft.
A + L	Not Allowed	150 ft.

FOR MACHINE ON TIRES (PICK & CARRY):

4. Rated loads are applicable to machines equipped with 14:00 x 24 (20 ply) bias ply or radial tires at 100 psi cold inflation pressure or 16:00 x 21 (22 ply) radial ply tires at 85 psi cold inflation pressure.
5. All lifting depends on proper tire inflation, capacity, and condition. Rated loads must be reduced for lower tire inflation pressures. Damaged tires are hazardous to safe operation of crane.
6. For pick and carry operation, boom must be centered over rear of machine. mechanical swing lock engaged, and load restrained from swinging. When handling loads in the structural range with capacities close to maximum rating, travel should be reduced to creep speeds.
7. Creep - not over 200 ft. (61 m) of movement in any 30 minute period, and not exceeding 1 mph (1.6 kph).

FOR MACHINE ON OUTRIGGERS EQUIPPED WITH 32A JIB (32" x 38"):

1. Rated loads appearing in jib chart in shaded areas are based on factors other than those which would cause a tipping condition and are the maximum allowable under ideal job conditions. Tipping should not be relied upon as a capacity limitation.
2. Rated loads are shown in pounds and do not exceed 85% of tipping loads as determined by test in accordance with SAE J765 OCT80.
3. Rated loads are applicable only with machine on a firm level surface.
4. Rated loads are applicable only with outriggers fully extended and set with all tires clear of ground.
5. For 360 degree operation the front jack cylinder must be set in accordance with written procedure. See "Carrier Operator's and Safety Handbook, Section 4".
6. CAUTION! Boom-jib combinations longer than those listed below require 'L' Bumper counterweight and/or auxiliary stabilizers for erection over rear. Consult "Rooding and Rigging Manual, Section 3" for erection capabilities over side. When the 'L' counterweight is required for erection, it should remain installed on the machine during operation.

Over Side	Over Rear:	'L' Counterweight or Auxiliary Stabilizers BOOM + JIB	'L' Counterweight and Auxiliary Stabilizers BOOM + JIB
180 + 30		200 + 30	220 + 30
180 + 50		190 + 50	210 + 50
170 + 70		180 + 70	200 + 70
160 + 90		180 + 90	190 + 90

Auxiliary stabilizers are to be used for erection only and do not increase capacity. With auxiliary stabilizers in place and set, tipping should not be relied upon as a capacity limitation over the rear.