

GROVE SWING CAB

(TLL) LOAD CHART

STUDENT GUIDE

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LOAD CHARTS for Use in CCO Written Examinations

GROVETELESCOPIC BOOM CRANE—SWING CAB (TLL)

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NOTES FOR LIFTING CAPACITIES

GENERAL:

- 1. Rated loads as shown on lift chart pertain to this machine as originally manufactured and equipped. Modifications to the machine or use of optional equipment other than that specified can result in a reduction of capacity.
- Construction equipment can be hazardous if improperly operated or maintained. Operation and maintenance of this machine shall be in compliance with the information in the Operator's and Safety Handbook, Service Manual, and Parts Manual supplied with this machine. If these manuals are missing, order replacements from the manufacturer through the distributor.
- The operator and other personnel associated with machine shall fully acquaint themselves with the latest American National Standards Institute (ANSI) Safety Standards for cranes.

SETUP:

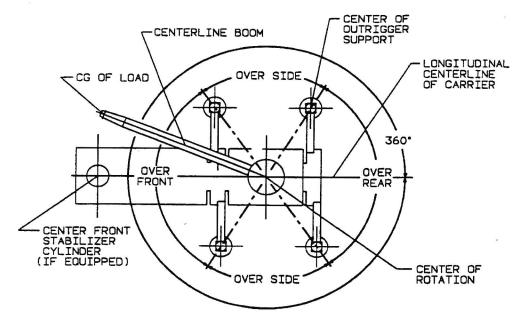
- 1. The machine shall be leveled on a firm supporting surface. Depending on the nature of the supporting surface, it may be necessary to have structural supports under the outrigger floats or tires to spread the load to a larger bearing surface.
- For outrigger operation, outriggers shall be properly extended with tires raised free of crane weight before operating the boom or lifting loads.
- 3. If machine is equipped with front jack cylinder, the front jack cylinder shall be set in accordance with written procedure.
- 4. When equipped with extendable counterweight, the counterweight shall be fully extended before operation.
- 5. Tires shall be inflated to the recommended pressure before lifting on rubber.
- 6. With certain boom and hoist tackle combinations, maximum capacities may not be obtainable with standard cable lengths.
- 7. Do not travel with crane boom extension or jib erected.

OPERATION:

- 1. Rated loads at rated radius shall not be exceeded. Do not tip the machine to determine allowable loads. For clamshell or concrete bucket operation, weight of bucket and load must not exceed 80% of rated lifting capacities.
- 2. All rated loads have been tested to and meet minimum requirements of SAE J1063 OCT80 Cantilevered Boom Crane Structures Method of Test, and do not exceed 85% of the tipping load on outriggers fully and 50% extended, and 75% of the tipping load on outriggers 0% extended (fully retracted) as determined by SAE J765 OCT80 Crane Stability Test Code.
- Rated loads include the weight of hookblock, slings and auxiliary lifting devices and their weights shall be subtracted from the
 listed rating to obtain the net load to be lifted. When more than the minimum required hoist reeving is used, the additional rope
 weight shall be considered part of the load to be handled.
- 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 m.p.h. (32km/h), rated loads and boom lengths shall 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 machine may overturn without any load on the hook.
- 8. The maximum load which can be telescoped is not definable because of variations in loadings and crane maintenance, but it is safe to attempt retraction and extension within the limits of the capacity chart.
- 9. When either boom length or radius or both are between values listed, the smallest load shown at either the next larger radius or next longer or shorter boom length shall be used.
- 10. For safe operation, the user shall make due allowances for his particular job conditions, such as: soft or uneven ground, out of level conditions, high winds, side loads, 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.
- 11. If machine is equipped with individually controlled powered boom sections, the boom sections must be extended equally at all times.
- 12. Never handle personnel with this machine without written approval from Grove North America.
- 13. Keep load handling devices a minimum of 18 inches (45.7 cm) below boom head at all times.
- 14. The boom angle before loading should be greater than the loaded boom angle to account for deflection.
- 15. Capacities appearing above the bold line are based on structural strength and tipping should not be relied upon as a capacity limitation.
- 16. Capacities for the 35 ft. (10.6 m.) boom length shall be lifted with boom fully retracted. If boom is not fully retracted, capacities shall not exceed those shown for the 40 ft. (12.2m) boom length.
- 17. When lifting over front of machine, radii less than 35 ft. (12m.) not recommended.
- 18. When operating the machine in the "On Outriggers 50% Extended (13' 10" spread)" mode, the outrigger beam pins must be engaged. When operating the machine in the "On Outriggers 0% Extended (7' 8" spread)" mode, the outrigger beams must be fully retracted. Failure to follow these precautions could result in structural damage or loss of stability of the machine.
- 19. The maximum outrigger pad load is 59,044 pounds (26,782 kg).

DEFINITIONS:

- 1. <u>Operating Radius</u>: 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. <u>Loaded Boom Angle</u> (Shown in Parenthesis on Main Boom Capacity Chart): 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 center line of rotation as shown on the working area diagram.
- 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.



BOLD LINES DETERMINE THE LIMITING POSITION OF ANY LOAD FOR OPERATION WITHIN WORKING AREAS INDICATED

WORKING AREA DIAGRAM

LINE PULLS AND REEVING INFORMATION

HOISTS	CABLE SPECS.	PERMISSIBLE LINE PULLS
Main & Aux. Model 30	3/4" (19 mm) 18x19 Class or 35x7 Rotation Resistant Min. Breaking Str. 64,600 lbs.	12,920 lbs.

WEIGHT REDUCTIONS FOR LOAD HANDLING DEVICES

32 FT. FIXED BOOM EXTENSION WITH 35 FT 110 FT. BOOM					
*Stowed – 267 lbs					
*Erected –	4,250 lbs.				
32 - 56 FT. TELE BOOM EXTENSION WITH 35 FT 110 FT. BOOM					
*Stowed –	293 lbs.				
*Erected (RETRACTED) - 6,368					
*Erected (EXTENDED) - 8,460 lbs.					

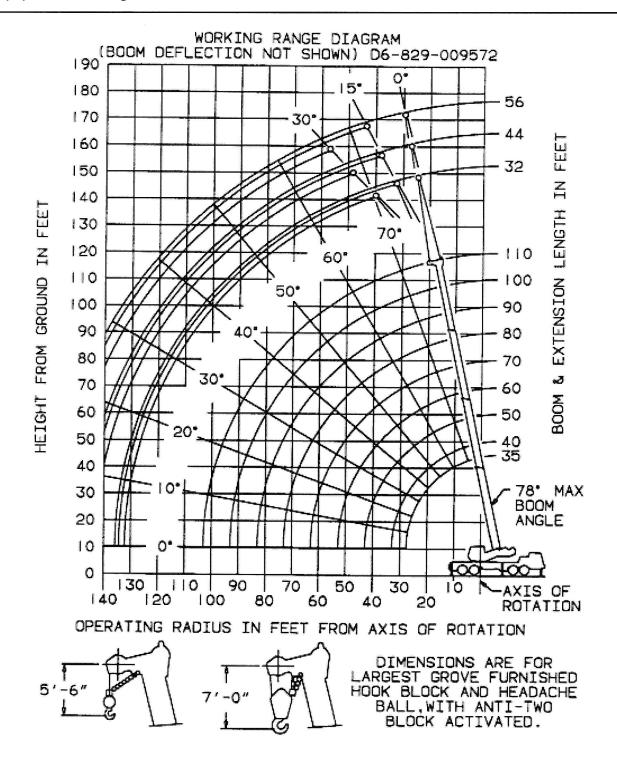
^{*}Reduction of main boom capacities

When lifting over swingaway and / or jib combinations, deduct total weight of all load handling devices reeved over main boom nose directly from swingaway or jib capacity.

143 lbs.
BALLS:
1,285 lbs.+
1,095 lbs.+
895 lbs.+
380 lbs.+
338 lbs.+
560 lbs.+

⁺Refer to rating plate for actual weight.

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.



RATED LIFTING CAPACITIES IN POUNDS WITH 7800 LB. REMOVABLE COUNTERWEIGHT 35 FT. - 110 FT. BOOM

ON OUTRIGGERS FULLY EXTENDED - 360°

Radius	#0001											
in Fact			ı	Main Boo	m Lengt	h in Feet						
Feet	35	40	50	*60	70	80	90	100	110			
9	90,000 (67.5)											
10	80,000 (66)	68,000 (69.5)	58,150 (74)									
12	67,400 (62)	63,800 (66)	55,450 (71.5)	44,600 (75)								
15	58,050 (56)	54,700 (61)	48,050 (67.5)	42,250 (71.5)	35,600 (74.5)	33,000 (77)						
20	44,950 (44.5)	43,000 (52)	39,400 (61)	33,600 (66.5)	30,500 (70.5)	28,000 (73.5)	25,500 (75.5)	23,300 (77.5)				
25	35,200 (28.5)	35,050 (41.5)	32,400 (54)	27,750 (61)	25,200 (66)	23,800 (69.5)	22,000 (72)	20,400 (74.5)	18,500 (76)			
30		28,400 (27)	27,150 (46)	23,350 (55)	21,100 (61)	20,400 (65.5)	19,300 (68.5)	17,550 (71.5)	15,750 (73.5)			
35			21,650 (36.5)	20,000 (49)	18,050 (56)	17,400 (61.5)	16,400 (65)	15,200 (68)	13,650 (70.5)			
40	See Note 16		17,200 (24)	16,850 (41.5)	15,650 (50.5)	15,050 (57)	14,150 (61.5)	13,300 (65)	12,000 (68)			
45				13,350 (33)	13,600 (45)	13,200 (52.5)	12,350 (57.5)	11,550 (61.5)	10,600 (65)			
50				10,650 (21.5)	11,450 (38.5)	11,600 (47.5)	10,850 (53.5)	10,100 (58.5)	9,500 (62)			
55					9,400 (31)	10,000 (42)	9,630 (49.5)	8,950 (54.5)	8,470 (58.5)			
60					7,760 (20)	8,300 (36)	8,570 (45)	7,950 (51)	7,500 (55.5)			
65						6,900 (29)	7,340 (40)	7,080 (47)	6,670 (52)			
70						5,740 (19)	6,190 (34)	6,330 (42.5)	5,940 (48.5)			
75							5,220 (27.5)	5,550 (38)	5,300 (45)			
80							4,380 (18)	4,720 (32.5)	4,740 (40.5)			
85								4,000 (26)	4,230 (36)			
90								3,380 (17)	3,625 (31)			
95									3,060 (25)			
100									2,570 (16)			
		nimum boo							O			

NOTE: () Boom angles are in degrees.

#LMI operating code. Refer to LMI manual for instructions.

Lifting Capacities On Outriggers Fully Extended - 360° At Zero Degree Boom Angle												
Boom		Main Boom Length in Feet										
Angle	35	40	50	*60	70	80	90	100	110			
0*	15,500 (27.8)	12,240 (33)	7,860 (43)	4,970 (52.8)	3,670 (63)	2,710 (73)	1,960 (83)	1,360 (93)	880 (102.8)			

NOTE: () Reference radii in feet.

*60 ft. boom length is with inner-mid extended and outer-mid & fly retracted.

RATED LIFTING CAPACITIES IN POUNDS WITH 7800 LB. REMOVABLE COUNTERWEIGHT 35 FT. - 110 FT. BOOM

ON OUTRIGGERS FULLY EXTENDED - OVER REAR

Radius					#0001				
_in			V	lain Boor	n Length	in Feet			
Feet	35	40	50	*60	70	80	90	100	110
9	@ 100,000 (67.5)								
9	90,000 (67.5)								
10	80,000 (66)	68,000 (69.5)	58,150 (74)						
12	67,400 (62)	63,800 (66)	55,450 (71.5)	44,600 (75)					
15	58,050 (56)	54,700 (61)	48,050 (67.5)	42,250 (71.5)	35,600 (74.5)	33,000 (77)			
20	44,950 (44.5)	43,000 (52)	39,400 (61)	33,600 (66.5)	30,500 (70.5)	28,000 (73.5)	25,500 (75.5)	23,300 (77.5)	
25	35,200 (28.5)	35,050 (41.5)	32,400 (54)	27,750 (61)	25,200 (66)	23,800 (69.5)	22,000 (72)	20,400 (74.5)	18,500 (76)
30	`'	28,400 (27)	27,150 (46)	23,350 (55)	21,100 (61)	20,400 (65.5)	19,300 (68.5)	17,550 (71.5)	15,750 (73.5)
35		(2.)	23,200 (36.5)	20,000 (49)	18,050 (56)	17,400 (61.5)	16,400 (65)	15,200 (68)	13,650 (70.5)
40	See Note 16		18,850 (24)	17,250 (41.5)	15,650 (50.5)	15,050 (57)	14,150 (61.5)	13,300 (65)	12,000 (68)
45				15,000 (33)	13,600 (45)	13,200 (52.5)	12,350 (57.5)	11,550 (61.5)	10,600 (65)
50				12,800 (21.5)	11,950 (38.5)	11,600 (47.5)	10,850 (53.5)	10,100 (58.5)	9,500 (62)
55					10,500 (31)	10,300 (42)	9,630 (49.5)	8,950 (54.5)	8,470 (58.5)
60					9,300 (20)	9,130 (36)	8,570 (45)	7,950 (51)	7,500 (55.5)
65						8,120 (29)	7,640 (40)	7,080 (47)	6,670 (52)
70						7,230 (19)	6,800 (34)	6,330 (42.5)	5,940 (48.5)
75							6,060 (27.5)	5,670 (38)	5,300 (45)
80							5,400 (18)	5,080 (32.5)	4,740 (40.5)
85								4,540 (26)	4,230 (36)
90								4,030 (17)	3,780 (31)
95									3,370 (25)
100									2,990 (16)
	Min	imum boor	m angle (de	g.) for indic	ated lengtl	n (no load)			0
	Maxi	mum boom	length (ft.)	at 0 degree	e boom and	le (no load)		110

NOTE: () Boom angles are in degrees.

@Maximum lifting capacity of 100,000 lbs. over rear only within defined arc of 6 degrees either side of center line.

	Lifting Cap	acities On	Outrigger	s Fully Ext	ended - 36	60° At Zero	Degree B	oom Angle)				
Boom		Main Boom Length in Feet											
Angle	35	40	50	*60	70	80	90	100	110				
0*	15,500 (27.8)	12,240 (33)	7,860 (43)	4,970 (52.8)	3,670 (63)	2,710 (73)	1,960 (83)	1,360 (93)	880 (102.8)				

NOTE: () Reference radii in feet.

^{*60} ft. boom length is with inner-mid extended and outer-mid & fly retracted.

32 FT. FIXED LENGTH EXTENSION WITH 7800 LB REMOVABLE COUNTERWEIGHT

ON OUTRIGGERS FULLY EXTENDED - 360°

Radius	#0051	#0052	#0053
in	or #51	or #52	or #53
Feet	0°	15°	30°
	OFFSET	OFFSET	OFFSET
30	30 9,880 (78)		
35	9,090 (76)	*7,880 (78)	
40	8,380	7,450	*6,180
	(74)	(75.5)	(78)
45	7,720	7,140	6,070
	(71.5)	(73.5)	(76)
50	7,120	6,850	5,820
	(69.5)	(71.5)	(73.5)
55	6,570	6,590	5,590
	(67)	(69)	(71.5)
60	5,880	6,350	5,390
	(65)	(67)	(69)
65	5,230	5,660	5,200
	(62.5)	(64.5)	(67)
70	4,650	5,050	5,030
	(60)	(62)	(64.5)
75	4,120	4,490	4,800
	(57.5)	(59.5)	(62)
80	3,640	3,980	4,260
	(55)	(57)	(59.5)
85	3,190	3,500	3,760
	(52.5)	(54.5)	(57)
90	2,790	3,070	3,300
	(49.5)	(52)	(54)
95	2,410	2,670	2,870
	(47)	(49)	(51)
100	2,070	2,300	2,480
	(43.5)	(46)	(48)
105	1,750	1,960	2,110
	(40.5)	(42.5)	(45)
110	1,450	1,630	1,760
	(37)	(39)	(41.5)

NOTE: () Boom angles are in degrees.

*This capacity is based upon the maximum boom angle. #LMI operating code. Two or four digit code depends on LMI system. Refer to LMI manual for instructions.

BOOM EXTENSION CAPACITY NOTES:

- 1. All capacities above the bold line are based on structural strength of boom extension.
- 2. 32 ft. boom extension lengths may be used for single line lifting service only.
- 3. Radii listed are for a fully extended boom with the boom extension erected. For main boom lengths less than fully extended, the rated loads are determined by boom angle. Use only the column which corresponds to the boom extension length and offset for which the machine is configured. For boom angles not shown, use the rating of the next lower boom angle.

WARNING: Operation of this machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with boom extension occurs rapidly and without advance warning.

- Boom angle is the angle above or below horizontal of the longitudinal axis of the boom base section after lifting rated load.
- 5. Capacities listed are with outriggers fully extended and vertical jacks set only.
- 6. 32 FT. FIXED OFFSETTABLE BOOM

 EXTENSION WARNING: For main boom length greater than 90 ft. with 32 ft. fixed boom extension in working position, the boom angle must not be less than 31° since loss of stability will occur causing a tipping condition. The boom angle is not restricted for main boom length equal to or less than 90 ft. This warning also applies for boom extension erection purposes.

32 FT. - 56 FT. TELE OFFSETTABLE BOOM EXTENSION WITH 7800 LB. REMOVABLE COUNTERWEIGHT

ON OUTRIGGERS FULLY EXTENDED - 360°

		32 ft. LENGTH			44 ft. LENGTH			56 ft. LENGTH	
Radius	#0021 or #21	#0022 or #22	#0023 or #23	#0031 or #31	#0032 or #32	#0033 or #33	#0041 or #41	#0042 or #42	#0043 or #43
in Feet	O°	15°	30°	0°	15°	30°	0°	15°	30°
reet	OFFSET								
30	9,500 (78)								
35	8,710 (76)	*7,500 (78)		7,320 (77.5)					
40	8,000 (74)	7,070 (75.5)	*5,800 (78)	6,880 (75.5)			5,560 (77)		
45	7,340 (71.5)	6,760 (73.5)	5,690 (76)	6,490 (74)	5,060 (77.5)		5,250 (75.5)		
50	6,740 (69.5)	6,470 (71.5)	5,440 (73.5)	6,140 (72)	4,840 (75.5)	*3,770 (78)	4,970 (73.5)	3,900 (78)	
55	6,190 (67)	6,210 (69)	5,210 (71.5)	5,820 (69.5)	4,650 (73.5)	3,600 (76)	4,710 (72)	3,740 (76)	
60	5,500 (65)	5,970 (67)	5,010 (69)	5,530 (67.5)	4,460 (71.5)	3,450 (74)	4,480 (70)	3,600 (74.5)	2,650 (78)
65	4,850 (62.5)	5,280 (64.5)	4,820 (67)	5,220 (65.5)	4,300 (69.5)	3,320 (72)	4,270 (68)	3,410 (72.5)	2,540 (76)
70	4,270 (60)	4,670 (62)	4,650 (64.5)	4,640 (63.5)	4,140 (67.5)	3,190 (70)	4,070 (66.5)	3,220 (70.5)	2,430 (74)
75	3,740 (57.5)	4,110 (59.5)	4,420 (62)	4,110 (61.5)	3,940 (65)	3,070 (67.5)	3,890 (64.5)	3,050 (68.5)	2,340 (72.5)
80	3,260 (55)	3,600 (57)	3,880 (59.5)	3,640 (59)	3,750 (63)	2,970 (65.5)	3,720 (62.5)	2,890 (66.5)	2,250 (70)
85	2,810 (52.5)	3,120 (54.5)	3,380 (57)	3,200 (57)	3,570 (61)	2,870 (63)	3,530 (60.5)	2,750 (64.5)	2,170 (68)
90	2,410 (49.5)	2,690 (52)	2,920 (54)	2,800 (54.5)	3,190 (58.5)	2,780 (60.5)	3,130 (58.5)	2,620 (62.5)	2,100 (66)
95	2,030 (47)	2,290 (49)	2,490 (51)	2,430 (52)	2,790 (56)	2,700 (58)	2,760 (56.5)	2,500 (60.5)	2,030 (64)
100	1,690 (43.5)	1,920 (46)	2,100 (48)	2,080 (49.5)	2,420 (53.5)	2,630 (55.5)	2,420 (54.5)	2,390 (58.5)	1,970 (61.5)
105	1,370 (40.5)	1,580 (42.5)	1,730 (45)	1,770 (47)	2,070 (51)	2,320 (52.5)	2,110 (52)	2,290 (56)	1,910 (59.5)
110	1,070	1,250 (39)	1,380 (41.5)	1,470 (44)	1,750 (48.5)	1,970 (50)	1,820 (49.5)	2,180 (54)	1,860 (57)
115	, ,			1,200 (41)	1,450 (45.5)	1,640 (46.5)	1,540 (47.5)	1,880 (51.5)	1,810 (54)
120							1,290 (45)	1,600 (48.5)	1,670 (51.5)

NOTE: () Boom angles are in degrees.

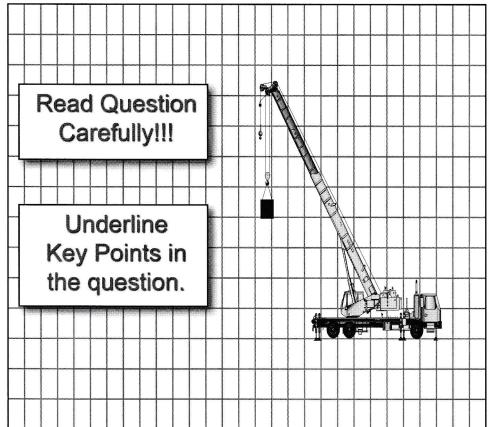
#LMI operating code. Two or four digit code depends on LMI system. Refer to LMI manual for instructions.

- 1. All capacities above the bold line are based on structural strength of boom extension.
- 2. 32 ft., 44 ft. and 56 ft. boom extension lengths may be used for single line lifting service only.
- 3. Radii listed are for a fully extended boom with the boom extension erected. For main boom lengths less than fully extended, the rated loads are determined by boom angle. Use only the column which corresponds to the boom extension length and offset for which the machine is configured. For boom angles not shown, use the rating of the next lower boom angle. WARNING: Operation of this machine with heavier loads than the capacities listed is strictly prohibited. Machine tipping with boom extension occurs rapidly and without advanced warning.
- 4. Boom angle is the angle above or below horizontal of the longitudinal axis of the boom base section after lifting rated load.
- 5. Capacities listed are with outriggers fully extended and vertical jacks set only.
- 6. 32 ft. 44 ft. TELE OFFSETTABLE BOOM EXTENSION WARNING: For main boom length greater than 90 ft. with 32 ft. or 44 ft. tele boom extension in working position, the boom angle must not be less than 31° since loss of stability will occur causing a tipping condition. The boom angle is not restricted for main boom length equal to or less than 90 ft. This warning also applies for boom extension erection purposes.

56 ft. TELE OFFSETTABLE BOOM EXTENSION WARNING: For main boom length greater than 80 ft. with 56 ft. tele boom extension in working position, the boom angle must not be less than 34° since loss of stability will occur causing a tipping condition. The boom angle is not restricted for main boom length equal to or less than 80 ft. This warning also applies for boom extension erection purposes.

^{*}This capacity is based upon maximum boom angle.

What is the <u>net capacity</u> lifting off the <u>main</u> over the <u>rear</u>?



Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

Offset: N/A Rigging: 400 lbs.

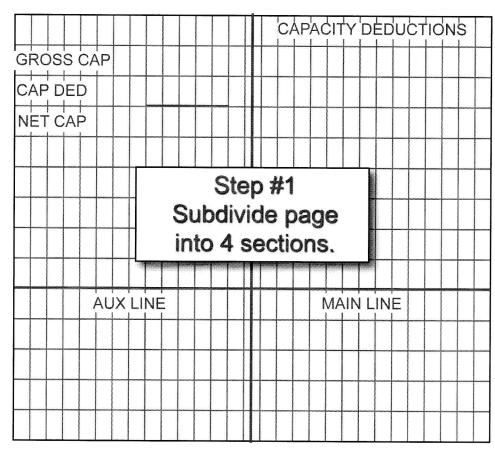
Other: Auxiliary Boom Head

IMPORTANT!!!

READ THE QUESTION CAREFULLY!!!!!

MAKE SURE TO UNDERLINE THE KEY POINTS OF THE QUESTION.

What is the <u>net capacity</u> lifting off the <u>main</u> over the <u>rear?</u>



Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

Offset: N/A Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #1: Subdivide the grid into 4 work areas

Label the work areas as follows:

- 1. Gross Capacity
- 2. Capacity Deductions
- 3. Main Line Deductions
- 4. Extension or Auxiliary Line Deductions

It is important to be consistent when working out load chart problems. Your page should look exactly the same for every problem.

CAPACITY DEDUCTIONS Configuration GROSS CAP **Block** Main Boom: 90' CAP DED Ball Outriggers: Extended & Set **NET CAP** Main Line Radius: 40' Main Boom Angle: N/A Aux. Line Block: 50 ton. (6 Parts) Step #2 Ball: 7.5 ton. (Single Part) Ext Write in Capacity Wire Rope: Rigging Main: 3/4" **Deductions** Aux: 3/4" (Hanging 10' from tip) Other (Found in Notes) Extension Length: 32' stowed Total Offset: N/A Rigging: 400 lbs. **AUX LINE** MAIN LINE Other: Auxiliary Boom Head

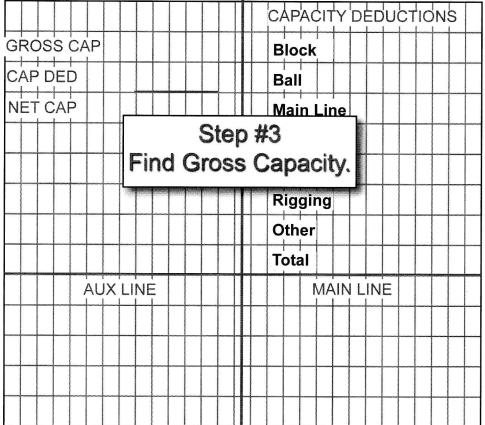
Step #2: Write in the Capacity Deductions:

Grove lists in the notes that all blocks, ball, slings, excessive load hoist wire ropes, and any auxiliary lifting devices (lifting beams, etc.) must be deducted. Also, if lifting off the main boom and a extension is attached, then the extension must also be deducted.

This step is for writing what the deductions are or could be. It might be best to write all possible deductions down and then if a possible deduction does not apply then mark it with a "0". This makes sure that no deductions are forgotten.

- 1. Block (Blk)
- 2. Ball (Bl)
- 3. Main Line (ML)
- 4. Aux Line (AL)
- 5. Ext (Ext)
- 6. Rigging (Rg)
- 7. Other (If an auxiliary lifting device is used add this one) (Ot)

It is important to be consistent. The best way is to write this in the same way every time.



Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

Offset: N/A

Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #3: Find the Gross Capacity

Make sure you are in the correct load chart. This is determined by what you are lifting off, main boom or extension.

- 1. Find correct boom length.
- 2. Find correct radius or boom angle, whichever one is given.
- 3. Find the rated capacity.
- 4. Do we have enough parts?
- 5. Write the gross capacity on your grid.

(Main line or auxiliary line, whichever you're lifting off).

	Radius					#0001				
	In Feet				lain Boo	m Length	in .			
		35	40	60	*80	70		90	100	110
	9	@ 100,000								
		(87.6)					<i>//</i>		<u> </u>	
	8	96,000 (87.6)				I 🔏	7			
		80,000	88,000	68,160						
	10	(96)	(89.6)	(74)		///				
	12	67,400	85,390	55,450	44,600					
	12	(82)	(88)	(71.5)	(76)					
	15	58,060	64,700	48,050	42,260	₹5,900	33,000			
		(88)	(81)	(67.5)	(71.6)	(74.5)	(77)			
	20	44,860	45,000	38,400	23,600	30,600	28,000	26,500	23,300	
		(44.6)	(52)	(81)	(88.5)	(70.6)	(73.6)	(76.5)	(77.5)	
	25	36,200	35,050	22,400	27,760	26,200	23,800	22,000	20,400	13,600
		(28.6)	(41.5)	(54)	(81)	(98)	(89.5)	(72)	(74.5)	(78)
	30	l i	25,400	27,150	23,360	21,100	20,400	19,300	17,550	16,750
			(27)	(48)	(66)	(81)	(85.5)	(88.5)	(71.5)	(73.5)
	35	1 1		23,200	20,000	18,050	17,400	19,400	15,200	12,860
				(38.5)	(48)	(68)	(81.6)	(85)	(88)	(70.5)
	a 40	300		18,850	17,260	15,650	16,050	14,150	13,300	12,000
		Note 16		(24)	(41.5)	(60.6)	(57)	(81.6)	(86)	(88)
	45				15,600	13,886	13,200	12/10	11,550	10,800
					(33)	(45)	(62.E)		(61.5)	(66)
	50				12,800	11,960	11,600		10,100	9,600
					(21.5)	(38.5)	(47.6)	(5:)	(58.5)	(62)
	56					10,500	10,300	9, ()	2,960	8,470
						(31)	(42)	(4)	(54.5)	(68.5)
	80					9,300	9,130	8,	7,960	7,500
						(20)	(38)	14	(51)	(56.5)
7	85						8,120	7,00	7,080	6,870
							(29)	14	(47)	(52)
	79	l l				1	7,250	e, 0	6,330	5,840
							(19)	45	(42.5)	(48.5)
	75							6,00	6,870	6,300
						<u> </u>		(2775)	(38)	(46)
	80							5,400	€,080	4,740
								(18)	(32.5)	(40.5)
	85	l i				1			4,540	4,230
	-					ļ			(28)	(38)
	90					1			4,030	3,780
									(17)	(31)
	95							1		3,370
	90					_				(26)
	100									2,890
	100									(16)
		Min	lmum boor	m angle ide	g.) for Indi	dg nei betso	n (no load)			0
							ile (no load			110

Step #3: Find the Gross Capacity

Make sure you're in the right chart. For this problem we will go to the main boom chart for 90 ft. Because this lift is being made over the rear of the machine, the over the rear chart must be used. Go to the radius column and find 40 ft.

Follow the row to the rated capacity (14,150 lbs).

LINE PULLS AND REEVING INFORMATION

HOISTS	CABLE SPECS.	PERMISSIBLE LINE PULLS
Main & Aux. Model 30	3/4" (19 mm) 18x19 Class or 35x7 Rotation Resistant Min. Breaking Str. 64,600 lbs.	12,920 lbs.

ARE 6 PARTS SUFFICIENT TO LIFT THE RATED CAPACITY? (14,150 lbs.)

Step #3: Find the Gross Capacity

Are 6 parts enough to lift the Rated Capacity?

There must be enough parts to lift the rated capacity or line pull would be the limiting factor and would be used for the gross capacity instead of the load rating chart.

1 part has a maximum capacity of 12,920 lbs. This means 2 parts are sufficient to lift the rated capacity. There are 4 excess parts that need to be deducted.

What is the <u>net capacity</u> lifting off the <u>main</u> over the <u>rear</u>?

		CAPACITY DEDUCTIONS
GROSS CAP	1 4 1 5 0	Block
CAP DED		Ball
NET CAP		Main Line
		Aux. Line
		Ext
		Rigging
		Other
		Total
AUX L	INE	MAIN LINE

Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

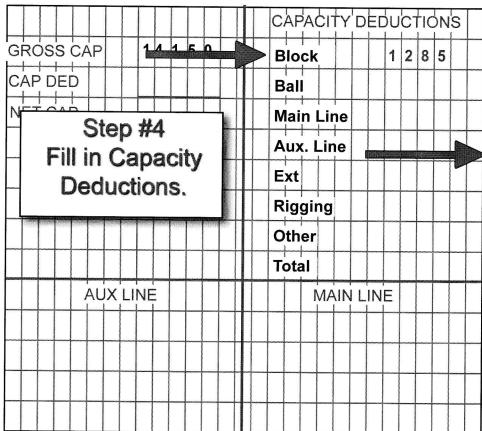
Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

Offset: N/A Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #3: Write in the Gross Capacity

Write "14,150" in the gross capacity work area on your grid.



Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

Offset: N/A Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #4: Fill in the Capacity Deductions

Fill in the weight for the block.

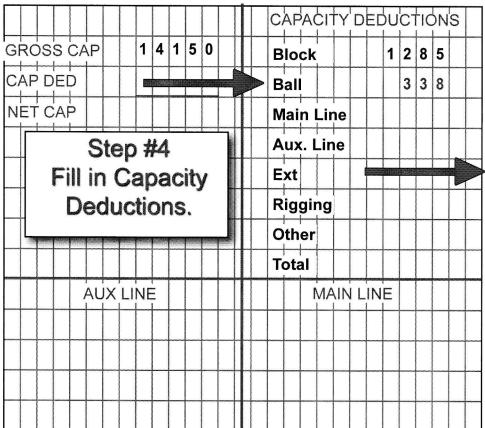
You will find this information either in the configuration section or in the load chart.

WRITE THE NUMBERS IN THE GRID SPACES!!!!!

AUXILIARY BOOM HEAD	143 lbs.
HOOKBLOCK and HEADACHE BAL	LS:
50 Ton, 4 Sheave	1,285 lbs. +
45 Ton, 3 Sheave w/cheekplates	1,09 lbs. +
45 Ton, 3 Sheave wo/cheekplates	89 Tbs. +
15 Ton, 1 Sheave	38 lbs. +
7.5 Ton Headache Ball	33 lbs. +
10 Ton Headache Ball	56) lbs. +

+Refer to rating plate for actual weight.

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.



Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

Offset: N/A Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #4: Fill in the Capacity Deductions

Fill in the weight for the ball.

You will find this information either in the configuration section or in the load chart.

WRITE THE NUMBERS IN THE GRID SPACES!!!!!

AUXILIARY BOOM HEAD	143 lbs.							
HOOKBLOCK and HEADACHE BALLS:								
50 Ton, 4 Sheave	1,285 lbs. +							
45 Ton, 3 Sheave w/cheekplates	1,095 lbs. +							
45 Ton, 3 Sheave wo/cheekplates	895 lbs. +							
15 Ton, 1 Sheave	380 lbs. +							
7.5 Ton Headache Ball	338 lbs. +							
10 Ton Headache Ball	56 lbs. +							

+Refer to rating plate for actual weight.

NOTE: All load handling devices and boom attainments are considered part of the load and suitable allewances MUST BE MADE for their combined weights. We ghts are for Grove furnished equipment.

LINE PULLS AND REEVING INFORMATION

HOISTS	CABLE SPECS.	PERMISSIBLE LINE PULLS
Main & Aux. Model 30	3/4" (19 mm) 18x19 Class or 35x7 Rotation Resistant Min. Breaking Str. 64,600 lbs.	12,920 lbs.

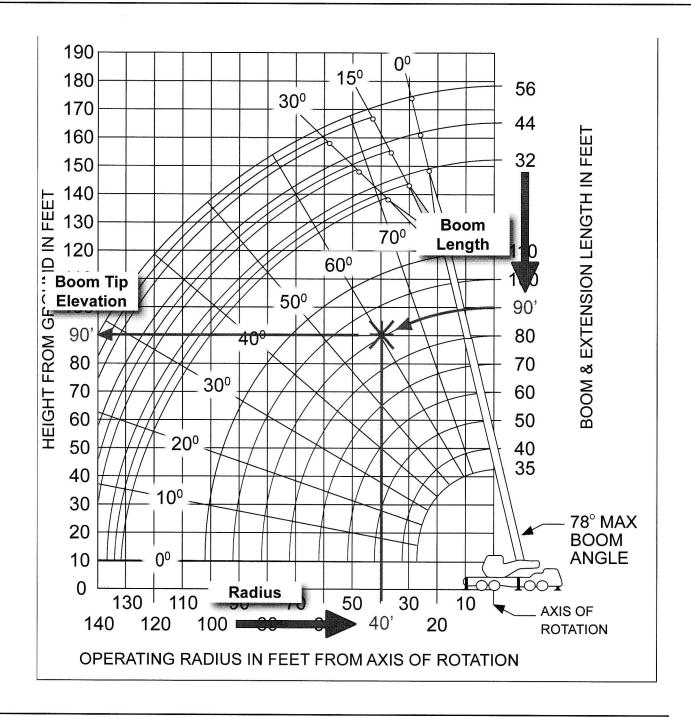
ARE 6 PARTS CONSIDERED EXCESSIVE?

Step #4: Fill in the Capacity Deductions

Is there any excessive reeving?

When more than the minimum required hoist reeving is used, the additional rope weight shall be considered part of the load to be handled.

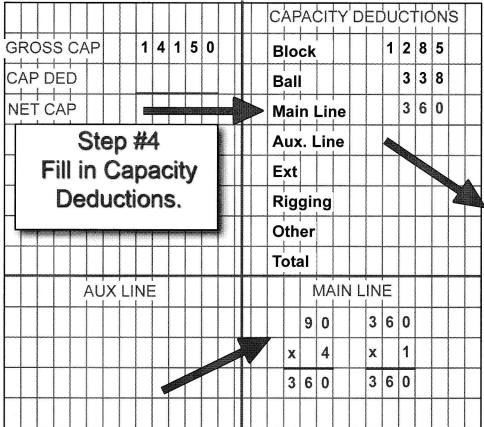
In this case 2 parts are required to lift 14,150 lbs. 4 parts are excessive reeving and must be deducted.



Step #4: Fill in the Capacity Deductions - Determine boom tip elevation.

Find radius, draw a line straight up until it intersects with the correct boom length arc, follow that to the left to find the boom tip elevation.

In this case the boom tip elevation is approximately 90 feet. Write 90 in the main line deduction section.



Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

Offset: N/A Riaging: 400 lbs.

Other: Auxiliary Boom Head

Step #4: Fill in the Capacity Deductions

Fill in the weight of the main line capacity deduction. Any reeving over minimum required is considered excessive. In this case we had 4 parts excessive reeving and a boom tip elevation of 90'.

On this crane wire rope weighs 1 lb. per/foot.

When determining wire rope deduction the formula is as follows:

Rope length X Number of Excessive Parts X Rope weight per/foot

For the length of wire rope of the line you are lifting off use boom tip elevation,

What is the <u>net capacity</u> lifting off the <u>main</u> over the <u>rear</u>?

			***************************************										C	٩P	A	ŞIT	Y	D	EC	U	C-	FIC	N	S	
GROSS	C/	P			1	4	1	5	0				В	lo	ck		•			1	2	8	5		_
CAP DE	þ												В	all							3	3	8		
NET CA	P												M	ai	n I	Lir	ıe				3	6	0		
											1	\geq	Α	ux	. L	_in	е					1	0		
	,	St	eį) ;	#	4							E	xt					4	N					
Fil		n	C	а	p	a	C	ly					R	ig	giı	ng						Ì	N	J	A
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	1	0				1	0							9	0			3	6	0					
x	*****	1			Х		1						x		4			X		1					
	1	0				1	0			<u> </u>			3	6	0			3	6	0					****
									1	^	ķ														

Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

Offset: N/A Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #4: Fill in the Capacity Deductions

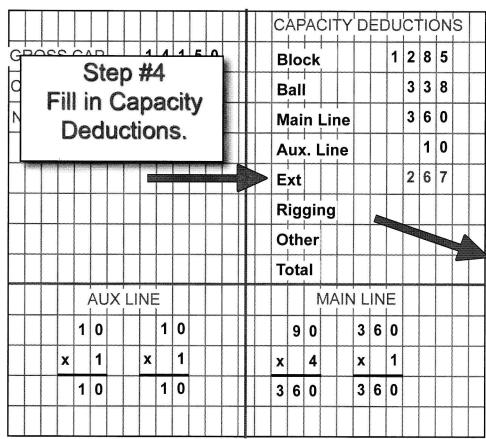
Fill in the weight of the auxiliary line capacity deduction.

On this crane wire rope weighs 1 lb. per/foot.

When determining wire rope deduction the formula is as follows:

Rope length X Number of Parts X Rope weight per/foot

Length of wire rope for the line you're not lifting off is given in the configuration section.



Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

Offset: *N/A*Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #4: Fill in the Capacity Deductions

Fill in the weight of the extension capacity deduction.

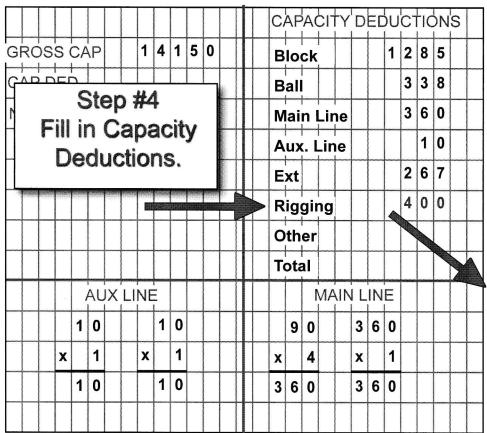
WRITE THE NUMBERS IN THE GRID SPACES!!!!!

32 FT. FIXED BOOM EXTENSION WITH 35 FT 110 FT. BOOM							
*Stowed -	267 lbs.						
*Erected -	4,2 0 lbs.						
32 -56 FT. TELE BOOM I WITH 35 FT 110 FT							
*Stowed -	2 3 lbs.						
*Erected (RETRACTED)-	6,3 58 lbs.						
*Erected (EXTENDED)-	8,460 lbs.						

^{*}Reduction of main boom capacities

When lifting over swingaway and / or jib combinations, deduct total weight of all load handling devices reeved over main boom nose directly from swingaway or jib capacity.

What is the <u>net capacity</u> lifting off the <u>main</u> over the <u>rear</u>?



Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

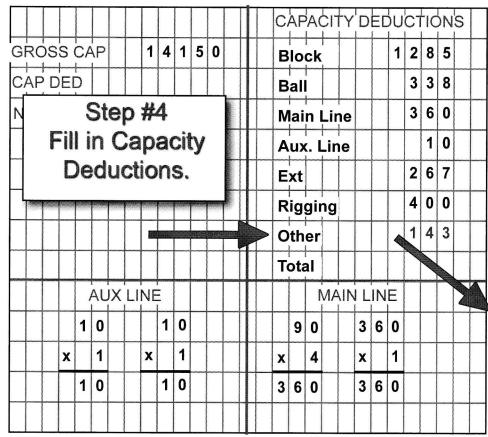
Offset: N/A Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #4: Fill in the Capacity Deductions

Fill in the weight of the rigging deduction.

You will find this information in the configuration section.



Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

Offset: N/A Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #4: Fill in the Capacity Deductions

Fill in the weight of any additional lifting devices. You will find this information in the configuration section.

In this case we have an auxiliary head erected on the crane and 143 lbs. must be deducted.

WRITE THE NUMBERS IN THE GRID SPACES!!!!!

AUXILIARY BOOM HEAD	143 lbs.						
HOOKBLOCK and HEADACHE BALLS:							
50 Ton, 4 Sheave	1,285 i s	F					
45 Ton, 3 Sheave w/cheekplates	1,095 l s. ⊣	F					
45 Ton, 3 Sheave wo/cheekplates	895 l s. ⊣	F					
15 Ton, 1 Sheave	380 l s. ⊣	-					
7.5 Ton Headache Ball	338 lbs. +	F					
10 Ton Headache Ball	560 lbs. +	F					

+Refer to rating plate for actual weight.

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.

													 -8-														
												***************************************			C	AF	AC	CIT	'Y	D	ΕC	U	C1	TIC	N	S	
GF	٩Ç	S	S (CA	·Ρ			1	4	1	5	0			В	lo	ck					1	2	8	5		
C/	٩P	D)		***********									В	all							3	3	8		
N				(St	е	þ	#	5						M	lai	n l	_ir	ıe				3	6	0		
			Ю							cit	У				Α	ux	. L	_in	е					1	0		
)e	d	U	Ct	io	n	S.					Е	xt		**********		*********			2	6	7		
															R	ig	gir	ng					4	0	0		
															0	th	er						1	4	3		
														>	T	ota	al			*********		2	8	0	3		
				,	ΑL	Χ	LI	NE									ı	VΙΑ	١N	L	IN	E					
				1	0				1	0						9	0			3	6	0					
			X		1			X		1					х		4			X		1					
				1	0				1	0					3	6	0			3	6	0					

Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

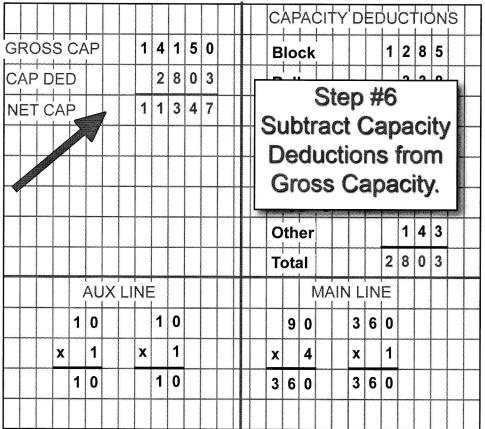
Offset: N/A Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #5: Total the Capacity Deductions

Add all the capacity deductions.

CAPACITY DEDUCTIONS ARE 2,803 lbs.



Configuration

Main Boom: 90'

Outriggers: Extended & Set

Radius: 40'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope: Main: 3/4"

Aux: 3/4" (Hanging 10' from tip) Extension Length: 32' stowed

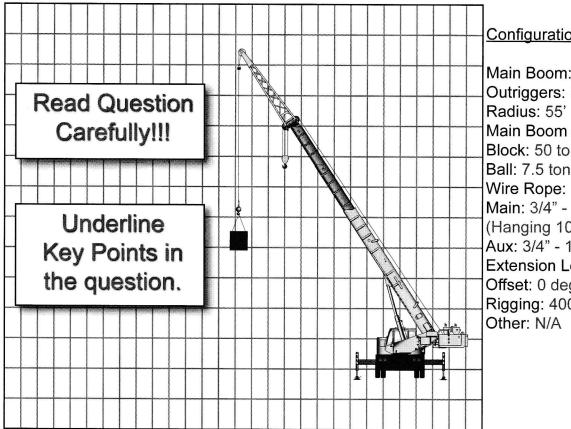
Offset: N/A

Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #6: Subtract Capacity Deductions from Gross Capacity.

NET CAPACITY IS 11,347 lbs.



Configuration

Main Boom: 110'

Outriggers: Extended & Set

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

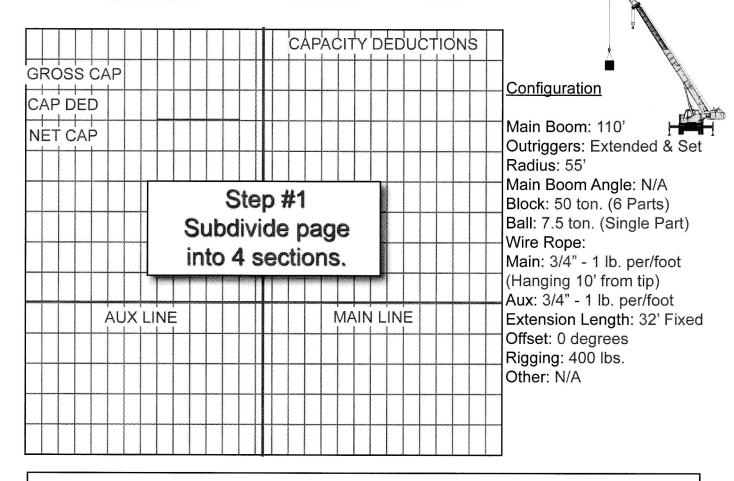
Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

Offset: 0 degrees Rigging: 400 lbs.

IMPORTANT!!!

READ THE QUESTION CAREFULLY!!!!!

MAKE SURE UNDERLINE THE KEY POINTS OF THE QUESTION.

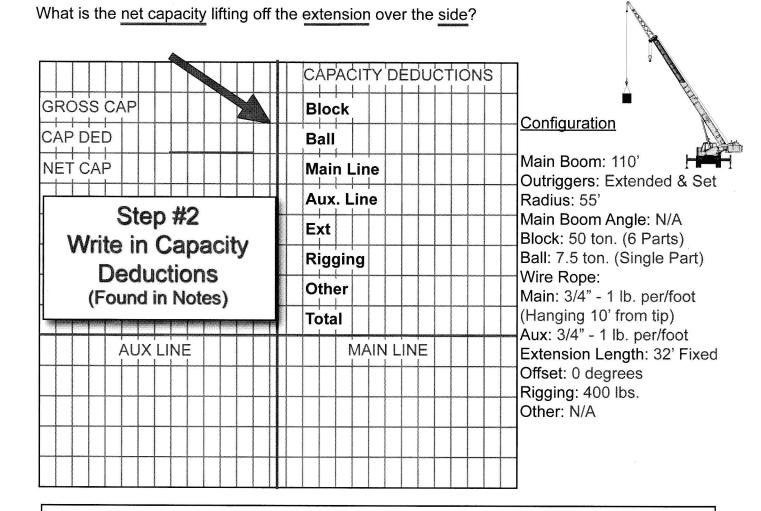


Step #1: Subdivide the grid into 4 work areas

Label the work areas as follows:

- 1. Gross Capacity
- 2. Capacity Deductions
- 3. Main Line Deductions
- 4. Extension or Auxiliary Line Deductions

It is important to be consistent when working out load chart problems. Your page should look exactly the same for every problem.



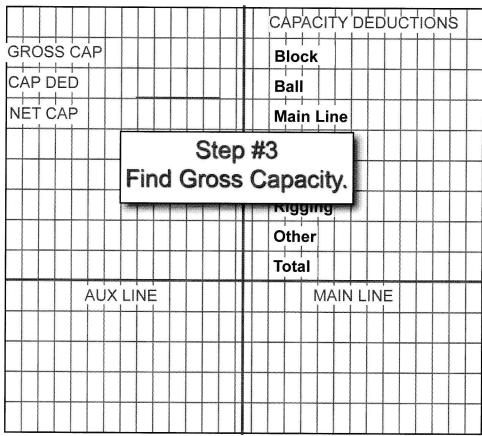
Step #2: Write in the Capacity Deductions:

Grove lists in the notes that all blocks, ball, slings, excessive load hoist wire ropes, and any auxiliary lifting devices (lifting beams, etc.) must be deducted.

This step is for writing what the deductions are or could be. It might be best to write all possible deductions down and then if a possible deduction does not apply then mark it with a "0". This makes sure that no deductions are forgotten.

- 1. Block (Blk)
- 2. Ball (Bl)
- 3. Main Line (ML)
- 4. Aux Line (AL)
- 5. Ext (Ext)
- 6. Rigging (Rg)
- 7. Other (If an auxiliary lifting device is used add this one) (Ot)

It is important to be consistent. The best way is to write this in the same way every time.



Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

Offset: 0 degrees Rigging: 400 lbs. Other: N/A

Step #3: Find the Gross Capacity

Make sure you are in the correct load chart. This is determined by what you're lifting off, Main boom or Jib.

- 1. Find correct boom and extension length.
- 2. Find correct radius or boom angle, whichever one is given.
- 3. Find the gross capacity.
- 4. Do we have enough parts?
- 5. Write the gross capacity in the correct work area on your grid.

Radius	#0051	#00	#0053			
in	or #51		or #53			
Feet	0° OFFSET	15° OFFSET	30° OFFSET			
30	9,880 (78)					
35	9,090 (76)	*7,880 (78)				
40	8,380	7,450	*6,180			
	(74)	(75.5)	(78)			
45	7,720	7,140	6,070			
	(71.5)	(73.5)	(76)			
50	7,120	6,850	5,820			
	(69.5)	(71.5)	(73.5)			
55	6,570		5 590 (71.5)			
60	5,880	6,350	5,390			
	(65)	(67)	(69)			
65	5,230	5,660	5,200			
	(62.5)	(64.5)	(67)			
70	4,650	5,050	5,030			
	(60)	(62)	(64.5)			
75	4,120	4,490	4,800			
	(57.5)	(59.5)	(62)			
80	3,640	3,980	4,260			
	(55)	(57)	(59.5)			
85	3,190	3,500	3,760			
	(52.5)	(54.5)	(57)			
90	2,790	3,070	3,300			
	(49.5)	(52)	(54)			
95	2,410	2,670	2,870			
	(47)	(49)	(51)			
100	2,070	2,300	2,480			
	(43.5)	(46)	(48)			
105	1,750	1,960	2,110			
	(40.5)	(42.5)	(45)			
110	1,450	1,630	1,760			
	(37)	(39)	(41.5)			

NOTE: () Boom angles are in degrees.

*This capacity is based upon the maximum boom angle. #LMI operating code. Two or four digit code depends on LMI system. Refer to LMI manual for instructions.

Step #3: Find the Gross Capacity

Make sure you're in the right chart. For this problem we will go to the jib chart for 32 ft. fixed length extension.

Go to the Radius column and find 33 ft.

Follow the row to the rated capacity (6,570 lbs) make sure of the jib offset. In this case it is 0° .

LINE PULLS AND REEVING INFORMATION

	THE RELATING INFORM	VIATION
HOISTS	CABLE SPECS.	PERMISSIBLE LINE PULLS
Main & Aux. Model 30	3/4" (19 mm) 18x19 Class or 35x7 Rotation Resistant Min. Breaking Str. 64,600 lbs.	12,920 lbs.

IS 1 PART SUFFICIENT TO LIFT THE RATED CAPACITY? (6,570 lbs.)

Step #3: Find the Gross Capacity

Is 1 part enough to lift the Rated Capacity?

There must be enough parts to lift the rated capacity or wire rope capacity would be the limiting factor and would be used for the gross capacity instead of the load rating chart.

In this case 1 part is sufficient to lift 12,920 lbs. The rated capacity is only 6,570 lbs.

Write 6,570 lbs. in the gross capacity section.

	CAPACITY DEDUCTIONS
GROSS CAP 6 5 7 0	Block
CAP DED	Ball
NET CAP	Main Line
	Aux. Line
	Ext
	Rigging
	Other
	Total
AUX LINE	MAIN LINE

Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

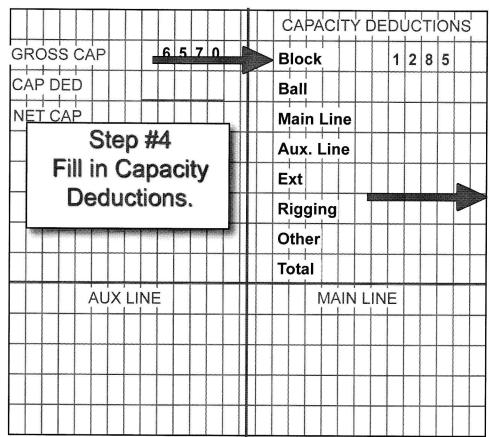
Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

Offset: 0 degrees Rigging: 400 lbs.

Other: N/A

Step #3: Find the Gross Capacity

Write this in the correct work area on your grid.



Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

Offset: 0 degrees Rigging: 400 lbs.

Other: N/A

Step #4: Fill in the Capacity Deductions

Fill in the weight for the block.

You will find this information either in the configuration section or in the load chart.

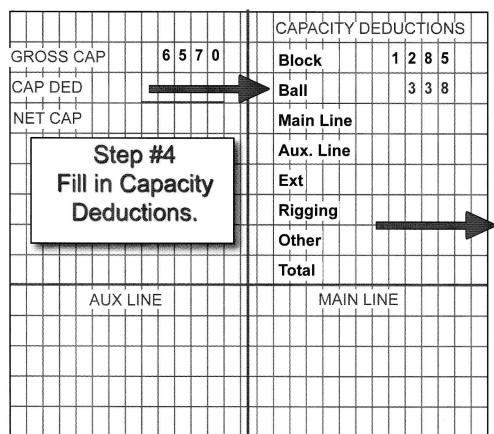
WRITE THE NUMBERS IN THE GRID SPACES!!!!!

AUXILIARY BOOM HEAD	1	43 lbs.
HOOKBLOCK and HEADACHE BAL	LS:	
50 Ton, 4 Sheave	1,285	lbs. +
45 Ton, 3 Sheave w/cheekplates	1,09	lbs. +
45 Ton, 3 Sheave wo/cheekplates	89.	lbs. +
15 Ton, 1 Sheave	38	lbs. +
7.5 Ton Headache Ball	33	lbs. +
10 Ton Headache Ball	56	lbs. +

+Refer to rating plate for actual weight.

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.

What is the <u>net capacity</u> lifting off the <u>extension</u> over the <u>side</u>?



Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

Offset: 0 degrees Rigging: 400 lbs. Other: N/A

Step #4: Fill in the Capacity Deductions

Fill in the weight for the ball.

You will find this information either in the configuration section or in the load chart.

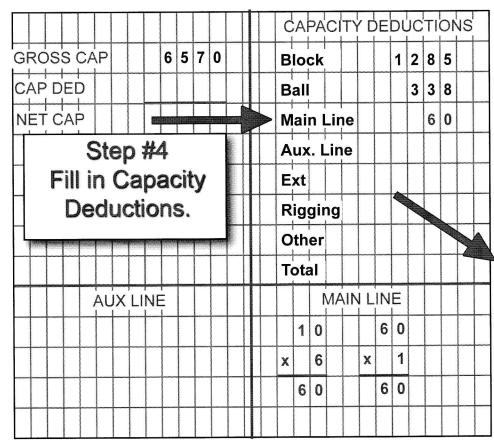
WRITE THE NUMBERS IN THE GRID SPACES!!!!!

AUXILIARY BOOM HEAD	143 lbs.
HOOKBLOCK and HEADACHE BAL	LS:
50 Ton, 4 Sheave	1,285 lbs. +
45 Ton, 3 Sheave w/cheekplates	1,095 lbs. +
45 Ton, 3 Sheave wo/cheekplates	895 lbs. +
15 Ton, 1 Sheave	380 lbs. +
7.5 Ton Headache Ball	338 lbs. +
10 Ton Headache Ball	56 bs. +

+Refer to rating plate for actual weight.

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.

What is the <u>net capacity</u> lifting off the <u>extension</u> over the <u>side</u>?



Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

Offset: 0 degrees Rigging: 400 lbs.

Other: N/A

Step #4: Fill in the Capacity Deductions

Fill in the weight of the main line capacity deduction.

When determining wire rope deduction the formula is as follows:

Rope length X Number of Parts X Rope weight per/foot

Length of wire rope for the line you're not lifting off is given in the configuration section.

What is the net capacity lifting off the extension over the side? CAPACITY DEDUCTION'S 6 5 7 **GROSS CAP** 2 8 5 1 **Block** 3 3 8 CAP DED Ball NET CAP 6 0 Main Line 0 Aux. Line Step #4 Ext Fill in Capacity Rigging Deductions. Other **Total AUX LINE** MAIN LINE 1 0 6 0 6 1 X X 6 0 6 0

Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

Offset: 0 degrees Rigging: 400 lbs.

Other: N/A

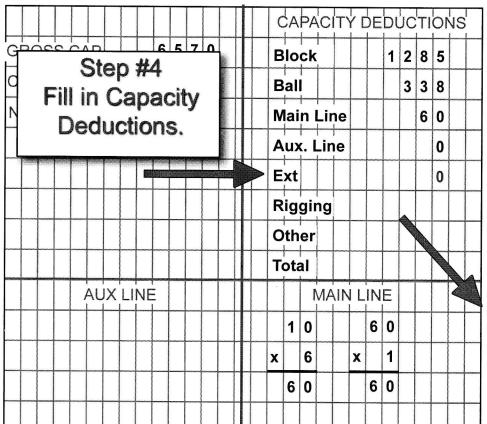
Step #4: Fill in the Capacity Deductions

Fill in the weight of the auxiliary line capacity deduction.

When determining wire rope deduction the formula is as follows:

Rope length X Number of Parts X Rope weight per/foot

Since only 1 part is used for the fly reeving, there is no excessive wire rope. Simply enter "0" in the correct box.



Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

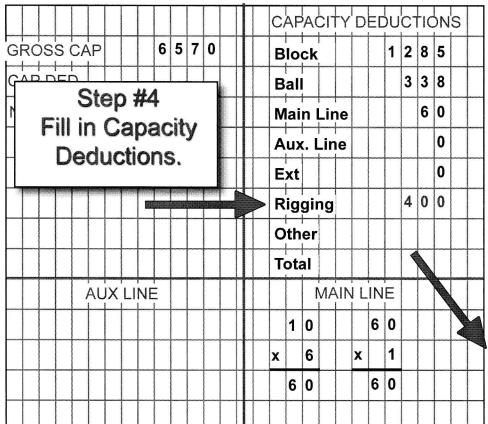
Offset: 0 degrees Rigging: 400 lbs.

Other: N/A

Step #4: Fill in the Capacity Deductions

Fill in the weight of the extension capacity deduction.

Since extension is being used, simply enter a "0" in the correct box.



Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

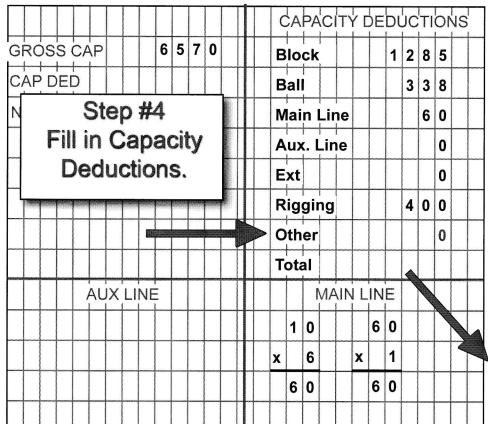
Offset: 0 degrees Rigging: 400 lbs.

Other: N/A

Step #4: Fill in the Capacity Deductions

Fill in the weight of the rigging deduction.

You will find this information in the configuration section.



Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

Offset: 0 degrees Rigging: 400 lbs.

Other: N/A

Step #4: Fill in the Capacity Deductions

Fill in the weight of any additional lifting devices.

Since no auxiliary lifting devices are listed, simply enter "0" on the grid.

What is the <u>net capacity</u> lifting off the <u>extension</u> over the <u>side</u>?

	CAPACITY DEDUCTIONS
GROSS CAP 6 5 7 0	Block 1 2 8 5
CAP DED	Ball 3 3 8
N Step #5	Main Line 6 0
Total Capacity	Aux. Line 0
Deductions.	Ext 0
	Rigging 4 0 0
	Other 0
	Total 2 0 8 3
AUX LINE	MAIN LINE
	1 0 6 0
	x 6 x 1
	6 0 6 0

Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

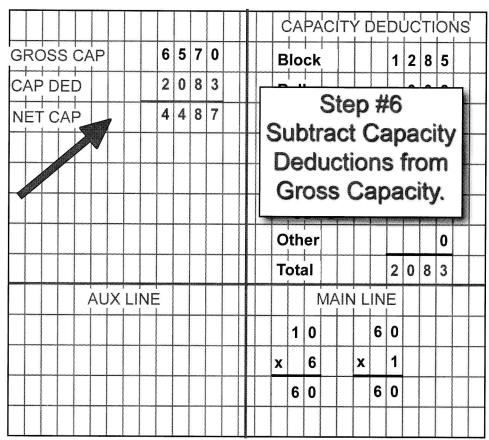
Offset: 0 degrees Rigging: 400 lbs. Other: N/A

Step #5: Total the Capacity Deductions

Add all the capacity deductions.

WRITE THE NUMBERS IN THE GRID SPACES!!!!!

CAPACITY DEDUCTIONS ARE 2,083 lbs.



Configuration

Main Boom: 110'

Outriggers: Extended & Set

Radius: 55'

Main Boom Angle: N/A Block: 50 ton. (6 Parts) Ball: 7.5 ton. (Single Part)

Wire Rope:

Main: 3/4" - 1 lb. per/foot (Hanging 10' from tip) Aux: 3/4" - 1 lb. per/foot Extension Length: 32' Fixed

Offset: 0 degrees Rigging: 400 lbs.

Other: Auxiliary Boom Head

Step #6: Subtract the Capacity Deductions from the Gross Capacity.

Subtract capacity deductions from gross capacity.

WRITE THE NUMBERS IN THE GRID SPACES!!!!!

NET CAPACITY IS 4,487 lbs.