Lifting Capacities

Telescopic Boom All Terrain Crane

ATC–822

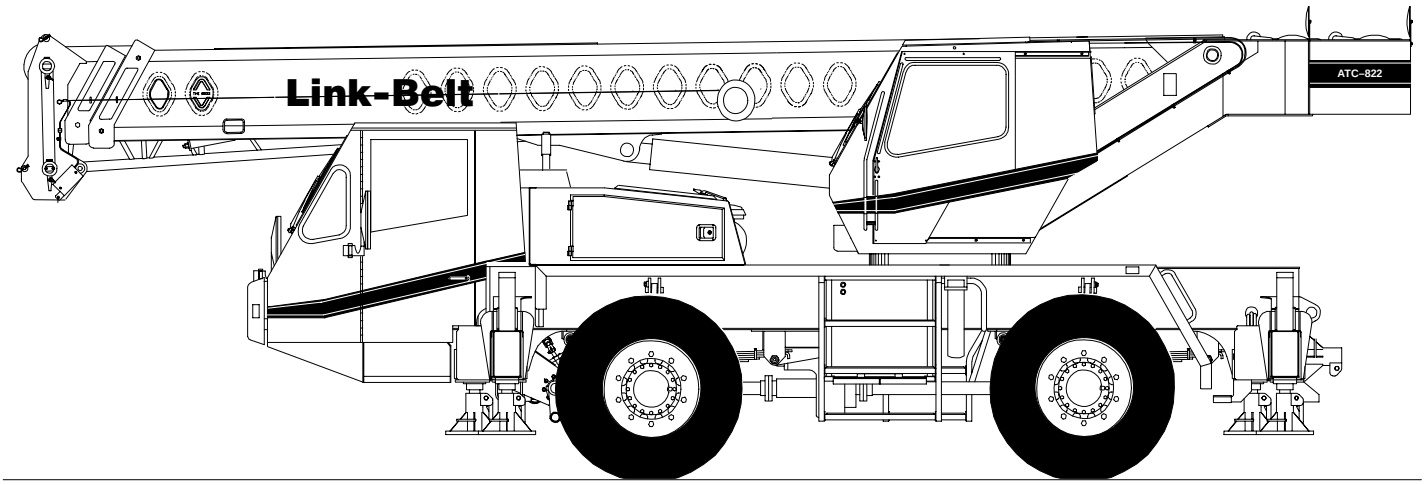
***22*–ton** *(20 metric ton)*

1,500 lbs. *(680 kg)* Counterweight

Boom and fly capacities for this machine are listed by the following sections:

Fully Extended Outriggers
- Working Range Diagram
- 27.12’ – 70.12’ *(8.27 – 21.37 m)* Main Boom Capacities
- 27’ *(8.23 m)* Offset Fly Capacities
- 27’ – 44’ *(8.23 – 13.41 m)* Two–piece Offset Fly Capacities

On–Tires
- Working Range Diagram
- 27.12’ – 70.12’ *(8.27 – 21.37 m)* Main Boom Capacities



CAUTION: This material is supplied for reference use only. Operator must refer to in–cab Crane Rating Manual to determine allowable machine lifting capacities and operating procedures.

Litho in U.S.A. 2/01

#6294 (Supersedes #6198)

⚠ WARNING

READ AND UNDERSTAND THE OPERATOR'S AND SAFETY MANUALS AND THE FOLLOWING INSTRUCTIONS AND RATED LIFTING CAPACITIES BEFORE OPERATING THE CRANE. OPERATION WHICH DOES NOT FOLLOW THESE INSTRUCTIONS MAY RESULT IN AN ACCIDENT.

OPERATING INSTRUCTIONS

GENERAL:

1. Rated lifting capacities in pounds as shown on lift charts pertain to this crane as originally manufactured and normally equipped. Modifications to the crane or use of optional equipment other than that specified can result in a reduction of capacity.
2. Construction equipment can be dangerous if improperly operated or maintained. Operation and maintenance of this crane must be in compliance with the information in the Operator's, Parts, and Safety Manuals supplied with this crane. If these manuals are missing, order replacements through the distributor.
3. The operator and other personnel associated with this crane shall read and fully understand the latest applicable American National Standards (ASME B30.5) safety standards for cranes.
4. The rated lifting capacities are based on crane standing level on firm supporting surface.

SET UP:

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 under the outrigger pontoons or tires to spread the load to a larger bearing surface.
2. When making lifts on outriggers, all tires must be free of supporting surface. All outrigger beams must be extended to the same length; fully retracted, intermediate extended, or fully extended.
3. When making lifts on tires, they must be inflated to the recommended pressure. (See Operation note 19.)
4. Do not exceed 70° maximum boom angle. Loss of backward stability will occur causing a backward tipping condition.
5. For required parts of line, see Wire Rope Capacity and Winch Performance.
6. Before setting up on intermediate outriggers, retracted outriggers, or tires, refer to Working Range Diagrams and rated lifting capacities to determine allowable crane configurations.

OPERATION:

1. Rated lifting capacities at rated radii shall not be exceeded. Do not tip the crane to determine allowable loads. For concrete bucket operation, weight of bucket and load shall not exceed 80% of rated lifting capacities. For clamshell bucket operation, weight of bucket and bucket contents is restricted to a maximum weight of 5,000 pounds or 80% of rated lifting capacity, whichever is less. For magnet operation, weight of magnet and load is restricted to a maximum weight of 5,000 pounds or 80% of rated lifting capacity, whichever is less. For clamshell and magnet operation, maximum boom length is restricted to 50 feet and the boom angle is restricted to a minimum of 35°. Lifts with any fly erected are prohibited for both clam and magnet operation.
2. Rated lifting capacities shown on fully extended outriggers or intermediate extended outriggers do not exceed 85% of the tipping loads. The rated lifting capacities shown on fully retracted outriggers or tires do not exceed 75% of the tipping loads as determined by SAE crane stability test code J–765A.
3. Rated lifting capacities in the shaded areas are based on structural strength or hydraulic limitations. Rated lifting capacities in the non–shaded areas are based on stability ratings. Some capacities are limited by a maximum obtainable 78° boom angle.
4. Rated lifting capacities include the weight of hook block, hook ball, slings, bucket, magnet and auxiliary lifting devices. Their weights must be subtracted from the listed rated capacity to obtain the net load that can be lifted. Rated lifting capacities include the deduct for any fly stowed on the base of the boom. For deducts of any fly erected, but not used, see Capacity Deductions For Auxiliary Load Handling Equipment.
5. Rated lifting capacities are based on freely suspended loads. No attempt shall be made to move a load horizontally on the ground in any direction.
6. Rated lifting capacities are for lift crane service only.
7. Do not operate at radii or boom lengths (minimum or maximum) where capacities are not listed. At these positions, the crane can tip or cause boom failure.

8. The maximum loads that can be telescoped are not definable because of variation in loadings and crane maintenance, but it is permissible to attempt retraction and extension within the limits of the applicable load rating chart.
9. For main boom capacities when either boom length or radius or both are between values listed, proceed as follows:
   a. For boom lengths not listed, use rating for next longer boom length or next shorter boom length, whichever is smaller.
   b. For load radii not listed, use rating for next larger radius.
10. The user shall operate at reduced ratings to allow for adverse job conditions, such as: soft or uneven ground, out of level conditions, wind, side loads, pendulum action, jerking or sudden stopping of loads, hazardous conditions, experience of personnel, traveling with loads, electrical wires, etc. Side load on boom or fly is dangerous and shall be avoided.
11. Rated lifting capacities do not account for wind on suspended load or boom. Rated capacities and boom length shall be appropriately reduced as wind velocity approaches 20 mph.
12. When making lifts with auxiliary head machinery, the effective length of the boom increases by 2 ft.
13. Power sections of boom must be extended equally.
14. The least stable rated working area on fully extended outriggers is over the rear. The least stable working area on intermediate outriggers, fully retracted outriggers, and on tires is over the side.
15. Rated lifting capacities are based on correct reeving. Deduction must be made for excessive reeving. Any reeving over minimum required (see Wire Rope Capacity) is considered excessive and must be accounted for when making lifts. Use Working Range Diagram to estimate the extra feet of rope then deduct 1 lb. for each extra foot of wire rope before attempting to lift a load.
16. The loaded boom angle combined with the boom length give only an approximation of the operating radius. The boom angle, before loading, should be greater to account for deflection. For main boom capacities, the loaded boom angle is for reference only. For fly capacities, the load radius is for reference only.
17. For fly capacities with main boom length less than 70 ft., the rated capacities are determined by the boom angle using the 70 ft. boom and fly chart. For angles not shown use the next lower boom angle to determine the rated capacity.
18. The 27 ft. boom length structural capacities are based on boom fully retracted. If the boom is not fully retracted, do not exceed capacities shown for the 40 ft. boom length.
19. Rated lifting capacities on tires depend on tire capacity, condition of tires, and tire air pressure. On tire capacities require lifting from main boom head only on a smooth and level surface. Pick and carry operations are restricted to speed of 2.5 mph. The boom must be centered over the rear with the swing lock engaged and the load must be restrained from swinging. Tire inflation pressure for stationary and 2.5 mph. operation is 110 psi.

DEFINITIONS:

1. Load 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: $\measuredangle^{\circ}$ The angle between the boom base section and horizontal with freely suspended load at the rated radius.
3. Working Area: Area measured in a circular arc about the center line 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 hoist line.
5. Side Load: Horizontal side force applied to the lifted load either on the ground or in the air.
6. No Load Stability Limit: The radius or boom angle beyond which it is not permitted to position the boom because the crane can overturn without any load on the hook.

WINCH PERFORMANCE

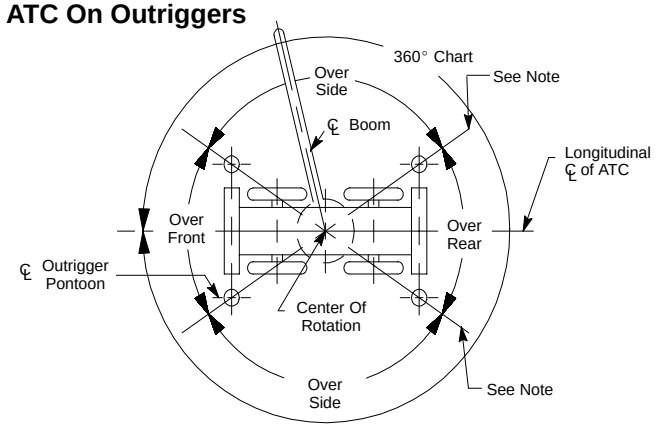
Winch Line Pulls			
Single Speed Winch		Drum Rope Capacity (ft.)	
Wire Rope Layer	Available Lbs.	Layer	Total
1	8,592	62	62
2	7,733	69	131
3	7,030	76	207
4	6,444	82	289
5	5,948	89	378

WIRE ROPE CAPACITY

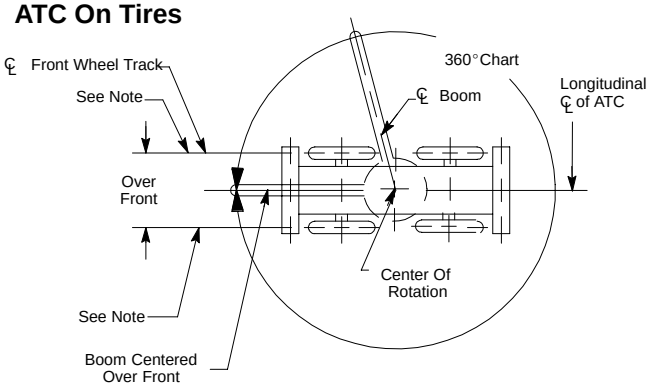
Maximum Lifting Capacities Based On Wire Rope Strength		
Parts of Line	5/8" Type RB	Notes
1	9,080	Capacities shown are in pounds and working loads must not exceed the ratings on the capacity charts in the Crane Rating Manual. Study Operator's Manual for wire rope inspection procedures.
2	18,160	
3	27,240	
4	36,320	
5	45,400	
6	54,480	
7	63,560	
8	72,640	
LBCE TYPE RB	**DESCRIPTION:** 18 x 19 Rotation Resistant – Compacted Strand – High Strength – Preformed – Right Regular Lay	

WORKING AREAS

ATC On Outriggers



ATC On Tires



Note: These Lines Determine The Limiting Position Of Any Load For Operation Within Working Areas Indicated.

HYDRAULIC CIRCUIT PRESSURE SETTINGS

Function	Pressure (PSI)
Front and Rear Winch	3,500
Outriggers	2,600
Boom Hoist	3,500
Telescope	3,500
Swing	1,350
Steering – Front	2,000
Steering – Rear	2,500
Hydraulic Controllers	500

CAPACITY DEDUCTIONS FOR AUXILIARY LOAD HANDLING EQUIPMENT

Load Handling Equipment:	(lbs.)
Auxiliary Head Attached	75
5–ton Hook Ball (see hook ball for actual weight)	172
8.5–ton Hook Ball (see hook ball for actual weight)	354
25–ton Hook Block (see hook ball for actual weight)	429
25–ton Hook Block with cheek weight kit (see hook ball for actual weight)	653
Lifting From Main Boom With:	**(lbs.)**
Fly stowed on boom base (See Operation Note 4)	0
27 ft. offset fly erected but not used	3,300
44 ft. offset fly erected but not used	6,600
Lifting From 27 ft. Offset Fly With:	
17 ft. fly tip erected but not used	**PROHIBITED**
17 ft. fly tip stowed on 27 ft. offset fly	**PROHIBITED**
Note: Capacity deductions are for Link–Belt supplied equipment only.	

PONTOON LOADINGS

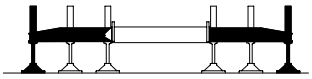
Maximum Pontoon Load:	Maximum Pontoon Ground Bearing Pressure:
40,000 lbs.	200 psi

OUTRIGGER SPREAD

Position	Distance
Fully Retracted	7' 4.75" *(2.25 m)*
Intermediate	12' 11.75" *(3.96 m)*
Fully Extended	18' 6.75" *(5.66 m)*

WORKING RANGE DIAGRAM

Working Range Diagram
On Fully Extended Outriggers



□ Denotes Main Boom + 27 Ft. Fly
○ Denotes Main Boom + 44 Ft. Fly

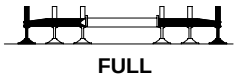
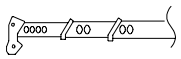
Note: Boom and fly geometry shown are for unloaded condition and crane standing level on firm supporting surface. Boom deflection, subsequent radius, and boom angle change must be accounted for when applying load to hook.

⚠ WARNING

Do Not Lower The Boom Below The Minimum Boom Angle For No Load As Shown In The Above Chart For The Boom Lengths Shown. Loss Of Stability Will Occur Causing A Tipping Condition.

Note: Refer To Page 4 For "Capacity Deductions For Auxiliary Load Handling Equipment". ∠° Loaded Boom Angle In Degrees. ( ) Reference Radius For Minimum Boom Angle Capacities (Shown in Parenthesis) Are In Feet.

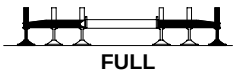
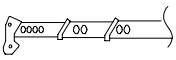
Rated Lifting Capacities In Pounds
Fully Extended Outriggers.
See Set Up Note 2.

FULL

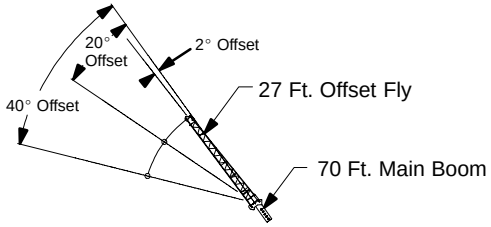
Load Radius (Ft.)	27 Ft.		40 Ft.		50 Ft.	
	∠ °	Load	∠ °	Load	∠ °	Load
9	60.5	44,000	71.5	41,000	75.5	38,800
10	58.0	40,000	69.5	38,800	74.5	36,800
12	52.5	32,500	66.5	32,800	72.0	32,900
15	43.5	25,200	61.5	25,500	68.0	25,700
20	19.5	17,800	52.5	18,000	61.5	18,200
25			42.0	14,000	54.5	14,100
30			28.5	11,000	47.0	11,300
35					37.5	8,700
40					25.5	6,800
Min.Bm. Ang./Cap.	0 (20.8)	16,800	0 (33.7)	9,100	0 (43.7)	5,800

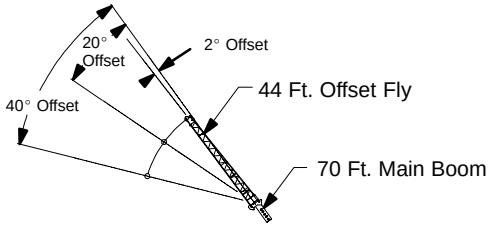
Rated Lifting Capacities In Pounds
Fully Extended Outriggers.
See Set Up Note 2.

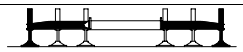
FULL

Load Radius (Ft.)	60 Ft.		70 Ft.	
	∠ °	360°	∠ °	360°
12	76.0	30,500		
15	72.5	25,700	76.0	22,000
20	67.5	18,300	71.5	17,700
25	62.0	14,200	67.0	14,300
30	56.0	11,400	62.0	11,600
35	49.5	8,800	57.5	8,900
40	42.5	6,900	52.0	7,000
45	34.5	5,600	46.0	5,700
50	23.5	4,500	39.5	4,600
55			32.0	3,800
60			22.0	3,100
Min.Bm. Ang./Cap.	0 (53.7)	3,900	0 (63.8)	2,700





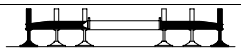
Rated Lifting Capacities In Pounds
Fully Extended Outriggers.
See Set Up Note 2



FULL

Load Radius (Ft.)	2° Offset		20° Offset		40° Offset	
	∠ °	Load	∠ °	Load	∠ °	Load
20	77.0	11,300				
25	74.0	11,000				
30	71.0	9,400	75.5	6,800		
35	68.0	8,400	72.5	6,400	77.0	4,900
40	64.5	7,300	69.5	5,900	73.5	4,700
45	61.0	6,100	66.0	5,600	70.0	4,500
50	57.5	5,000	62.5	5,300	66.5	4,400
55	53.5	4,100	58.5	4,500	62.5	4,300
60	49.5	3,400	54.5	3,700	58.0	4,000
65	45.5	2,800	50.0	3,100	53.5	3,300
70	40.5	2,400	45.5	2,600	48.5	2,700
75	35.5	2,000	40.0	2,100	42.5	2,200
80	29.5	1,600	34.0	1,700		
85	22.0	1,300	26.0	1,400		
90	9.5	1,100				
Min.Bm. Ang./Cap.	0	400	0	400	0	500

Rated Lifting Capacities In Pounds
Fully Extended Outriggers.
See Set Up Note 2



FULL

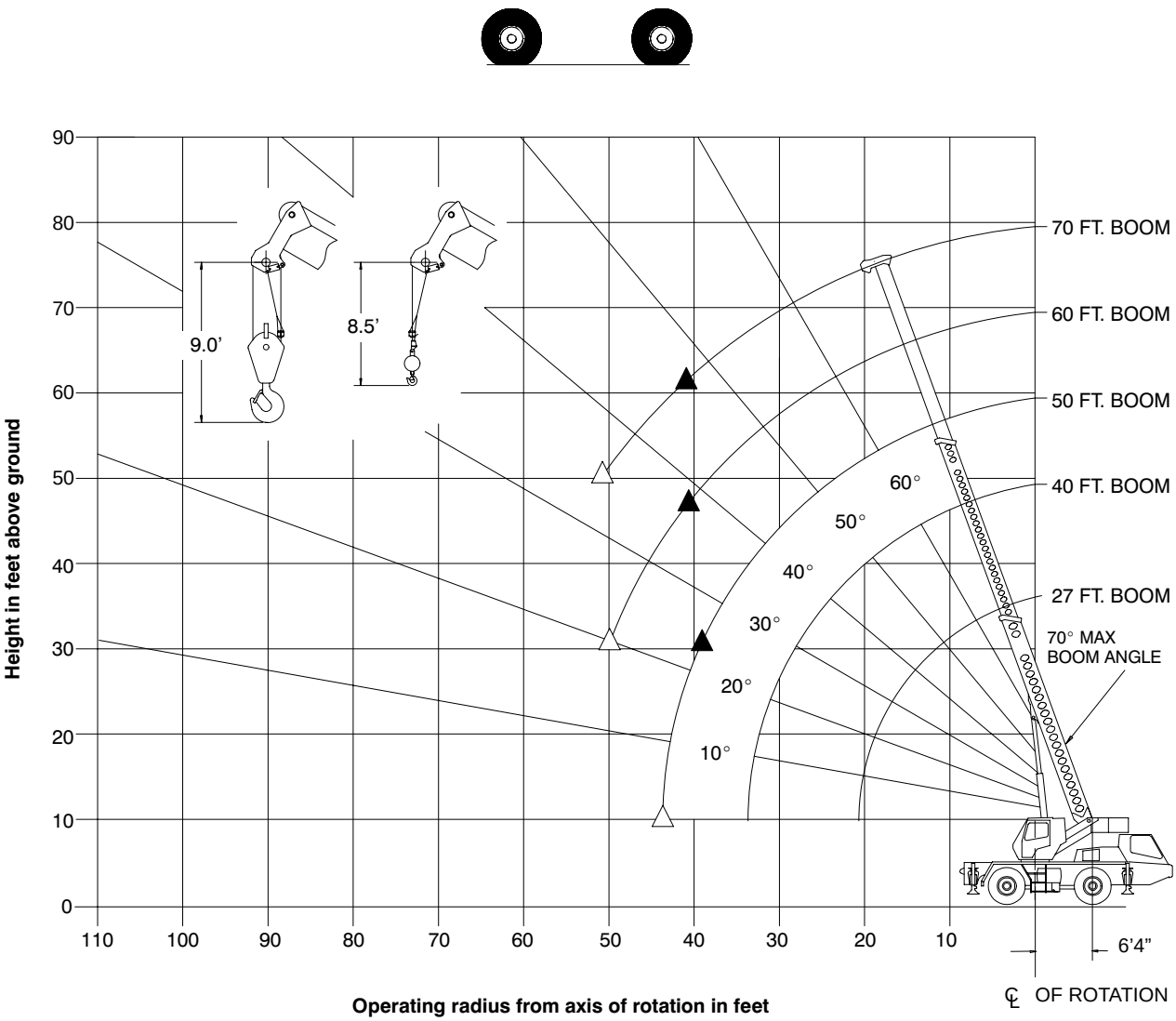
Load Radius (Ft.)	2° Offset		20° Offset		40° Offset	
	∠ °	Load	∠ °	Load	∠ °	Load
25	77.0	6,700				
30	74.5	6,100				
35	72.0	5,500				
40	69.5	5,000	76.0	3,600		
45	67.0	4,600	73.5	3,400		
50	64.0	4,200	70.5	3,200	77.0	2,500
55	61.0	3,900	67.5	3,000	73.5	2,400
60	58.0	3,600	64.5	2,800	70.5	2,300
65	55.0	3,100	61.5	2,600	67.5	2,200
70	51.5	2,600	58.5	2,500	64.0	2,100
75	48.0	2,200	55.0	2,400	60.0	2,100
80	44.5	1,800	51.0	2,100	56.0	2,000
85	40.5	1,500	47.0	1,800	51.5	1,900
90	36.0	1,200	42.5	1,400	46.5	1,600
95			37.0	1,200	40.0	1,200

⚠ WARNING

Do Not Lower 44 Ft. Offset Fly In Working Position Below 32.5° Main Boom Angle Unless Main Boom Length Is 62 Ft. Or Less, Since Loss Of Stability Will Occur Causing A Tipping Condition.

WORKING RANGE DIAGRAM

On Tires



Crane Configurations Prohibited:
Boom Angle Greater Than 70°
27 Ft. Offset Fly
44 Ft. Offset Fly

△ **Denotes Main Boom Between Tire Tracks Over Rear Or Boom Centered Over Rear**

▲ **Denotes Main Boom 360°**

Note: Boom geometry shown is for unloaded condition and crane standing level on firm supporting surface. Boom deflection, subsequent radius, and boom angle change must be accounted for when applying load to hook.

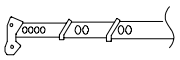
⚠ WARNING

Do Not Lower The Boom Below The Minimum Boom Angle For No Load As Shown In The Above Chart For The Boom Lengths Shown. Loss Of Stability Will Occur Causing A Tipping Condition.

On Tire Capacities In Pounds with 16.00 R20 M Tires
Tire Pressure: 110 PSI

Stationary Capacities
Between Tire Tracks Over Rear
See Operation Note 19

ON TIRES



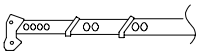
Load Radius (Ft.)	27 Ft.		40 Ft.		50 Ft.	
	∡ °	Load	∡ °	Load	∡ °	Load
9	60.5	23,700				
10	58.0	22,800				
12	52.5	17,200				
15	43.5	11,800	61.5	12,400		
20	19.5	6,900	52.5	7,800	61.5	7,900
25			42.0	5,100	54.5	5,400
30			28.5	3,600	47.0	3,800
35					37.5	2,600
40					25.5	1,800
Min.Bm. Ang./Cap.	**0** (20.8)	6,500	**0** (33.7)	2,600	**0** (43.7)	1,300

Load Radius (Ft.)	60 Ft.		70 Ft.	
	∡ °	Load	∡ °	Load
25	62.0	5,500		
30	56.0	3,900	62.0	4,000
35	49.5	2,800	57.5	2,900
40	42.5	1,900	52.0	2,100
45	34.5	1,300	46.0	1,500
50	23.5	900	39.5	900
Min.Bm. Ang./Cap.	**19.5** (50.9)		**35.0** (52.4)	

On Tire Capacities In Pounds
with 16.00 R20 M Tires
Tire Pressure: 110 PSI

Pick and Carry Capacities (2.5 mph)
Boom Centered Over Rear
See Operation Note 19

ON TIRES



Load Radius (Ft.)	27 Ft.		40 Ft.		50 Ft.	
	∡ °	Load	∡ °	Load	∡ °	Load
9	60.5	21,200				
10	58.0	19,700				
12	52.5	17,100				
15	43.5	11,800	61.5	12,400		
20	19.5	6,900	52.5	7,800	61.5	7,900
25			42.0	5,100	54.5	5,400
30			28.5	3,600	47.0	3,800
35					37.5	2,600
40					25.5	1,800
Min.Bm. Ang./Cap.	**0** (20.8)	6,500	**0** (33.7)	2,600	**0** (43.7)	1,300

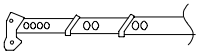
Load Radius (Ft.)	60 Ft.		70 Ft.	
	∡ °	Load	∡ °	Load
25	62.0	5,500		
30	56.0	3,900	62.0	4,000
35	49.5	2,800	57.5	2,900
40	42.5	1,900	52.0	2,100
45	34.5	1,300	46.0	1,500
50	23.5	900	39.5	900
Min.Bm. Ang./Cap.	**19.5** (50.9)		**35.0** (52.4)	

On Tire Capacities In Pounds
with 16.00 R20 M Tires
Tire Pressure: 110 PSI

Stationary Capacities 360°
See Operation Note 19

360°

ON TIRES



Load Radius (Ft.)	27 Ft.		40 Ft.		50 Ft.	
	∡ °	Load	∡ °	Load	∡ °	Load
9	60.5	18,900				
10	58.0	15,700				
12	52.5	11,500				
15	43.5	7,600	61.5	8,200		
20	19.5	4,100	52.5	4,900	61.5	5,100
25			42.0	3,000	54.5	3,200
30			28.5	1,700	47.0	2,100
35					37.5	1,200
40					25.5	600
Min.Bm. Ang./Cap.	**0** (20.8)	3,800	**0** (33.7)	1,100	**24.0** (40.2)	

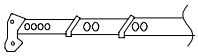
⚠ WARNING
Do Not Raise Boom Above 70° Boom Angle. Loss Of Stability Will Occur Causing A Tipping Condition.

On Tire Capacities In Pounds
with 16.00 R20 M Tires
Tire Pressure: 110 PSI

Stationary Capacities 360°
See Operation Note 19

360°

ON TIRES



Load Radius (Ft.)	60 Ft.		70 Ft.	
	∡ °	Load	∡ °	Load
25	62.0	3,300		
30	56.0	2,200	62.0	2,200
35	49.5	1,400	57.5	1,400
40	42.5	700	52.0	800
Min.Bm. Ang./Cap.	**38.0** (42.3)		**47.0** (43.1)	

⚠ WARNING
Do Not Raise Boom Above 70° Boom Angle. Loss Of Stability Will Occur Causing A Tipping Condition.