

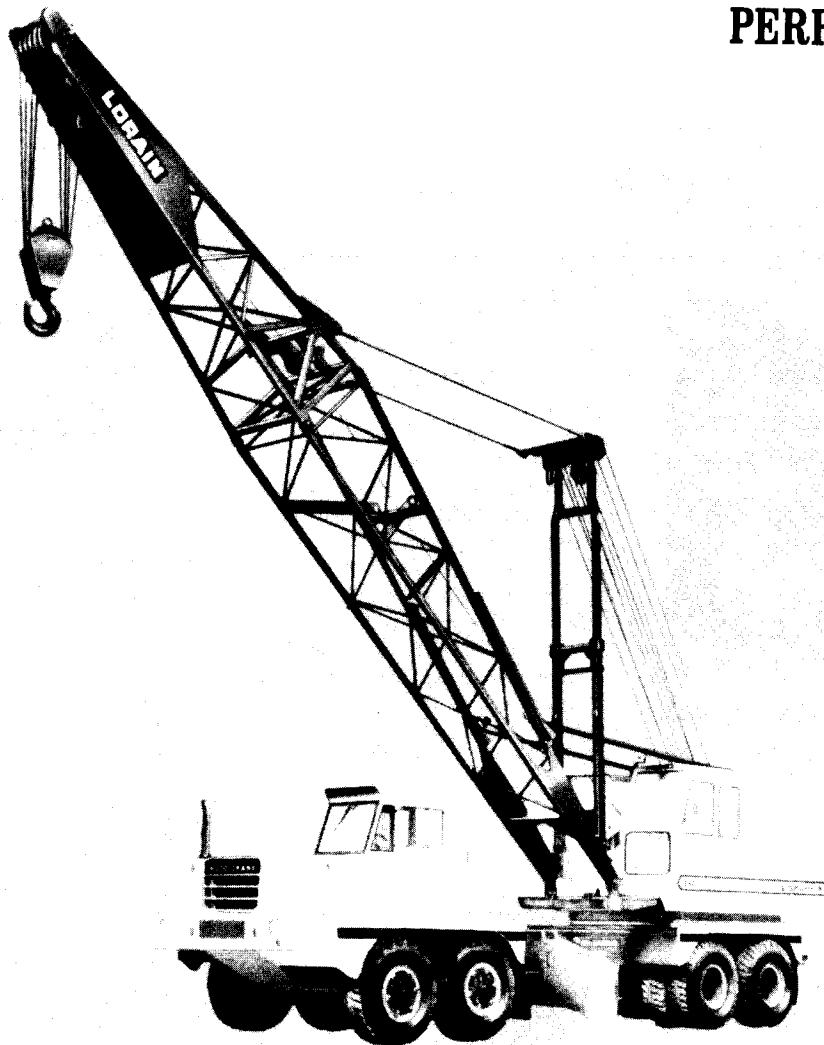


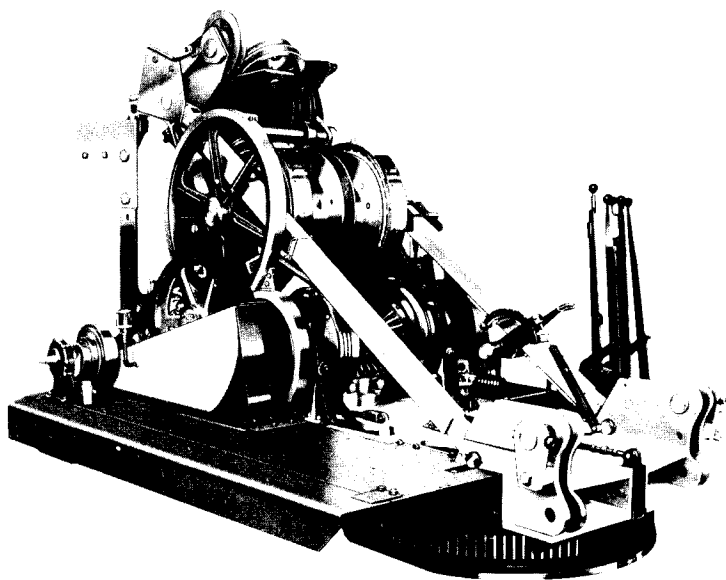
# **LORAIN**

## **MC-550A**

### **friction Moto-Crane**

**STRONG ON  
PERFORMANCE**



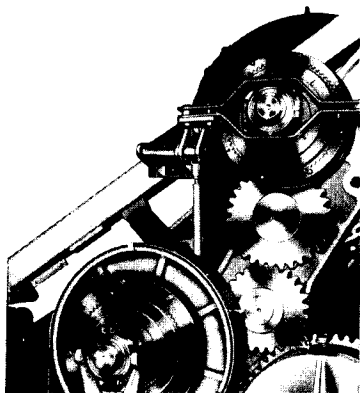


## Specific Advantages

The Lorain MC-550A has been designed and engineered to give the following specific advantages.

- An ultra long boom
- Increased lifting capacities
- Increased cable capacity
- Less weight for maximum mobility
- Simple maintenance
- Designed dependability

The MC-550A turntable design is a study in simplicity. The components are arranged on the framework to provide direct power to the working end of the machine while utilizing its own machinery to serve as a counterweight. The A-frame design blends power, controls, and operating speeds to produce fast, smooth, operation. The torque converter serves as a cushion for the machinery and cables against shocks. The use of anti-friction bearings on the swing shaft and hoist shaft results in smooth, positive action. Power load lowering permits pin-point accuracy in placing the payload. These features combine to produce a machine capable of dependable, profitable performance.

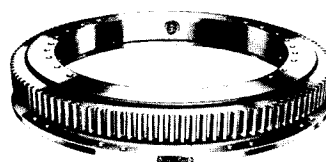
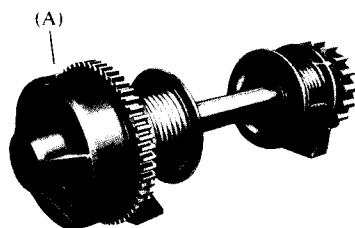


## Dual Drum Boom Hoist

Each end of the boom hoist cable is attached to separate drum sections rotating in unison. This equalizes the pull on the boom tip and increases cable life. Drums are scored for smooth wrapping. The boom hoist brake is spring-loaded for additional safety. 10-part derricking is standard.

## Power and Clutch Control of Independent Boom Action

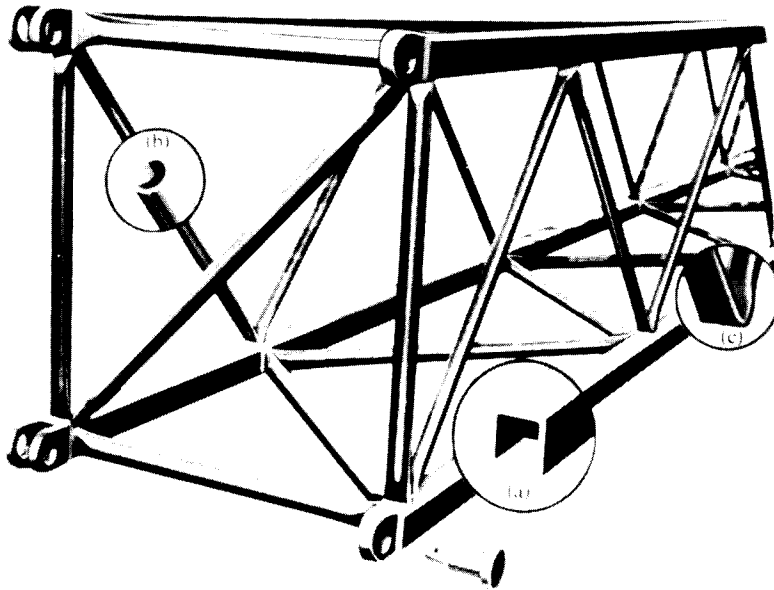
The boom hoist and lowering mechanism is in constant engagement with the engine when in use. Both are power controlled, independently with a separate multi-plate disc-type clutch that drives the boom hoist shaft through a final enclosed planetary reduction gear (A). This provides precise control through an unlimited range of engine speeds. For maximum security, the ratchet and pawl (controlled from operator's position) are mounted directly on the end of the boom hoist shaft.



## Shear-Ball®

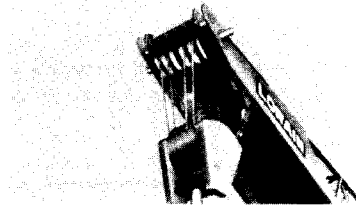
The "Shear-Ball" acts as a giant, sealed ball bearing. One race is attached to the carrier, the other to the turntable with balls interlocking the two races. It allows the turntable to revolve smoothly. Load-Forces are distributed as compression loads over at least 40% of the balls — not on a few highly stressed rollers. The simplicity of design combined with the experience gained from building thousands of successful "Shear-Ball" connections enables LORAIN to offer an exclusive 10-year written warranty and offers you the following operating advantages:

- A) No Adjustments
- B) Rock Steady Swings
- C) Smooth, Fast Cycles
- D) Reduced Machine Height
- E) Minimum Maintenance



## Square-Tubular-Chord Design

Designed for strength and durability, the square-tubular-chord boom is engineered for safety and performance. Four main chords of square-tubular cross section (a) are formed of high-strength alloy steel with a minimum yield strength of 130,000 psi. Hermetically sealed square-tube design, plus extra large cross section, provides maximum rigidity for long service life. Continuous, sealed round-tube lacing (b) is specially welded into a flat "maximum-contact" joint (c) at common points on the smooth inner faces of the main chord to provide high torsional resistance. Sections are pin-connected for fast rigging. 47" girth provides easy transportation, and superior strength.



### Offset Boom Tip

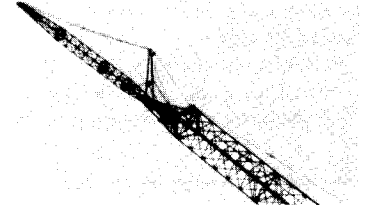
The open throat design allows high angle work at close radii . . . load and boom interference is minimized. Tapered pin connections for quick set-up. Maximum boom and jib combination 200' (60.9m.).



### Long Tapered Boom Tip

Designed for best reach and capacity. The tapered boom concept is utilized for weight reduction .

Maximum boom and jib combination 210' (64.0m.).



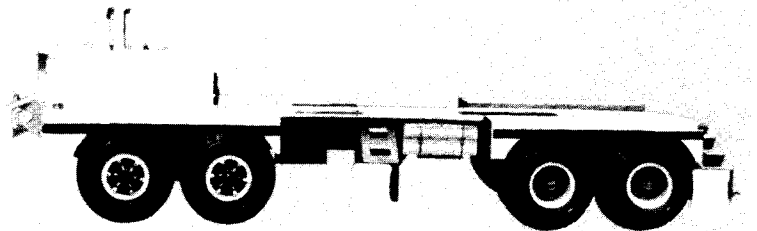
### Fast Jib Set-Up

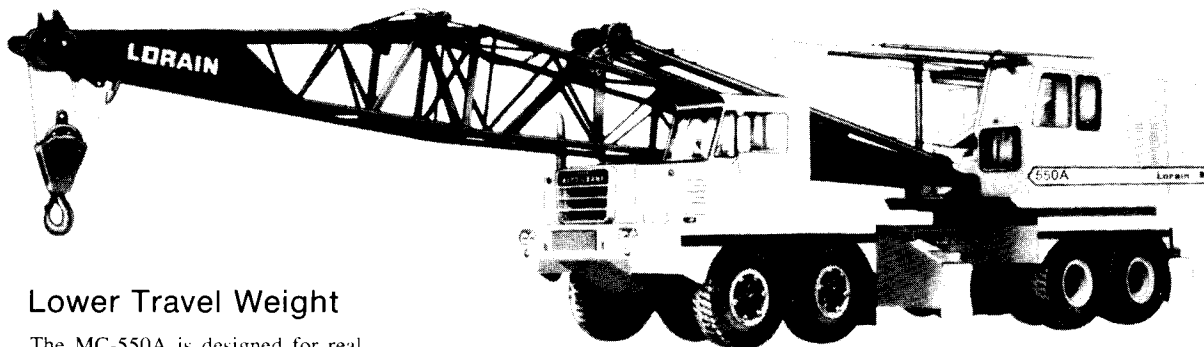
Jib is pendant-supported from base of boom tip. Eliminates lengthy cables and spreader bar. Two piece jib may be extended with taper pin connected center sections. Pre-sized backstay pendants are available to provide a wide range of jib offsets from 0 to 24 feet. Jib lengths available in 20', 30', 40', 50'.

## Lorain Built Carrier

Lorain has designed and built its own carriers since 1939. Specifically mated to the superstructure, the carrier provides the rugged strength and mobility required for the most effective operation.

Excellent visibility is available from the cab and the comfortable contoured seat eases highway travel. A 13 speed Roadranger<sup>®</sup> transmission combined with double reduction planetary axles provides easy highway travel and good job-site mobility. Hydraulic steering assist eases operation in job-site conditions. Carrier frame rails are full box type construction of high strength alloy steel. Reinforcements and cross bracing provide a steady, working platform.





## Lower Travel Weight

The MC-550A is designed for real mobility. It is a rugged 50 ton machine built to handle the big jobs, but it weighs less than most cranes in its class.

The telescopic mast type gantry permits travel with the basic boom carried in the travel position, without exceeding overall turntable height. The mast type gantry allows maximum boom and jib combination to be erected without outside assistance.

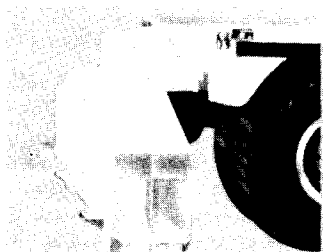
Removal of the outrigger boxes (both front and rear) and counterweight reduces the travel weight for easy mobility.



## Easy Travel With Folding Boom

Booms can be folded easily and quickly for fast highway travel from job to job. In addition, a 50-ft. tip extension can be carried conveniently on a special

hanger. No helper truck needed. Job hopping like this results in a savings of time and money.



## Power-Set® Outriggers

Hydraulically operated Power-Set outriggers provide a stable, dependable base for the MC-550A. Virtually any situation may be overcome due to the ability of the power-sets to operate individually. Positive wedge locks automatically secure outrigger beams, independent of the hydraulic system. The heavier the load—the tighter they become. Floats are self-adjusting according to terrain, and retract flat against the carrier.

Power-Set outriggers contain about half the number of hydraulic components as other outrigger systems for reduced maintenance.

Boxes are pin connected for easy removal and fast weight reduction for travel. Hydraulic lines are removed via quick disconnects.

Power-Set outriggers . . . simple, safe, and secure.

WE RESERVE THE RIGHT TO AMEND THESE SPECIFICATIONS AT ANY TIME WITHOUT NOTICE. THE ONLY WARRANTY APPLICABLE IS OUR STANDARD WRITTEN WARRANTY. WE MAKE NO OTHER WARRANTY, EXPRESSED OR IMPLIED.

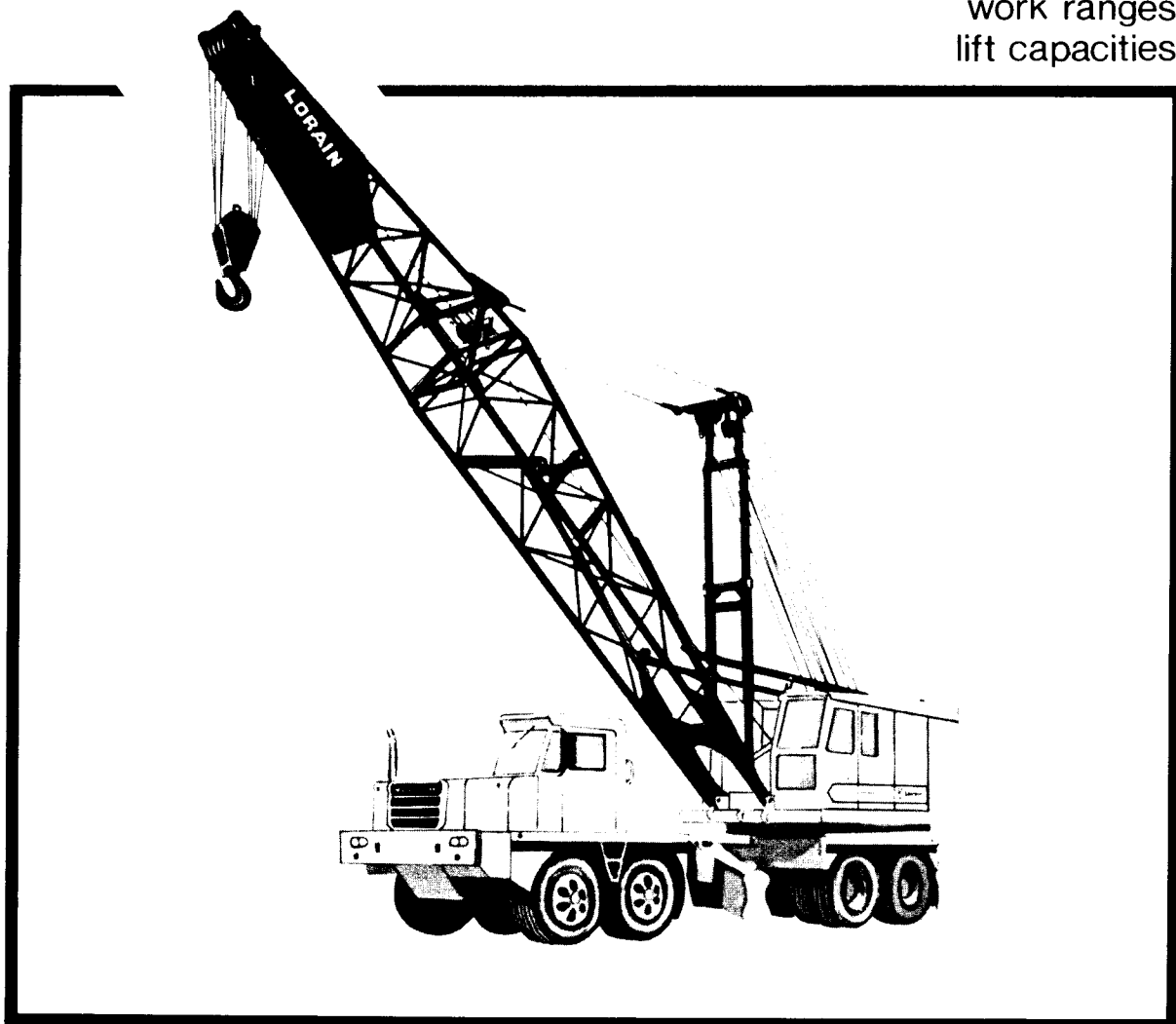


**Koehring**  
International Marketing (KIMCO)  
Milwaukee, WI 53201

# LORAIN MC-550A

MOTO-CRANE®

specifications  
dimensions  
work ranges  
lift capacities



## FEATURES:

- Preferred Square Tubular Chord Boom
- Choice of Two Peaks — Offset, Tapered
- 210'—Boom and Jib Combination
- Dual Drum Boom Hoist
- Tower Available
- Enclosed All Gear Drive
- Mechanical Controls
- 10-Year Warranted "Shear-Ball" Turntable Connection
- Performance Matched Lorain-Built Carrier
- Easy Weight Reduction

# MC-550 A MOTO-CRANE®

## SPECIFICATIONS

### TURNTABLE SPECIFICATIONS

<b>Power</b>	
Diesel	GM 4-71N, 6 Cyl.
Bore and Stroke	4¼ in. x 5 in.
Displacement	284 cu. in.
Horsepower	115 H.P.
Power Take-Off	Torque Converter
Fuel Tank	50 gals.
<b>Operating Characteristics</b>	
Line Pulls and Line Speeds:	
Main Hoist (15" P.D.)	17,250 lbs. @ 170 FPM
Secondary Hoist (15" P.D.)	17,250 lbs. @ 170 FPM
Swing Speed	4.0 R.P.M.
Controls	Manual Mechanical
<b>Other Equipment</b>	
Boom Hoist	Planetary Drive, Dual Drum
Gantry	Telescopic Mast Type, Air Operated
Counterweight, Removable	24,900 lbs.
<b>Turntable Connection</b>	External Gear Shear-Ball®

### MOTO-CRANE SPECIFICATIONS

<b>Power</b>	
Diesel	GM 6-71N, 6 cyl.
Bore and Stroke	4¼ in. x 5 in.
Displacement	425.6 cu. in.
Horsepower	246 H.P.
Power Take-Off	Plate Clutch
Fuel Tank	75 gals.
<b>Transmission</b>	
Roadranger	13 Speeds Forward 2 Speeds Reverse
Low-low	1.6 M.P.H.
High-high	47 M.P.H.
<b>Outriggers</b>	Power Set® Hydraulically Operated, Complete With Floats
<b>Rear Bogie</b>	
Axles (Planetary)	Double Reduction Gear Drive
First reduction thru hypoid gears; final reduction thru planetary wheel hubs; high-traction differentials. Interaxle differential with lockout.	
Mounting	Two Axles in tandem, with "through-drive," mounted on equalizer beams.

<b>Front Tandem</b>	Two non-driving axles mounted on equalizer beams.
<b>Steering</b>	Centralized, Hydraulic Power Assist
<b>Turning Radius (to Front Corner of Vehicle)</b>	54 ft. 2 in.
<b>Brakes (Spring Set for Emergency and Parking)</b>	
Rear	4 Brakes; 17¼ in. dia. x 5½ in. wide
Front	4 Brakes; 17¼ in. dia. x 4 in. wide
<b>Tires (Tube)</b>	14:00 x 20, 18 P.R.

### BOOM EQUIPMENT

<b>Crane Boom</b>	
Design	Square-Tubular-Chord
Type of Connection	Pin-Connected
Basic Length—Offset Peak Boom	40 ft.; 25-ft. base, 15-ft. top
Long Tapered Peak Boom	60 ft.; 25-ft. base, 35-ft. top
Number of Hoist Line Sheaves at Boom Head on Anti-Friction Bearings	
Offset Boom	4
Long Tapered Boom	2
	(Additional Sheaves Available)

<b>Jib</b>	
Two-Piece* Pin-Connected Type	20 ft.; 10-ft. base, 10-ft. peak
	*Extendible with 10-ft. Center Sections to 50 ft.

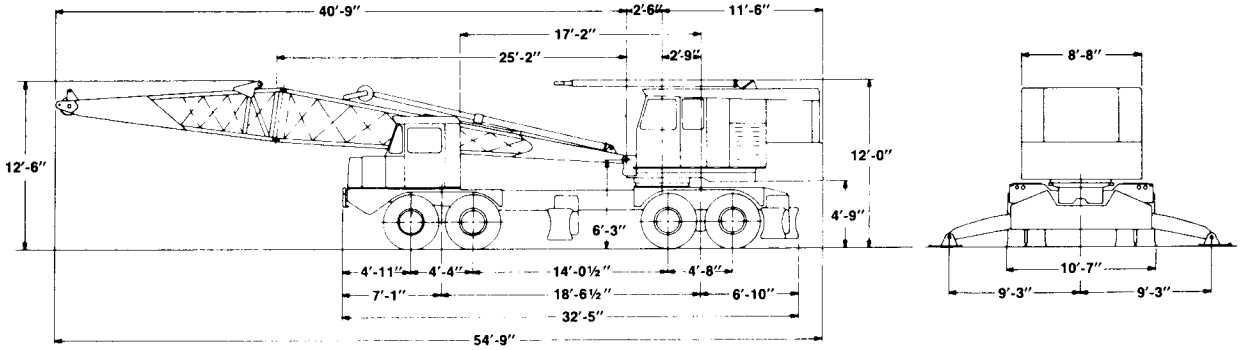
<b>Lifting Crane Component</b>	
Laggings	Two, 15 in. P.D.
Floating Harness	10 Parts of Line
Boom Lowering	by Power, Clutch Controlled
Boom Stops	Telescopic Type
Swing Brake	Standard
Power Load Lowering (right hand hoist drum)	Available
Third Drum	Available

### APPROXIMATE SHIPPING WEIGHTS

Standard Equipped Machines with Basic Boom	
Lifting Crane	102,705 lbs.*
*Total weight of unit may be reduced 24,900 lbs. by taking off removable counterweight for road travel. Additional reductions may be made by removal of outrigger boxes and beams.	

We reserve the right to amend these specifications at any time without notice. The only warranty applicable is our standard written warranty. **We Make No Other Warranty, Expressed Or Implied.**

**GENERAL DIMENSIONS:**



**REVIEW THE FOLLOWING NOTES BEFORE USING THIS SPECIFICATION TO DETERMINE ALLOWABLE BOOM LENGTHS. RADIUS AND WEIGHT OF LOAD IN POUNDS PERTAIN TO THIS MACHINE AS ORIGINALLY MANUFACTURED AND EQUIPPED.**

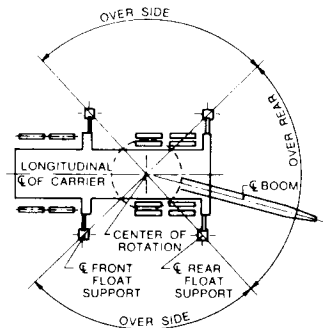
**NOTES:**

1. The rated loads as determined by boom length, radius and weight of load apply to this machine as originally manufactured and equipped and as mounted on a Lorain manufactured MC-550A, 8 x 4 carrier. **THEY ARE MAXIMUM** lifting capacities and comply with standards of the Power Crane & Shovel Association as issued by the U.S. Department of Commerce Commercial Standard CS90-58 and the SAE Crane Load Stability Test Code J765.
- 1a. **DO NOT** tip the machine to determine the allowable loads. Rated loads should not be exceeded. Rated loads are based on 85% of stability except where set in bold face type they are based on machinery and structural strength.
- 1b. All rated loads are based on the machine being on a firm, level and uniform supporting surface. Before lifting at, or near, rated loads, the machine should be leveled with  $\pm$  commercial level in two directions. **FOR SAFE WORKING LOADS THE USER** is expected to make due allowances for his particular job conditions such as: soft or uneven ground, out of level conditions, side loads, pendulum action, jerking or sudden stopping of loads, hazardous conditions,

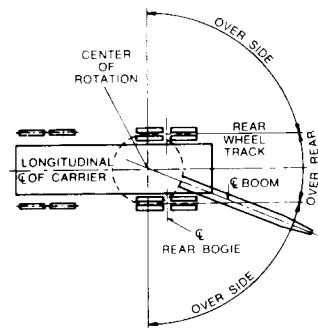
experience of personnel, etc. Side pull on boom or jib is extremely dangerous. **CAUTION:** The operator and other personnel should fully read and acquaint themselves with Operators Manual furnished by the manufacturer **BEFORE** operating this machine, and Rules for Safe Operation of equipment should be adhered to at all times. Operators and supervisors should also acquaint themselves with Standard Safety Codes for Cranes, Derricks and Hoists, ASA-B 30.2-1943 (R-1952).

- 1c. Do not exceed the "over-the-rear" capacities when lifting over a corner.
- 1d. Use blocking under front tires or front part of carrier if boom and/or load is to be moved forward of front outriggers.
- 1e. All lifting must be done with mast erected. When working conditions will not permit erected mast, consult Lorain for proper capacity chart.
- 1f. The total weight of bucket plus load must not exceed 80% of the rated "without outriggers" lifting capacities up to a maximum of 8000 lbs. for dragline service and 9800 lbs. for clamshell service.

**CRANE WORKING AREAS:**



Carrier With Outriggers

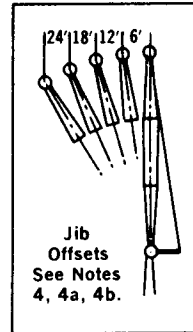
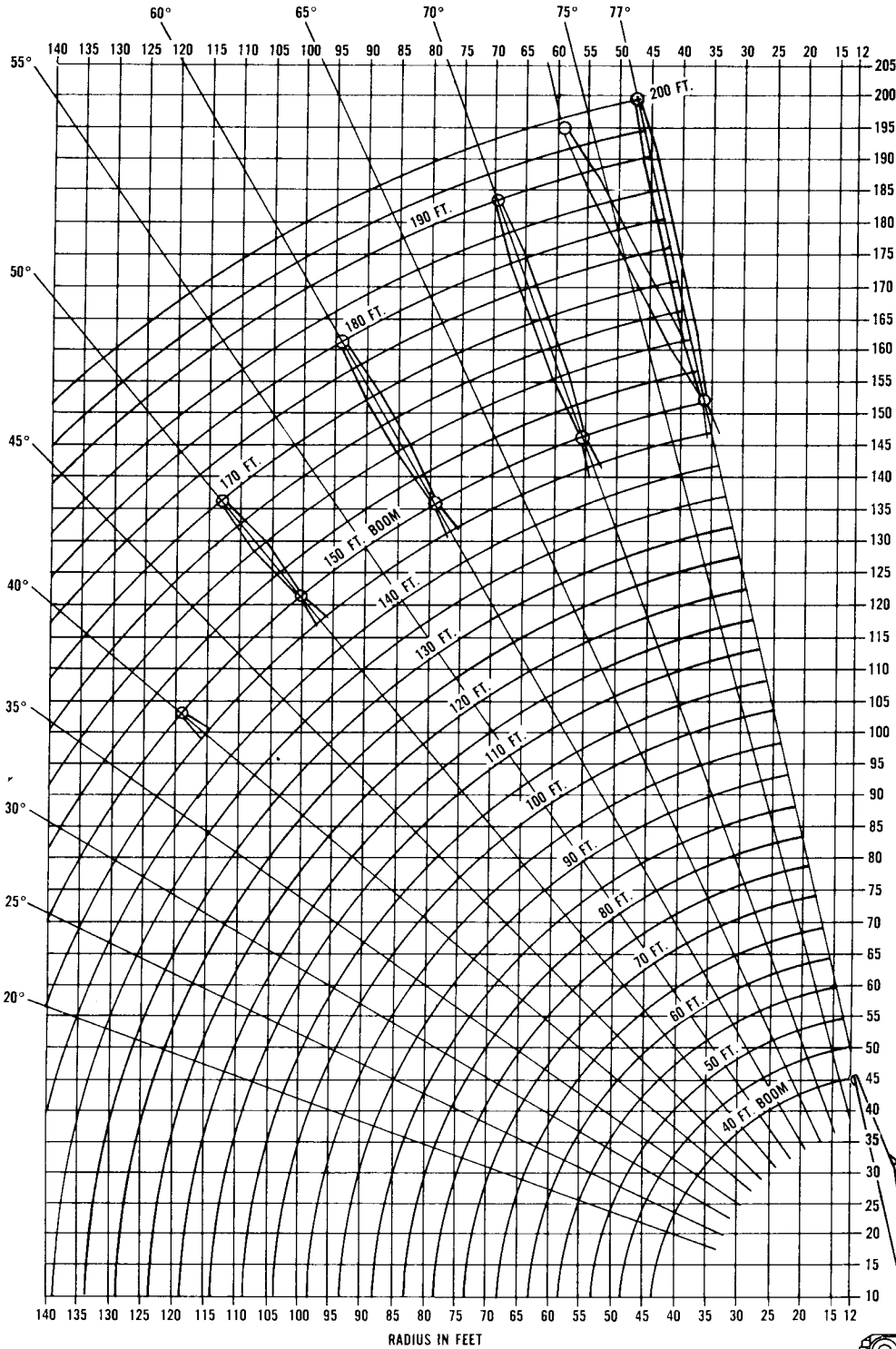


Carrier Without Outriggers

# MC-550 A

# Load Ratings With

RADIUS DIAGRAM:



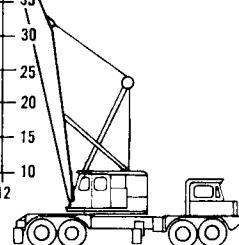
VERTICAL HEIGHT IN FEET

**D15 BOOM  
WORKING  
RANGES  
MC-550<sub>A</sub>  
8x4**

This data apply only to machines with serial numbers above 34507

P.C.S.A. CLASS 12-307

**OFFSET BOOM  
PEAK**



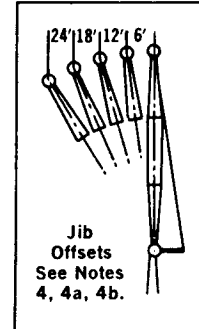
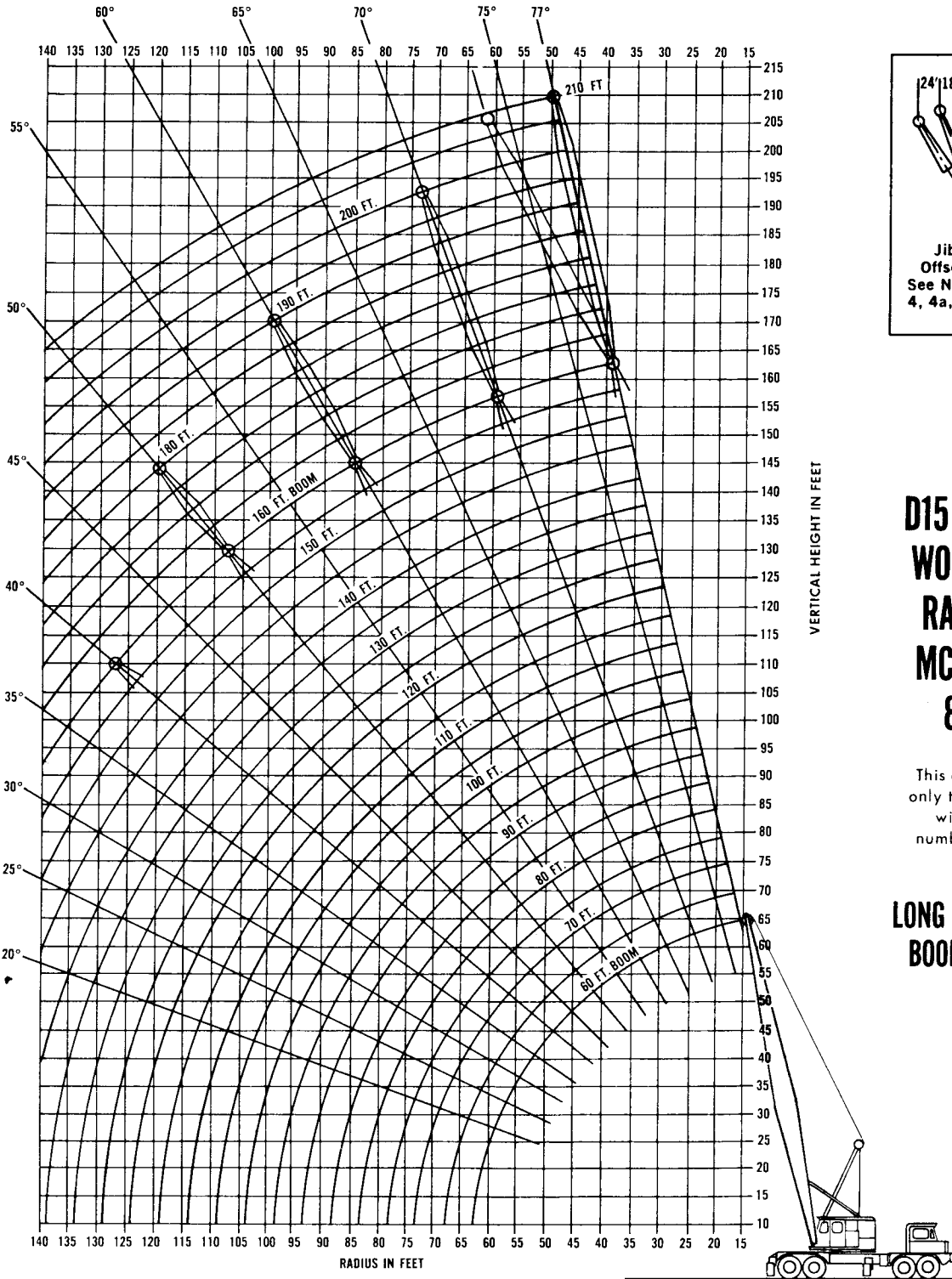




# MC-550 A

# Load Ratings With

RADIUS DIAGRAM:



**D15 BOOM  
WORKING  
RANGES  
MC-550 A  
8x4**

This data apply only to machines with serial numbers above 34507

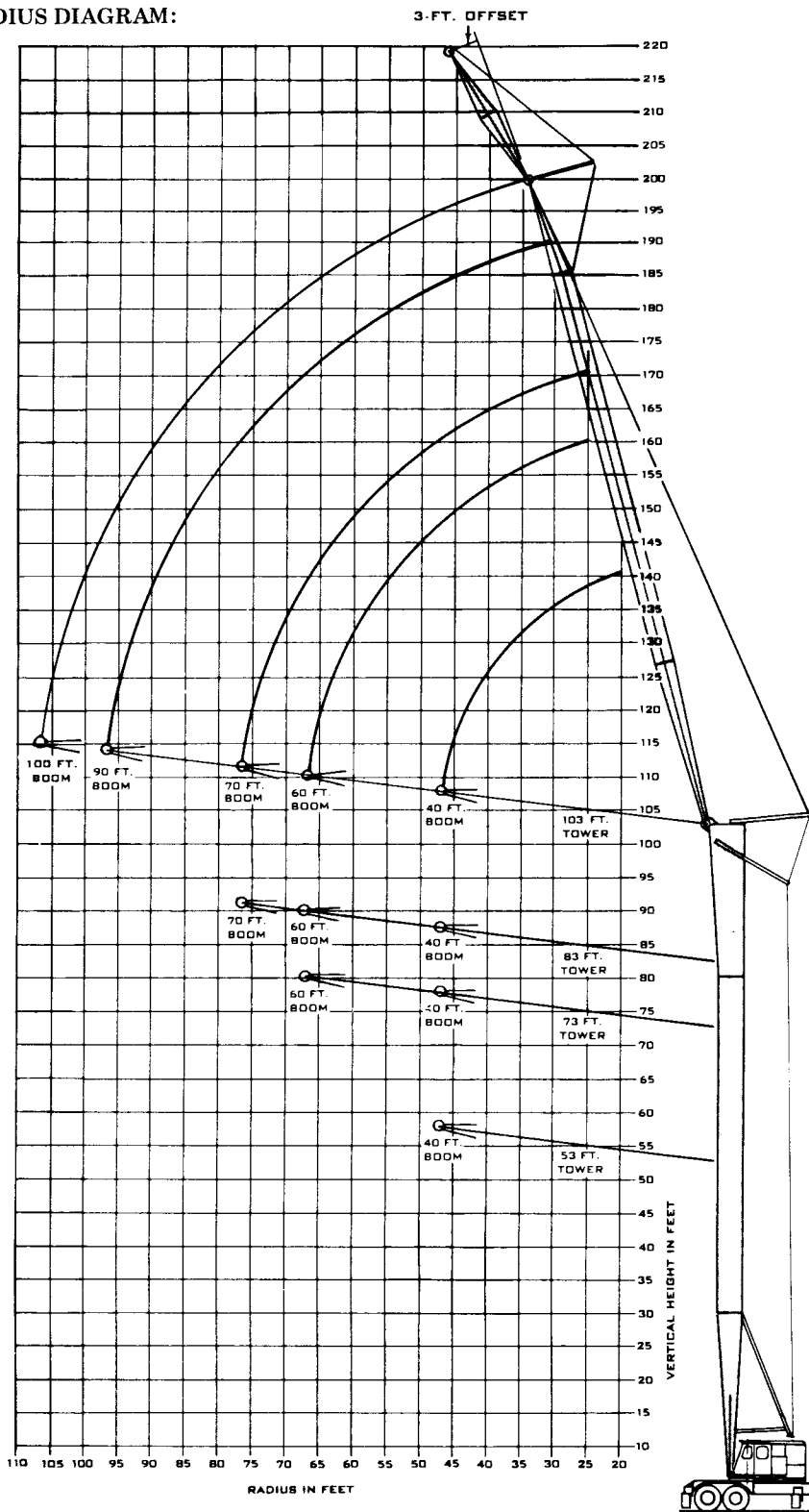
**LONG TAPERED  
BOOM PEAK**



# MC-550 A

# Load Ratings With

RADIUS DIAGRAM:



**WORKING  
RANGES  
MC-550A  
MOTO-TOWER**



# Tower Attachment

## CAPACITY CHART:

### Maximum Rated Load In Pounds

103 FT. TOWER (Effective)  
97 FT. TOWER (Pin to Pin)

Radius in Ft.	Boom Length in Ft.—Over Rear and Side				
	40'	60'	70'	90'	100'
25	37000				
30	35500	35000	34000		
35	31000	30600	30400	30000	
40	26400	25900	25700	25300	25000
46	19500	21500	21200	20800	20500
50		19450	19000	18500	18200
60		15200	15000	14600	14300
66		11100	12400	12000	11700
70			11400	10800	10500
76			9000	9200	8900
80				8400	8100
90				6800	6500
96				6000	5700
100					5400
106					5000

83 FT. TOWER (Effective)  
77 FT. TOWER (Pin to Pin)

Radius in Ft.	Boom Length in Ft. Over Rear and Side		
	40'	60'	70'
25	37500		
30	36100	35500	35000
35	31300	30600	30400
40	26400	25900	25700
46	19500	21500	21200
50		19700	19200
60		15200	15100
66		11100	12800
70			11600
76			9000

73 FT. TOWER (Effective)  
67 FT. TOWER (Pin to Pin)

Radius in Ft.	Boom Length in Ft. Over Rear and Side	
	40'	60'
25	38000	
30	36500	36000
35	31500	30700
40	26400	26000
46	19500	21500
50		19700
60		15200
66		11100

53 FT. TOWER (Effective)  
47 FT. TOWER (Pin to Pin)

Boom Length in Ft. Over Rear and Side	
Radius in Ft.	40'
20	55000
25	44000
30	37000
35	31800
40	26500
46	19500

## NOTES:

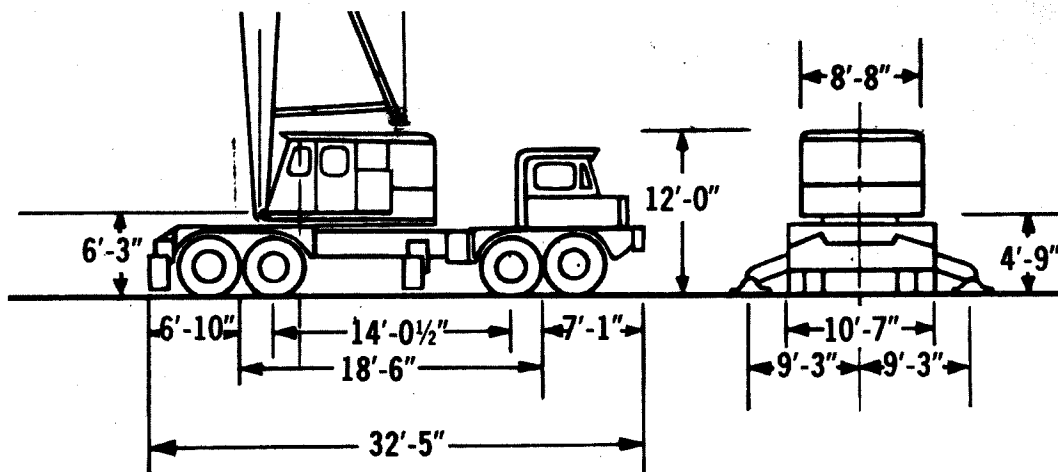
- The rated loads as determined by boom length, radius and weight of load apply to this machine as originally manufactured and equipped and as mounted on a Thew manufactured MC-550A, 8 x 4 carrier. THEY ARE MAXIMUM lifting capacities and comply with standards of the Power Crane & Shovel Association as issued by the U.S. Department of Commerce Commercial Standard CS90-58 and the SAE Crane Load Stability Test Code J765.
  - Capacities identified by bold face type are based on structural or machinery strength, not stability. When operating within the ranges covered by capacities in bold face type, do not rely upon machine tipping as the capacity limitation.
  - Rated loads are based on 75% of stability with the machine being on a firm, level and uniform supporting surface.
  - Before lifting at, or near, rated loads, the machine should be leveled with a commercial level in two directions. FOR SAFE WORKING LOADS THE USER is expected to make due allowances for his particular job conditions such as: Soft or uneven ground, out of level conditions, side loads, pendulum action, jerking or sudden stopping of loads, hazardous conditions, experience of personnel, etc. Side pull on boom or jib is extremely dangerous. CAUTION: The operator and other personnel should fully read and acquaint themselves with Operators Manual furnished by the manufacturer BEFORE operating this machine, and Rules for Safe Operation of equipment should be adhered to at all times. Operators and supervisors should also acquaint themselves with Standard Safety Codes for Cranes, Derricks and Hoists, ASA-B 30.2 - 1943 (R-1952).
  - An Overload-Indicator is installed to supplement the operator's judgment and operates as follows. CAPACITIES BASED ON STRENGTH: The amber light is an advanced warning that you are approaching the rated lifting capacity. When the latter is reached, the red light and bell warning will respond. Operations must then be stopped and corrections made before proceeding.
  - Rated lifting capacities apply only when tower is erected, with outriggers fully extended to 18 ft. 6 in. from center to center.
- The weights of fall blocks, slings, equalizer beams and all similar load-handling devices are considered part of the load lifted and suitable allowances for them should be made.
- Maximum length of tower - 103 ft. (from ground); 97 ft. (pin to pin).
- Maximum length of boom ..... 100 ft.
- With turntable in forward mounting position, the maximum tower and boom (see notes 3, 3a) may be carried with tower in erected position and with boom lowered against tower, outriggers sufficiently retracted to give ground clearance.
- A 47 ft. tower and 40 ft. boom combination may be travelled over the rear unsupported at speeds not to exceed 5 M.P.H. All other combinations must be supported.
- With turntable in forward mounting position and with outriggers set, the maximum length of tower and boom that may be raised over the rear unassisted is 97 ft. tower (pin to pin) and 90 ft. boom or 100 ft. boom less 15 ft. peak.
- Minimum number of parts of hoist line required is determined by dividing the loads to be lifted by 10,200 lbs. for standard 5/8" hoist cable, or 14,600 lbs. for standard 3/4" hoist cable, with power load lowering. Without power load lowering (whip line) single line pull limited to 5,000 lbs. 3/4" cable with minimum part of line gives highest hoist speed. 5/8" cable with maximum part of line gives lowest hoist speed and best load control.
- The load indicator cams are not interchangeable, and will function properly only if used with tower and boom combination, or tower, boom and jib combination that is stamped on the cams.
- The 20 ft. jib with 3 ft. offset only is applicable to 97 ft. tower and 100 ft. boom combination.

Radius in Ft.	Capacity Over Rear and Side	Radius in Ft.	Capacity Over Rear and Side
45	17000	90	5700
50	14500	100	4700
60	11600	110	4000
70	9300	120	3275
80	7100		

- With load on jib, do not combine simultaneous load hoisting or lowering with boom hoisting or lowering.
- Load should be lifted at 1/2 throttle.
- Minimum radius 45 ft.
- Maximum radius 120 ft.
- When 20 ft. jib is installed, lifting capacities for 97 ft. tower and 100 ft. boom over the boom head must be reduced by 1,525 lbs.

# MC-550 A MOTO-TOWER®

## GENERAL DIMENSIONS:



## SPECIFICATIONS:

### TURNTABLE SPECIFICATIONS

<b>Power</b>	
Gas	GM 4-71N, 6 cyl.
Bore and Stroke	4 1/4 in. x 5 in.
Displacement	284 Cu. in.
Horsepower	115 H.P.
Power Take-Off	Torque Converter
Fuel Tank	50 gals.

### Operating Characteristics

Line Pulls and Line Speeds:	
Main Hoist (15" P.D.)	17,250 lbs. @ 170 F.P.M.
Secondary Hoist (15" P.D.)	17,250 lbs. @ 170 F.P.M.
Swing Speed	4.0 R.P.M.
Controls	Manual Mechanical

### Other Equipment

Boom Hoist	Planetary Drive, Dual Drum
Gantry	Telescopic Mast Type, Air Operated
Counterweight, Removable	24,900 lbs.

Turntable Connection	External Gear Shear-Ball®
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### MOTO-CRANE SPECIFICATIONS

<b>Power</b>	
Gas	GM 6-71N, 6 cyl.
Bore and Stroke	4 1/4 in. x 5 in.
Displacement	425.6 cu. in.
Horsepower	246 H.P.
Power Take-Off	Plate Clutch
Fuel Tank	80 gals.

### Transmissions

Main Transmission	5 Speeds
Auxiliary Transmission	4 Speeds
Total Speeds Forward	20
Total Speeds in Reverse	4

### Speeds

Low-low	1.5 M.P.H.	High-high	44 M.P.H.
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Outriggers	Power-Set®, Hydraulically Operated, complete with floats
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### Rear Bogie

Axles (Planetary) Double Reduction Gear Drive  
 First reduction thru hypoid gears; final reduction thru planetary wheel hubs; high-traction differentials. Interaxle differential with lockout.  
 Mounting—Two axles in tandem, with "through-drive", mounted on equalizer beams.

Front Tandem	Two non-driving axles mounted on equalizer beams.
Steering	Centralized Hydraulic Power Assist
Turning Radius (to Front Corner of Vehicle)	54 ft. 2 in.
Brakes (Spring Set for Emergency and Parking)	Air
Rear	4 Brakes; 17 1/4 in. dia. x 5 1/2 in. wide
Front	4 Brakes; 17 1/4 in. dia. x 4 in. wide
Tires (Tube)	14:00 x 20, 18 P.R.

### BOOM EQUIPMENT

<b>Crane Boom</b>	
Design	Square-Tubular-Chords
Type of Connection	Pin Connected
Basic Length	See Range Diagram
Number of Hoist Line Sheaves at Boom Head on anti-friction bearings	4

### Jib

Two-Piece Pin-Connected Type	20 ft.
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### Lifting Crane Component

Lagging	Two, 15-inch P.D.
Floating Harness	10 parts of line
Boom Lowering	by Power, Clutch Controlled
Boom Stops	Cable Type
Swing Brake	Standard
Power Load Lowering (right hand hoist drum)	Available
Third Drum	Available

### TOWER EQUIPMENT

<b>Tower</b>	
Design	Square-Tubular-Chords
Type of Connection	Pin Connected
Tower Height	See Range Diagram
Top Section	Includes 2 pendants, 2 boom masts
Boom Position Indicator	Standard
Overload-Indicator	Available

### APPROXIMATE SHIPPING WEIGHTS\*

Standard Machine Equipped as,	
53-ft. Tower with 40-ft. Boom	117,705 lbs.
103-ft. Tower with 100-ft. Boom	126,200 lbs.

\*Removable counterweight can reduce weight 24,900 lbs. Additional reduction may be made by removing outrigger boxes and beams.

# MC-550 A MOTO-CRANE®

## LOAD DISTRIBUTION:

	Gross Weight	Turntable Facing Front		Turntable Facing Rear	
		Front	Rear	Front	Rear
1. Complete Basic Crane. Mast Down. Boom In Travel Position. Hoist and Whip Cables On Drums. Fuel Tanks Full. 175 # Man In Truck Cab .....	99190	15735	83455	37675	61515
2. (a) Add Power Load Lowering .....	+1225	+50	+1175	+250	+975
(b) Add P.L.L. When 3rd. Drum is Installed .....	+170	0	+170	+45	+125
3. (a) Add 3rd. Drum Only .....	+1295	+65	+1230	+250	+1045
(b) Add 3rd. Drum when P.L.L. is Installed .....	+240	+10	+230	+45	+195
4. Add Cummins V-504-C w/Torque Converter.....	+210	-40	+250	+95	+115
5. Add Cummins NHC-250 to Carrier .....	+735	+835	-100	+835	-100
6. Add 50 Ton 4-Sheave Block to Boom Peak .....	+850	+2075	-1225	-1840	+2690
7. Add 50 Ton 4-Sheave Block to Front Bumper .....	+850	+1210	-360	—	—
8. Remove Counterweight .....	-24900	+8970	-33870	-16355	-8545
9. Remove Rear Outrigger Box and Beams .....	-4170	+1240	-5410	+1240	-5410
10. Remove Front Outrigger Box and Beams .....	-4170	-2190	-1980	-2190	-1980
11. Remove 15' Boom Peak and Pendants .....	-1520	-2890	+1370	+2440	-3960
12. (a) Remove Complete 40' D15-4 Boom, Pendants, Mast Harness and Telescoping Mast .....	-5665	-6585	+920	+4905	-10570
(b) Remove Boom Stops .....	-400	-105	-295	0	-400
13. Adjustment Counterweight Carried Behind Carrier Cab	0	+25325	-25325	0	0