



# Upper Structure

## ■ Boom

### Patented Design

- Boom side plates have diamond shaped impressions for superior strength to weight ratio and 100,000 psi (689.5 mPa) steel angle chords for lateral stiffness.
- Boom telescope sections are supported by top, bottom, and adjustable side wear shoes to prevent metal to metal contact.

### Standard Boom

- 41' – 127' (12.50 – 38.71 m) four-section full power boom.
- Basic mode (or mode "B") is the full power, synchronized mode of telescoping all sections proportionally to 127' (38.71 m).
- The exclusive **A-max** mode (or mode "A") extends only the inner mid-section to 69.5' (21.18 m) offering increased capacities for in-close, maximum capacity picks.
- Mechanical Boom Angle Indicator

### Boom Head

- Five 16.5" (0.42 m) root diameter steel nylon sheaves handle up to ten parts of wire rope.
- Quick reeve design
- Boom head designed for quick reeve of hook block
- Rope dead end lugs provided on each side of boom head
- Easily removable wire rope guards
- Fly pinning alignment tool

### Boom Elevation

- Hydraulic cylinder with holding valves and bushing in each end
- Hand control for controlling boom elevation from -3 to +78°

### Optional Auxiliary Lifting Sheave

- Single 16.5" (0.42 m) root diameter steel sheave with removable wire rope guard mounted on boom.
- Use with one or two parts of line.
- Does not affect erection of fly or use of main head sheaves for multiple reeving.

### Optional

- 70-ton (63.5 mt) 5-sheave, quick reeve hook block
- 60-ton (54.43 mt) 4-sheave, quick reeve hook block
- 40-ton (36.28 mt) 4-sheave, quick reeve hook block
- 8.5-ton (7.7 mt) hook ball
- Boom floodlight

## ■ Fly

### Optional

- 39.5' (12.04 m) offsettable, stowable one-piece lattice type with lugs to allow for second section. Can be offset 2°, 20°, or 40°.
- 39.5' – 67' (12.04 – 20.42 m) offsettable, stowable two-piece lattice type. Can be offset 2°, 20°, or 40°.

## ■ Cab and Controls

### Environmental Cab

- LFC-2000 construction process featuring laminated fibrous composite material.
- Isolated from sound and vibration by a neoprene seal
- Six-way adjustable operator's seat with retractable seat belt
- Four-way adjustable tilting and locking steering wheel.
- All windows are tinted and tempered safety glass.
- Slide by door opens to 3' (0.91 m) width.
- Sliding rear and right side windows and swing up roof windows for maximum visibility and ventilation.
- Engine dependent warm-water heater with defroster.
- Outrigger controls and sight level bubble also provided in upper cab.
- Audible swing alarm.
- Backup alarm
- Cab mounted work lights
- Electric windshield wiper
- Top hatch window wiper
- Fire extinguisher
- Dome light
- Hand throttle
- Travel lights
- Sun visor
- Mirrors
- Cup holder
- Circulating fan
- Warning horn

### Optional

- Amber strobe light and rotating beacon.
- Emergency steering system
- Air conditioning

### Controls

Hydraulic controls (joystick type) for:

- Main winch
- Drum rotation indicators
- Optional auxiliary winch.
- Optional single-axis controls.
- Boom hoist
- Swing

Foot controls for:

- Boom telescope
- Swing brake
- Engine throttle with throttle lock

### Cab Instrumentation

Corner post mounted gauges for:

- Hydraulic oil temperature
- Converter temperature
- Audio/Visual warning system
- Water temperature
- Tachometer
- Oil pressure
- Fuel
- Voltmeter

## ■ Rated Capacity Limiter

- **Microguard 434** Graphic audio-visual warning system built into dash with anti-two block and function limiters.

Operating data available includes:

- Crane configuration
- Boom length
- Head height
- Allowed load
- % of allowed load
- Boom angle
- Radius of load
- Actual load

Presetable alarms include:

- Maximum and minimum boom angles.
- Maximum tip height.
- Maximum boom length.
- Swing left/right positions.
- Operator defined area alarm is standard.
- Anti-two block weight designed for quick reeve of hookblock.

### Optional

- **Internal RCL light bar:** Visually informs operator when crane is approaching maximum load capacity with a series of lights; green, yellow, and red.
- **External RCL light bar:** Visually informs ground crew when crane is approaching maximum load capacity kickouts and pre-settable alarms with a series of lights; green, yellow, and red.

## ■ Swing

- Bi-directional hydraulic swing motor mounted to a planetary reducer for 360° continuous smooth swing at 2 r.p.m.
- **Swing park brake** – 360° electric over hydraulic (spring applied, hydraulic released) multi-disc brake mounted on the speed reducer. Operated by toggle switch in overhead control console.
- **Swing brake** – 360°, foot operated, hydraulic applied disc brake mounted on the speed reducer.
- **Travel swing lock** – Standard; two position travel lock (pin device) operated from the operator's cab.
- **Counterweight** – Pinned to upper structure frame. 15,000 lb (6 804 kg). Optional hydraulically controlled counterweight removal.

### Optional

- 360° (pawl-in-gear) swing lock (meets New York City requirements).

## ■ Hydraulic System

### Main Pump

- Four-section gear-type pump.
- Combined pump capacity 132 gpm (500 Lpm).
- Mounted on torque converter, powered by engine through a pump disconnect.
- Pump disconnect is a spline type clutch engaged/disengaged from carrier.
- Pump operates at 3,500 psi (24.1 mPa) maximum system pressure.
- O-Ring Face Seal (ORFS) technology throughout with hydraulic oil cooler.

### Pilot Pressure / Brake / Counterweight Removal

- Pressure compensated piston pump powered by carrier engine. Operates at 2,650 psi (18.3 mPa) maximum.

### Telescope/Outrigger/Steering Pump

- Single gear-type pump, 24 gpm (91 Lpm) maximum. Mounted on torque converter, powered by engine through a direct mechanical drive.
- Pump operates at 3,000 psi (20.7 mPa) maximum system pressure.

### Reservoir

- 170 gal (643.5 L) capacity. Diffuser for deaeration.

### Filtration

- One, 10-micron filter located inside hydraulic reservoir. Accessible for easy replacement.

## Control Valves:

- Six separate pilot operated control valves allow simultaneous operation of all crane functions.

## Load Hoist System

### Standard

- 2M rear winch with grooved lagging
- Two-speed motor and automatic brake
- Power up/down mode of operation.
- Controls for future addition of auxiliary winch.

- Bi-directional piston-type hydraulic motor, driven through a planetary reduction unit for positive operator control under all load conditions.
- Asynchronous parallel double crossover grooved drums minimize rope harmonic motion.
- Winch circuit control provides balanced oil flow to both winches for smooth, simultaneous operation.

## Line Pulls and Speeds

- Maximum line pull 16,506 lb (7 487 kg) and maximum line speed of 454 f.p.m. (138.4 m/min) on standard 16" (0.41 m) root diameter grooved drum
- Rotation resistant rope

### Optional

- 2M front winch with two-speed motor and automatic brake, power up/down mode of operation.
- Hoist drum cable followers
- Third wrap indicators

# Carrier

## Type

- 10' 10.5" (3.31 m) wide, 151" (3.84 m) wheelbase.
- 4 x 4 x 4 – (4-wheel steer, 4-wheel drive) For rough terrain with limited turning area.

### Frame

- 100,000 psi (689.5 mPa) steel, double walled construction.
- Integral 100,000 psi (689.5 mPa) steel outrigger boxes.

### Standard Carrier Equipment

- Two front, rear, and mid-point carrier steps
- Non-slip safety strips on carrier deck
- Deep front storage
- Fenders
- Pontoon storage
- Full lighting package
- Front towing shackles

### Optional

- Front and rear mounted pintle hook
- Front tow winch

## Engine

Engine	Caterpillar 3126B 7.2L
Cylinders – cycle	6 – 4
Bore	4.33 in. (110 mm)
Stroke	5.00 in. (127 mm)
Displacement	442 cu. in. (72 L)
Maximum brake hp	225 @ 2,200 rpm
Peak torque (ft. lb.)	646 @ 1,500 rpm
Electric system	12 volt
Starting system	12 volt
Fuel capacity	95 gal (359.61L)
Alternator	130 amps
Crankcase capacity (total system)	30 qt (28.4 L)
<ul style="list-style-type: none"> <li>• Water/fuel separator on engine</li> <li>• Optional ether injection package</li> </ul>	

## Transmission

- Spicer off-highway three-speed, two-range power shift transmission.
- Six speeds forward and reverse
- Front axle disconnect for two or four-wheel drive.

## Axles

- Front and Rear – Heavy duty planetary drive/steer type
- Front axle disconnect

## Suspension

### Front Axle

- Rigid mounted to frame

### Rear Axle

- Pin mounted on bronze bushings. Automatic hydraulic rear axle oscillation lock-out cylinders engage when upper structure rotates 2.5° past centerline.

## Steering

- Hydraulic two-wheel, four-wheel, and "crab" steering.
- Modes selected by toggle switch on dash.
- All modes fully controlled by steering wheel.

### Optional

- Rear steer indicator

## Tires

### Front and Rear

- Standard 29.5 x 25 (28-PR) Earthmover type

### Optional

- 29.5R25 XHA 1 star radials
- Spare tires and rims.

## Brakes

### Service

- Hydraulic disc-type brakes at each wheel end.

### Parking/Emergency

- Disc-type, spring applied, hydraulic released, fade resistant, operated from cab, mounted on front axles.

## Outriggers

- Three position operation capability.
- Four hydraulic, telescoping beam and jack outriggers.
- Vertical jack cylinders equipped with integral holding valve.
- Beams extend to 23' 0" (7.01 m) centerline-to-centerline and retract to within 10' 10.5" (3.31 m) overall width.
- Equipped with stowable, lightweight 23.5" x 27.25" (59.7 x 69.2 cm) hexagonal steel pontoons.
- Controls and sight level bubble located in cab.

## Confined Area Lifting Capacities (CALC™) System

- The crane is operational in one of the three outriggers positions and operational in confined areas in two positions (intermediate and full retraction. The three outrigger positions are:
  - Full extension – 23' 0" (7.01 m)
  - Intermediate position – 16' 4.75" (5.00 m)
  - Full retraction – 10' 0.75" (3.07 m)
- Capacities are provided with the outrigger beams in the intermediate and full retraction positions.
- When the outrigger position levers (located on the outrigger beams) are engaged, the operator can set the crane in the intermediate or full retraction outrigger position without having to leave the cab.

### Optional

- Outrigger cover package

## Travel Speeds and Gradeability

Tires	29.5 x 25
Maximum Speed	19.5 mph (31.4 km/h)
Gradeability at 70% converter efficiency	107.3%
Maximum Tractive Effort at 70% converter efficiency	76,715 lb (34 797 kg)
Gradeability at 1.0 mph (1.6 km/hr)	54%
Maximum Tractive Effort at 1.0 mph (1.6 km/hr)	50,516 lb (22 914 kg)
Crane operating angle must not exceed 35° (77% grade). Numbers reflect main hydraulic pump engaged.	

## ■ Axle Loads

Base crane with standard 41' to 127' (12.50 – 38.71 m) four-section boom, 2M main winch with 2-speed hoisting and power up/down, 670' (204 m) 3/4" (19 mm) wire rope, 4x4x4 carrier with Caterpillar 3126B 7.2L engine, 29.5 x 25 tires, counterweight, and no fuel.	G.V.W. <sup>1</sup>		Upper facing front				Upper facing rear			
			Front axle		Rear axle		Front axle		Rear axle	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
	93,514	42 417	43,540	19 749	49,974	22 668	42,540	19 296	50,974	23 121
Remove 29.5 x 25 tires and wheels	-6,732	-3 054	-3,366	-1 527	-3,366	-1 527	-3,366	-1 527	-3,366	-1 527
29.5R25 XHA Tires	964	438	482	219	482	219	482	219	482	219
Remove outrigger beams	-5,235	-2 374	-2,461	-1 116	-2,774	-1 258	-2,461	-1 116	-2,774	-1 258
Jack cylinder beams	154	70	72	33	82	27	72	33	82	37
Tow winch	686	311	1,002	454	-316	-143	1,002	454	-316	-143
100 gal (378.5 L) fuel	685	310	364	165	321	145	364	165	321	145
2M auxiliary winch with 670' (204 m) of 3/4" (19 mm) rope	823	373	-219	-99	1,043	473	977	443	-154	-70
Remove front carrier counterweights	-1,000	-454	-1,306	-592	306	139	-1,306	-592	306	139
Hydraulic counterweight removal	353	160	163	74	190	86	518	235	-165	-75
Remove counterweight	-15,000	-6 804	8,223	3 734	-23,233	-10 538	-22,041	-9 998	7,041	3 194
Air conditioning	287	130	55	25	232	105	209	95	78	35
39.5' (12.04 m) offsettable lattice fly stowed	1,602	727	2,780	1 261	-1,178	-534	-1,305	-592	2,907	1 319
39.5' – 67' (12.04 – 20.42 m) offsettable lattice fly stowed	2,380	1 080	3,649	1 655	-1,269	-576	-1,458	-661	3,838	1 741
Fly storage brackets with all fly options	160	73	268	122	-108	-49	-120	-54	280	127
Auxiliary lifting sheave assembly	110	50	361	164	-251	-114	-260	-118	370	168
8.5-ton (7.71 mt) hook ball @ front bumper	360	163	566	256	-206	-93	n/a	n/a	n/a	n/a
70-ton (63.50 mt) 5-sheave hook block @ front bumper	1,390	631	2,186	992	-796	-361	n/a	n/a	n/a	n/a
60-ton (54.43 mt) 4-sheave hook block @ front bumper	1,150	522	1,809	821	-659	-299	n/a	n/a	n/a	n/a

<sup>1</sup> – Adjust gross weight and axle loading according to component weight. Note: All weights are ± 3%.

Tire	Max. Axle Load @ 20 mph (32.2 km/hr)
29.5 x 25 (28-PR)	53,000 (24 041 kg)
29.5R25 XHA 1 Star	53,000 (24 041 kg)