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BRODERSON MFG. CORP.
LENEXA, KANSAS 66215

OPERATION AND MAINTENANCE MANUAL IC-250-3C

OWNER: _____

SOLD AND SERVICED BY: _____

MODEL NO. _____ SERIAL NO. _____

SECTION 1

DESCRIPTION AND SPECIFICATIONS

The IC-250-3C is a self-propelled Industrial Crane designed for material handling and maintenance and repair of equipment, with special features of self-loading cargo decks, 4-wheel steer, and front-wheel drive (4-wheel drive optional). The basic unit consists of a chassis and hydraulic boom assembly. The chassis includes a frame, four hydraulic independently controlled outriggers, engine, torque converter, powershift 4-speed transmission, front planetary drive/steer axle and rear steer-only axle, fuel tank, hydraulic tank, control station, power steering and dual power brakes. The boom assembly includes a hydraulic powered continuous rotation turret, proportional 4-section telescopic boom, hydraulic boom elevating cylinder, hydraulic boom telescope cylinder and hydraulic powered hoist. Rated Capacity Limiter is standard.

IC-250-3C:

4-section hydraulically extended boom with capacity of 36,000 pounds at a 6-foot load radius.
Horizontal reach of 50 feet 1 inch and vertical reach of 60 feet 7 inches.

General:

Length:

Overall	23 feet 6 inches
Chassis	15 feet 6 inches

Width: 7 feet 10 inches

Height:

Overall	7 feet 11 inches
Deck	47 inches

Wheelbase: 100 inches

Ground Clearance: 13 inches

Angle of Approach: 25 degrees

Angle of Departure: 24 degrees

Outriggers:

Spread	14 feet 9 inches
Penetration	3 inches

Boom Movement:

Rotation	Continuous
Elevation	0 to 75 degrees
Telescope	34 feet 6 inches

Boom Speeds:

Rotation	2.0 RPM
Elevation	24 seconds
Telescope	53 seconds

Optional Electrical Accessories:**Strobe Lights:**

Two yellow strobe lights, one on each side of turret weight box, for high visibility all around crane. Flashes 60-120 times per minute. Each strobe draws only one-half amp. Includes operator controlled switch. (Net Weight: 5 pounds)

Amber Rotating Beacons:

Amber rotating beacon mounted on each side of turret weight box. (Net Weight: 10 pounds)

Boom Work Lights:

Two halogen work lights, one on left side of boom to light boom tip, and one on right side of the turret to light ground under boom tip. Includes switch at operator's station.
(Net Weight: 10 pounds)

Rear Work Lights:

Two work lights behind rear grill. Provides lighted work area to rear of machine.

Hydraulic System:**Standard:**

Tandem pump, direct-driven by engine, delivers 29 GPM at 3,000 PSI and 34 GPM at 2,500 PSI at 2,500 RPM governed engine speed. System protected by relief valves, suction line strainer and 10-micron return line filter. 54-gallon reservoir equipped with breather and filler cap.

Boom Assembly:**Standard:**

Four-section, high strength steel construction, equipped with bearing pads for efficient support and extension. Double-acting hydraulic cylinder and chain system telescopes boom sections proportionally. The telescope cylinder and the double-acting boom elevation cylinders are equipped with cylinder-mounted holding valves. Boom angle indicator is on side of boom.

Boom Rotation:**Standard:**

Heavy-duty bearing rotation gear with external teeth supports boom. Rotation is powered by hydraulic motor and worm gear drive. Rotation gearbox may be adjusted as wear occurs to minimize backlash. Boom is attached by steel weldment.

Boom Hoist:**Standard:**

Turret-mounted planetary gear hoist, is hydraulically powered to provide a bare-drum line pull of 12,000 pounds and a speed of 100 feet per minute. Hoist drum is 9 7/8-inch diameter by 16½ inches long. The hoist includes 320 feet of 9/16 inch wire rope, 180 pound downhaul weight and swivel hook.

WARNING

We recommend the CANCEL button and emergency override switch be used with discretion. Improper or careless use of this switch can cause damage to the crane and endanger people and property. The operator who uses these overrides in an emergency should use good judgment.

There is a light on the dashboard to warn that one or more outriggers is not fully extended when using the “On Outriggers” setup on the RCL. Check the light daily when the outriggers are down and there is no load on the hook by raising and lowering each outrigger about three inches. The light should come on when an ourtrigger is up.

CRANE CAPACITY

Before lifting loads, the operator must read the **Crane Capacity Chart** and adhere to the load capacities and radii of handling given. The information provided on this chart is based on stability, structural strength and hydraulic capacity.

To operate the crane safely, the operator must know the weight of the load and handling devices and the radius of the lifting operation. The crane must not be loaded beyond the specifications of the capacity chart except for test purposes as provided in ASME B30.5 Section 5-2.2. The person responsible for the lift must be sure that the load does not exceed the crane ratings at any radius at which the load may be during the entire lifting operation. The weights of the hooks, blocks, downhaul weights, slings, and other handling devices must be added with the load. Please read the RCL Operation Manual.

The **Rated Capacity Limiter** on the crane is intended to assist the operator in estimating loads and measuring load radii and to alert the operator to impending overload conditions. The use of the Rated Capacity Limiter does not replace the requirements of the preceding paragraph. Verified weights and measured radii must take precedence over the Rated Capacity Limiter readings.

The Rated Capacity Limiter displays a load, load radius and boom angle that are obtained from electronic calculations using readings from pressure, length and angle sensors. These readings cannot be exact and should be treated as estimates. In general, the smaller the load and the higher the boom angle, the larger the percent of error. The electronic and mechanical components cannot be 100% fail-safe.

Do not consider the system as a substitute for good judgment, training, experience or accepted safe operating practices. The operator is solely responsible for operation of the crane. Setting the Rated Capacity Limiter for the configuration of the crane is necessary before starting a lift. If incorrectly set, the system will not alert the operator to an impending overload, possibly resulting in the loss of life or destruction of property.

If the Rated Capacity Limiter is inoperative or malfunctioning, repair or recalibration of the unit must be done as soon as reasonably possible, and the person responsible for lifts must establish procedures for determining load weights and radii and conduct the lifts according to the second paragraph above.

OPTIONAL EQUIPMENT

INSTALLING BOOM EXTENSION ON TIP OF BOOM:

1. Set the outriggers.
2. Pay out 30 feet of load line without allowing the hook to touch the ground..
3. Lower and retract boom and position over front.
4. If the sheave block is installed, remove it.
5. Remove load line from tip sheaves and lay over left-hand side of boom.
6. Make sure the front stow pin is in place and the attach pins are removed from the lugs on the boom tip and the mating lugs on the boom extension.
7. Remove the rear locking pin and swing the boom extension away from the rear end of the boom until the attaching lugs mesh on the right-hand side of the boom.
8. Insert the attach pins in the right-hand lugs and retain them with the hairpin cotters.
9. Remove the front stow pin and swing the boom extension around to the front until the left-hand lugs mesh.
10. Insert the left-hand attach pins in their lugs and retain them with hairpin cotters.
11. Replace the lock pin and stow pin in their brackets for storage and insert their hairpin cotters.
12. Lay the load line over the main boom and extension tip sheaves and insert the cable retainer pins and cotters.
13. Install the downhaul weight, wedge socket and swivel hook on the load line if they are not already installed.
14. Disconnect the anti-two-block wiring cable from the switch on the main boom tip and connect it to the cable connector on the boom extension base.
15. Check the Anti-Two-Block System for proper operation.

CAUTION

Do not pick and carry with boom extension .

OPERATOR INSPECTION AND TEST

An operator, in the course of normal operation, should make certain observations, inspections and tests to assure that the unit is ready to perform safely.

Daily:

1. Check levels of engine oil, coolant and transmission fluid.
2. Drain water from diesel fuel filter.
3. Check air cleaner intake system for cracks or looseness.
4. Check general condition of tires.
5. Visually inspect for loose pins, bolts, physical damage and leaks.
6. Check hydraulic hoses, particularly those that flex during crane operation.
7. Check hydraulic oil level.
8. Check fuel level.
9. Check hydraulic filter indicator gauge after running at least twenty minutes.
10. Check hydraulic brake operation.
11. Check parking brake operation. (See park brake test and adjustment.)
12. Check power steering operation.
13. Observe chassis for normal driving operation.
14. Observe boom operation for normal power and speed.
15. Check load line and hooks for damage.
16. Check condition of sheaves and load line retainers.
17. Check anti-two-block system for proper operation.
18. Check back-up alarm for proper operation.
19. Check operation of all transmission gears, forward and reverse.
20. Clean all glass (if equipped) and check for cracks.
21. Check operation of all warning and safety devices.
22. Check operation of Rated Capacity Limiter according to the RCL Operation Manual.

Weekly:

1. Check tire pressure: 120 PSI
2. Check for loose wheel nuts. (500 foot-pounds torque required.)
3. Check lights and turn signals.
4. Check power steering lines for damage.
5. Check brake lines for damage.
6. Check operation of horn.
7. Check operation of hoist brake for smoothness.
8. Check outrigger holding valves for operation.
9. Check boom topping holding valves for operation.
10. Check rotation gears for looseness or backlash.
11. Check boom extension cylinder holding valve for operation.
12. Check operation of windshield wipers (if equipped).
13. Boom extension (if equipped) properly pinned with retainers in place.
14. Check boom chains and chain sheaves.

WARNING

Vapor can form inside a fuel tank and cause a buildup of pressure. This can result in a sudden expulsion of gasoline and vapor from the filler neck when the gas cap is removed from a hot tank. Remove cap slowly. Fuel spray may cause injury.

HYDRAULIC SEALS

WARNING

Do not check for hydraulic leaks with hands. If a mist of hydraulic oil is noticed around a line or component, use cardboard or other material to check for location of leak. High pressure fluid leaking from a small hole, can be almost invisible, yet have enough force to penetrate the skin. If injured by escaping fluid, see a doctor at once. Serious reaction or infection can occur.

All hydraulic fittings and hose connections should be kept tight to prevent loss of fluid from the system and unnecessary dripping from the machine. Most hydraulic fittings on the IC-250 crane use o-ring seals, and if tightening the fitting fails to stop the leak, the o-ring should be replaced.

Notes:

1. When installing an o-ring fitting with an adjustable nut and washer, be sure to back off the nut, washer and o-ring as far as possible before threading the fitting into the port. Then turn the fitting into the port as far as possible with fingers and turn it backward until it is oriented properly. Torque the nut with a wrench, while holding the fitting with a wrench.
2. Lubricate all seals before assembling.
3. Take care not to over tighten pipe threads.
4. Do not use Teflon tape to seal pipe threads. Loctite-type (anaerobic) sealant is preferred.

Leaks in component parts, such as pumps, valves and motors, that cannot be stopped by tightening bolts, can usually be stopped by replacing the seals in the component. Seal and packing replacement is the only maintenance which owners should attempt on component parts, unless they have a well-equipped shop with mechanics trained in hydraulic component overhaul.

Leakage in the pump suction line may not cause oil to appear externally, but may allow air to enter the line during operation. The air entrained in the oil will cause pumps to be noisy, and if allowed to continue, can damage the pump. If a pump becomes noisy, immediately check the fluid level in the reservoir and be sure all suction fittings are tight. If noise continues, squirt hydraulic fluid on the suction connections. Listen for a change in the noise and watch for oil being sucked into a small opening in the connection. When the reservoir is full, the shutoff valve is open and all suction connections are tight, most pump noises will disappear. If they do not, a worn or faulty pump is indicated. On a routine basis, all hoses should be checked for wear, deterioration, and physical damage. Defective hoses should be replaced for maximum economy for the user.

Full Version Available

Broderon IC-250-3C Pick and Carry Crane Operation and Maintenance Manual

Broderon IC-250-3C pick and carry crane operation and maintenance manual covering lubrication, fluids and inspections. Searchable PDF.

[VIEW THE FULL MANUAL](#)

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