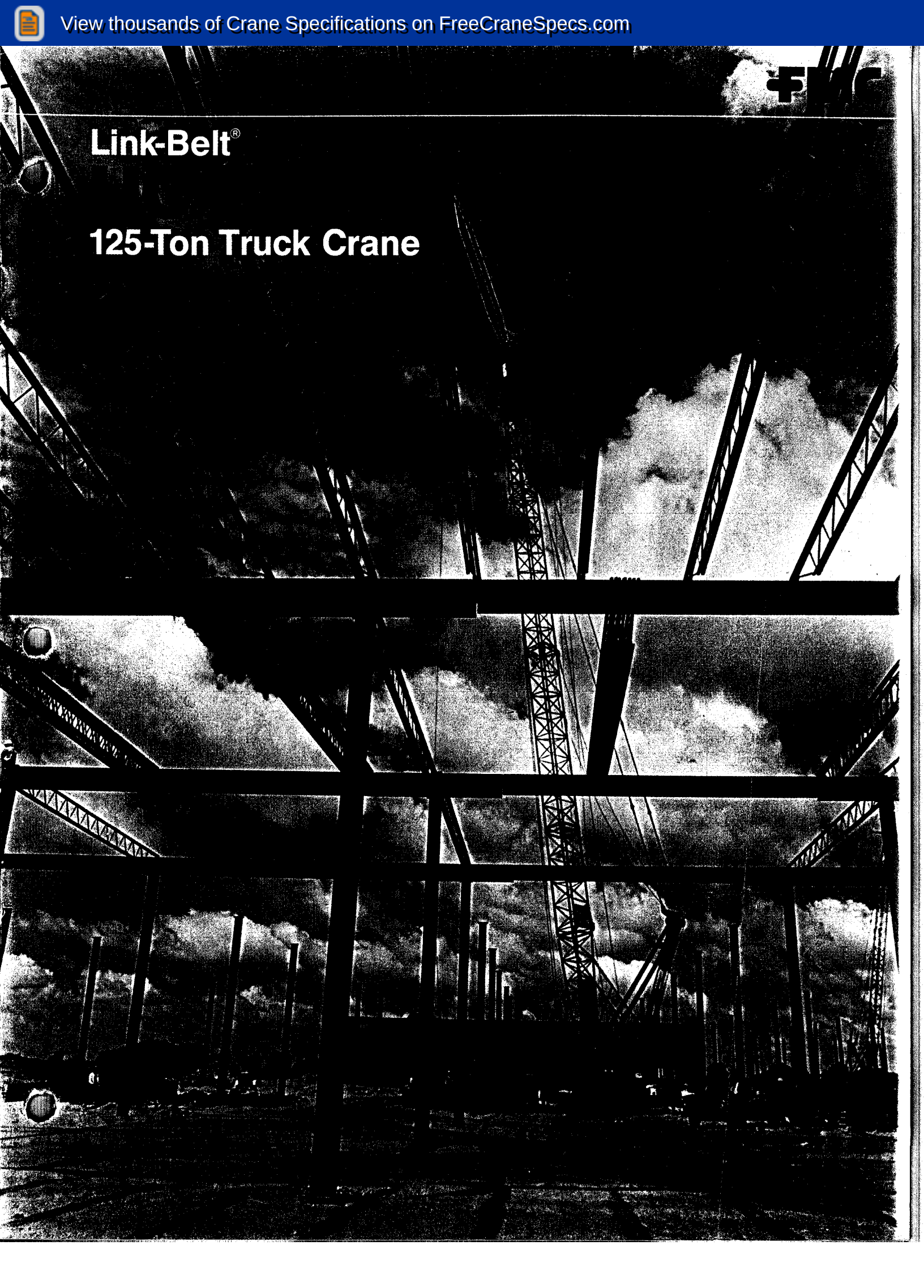




FWC

Link-Belt®

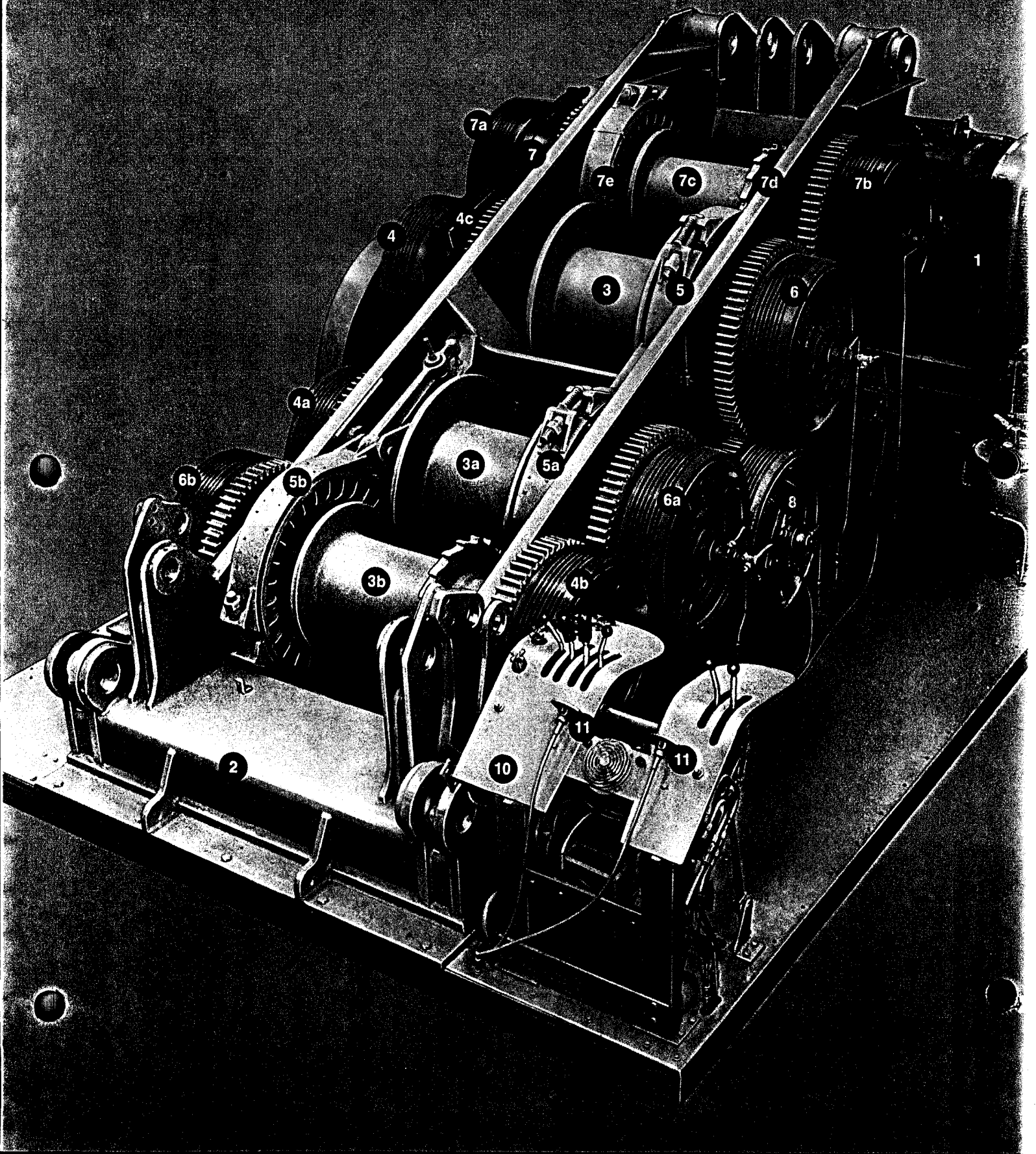
125-Ton Truck Crane





All upper functions performed simultaneously or independently

Exclusive Full Function upper machinery design



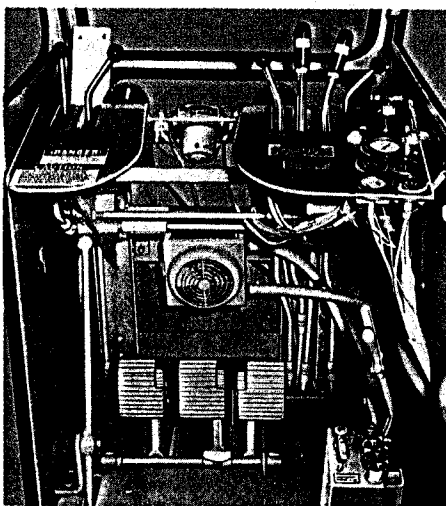


- 1 **ENGINE:** Diesel with torque converter (single or optional 3-stage) drives.
- 2 **FRAME:** Fixture welded and stress relieved for strength and durability; line bore accuracy for proper shaft and gear alignment. Results in less component wear and lower maintenance cost.
- 3 **3a, 3b ROPE DRUMS:** Large diameter. Rear (3) and front (3a) rope drums accommodate up to 780' of 1" diameter rope. Independent 3rd rope drum (3b) is optional.
- 4 **4a, 4b HOIST CLUTCHES:** Two-shoe, power hydraulically controlled. Rear (4), front (4a), and optional third drum (4b). (Only clutch drums visible on items (4) and (4a). Independent planetary hoist (4c) is optional.
- 5 **5a, 5b DRUM BRAKES:** Mechanically operated by foot pedals. Separated from hoist clutches (4, 4a, and 4b) to eliminate heat transfer, resulting in cooler brakes and clutches. Brake drums splined to drum shafts.
- 6 **6a, 6b POWER LOAD LOWERING CLUTCHES:** Independent, 2-shoe standard on rear drum (6) and optional on front drum (6a). (Only clutch drum (6b) visible.) Clutches are for powering down light loads and controlled lowering of heavier loads.
- 7 **7a, 7b, 7c, 7d, 7e BOOMHOIST:** Independent. Boom lowering through planetary drive (7) is standard with 2-shoe clutch (7a) optional. (Only clutch drum visible.) Boom hoisting with 2-shoe clutch (7b). Large diameter rope drum (7c) with integral ratchet wheel (7d). Manually controlled pawl locks ratchet wheel and rope drum in lowering direction. Rope drum brake (7e) is automatically spring applied and power hydraulically released.
- 8 **SWING:** Two-shoe clutches transmit swing power smoothly into the swing pinion. (Only left-hand clutch and drum are visible.)
- 9 **POWER PACKAGE FOR POWER HYDRAULIC CONTROLS:** Vane-type pump (not visible) belt driven from engine; piston-type accumulator, and sump tank; normal system operating pressure is 900 to 1050 p.s.i.
- 10 **CONTROL CONSOLE:** Exclusive Speed-o-Matic® power hydraulic controls, designed and proven throughout the world, easy to adjust and that require no hydraulic adjustments or readjusting. All control levers from the operator's position are connected to the actuating mechanism by push rods and cables.
- 11 **DRUM (REAR) INDICATORS:** Located on the right front of the drum housing.

The model HC-238 revolving superstructure machinery represents a design concept for lifting crane service.

The Full-Function power train design is a precision-built, all-gear drive unit. All horizontal shafts are heat treated and involute splined and are mounted in anti-friction bearings for longer component life. The interchangeable, hydraulically operated, 2-shoe type clutches, and the clutch drums are mounted outside the side housings for service accessibility. The 2-shoe clutch is self-compensating over a wide range of lining wear and heat expansion. Clutches can be engaged to any degree for smooth acceleration of swing, hoist, and boomhoist.

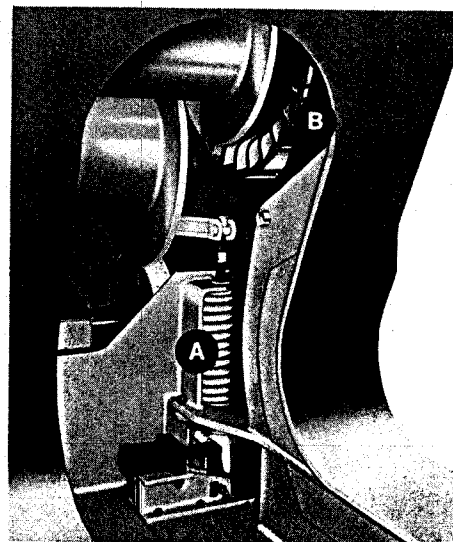
For superb control of all the machine functions, the HC-238 incorporates the exclusive Speed-o-Matic® power hydraulic control system.



Operator's control console

Short throw levers in operator's control console actuate variable pressure valves from which oil under pressure is metered to the various hydraulic cylinders for prompt engagement of a 2-shoe clutch or other function.

Brakes for the front, rear, and optional third operating rope drums (item 5) are mechanically operated by foot pedals equipped with positive latches located beneath the operator's control console.



Swing brake and boomhoist brake

Foot throttle is standard, with lever-type hand throttle on swing control lever; electric windshield wiper, cab heater and defroster fan optional.

The swing brake (A), controlled from operator's position, is spring applied and power hydraulically released (under control of the operator). Acts to hold upper and boom at any swing position or can be partially engaged for a slight drag to control side drift in precision lifting crane application. A mechanical swing lock is also standard equipment.

The boomhoist rope drum brake (B) (item 7e) is automatically spring applied and power hydraulically released. Also, a manually controlled rope drum locking pawl is standard.

For high-speed hoisting, an exclusive, independent planetary hoist arrangement (optional) is available for mounting on the hoist or lowering side of the extended rear and front drum shafts. Planetaries (item 4c) are mounted between the drum gear and clutch drums. These units can provide an increase of 70% or a reduction of 40% in line speed. Planetary engagement is controlled by a push button on the drum clutch lever. Two-shoe clutch engagement provides standard line speed.



Carrier designed and manufactured by FMC's Crane and Excavator Division

Designed for mobility on and off the job

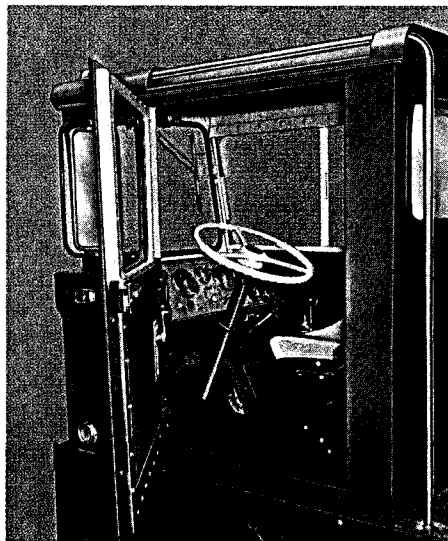
The model HC-238 Link-Belt® 125-ton truck crane is one of a line of rubber-tire-mounted truck cranes. The carrier is custom designed with a 100,000 p.s.i. quench and tempered, high-strength alloy steel frame for optimum weight-to-strength ratio — an important consideration in the HC-238 axle loadings for machine transportability.

Functional carrier styling is an important design consideration. The **carrier cab** interior provides a touch of luxury for the operator. The cab is isolated from the frame by rubber mounts. All side panels are upholstered with vinyl-covered foam insulation. The floor surface is carpeted to reduce road noise. Bucket seat with safety belt, tachometer, ash tray, outside handrail, right- and left-hand bus-type mirrors, windshield washer and wiper, horn, heater, defroster fan, back-up alarm, and lights are all standard equipment on the HC-238.

A bumper counterweight is held in place with hooks for fast removal with basic crane boom or boom live mast.

To meet users' demands, **three FMC carriers are available**. The 14:00 x 24L (20-ply rating) tires are standard. The diesel engine drives through a Road-ranger 15-speed main transmission. This allows negotiating steep grades, maneuvering through traffic, and travelling at highway speeds up to 40 m.p.h. In addition, a 2-speed (direct and low) auxiliary transmission is provided to allow, in the low range, for on-the-job, precision travel movement as low as .8 m.p.h.

Three FMC-designed carriers available
8 x 4 drive — 11' x 10" wide
10 x 4 drive — 11' x 10" wide
8 x 4 drive — 11' x 0" wide



Carrier cab

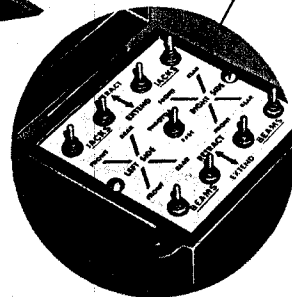
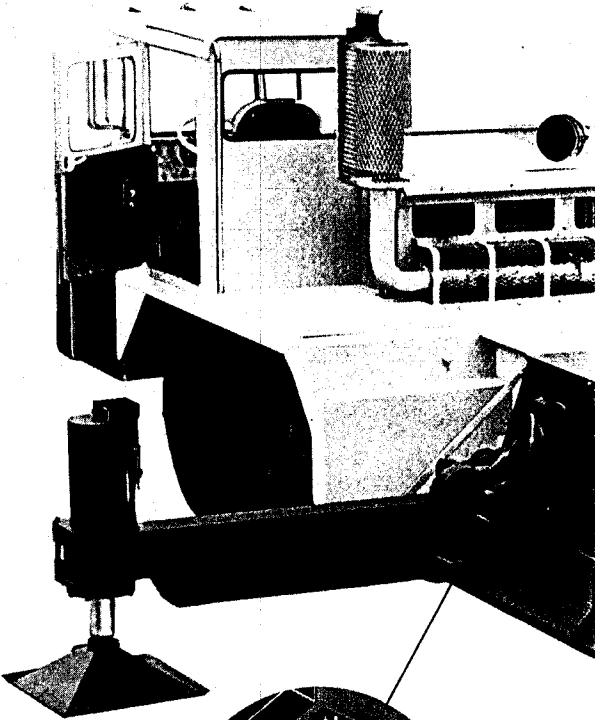
Eight-wheel air brakes (10-wheel on 10 x 4 drive) are standard. When lifting "on tires", air brakes can be set with the brake lock lever in the carrier cab. The brake chambers on the rear tandem also provide parking and emergency braking. The tandem rear axles are equipped with planetaries at the wheel ends. The front axles are tubular and provide exceptional ground clearance.

Power for the hydraulic outriggers is from the carrier engine driven pump, with individual control of beams and jacks. This permits leveling the machine on reasonably uneven terrain. Once the outriggers are set, a **check valve** fixed to the jack cylinder "locks" the oil in the cylinder and the outrigger jacks in place. For assistance in leveling the HC-238 on outriggers, sight levels are located near the outrigger boxes.

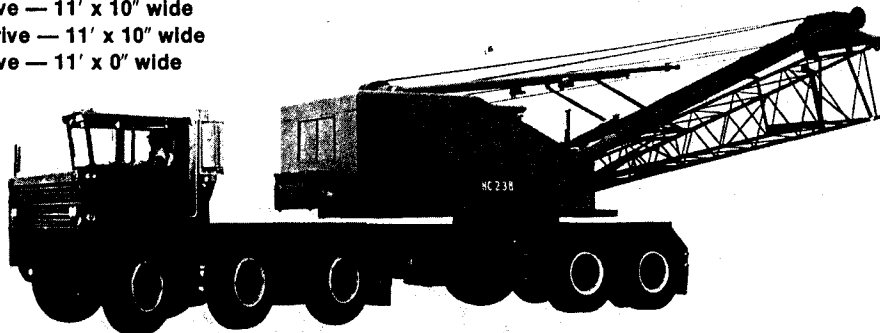
Both front and rear outrigger boxes are pin connected to the carrier frame for

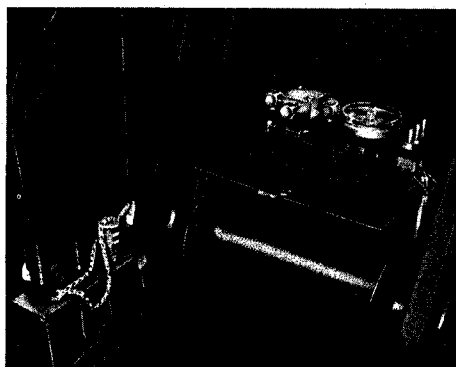
quick removal to reduce over-all weight for highway travel. Removal of four pins in each frees the outrigger assembly from the carrier. Hydraulic lines are equipped with quick disconnects. Also, to facilitate removal of the front outrigger assembly from beneath the carrier, one outrigger jack assembly can be disconnected from one outrigger beam.

A unique FMC design feature is the **hydraulic outrigger pin removal** (optional). Four double-acting hydraulic cylinders with integral cylinder rods/pins are permanently mounted to the carrier frame lugs. Hoses powering the outrigger beam cylinders are disconnected and the hydraulic outrigger pin cylinder



Outrigger control boxes

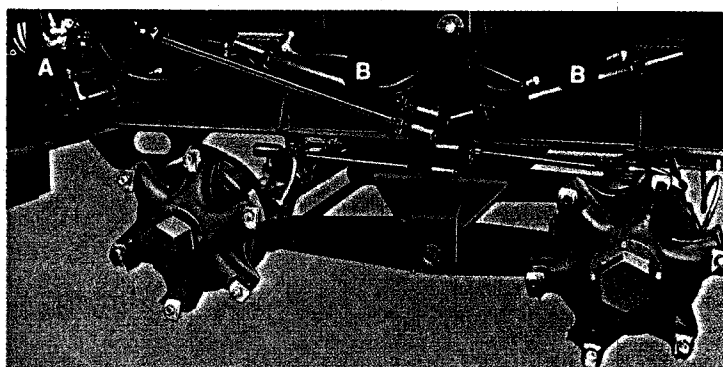




Hydraulic outrigger pin removal

hoses are connected in their places. All hoses are equipped with quick disconnects. Outrigger pins can be hydraulically removed or inserted in minutes. When pins are removed, hydraulic outrigger jack cylinders can be used to lower the outrigger assembly with caution.

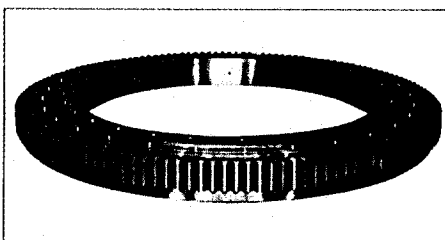
Outrigger control boxes (and optional hydraulic outrigger pin removal) are located on each side of the carrier to



Power assist hydraulic steer

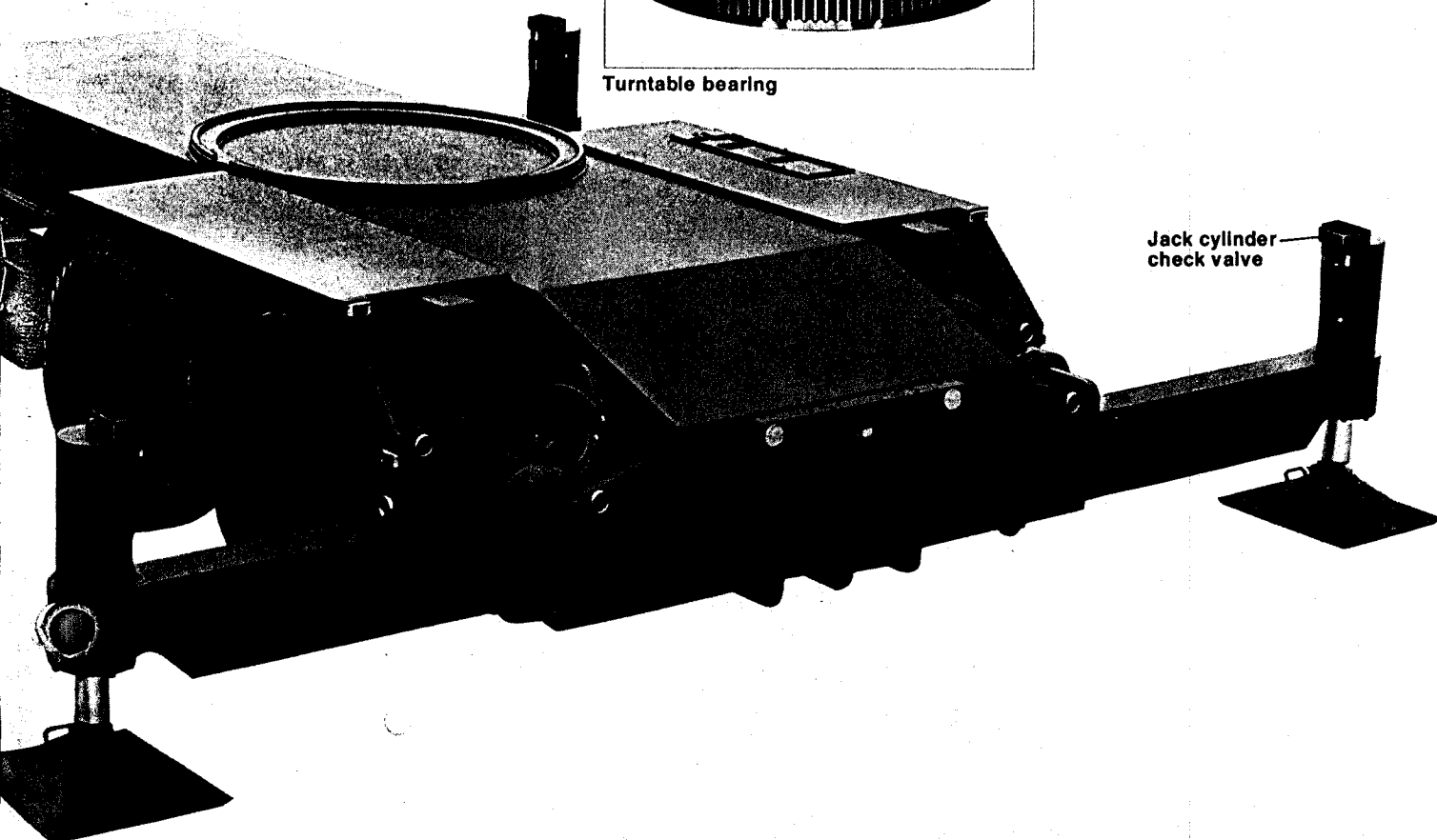
allow control and good visibility of front and rear outriggers from each side of the carrier. Control boxes are equipped with an engine "throttle" control. Depending on the user's specific needs, the control boxes are offered on the sides of the carrier (standard), in the carrier cab or crane upper cab (optional).

The **power assist hydraulic steer** components are mounted to the side of the carrier frame for protection. Operator controls steering gear (A) and steer linkage. A hydraulic control valve, activated by the steering gear (A), directs oil from the steering pump to the interconnected, double-acting cylinders (B) for power assist hydraulic steer. This design results in equal power assist force when steering right or left.



Turntable bearing

The revolving superstructure is mounted to the carrier by a **turntable bearing** with integral swing gear.





Pin-connected tubular boom and jib Three types of boom top sections available

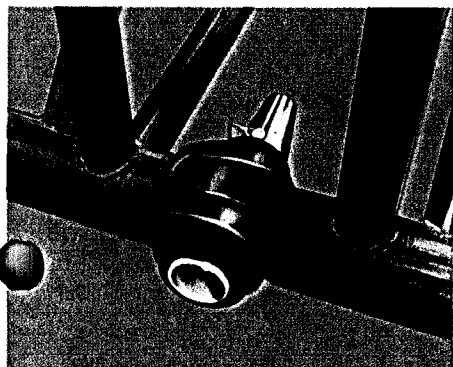
Up to 230' boom with tapered top section plus 70' jib

The HC-238 features a pin-connected tubular boom and jib. Tubular boom chord members are 100,000 p.s.i. quench and tempered, high-strength alloy steel.

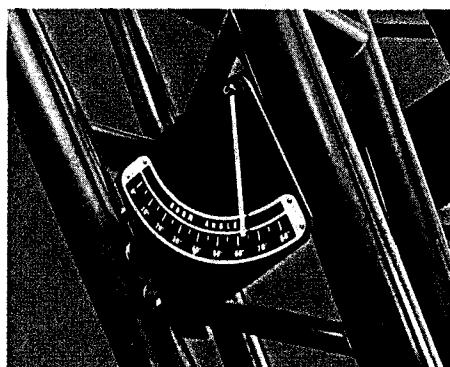
The tubular boom represents the latest advances in boom design and is precision built with special automatic machine tools and fixtures. Machine-coped lattice ends match the contour of the round, alloy steel, tubular chords and are carefully welded in place with 360° welds.

sections. The jib mounts to the boom top section. The **jib mast** is pinned to the jib base. The front and rear jib stops are telescoping type. The jib peak sheave and the jib mast rope deflector sheaves are all mounted on anti-friction bearings to eliminate the need for daily lubrication.

The **boom angle indicator** serves as a handy reference to the operator. It is mounted on the side of the boom nearest the operator for his ready reference.



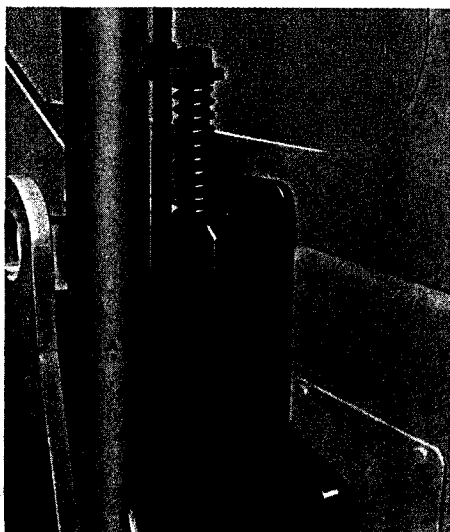
Boom pin-connections



Boom angle indicator

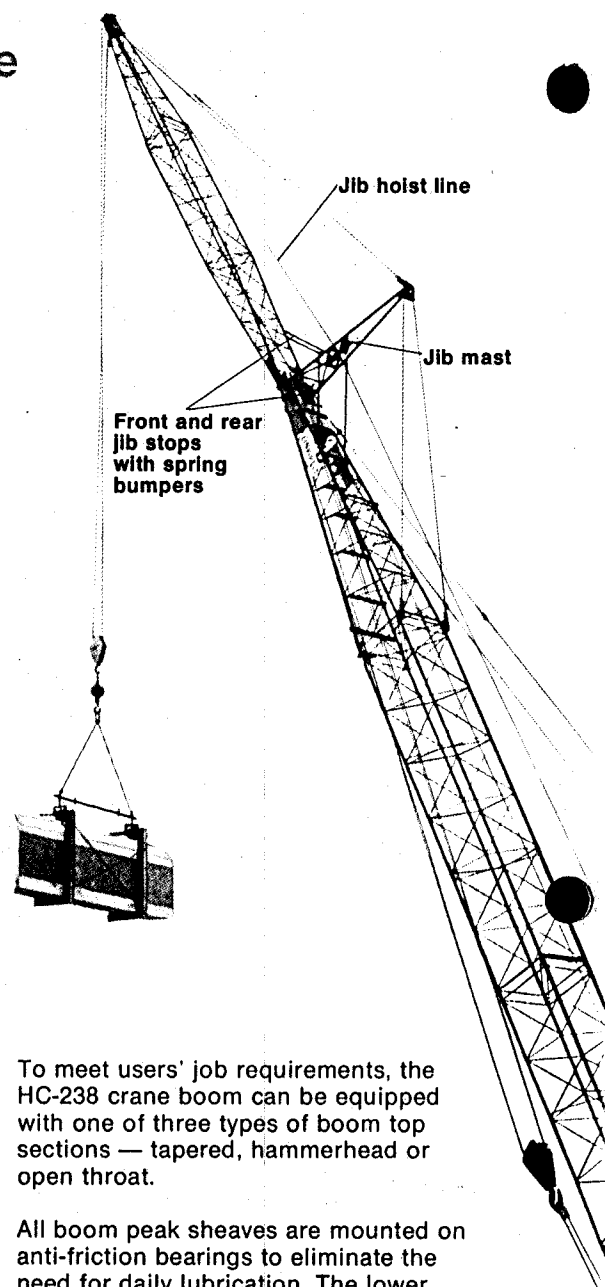
The method of welding the in-line pin lugs to the round tube chord minimizes stress concentration and is an exclusive development of FMC engineering/manufacturing technology. The extended hub on the female connection serves as an anchor for the jib guyline, mid-point pendants, or for pendant lines when assembling the boom. The boom **pin-connection** tapered end pin is held in place with a latch pin.

The **boomhoist limiting device** improves close-radius operation. When an attempt is made to raise the boom closer than minimum radius, this mechanism acts to disengage the boom raising clutch and simultaneously engage the boomhoist brake.



Boomhoist limiting device

The basic jib is 30' in length, 2-piece, pin-connected with 10' and 15' extensions available for a maximum jib length of 70' with tapered top section; 60' for hammerhead and open throat boom top



To meet users' job requirements, the HC-238 crane boom can be equipped with one of three types of boom top sections — tapered, hammerhead or open throat.

All boom peak sheaves are mounted on anti-friction bearings to eliminate the need for daily lubrication. The lower boom section is 25' with 10', 20', 30', and 40' extensions available.



The 45' long **tapered top section** is equipped with two sheaves for multiple reeving to handle rated loads of 56 tons with boom length of 110' (25' lower boom section, 45' tapered top section, plus 40' extension(s).) Maximum length boom is 230' and boom and jib is 230' plus 70'.

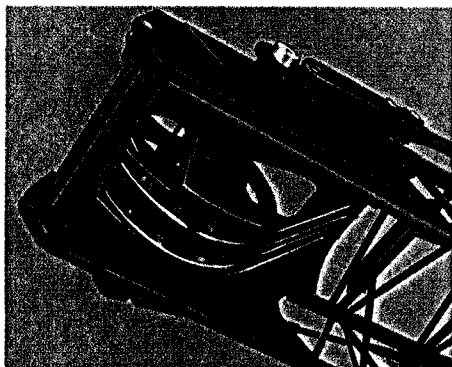
The 5' **hammerhead top section** is equipped with six sheaves for multiple reeving to handle rated loads of 125 tons (when pinned to the 25' lower boom section for minimum length of 30').

Maximum length boom is 230' and boom and jib is 200' plus 60'.

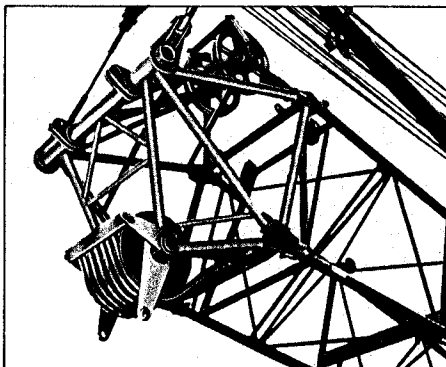
The 25' **open throat top section** is equipped with five sheaves for multiple reeving to handle rated loads of 115 tons (when pinned to the 25' lower section for minimum length of 50'). Maximum length boom is 230' and boom and jib is 200' plus 60'.

Dual, lever-type boom stops, each with spring-loaded bumpers, are standard. When the live mast is used for assembly

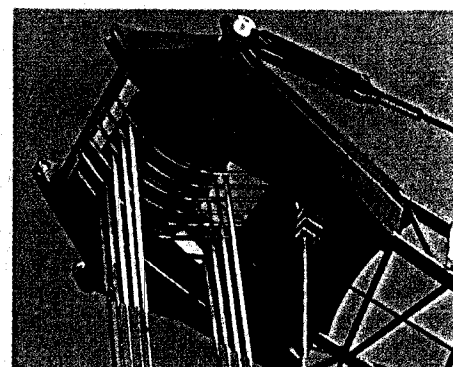
of an optional 10' boom section equipped with **offset lugs**. In addition, tubular **struts with offset lugs** are installed to mate with the offset lugs on the special section. Removal of upper boom connecting pins permits boom folding as shown in photo. Special 10' section and tubular struts can remain in place when extending the boom. Two links (A) inserted in the pendant lines and held in place with a shaft (B) mounted in position shown, serve to carry the pendants eliminating the necessity of disconnecting the pendants while boom



Tapered top section



Hammerhead top section



Open throat top section

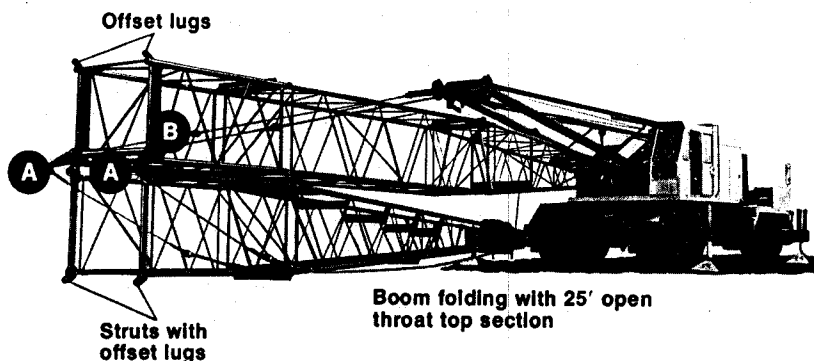
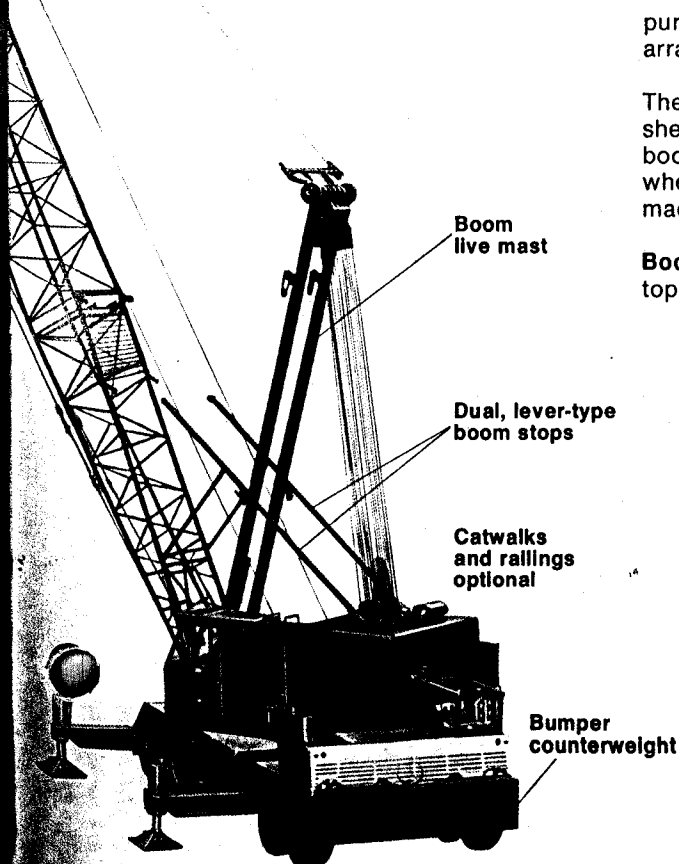
purposes, the boom stops can be arranged to serve as mast stops.

The **boom live mast** is equipped with sheaves and can be used for handling boom sections, counterweight, etc. when dismantling or assembling the machine.

Boom folding with the 25' open throat top section is possible with the insertion

is folded. Boom folding wheel and tire are mounted to boom peak.

To reduce the over-all travel height, the boom live mast retracts from 30' to 25' 6". Controls for hydraulically extending the boom live mast are located on the operator's control console. Open throat boom lengths of 90' and 110' can be folded for a travel height of 14'.



Boom folding with 25' open throat top section

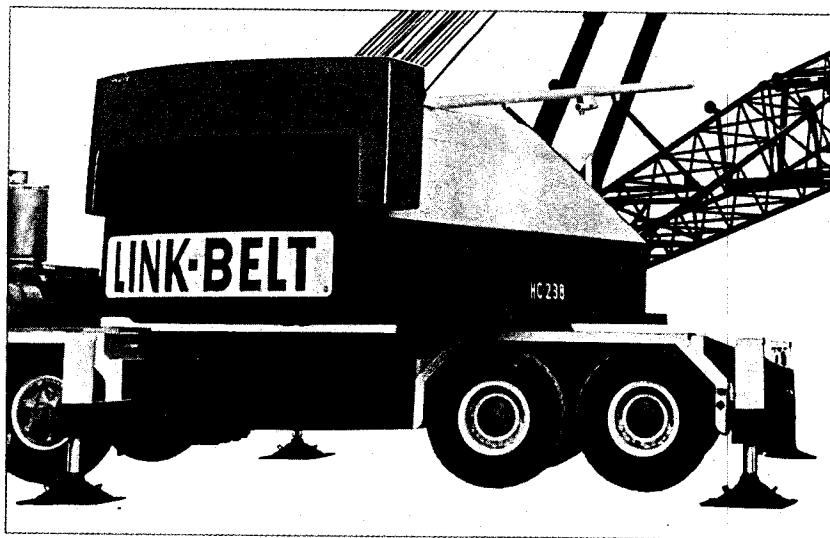


Designed for fast stripdown of outrigger assemblies and counterweight

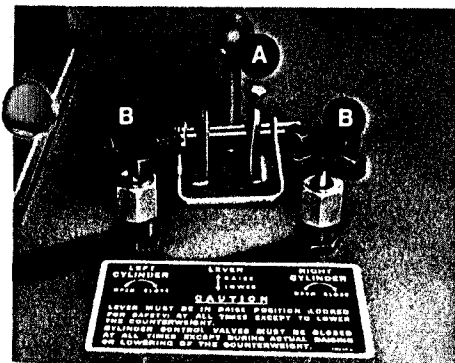
g axle available for greater weight distribution

The Link-Belt® HC-238 is designed for fast stripdown of bumper counterweight, crane upper counterweight, and outrigger assemblies for job-to-job transportability. Removal of four pins in each frees the front and rear outrigger assembly from the carrier (manually or hydraulically; see catalog page 4).

Hydraulic counterweight lowering is standard. Counterweight is held in place by hydraulically raised and lowered frustums. Simply position the directional control lever (A) and turn the control valve (B), directing oil into the hydraulic counterweight lowering cylinders (C). (Only left-hand cylinder is visible.) With frustums (D), the counterweight is lowered to the carrier deck in seconds. Same procedure is followed for mount-

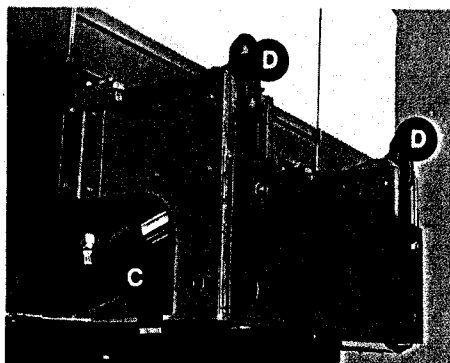


Counterweight "A" and "B"



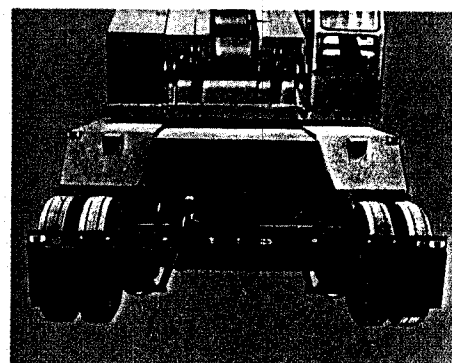
Counterweight lowering/raising control

ing the counterweight to the upper. The contoured counterweight allows the upper to be swung away from the counterweight.



Hydraulic counterweight lowering

The HC-238 can be equipped with a third (non-driving) rear tag axle (available from Transport Trailers), allowing greater over-all payload. With the pin-connected rear outrigger assembly removed from the carrier, the tag axle can then be pinned to the rear of the carrier frame. Air and electrical lines are equipped with quick disconnects. Tag



Rear tag axle

axle suspension is through two air springs. Service brakes and heavy-duty shock absorbers are standard. A control valve, located at the rear of the tag axle, meters air to the air springs for maximum axle loading of up to 18,000#.

We are constantly improving our products and therefore reserve the right to change designs and specifications.



Corporation Crane and Excavator Division World Headquarters Cedar Rapids Iowa 52406

Plants in: Cedar Rapids Iowa (2) • Lexington Kentucky • Harvey Louisiana • Ontario Canada • Milan Italy • Queretaro Mexico • Nagoya Japan (under license)