Link-Belt®

HC-78B

Wire Rope Truck Crane
HC-78B Serviceability
Exclusive Full-Function design with easy-to-reach components

GENERAL INFORMATION ONLY
HC-78B Controllability

Exclusive Speed-o-Matic® power hydraulic control system

Control system
For superb control of all machine functions, the Link-Belt® HC-78B truck crane incorporates the exclusive Speed-o-Matic power hydraulic control system. This system is unaffected by day-to-day atmospheric variations and does not require priming or bleeding. Oil under pressure does the work. Operator can complete more cycles per shift. Short throw levers in operator’s control console actuate variable pressure valves from which oil under pressure is directed to the various hydraulic clutches for prompt, positive engagement of 2-shoe clutches or other functions.

Interchangeable 2-shoe clutches
Clutches can be partially engaged for smooth acceleration and deceleration of swing, inhaul, hoist and booming. The 2-shoe clutches are self-compensating over a wide range of lining wear and heat expansion, requiring less operator attention. The control system is time tested and proven throughout the world.

Speed-o-Matic® power hydraulic control system

Swing brake
Spring applied or 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. The brake is controlled from the operator’s position through a variable pressure control valve. A mechanical swing lock is also standard equipment.

Independent boom hoist

Drum brakes: Mechanically operated by foot pedals. Separated from 2-shoe clutches to eliminate heat transfer, resulting in cooler brakes and clutches for longer component life. Brake drum is splined to the drum shaft.

7a. Power load lowering clutches: (Independent) Two-shoe, power hydraulic controlled, ideal for lowering tight loads, and controlled lowering of heavier loads.

6 Speed-o-Matic® power hydraulic control system: Vane-type pump, belt driven from engine, piston-type accumulator, and hydraulic reservoir. Normal system operating pressure range is 900–1500 PSI (6.206–10.240 kPa).

5 Swing: Two-shoe power hydraulic controlled clutches (3) for left and right swing, power the swing pinion. (Only left hand swing clutches completely visible).

4 Boom hoist: Independent, gear driven. Two-shoe power hydraulic controlled clutch for boom raising and lowering. (Only raising clutch is visible).

3a. Hoist clutches: Two-shoe power hydraulic controlled rear drum (5) and front drum (5a). (Only clutch drums are visible).

2 Frame: Fixture welded, then stress relieved for strength and durability. Line bore accuracy for proper shaft and gear alignment for less component wear and lower maintenance cost.

1 Engine: Diesel equipped with friction clutch, hydraulic coupling or torque converter.

Full-Function upper design: Offers a separate shaft, set of clutches and gears for swing, rope drums, and boom hoist for increased component life. Shafts have involute splines, and mounted on anti-friction bearings — no prefitting — all for easier component removal. Clutches and gears are outside the side housing for service accessibility.

Independent boom hoist

Swing brake

Gear driven with power hydraulic clutch control for boom raising (4a, clutch drum only visible) and boom lowering (4b). An automatic, spring-applied rope drum brake (4c) is power hydraulically released. A manually controlled rope drum locking pawl is standard.
FMC carrier
The Link-Belt® HC-78B truck crane 8 x 4 drive carrier is designed with high strength, alloy steel frame to yield an optimum weight-to-strength ratio — an important consideration for providing a carrier which is light enough to enable machine transportability, but strong enough to provide a durable lifting base.

Carrier cab
Interior provides a touch of luxury for the operator. The cab is insulated to reduce shock and sound levels. The upholstered side panels, instrument panel, excellent gauge visibility, floor carpet, large glass area, bucket seat with safety belt, right and left hand mirrors, windshield washers and wipers, heater, and defroster fan are all standard equipment on the HC-78B.

Power train
The carrier diesel engine drives through a Roadranger 13 speed transmission, powering the planetaries mounted in the hubs of the rear axles for optimum torque capability. This versatile, progressive shift power train allows for negotiating steep grades, maneuvering through traffic, and traveling at highway speeds up to 45 mph (72.45 km/hr) while permitting on-the-job precision travel movement.

Eight-wheel air brakes are standard. When lifting "on tires", parking brake can be set from the carrier cab. The brake chambers on the rear tandem also provide emergency braking if air pressure loss occurs in the system.

Hydraulic outriggers
The HC-78B has hydraulic outriggers as standard equipment. Power is provided by the Speed-o-Matic® pump in the upper with individual controls for the beams and jacks. This permits leveling of the machine on reasonably uneven terrain. Once the outriggers are set, a check valve fixed to each of the jack cylinders "locks" the oil in the cylinder, maintaining the position of the outrigger jack. For assistance in leveling, sight levels are located near the outrigger boxes. Outrigger controls are located on each side of the carrier deck for convenience and added safety.

The rear outrigger box is pin-connected to the carrier frame for quick removal to reduce overall weight if this becomes necessary for highway travel. Removal of the pins frees the outrigger box from the carrier. Hydraulic lines are equipped with quick disconnect fittings.
Power assist hydraulic steer
Steer components are mounted to the side of the carrier frame, for protection when traveling on the job site. The operator controls steering gear (A) and steering linkage by rotating steering wheel in the carrier cab. A hydraulic control valve activated by the steering gear (A) directs oil from the steering pump to the double-acting cylinder (B) for power assist hydraulic steer. This design results in smooth power assist force when steering right or left.

Turntable bearing
Revolving upperstructure is mounted to the carrier by a turntable bearing with integral swing gear. The bearing provides a smooth swing while requiring minimum maintenance.
HC-78B Flexibility

Options to tailor the machine to the job

Wide choice of options
The flexibility of the Link-Belt® crane
Full-Function design results in the
availability of several options, all designed
to maximize the usefulness and
productivity of the HC-78B truck cranes,
unmatched by other cranes.

Independent machine functions allow for
hoisting with one drum, lowering on
another, while swinging the load into
position for added job productivity and
flexibility.

Tailor the HC-78B to the job from a wide
choice of options to meet varied job
application requirements. The result is
increased on-the-job machine and load
handling capability for increased profits.

Boom attachment
Available on the HC-78B is a
pin-connected angle boom. Extensions
are available to increase the basic 35’
(10.67 m) boom up to a maximum of 100’
(30.48 m). A 20’ (6.10 m) bolt-connected
angle jib is available, with 10’ (3.05 m)
extensions for a maximum 40’ (12.19 m).

Also available, primarily for lift crane
service, is a pin connected tubular boom.
Maximum length available is 170’ (51.82
m) or maximum boom and jib length is
140’ (42.67 m) + 40’ (12.19 m). A
retractable high gantry is standard for
both boom options.

Torque converter drive
Torque converter drive
(optional)
For added load control
and operating smoothness
a single stage torque
converter can be utilized to
provide a wider torque range

Two-speed rope drums
Two-speed rope drums (optional)
For specialized applications, 2-speed gear
driven rope drums are available. Clutches
(A) operate at standard hoist line speed.
Clutches (B) operate at 90% higher than
standard speed. However, with this
arrangement, clutch controlled power load
lowering or auxiliary 2-shoe rear drum
brake are not available. (Loads must be
lowered on drum brake(s) only.)
Two-speed, planetary driven hoist/lowering rope drum (optional)
An exclusive, independent planetary arrangement can be mounted at either or both hoist and lowering ends of extended drum shafts. The planetary arrangement can provide up to 70% increased speed or 40% decreased speed for either hoisting or lowering. Standard speed is retained for swing, boomhoist and third drum. Engaging the 2-shoe clutch provides standard rope drum speed. This option will greatly increase machine production.

Third rope drum
A gear-driven third drum is available. Particularly valuable for "snaking in" a load, the third drum is high in line speed and rope capacity and is completely independent of all other machine functions.

Auxiliary two-shoe rear drum brake (optional)
The addition of the auxiliary 2-shoe rear drum brake nearly doubles the rear drum total effective braking area. The brake is power hydraulically applied with variable pressure control valve interconnected with the standard drum brake linkage for simultaneous engagement of both drum brake band and shoes. When the rear drum auxiliary brake is installed, power load lowering, planetary lowering or 2-speed gear-driven hoist are not available.

Counterweight removal (optional)
Upper counterweight can be lowered or raised hydraulically in just seconds to or from the carrier frame. Counterweight is attached to the cylinder with large t-bolt arrangement. Time consuming use of mechanical devices is eliminated.
The Link-Belt® HC-78B truck crane, through the years, has developed a reputation for dependability not only as a lift crane but also in day-to-day cycle work with magnet, clamshell, or dragline bucket.

Stress-relieved frames followed by in-line boring means longer gear and shaft life. Speed-o-Matic® power hydraulic controls decreases cycle time and interchangeable 2-shoe clutches reduce maintenance cost. And, resale value of the quality-designed HC-78B is amazingly high compared to competitive size machines.

The HC-78B design benefits:

- **Serviceability** (page 2)
  FMC exclusive Full-Function gear train design with easy-to-reach components.

- **Controllability** (page 3)
  FMC exclusive Speed-o-Matic power hydraulic control system, plus 2-shoe clutches, independent boomhoist and swing system.

- **Mobility** (page 4 & 5)
  FMC designed and built carrier, 8 x 4 drive with 13 speed Roadranger transmission, power assist hydraulic steer and luxurious cab.

- **Flexibility** (page 6 & 7)
  Wide choice of options to tailor the HC-78B to the job.

- **Dependability** (page 8)
  Stress-relieved frames. Shafts mounted in in-line bores. Speed-o-Matic power hydraulic control system and interchangeable 2-shoe clutches.