The Model HT-300 is one of a line of carrier mounted hydraulic cranes available from Link-Belt Speeder. The HT-300 incorporates a proven hydraulic crane concept with a durable 4-axle carrier especially designed for hydraulic crane duty. The carrier is manufactured to Link-Belt Speeder’s strict design specifications. The box-type, high-strength alloy steel frame (100,000 p.s.i. min. yield strength steel) gives a desirable weight-to-strength ratio — an important consideration in axle loadings for machine transportability.

Functional carrier styling is an important design consideration. The carrier cab is mounted forward of the front axles for easier operator entrance. This also reduces overall cab height. The cab interior provides a touch of luxury for the operator. All side panels are upholstered with pleated vinyl. Floor surface is carpeted to reduce road noise. Bucket seat with safety belt, tachometer, ash tray, lighter, outside handrail, right-hand and left-hand bus-type mirrors, windshield wiper, air horn, windshield washer, heater, defroster, back-up alarm and lights are all standard equipment.

The HT-300 carrier features an 8 x 4 drive with 11:00 x 20, 12-ply tires on the tandem rear axles and super single 15:00 x 22.5 16-ply tires on the tandem front axles for excellent load carrying capacity and machine flotation.

Power for travel is from the carrier diesel engine into a 13-speed main transmission for negotiating steep grades, maneuvering through traffic, or travelling at highway speeds up to 46 m.p.h. Mounted behind the main transmission, ahead of the rear axles, is a 2-speed range (direct and low) auxiliary transmission. The low-speed range is for on-the-job precision travel movements as low as .87 m.p.h.

The tandem rear axles are equipped with a double reduction in the bowl. Power steering and 8-wheel service brakes with Maxi brakes on both axles of rear tandem wheels are standard. Service brakes may be set with a brake lock when operating the crane on tires. Maxi brakes provide parking and emergency braking in addition to the service brake function.

The hydraulic crane upper is mounted to the carrier by a turntable bearing with integral swing gear.

Hydraulic outrigger boxes are pin-connected to the carrier for quick removal. Outriggers are controlled
The Model ET-300 hydraulic crane is a simple, but efficient design. The carrier engine powers the carrier and also supplies hydraulic power for all the crane functions—eliminating the need for a second engine in the crane upper. The hydraulic oil reservoir, with filters and strainer, is located in the right front corner of the carrier. A large capacity cooler in the front of the engine radiator maintains proper oil operating temperature for increased hydraulic component life.

Hydraulic power is from the front of the engine through a universal drive tube (A) into the gear speed reducer (B), powering pumps (C) and (D). One section of tandem gear-type pump (C) supplies power for hoist and boom hoist. One section supplies power for swing and boom extend/retract. The variable volume piston-type pump (D) supplies power for outrigger cylinders, counterweight lowering cylinder, and 2-shoe clutches located in the rope drum assembly. For long distance or full speed over the road travel, a cas controlled disconnect clutch is provided to avoid unnecessary wear and over speed on the pump and drive assembly.

Oil from the pumps, driven by carrier engine, flows through a rotating joint mounted in the center of rotation which leads into the upper frame. From the rotating joint, oil is directed into the control valves.
The main control valves are mounted on the deck of the upper revolving frame and are readily accessible. Two-spool, mechanically operated control valves (A) and (B) receive oil from the tandem gear-type pump (see page 3). Valve (A) controls oil flow to the boom hoist cylinders and the 2-directional hoist motor. Valve (B) controls oil flow to the 2-directional swing motor and the boom extend-retract cylinders.

Holding valve (C) located between the hydraulic hoist motor and control valve (A) permits controlled lowering of overhauling loads.

Power hydraulic boom hoist and lowering is through two double-acting cylinders. Both the cylinder and rod ends are mounted in self-aligning bushings for longer cylinder gland and seal life. Each cylinder is equipped with an integral check valve to hold boom in position when the operator control lever is in neutral or when the engine is shut off. For controlled lowering of the boom, the boom lowering circuit contains a holding valve (D) located between the boom hoist/lowering cylinders and control valve (A).

The operator crane controls and instrument panel are designed for ease of operation, comfort, and efficiency. Operator works from a contoured, bucket-type seat. Instrument panel is split with a center window for added visibility. The two control levers directly to the left of the operator’s seat control swing and boom extend-retract. The two levers to the right of the operator’s seat control hoist and boomhoist. The control levers mounted on right cab panel control the 2-shoe clutches.

A push button located on swing lever electrically activates solenoid (E) which internally redirects the oil in the hoist motor for high-speed load hoist and lowering. The floor-mounted foot pedal controls the engine r.p.m.

Swing power is from the 2-directional hydraulic motor into the Link-Belt Speeder designed and manufactured gear speed reducer and then into the swing shaft/pinion. Pinion meshes with the internal teeth of the turntable gear. The assembly is conveniently located on the deck of the upper revolving frame. A mechanically controlled swing brake is standard — holds upper at any swing position. The swing speed reducer is interchangeable with the hoist speed reducer.
Unique Load Hoist And Lowering Arrangement
Permits 2-Speed Rope Drums Plus “Free Fall” Capability

To meet the varied hydraulic truck crane user and job demands, the Link-Belt Speeder Model HT-300 offers a new concept in load hoisting/lowering design. With the HT-300 this important function is not restricted to the conventional hydraulic crane method of raising and lowering a load only through or against hydraulic motor power.

Incorporated in the hoist drum power train arrangement are individually controlled power hydraulic 2-shoe clutches and mechanically controlled wire rope drum brakes. With this design concept, it is possible to lower the hook or load by gravity pull and “free spool” the rope drum. Speed of load descent is controlled by drum brakes.

This design eliminates load lowering restrictions inherent in hydraulic powered rope drums. It broadens the job applications for hydraulic truck cranes.

Power for the tandem hoist drums is from a single 2-directional hydraulic motor (A) into the Link-Belt Speeder gear speed reducer (B) and horizontal shaft (C) and gears (D). Fixed to, and revolving with, gears (D) are clutch drums (E). Clutches (F) and rope drums (G) are both splined to the rope drum shafts.

The 2-shoe clutches are self-compensating for normal lining wear. Partial engagement is possible for smooth acceleration of hoist. Power for the 2-shoe clutches is supplied by the variable volume piston-type pump (see page 3) and controlled by short throw levers on the inside cab wall. Levers actuate variable pressure control valves. Clutch assemblies are shielded from the weather with a removable metal cover.

Two Methods Of Load Hoisting And Three Lowering Methods Are Possible With The HT-300

1. Load hoisting and lowering with hydraulic motor control only (power hydraulic 2-shoe clutch fully engaged).

To hoist or lower the load... simultaneously release rope drum brake (H) and engage hoist control lever (pull for hoist; push for lowering) directing oil into the 2-directional hydraulic motor, powering the rope drum and hoisting or lowering the load. When the load is at the desired height, return control lever to neutral, simultaneously applying the drum brake to hold drum and load. A holding valve located between the hydraulic motor and the control valve permits controlled lowering of overhauling loads.

NOTE: To double hoisting or lowering line speed, depress high-speed button on swing lever.

2. Load hoisting and lowering with hydraulic motor power but controlled with 2-shoe clutch (2-shoe clutch fully released).

To hoist or lower the load... engage the hoist control lever (pull for hoist; push to lower) directing oil into the 2-directional hydraulic motor powering the gear train only. (Shown in red.) Then, engage the 2-shoe clutch control lever simultaneously releasing the drum brake, powering the rope drum, and hoisting or lowering the load. Partial clutch engagement will allow controlled clutch slippage for smooth engagement and for precision lifts. When load is at the desired height, release the clutch and apply drum brake, holding the load.

NOTE: To double hoisting or lowering line speed, depress high-speed button on swing lever.

3. Load lowering with drum brakes only (power hydraulic 2-shoe clutches fully released).

To lower the load, release drum brakes with foot pedal. Drum is free to rotate. Speed of load descent depends on weight of load (gravity pull) and is controlled by the pressure on the drum brake pedal. It is not necessary for load to overhaul hydraulic motor and power train components. Extends life of these components.

Drum brakes are mechanically operated by foot pedals. Brake drums are splined to the shaft. The upper revolving frame is stress relieved and in-line bored for the shaft mountings. All gears are machine cut and are mounted on the outside of the revolving frame for service accessibility.
3-Section Power Boom Manual And Jib Extensions Available
Boom Extension System For Optimum Lifting Capacity

The Link-Belt Speeder Model HT-300 hydraulic crane is equipped with full-power 3-section telescoping boom. For additional reach, manual boom and jib extensions are available. The boom sections are constructed of alloy steel for greater strength. The method of welding the boom sections is a development of Link-Belt Speeder engineering/manufacturing technology. The boom is hydraulically extended and retracted with an exclusive twin-cylinder arrangement. The cylinders are double-acting with the cylinder rods remaining stationary and the cylinder case extending-retracting. The twin-cylinder arrangement eliminates the need for long hoses and hose reels.

The Link-Belt Speeder boom extend-retract design allows the tip power section (A) to extend completely before the center power section (B) starts to extend. This is accomplished by means of an exclusive latch-lock arrangement. The latch (C) locks the center section (B) to the base section (D). At the end of the tip section stroke, block (E) fixed to the top of the tip section (A) will engage the base of latch (C), unlocking the center section (B) and allowing it to extend fully.

Exclusive Cylinder Design
When hydraulically retracting the boom, the sequence is reversed and the center power section (B) retracts completely before the tip power section (A) can be retracted. No need for multiple boom telescope control levers. Only one control lever is used to extend or retract the boom. This boom extend-retract design keeps the greatest portion of the boom weight closest to the machine for optimum lifting capacity. Boom extend-retract cylinders are equipped with check and holding valves. The check valves hold boom/cylinders in position when operator control lever is in neutral. Holding valves allow controlled retracting of boom.

The boom head machinery consists of one top and three bottom sheaves. Sheaves are mounted on anti-friction bearings to eliminate the need for frequent lubrication. Boom head machinery is designed for fast pinning to either the tip power section or the manual boom extension. Hoist line guide rollers are mounted on top of the boom.

Center Section Latch Locked
Center Section Unlatched

Boom Head With Jib Strut And Link Attached
Hydraulic truck crane job-to-job transportability was not overlooked in the design of the HT-300.

Fast stripdown of counterweight and outriggers was a design consideration. Removal of two pins each frees the front and rear outrigger assembly from the carrier. Hydraulic lines are equipped with quick disconnects. The retracted boom may be used to handle the outriggers.

The counterweight is one piece and held in place by a hydraulically raised and lowered frustum. To lower the counterweight to the carrier deck, simply position the direction valve lever (A) and turn the control lever (B) directing oil to the lowering cylinder. The entire job is completed in 10 seconds. Hydraulic power for the raising/lowering cylinder is from the piston-type, engine-driven pump. The contoured counterweight allows the operator to swing away from the counterweight and remove it from the carrier deck with the retracted boom. Hydraulic counterweight lowering is a standard feature on the HT-300.

HT-300 Features In Brief

- Holding valves on boomhoist and hoist: Controlled boom and load lowering.
- Boom extension system: For optimum lifting capacity.
- 13-speed main transmission: For negotiating steep grades and maneuvering in traffic.
- Fast stripdown of counterweight and outriggers: For job-to-job mobility.
- Single engine: Minimum maintenance.
- Unique load hoist and lowering: Permits 2-speed rope drums plus “free fall” capability.
- Boom extend-retract cylinder arrangement: Eliminates need for long hoses and hose reels.
- Formed box-type carrier frame: For strength and durability.
- 2-speed auxiliary transmission: For on-the-job movements as low as .87 m.p.h.

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The jib is pinned to the boom head machinery and is stored under the boom base section when not in use.

Jib mounts to extended lower boom head shaft hubs. For fast on-the-job hook-up, the front stay lines also serve to raise the jib to the stored position. Jib strut and link may be left in place on the boom head.

Refer to HT-300 instruction for boom lengths and manual of jib extensions.

The boom mounts in an in-line bore in the upper revolving frame.

Hydraulic outriggers are standard on the HT-300. Beams are full width with individual control of beams and jacks. This permits leveling the machine on reasonably uneven terrain.

Outrigger controls are conveniently mounted on the right hand control panel on the crane upper cab. Once the outriggers are set, a check valve fixed to the jack cylinder locks oil in the cylinder and the outriggers in place. For assistance in leveling the HT-300 on uneven spaces, eight levels are located near the outrigger boxes fixed to the carrier frame.
HT-300 Designed For Fast Stripdown
Counterweight Lowered Hydraulically

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The counterweight is one piece and held in place by a hydraulically raised and lowered frustum. To lower the counterweight to the carrier deck, simply position the direction

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