Link-Belt®

LS-98PL

Crawler Pipeliner/Excavator
The Link-Belt® LS-98PL crawler pipeliner/excavator is the standard and most respected performer in its class. Users recognize and accept the model LS-98PL for its durability plus production capabilities.

The tractor-type crawler mounting was specially designed for extensive machine travel, traction on uneven terrain, and with the strength to withstand pipeline excavator work. Two-speed travel is standard.

The LS-98PL lower frame, side frames, and the outboard bearing support for the drive chain sprocket are welded integrally for greater strength. After welding, the integrally welded frame is stress relieved to free the structure from locked-in welding stresses and, finally, line bored for mounting of the horizontal travel shaft. The travel shaft with steer, travel, and brake mechanism is enclosed within the lower frame.

Sealed Lower Frame

The underside of the crawler mounting, or lower frame, is covered and sealed. The LS-98PL has a high frame-to-ground clearance of 26".

The track assembly consists of heavy-duty rails, pins, and bushings. The grouser shoes are bolted to the heavy-duty track rails. The integral track-chain sprocket, track idler roller, and track rollers are all mounted on sealed roller bearings for lifetime lubrication.

The overall crawler length is 15' 7". Over-all crawler width with 30" wide grouser shoes is 11' 6".

Hardened, conical hook rollers, mounted on anti-friction bearings, join the revolving superstructure to the crawler mounting. Rollers, mounting brackets, and roller path are all heat treated for long, trouble-free service. Rollers are shim adjusted for wear.
Exclusive Spring-Compensating Track Idler System

With “Grease Gun” Track Adjustment

Incorporated in the design of the LS-96PL tractor-type crawler mounting is FMC's exclusive spring-compensating track idler system for longer over-all track component life. The two advantages of the unique system are automatic relief of excessive track tension and simple idler-yoke grease gun track take-up. The compensating single spring assembly is fully enclosed within each side frame and sealed in oil.

Initial “track/idler” adjustment on a new machine is shown in Illustration (A). For normal track wear, the track idler is “grease gun” adjusted as shown in Illustration (B). Adding grease in the grease cylinder forces the yoke and idler forward for proper track tension. A safety relief valve in the hydraulic grease system prevents the track from being over tightened. If a foreign object should become wedged between the track rail and idler or sprocket as shown in Illustration (C), the idler/yoke assembly will move back, compressing the single compensating spring. When the foreign object dislodges from the track, the spring will return the idler to its previous position. The design of the single spring and guided yoke avoids cocking of the idler.

For quick, well controlled, on-the-job moves, Link-Belt® excavators are equipped with power hydraulic steer. The steer-travel mechanism on the LS-96PL is completely enclosed within the frame. Jaw clutches (A) are engaged through power hydraulics. When jaw clutches are fully engaged, or preloaded, spring applied brakes (B) are automatically released.

Jaw clutches (A) are engaged independently for steer by either of two steer control levers. They can be engaged simultaneously for straightline travel by either the two steer levers or the push button control located on the travel clutch control lever. Travel/steer power is through engagement of a 2-shoe hydraulic clutch mounted in the revolving superstructure. When jaw clutches (A) are released, brakes (B) are automatically spring applied. Brakes (B) also act as digging brakes.
GENERAL INFORMATION ONLY

1. ENGINE: Diesel engines equipped with friction clutch or hydraulic coupling.
2. UPPER 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. TRAVEL: Independent. Two-shoe clutches transmit travel power smoothly into the track sprockets. (Only the left-hand clutch is visible.) Two-speed travel is standard.
4. SWING: Independent. Two-shoe clutches transmit swing power smoothly into the swing pinion. (Only left-hand clutch and drum are visible.)
5. BOOM HOIST: Independent, gear driven. Boom raising is with a 2-shoe clutch (not visible) mounted on right end of shaft. Boom lowering through a ratchet/pawl assembly (5a) with a 2-shoe clutch optional.
6. HOIST CLUTCHES: Two-shoe hoist clutches for front and rear rope drums. (Clutch drums only visible.)
7. ROPE DRUM LAGGINGS: Front and rear, bolted to brake drum.
8. DRUM BRAKES: Mechanically operated by foot pedals. Separated from hoist clutches (item 6) to eliminate heat transfer, resulting in cooler drum brakes and clutches for longer component life of both. Brake drum splined to drum shaft.
9. EXTENDED FRONT DRUM SHAFT: To accommodate installation of an optional power load lowering clutch. (See photo page 7.)
10. AUXILIARY 2-SHOE REAR DRUM BRAKE: Power hydraulically applied with control valve interconnected with the standard drum, band brake (item 8) for simultaneous engagement of both drum brake band and shoes. Nearly doubles effective braking area.
11. POWER PACKAGE FOR POWER HYDRAULIC CONTROLS: Vane-type pump, belt driven from engine. Piston-type accumulator and sump tank; normal system operating pressure is 900 to 1,050 p.s.i.
12. CONTROL CONSOLE: Exclusive Speed-o-Matic® power hydraulic controls; time-tested and proven throughout the world.
13. BOOM HOIST LIMITING DEVICE: When the LS-98PL is equipped with crane boom attachment and the boom is raised closer than minimum radius, this mechanism acts to disengage the crane boom raising clutch with elimination engagement of the boom hoist brake.
14. AUXILIARY FUEL TANK: One of two tanks. (Tank located under engine is not visible.)

For superb control of all the machine functions, the LS-98PL incorporates the famous 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 from the bolt-driven, vane-type pump and from the pressure accumulator storage tank does the work. Normal system operating pressure is 900-1,050 p.s.i. The accumulator is pre-charged with dry nitrogen to 650 p.s.i.

Swing Brake

The swing brake is spring applied or power hydraulically released (under control of the operator). Acts to hold the upper and attachment at any swing position, or it can be partially engaged for a slight drag to control side drift when positioning the bucket. Swing brake is controlled from operator's position through variable pressure control valve. A mechanical swing lock is also standard equipment.

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, positive engagement of a 2-shoe clutch or other function. Speed-o-Matic power hydraulics — the exclusive control system that permits the use of 2-shoe clutches for control of swing, travel, boom, and rope drums.

The power hydraulic 2-shoe clutch is self-compensating over a wide range of lining wear and heat expansion, and is separated from the rope drum brake to eliminate heat transfer between them for longer clutch and brake lining life. Clutches can be engaged to any degree for smooth acceleration of swing, hoist, etc. For maximum rope pull, the clutch can be fully engaged by complete application, or toggling in, of the control lever.

Independent Boom Hoist

The gear-driven, independent boom hoist offers power hydraulic, 2-shoe clutch control (5b, with only clutch drum visible) for boom raising. Also, 2-shoe clutch control (5c) for boom lowering is optional, replacing the ratchet/pawl assembly (item 5a shown on photo page 4). The boom hoist rope drum brake (5d) is automatically spring applied and power hydraulically released. A manually controlled rope drum locking pawl is standard.
The Link-Belt® LS-98PL pipeliner/excavator with Full-Function upper machinery design, tractor-type mounting, and durable hoe attachment continues to uphold its world-wide reputation for versatility, reliability, and superior day-to-day performance.

The all-welded boom and arm are box-section design for durability. All sheaves are heat treated, ductile iron for longer sheave and rope life. Extra-wide mouth inhaul rope deflector rollers, mounted near the boomhead, deflect inhaul rope when the arm is in an extended or maximum reach position. Pitch brace, located at front of bucket, is arched for faster filling and dumping of heaped bucket loads. Dual, telescoping mast backstops are standard.

To further increase the performance of the LS-98PL, an optional arm with hydraulic digging bucket is available. The machine is equipped with friction clutch drive. The front (inhaul) rope drum horsepower is balanced with the hydraulic bucket power to permit changing the bucket angle while in-hauling the arm. This results in more efficient use of available engine horsepower for faster bucket fill, greater bucket versatility in the ditch, plus a wider range of bucket dump heights.

Hydraulic bucket power is from the 50 g.p.m. gear-type pump (C) coupled to the engine clutch output shaft. Hydraulic oil, stored in reservoir (A) located inside the right cab extension, flows to the pump through line (B). The pump (C) directs oil through line (D) to a single-spool control valve (not visible) located behind the oil reservoir (A). The control valve is actuated by a solenoid valve which is operator controlled by a toggle switch mounted on top of swing control lever. The control valve directs oil to the double-acting cylinder mounted on top of the arm. Bucket wrist action is 117°. The auxiliary, 2-shoe rear drum brake (item 10, page 4) is standard with the Link-Belt LS-98PL pipeliner/excavator.
The LS-98PL Pipeliner/Excavator Offers Crane Boom Versatility

Plus Wide Choice Of Options

The rope-operated model LS-98PL offers hoe/crane boom attachment convertibility. The machine can be quickly converted from a hoe to backfill, clamshell, dragline, or lifting crane — another demonstration of its job flexibility and versatility.

For high-speed trench backfilling with crane boom attachment, 2-speed front and rear rope drums are available. Standard speed for swing, travel, and boom hoist is retained. Intermediate gears are installed on the operator's side of the machine causing clutch drums (B) to revolve in the same direction as the standard hoist/inhaul clutch drums (A) but at twice the speed — giving up to 300 f.p.m. inhaul and hoist rope speed. Pulling the hoist and inhaul control lever will give standard rope speed; pushing the hoist and inhaul control lever forward will give high rope speed. This high-speed drum option, along with independent travel, is ideal for backfilling.

Independent front (C) and rear (D) drum 2-shoe power load lowering (reversing) clutches are available.

The extended front drum shaft (item 9 page 4) may be equipped with either the optional high speed inhaul clutch (B) or load lowering clutch (C). The rear drum shaft may be equipped with either the standard auxiliary 2-shoe brake (item 10 page #4) or the optional high speed hoist clutch (B), or the load lowering clutch (D). For field conversion, details are available from the service department.

The crane boompeak sheaves are mounted on anti-friction bearings, eliminating the need for daily lubrication. Single and double sheaves are available.

The retractable gantry (optional) is required for crane boom lengths exceeding 55', reducing boom compression loadings. With boom resting on the ground, the retractable gantry can be raised or lowered under boom hoist power.

Dual, non-telescopic type crane boom stops, each with spring loaded bumpers, are standard.

The crane angle boom is pin connected, with only bolt connected optional.

Other options include lever-type hand throttle on swing control lever, third drum mechanism, elevated operator's cab, catwalk with overhead grab rail, cab heater and defroster fan, and electric windshield wiper.
A Full Line Of Link-Belt®
Crawler Pipeliner/Excavators
Manufacturing, Sales and Service Outlets Throughout The World

FMC Corporation Crane and Excavator Division's reputation as one of the world's leading crane/excavator manufacturers is built on its development of the broadest line to meet specific requirements of many different industries and in many different countries.

Link-Belt pipeliners are specifically designed for the pipeline contractor who needs a durable, proven machine with digging power, plus capable of extensive traveling. Almost anywhere in the world, find a pipeline job and chances are you will find a Link-Belt pipeliner . . . rope or hydraulic operated.

Little wonder pipeline contractors always think first of Link-Belt pipeliners, the world's most respected name in the industry.

Link-Belt cranes/excavators are manufactured in the United States, Canada, Mexico, Italy, and Japan. And, there's world-wide availability and service through a global network of distributors.

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

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