

110 TRACTOR LOADER BACKHOE



FEATURE/BENEFIT PROFILE



COMPACT TRACTOR CHASSIS

- Short wheelbase and tight 58° turning angle allows quick and easy maneuvering within tight job sites.
- Lighter weight than full-size backhoe loaders, it can be transported with a 10,000 GVW trailer not requiring a Commercial Drivers License in most states. Refer to state and local regulations for specific requirements.
- Standard heavy-duty MFWD provides additional traction, particularly useful during loading operations.
- Low-front hood maximizes forward visibility aiding completion of detail jobs with front implements.

FULL-LENGTH INTEGRATED SUBFRAME

- Provides structural base for backhoe and loader so stress loads are not transmitted through tractor components.
- Rear subframe members rest over the top of rear axle housings to provide solid base.
- Front grille guard and loader masts integrated to subframe to provide full-length tractor component protection.

LOAD-SENSING HYDROSTATIC DRIVE TRANSMISSION

- Exclusive eHydro™ electronically controlled hydrostatic drive system eliminates mechanical control linkages.
- Exclusive LoadMatch™ operating system automatically adjusts hydro drive output speed to the power available from the tractor engine, keeping the engine operating at high torque and reducing engine stalls.
- Dual pedal drive system allows quick and effortless change in speed and direction.
- Three speed ranges allow operator to tailor power and speed requirement to the job at hand.

CONSTRUCTION-STYLE HIGH-CAPACITY LOADER

- Boxed beam construction does not have welded knee to better distribute stress during loader operation.
- Standard skid steer loader Quik-Tatch bucket mounting plate gives customers the flexibility to change implements quickly and use implements and accessories that may already be in their equipment fleet.
- High lift capacities and quick cycle times provide exceptional productivity for commercial customers.
- Sturdy cast-iron loader masts curve around engine compartment to maximize forward visibility to bucket edges and steering tires. Webbed nodular cast-iron construction absorbs shock loads.

EXCLUSIVE JOHN DEERE POWER CURVE BACKHOE

- 10.1-ft. maximum digging depth meets most customer needs.
- Curved boom maximizes digging depth while minimizing required trench opening.
- Closed boom and dipperstick sections maximize strength while minimizing weight of swinging components.
- Exclusive bucket link attachment provides consistent digging power throughout bucket arc.
- Long control sticks and custom metered hydraulic valves provide feel and response of construction backhoe.
- Creep to reposition feature allows operator to easily move unit along a trench line from backhoe position.

HIGH-CAPACITY HYDRAULIC SYSTEM

- Triple pump system provides high hydraulic flows for quick loader and backhoe response.
- High flow plus high system operating pressure combine to provide best-in-class hydraulic horsepower.

OPERATOR STATION CONVENIENT FOR BOTH TRACTOR AND BACKHOE OPERATION

- High-back seat rolls over to convert from tractor operation to backhoe operation.
- Instrumentation is on right fender for easy monitoring from either tractor or backhoe operating position.

SAFETY EQUIPMENT

- ROPS and FOPS meet current construction industry requirements (OSHA, SAE, and ISO).
- Transmission and PTO Operator Presence Systems function from both tractor and backhoe operating position.

OPTIONS AND ACCESSORIES ADD PRODUCTIVITY AND VERSATILITY

- Variety of front bucket and rear backhoe options add productivity and versatility.
- Optional backhoe bucket quick-coupler allows fast and easy change of buckets and implements.
- Backhoe removes from tractor in minutes, without requiring operator to dismount tractor unit.
- Front and rear tractor and backhoe factory hydraulic options allow unit to perform many useful tasks.

PRODUCT STORY

MARKETS



The 110 Tractor Loader Backhoe is the latest addition to the family of John Deere compact construction equipment and is the first product in company history to be developed and built by all three John Deere equipment divisions. By leveraging the strengths of the Commercial & Consumer Equipment, Agricultural, and Construction & Forestry Divisions, John Deere's 110 TLB provides customers a new level of power, productivity, and versatility on farm, landscape, and construction sites.

The 110 TLB is assembled in the USA at John Deere's Augusta, Georgia, factory (JDCP, John Deere Commercial Products). The loader for the 110 TLB is manufactured at John Deere Welland Works, Ontario, Canada. The backhoe for the 110 TLB is manufactured at John Deere Dubuque Works, Dubuque, Iowa.

Model	Transmission	Gross HP	PTO HP	Hydraulic HP	Loader Lift Capacity	Backhoe Digging Depth
110 TLB	eHydro	43	33	30.9	2727*	10.1-ft.

* ASAE S301.3 standard lift capacity to maximum height at pivot pin.

The tractor unit for the 110 TLB is available only in 4WD configuration with loader installed. It will be available less backhoe as a heavy-duty loader tractor. Rear tractor rockshaft is standard equipment. Three-point hitch (either standard or hydraulic) may be ordered for field installation. The backhoe cannot be ordered separately.

Note: Loader operation requires installation of the backhoe or a rear implement with a minimum weight of 1200 lb. for proper ballast.

Primary customer groups will be:

- Equipment rental businesses
- General construction contractors
- Landscape contractors
- Utility service companies
- Governmental agencies
- Cemeteries
- Estate owners and developers
- Irrigation farmers

Typical compact tractor loader backhoe applications would include:

- Rental to contractors and homeowners completing construction activities.
- Installation or service of utilities at residential or construction job sites.
- Residential or commercial development finish grading.
- Excavation and preparation for construction of building foundations.
- Emergency utility service excavation for repair.
- Utility tractor chores such as lot mowing and cleanup, seedbed preparation, etc.
- Maintenance tasks at institutions or plant facilities.
- Maintenance of irrigation systems.

STYLING AND DESIGN CONCEPT



Styling of the 110 Tractor Loader Backhoe has been accomplished to make this product not only functional and productive, but also attractive.

Key Styling Features

- Smooth, flowing lines
- Modern arched body and canopy lines
- Formed and molded parts

Styling has been enhanced by using a variety of the latest and best component materials available.

The 110 Tractor Loader Backhoe is not just an ordinary compact utility tractor with heavy-duty implements added. It has been designed from the ground up and the seat out to maximize durability, productivity, and efficiency.

Key Design Features



- Low, forward-sloped hood.
 - Provides unmatched forward visibility for loader applications.
 - Operator can see bucket corners and front tires from seat location.
 - Hood material is a new, formed-plastic composite, Extreme Poly-Pro. This material is very similar to modern automotive bumpers and resists damage from impacts such as debris falling from loader bucket.
 - Vents on side of hood help discharge engine compartment heat.
- Instrumentation moved to right side atop fender.
 - Operator can easily monitor tractor functions from both the tractor and backhoe operating locations.
- Polyethylene canopy.
 - Curved top, rounded corners, and recessed lights help prevent equipment damage.
 - Resists abrasion, bending, or denting.
 - Retains appearance; does not rust.



- Cross-link polyethylene grille housing.
 - Extremely dent and abrasion resistant.
 - Does not rust.
- Sculptured fenders.
 - Appealing modern shape.
 - Soft flex helps to avoid damage if contacted.
 - Does not rust if scraped or damaged.
- Construction yellow.
 - Universally accepted on all job sites.
 - High visibility for increased safety on worksite.

The result gives the 110 Tractor Loader Backhoe a distinctively modern appearance.

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TRACTOR

ENGINE



Yanmar diesel engines feature a high torque reserve that provides plenty of power under heavy load.

This 4-cylinder engine also features low levels of exhaust and emissions, reduced noise levels, and improved fuel economy. The 110 TLB engine meets all current EPA emission standards.

Model	No. of Cyl.	Engine Displacement	Rated RPM	Gross Engine HP	Net Engine HP
110 TLB	4	2.0L	2700	43	41

Key features of the engine are:

- Economical cast-in block cylinder design for good cooling and long life.
- Direct fuel injection.
 - Injects fuel directly on top of pistons for more efficient combustion.
 - Develops more horsepower per gallon of fuel.
 - Improves starting, particularly in cooler climates.
- Aluminum alloy pistons with built-in steel struts are lightweight to reduce connection rod bearing loads and provide good heat transfer characteristics.
 - Design permits tighter tolerances and neutralizes expansion of the piston, thereby reducing blow-by gas and noise resulting from piston slap.
 - Higher top rings on the piston and a thinner head gasket greatly reduce the volume of unburned waste gases and increase combustion efficiency.
- Timing gears and injector drive gears use helical profile gears.
 - Help reduce engine operating noise.
 - Gear teeth have a newly designed “roll-off” profile, giving almost no clash, no noise, and no backlash.
- Fuel filter with replaceable element.
- Full-pressure lubrication system.
 - Provides filtered oil under pressure to all vital engine parts.
- Air heater cold starting aid.
 - Electrically heated coil in intake manifold.
 - Provides quick starts in temperatures down to 0° F.
 - Engine coolant heater attachment will assist starting under extreme conditions.

- Key start and shutoff eliminates fuel shutoff knob.
 - Electric solenoid shuts fuel supply off immediately when key is turned off.
- Underhood muffler and side-discharge exhaust.
 - Fumes discharge away from operator.
 - No impairment of forward visibility when using loader or front implement.
 - Reduced noise to operator.
- Molded engine side panels.
 - Keep debris from engine compartment.
 - Reduce operating sound levels.
 - Right side unclips for quick and easy engine service.
- Auto-bleed fuel system.
 - There is no need for operator to prime the system if the tractor runs out of fuel. The system will self-prime the injection pump, lines and injectors, providing fast fuel recovery.
- A spark arresting muffler group kit is available to reduce risk of accidental fire when operating in environments with dry, combustible material.



- Dry-type air cleaner with safety element and air filter service indicator.
 - Dual element design. Main outside air filter provides primary filtration and engine protection. Secondary inside filter provides added engine protection in the event of failure of primary system.
 - Dash-mounted restriction indicator alerts operator when servicing is required.

COOLING SYSTEMS



- Engine and hydraulic oil cooling system heat exchangers are slanted rearward 21 degrees.
 - Allows lower hood profile for increased forward visibility to bucket.
 - Foam-sealed radiator shroud and high-velocity fan assures adequate airflow over all cooling elements.
 - Radiator is four-row configuration of copper and brass construction.
 - Rubber isolation mounting of radiator reduces possibility of developing cracks or leakage over time.
- Engine fan.
 - High speed for superior cooling.
 - Molded fan shroud assures airflow across all heat exchanger surfaces.



- Heavy-duty hydraulic oil cooler.
 - Provides protection from overheating during severe-duty operations at high ambient temperatures.
 - All-steel construction with fully welded cooling fins. Steel is special type that resists punctures; designed to bend on impact and not develop leaks.
 - 190 sq. in. surface area, 2-in. thick core.
 - Easier to clean. Tighter fins than radiator to avoid trapping of material which passes.
- Engine coolant recovery tank.
 - Provides coolant expansion area.
 - Reserve for engine coolant.
 - Durable steel construction.
- Drop zone below cooling elements.
 - Allows debris pulled onto radiator surfaces during operation to drop away when engine is turned off.
 - Does not require removal of side panels.
- Cooling components accessible by raising hood.
 - Quick, easy service inspection and cleaning.

FUEL SYSTEM

A 15.3 U.S. gallon (58 liter) fuel tank is molded around the steering console and loader masts. This will provide approximately eight hours of machine operation at 75% engine load before refueling is necessary. Tank is contoured to maximize fluid capacity, yet maintain forward visibility.



Fueling is accomplished just behind the left loader mast using a large 3-in. tank opening. Fuel cap is tethered to tank so it will not be lost during fueling. A lockable fuel cap is available.



Fuel tank levels are monitored by a reliable mechanical gauge near the right loader mast. In the event the tractor is run completely out of fuel, the operator merely refills the fuel tank and starts as normal.

ELECTRICAL SYSTEM

The 110 TLB has a 12-volt electrical system. Durability of many of the electrical system components has been proven on other agricultural and construction equipment.

- Weatherproof connectors.
- Durable, weatherproof switches.
- Wiring harness wrapped at all junctions.
- Leads for many popular electrical accessories have been prewired into the wiring harness.



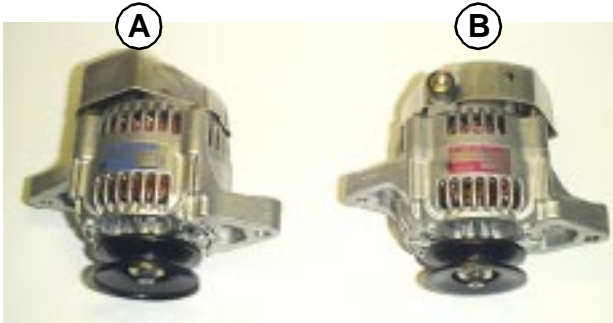
Battery is located under the right side boarding step.

- 650 cold cranking amps assure power to start even on a cold day.
- 120-minute reserve capacity provides reserve power for frequent starting and other electrical demands.

The engine has a 2.7 horsepower (2kW) starter to provide plenty of power to turn the engine over and reduce heating of starter components during starting operation.

FACTORY ALTERNATOR OPTIONS

Two alternators are available to accommodate customers who require operation of electrical accessories or desire quicker charging due to frequent operational stops.



The 110 TLB will come standard with a 40 amp alternator (A). This alternator will provide plenty of recharge capacity for most users. A 55 amp alternator (B) can be ordered as a factory installed option. This alternator will provide additional current and quicker recharge on units that have additional electrical accessories installed.

- Recommended if rear worklights are installed and used when the tractor will be idling for long periods. Not needed with rear worklights if tractor will be used primarily at operational engine speeds.
- Recommended if additional electronic accessories, such as high-intensity strobe warning light, are installed.

An alternator upgrade kit is available for field conversion to a 55 amp alternator. This kit includes an entire new alternator assembly.

CHASSIS AND DRIVETRAIN



Powertrain components for the 110 TLB have been designed to provide the efficiency and easy handling desired by customers, as well as the durability to stand up to severe-duty applications.

eHydro™ HYDROSTATIC DRIVE TRANSMISSION



The 110 Tractor Loader Backhoe is equipped with an electronically controlled hydrostatic drive transmission (eHydro) with three speed ranges.

This transmission functions as follows:

- Fluid under pressure transmits engine power to the drive wheels through a pump and motor.
- Neutral position functions as a clutch, eliminating the need for a separate dry or wet transmission clutch.
- Provides high torque for start-up or heavy loads.
- Reduces shock loads on powertrain.

Key features of this eHydro transmission drive are:

- Infinite ground speeds, even at full throttle, allow the operator to match the speed of the tractor to the task being accomplished.
- Fast and easy direction changes without clutching or hesitation.
- Fast and easy speed changes within range speeds.

Travel speeds within ranges are detailed in the Specifications section.

The LoadMatch feature on these eHydro drive transmissions allow them to respond to loads in a manner similar to torque converter transmissions commonly found on larger backhoe loaders. As drivetrain torque requirements increase, the transmission's electronic controller automatically reduces the tractor's drive speed to compensate for the increased load. This helps maintain engine rpm at higher torque levels and maintains operating efficiency, thus allowing the operator to be more productive.



Direction and speed are controlled by John Deere's Twin Touch® foot controls. These foot controls offer several operating advantages:

- Speed changes are accomplished similarly to automotive-type accelerator pedal controls, where increased speed is obtained by greater depression of the respective directional pedal.
- Direction changes are accomplished simply by repositioning the toe to the opposite pedal. This is much more comfortable when conducting operations that require constant maneuvering and does not require the operator to lift his foot as required by certain competitive treadle pedal (heel-toe) designs.
- Hands remain free during operation to steer and operate the loader or rear hitch controls.
- Tractor movement cannot be initiated without the operator in the seat. If a pedal is depressed without the operator in the seat, no signal is transmitted to the transmission. If both forward and reverse pedals are pushed at the same time, no signal is given to the transmission.

Because these pedals control tractor movement by generating electronic signals to the transmission:

- Pedal efforts are continuous throughout pedal stroke.
- There is no feedback pressure through pedal linkages, increasing amount of force required to hold pedal down as hydrostatic loads are increased.
- Mechanical linkages have been eliminated, improving durability and reliability and reducing the need for routine service.

The cruise control feature is not offered on this tractor.



The hydrostatic drive units used on the 110 TLB have been designed for heavy-duty industrial applications.

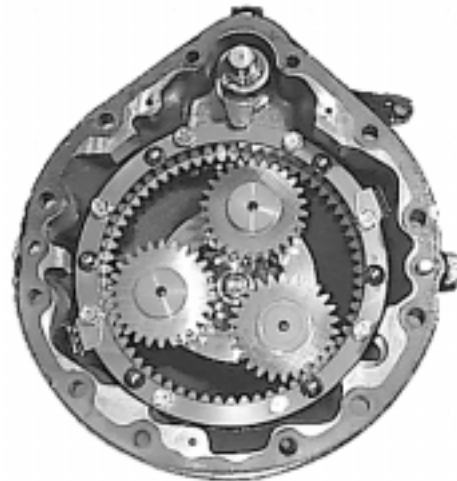
- Housings are cast iron for added strength and reduced noise levels.
- Large ductile cast iron trunnion shaft with larger support bearings reduces vibration and noise levels.
- Tapered roller bearings on the trunnion shaft reduce noise and vibration and assure a more positive neutral position.
- Higher horsepower capacity rating provides operating safety margin.

The transmission case is made of heavy one-piece cast iron.

- Strong protection for internal components.
- Provides precise mounting surface for drivetrain components.
- Functions as common hydraulic oil reservoir, providing oil for hydrostatic drive and other hydraulic functions.
- Simplifies maintenance procedures.

FINAL DRIVES

Final drive assemblies have been redesigned to accommodate the expected higher stress loads encountered with a heavier machine in more severe usage conditions.



Planetary final drives are used. The planetary drive gears distribute rear axle loads over three points for reduced stress on individual gears and longer drivetrain life. Planetary drive is located inboard to help contribute to overall axle strength.

The 110 Tractor Loader Backhoe has 12-bolt attachment of the planetary ring gear to hold components firmly in place even under severe load.



Rear axle flange is shorter than standard John Deere large chassis compact tractors, minimizing axle shaft length and increasing capacity to carry heavy loads.

DIFFERENTIAL LOCK



The 110 TLB has a foot-actuated differential lock. It is a pin-type lock in the ring gear that locks rear axle movement together, providing additional traction in tough spots.

- Allows power to be applied equally to both rear wheels.
- Foot-operated engagement pedal is conveniently located to the lower left rear of the operator platform, where it may be actuated using the heel of the left foot while the operator continues to use the right foot for tractor speed and direction control.
- May be engaged on-the-go as long as rear wheel speeds are relatively equal.
- Will automatically disengage when traction equalizes.

Differential lock should not be engaged at high speeds or used for extended operating intervals. Turning radius will be significantly increased when differential lock is applied.

BRAKES



The 110 Tractor Loader Backhoe is equipped with wet disk brakes.

- Provides positive stopping power.
- Brake disks run in cooled oil for maximum life.
- Require little adjustment.
- Unaffected by climatic conditions.

Individual rear wheel brakes are provided on the left side of the operator platform.

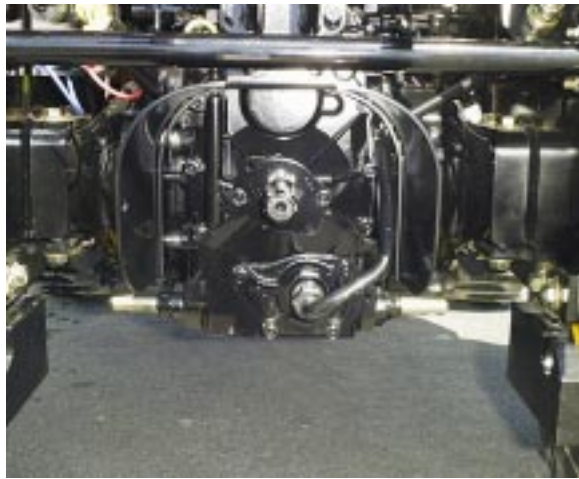
- Pendulum-style pedals are easy to push and allow independent operation of right and left rear wheel brakes.
- Actuation of individual wheel brake helps the operator accomplish tighter turns when necessary.
- Brake pedals can be locked together for safe and sure stops at all speeds.
- Pedals are operated by left foot, allowing the right foot to continue to be used for tractor speed and direction control.
- Cast-in tread design reduces foot slippage from pedal. No pedal covers to come off.

PARK BRAKE



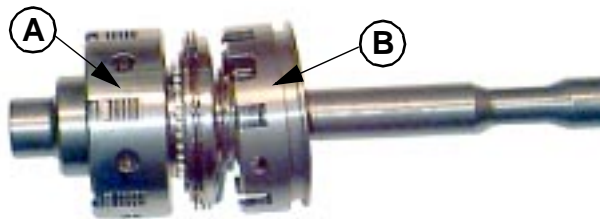
A manual park brake is provided. It is located near the left front corner of the seat. It is actuated by depressing both brake foot pedals and raising the hand lever to latch. A thumb button on the end of the handle allows release of the brake lever and return to neutral position for normal tractor operation.

POWER TAKE-OFF



The 110 TLB tractor unit has a fully independent 540 rpm rear power take-off as standard equipment.

- Meets ASAE S203.13 specifications, with 1-3/8-in. six-spline output shaft.
- Positive transfer of power through drivetrain (not hydraulically powered). PTO power is obtained at rated engine speed.
- Can be engaged or disengaged without stopping travel.
- With optional hitch kits, allows the tractor to use a variety of common rear-PTO-powered implements, such as rear-mounted rotary cutters, rotary tillers, or seedbed preparation equipment.



Power for the PTO is engaged and disengaged through the use of a multi-disk wet clutch cooled with hydraulic oil.

- A six-disk wet clutch (A) is used to engage and disengage power from the transmission independently of transmission function.
- A four-disk wet brake (B) stops PTO shaft rotation when power is disengaged, keeping implements from coasting to a stop.



Power take off function is actuated using a push-pull electrical switch conveniently located to the rear of the right side control console.

- Conveniently placed color-coded PTO engagement knob (A) is located on the right-hand console.
- PTO light on dash is illuminated whenever the PTO is engaged.
- PTO neutral start switch prevents starting the tractor with the PTO engaged.

To engage the rear PTO, the operator would pull up on the PTO engagement knob (A). To disengage rear PTO function, the operator would push down on the same knob.

There are applications when the customer may want to operate the PTO without operator in seat, such as operations of PTO powered pumps or generators. To accomplish stationary PTO operation:

- 1) Start tractor.
- 2) Set park brake.
- 3) Leave seat.
- 4) Engage PTO Drive by pulling engagement knob.

The park brake must remain set for the PTO to continue to operate.

FRONT DRIVE AXLE



The 110 TLB comes standard with a heavy-duty front drive axle to allow four-wheel-drive operation.

This mechanically driven front drive axle provides the following benefits to 110 TLB users:

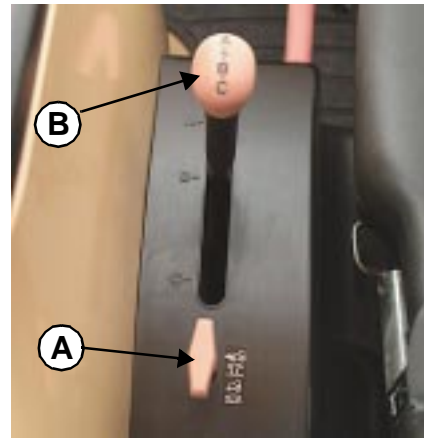
- Increased pulling power and improved traction when operating in slippery conditions.
- Reduced rear wheel slippage, particularly when moving heavy materials with the loader.
- Increased fuel efficiency (up to 20 percent) due to reduced wheel slippage during operations.
- Better floatation characteristics due to the constant pulling of the front wheels.
- Ability to operate on steeper grades when compared to two-wheel drive machines.

The benefits will be particularly noticeable when doing loader work, loading from a bank, backfilling trenches, conducting snow removal, or working in other poor tractive conditions.



Key features of this drive axle are:

- Wider and thicker cast-iron components to carry heavy loads.
- Larger transfer and bevel gears for added strength and reliability.
- Large outboard drive gears with more load-bearing surface.
- Strengthening girder underneath front axle increases load-carrying capacity and provides additional component protection.
- Centered drive line is tucked up under tractor body and fully shielded to avoid entanglement by brush or debris.
- Heavy wheel bolt-up flanges.
- Sharp 58-degree turn angle to maintain excellent maneuverability on tight job sites (turning radii in machine specifications).
- 11-degree axle oscillation to smooth out operation on rough terrain.
- Heavy cast-iron differential housing and four differential pinions spread front drive shaft loads and increase front axle durability.



Mechanical front wheel drive is engaged by pulling upward on handle (A) located just behind the range shift lever (B) to the left of the operator seat.

- Collar shift mechanism allows for engagement and disengagement “on-the-go” as long as front to rear wheel speed differential is not excessive.
- Can be easily disengaged when not needed, such as when operating on hard surfaces or during extended transport.

Engagement of 4WD axle will result in a slight increase in vehicle turning radius. Engagement of 4WD axle for extended periods on very hard surfaces will result in increased front tire wear.

POWER STEERING



The 110 TLB is equipped with hydrostatic power steering.

This makes steering easier and quicker when maneuvering the TLB around tight job sites.

- Especially valuable when carrying and maneuvering heavy loads during material handling operations.
- Reduced feedback to steering wheel when operating on rough terrain because steering system does not have direct linkage to front wheels.
- 3.5 turns lock-to-lock for quick steering response.
- Soft-feel steering wheel for increased operator comfort.

Key features of the steering system on the 110 TLB are:

- Separate hydraulic pump so steering functions are not affected by other hydraulic system demands.
- High steering system hydraulic capacity to provide consistent steering function even at low engine speeds.
- Steering cylinder and tie rods tucked up behind front axle where they will be protected from damage when operating in rough or brushy terrain.
- Heavy-duty tie rod ends for increased durability.

HEAVY-DUTY SUBFRAME



The 110 TLB utilizes a heavy integrated full-length subframe to protect important tractor components from damage due to high stress loads.

This subframe keeps operational stress loads away from primary tractor components.

- Integrates front to rear of tractor.
- Provides secure and stable mounting point for backhoe and loader.
- Rear subframe members rest on top of rear axle housing, providing large surface area to bear highest stresses unlike some competitors who bolt subframes underneath rear axle.
- Loader masts are integrated to front frame member by mid-mounted side plates. This provides exceptional loader mast rigidity without producing high stresses on lower portions of subframe and lower subframe mounting points.
- Rear cross member provides vertical stability for backhoe mounting position.



Front grille guard is integrated into front frame.

- Protects front of machine from impacts during loader operations.
- Does not interfere with tractor or loader servicing.
- Follows grille contour for pleasing appearance.
- Bars pitch downward to shed debris.
- Can be replaced without replacing front frame member.

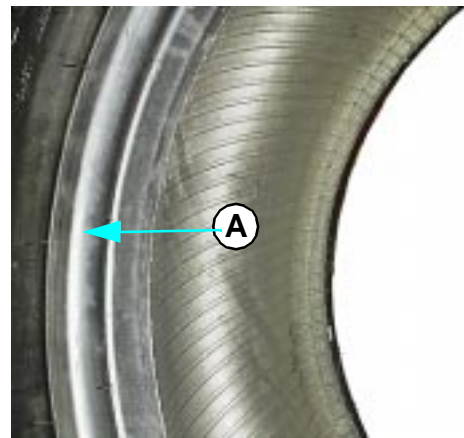
TIRES AND WHEELS



Galaxy heavy-duty tires are provided as standard equipment.

These Galaxy tires offer a number of benefits to customers over and above most OEM tire offerings:

- Wider lugs with tighter spacing provides a high 45% solid to 55% void ratio. This resulting in less weight per square inch and a significant increase in tread wear when compared to most other tires. Puncture resistance is also improved.
- Flat tread profile provides more traction, more uniform tire wear throughout the tread life, and extended tread life.
- All 8-ply rating tires assure sufficient load-carrying capacity and stiffer sidewalls for puncture resistance.
- Industrial lugs overlap 4.5-in. (114 mm) at the center of the tire where most of the tractor weight is borne, reducing the ground pressure of individual tire lugs and significantly improving tire wear.
- R4 tread front tires have “mud breaker” fingers, which extend laterally from the traction lugs to help break sticky material from between the lugs during operation and maintain traction when operated in wet and muddy conditions.



Galaxy tires also have a rim shield protector (A) built into the tire bead area. This is a raised rubber lip just outside the bead that projects beyond the rim surface.

- Helps protect the rim from damage.
- Helps reduce flats caused by debris or water working into the tire bead area.

Wheels are constructed of heavy 7-gauge steel to prevent breakage.



Front and rear wheels have steel valve stem guards to prevent breakage of valve stem when operating in mud or debris.

OPTIONAL TIRES



Galaxy "Mighty Mow" heavy duty turf tread tires have been designed specifically for the 110 TLB to allow it to be used on fine turf areas without damage.

These tires are recommended when the 110 TLB is used on golf courses, cemeteries, parks, or other areas where turf damage during transport or operation would be a concern.

- Very high 62% solid to 38% void ratio reduces ground contact pressure, protects turf, and provides longer wear when operating on asphalt or concrete.
- Tread design same as "Turf Special" tires has been proven highly effective in protecting sensitive turf.
- Elongated block lugs wrap around shoulder of tire to protect turf during cornering and under heavy loading. There are no breaks or sharp edges at the shoulder of the tire.
- Can be operated at reduced tire pressures for excellent traction in very sandy conditions.
- 8-ply rating retains machine's load-carrying capacity.

Due to high solid-to-void ratio, these turf tires will provide much longer tread life for machines that are driven extensively on asphalt road surfaces than comparable industrial lug tires.

EQUIPMENT TIE DOWN

Front and rear equipment tie down locations are provided to secure the 110 TLB to truck or trailer during transport.



The front of the 110 TLB can be secured through a loop off the front mainframe just under the grille shell.



The rear of the 110 TLB can be secured through cutout slots in the bottom of the backhoe mainframe.

HYDRAULIC SYSTEM

The 110 Tractor Loader Backhoe has an open center hydraulic system. This system has an operating pressure of 3000 psi (20,684 kPa).

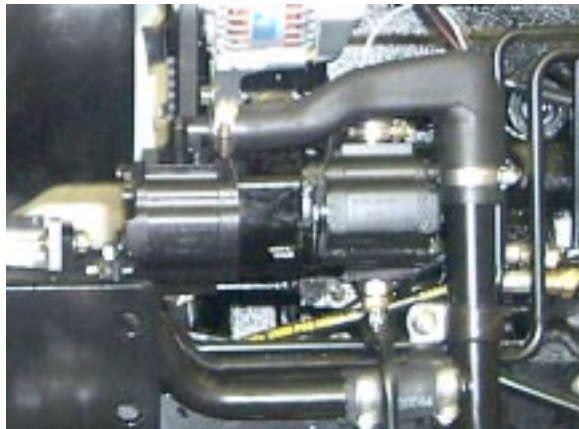
Model	System Pressure psi (kPa)	Type of System	Total Flow gpm (lpm)	Number of Pumps
110TLB	3000 psi (20,684)	Open Center	23.6 (89.2)	3

Pumps

The 110 TLB utilizes three separate hydraulic pumps.



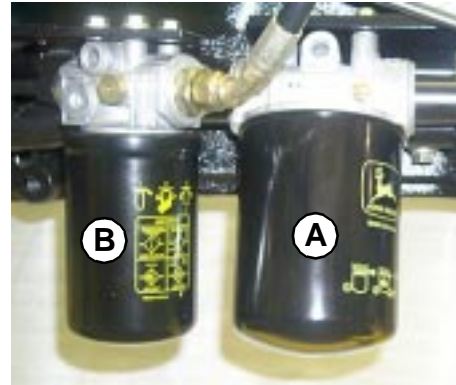
The main hydraulic pump is located below the engine radiator and is driven by a coupler off the front of the engine crankshaft. This provides the power and high flow necessary for quick and powerful implement responses.



Two additional pumps located on the left side of the engine are driven off the engine camshaft. The forward pump provides dedicated flow for the power steering system. The rear pump provides flow for auxiliary hydraulic functions, including tractor rockshaft operation.

Filtration

For optimum protection of hydraulic components, the 110 TLB features both suction-side and pressure-side hydraulic oil filtration.



The suction-side hydraulic oil filter (A) is a spin-on canister located along the main hydraulic oil pick-up line; filtration is 25 micron. The pressure-side hydraulic oil filter (B) is located in the main hydraulic pressure return line; filtration is 10 micron.

CONTROL VALVES

The 110 TLB comes standard with a two-function loader control valve.



This valve utilizes a series-type boom valve spool rather than the parallel-type boom valve spool used for other John Deere compact and utility tractor loaders. All other spools in the valve remain parallel-type systems. The series system in this valve spool:

- Allows bucket rollback or dump during movement of the boom without affecting the speed of boom travel.
- Allows return oil from the boom lift cylinders to be reused in the bucket cylinders to roll the bucket back after dumping while at the same time lowering loader boom.
- Allows quicker loader cycle times, particularly during loadout operations.
- Still allows for full power to individual functions, such as bucket rollback or boom lift, when needed.



An electrically controlled hydraulic switch is located inside the right side subframe. This switch automatically detects that the backhoe has been removed from the tractor unit and diverts auxiliary pump oil to activate the tractor rockshaft. Some competitive tractor-based TLB's require that directional hydraulic valves be turned manually by the operator if the backhoe is removed.

Note: The operator still must connect the backhoe hydraulic supply hose to the tractor return line when the backhoe is removed to prevent the hydraulic system from operating in relief.

The 110 TLB's combination of hydraulic flow and hydraulic pressure provide exceptional hydraulic horsepower and efficiency for a vehicle of this size.

LINES AND CONNECTIONS

High quality hydraulic lines and fittings are used throughout the machine.



All hydraulic joints are equipped with O-ring face seal fittings.

- Flat mating surfaces are sealed with soft rubber O-ring.
- Seals are more tolerant to over-tightening and vibration.
- Fittings can be reused.
- Joints are easier to reassemble after service.
- Prevent air intrusion into hydraulic system.
- Lower cost service; just replace O-ring.



Loader hydraulic lines meet or exceed SAE 100R6 specifications. Lines are precisely routed to reduce the possibility of damage during operation. Lines in contact with tractor components are sheathed in Cordura coverings.

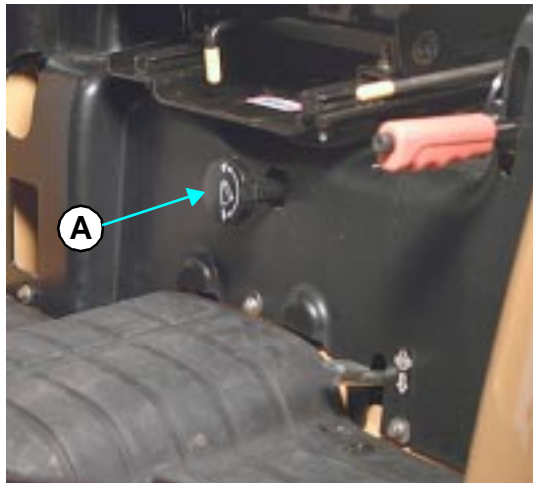
Steel lines are used where hydraulic lines do not have to flex. Backhoe steel lines are double-wall thickness to sustain expected peak spiked hydraulic loads. Backhoe hydraulic hoses are single-wire braid with a minimum burst pressure of 12000 psi. The hose covering is very abrasion resistant.

REAR ROCKSHAFT

The 110 TLB comes standard with a rear rockshaft for lifting rear-mounted implements.

Note: The 110 TLB does not come standard with rear 3-point hitch components, such as center link, lift links, drag links, and stabilizer bars. These must be ordered as a field installed kit.

This rockshaft has position control only. The rockshaft position control lever is located at the right side of the operator seat during tractor operation. The rockshaft control valve allows precise control without implement jerking or leak-down. The rockshaft will not produce down pressure on rear implements.



A rate-of-drop valve (A) located directly below the seat allows the operator to adjust the lowering speed of the rockshaft arms.

- Light implements can be lowered quickly.
- Heavy implements can be lowered more slowly to avoid implement and tractor damage.
- The valve can be completely shut off to lock implements in place.

Note: Rockshaft arms must be in the fully lowered position to install the backhoe.

HYDRAULIC OPTIONS

Two tractor hydraulic options are available on the 110 TLB, allowing it to meet the specific hydraulic power needs of most of your customers.

Note: These options will be available only as factory installations. Field conversion kits will not be available.

These options can be obtained by selecting the proper order option codes at time of initial order.

THREE-FUNCTION LOADER HYDRAULICS

This option (order code 7020) provides a third auxiliary hydraulic function for the 110 TLB loader. This option will be required to power hydraulic cylinders opening and closing the jaws of the Worksite Pro® multi-purpose front bucket (order code 8020), or to operate other front implements with hydraulic cylinders (grapple buckets, etc.) or hydraulic motors (angle brooms, etc.). Third-function hydraulic power can be either “switched flow” as required for multi-purpose front buckets, or “continuous flow”, as required for rotary brooms, etc. The continuous flow function is reversible.



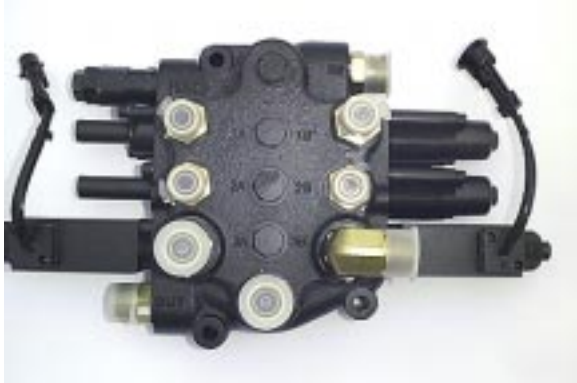
This option includes a special main loader selective control valve that has an electronically controlled third valve spool. Functions are controlled by enabling switches and joystick touch buttons as described later.



5/8-in. steel tubes route hydraulic oil to outlets mounted on the left side of the loader torque tube near the front of the loader. Couplers are 1/2-in. flat-face male and female. They are compatible with most skid steer loader front hydraulic applications.

THREE-FUNCTION LOADER HYDRAULICS WITH THREE-FUNCTION REAR TRACTOR HYDRAULICS

This option code (order code 7030) provides the third auxiliary hydraulic functions for the 110 TLB loader as described above, in addition to three rear hydraulic outlets at the back of the tractor. These rear hydraulic outlets are required to operate the hydraulically adjusted “top and tilt” hitch (LVB25340). They will also be required to operate any rear implement that requires a hydraulic cylinder for lifting, movement, or a continuous flow for drive. These rear hydraulic outlets do not provide auxiliary hydraulic power to the backhoe unit (requires order code 8220).



This option again includes a special main loader selective control valve that has an electrically controlled third valve spool. Functions are controlled by enabling switches and joystick touch buttons as described later.



Hydraulic power is switched from front to rear application using an electrically controlled diverter valve block located underneath the tractor. All hydraulic lines into and out of this valve assembly are hard steel lines with O-ring face seals at all joints.

Loader outlets for this third hydraulic function are the same as those described above for (order code 7020) Third Auxiliary Hydraulic Loader.



Outlets for rear hydraulic applications are located on the inside left subframe near the rockshaft lift arm. Outlets consist of three sets, side by side, with 1/2-in. couplers. The top outlet only can provide both “switched flow” and “continuous flow.” All other outlets are “switched flow” only.

OPERATION OF OPTIONAL AUXILIARY HYDRAULIC SYSTEMS

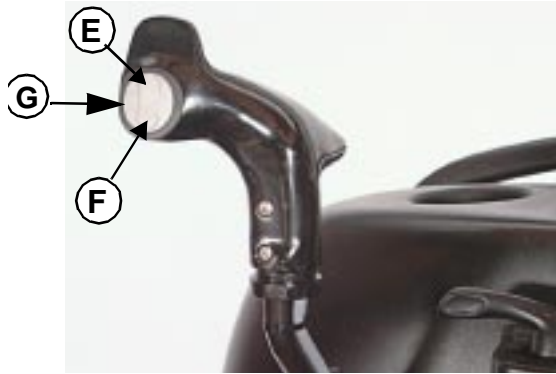
Control of either of these optional auxiliary hydraulic systems is accomplished by rocker switches and fingertip controls on either the seat close-out panel or joystick.

Two rocker-type switches are provided. These switches are located between the seat and the SCV joystick console.



To activate switched hydraulic flow from the third SCV valve, depress the forward portion of the activation switch (C) nearest the seat. To activate continuous hydraulic flow from the third SCV valve, depress either “A” or “B” on the 3rd SCV full flow switch (D). Depressing “A” will provide hydraulic power to the male front coupler nearest the loader boom, with return through the female front coupler. Depressing “B” will reverse the power and flow.

Once the auxiliary hydraulic system has been activated, switched hydraulic flow can be controlled with the touch of a button on the SCV joystick.



By depressing the top portion of the vertical switch pad (E), hydraulic flow is directed to open the jaws of the Worksite Pro Multi-Purpose Bucket. By depressing the bottom portion of the vertical switch pad (F), hydraulic flow is directed to close the jaws of the Worksite Pro Multi-Purpose Bucket.

The vertical switch pad on the joystick only controls third valve function for switched flow, enabled by switch (C). If continuous flow is selected, flow must be stopped by bringing the third continuous flow switch to the centered or neutral position.

For units equipped with third function loader hydraulics with electric diverter valve for three-function rear tractor hydraulics, hydraulic function is switched from front to rear using the forward toggle button on the joystick (G).



Upon initial activation of third hydraulic function (depressing switch C), the forward portion of the hydraulic function indicator panel in the dash will light up (H). When hydraulic function is changed to the rear (depressing switch G), the rearward portion of the hydraulic function indicator panel in the dash will light up (I).

When units with the third hydraulic function with electric diverter valve are switched to the rear operating position (as above), all hydraulic functions for the rear hydraulic outlets are controlled with the SCV joystick. Fore-and-aft movement of the SCV joystick activates hydraulic power through the lower set of rear couplers. Side-to-side movement of the SCV joystick activates hydraulic power through the middle set of rear couplers. The vertical touchpad on the joystick control activates hydraulic power through the top set of rear couplers.

These hydraulic options provide the best means of meeting your customers' hydraulic power requirements. Controlling mechanisms are state-of-the-art with built-in wiring harnesses. All lines are solid steel piping with O-ring seals at all joints.

OPERATOR'S STATION



The operator station for the 110 TLB has been designed specifically to maximize customer productivity with minimum effort. Visibility to work areas has been optimized, which is particularly critical on job sites that require precise implement movements. Controls are conveniently placed for both tractor and backhoe operation.

Virtual reality was used early on in the design process to assure that the tractor operator has visibility to vital forward work areas.

- Low, forward-sloped hood and low loader boom arms provide excellent visibility to loader bucket and just ahead of tractor.
- Fuel tank and loader masts contour inward around tractor body to provide excellent visibility to front tires and loader bucket rear edges.

Visibility to the rear for backhoe operations was also a prime consideration. This is covered in more detail in the Backhoe section.

PLATFORM

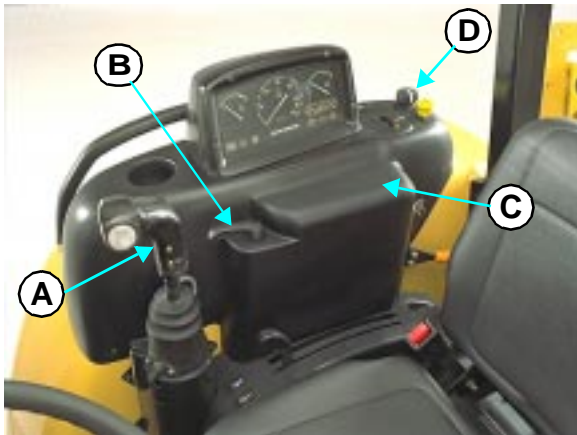


The operator's platform is accessed using a sturdy left side step. This step is perforated and has a steel lip on the outside edge to allow safe boarding even in muddy conditions. The step is located inboard of the tractor wheels so it does not stick out to catch on passing objects.

Large, contoured grab handles on each fender can be used to assist the operator in boarding the tractor.

Foot platform for the operator is rubber-mounted and incorporates a thick rubber floormat for operator comfort. Brake and drive pedals are slightly forward of the cowl to provide the operator with plenty of legroom.

CONTROLS



Engine, lighting, and PTO controls previously located on the front cowl area have been moved to a right side control console so they will be accessible to the operator from either the tractor or backhoe operating positions.

- Single-lever joystick (A) located near the right front corner of the seat allows the operator to easily control SCV functions with his arm in a relaxed, natural position. T-shaped grip fits hand naturally.
- Turn signal control (B) is also at fingertip position for easy use during forward travel of the tractor.
- A convenient arm-rest (C) is molded into the console to provide a rest position for the right arm.
- Lighting controls (D) are toward the rear of the console so they are accessible during backhoe operation.



The ignition switch and throttle have been positioned to the rear of the right console so that they are accessible during both tractor and backhoe operation.

Control levers are both color- and shape-coded for easier recognition and are positioned for convenient operation.

- Controls to the operator's right:
 - Rockshaft lift lever
 - Auxiliary hydraulic enabling switches (optional)
 - Loader or auxiliary hydraulics control valve lever
 - Turn signal indicator lever
 - Creep to reposition switch and thumb bar
 - Vehicle lighting switch
 - Rear PTO switch
 - Ignition switch and key
 - Throttle
- Controls to the operator's left:
 - Seat adjustment lever
 - Park brake engagement lever
 - Range shift lever
 - 4WD engagement lever

A toolbox is molded into the left-hand fender for quick and easy access to either tools or the operator's manual.

INSTRUMENTATION



The instrument cluster has also been moved to the right side fender console to allow the operator to easily set and monitor tractor functions while either in the tractor or backhoe operating positions.

Critical tractor operating functions are monitored on the instrument panel display:

- Engine tachometer
- Digital LCD hourmeter
- Hydraulic oil temperature indicator
- Engine coolant temperature gauge
- Optional auxiliary hydraulic function screen
- PTO engagement indicator light
- Air restriction indicator light
- Air heater starting system indicator light
- Battery charge light
- Park brake engagement light
- Oil pressure indicator light
- Turning signal or hazard flasher lights

This easy-to-read instrument panel is backlit for excellent night visibility.

SEAT



The 110 TLB has a single seat, which functions for both tractor and backhoe operating positions.

This seat has large seat and back areas. The soft foam core with bonded heavy all-weather plastic covering is durable to sustain years of outdoor usage.



The seat is adjusted fore-and-aft by lifting up on a small lever at the front left corner of the seat.