



The seat is “rolled over” to the backhoe operating position by adjusting to the rear-most position, pushing a latch release lever located directly underneath the front of the seat to the left side of the vehicle, and at the same time lifting up on the seat bottom cushion.



When the seat is rolled to the backhoe operating position, seat elevation is increased 5.9-in. (150 mm) to provide better visibility to the rear and into a trench during backhoe operation.

The seat is equipped with operator presence safety switches which do not allow the tractor to be moved unless the operator is seated. Switches are provided for both tractor and backhoe operating positions.

The seat is equipped with a retractable seat belt, which may be worn for tractor or backhoe operation. The retracting mechanism keeps the belt from deteriorating and becoming tangled in controls.

## CANOPY



A large 26 sq. ft. canopy provides protection to the operator.

- Constructed of impact-resistant polyethylene to resist damage. Retains appearance and does not rust.
- Curved corners and contoured shape to enhance styling and shed debris and water.
- Built-in recesses provide added protection for lighting equipment.
- Extra length provides protection to operator even when in backhoe operating position.

## OPERATOR PROTECTION



The 110 TLB has a four-post rollover protective structure to protect the operator in the event of a tractor tip-over.

A heavy tubular structure surrounds the operator at each corner of the operator station.

- This structure is certified to current construction equipment standards in accordance with SAE J1040 to 9000 lb.

Falling object protection is provided by a plate on top of the tractor canopy.

- This structure is certified to current construction equipment standards in accordance with ISO 3449 Level 1.

Retractable seat belt is provided as standard equipment. The seat belt is functional in both the tractor and backhoe operating positions.

LIGHTING



All operational and safety lighting is mounted on the canopy.

- Higher location provides better visibility to work areas, particularly during loading operations.
- Higher location provides better visibility of warning and safety lights during transport on roadways.

Standard lighting includes:

- Two forward-mounted 55-watt halogen work lamps.
- Two forward-mounted amber warning lamps.
- Two rearward-mounted amber warning lamps.
- Two rearward-mounted stop/tail lamps.

Optional lighting is available either factory or field installed.

LOADER

The 110 Tractor Loader Backhoe is equipped with a high-capacity construction design front loader as standard equipment.

| Lift Capacity                   | lb. (kg)    |
|---------------------------------|-------------|
| To maximum height at pivot pins | 2727 (1237) |
| To 1.5 m at pivot pins          | 3133 (1421) |
| To maximum height               | 2042 (926)  |
| To 1.5 m                        | 2530 (1148) |

*Note: Per ASAE S301.3 specifications.*

Excellent hydraulic flows in combination with appropriately sized hydraulic cylinders give the 110 TLB loader quick cycle times for increased productivity.

| Performance          | Seconds |
|----------------------|---------|
| Boom raise time      | 3.44    |
| Boom lower time      | 2.31    |
| Bucket dump time     | 2.94    |
| Bucket rollback time | 1.92    |

*Note: Unloaded times per ASAE S301.3 specifications.*

BOOM DESIGN

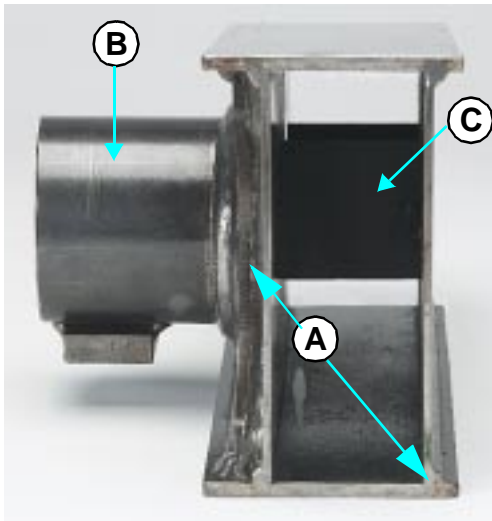


Loader components have been designed to maximize strength and durability, yet provide the operator with excellent forward visibility.

- Unlike typical farm loaders, boom arms are continuous-curve box-section design constructed of single-piece side plates combined with top and bottom members. This design eliminates the typical welded and plated loader knee at the joint between the top and lower boom arms.
- Loader boom arms have been designed to follow the hood contour to maintain excellent forward visibility.
- The low angle between top and lower boom arms helps effectively transmit the pushing force of the tractor without risking boom failure.
- Boom components are made of high-strength, low-alloy steel to maximize strength and carrying capacity while minimizing component weight.



Additionally, the loader booms taper inward 5.9-in. (150 mm) at their tractor mounting locations to allow excellent front drive tire and front bucket edge visibility during operation.

**MAST DESIGN**

The 110 TLB loader utilizes closed box construction for maximum strength.

- All plates are laser cut to assure precise fit.
- Boom components are continuous seam robotically welded (A) for maximum strength and process uniformity.
- Heavy thick-wall round torque tube (B) joins loader booms together to prevent distortion under severe stress loads.
- Internal baffle plates (C) provide additional strength and protection against boom collapse.



Loader masts are made from ductile cast iron.

- Internal “Z-form” webbing absorbs high-stress shock load energy without deforming material.
- Cast design allows loader mast to follow tractor cowl contour for tighter fit and better forward visibility, particularly to front drive wheels.
- Provides solid and precise boom mounting points to assure stress loads are carried properly even after significant usage.



The loader has a standard construction-style boom lock device. It should be used anytime the boom is raised for servicing the machine.

- Allows locking of the boom in raised position to provide for easy service, particularly in restricted areas.
- Lock device pins underneath boom when not in use.
- Tethered pin for easy installation.

## MOUNTING

The loader is solidly mounted to the tractor through the sub-frame structure.

- Lower portion of loader masts mount to rear subframe sides, clutch housing, and engine block to provide excellent horizontal stability.
- Side plates mount from mid-point on loader mast to front subframe to provide greater vertical stability to mast components.



Mounting points for the boom and cylinders, where movement occurs, have been strengthened for commercial use.

- Boom ends have hardened, replaceable bushings, reducing wear and allowing refitting after substantial use.
- Mast mounting pins are flagged to eliminate rotation.
- Cylinder mounting pins are through-pinned to eliminate undesired rotation.

## CONTROLS



Control for loader hydraulic functions is accomplished by a single-lever joystick located conveniently beside the seat.

- Location allows usage in relaxed position for right arm.
- T-shaped control handle fits comfortably in palm of hand.
- Safety lock allows the operator to lock the SCV handle and minimize rapid movement of the loader or attachment.

When single loader functions are desired, the loader control handle can be moved either fore-and-aft or side-to-side. When multiple loader functions are desired, the loader control valve can be moved both fore-and-aft and side-to-side at the same time.



## BUCKET / IMPLEMENT MOUNT



The 110 TLB loader comes standard with skid steer loader type implement mounting plates.

- Provides for quick and easy front bucket and implement changes.
- Allows for use of many skid steer loader buckets and implements. (See Specifications section for details.)

These mounting plates have been specifically designed by John Deere for durability and ease of use.

- Wide plate surface area (135 sq. in. each) prevents mounting plate from pushing through back of bucket during severe use.
- Rotating pawl design requires less force to engage or disengage than most competitors.
- Ribbed cast-iron handle provides sturdy, easy grip during engagement and disengagement.
- Curved ends of top plate ease entry into implements.
- Pawl engagement operates well in mud and debris.
- No lower sleeves that must be greased.



Mounting plates are connected to bucket cylinders using a four-bar linkage system.

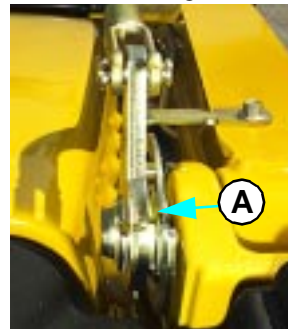
- Provides 45-degree bucket rollback and dump angles.
- Constructed of heavy-duty cast iron.
- Protected grease fittings.

## BUCKET POSITIONING



The 110 TLB loader comes standard with a mechanically actuated bucket anti-rollback linkage. This system automatically adjusts the position of the bucket as the boom is raised.

- Prevents spilling of material back onto the machine during loading operations.
- Improves productivity with faster and easier load-out cycles.
- Very little feedback through SCV lever.
- Does not automatically control bucket during lowering cycle, allowing operator to reposition bucket as desired.
- Bucket cannot be rolled back in raised position, which could dump material on machine or operator.
- Bucket leveling can be easily adjusted at the linkage.



Two methods allow the operator to determine the position of the bucket.

- A bucket level indicator (A) is provided just to the inside of the right side loader mast. When the notches in the indicator wheel line up, the bucket is parallel with the ground. This method is easy to use when the bucket is raised.
- Standard and heavy-duty buckets have edge tabs (B) formed into their side plates, which are parallel with the cutting edge of the bucket. This method is easy to use when the bucket is lowered.
- Allows operator flexibility of using whichever method is most convenient.

## LOADER HYDRAULIC OPTIONS

The 110 TLB loader is available with front hydraulic outlets to power a variety of hydraulically actuated implements and accessories. Specific features of these options are covered in the Hydraulics section, Hydraulic Options. All loader hydraulic options (order code 7020 or order code 7030) are available only as factory installed. There will be no field conversion kits available.

## LOADER IMPLEMENT OPTIONS

A variety of loader bucket and implement options have been provided to increase the versatility and productivity of the 110 TLB.

Standard, heavy-duty, and utility (light material) buckets have been designed and built by John Deere.

- Frame and body is constructed of high-strength, low-alloy steel for maximum strength and durability and minimum weight. This material resists dents and damage much better than common mild-grade steel.
- Cutting edges and wear bars are made of high-alloy 1055 steel for longer wear.
- Smooth, rounded back for better filling and easier cleanout, particularly if operating in wet conditions.
- Ends have side cutting plates for additional strength and wear.
- Built-in edge tabs at the top of the side plates assist the operator to determine angle of cutting edge during operation.
- Predrilled for replaceable cutting edge or toothbar.
- Standard skid steer loader back allows installation on other machines where appropriate.
- Designed to optimize load-carrying capacity without compromising durability.

The Quik-Tatch skid steer loader mounting system allows all buckets and front implements to be quickly and easily mounted in seconds.

Detail specifications are included in the Specification section.

## BUCKETS

### STANDARD BUCKET



An economical standard-duty bucket is available. This bucket has all of the features listed above, but does not include a bolt-on replaceable cutting edge.

- This bucket is recommended for light- to moderate-duty applications.
- Bucket is predrilled to add cutting edge later if desired.
- This bucket is available for either factory or field installation.

### HEAVY-DUTY BUCKET



A general purpose heavy-duty bucket is available. This bucket has all of the features listed above, in addition to a replaceable and reversible hardened steel bolt-on cutting edge.

- Significantly strengthens bucket edge for additional durability and wear under severe usage.
- Factory installed at time of manufacture.

This bucket is recommended for moderate- to severe-duty applications. This bucket is available for either factory or field installation.

### UTILITY OR LIGHT MATERIALS BUCKET



A utility or light materials bucket is available. This bucket has all of the design features listed above but does not include a bolt-on replaceable cutting edge.

- 1-ft. wider than standard buckets.
- Slightly higher and longer profile to provide additional carrying capacity.
- Struck capacity is approximately 1 cu. yd., which makes it convenient for users who sell landscape material by volume.

This bucket is recommended for use with light or high-volume materials (less than 75 lb./cu. ft. or 1.22 kg./cubic liter). This bucket will be available only as field installed equipment.

### MULTI-PURPOSE BUCKET



A multi-purpose or “4-in-1” front bucket is also available. Use of this bucket requires the three-function loader control valve for the tractor.

- Hydraulic cylinders with hardened rods provide long, dependable life.
- Heavy-duty top torque tube equalizes load forces when grappling.
- High-alloy 1055 steel used at high wear points.
- Serrated inside edges to assist in gripping and holding material in jaw.
- Higher profile provides good load-carrying capacity.
- Forward edge predrilled for bolt-on replaceable cutting edge or tooth bar.
- All pivot points lubricated with grease fittings.
- Leading edge of bucket jaw predrilled for addition of bolt on cutting edge if desired.

This bucket allows the operator to perform a number of functions, such as bulldozing, scraping, clamping and lifting material, loading, and precisely metering material as the bucket jaws are opened. This bucket is available for either factory or field installation.

### PALLET FORKS



Rail-style front pallet forks are available.

- Rail-style fork mounting holds forks in rigid position so they stay set during maneuvering for load.
- Eight fork setting positions between 8-in. (203 mm) and 40-in. (1016 mm) at 4-in. (102 mm) intervals.
- Single-piece backrest provides excellent forward visibility yet stabilizes load during transport.
- 10-degree back angle gives forks greater breakout capacity for heavy loads and allows forks to be tipped to a steeper angle.
- ITA Class II certified tines.

Pallet forks are a very versatile tool to unload pipe, conduit, lumber, and other palletized materials. Pallet forks are available as a field installed implement only.

Specific lifting capacities for pallet forks with 110 TLB are provided in Specifications section.

## BACKHOE

### DESIGN



The backhoe for the 110 TLB has been designed and built by John Deere Dubuque Works, Dubuque, Iowa, and is installed on the tractor unit at John Deere Commercial Products, Augusta, Georgia.

Key features of this new backhoe:

- Construction designed and tested.
- John Deere Power Curve™ excavator-style boom.
- Custom computerized design of main control valve.
- John Deere construction-grade Series 120 hydraulic cylinders.
- Heavy base platform and cast-iron swing frame.
- Long stick controls.
- Quick-release transport locks.
- Exceptional stabilizer lift and leveling ability.
- Exclusive “creep to reposition” vehicle movement from backhoe operator position.
- Quickly and easily removed from the tractor unit so it can be used for utility work.
- Options and accessories add versatility and value for customers.

## OPERATOR PLATFORM



Visibility to the rear for backhoe operations was a primary design consideration.

- Key backhoe components, including control valves, are placed below the backhoe base platform, eliminating the need for a bulky control console near operator.
- Backhoe boom section is narrowed in the center to allow better visibility to the bucket and digging area when in trenches.
- Backhoe hoses and lines are tight against boom and cylinder to further improve visibility and avoid damage during deep trenching operations.
- The operator foot platform is generous and uncluttered. Non-skid mats are provided. The platform does not have a side lip, so it can be cleaned easily.
- Stabilizer control levers are close together to allow operation with one hand.

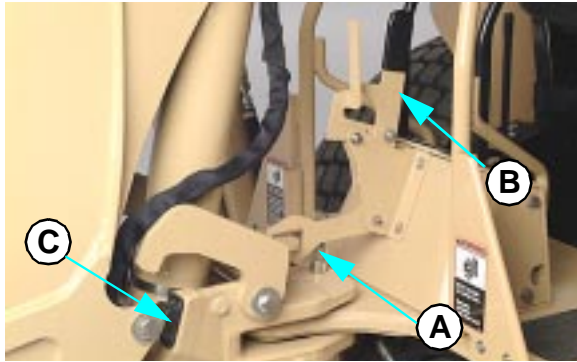
*Note: The 110 TLB uses standard backhoe two-lever controls. Because each spool function is specific, it cannot be converted to ISO control configuration common to excavators. Three-lever Case controls will not be offered.*





The backhoe operator station and controls are functional and convenient.

- Grab handles are provided to assist the operator in moving from the tractor operator position to the backhoe operator position.
- The operator sits 5.9-in. (150 mm) higher in the backhoe position than the tractor position, providing better sight lines into the excavation area.
- Long main control rods curve inward toward the operator to allow backhoe operation with operator's arms in a relaxed position. Control rod effort is low to avoid tiring during extended operation.
- A U-shaped grab handle extends above control console to provide additional stability during mounting or moving to backhoe platform.



Once the machine is set, it can be readied for digging operations very quickly without the operator leaving the backhoe seat.

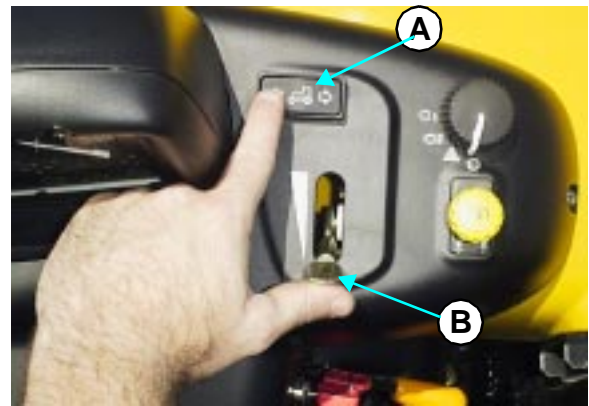
- The vertical drop boom swing pin (A) has a large lift hook and can be reached from the backhoe seat. A storage location is provided nearby on the lower grabrail.
- The “one-touch” boom lock lever (B) is lifted by simply pushing a latching lever forward after the boom has been moved to its highest position.
- The boom lock lever can be engaged regardless of the swing angle, allowing the boom to be pinned up even if it is transported at an angle.
- Rubber latch cushions (C) help reduce transmission of shock loads generated during transport from the boom to the mainframe.

The boom lock system will be particularly beneficial to customers who must transport their machine over rough areas, as operators will not experience the boom chucking against the stops like competitive machines.

### CREEP TO REPOSITION FEATURE

To assist in moving the tractor unit during trenching operations, a unique repositioning creeper drive was designed for the 110 TLB. This drive system allows the operator to move the tractor forward or backward at slow speed when in the backhoe operating position.

Without this drive system, (1) the operator would have to take the time to move to the tractor operating position where drive controls are accessible, relocate the tractor, then move back to the backhoe operating position, causing loss of time not performing the primary task at hand; or (2) using backhoe boom and hydraulics, the operator could lift the rear of the tractor unit up and push it ahead, causing extraordinary stress on both tractor and backhoe unit as well as raising safety concerns.



The repositioning creeper drive control is located at the rear of the right fender console, just to the left of the operator when in backhoe operating position. Controls include a directional switch (A) and speed control lever (B). The directional switch must be held down as the speed lever is advanced. The motion alarm will sound as soon as the directional control switch is pressed. The speed control lever allows only limited travel speed. The operator must be seated in either the tractor or backhoe operating positions for the drive control to activate.

*Note: To conduct this operation the park brake must be returned to neutral position, the tractor placed in A or B speed range, and the stabilizers and front loader implement raised to clear the surface.*

## BOOM AND DIPPERSTICK



The excavator-style boom on the 110 TLB backhoe provides a number of important benefits for users.

- Excellent digging depth with minimum ground disturbance, keeping trench length short and reducing the amount of time and material required to return jobsite to original condition.
- Tighter bucket retraction and lower overall height for easier transport.
- Closer excavation to machine than straight booms, reducing the need for repositioning.
- Easier and safer loading of materials into truck, with greater loading reach especially in close to vehicle.
- Better placement of tailing materials.
- Backhoe weight carried farther forward for faster and smoother travel when conducting loading operations or during transport.



Boom components for the 110 TLB backhoe are unique.

- Constructed of high-strength, low-alloy steel to maximize strength and minimize swinging weight.
- Laser cut and robotically welded for consistency and uniformity in construction.
- Boxed construction with double end plates for highest strength with minimum weight.
- Boom and crowd cylinders mount outside of boom structure, keeping hydraulic lines of force away from the boom interior.
- Pivot points are wider at the joints than in the middle of the main boom assembly to provide additional strength against torsional loads.

The dipperstick is also of closed box construction for maximum strength and minimum weight.

Less than half of the overall weight of the backhoe unit is in swinging components away from the mainframe. Backhoe components that are in motion during digging and loading operations are light to reduce the amount of momentum when movement is stopped. Backhoe components that are not in motion during operation (for example swing frame and base) are heavy. This increases the stability of the machine during operation and increases the life of backhoe digging components.



The swing frame is an integral part of the backhoe, as much of the digging forces are transmitted through it.

- Heavy cast-iron construction assures precise mounting of backhoe components.
- Wide 18.1-in. (459 mm) main swing joint reduces the amount of stress force transmitted to swing pivots during digging operations.
- Wide mounting of swing cylinders aids in developing swing torque.

## STABILIZERS AND STABILIZER FEET



Rear stabilizer arms provide stability to the unit during digging operations.

- Arms are angled rearward 18 degrees to provide greater stability when digging under severe conditions.
- Arms are curved at inboard end to allow tighter tuck of stabilizers to machine during transport.

Stabilizer hydraulic cylinders are powerful enough to set the tractor to three-point digging stance when the engine is at idle.

- Full 13-degree lift angle allows unit to be leveled on steeper slopes unlike many competitive machines.
- With 9951 lb. (4513 kg) of lift capacity at ground level, quick response and easy positioning of stabilizer height is assured.
- Hydraulic lock-outs are provided in each end of the cylinders. These lockouts help hold the cylinders during operation and during transport, helping prevent cylinder leakdown.

At the end of each stabilizer arm is a cast-iron stabilizer foot pad.

- A flat side (down in photo) is provided for operation on hard and flat surfaces, such as asphalt and concrete.
- A spiked side (up in photo) is provided for operation on dirt or soft surfaces. From the center this spike slopes to the sides, forming a triangular shape. This triangular shape adds flotation and stability as the stabilizer is pressed into the ground.
- No tools are required to change from spiked to flat surface and back. Simply rotate the foot past a rubber centered stop. This stop prevents the pads from rotating to an alternate position during transport or lowering of stabilizers.

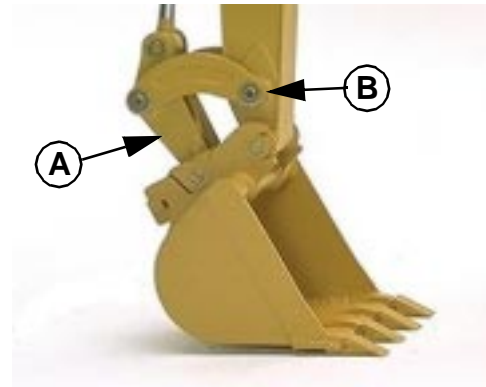


Solid rubber stabilizer pads are available as a factory installed option.

- Highly recommended to reduce surface damage if machine is operated on asphalt or concrete surfaces.
- Solid rubber surface provides exceptional wear and additional traction when digging on slick or finished surfaces.

These pads will also be available individually through the parts system.

## BUCKET LINKAGE



The 110 TLB backhoe utilizes an exclusive John Deere cast-iron power link system to attach the bucket to the bucket hydraulic cylinder.

The rotating end of the backhoe bucket is attached to the bucket hydraulic cylinder through a cast-iron intermediate power link (A). Cast-iron guide links (B) are provided to maintain bucket alignment during operation.

This bucket linkage system provides the customer with a number of important benefits.

- Provides 190-degree bucket rotation, allowing better vertical wall digging.
- Increased curl does not require repositioning of the bucket linkage for truck loading operations.
- Linkage provides more consistent force throughout the digging arc than conventional linkages, increasing its ability to dig in hard conditions.

## HYDRAULICS

The main backhoe hydraulic control valve is a Series 5000 sectional valve from Hydraulic Unit Specialty Company (Husco). This valve has been custom designed and computer tuned for optimum performance on the 110 based on backhoe geometry, hydraulic cylinders, and expected loads.

This valve offers exceptional performance and balance for primary backhoe functions:

- Level grading.
- Dipperstick crowd and bucket curl.
- Boom swing and drop.
- Boom raise and swing.



Cross-functional metering is excellent, allowing for smooth continuous backhoe operation even with inexperienced operators. The hydraulic system is configured such that full hydraulic horsepower is available for each backhoe function, including side swing.



The backhoe main control valve is located under the operator platform inside the base frame.

- Out of view of operator during operation.
- Easy to access for service if required.
- Hoses route directly and comfortably through swing frame.
- Pressure relief valve can be accessed or serviced without removal of main control valve.
- Swing cylinders mounted in cast-iron pillow block for easy service if required.
- Circuit release workports are provided for all hydraulic functions to protect equipment and lines from spike pressure failures.

Because hoses lay in a natural and relaxed pattern within the swing frame and along the boom, hose replacement when necessary is quick and easy.

## BACKHOE HYDRAULIC OPTIONS

Backhoes may be equipped with an auxiliary seventh function hydraulic valve to operate a variety of hydraulically controlled or driven attachments and accessories. This option is available factory installed. Accessories available include a hydraulic demolition hammer, a hydraulic auger, and a hydraulic thumb.



Backhoe auxiliary hydraulic functions are controlled with a foot pedal just to the left of the control pedestal. This allows the operator to control the implement placement with the regular backhoe hand controls and implement activity with the foot control. The foot pedal allows continuous flow in either direction, depending on which direction the pedal is pushed.



Hydraulic lines are routed to remote couplers on the dipperstick. Couplers are 1/2-in. flat-face, same as found on many compact excavators, increasing implement compatibility.



## HYDRAULIC CYLINDER DESIGN AND MOUNTING

Hydraulic cylinders used on the 110 TLB are made by John Deere Cylinder Division in Moline, Illinois. They are backed by millions of hours of field and lab testing.



Cylinders are construction-grade John Deere Series 120. They have been computer designed specifically for the 110 TLB for strength, durability, and performance.

- Rods are forged from high-carbon steel, assuring alignment of grain in metal and superior resistance to fatigue over time.
- Forged rod ends and cap ends hold cylinders firmly in place.
- Rod ends are friction welded to bond entire metal surface together for highest strength.
- Rod guides are snap locked for easier removal, and have excluder seals to keep out dirt and debris.
- Special nickel chrome alloy plating on cylinder rods leaves smooth surface that does not check or destroy cylinder seals.
- Induction hardening of rods is deeper than most competitors, providing a more damage-resistant surface.
- Boom and swing cylinders are hydraulically dampened to reduce end-of-stroke shock loads. Lift-off is instantaneous. Cushioning is progressive.



The boom cylinder and crowd cylinder are linked together at the top of the boom assembly. This allows hydraulic forces created by these cylinders to be transferred only through the mounting pin and not through the entire boom structure. Service, such as removal of cylinder or replacement of hose, is simplified with all cylinders outside of boom structures.



Two heavy double-acting swing cylinders perform backhoe swing functions.

- Barrels are heavy cast iron for extended life.
- Trunnions are cast into cylinder barrel for maximum strength.
- Large cylinder bore provides extra torque for backfilling operations.
- Direct coupling provides precise position control.
- Excellent end-of-stroke hydraulic dampening slows boom swing momentum and prevents damage to structures as the end of the swing arc is approached.

## MAINFRAME AND TRACTOR MOUNTING

The mainframe of the backhoe provides a sturdy and stable platform from which the backhoe can perform its tasks.



The main platform is designed for durability and fit to the tractor unit.

- Laser cut and robotically welded.
- Top and bottom decking of heavy 1/2-in. (12 mm) plate.
- Mid-mounted strengthening plate and internal gussets provide exceptional rigidity to box frame.
- Heavy stabilizer mounting gussets.
- Base sits off the ground with access holes for forklift tines so unit can be transported when off the tractor.

The backhoe can be easily removed for the tractor unit, making it available as a general purpose utility tractor to complete a variety of other tasks.



The backhoe is mounted to the tractor subframe by means of two lower mounting dowels and two upper removable pins.

Removal of the backhoe is accomplished following these steps:

- 1) Lower stabilizers to approximately 12-in. above surface and raise back of tractor up slightly using backhoe boom with bucket lower back parallel with ground.
- 2) Remove retaining pin and then mounting pin from subframe boss on each side.
- 3) Actuate the boom control (boom raise action) to rock the backhoe mainframe away from the tractor. Actuate the stabilizer controls to lift the backhoe frame slightly (2-in.) until the backhoe mainframe lower pins clear the subframe lower hooks.
- 4) Drive slightly forward until the mainframe clears the lower subframe.
- 5) Lower the backhoe to the ground and fold stabilizers up to transport position if desired. Turn tractor off and disconnect backhoe hydraulic supply and return lines. Connect tractor hydraulic lines together and backhoe hydraulic lines together.

This procedure would be reversed to reconnect the backhoe.

### BACKHOE BUCKET MOUNTING SYSTEMS

The 110 TLB backhoe comes standard with a pin-on bucket mounting system. This provides an economical method of mounting the bucket where customers do not have to change bucket sizes or backhoe implements very often.

- Buckets are mounted with pins through eyes in the bucket hangers.
- Bucket eyes have grease zerks to promote long wear and quiet operation.
- Bucket mounting pins are allowed to rotate with bucket action.
- Heavy cotter pin retainers make removal of pins or changing of buckets much easier than with snap ring systems, particularly if the operation must be done in the field.

A quick-couple bucket mounting system is available for the 110 TLB backhoe as an option with select buckets.



This bucket coupling system allows the operator to change backhoe buckets or implements quickly and easily in a matter of minutes.

- Simple design with few parts.
- Allows buckets to be attached without lifting to fit and without difficulty in aligning mounting holes.
- Locking wedges hold bucket firmly.
- Easy, single-bolt removal with 24 mm wrench.
- Safety retaining clips assure that bucket will not be lost should it become loose.
- Compact mounting system provides same bucket digging forces as similar pin-on buckets.

This bucket quick-couple system is used on the popular John Deere 27ZTS and 35XTS Compact Excavators as well as other equipment in the industry, increasing the ability for customers to utilize buckets and implements that might already be in their fleets.

## BACKHOE BUCKETS

A variety of backhoe bucket sizes and styles are available to meet almost all backhoe customers' needs.

Two different bucket types are offered, depending on the bucket mounting system chosen.

- Pin-on buckets offer an economical mounting system for customers who do not have to change buckets or accessories to accommodate various jobs.
- Quick-couple buckets offer a durable mounting system that allows customers to change buckets and accessories in minutes.

All of the backhoe buckets for the 110 TLB have the following features:

- Excavator design with continuously curved backsheets for easy fill and quick and clean dumping of material.
- Backsheet draws in as bucket is curled to reduce bottom wear and friction during digging operation.
- Heavy-duty bucket hangers continuously welded to bucket body for strength.
- Thick, round top cross tube effectively transmits curling force to side plates, adding durability with minimum weight.
- Cutting edges and side cutters are 1045 high-carbon steel for long life.
- Rear wear strips or double bottom for additional durability for primary digging buckets.

*Note: Clean-out buckets do not have double-wall bottoms.*

- High-carbon replaceable digging teeth on digging buckets.



The 12-, 18-, and 24-in. pin-on buckets have been specifically designed for digging.

- 12-in. bucket ideal for narrow trenching operations.
- Heavy replaceable bucket teeth aid digging in difficult situations.



The 30- and 36-in. pin-on backhoe buckets have been specifically designed for use in removing soft or light material. They are not recommended for hard digging conditions.

- Higher volume capacity.
- Smooth cutting edge without teeth to leave smooth trench surface.
- Do not have double backsheets for weight reduction.



Four sizes of quick-couple backhoe buckets provide operator the ability to more exactly match trenching requirements. These buckets have been designed to dig in all conditions.

- 12-in. bucket is ideal when a narrow trench or minimum ground disturbance is desired.
- 16-in. bucket is available for use when an 18-in. overall trench width is desired.
- 20- and 24-in. buckets are available for general excavation.



A 30-in. quick-couple bucket is provided for removal of soft or light materials. This bucket is ideal for cleaning ditches and drains. It does not have digging teeth, so a smooth surface can be left after material removal.

Details for each bucket are contained in the Specifications section.

## BACKHOE DURABILITY

A number of steps have been taken to maximize the life of the 110 TLB backhoe.



All high-stress pivot points have replaceable bushings:

- Mainframe to swing casting pivot.
- Boom to swing casting pivot.
- Boom to dipperstick pivot.
- Swing cylinders to frame
- Swing cylinders to swing casting pivot.
- Boom cylinder to swing casting pivot.
- Crowd and bucket cylinder (rod eye end) pivots.

The boom-to-dipperstick and boom-to-swing casting pins are flagged to eliminate free pin rotation. The swing axis top and bottom pins and the swing cylinder rod eye pins are cross-bolted. Even the backhoe mounting pins are oversized to provide a large bearing surface and eliminate wear.

## SAFETY EQUIPMENT

Operator and bystander safety was an important consideration in designing the new 110 Tractor Loader Backhoe.

- Construction yellow for high visibility on jobsites.
- Key switch interlock prevents bypass starting.
- Park brake for positive parking.
- Boom lock-up for service.
- Transport or storage locks for backhoe.

A motion (back-up) alarm is included as standard equipment.

- 108 dBA sound level at alarm.
- Also sounds when backhoe repositioning creeper is activated.

A slow-moving vehicle sign kit and tractor horn warning kit are available as field installed accessories.

## Operator Station Safety Features

Safety features of the 110 TLB operator's station include:

- Boarding step and rubber floor mat for operator platform.
- Color-coded controls.
- Four-post rollover protective structure meets current OSHA and SAE construction equipment standards.
- Canopy top plate provides falling object protection.
- Retractable seat belt.

A 3-in. retractable seat belt is available as a field installed accessory. This additional strength belt may be required for sale in some states and on some jobsites.



### Transmission Safety Features

Safety features of the eHydro™ transmission include:

- The tractor will start with one or both foot pedals depressed, but transmission controls will not activate until both directional pedals first come to a neutral position.
- If one or both foot pedals are depressed and the operator is not in the tractor seat, the unit will not move.
- The creep-to-reposition feature, which allows tractor movement from the backhoe operating position, will not work if the operator is not in a seated position.
- Creep-to-reposition feature restricts travel speed to 2.5 mph.

### Rear Power Take-Off Safety Features

Safety features for the fully independent rear PTO include:

- PTO light on dash is illuminated whenever the PTO is engaged.
- PTO neutral start switch prevents starting the tractor with the PTO engaged.
- PTO safety interlock shuts down tractor if operator inadvertently leaves tractor seat with PTO in operation.
- Large PTO shield protects output shaft when not in use but allows room to easily hook up implement drive shafts.

### Vehicle Lighting Safety Features

Safety features for operation during nighttime or on roadways include:

- All lighting is mounted on the canopy for best illumination and best visibility during transport.
- Amber turn signal/flashing warning lights for road transport.
- Taillight for road transport.
- Stop light for road transport.

A high-intensity strobe warning light is available as a field installed accessory.

## SERVICEABILITY

### Engine Service



- The hood lifts to a vertical position, allowing access to engine and hydraulic oil cooling systems, engine coolant reserve reservoir, engine air cleaner, and engine oil dipstick. A radiator pre-screen can be lifted and inspected at the same time.
- The right engine side panel unclips, allowing access to engine oil fill location, fuel filter, and engine oil filter.
- All routine maintenance and inspection of engine components can be performed from the right side of the machine.
- The left side engine panel can be quickly unbolted to allow access to the starter and engine exhaust system.



The battery is conveniently located behind the left side boarding step. The battery box cover is removed without tools by pulling three quick-clip pins. Battery box cover is lockable.

**Loader Service**

Daily loader service is eased by convenient end-of-pin greasing of pivot pins.

**Backhoe Service**

Backhoe service can be conducted at ground level.

- Lubricating fittings around swing frame are easy to access, particularly if boom is swung to the side.
- Boom and dipperstick fittings are easy to access when boom is extended horizontally.
- End-of-pin lubrication fittings are used on bucket guide links. Center pin and bushing greasing is used for bucket pivot points that must operate under higher loads with higher probability of contamination during operation.
- The boom hydraulic cylinder is outside of the boom structure, simplifying inspection, removal, or replacement of hoses if necessary.

## EQUIPMENT FOR BASE MACHINE

### TRACTOR

#### Engine:

|  |   |
|--|---|
| 4-cylinder liquid-cooled diesel engine .....   | X |
| Direct fuel injection .....                    | X |
| Air heater starting aid .....                  | X |
| Neutral start switch .....                     | X |
| Auto-bleed self-priming fuel system .....      | X |
| Key engine start and shutoff .....             | X |
| Dry-type air cleaner with safety element ..... | X |
| Dash-mounted air restriction indicator .....   | X |
| Fully enclosed engine and muffler .....        | X |
| Side exit exhaust .....                        | X |
| Engine side panels .....                       | X |
| Fuel/water separator .....                     | X |

#### Cooling System:

|                                   |   |
|-----------------------------------|---|
| Shipped with anti-freeze .....    | X |
| Coolant recovery system .....     | X |
| Sealed radiator compartment ..... | X |
| Removable radiator screen .....   | X |
| Steel hydraulic oil cooler .....  | X |

#### Transmission (Powertrain):

|   |   |
|---|---|
| eHydro™ electronically controlled hydrostatic drive .....   | X |
| 3-range speeds. ....  | X |
| Load sensing output speed. ....                             | X |
| Dual pedal foot controls. ....                              | X |
| Creeper repositioning from backhoe operating position ..... | X |
| Final drives .....  | X |
| Inboard planetary final drives. ....                        | X |
| Foot-actuated differential lock. ....                       | X |

#### Brakes:

|                                   |   |
|-----------------------------------|---|
| Mechanical wet disk brakes .....  | X |
| Individual rear wheel brake ..... | X |
| Hand-actuated parking brake ..... | X |

#### Hydraulics:

|  |                |
|--|----------------|
| Open-center hydraulic system .....                     | X              |
| Crankshaft-driven main hydraulic pump .....            | X              |
| Dedicated power steering pump and system .....         | X              |
| Suction-side oil filtration .....                      | X              |
| Pressure side bypass system relief .....               | X              |
| Electric backhoe presence flow diverter switch .....   | X              |
| O-ring face seal line and hose connectors .....        | X              |
| Electrically controlled third hydraulic function ..... | Factory Option |
| Third auxiliary hydraulic function .....               | Factory Option |
| Rear tractor hydraulic functions .....                 | Factory Option |

#### Rear Tractor Power Take-Off (PTO):

|                                   |   |
|-----------------------------------|---|
| Fully independent operation ..... | X |
| Wet clutch engagement .....       | X |
| Wet clutch brake .....            | X |

#### Rockshaft, Hitch, and Drawbar:

|   |              |
|---|--------------|
| Internal control valve with position control .....        | X            |
| Rear rockshaft .....                                      | X            |
| Rockshaft rate of drop / stop valve .....                 | X            |
| Category 1 manually adjusted three-point hitch .....      | Field Option |
| Category 1 hydraulically adjusted three-point hitch ..... | Field Option |