### TRANSMISSION

- Torque converter, single stage, dual phase
- Travel speeds with 19.5L-24 rear tires:
  - Forward: 4.5 mph (7.2 km/h)
  - Reverse: 3.4 mph (5.5 km/h)

### CAPACITIES

- Fuel tank (with ground level fueling): 34 gal. (129 L)
- Oil (with filter): 9 qt. (8.5 L)
- Coolant: 17 qt. (16 L)

### STEERING

- Axle oscillation, stop to stop, both axles: 22 degrees
- Steering wheel turns, stop to stop: 3.5

### HYDRAULIC SYSTEM

- System: closed center
- Pressure, main relief: 2,755 psi (19,000 kPa)
- Flow: 2,200 rpm

### CYLINDERS

<table>
<thead>
<tr>
<th>Cylinders</th>
<th>Bore</th>
<th>Stroke</th>
<th>Rod</th>
<th>Bore</th>
<th>Stroke</th>
<th>Rod</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loader boom</td>
<td>3.54</td>
<td>29.84</td>
<td>1.77</td>
<td>5.54</td>
<td>29.84</td>
<td>1.77</td>
</tr>
<tr>
<td>Loader bucket</td>
<td>3.54</td>
<td>28.19</td>
<td>1.77</td>
<td>4.94</td>
<td>28.19</td>
<td>1.77</td>
</tr>
<tr>
<td>Backhoe boom</td>
<td>4.53</td>
<td>38.34</td>
<td>2.48</td>
<td>5.03</td>
<td>38.34</td>
<td>2.48</td>
</tr>
<tr>
<td>Backhoe crowd</td>
<td>3.94</td>
<td>32.24</td>
<td>2.20</td>
<td>4.54</td>
<td>32.24</td>
<td>2.20</td>
</tr>
<tr>
<td>Backhoe bucket</td>
<td>3.54</td>
<td>31.00</td>
<td>1.97</td>
<td>4.54</td>
<td>31.00</td>
<td>1.97</td>
</tr>
<tr>
<td>Backhoe swing</td>
<td>3.94</td>
<td>9.49</td>
<td>1.97</td>
<td>4.94</td>
<td>9.49</td>
<td>1.97</td>
</tr>
<tr>
<td>Backhoe extendable dipper</td>
<td>3.15</td>
<td>19.96</td>
<td>1.77</td>
<td>4.15</td>
<td>19.96</td>
<td>1.77</td>
</tr>
<tr>
<td>Backhoe stabilizer</td>
<td>3.94</td>
<td>19.96</td>
<td>1.77</td>
<td>4.94</td>
<td>19.96</td>
<td>1.77</td>
</tr>
<tr>
<td>Steering (1) non-powered</td>
<td>1.97</td>
<td>9.49</td>
<td>0.98</td>
<td>2.97</td>
<td>9.49</td>
<td>0.98</td>
</tr>
<tr>
<td>Steering (1) MFWD</td>
<td>2.36</td>
<td>7.90</td>
<td>0.98</td>
<td>3.36</td>
<td>7.90</td>
<td>0.98</td>
</tr>
</tbody>
</table>

### FINAL DRIVES

- Torque converter, single stage, dual phase
- Travel speeds with 21L-24 rear tires:
  - Forward: 5.9 mph (9.5 km/h)
  - Reverse: 3.9 mph (6.3 km/h)

### ELECTRICAL SYSTEM

- Engine oil including filter: 9 qt. (8.5 L)
- Engine coolant: 17 qt. (16 L)
- Fuel tank (with ground level fueling): 34 gal. (129 L)

### HYDRAULIC SYSTEM

- System: closed center
- Pressure, main relief: 2,755 psi (19,000 kPa)
- Flow: 2,200 rpm
  - Filter, return oil: 10-micron, spin-on vertical replaceable element

### CYLINDERS

- Loader boom: 3.54 in. (90 mm)
- Loader bucket: 3.54 in. (90 mm)
- Backhoe boom: 4.53 in. (115 mm)
- Backhoe crowd: 3.54 in. (90 mm)
- Backhoe extendable dipper: 3.15 in. (80 mm)
SAE OPERATING WEIGHTS

TIREs

With non-powered front axle:
- 19.5L-24, 10 PR R4
- 21L-24, 10 PR R4

With mechanical-front-wheel drive:
- 21L-24, 10 PR R4
- 18.4-28, 12 PR R4
- 19.5-24, 10 PR R4

SAE OPERATING WEIGHTS

Standard: 15,600 lb. (7075 kg)

Cab adds:
- 500 lb. (227 kg)

Mechanical-front-wheel drive adds:
- 190 lb. (86 kg)

Standard extendable dipperstick:
- 4 ft. (1.22 m)

Excluding required counterweight adds:
- 350 lb. (158 kg)

Optional front counterweight(s) adds:
- 1,050 lb. (476 kg)

Backhoe bucket coupler adds:
- 200 lb. (91 kg)

5 ft. (1.52 m) extendable dipperstick:
- 16,250 lb. (7371 kg)

Excluding required counterweight adds:
- 589 lb. (267 kg)

See backhoe and loader performance data for bucket weights.

LOADERS BUCKETS

Heavy-duty long lip:
- 89 in. (2270 mill)

General-purpose long lip:
- 89 in. (2270 mill)

Multipurpose:
- 92 in. (2340 mill)

*With auxiliary cutting edge and skid shoes standard.

NOTE: All other buckets pre-drilled for auxiliary cutting edge.

BACKHOE PERFORMANCE

With Standard Dipstick:

Digging force, bucket cylinder (power dig position):
- 11,700 lb. (52 kN)

Digging force, crowd cylinder:
- 8,450 lb. (38 kN)

Swing arc:
- 180 degrees

Operator control:
- Two levers

Bucket positions (rollback):
- 9 or 18 degrees

Stabilizer angle rearward:
- 14.5 degrees

Lifting capacity, maximum:
- 4,802 lb. (2183 kg)

Leveling angle:
- 13 degrees

With Heavy-Lift Package:

Digging force, bucket cylinder (power dig position):
- 11,120 lb. (49.5 kN)

Digging force, crowd cylinder:
- 8,100 lb. (36 kN)

Swing arc:
- 180 degrees

Operator control:
- Two levers

Bucket positions (rollback):
- 8 or 17 degrees

Stabilizer angle rearward:
- 14.5 degrees

Lifting capacity, maximum:
- 6,746 lb. (3086 kg)

Leveling angle:
- 13 degrees

With Standard 4 Ft. (1.22 m) Extendable Dipstick:

Retracted:

Heaped Capacity:
- 918 lb. (417 kg)

Weight:
- 92 in. (2340 mm)

Extended:

Heaped Capacity:
- 1,424 cu. yd. (1091 m³)

Weight:
- 918 lb. (417 kg)

With Standard 4 Ft. (1.22 m) Extendable Dipstick***

Retracted:

Heaped Capacity:
- 1,424 cu. yd. (1091 m³)

Weight:
- 918 lb. (417 kg)

Extended:

Heaped Capacity:
- 1,424 cu. yd. (1091 m³)

Weight:
- 918 lb. (417 kg)

With Heavy-Lift 5 Ft. (1.52 m) Extendable Dipstick:

Retracted:

Heaped Capacity:
- 1,564 lb. (707 kg)

Weight:
- 92 in. (2340 mm)

Extended:

Heaped Capacity:
- 3,040 lb. (1382 kg)

Weight:
- 92 in. (2340 mm)

With 5 Ft. (1.52 m) Extendable Dipstick***

Retracted:

Heaped Capacity:
- 3,040 lb. (1382 kg)

Weight:
- 92 in. (2340 mm)

Extended:

Heaped Capacity:
- 3,040 lb. (1382 kg)

Weight:
- 92 in. (2340 mm)

**Backhoe specifications are with 24 in. x 8.8 cu. ft. (610 mm x 0.25 m³) bucket.

**Backhoe specifications are with 24 in. x 8.8 cu. ft. (610 mm x 0.25 m³) bucket.

BACKHOE BUCKET CAPACITIES

<table>
<thead>
<tr>
<th>Width</th>
<th>Capacity</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 in. (305 mm)</td>
<td>2.5 cu. ft. (0.07 m³)</td>
<td>244 lb. (111 kg)</td>
</tr>
<tr>
<td>18 in. (457 mm)</td>
<td>3.1 cu. ft. (0.09 m³)</td>
<td>322 lb. (146 kg)</td>
</tr>
<tr>
<td>24 in. (610 mm)</td>
<td>5.1 cu. ft. (0.14 m³)</td>
<td>537 lb. (244 kg)</td>
</tr>
<tr>
<td>30 in. (762 mm)</td>
<td>10.0 cu. ft. (0.28 m³)</td>
<td>11,000 lb. (49.5 kN)</td>
</tr>
</tbody>
</table>

Ditch cleaning:
- 36 in. (914 mm)
- 10.0 cu. ft. (0.28 m³)

Ditch cleaning:
- 36 in. (914 mm)
- 10.0 cu. ft. (0.28 m³)
Based on SAE 131. Rated lift capacities are in lb. (kg). Maximum lift capacities may be stability and/or hydraulically limited.

### 410D Backhoe with Standard Dipperstick

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>4 Feet (1.22 M)</th>
<th>5 Feet (1.52 M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETRACTED</td>
<td>RETRACTED</td>
<td>RETRACTED</td>
</tr>
<tr>
<td>2,170 (995)</td>
<td>2,060 (930)</td>
<td>2,060 (930)</td>
</tr>
<tr>
<td>2,200 (1000)</td>
<td>2,170 (995)</td>
<td>2,170 (995)</td>
</tr>
<tr>
<td>2,460 (1115)</td>
<td>2,460 (1115)</td>
<td>2,460 (1115)</td>
</tr>
</tbody>
</table>

### 410D Backhoe with Optional Heavy-Lift Package

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>4 Feet (1.22 M)</th>
<th>5 Feet (1.52 M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETRACTED</td>
<td>RETRACTED</td>
<td>RETRACTED</td>
</tr>
<tr>
<td>1,750 (795)</td>
<td>1,750 (795)</td>
<td>1,750 (795)</td>
</tr>
<tr>
<td>1,770 (805)</td>
<td>1,770 (805)</td>
<td>1,770 (805)</td>
</tr>
<tr>
<td>2,170 (995)</td>
<td>2,170 (995)</td>
<td>2,170 (995)</td>
</tr>
</tbody>
</table>

### 510D Backhoe with Standard Dipperstick

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>4 Feet (1.22 M)</th>
<th>5 Feet (1.52 M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETRACTED</td>
<td>RETRACTED</td>
<td>RETRACTED</td>
</tr>
<tr>
<td>1,630 (740)</td>
<td>1,630 (740)</td>
<td>1,630 (740)</td>
</tr>
<tr>
<td>1,640 (745)</td>
<td>1,640 (745)</td>
<td>1,640 (745)</td>
</tr>
<tr>
<td>2,000 (900)</td>
<td>2,000 (900)</td>
<td>2,000 (900)</td>
</tr>
</tbody>
</table>

### Dimensions (See Page 18)

- **ROPS and cab**
- *Regular type* indicates 410D dimensions.
- *Italic type* indicates 510D dimensions.
### BACKHOE

#### 410D

<table>
<thead>
<tr>
<th>With Standard Dipperstick*</th>
<th>With Heavy-Lift Package**</th>
<th>With Standard 4 Ft. (1.22 m) Extendable Dipperstick* Retracted</th>
<th>With Standard 5 Ft. (1.52 m) Extendable Dipperstick**</th>
</tr>
</thead>
</table>

| Loading height, truck loading position | 12 ft. 1 in. (3.69 m) | 12 ft. 1 in. (3.69 m) | 12 ft. 1 in. (3.69 m) | 15 ft. (4.58 m) |
| Reach from center of swing mast | 19 ft. 3 in. (5.87 m) | 23 ft. 7 in. (7.14 m) | 23 ft. 7 in. (7.14 m) | 25 ft. 10 in. (7.82 m) |
| Reach from center of rear axle | 22 ft. 1 in. (6.73 m) | 28 ft. 8 in. (8.76 m) | 28 ft. 8 in. (8.76 m) | 32 ft. 10 in. (9.94 m) |
| Maximum digging depth | 15 ft. 11 in. (4.86 m) | 20 ft. 10 in. (6.34 m) | 20 ft. 10 in. (6.34 m) | 20 ft. 10 in. (6.34 m) |
| Digging depth (SAE): | | | | |
| (1) 2-ft. (610 mm) flat bottom | 15 ft. 10 in. (4.62 m) | 20 ft. 8 in. (6.26 m) | 20 ft. 8 in. (6.26 m) | 20 ft. 10 in. (6.17 m) |
| (2) 8-ft. (2440 mm) flat bottom | 14 ft. 10 in. (4.51 m) | 20 ft. (6.09 m) | 14 ft. 10 in. (4.51 m) | 20 ft. 10 in. (6.17 m) |
| Ground clearance, minimum | 12 in. (305 mm) | 13 in. (330 mm) | 13 in. (330 mm) | 13 in. (330 mm) |
| Bucket rotation | 160 or 180 degrees | 160 or 180 degrees | 160 or 180 degrees | 160 or 180 degrees |
| Transport height | 11 ft. 10 in. (3.61 m) | 12 ft. 4 in. (3.71 m) | 12 ft. 4 in. (3.71 m) | 12 ft. 4 in. (3.71 m) |
| Overall length, transport | 23 ft. 5 in. (7.14 m) | 27 ft. 8 in. (8.43 m) | 27 ft. 8 in. (8.43 m) | 27 ft. 8 in. (8.43 m) |
| Stabilizer width – transport | 7 ft. 8 in. (2.34 m) | 7 ft. 8 in. (2.34 m) | 7 ft. 8 in. (2.34 m) | 7 ft. 8 in. (2.34 m) |
| Stabilizer spread – operating | 9 ft. 10 in. (3.00 m) | 9 ft. 10 in. (3.00 m) | 9 ft. 10 in. (3.00 m) | 9 ft. 10 in. (3.00 m) |
| Stabilizer overall width – operating | 11 ft. 4 in. (3.45 m) | 11 ft. 4 in. (3.45 m) | 11 ft. 4 in. (3.45 m) | 11 ft. 4 in. (3.45 m) |
| Width over tires | 86 in. (2.18 m) | 86 in. (2.18 m) | 86 in. (2.18 m) | 86 in. (2.18 m) |

*Backhoe specifications are with 24 in. x 7.5 cu. yd. (610 mm x 0.21 m³) bucket.
**Bucket specification are with 24 in. x 8.8 cu. ft. (610 mm x 0.25 m³) bucket.

### 410D LOADER PERFORMANCE WITH BUCKET OPTIONS

#### Operator control:
- Single lever
- Dual lever

#### Breakout force:
- Heavy-Duty Long-Lip: 10,000 lb. (45.0 kN)
- General-Purpose Long-Lip: 4,800 lb. (21.1 kN)

#### Lifting capacity, full height:
- Heavy-Duty Long-Lip: 9,300 lb. (41.9 kN)
- General-Purpose Long-Lip: 4,800 lb. (21.1 kN)

#### Bucket dip angle, maximum:
- 43 degrees

#### Reach at full height, bucket at 45 degrees:
- 29.1 in. (739 mm)

#### Rollback angle at ground level:
- 40 degrees

#### Digging depth below ground, bucket level:
- 4.0 in. (100 mm)

#### Bucket lowering time (power down):
- 3.0 sec.

### 510D LOADER PERFORMANCE WITH BUCKET OPTIONS

#### Operator control:
- Single lever
- Dual lever

#### Breakout force:
- Heavy-Duty Long-Lip: 10,410 lb. (46.6 kN)
- General-Purpose Long-Lip: 7,200 lb. (32.6 kN)

#### Lifting capacity, full height:
- Heavy-Duty Long-Lip: 9,900 lb. (44.0 kN)
- General-Purpose Long-Lip: 7,050 lb. (31.9 kN)

#### Bucket dip angle, maximum:
- 45 degrees

#### Reach at full height, bucket at 45 degrees:
- 29.1 in. (739 mm)

#### Rollback angle at ground level:
- 40 degrees

#### Digging depth below ground, bucket level:
- 4.0 in. (100 mm)

#### Bucket lowering time (power down):
- 3.0 sec.