690B EXCAVATOR

FEATURES

131-SAE-net-hp (98 kW) turbocharged John Deere diesel

21-ft. (6.40 m) digging depth

30-ft. (9.14 m) reach at ground level

Two-lever, all-hydraulic pilot control of boom, crowd, bucket, and 360-degree continuous swing

Simultaneous operation of digging functions and propel

Tractor track-type undercarriage with metal-faced seals for rollers and idlers

Two-speed propel

Standard and wide-gauge models

Hydraulic track adjustment

Hydrostatic drive with independent propel motors for counterrotation

Planetary gear reduction with multiple wet-disk brakes

Vandal protection

ENGINE PERFORMANCE
**Power (@ 2400 engine rpm):**

<table>
<thead>
<tr>
<th>SAE</th>
<th>DIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross</td>
<td>141 hp (105 kW)</td>
</tr>
<tr>
<td>Net</td>
<td>131 hp (98 kW)</td>
</tr>
</tbody>
</table>

Net engine flywheel power is for an engine equipped with fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator, and muffler. The gross engine power is without fan. Power ratings are under SAE standard conditions of 500-ft. (150 m) altitude and 85°F (29.5°C) temperature, and DIN 6270 conditions (non-corrected). No derating is required up to 10,000 ft. (3050 m) altitude.

**Engine:**
- John Deere turbocharged diesel, vertical 6-cylinder, valve-in-head, 4 stroke cycle
- Bore and stroke: 4.25 x 4.75 in. (108 x 121 mm)
- Piston displacement: 404 cu. in. (6.621 L)
- Compression ratio: 15.5 to 1
- Maximum torque @ 1500 rpm: 376 lb-ft (510 Nm) (52 kg-m)
- NACC or AMA (U.S. Tax) horsepower: 43.3

**Hydraulic System:**
- Two open-center pumps mounted in tandem are coupled directly to the flywheel.
- Total flow is 84 gpm (5.30 l/s) at rated engine rpm. System operating pressure is 2500 psi (17238 kPa) (175.7 kg/cm²).
- Relief valves:
  - Boom (2): 3000 psi (20 685 kPa) (210.9 kg/cm²)
  - Crowd (2): 3000 psi (20 685 kPa) (210.9 kg/cm²)
  - Bucket (2): 3000 psi (20 685 kPa) (210.9 kg/cm²)
- Oil filtration: Two 10-micron filters in return lines

**Cylinders:**
- Bore Rod Diameter
  - Boom (2): 5 in. (127 mm) x 2.75 in. (70 mm)
  - Crowd and bucket: 5.5 in. (140 mm) x 3.25 in. (83 mm)

All cylinders have phenolic wear rings. Boom and crowd cylinders have a built-in hydraulic cushion at each end of the stroke. Bucket cylinder has hydraulic cushion at rod end. Full-frontal hydraulic oil cooler is in front of engine coolant radiator.

**Operational Information:**
- Swing speed: 7 rpm
- Digging depth: 21 ft. (6.40 m)
- Reach at center of rotation: 30 ft. (9.14 m)
- Bucket tangential digging force:
  - 24, 30, or 36 in. (610, 760 or 900 mm) bucket: 25,780 lb. (115.55 kN) (11 694 kg)
  - 48 in. (1.22 m) bucket: 30,945 lb. (138.70 kN) (14 037 kg)
  - 60 in. (1.52 m) bucket: 33,981 lb. (152.31 kN) (15 414 kg)
- Rock bucket:
  - 24 or 29 in. (610 or 740 mm) rock bucket: 26,695 lb. (119.65 kN) (12 109 kg)
  - 35 in. (890 mm) rock bucket: 29,210 lb. (130.93 kN) (13 250 kg)
- Arm digging force:
  - 24, 30, or 36 in. (610, 760 or 900 mm) bucket: 13,290 lb. (59.57 kN) (6028 kg)
  - 48 in. (1.22 m) bucket: 14,065 lb. (63.04 kN) (6380 kg)
  - 60 in. (1.52 m) bucket: 14,465 lb. (64.84 kN) (6561 kg)
  - 24 or 29 in. (610 or 740 mm) rock bucket: 13,475 lb. (60.40 kN) (6112 kg)
  - 35 in. (890 mm) rock bucket: 13,860 lb. (62.21 kN) (6269 kg)

**Grading:**
- Gradient: 70 percent
- Travel (2 speed):
  - Forward: 0.9 mph (1.45 km/h)
  - Reverse: 1.7 mph (2.74 km/h)

**Swing Mechanism:**
- Swing: 360-degree, continuous
- Turntable bearing: Single row, ball, internal drive
- Lubricated case-hardened ring and pinion gears

**Undercarriage:**
- Propel motors (one for each track): High-torque 2-speed hydraulic motors with planetary drives. Wet multiple-disk brakes automatically release when propelling, and apply when stationary. Independent drive to each track permits counterclockwise rotation.
- Undercarriage, cab body, and track frame: Each track frame is a formed, reinforced U-channel. Track frames are joined by reinforced boxed cab body with swing bearing mount.

**Track Rollers and Idlers:**
- 9 rollers and 1 idler per track. All rollers and idlers have metal-faced seals. Idlers have heavy-duty spring recoil mechanisms. Through-hardened steel slides support and guide upper track.

**Track Shoes:**
- Width:
  - 24 in. (610 mm) Triple semigrousers
  - 24 in. (610 mm) Single bar grousers
- Ground Contact:
  - 6136 sq. in. (39 588 cm²)
  - 7670 sq. in. (49 484 cm²)
- Ground Pressure:
  - 6.5 psi (44.8 kPa) (0.46 kg/cm²)
  - 5.2 psi (35.8 kPa) (0.37 kg/cm²)

**Cab:**
- Steel, with polyurethane acoustical treatment. Cushioned neoprene floor mat. Tinted safety glass side and rear windows. Tinted polycarbonate roof window. Safety glass split front window can be stored overhead.

**Seat:**
- Fully adjustable, foam-cushioned seat.

**Servicing and Vandal Protection:**
- Swingaway service doors expose built-in-service platforms for easy access to engine and hydraulic systems. Crank-operated bolts secure service doors. Cab and access covers to fuel tank, radiator, and air filters lock with switch key.

**Additional Standard Equipment:**
- Alternator charge indicator light
- Cab heater
- Counterweight, center, 290 lb. (131 kg)
- Counterweight 4330 lb. (1964 kg)
- Deluxe seat
- Electric hourmeter
- Engine coolant temperature gauge
- Engine oil pressure gauge
- Ether starting aid
- Fuel gauge
- Horn
- Hydraulic oil filter pressure warning light
- Hydraulic oil temperature gauge
- Key switch
- Pilot controls
- Positive-position hand throttle

**Special Equipment:**
- Air conditioner
- Counterweight, 2000 lb. (910 kg)
- Double flanged rollers
- Grouser shoes, single bar, 24 in. (610 mm)
- Manual controls
- Roper tooth, 500 lb. (230 kg)
- Semigrouser shoes, triple, 30 in. (760 mm)
- Side cutter attachments for rock bucket
- Track guides
- Window protection kit
690B EXCAVATOR SPECIFICATIONS

*Buckets: High-strength steel, ribbed and plated bottom section

<table>
<thead>
<tr>
<th>Nominal</th>
<th>Bite Width</th>
<th>SAE</th>
<th>Capacity</th>
<th>Struck</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 in. (610 mm)</td>
<td>25.4 in. (645 mm)</td>
<td>9/16 cu. yd. (0.43 m³)</td>
<td>1/2 cu. yd. (0.38 m³)</td>
<td>1000 lb. (454 kg)</td>
<td></td>
</tr>
<tr>
<td>30 in. (760 mm)</td>
<td>31.4 in. (798 mm)</td>
<td>3/8 cu. yd. (0.57 m³)</td>
<td>3/8 cu. yd. (0.57 m³)</td>
<td>1100 lb. (500 kg)</td>
<td></td>
</tr>
<tr>
<td>36 in. (900 mm)</td>
<td>37.4 in. (950 mm)</td>
<td>1/4 cu. yd. (0.67 m³)</td>
<td>1/4 cu. yd. (0.57 m³)</td>
<td>1200 lb. (544 kg)</td>
<td></td>
</tr>
<tr>
<td>48 in. (1.22 m)</td>
<td>49.4 in. (1.25 m)</td>
<td>1/8 cu. yd. (0.76 m³)</td>
<td>1/8 cu. yd. (0.57 m³)</td>
<td>1200 lb. (544 kg)</td>
<td></td>
</tr>
<tr>
<td>60 in. (1.52 m)</td>
<td>60.0 in. (1.52 m)</td>
<td>1/16 cu. yd. (1.05 m³)</td>
<td>1/16 cu. yd. (0.57 m³)</td>
<td>1300 lb. (592 kg)</td>
<td></td>
</tr>
<tr>
<td>24 in. (610 mm) rock</td>
<td>26.0 in. (660 mm)</td>
<td>5/8 cu. yd. (0.48 m³)</td>
<td>5/8 cu. yd. (0.48 m³)</td>
<td>1500 lb. (680 kg)</td>
<td></td>
</tr>
<tr>
<td>29 in. (740 mm) rock</td>
<td>31.0 in. (787 mm)</td>
<td>3/4 cu. yd. (0.57 m³)</td>
<td>3/4 cu. yd. (0.57 m³)</td>
<td>1525 lb. (692 kg)</td>
<td></td>
</tr>
<tr>
<td>35 in. (890 mm) rock</td>
<td>37.0 in. (940 mm)</td>
<td>4/4 cu. yd. (0.57 m³)</td>
<td>4/4 cu. yd. (0.57 m³)</td>
<td>1525 lb. (692 kg)</td>
<td></td>
</tr>
</tbody>
</table>

*See bucket selection chart page 4.

Weights:

- Operating weight, excavator less bucket:
  - Standard gauge: 38,300 lb. (17,373 kg)
  - Wide gauge: 38,700 lb. (17,554 kg)
- Undercarriage: 24 in. (610 mm) shoes: 15,850 lb. (7190 kg)
- 30 in. (760 mm) shoes: 16,030 lb. (7271 kg)
- Boom less cylinder: 2,500 lb. (1134 kg)
- Boom cylinder (2): 1,440 lb. (653 kg)
- Arm cylinder: 510 lb. (231 kg)
- Bucket cylinder plus linkage: 650 lb. (295 kg)
- Counterweight: 4,330 lb. (1964 kg)
- Counterweight, optional: 2,000 lb. (907 kg)

Digging Depth and Reach:

![Diagram of digging depth and reach](8-690B-3)
Lifting Capacities: Ratings at bucket lift hook, machine situated on firm, level, uniform supporting surface. Total load includes weight of cables, hooks, etc. Boldface type indicates hydraulic-limited capacities, lightface type indicates stability-limited capacities, in lb. (kg). Figures do not exceed 87 percent of hydraulic capacities or 75 percent of weight needed to tip machine. Add 15 percent to stability-limited capacities when optional 2000-lb. (910 kg) counterweight is used.

**BOOM lifting, over front or rear, arm holding**

<table>
<thead>
<tr>
<th>Horizontal distance from centerline of rotation:</th>
<th>10 ft. (3.05 m)</th>
<th>15 ft. (4.57 m)</th>
<th>20 ft. (6.10 m)</th>
<th>25 ft. (7.62 m)</th>
<th>30 ft. (9.14 m)</th>
</tr>
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<tbody>
<tr>
<td>15 ft. (4.57 m)</td>
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<tr>
<td>10 ft. (3.05 m)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5 ft. (1.52 m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground level</td>
<td>13,910 lb. (6315 kg)</td>
<td>10,630 lb. (4826 kg)</td>
<td>10,970 lb. (4960 kg)</td>
<td>7,700 lb. (3496 kg)</td>
<td>5,810 lb. (2638 kg)</td>
</tr>
<tr>
<td>-5 ft. (-1.52 m)</td>
<td>17,560 lb. (7972 kg)</td>
<td>10,970 lb. (4960 kg)</td>
<td>7,700 lb. (3496 kg)</td>
<td>5,810 lb. (2638 kg)</td>
<td></td>
</tr>
<tr>
<td>-10 ft. (-3.05 m)</td>
<td>16,140 lb. (7328 kg)</td>
<td>10,380 lb. (4713 kg)</td>
<td>7,360 lb. (3341 kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-15 ft. (-4.57 m)</td>
<td>12,340 lb. (5602 kg)</td>
<td></td>
<td>7,820 lb. (3550 kg)</td>
<td></td>
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</tr>
</tbody>
</table>

**BOOM lifting, over the side, arm holding, standard gauge, upper structure 90 degrees to tracks.**

<table>
<thead>
<tr>
<th>Horizontal distance from centerline of rotation:</th>
<th>10 ft. (3.05 m)</th>
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<td></td>
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<tr>
<td>5 ft. (1.52 m)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ground level</td>
<td>13,910 lb. (6315 kg)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-5 ft. (-1.52 m)</td>
<td>14,830 lb. (6734 kg)</td>
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<td></td>
</tr>
<tr>
<td>-10 ft. (-3.05 m)</td>
<td>15,020 lb. (6819 kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-15 ft. (-4.57 m)</td>
<td>15,760 lb. (7155 kg)</td>
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<td></td>
</tr>
</tbody>
</table>

**ARM lifting, over front or rear, boom holding.**

<table>
<thead>
<tr>
<th>Horizontal distance from centerline of rotation:</th>
<th>10 ft. (3.05 m)</th>
<th>15 ft. (4.57 m)</th>
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<td></td>
<td></td>
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<tr>
<td>10 ft. (3.05 m)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5 ft. (1.52 m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground level</td>
<td>11,320 lb. (5193 kg)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>-5 ft. (-1.52 m)</td>
<td>17,160 lb. (7791 kg)</td>
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<tr>
<td>-10 ft. (-3.05 m)</td>
<td>26,300 lb. (11940 kg)</td>
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<tr>
<td>-15 ft. (-4.57 m)</td>
<td>20,900 lb. (9489 kg)</td>
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**ARM lifting, over the side, boom holding, wide gauge, upper structure 90 degrees to tracks.**

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<th>Horizontal distance from centerline of rotation:</th>
<th>10 ft. (3.05 m)</th>
<th>15 ft. (4.57 m)</th>
<th>20 ft. (6.10 m)</th>
<th>25 ft. (7.62 m)</th>
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</tr>
</thead>
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<tr>
<td>15 ft. (4.57 m)</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>10 ft. (3.05 m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 ft. (1.52 m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground level</td>
<td>13,910 lb. (6315 kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-5 ft. (-1.52 m)</td>
<td>14,610 lb. (6633 kg)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>-10 ft. (-3.05 m)</td>
<td>15,020 lb. (6819 kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-15 ft. (-4.57 m)</td>
<td>15,760 lb. (7155 kg)</td>
<td></td>
<td></td>
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</tbody>
</table>

**690B BUCKET SELECTION CHART RECOMMENDED BUCKET SIZE**

<table>
<thead>
<tr>
<th>Lb/Yd²</th>
<th>kg/m³</th>
<th>Material</th>
<th>Regular Duty</th>
<th>Heavy Duty</th>
</tr>
</thead>
<tbody>
<tr>
<td>700</td>
<td>420</td>
<td>Wood Chips</td>
<td>5 cu. yd.</td>
<td>4.83 cu. yd</td>
</tr>
<tr>
<td>810</td>
<td>480</td>
<td>Peat Dry</td>
<td>4.5 cu. yd.</td>
<td>4.44 cu. yd</td>
</tr>
<tr>
<td>1242</td>
<td>740</td>
<td>Peat Wet</td>
<td>3 cu. yd.</td>
<td>2.3 cu. yd.</td>
</tr>
<tr>
<td>1450</td>
<td>860</td>
<td>Cinders</td>
<td>2.5 cu. yd.</td>
<td>1.9 cu. yd.</td>
</tr>
<tr>
<td>2000</td>
<td>1166</td>
<td>Topsoil</td>
<td>1.8 cu. yd.</td>
<td>1.4 cu. yd.</td>
</tr>
<tr>
<td>2600</td>
<td>1540</td>
<td>Earth Dry Loam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2700</td>
<td>1600</td>
<td>Sand Dry</td>
<td>1.38 cu. yd.</td>
<td>1 cu. yd.</td>
</tr>
<tr>
<td>3000</td>
<td>1780</td>
<td>Coal Natural Bed</td>
<td>1.21 cu. yd.</td>
<td>0.93 cu. yd.</td>
</tr>
<tr>
<td>3200</td>
<td>1900</td>
<td>Earth Moist Loam</td>
<td>1.12 cu. yd.</td>
<td>0.93 cu. yd.</td>
</tr>
<tr>
<td>3250</td>
<td>1930</td>
<td>Sand Gravel Dry</td>
<td>1.12 cu. yd.</td>
<td>0.93 cu. yd.</td>
</tr>
<tr>
<td>3300</td>
<td>1960</td>
<td>Sand Moist</td>
<td>1.12 cu. yd.</td>
<td>0.93 cu. yd.</td>
</tr>
<tr>
<td>3500</td>
<td>2080</td>
<td>Sand Wet</td>
<td>1 cu. yd.</td>
<td>0.77 cu. yd.</td>
</tr>
<tr>
<td>3500</td>
<td>2080</td>
<td>Shale</td>
<td>1 cu. yd.</td>
<td>0.77 cu. yd.</td>
</tr>
<tr>
<td>4200</td>
<td>2490</td>
<td>Limestone Broken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4300</td>
<td>2550</td>
<td>Clay Wet</td>
<td>0.88 cu. yd.</td>
<td>0.67 cu. yd.</td>
</tr>
<tr>
<td>4500</td>
<td>2750</td>
<td>Rock Granite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Contact your John Deere dealer for optimum bucket selection. The use of larger than recommended buckets in heavy materials and tough digging conditions should be thoroughly analyzed for digging force and load capacity. Bucket capacity indicated is SAE heaped.*
690B EXCAVATOR

690B Excavator less boom, arm, bucket linkage, hydraulic cylinders and bucket.

*690B Excavator upper structure only complete with cab, hydraulics, valves, etc., boom, arm, bucket linkage, hydraulic cylinders, upper tower assembly and swing bearing. **Less** crawler undercarriage, tracks, bucket, lower tower assembly and rotary manifold.

*Note: Lower tower assembly and/or rotary manifold can be ordered separately if required in combination with these options only.