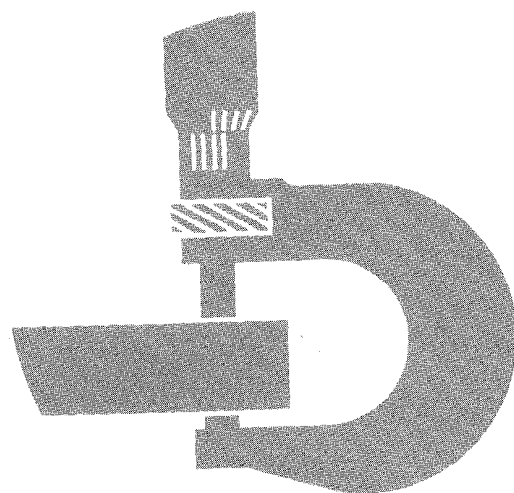


**John Deere  
495D  
Excavator  
Repair**



**TECHNICAL MANUAL**

**TM-1457 (Feb-89)**

LITHO IN U.S.A.

# Introduction

## FOREWORD

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.



**This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.**

Technical manuals are divided in two parts: repair and diagnostics. Repair sections tell how to repair the components. Diagnostic sections help you identify the majority of routine failures quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Binders, binder labels, and tab sets can be ordered by John Deere dealers direct from the John Deere Distribution Service Center.

This manual is part of a total product support program.

## FOS Manuals-reference

### Technical Manuals-machine service

### Component Manuals-component service

*Fundamentals of Service (FOS) Manuals* cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic types of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

*Technical Manuals* are concise guides for specific machines. Technical manuals are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

*Component Technical Manuals* are concise service guides for specific components. Component technicals manuals are written as stand-alone manuals covering multiple machine applications.

# 495D EXCAVATOR TECHNICAL MANUAL TM-1457 (FEB-89)

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*NOTE: This manual covers machine repair. For operation and tests information, see TM-1456.*

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*All information, illustrations and specifications contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.*

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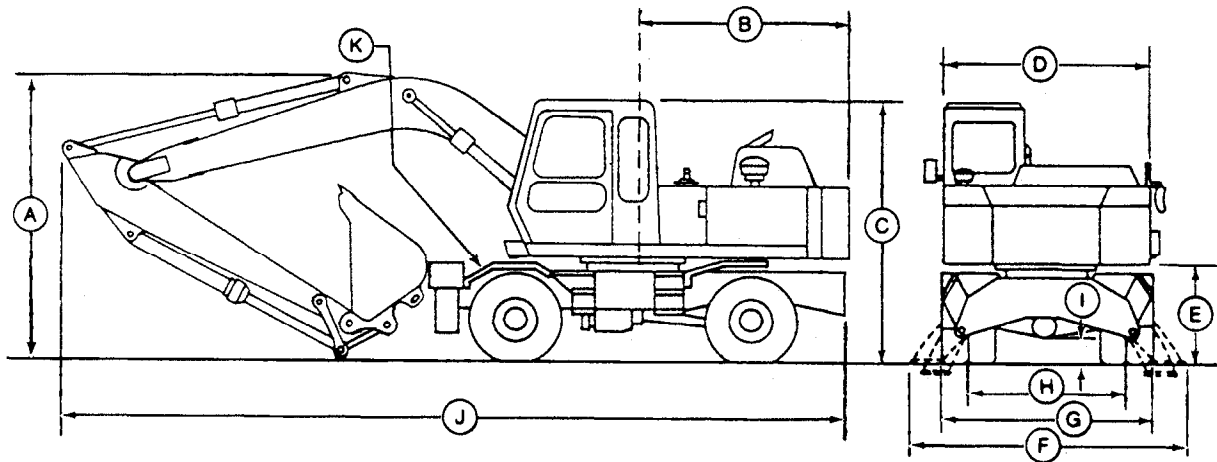
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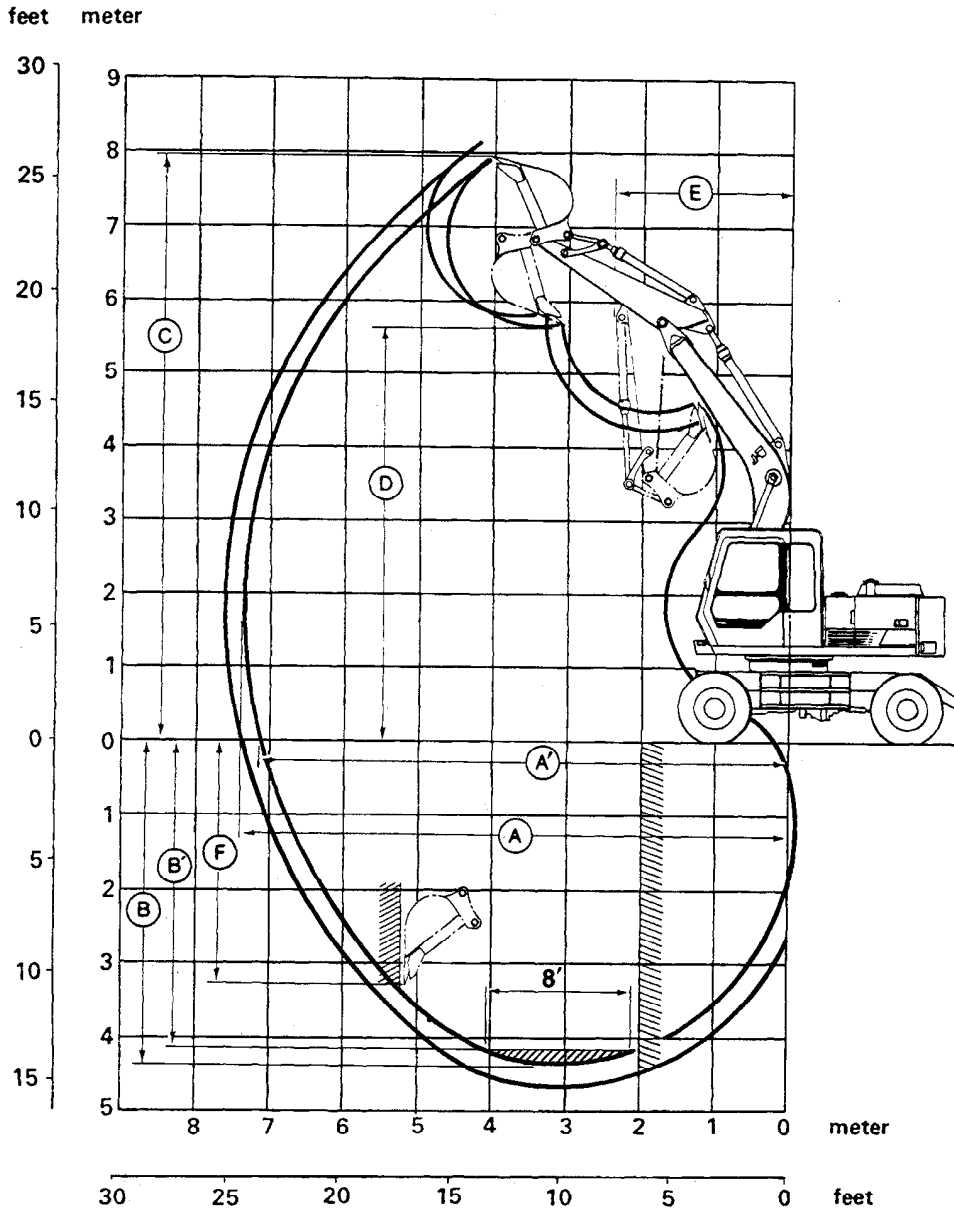
**495D EXCAVATOR**



|   |  |
|---|--|
| A—Overall Height of Boom .....              | 3 510 mm (11'6") with 1.95 m (6'5") arm<br>3 700 mm (12'2") with 2.25 m (7'5") arm |
| B—Rear-end swing radius .....               | 2 100 mm (6'11")   |
| Rear-end length .....                       | 2 090 mm (6'10")   |
| C—Cab Height.....                           | 2 980 mm (9'9")  |
| D—Superstructure Width .....                | 2 380 mm (7'10")   |
| E—Superstructure clearance .....            | 1 210 mm (4'0")  |
| F—Overall Width of outrigger extended ..... | 3 190 mm (10'6")   |
| G—Center to center width of outrigger ..... | 2 890 mm (9'6")  |
| H—Overall width (undercarriage width) ..... | 2 470 mm (8'1")  |
| I—Minimum ground clearance .....            | 315 mm (1'0")  |
| J—Overall length .....                      | 6 910 mm (22'8") with 1.95 m (6'5") arm<br>7 080 mm (23'3") with 2.25 m (7'5") arm |
| K—REAR END OF UNDERCARRIAGE                 |  |

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## WORKING RANGES



A—Max. digging reach  
 A'—Max. digging reach (on ground)  
 B—Max. digging depth  
 B'—Max. digging depth (8' level)  
 C—Max. cutting height  
 D—Max. dumping height  
 E—Min. swing radius  
 F—Max. vertical wall

1.95 m (6'5") arm  
 7 410 mm (24'4")  
 7 180 mm (23'7")  
 4 410 mm (14'6")  
 4 150 mm (13'7")  
 7 950 mm (26'1")  
 5 600 mm (18'4")  
 2 460 mm (8'1")  
 3 320 mm (10'11")

2.25 m (7'5") arm  
 7 680 mm (25'2")  
 7 450 mm (24'5")  
 4 710 mm (15'5")  
 4 470 mm (14'8")  
 8 100 mm (26'7")  
 5 740 mm (18'10")  
 2 640 mm (8'8")  
 3 800 mm (12'6")

## 495D EXCAVATOR SPECIFICATIONS

Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with PCSA and SAE Standards. except where otherwise noted, these specifications are based on a unit with full fuel tank, 175 lb (80 kg) operator and standard equipment.

### Engine: John Deere 4-276T

Type ..... 4-stroke cycle, turbocharged diesel  
 Bore and stroke .. 4.19 x 5.00 in. (106.5 x 127 mm)  
 No. of cylinders ..... 4  
 Displacement ..... 276 cu. in. (4.524 L)  
 Compression ratio ..... 17.2 to 1  
 Maximum net torque @ 1300 rpm ..... 284 lb-ft  
 (385 N·m) (39.3 kg·m)  
 Lubrication .... Pressure system with full flow filter  
 Coolant fan ..... Suction type  
 Electrical system ... 24-volt with 42-amp alternator  
 Batteries (two 12-volt) ..... Reserve  
 capacity: 180 minutes

| Rated Power               | SAE            | DIN 70 020 |
|---------------------------|----------------|------------|
| @ 2100 rpm (Dig Mode):    |                |            |
| Net .....                 | 95 hp (71 kW)  | 71 kW      |
| Gross .....               | 100 hp (75 kW) |            |
| @ 2300 rpm (Travel Mode): |                |            |
| Net .....                 | 100 hp (75 kW) | 75 kW      |
| Gross .....               | 105 hp (78 kW) |            |

Net engine power is with standard equipment including air cleaner, exhaust system, alternator, and cooling fan, at standard conditions per SAE J1349 and DIN 70 020, using NO. 2-D fuel @ 35 API gravity. No derating is required up to 10,000 ft (3050 m) altitude. Gross power is without cooling fan.

### Hydraulic System: Open center

Variable flow, constant horsepower hydraulic system provides independent and combined operation of all functions. Load-sensing adjusts hydraulic flow and pressure to individual function demands. Pump displacement is automatically reduced when controls are returned to neutral.

Main pumps: 2 variable-displacement, axial-piston  
 Pressure setting ..... 4620 psi (31 854 kPa)  
 (319 kg/cm<sup>2</sup>)  
 Maximum oil flow ..... 2 x 30.4 gpm  
 (2 x 115 L/min)

### Pilot pump: Gear

Pressure setting ..... 570 psi (3930 kPa)  
 (40 kg/cm<sup>2</sup>)

Maximum oil flow ..... 6.6 gpm (25 L/min)

### Steering pump: Gear

Pressure setting ..... 1778 psi (12 258 kPa)  
 (125 kg/cm<sup>2</sup>)

Maximum oil flow ..... 4.8 gpm (18.0 L/min)

Control valves: nine spool valves

System relief valve operating pressure:

Travel .... 4620 psi (31 860 kPa) (325 kg/cm<sup>2</sup>)

Front end . 4050 psi (27 950 kPa) (285 kg/cm<sup>2</sup>)

Circuit relief valves:

Boom ..... 4275 psi (29 420 kPa) (300 kg/cm<sup>2</sup>)

Arm ..... 4275 psi (29 420 kPa) (300 kg/cm<sup>2</sup>)

Bucket .... 4770 psi (32 888 kPa) (329 kg/cm<sup>2</sup>)

Stabilizers . 4050 psi (27 950 kPa) (285 kg/cm<sup>2</sup>)

Auxiliary ... 4275 psi (29 475 kPa) (295 kg/cm<sup>2</sup>)

Crossover relief valves:

Travel .... 4900 psi (33 830 kPa) (345 kg/cm<sup>2</sup>)

Swing ..... 3340 psi (23 050 kPa) (235 kg/cm<sup>2</sup>)

| Cylinders: | Bore |      | Rod Diameter |      | Stroke |      |
|------------|------|------|--------------|------|--------|------|
|            | In.  | (mm) | In.          | (mm) | In.    | (mm) |
| Boom (2)   | 3.7  | 95   | 2.8          | 70   | 42.7   | 1085 |
| Arm        | 4.1  | 105  | 3.0          | 75   | 46.3   | 1175 |
| Bucket     | 3.7  | 95   | 2.6          | 65   | 36.8   | 935  |
| Stabilizer | 4.3  | 110  | 2.8          | 70   | 14.2   | 360  |
| Steering   | 2.2  | 55   | 1.0          | 25   | 8.5    | 217  |
| Blade      | 3.9  | 100  | 2.4          | 60   | 6.7    | 170  |
| Axle lock  | 3.5  | 90   | 3.5          | 90   | 4.5    | 115  |

Arm cylinder has a built-in hydraulic cushion at each end of the stroke. Boom and bucket cylinders have a cushion on the rod end.

### Swing Mechanism

Swing speed ..... 0 to 12.5 rpm

Swing lock ..... Manual for transporting

Turntable bearing ..... Single-row, shear-type  
 ball bearing with induction-hardened, lubricated  
 internal gear and pinion, 500-hour lube interval

**Wheeled Undercarriage:**

The undercarriage is available with a blade or (2) stabilizers. The frame is an all-welded, stress-relieved structure.

Drive system ..... two speed-four wheel drive  
Travel motor ... variable displacement, axial piston motor with hydraulic retarding valve for preventing overspeeding when traveling downhill.

Transmission ... Constant mesh with and high and low speed range

**Travel speeds:**

Low speed range ..... 0 to 6.8 mph  
(0 to 11.0 km/h)  
(forward and reverse)

High speed range ..... 0 to 21.4 mph  
(forward) (0 to 34.5 km/h)

**Maximum traction force—**

high ..... 3770 lb (17 kN)(1710 kg)  
low ..... 13.095 lb (58 kN) (5940 kg)

Gradability ..... 50 percent (30 degrees)

**Steering System:**

Full hydraulic power steering using two steering cylinders. Provides manual steering without engine power.

Bore ..... 2.2 in. (55 mm)  
Rod diameter ..... 1 in. (25 mm)  
Stroke ..... 8.5 in. (217 mm)

**Brakes:**

Service ... Air over hydraulic brakes acting at each (foot pedal or switch) wheel—internal-expanding shoe type

Parking (switch) ..... Spring actuated, air-released, internal-expanding shoe type, acting on horizontal drive shaft

*NOTE: Applying brakes with switch also locks oscillating axle.*

**Axles:**

Front ..... Oscillating axle with locking hydraulic cylinders; 14.0 total oscillation

Rear ..... Fixed to frame

**Tires:** (Traction type tread pattern)

9.00—20.0 x 12 PR, duals

18.00—19.5 x 18 PR, singles

**Stabilizers:**

Each stabilizer cylinder is fitted with a pilot-operated check valve for positive locking. Left and right stabilizers can be operated independently.

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**DRAIN AND REFILL CAPACITIES**

| Item                                      | Metric | U.S.   |
|---|--------|--------|
| Fuel tank .....                           | 250 L  | 66 gal |
| Cooling system .....                      | 21 L   | 22 qts |
| Engine crankcase (including filter) ..... | 13 L   | 14 qt  |
| Hydraulic system .....                    | 133 L  | 35 gal |
| Hydraulic reservoir .....                 | 72 L   | 19 gal |
| Swing bearing gear .....                  | 9 kg   | 20 lb  |
| Swing gear reduction .....                | 3.2 L  | 3.4 qt |
| Transmission .....                        | 5.0 L  | 5.3 qt |
| Front axle case .....                     | 6.0 L  | 6.4 qt |
| Wheel gear reduction—each .....           | 1.5 L  | 1.6 qt |
| Rear axle case .....                      | 8.5 L  | 9.0 qt |
| Brake reservoir .....                     | .8 L   | .85 qt |

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**BUCKET SELECTION CHART****MAXIMUM RECOMMENDED BUCKET SIZE  
(2.25 M) (7 FT 5 IN.) ARM**

| kg/m <sup>3</sup> | lb/yd <sup>3</sup> | Material               | Digging With Stabilizers                    |   | Digging Without Stabilizers<br>Regular Duty |
|-------------------|--------------------|------------------------|---|---|---|
|                   |                    |                        | Regular Duty                                | Heavy Duty                                |   |
| 420               | 700                | Wood chips             | 2.2 m <sup>3</sup> (2-7/8 yd <sup>3</sup> ) |   | 1.7 m <sup>3</sup> (2-1/4 yd <sup>3</sup> ) |
| 470               | 800                | Peat, dry              | 1.9 m <sup>3</sup> (2-1/2 yd <sup>3</sup> ) |   | 1.5 m <sup>3</sup> (2 yd <sup>3</sup> )     |
| 740               | 1250               | Peat, wet              | 1.2 m <sup>3</sup> (1-5/8 yd <sup>3</sup> ) |   | 1.0 m <sup>3</sup> (1-1/4 yd <sup>3</sup> ) |
| 860               | 1450               | Cinders                | 1.1 m <sup>3</sup> (1-3/8 yd <sup>3</sup> ) |   | 0.9 m <sup>3</sup> (1-1/8 yd <sup>3</sup> ) |
| 1360              | 2300               | Top soil               | 0.7 m <sup>3</sup> (7/8 yd <sup>3</sup> )   |   | 0.6 m <sup>3</sup> (3/4 yd <sup>3</sup> )   |
| 1360              | 2300               | Coal, natural bed      | 0.7 m <sup>3</sup> (7/8 yd <sup>3</sup> )   |   | 0.6 m <sup>3</sup> (3/4 yd <sup>3</sup> )   |
| 1540              | 2600               | Earth, dry loam        | 0.6 m <sup>3</sup> (3/4 yd <sup>3</sup> )   | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> ) | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> )   |
| 1600              | 2700               | Sand, dry              | 0.6 m <sup>3</sup> (3/4 yd <sup>3</sup> )   | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> ) | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   |
| 1900              | 3200               | Earth, moist loam      | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> )   | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> ) | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   |
| 1930              | 3250               | Sand, gravel, dry      | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> )   | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> ) | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   |
| 1960              | 3300               | Sand, moist            | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   | 0.3 m <sup>3</sup> (3/8 yd <sup>3</sup> ) | 0.3 m <sup>3</sup> (3/8 yd <sup>3</sup> )   |
| 2080              | 3500               | Sand, wet              | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   | 0.3 m <sup>3</sup> (3/8 yd <sup>3</sup> ) | 0.3 m <sup>3</sup> (3/8 yd <sup>3</sup> )   |
| 2080              | 3500               | Shale                  | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   | 0.3 m <sup>3</sup> (3/8 yd <sup>3</sup> ) |   |
| 2140              | 3600               | Clay, wet              | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   | 0.3 m <sup>3</sup> (3/8 yd <sup>3</sup> ) |   |
| 2490              | 4200               | Limestone, broken      |   | 0.3 m <sup>3</sup> (3/8 yd <sup>3</sup> ) |   |
| 2730              | 4600               | Rock, granite, blasted |   | .3 m <sup>3</sup> (3/8 yd <sup>3</sup> )  |   |

| Bite Width<br>W/O Sidecutters | W/Sidecutters   | SAE Heaped                      | CECE Heaped         | Weight          |
|-------------------------------|-----------------|---------------------------------|---------------------|-----------------|
| 680 mm (27 in.)               | 800 mm (32 in.) | 0.4 m <sup>3</sup> (1/2 cu yd)  | 0.33 m <sup>3</sup> | 318 kg (700 lb) |
| 850 mm (34 in.)               | 970 mm (38 in.) | 0.46 m <sup>3</sup> (5/8 cu yd) | 0.40 m <sup>3</sup> | 367 kg (810 lb) |

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## BUCKET SELECTION CHART

### MAXIMUM RECOMMENDED BUCKET SIZE (1.95 M) (6 FT 5 IN.) ARM

| kg/m <sup>3</sup> | lb/yd <sup>3</sup> | Material               | Digging With Stabilizers                    |   | Digging Without Stabilizers<br>Regular Duty |
|-------------------|--------------------|------------------------|---|---|---|
|                   |                    |                        | Regular Duty                                | Heavy Duty                                |   |
| 420               | 700                | Wood chips             | 2.3 m <sup>3</sup> (3 yd <sup>3</sup> )     |   | 1.9 m <sup>3</sup> (2-1/2 yd <sup>3</sup> ) |
| 470               | 800                | Peat, dry              | 2.1 m <sup>3</sup> (2-3/4 yd <sup>3</sup> ) |   | 1.7 m <sup>3</sup> (2-1/4 yd <sup>3</sup> ) |
| 740               | 1250               | Peat, wet              | 1.3 m <sup>3</sup> (1-3/4 yd <sup>3</sup> ) |   | 1.1 m <sup>3</sup> (1-3/8 yd <sup>3</sup> ) |
| 860               | 1450               | Cinders                | 1.1 m <sup>3</sup> (1-1/2 yd <sup>3</sup> ) |   | 1.0 m <sup>3</sup> (1-1/4 yd <sup>3</sup> ) |
| 1360              | 2300               | Top soil               | 0.8 m <sup>3</sup> (1 yd <sup>3</sup> )     |   | 0.6 m <sup>3</sup> (3/4 yd <sup>3</sup> )   |
| 1360              | 2300               | Coal, natural bed      | 0.8 m <sup>3</sup> (1 yd <sup>3</sup> )     |   | 0.6 m <sup>3</sup> (3/4 yd <sup>3</sup> )   |
| 1540              | 2600               | Earth, dry loam        | 0.7 m <sup>3</sup> (7/8 yd <sup>3</sup> )   | 0.6 m <sup>3</sup> (3/4 yd <sup>3</sup> ) | 0.6 m <sup>3</sup> (3/4 yd <sup>3</sup> )   |
| 1600              | 2700               | Sand, dry              | 0.6 m <sup>3</sup> (3/4 yd <sup>3</sup> )   | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> ) | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> )   |
| 1900              | 3200               | Earth, moist loam      | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> )   | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> ) | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   |
| 1930              | 3250               | Sand, gravel, dry      | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> )   | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> ) | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   |
| 1960              | 3300               | Sand, moist            | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> )   | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> ) | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   |
| 2080              | 3500               | Sand, wet              | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> )   | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> ) | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> )   |
| 2080              | 3500               | Shale                  | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> )   | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> ) |   |
| 2140              | 3600               | Clay, wet              | 0.5 m <sup>3</sup> (5/8 yd <sup>3</sup> )   | 0.4 m <sup>3</sup> (1/2 yd <sup>3</sup> ) |   |
| 2490              | 4200               | Limestone, broken      |   | 0.3 m <sup>3</sup> (3/8 yd <sup>3</sup> ) |   |
| 2730              | 4600               | Rock, granite, blasted |   | 0.3 m <sup>3</sup> (3/8 yd <sup>3</sup> ) |   |

| Nominal Width   | Bite Width      |                 | SAE Heaped                      | CECE Heaped         | Weight          |
|-----------------|-----------------|-----------------|---------------------------------|---------------------|-----------------|
|                 | W/O Sidecutters | W/Sidecutters   |                                 |                     |                 |
| 785 mm (31 in.) | 680 mm (27 in.) | 800 mm (32 in.) | 0.4 m <sup>3</sup> (1/2 cu yd)  | 0.33 m <sup>3</sup> | 318 kg (700 lb) |
| 915 mm (36 in.) | 850 mm (34 in.) | 970 mm (38 in.) | 0.46 m <sup>3</sup> (5/8 cu yd) | 0.40 m <sup>3</sup> | 367 kg (810 lb) |

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