GRADALL®
XL 4130 V
RAILWAY MAINTENANCE MACHINE

SPECIFICATIONS

Engine
- Volvo TAD873/E Tier 4f 7.7L diesel with selective catalytic reduction and cooled EGR technology

Gross Rating:
- 315 hp @ 2200 rpm, 958 ft lb torque @ 1200-1700 rpm

Net Rating:
- 295 hp @ 2200 rpm

Drivelines
- Four cycle, inline six cylinder, liquid cooled
- Turbo charge air after-cooled
- Off-road certified, electronically controlled, grid heater
- Vertical canister style lube and main filters attached to engine
- Volvo remote mount vertical style fuel/water separator with water in fuel indicator, alarm and manual feed pump
- Block heater

Air Filter
- Two-stage Donaldson PSD PowerCore with high efficiency pre-cleaner, vacuator valve and remote service indicator

Electrical System
- 24 volt, 110 amp alternator with integral voltage regulator, two SAE #C31-S 1000CCA batteries
- Battery switch lockout tagout

Fuel Tank Capacity:
- 100 gal (378 L)

Urea Tank Capacity:
- 11.9 gal (45 L)

Chassis Cooling Package
- Three aluminum bar-plate type coolers stacked vertically
- Air to air intake charge air cooler, radiator and transmission cooler
- All coolers backed by a molded fan shroud, engine mounted fan ring and 26.8” 9-blade fan driven by a Volvo electronically controlled variable speed fan drive

Gear Speeds

<table>
<thead>
<tr>
<th>Gear</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>REV</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPH</td>
<td>6.3</td>
<td>16.2</td>
<td>24.1</td>
<td>37.4</td>
<td>50.6</td>
<td>59.9</td>
<td>66</td>
</tr>
<tr>
<td>Km/hr</td>
<td>10.1</td>
<td>26.3</td>
<td>38.8</td>
<td>60.4</td>
<td>81.6</td>
<td>96.4</td>
<td>106.8</td>
</tr>
</tbody>
</table>

Drivelines
- Spicer 1710 Series with “half round”, yokes
- (6 x 4) Cushman Model 479-1, 1:1 ratio, pneumatic engage for remote propel

Upperstructure Cab
- All-weather cab isolated from frame on rubber mounts
- Tinted safety glass windows
- Skylight
- Acoustical lining
- Four-way adjustable seat
- Dome light
- Filtered air heater and defroster
- AM/FM radio
- Air conditioning
- LED work light package
- Heat source provided by a fast response, closed circuit hydraulic heater with 20,000 BTU/Hr capacity
- Front window slides to overhead storage
- Mirrors on right and left sides
- Windshield wiper and washer
- Operator’s seat belt
- FRA spec 360 degree strobe light
- Dual air horn
- Upper air horn

Upperstructure Controls
- Two electronic joysticks (hoist and bucket, telescope and swing)
- One rocker switch (tilt) control
- Joysticks mounted on arm pods, adjustable for individual operator comfort and convenience
- Quick change joystick pattern switch (Gradall, SAE, Deere) located on instrument panel
- Two foot pedals for remote control of undercarriage steering
- Travel and digging brakes
- Self-centering joysticks and pedals; when controls are released, power for movement disengages and swing and travel brakes set automatically
- AREMA decals

Engine Controls:
- Key ignition switch with neutral start
- Indicator lights for low air, engine status, park brake; travel status, hydraulic fluid temperature and level
- Automatic engine shutdown occurs with low oil pressure
- Derate/shutdown for oil temperature, coolant temperature, coolant level, ERD temperature, charge air temperature, charge air pressure and derate for SCR temperature

Boom
- Two piece triangular telescoping boom
- Adjustable boom rollers with eccentric shafts
- 220° boom tilt
- 105° boom pivot angle
- Auxiliary hydraulics

Hydraulic System
Pumps
- One load-sensing axial piston pump, 0-77 gpm (0-291 L/min) total
- One gear pump (pilot and cooling), 11 gpm (41 L/min)

SYSTEM SPECIFICATIONS
Eight Double Acting Cylinders
- One boom cylinder: 3.5” (89 mm) bore x 2.56” (65 mm) rod x 150” (3,81 m) stroke
- Two hoist cylinders: 4.25” (108 mm) bore x 3.15” (80 mm) rod x 31” (787 mm) stroke
- One tool cylinder: 5.0” (127 mm) bore x 3.0” (76 mm) rod x 25.9” (658 mm) stroke

Three Hydraulic Motors
- Swing, 64 hp (48 kW)
- Tilt, 21 hp (16 kW)
- Remote drive, 110 hp (82 kW) total

Operating Pressures
- Hoist..............................................4,800 psi (331 BAR)
- Tilt...............................................2,500 psi (172 BAR)
- Swing..........................................4,200 psi (290 BAR)
- Tool..............................................4,800 psi (331 BAR)
- Telescope......................................4,800 psi (331 BAR)
- Remote Propel............................4,800 psi (331 BAR)
- Pilot system.................................500 psi (35 BAR)

Oil Capacity
- Reservoir 50 gallons (189 L)
- System 70 gallons (265 L)
- Pressurized reservoir with visual oil level gauge

Filtration System
- 5 micron return filter with magnet
- 10 micron pilot filter
- Fin and tube-type oil cooler with thermostatically controlled cooling fan
- Pressure-compensated, load-sensing valves with circuit reliefs in all circuits
**Undercarriage**
- 6 x 4
- Wheelbase: 171" (4.34m)
- Width 102" (2.6m)
- Extended steps

**Transmission**
- Allison 3000 RDS 6-speed automatic

**Frame**
- 48" (1.2m) wide, welded plate design
- 65 ksi material

**Gross Vehicle Axle Weight Rating:**
- 6 x 4: 68,700 lbs (31,162 kg)

**Front Axle**
- 6 x 4: Meritor Model FL 941, 18,700 lbs (8,482 kg) rating

**Rear Axle**
- Mentor Model RT-50-160, 50,000 lb (22,680 kg) rating, 7.17 ratio
- Single reduction with driver controlled differential lock in front/rear
- Inter-axle differential with lock

**Suspension**
- Front: Eight leaf spring with automatic lock-out cylinders
- Rear: Hendrickson Equalizer Beam, 8° oscillation

**Brakes**
- 6 x 4 Front: Meritor "Q" Plus Series
  - Cam-Master Size: 16.5" x 5" (419 mm x 152 mm)
- Automatic slack adjusters
- Rear: Mentor "R" Series
  - Cam-Master Size: 16.5" x 7" (419 mm x 178 mm)
- Automatic slack adjusters
- Spring brake system incorporates emergency and parking brakes on rear axle
- Heated air dryer

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**Steering**
- Ross, integral hydraulic power steering
- Gear-type power steering pump
- Four-quart power steering reservoir with filter
- 10 micron pre-filter

**Wheels**
- Hub piloted disc
- 10-stud, 11.25" (286 mm) bolt circle

**Tires**
- 6 x 4: 385/65R22.5 LR (J) on/off highway tread
- 6 x 4 rear: 11R24.5 LR (H) on/off highway tread

**Standard Chassis Equipment**
- LED headlights
- LED tail lights
- LED back-up lights and alarm
- LED brake lights
- LED identification lights front and rear
- LED directional lights
- LED four-way hazard lights
- Instrument panel lights
- Windshield wiper/washer
- West Coast style mirror system with plain and convex mirrors
- Front and rear tow hooks
- Desiccant type air dryer with automatic purge valve and thermostatically controlled heater
- FRA required directional lighting and change of direction alarm

**Swing**
- Internal swing gear
- Planetary swing circuit with axial piston motor
- Planetary transmission

**Swing Speed:** 8.0 rpm

**Swing Brake:**
- Automatic spring-set/hydraulic release wet-disc parking brake
- Dynamic braking provided by hydraulic system

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**Chassis Cab**
- One-person cab
- Left-hand mount
- Isolated from frame on rubber mounts
- Acoustical lining
- Sun visor
- FRA spec 360 Degree Strobe Lighting
- Lower air horn
- Chassis camera
- Air conditioning

**Gauge Clusters**
- Oil pressure
- Coolant temperature
- Air tank pressures
- Fuel level
- DEF level
- Voltmeter
- Speedometer with odometer
- Tachometer with hour meter
- Engine and transmission monitor lights
- Engine shut down controlled by engine electronics
- Indicator light and control for rear axle differential lock
- Park brake control
- Tinted safety glass
- Sliding side windows
- Fresh air heater and defroster
- Dome light
- Air suspension seat with seat belt
- Vent in door
- Dual air horn

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**LOAD RADIUS**

<table>
<thead>
<tr>
<th>LOAD POINT HEIGHT</th>
<th>LOAD RADIUS</th>
<th>10' 0&quot; (3.0 m)</th>
<th>15' 0&quot; (4.6 m)</th>
<th>20' 0&quot; (6.1 m)</th>
<th>25' 0&quot; (7.6 m)</th>
<th>Max. Radius</th>
<th>On Tires</th>
<th>On Rails</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Over</td>
<td>End</td>
<td>Over</td>
<td>End</td>
<td>Over</td>
<td>End</td>
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<tr>
<td></td>
<td>Side</td>
<td>Over</td>
<td>End</td>
<td>Over</td>
<td>End</td>
<td>Over</td>
<td>Over</td>
<td>Over</td>
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<td></td>
<td></td>
<td>Side</td>
<td>End</td>
<td>Over</td>
<td>End</td>
<td>Side</td>
<td>End</td>
<td>Side</td>
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<tr>
<td>Above Ground Level</td>
<td>20' 0&quot; (6.1 m)</td>
<td>9935</td>
<td>9935</td>
<td>9935</td>
<td>9935</td>
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<tr>
<td></td>
<td>15' 0&quot; (4.6 m)</td>
<td>5950</td>
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<tr>
<td></td>
<td>10' 0&quot; (3.0 m)</td>
<td>2935</td>
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<tr>
<td>BOOM LEVEL 8' 0&quot; (2.7 m)</td>
<td>12000</td>
<td>13100</td>
<td>12000</td>
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<tr>
<td>5' 0&quot; (1.5 m)</td>
<td>12130</td>
<td>11205</td>
<td>12130</td>
<td>12130</td>
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<tr>
<td>At Ground Level</td>
<td>10750</td>
<td>10590</td>
<td>10750</td>
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**LOAD VOLUME**

<table>
<thead>
<tr>
<th>LOAD LOCATION</th>
<th>LOAD VOLUME</th>
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<tbody>
<tr>
<td>0' 0&quot; (0.0 m)</td>
<td>0' 0&quot; (0.0 m)</td>
</tr>
<tr>
<td>5' 0&quot; (1.5 m)</td>
<td>5' 0&quot; (1.5 m)</td>
</tr>
<tr>
<td>10' 0&quot; (4.6 m)</td>
<td>10' 0&quot; (4.6 m)</td>
</tr>
</tbody>
</table>

**ATTENTION:**
All rated loads are based on the machine being stationary and level on a firm supporting surface. For safe working loads, the user must make allowance for his particular job conditions such as soft or uneven ground, out of level conditions, side loads, hazardous conditions, experience of personnel, etc. The operator and other personnel must be fully trained and understand the Operator's Manual and Safety Manuals furnished by the manufacturer before operating this machine. Rules for safe operation of equipment must be adhered to at all times.
### Dimensions

**6 x 4**

- **A**: 25' 6" (7.8m) Overall length (boom in rack) w/ bucket
- **A1**: 25' 1" (7.6m) Overall length (boom in rack) w/o bucket
- **B**: 11' 9" (3.6m) Overall height (boom in rack) w/ bucket
- **B1**: 10' 11" (3.3m) Overall height (boom in rack) w/o bucket
- **C1**: 8' 6" (2.6m) Width of upperstructure
- **C3**: 8' 6" (2.6m) Width of undercarriage
- **D**: 3' (0.9m) Minimum clearance, upperstructure to undercarriage
- **E**: 8' 0" (2.4m) Swing clearance, rear of upperstructure
- **F**: 10' 10" (3.3m) Top of cab to ground line
- **G**: 52" (1.3m) Clearance, upperstructure to ground line
- **H**: 44" (1.1m) Top of wheel mounted under carriage frame to ground line
- **L**: 24' 2" (7.4m) Overall length of undercarriage
- **N**: 10' (254mm) Ground clearance (per SAE J1234)
- **P**: 22" (564mm) Center of rear tandem to axis of rotation
- **Q**: 52" (1.3m) Distance between centers of tandem axles
- **R**: 14' 2" (4.3m) Wheelbase
- **S**: 5' 4" (1.6m) Center of rear axle to rear of frame (step)
- **V1**: 6' 4" (2.0m) Tread, rear axles (11R24.5 tires)
- **V2**: 7' 0" (2.1m) Tread, front axle (O85/65R22.5 tires)
- **AA**: 30' 3" (9.2m) Maximum radius at ground line (165° pivot)
- **AB**: 20' 3" (6.2m) Maximum digging depth
- **AC**: 19' 3" (5.9m) Maximum depth for 8' level cut

**6 x 4**

- **AD**: 7' 3" (2.2m) Minimum radius of 8' level cut at depth "AC"
- **AF**: 3' 3" (1.0m) Maximum depth of vertical wall which can be excavated
- **AG**: 12' 5" (3.8m) Minimum level cut radius with bucket flat on ground line
- **AH**: 8' 2" (2.5m) Minimum radius at ground line
- **AK**: 6' 7" (2m) Boom pivot to ground line
- **AL**: 23' (6.9m) Boom pivot to axis of rotation
- **AP**: 46' (1.4m) Bucket tooth radius
- **AQ**: 30° Up & 75° Down
- **AS**: 165° Bucket pivot angle
- **AU**: 25' 3" (7.7m) Maximum telescoping boom length (boom pivot to bucket pivot)
- **AV**: 12' 9" (3.9m) Minimum telescoping boom length (boom pivot to bucket pivot)
- **AW**: 12' 6" (3.8m) Telescoping boom travel
- **AX**: 110° Bucket tilt angle (both sides of center)
- **BA**: 31" (0.8m) Maximum radius of working equipment
- **BB**: 24' 5" (7.4m) Maximum height of working equipment
- **BC**: 22' 6" (6.9m) Maximum bucket tooth height
- **BD**: 17' 2" (5.2m) Minimum clearance of bucket teeth, with bucket pivot at maximum height
- **BE**: 11' 4" (3.5m) Minimum clearance of fully curled bucket at maximum boom height
- **BF**: 10' 11" (3.3m) Minimum clearance of bucket teeth at maximum boom height
- **BG**: 15' 0" (4.6m) Maximum height of working equipment with bucket below ground line
- **BH**: 26' 4" (8.0m) Radius of bucket teeth at maximum height
- **BJ**: 19' 8" (6.0m) Minimum radius of bucket teeth at maximum bucket pivot height

Specifications subject to change without notice.
Metric units are meters (m) unless noted.
Machines shown may have optional equipment.
**Attachments**

- Quick change and reversible buckets fabricated using steel plate with high strength, low alloy cutting edges and wear strips
- Standard attachments available for wide range of applications
- Capacities shown are in heaped cubic yard
- Excavating Buckets
- Pavement Removal Buckets
- Ditching Buckets
- Boom Extensions
- Tree Limb Sheer
- Fixed Thumb Grapple
- Sleeper Changer
- Sleeper Layer
- Ballast Tamper
- Ballast Bucket
- Ballast Broom
- Ballast Blade
- Flail Mower
- Single Tooth Ripper

**Optional Equipment**

- Vandalism protection kit including window covers
- Tilt steering column

**Function Forces**

**Rated Boom Force:** 21,940 lbs (97.6 kN)

**Rated Bucket Breakout Force:** 24,900 lbs (111 kN)

**Weight**

- Approximate working weight, fuel tank half full
  - 6 x 4: 54,500 lbs (24,720 kg)

**Rail Gear**

Guide wheel rail gear system allows the excavator to be propelled by the drive system of the machine.

- DMF 1650 (50,000 lbs. each) Hi-Rail axle assemblies
- Railgear frame assemblies welded to main chassis frame
- 16” guide wheels (custom profile available)
- High-strength alloy steel axles
- Wheel brakes work in conjunction with excavator braking system
- Rear axles have 3” slotted suspension
- Rail sweeps front and rear
- Tow bar plates front and rear

**Excavating Bucket**

<table>
<thead>
<tr>
<th>Model</th>
<th>Yd³</th>
<th>M³</th>
</tr>
</thead>
<tbody>
<tr>
<td>8045-6020</td>
<td>24” (610mm) 603 lbs (274 kg)</td>
<td>3/8</td>
</tr>
<tr>
<td>8045-6021</td>
<td>30” (762mm) 660 lbs (300 kg)</td>
<td>1/2</td>
</tr>
<tr>
<td>8045-6022</td>
<td>36” (914mm) 741 lbs (336 kg)</td>
<td>5/8</td>
</tr>
<tr>
<td>8045-6023</td>
<td>42” (1070mm) 841 lbs (382 kg)</td>
<td>3/4</td>
</tr>
<tr>
<td>8045-6024</td>
<td>48” (1220mm) 957 lbs (434 kg)</td>
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</tbody>
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**Pavement Removal Bucket**

<table>
<thead>
<tr>
<th>Model</th>
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<th>M³</th>
</tr>
</thead>
<tbody>
<tr>
<td>8065-6102</td>
<td>40” (1.0 m) 1262 lbs (573 kg)</td>
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**Ditching Bucket**

<table>
<thead>
<tr>
<th>Model</th>
<th>Yd³</th>
<th>M³</th>
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</thead>
<tbody>
<tr>
<td>8065-6007</td>
<td>60” (1.52m) 807 lbs (366 kg)</td>
<td>7/8</td>
</tr>
<tr>
<td>8065-6006</td>
<td>66” (1.68m) 892 lbs (405 kg)</td>
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<tr>
<td>8065-6002</td>
<td>72” (1.83m) 944 lbs (428 kg)</td>
<td>1 1/8</td>
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<tr>
<td>8065-5037</td>
<td>48” (1.5m) w/BOE 851 lbs (386 kg)</td>
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**Boom Extension**

<table>
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<tr>
<th>Model</th>
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<th>M³</th>
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<tbody>
<tr>
<td>8065-5028</td>
<td>4’ (1.2 m) 1,090 lbs (495 kg)</td>
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</tr>
<tr>
<td>8065-5029</td>
<td>6’ (1.8 m) 1,250 lbs (560 kg)</td>
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**Tree Limb Shear**

<table>
<thead>
<tr>
<th>Model</th>
<th>Yd³</th>
<th>M³</th>
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</thead>
<tbody>
<tr>
<td>8045-5052</td>
<td>1.948 lbs (884 kg)</td>
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</tbody>
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**Fixed Thumb Grapple**

<table>
<thead>
<tr>
<th>Model</th>
<th>Yd³</th>
<th>M³</th>
</tr>
</thead>
<tbody>
<tr>
<td>8075-5023</td>
<td>1,574 lbs (714 kg)</td>
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