

BID SUBMITTAL FORM
Alabama County Joint Bidding Program
Heavy Equipment – Bid Item: Medium Duty Motor grader-Option B

Company Name: THOMPSON TRACTOR COMPANY

Address: PO BOX 10367
BIRMINGHAM AL 35202-0367

Bid Submitted by: JAY SMITH
(Name of company representative)

Title: SALES OPERATIONS MANAGER e-mail address: jaysmith@thompsontractor.com

Phone: 205-849-4242 Fax: _____

By submitting this bid, we agree:

Initials

The equipment model number identified below meets the bid specs for this bid item

JAS

That the bid price will be honored for all counties for the period from Jan. 1, 2024 to Dec. 31, 2024.

JAS

The equipment will be delivered at the bid price to all counties participating in the joint bid program.

JAS

The company acknowledges the freight preparation and delivery price is to be included in the total bid price for the standard machine.

JAS

The company representative listed above will be the contact person for purchasing this bid item under the joint bid program.

JAS

The bid is accompanied by a current catalog or model specification document for the model number identified below.

JAS

The bid is accompanied by a copy of the manufacturer's standard warranty as required in the bid specifications.

JAS

The bid includes the e-verify documentation required by Alabama law.

JAS

If awarded the bid, a performance bond will be provided upon request.

JAS

The bid documents include the **Manufacturer's Suggested Retail Price Sheet (MSRP) for the Standard Machine.**

JAS

Total Bid Price for Standard Machine: \$ 335,275

(Total Bid Price for Standard Machine Includes Freight Preparation, Delivery and Standard Warranty Costs) *

Freight Preparation and Delivery: \$ 11,812

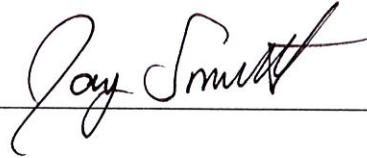
(Included in Standard Machine Bid Price)

Manufacturer's Suggested Retail Price for Standard Machine: \$ 513,432

Equipment Model #: CATERPILLAR 140 (JOYSTICK STEERING)

Description: MOTOR GRADER

Signature of company representative submitting bid: _____



Title: SALES OPERATIONS MANAGER

* **NOTE:** Award will be made based on the total cost of the **Standard Machine**. The total cost of the standard machine is to include the freight preparation, delivery and standard warranty cost. Freight preparation, delivery will be excluded from the total bid price of the standard machine in determining the percentage discount for any available options.

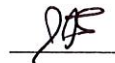
BID SUBMITTAL FORM: OPTION COST SHEET

By submitting this bid, we agree:

To offer any available options at the percent difference between the Manufacturer's Suggested Retail Price Sheet and the actual bid price on the Standard Machine*



The bid documents include the **Manufacturer's Suggested Retail Price Sheet (MSRP)** for the Standard Machine



Equipment Model #: CATERPILLAR 140 (JOYSTICK STEERING)

Description: MOTOR GRADER

Signature of company representative submitting bid: 

Title: SALES OPERATIONS MANAGER

***Note:** The percent difference between the **Manufacturer's Suggested Retail Price Sheet (MSRP)** for the standard machine as specified by these **Bid Specifications** and the actual price bid by the vendor will be calculated to determine the percentage discount to be applied to any available options. The bid price of the freight preparation, delivery cost shall be excluded in determining the percentage discount to be applied to available options. Any individual county may choose to add any available option to the standard machine at the percentage discount at the time of purchase.

| 140 | MEDIUM DUTY MOTOR GRADER OPTION B | 2024 Pricing |
|----------|--|--------------|
| 577-3021 | 140 MOTOR GRADER JOYSTICK STEERING | \$471,107 |
| 385-9294 | GLOBAL ARRANGEMENT | \$0 |
| 349-3048 | 14' PLUS MOLDBOARD | \$3,631 |
| | BLADE, 14' X 27" X 1" | |
| | INCLUDES END BITS WITH OVERLAY | |
| 337-7510 | TOWING HITCH | \$734 |
| 394-4521 | COLD WEATHER PACKAGE (ETHER STARTING AID) | \$1,015 |
| 358-9338 | BLADE LIFT ACCUMULATORS | \$6,263 |
| 380-6774 | PRECLEANER NON SY-KLONE | \$0 |
| 567-4685 | TIER 4 ENGINE | \$0 |
| 324-5328 | GRAVITY ENGINE OIL DRAIN | \$0 |
| 242-5056 | BASE HYDRAULICS | \$0 |
| 394-3945 | HEAVY DUTY ELECTRIC STARTER | \$546 |
| 536-9969 | FOLD DOWN LIGHTS | \$2,525 |
| 421-7810 | HALOGEN ROADING LIGHTS | \$0 |
| 385-9554 | CAB PLUS: (STANDARD GLASS) | \$1,484 |
| 397-7457 | CAB PLUS: (INTERIOR) INCLUDES AM/FM RADIO | \$4,039 |
| 394-1492 | SEAT BELT | \$0 |
| 464-6442 | PRODUCT LINK, CELLULAR PLE641 | \$0 |
| 585-3097 | NO ACCUGRADE | \$0 |
| 483-2354 | AUTO ARTICULATION DEMO | \$0 |
| 357-9151 | BASIC JOYSTICK CONTROLS | \$0 |
| 540-2373 | STANDARD FUEL TANK | \$0 |
| 542-4660 | STANDARD FAN | \$0 |
| 252-0679 | 14.0R24 MX XGLA2 * G2 MP MICHELIN | \$14,270 |
| | RADIAL TIRES WITH MULTI-PIECE RIMS | |
| 323-6970 | GP GUARD HITCH | \$0 |
| 469-8157 | COOLANT 50/50 | \$0 |
| 0P-3978 | FUEL ANTIFREEZE | \$0 |
| 421-8926 | SERIALIZED TECHNICAL MEDIA KIT | \$0 |
| 442-9940 | ENGLISH DECALS | \$0 |
| 604-3258 | LED WARNING STROBE LIGHT | \$760 |
| 361-3137 | WARNING LIGHT MOUNTING | \$974 |
| 308-9370 | LOW FRONT HEADLIGHTS | \$862 |
| 396-3921 | REAR VISION CAMERA | \$0 |
| 233-3295 | OUTSIDE MOUNTED MIRRORS | \$658 |
| 366-2459 | TRANSMISSION GUARD | \$4,565 |
| | | |
| | TOTAL BID PRICE FOR STANDARD MACHINE | \$335,275 |
| | | |
| | FREIGHT PREPARATION AND DELIVERY | \$11,812 |
| | | |
| | TOTAL MANUFACTURER'S SUGGESTED RETAIL PRICE FOR STANDARD MACHINE | \$513,432 |

BID SPECIFICATIONS FOR MEDIUM DUTY MOTOR GRADER – OPTION B

GENERAL

These specifications shall be construed as the minimum acceptable standards for a medium duty motor grader. Should the manufacturer's current published data or specifications exceed these standards, the manufacturer's standards shall be considered minimum and shall be furnished. All integral parts not specifically mentioned in the scope of these specifications that are necessary to provide a complete working unit shall be furnished. Additionally, the machine offered for bid shall include all standard manufacturer's equipment. The motor graders must be a new current production model and shall meet all EPA and other applicable standards at the time of manufacture.

The use of specific names or numbers in the specifications is not intended to restrict the bidder or any seller or manufacturer, but is intended solely for the purpose of indicating the type, size, and quality of equipment considered best adapted to the uses of counties participating in this joint bid.

BID SUBMITTAL FORM

Each bidder must submit his or her bid on the Bid Submittal Form included in the invitation to bid package. All written warranties to be submitted shall be attached to the Bid Submittal Form.

BID PRICE

The price bid shall include all destination charges, delivery charges, title fees, rebates and all other applicable costs and refunds.

MANUALS

Each unit shall be provided with one (1) copy of the operator's manual, one (1) copy of the repair manual and one (1) copy of the current parts manual. Units will not be accepted for delivery until the manuals as outlined above are received by the purchaser.

REPLACEMENT PARTS AVAILABILITY

Parts must be available for 5 years or 7,500 hours of use for the piece of equipment bid. If replacement parts are not delivered within three (3) working days of an order being placed, the bidder will deliver an equivalent machine for the County to use at no cost to the County until such time as the parts are delivered to the County so it can affect repairs to its machine.

WARRANTY

Bidders shall submit a copy of the manufacturer's standard warranty. Warranty shall include service response time of a maximum of 36 hours within notification by county.

Yes ☒ No ☐
Page # _____
or
Attachment ☒

ENGINE

Engine shall be a turbo-charged, direct injection, four-stroke, **6-cylinder** diesel engine and shall be electronically controlled for more efficient fuel injection and fuel burn.

Engine shall be designed and manufactured by the machine manufacturer

Yes ☒ No ☐
Page # 6, 19

Engine displacement shall not be less than **567.cu. In.** and shall develop, as standard, a rated net power of at least **179 HP** in 1st gear, **189 HP** in 2nd gear, **200 HP** in 3rd gear, **210 HP** in 4th gear, **215 HP** in 5th gear, **220 HP** in 6th gear, **225 HP** in 7th gear, and **231 HP** in 8th gear.

Yes ☒ No ☐
Page # 19

Engine shall be isolation/resilient mounted to minimize sound and vibration and shall meet currently required EPA emission regulations for manufacturer.

Yes ☒ No ☐
Page # 6, 18, 23

Engine compartment enclosure doors shall be lockable without the use of external locks and accessible from the ground. All daily service points shall be accessible from ground level and grouped together.

Yes ☒ No ☐
Page # 14, 17, 23
BID SPEC P. 1

Engine will increase its low idle to **1,000 rpm** when the battery voltage is below **24.5** volts for more than **5** minutes to ensure adequate system voltage and battery reliability.

Yes ☒ No ☐
Page # 17, BID SPEC
P. 1

STARTING SYSTEM

Shall be equipped with a **24-volt** electrical system. **100-amp** alternator.

Yes ☒ No ☐
Page # 33

TRANSMISSION - 8 Forward Speeds, 6 Reverse Speeds

Shall be designed and built by the machine manufacturer and shall be a direct drive, power shift, counter-shaft type transmission.

Yes ☒ No ☐
Page # 8, 11, 23

Shall be equipped with built-in self-diagnostic capability

Yes ☒ No ☐
Page # 17

A controlled throttle shifting system shall be standard to smooth directional gear changes without use of the inching pedal.

Yes ☒ No ☐
Page # 8

Electronic Throttle Control (cruise control) shall be standard and shall be controlled by a push button, located on a **3-axis** joystick as standard on the right joystick control for resuming and decreasing throttle set.

Yes ☒ No ☐
Page # 5, 23

Direction control shall be a **3-position** rocker switch for selecting forward, neutral, and reverse, while gear selection shall be controlled by dual push-buttons for up-shifting and down-shifting, both of which shall be incorporated into a single, **3-axis**, multi-function, left-hand joystick control.

Yes ☒ No ☐
Page # 5, BID SPEC
P. 3

Differential Lock/Unlock shall be electro-hydraulically controlled, via a push-button, located on a single 3-axis, multi-function, right-hand joystick control.

Yes ☒ No ☐
Page # 81D spec p. 3

Final drive shall be a planetary design.

Yes ☒ No ☐
Page # 81D spec p. 2

Machine shall be equipped with an electronic inching pedal for improved modulation and machine control, and with electronic over-speed protection to protect the engine and transmission from over speeding.

Yes ☒ No ☐
Page # 81D spec p. 2

Also to be equipped with transmission guard.

Yes ☒ No ☐
Page # 26

TANDEM

Machine to be equipped with differential lock/unlock electro-hydraulically controlled with a multi-disc design .

Yes ☒ No ☐
Page # 8, 23, 24
81D spec p. 2

Tandems shall be capable of oscillating **15 degrees** front tandem up and **25 degrees** front tandem down, with full machine articulation and having no interference between tandem wheel and machine structure

Yes ☒ No ☐
Page # 23, 24

CONTROLS AND HYDRAULICS

Hydraulics system shall be a closed center, load sensing type, with a variable Displacement, axial piston-type pump.

Yes ☒ No ☐
Page # 10, 81D spec p. 3

Implement valves shall be electro-hydraulic, designed and built by the machine manufacturer.

Yes ☒ No ☐
Page # 5, 10 81D spec p. 1

Lock valves shall be integrated into the main implement valve to prevent cylinder drift.

Yes ☒ No ☐
Page # 5, 10, 81D spec p. 1

Blade lift cylinders shall have independent float capability, actuated by two, multi-functioning, 3-axis joystick controls and auxiliary controls inside the cab.

Yes ☒ No ☐
Page # 10, 81D spec p. 1

Hydraulic controls shall be joystick actuated.

Yes ☒ No ☐
Page # 5, 23

BLADES

Machine shall be equipped with **14 ft.** long, **24 in** high and no less than **7/8** in thick moldboard with hydraulic side shift and tip control.

Yes ☒ No ☐
Page # 140 *Price Page*

Blade shall also include reversible overlay end bits.

Yes ☒ No ☐
Page # 34

All blade functions shall be hydraulically or electronically actuated.

Yes ☒ No ☐
Page # 9, 10

Blade lift accumulators shall be provided, to reduce vertical impact damage.

Yes ☒ No ☐
Page # 15, 33, 34

DRAWBAR AND CIRCLE

The circle shall be steel construction with **6** replaceable wear shoes.

Yes ☒ No ☐
Page # 35 *Rid Spec p. 2*

Rear drawbar shall be equipped with slip clutch designed to protect the circle, drawbar, and moldboard from shock when end of blade encounters, hidden objects.

Yes ☒ No ☐
Page # 15

Drawbar shall feature welded protective wear plates to prevent lift group contact with the primary drawbar structure.

Yes ☒ No ☐
Page # 218 *spec p. 2*

FRAME

Articulated type main frame.

Yes ☒ No ☐
Page # 35

Articulation joint shall have mechanical locking device to prevent frame articulation while servicing or transporting machine.

Yes ☒ No ☐
Page # 33

Shall be that of a flanged box section type frame that runs from the front bolster to the articulation joint.

Yes ☒ No ☐
Page # 9

STEERING

Fully hydraulic, **2-cylinder** steering system, with front steering wheel angle not less than **47.5°** left or right.

Yes ☒ No ☐
Page # 24 *Rid Spec p. 2*

Machine, drawbar, circle, and moldboard shall be controlled with a maximum of two multifunction, **3-axis**, joysticks, as standard.

Yes ☒ No ☐
Page # 4, 33 *Rid Spec p. 2*

Joystick controls shall be mounted to adjustable pedestals, hard mounted to the cab floor, independent of the operator seat.

Yes ☒ No ☐
Page # 5 *Rid Spec p. 2*

| USE | REF NO. | LANE 2 / 3 MANDATORY | Ship Weight lbs | LIST PRICE AT DEALER |
|-----|------------|----------------------|--------------------|-------------------------|
|-----|------------|----------------------|--------------------|-------------------------|

LANE SELECTION

| | | | |
|---------|--|---|----|
| 0P-9002 | LANE 2 ORDER | 0 | NC |
| | Only for dealers enrolled in the Base Orders Management (BOM) program. | | |
| 0P-9003 | LANE 3 ORDER | 0 | NC |

REGIONAL PACKAGES

| | | | | |
|---|----------|--|---|----|
| L | 385-9294 | GLOBAL ARRANGEMENT | 0 | NC |
| | | Provides standard brake accumulators. For use in temperatures above -18C | | |
| | | CANNOT BE USED WITH: WEATHER, COLD PLUS | | |
| L | 385-9297 | GLOBAL ARRANGEMENT, LOW AMBIENT | 0 | NC |
| | | Provides brake accumulators for low ambient temperatures below -18C | | |
| | | CANNOT BE USED WITH: EU dealers | | |
| | | WEATHER, STANDARD | | |

PERFORMANCE PACKAGES

MOLDBOARDS

| | | | | |
|---|----------|--|-----|----|
| L | 349-3046 | MOLDBOARD, 12' | 0 | NC |
| | | INCLUDES: | | |
| | | - Moldboard 12' x 24" x 7/8" (3658mm x 610mm x 22mm) | | |
| | | - Curved Cutting Edge, 6" X 5/8" (152mm x 16mm) | | |
| | | - End Bits, Standard, Without Overlay | | |
| L | 349-3047 | MOLDBOARD, 14' BASIC | 347 | |
| | | INCLUDES: | | |
| | | - Moldboard 14' x 24" x 7/8" (4267mm x 610mm x 22mm) | | |
| | | - Curved Cutting Edge, 8" x 3/4" (203mm x 19mm) | | |
| | | - End Bits, Standard, Without Overlay | | |
| L | 349-3048 | MOLDBOARD, 14' PLUS | 650 | |
| | | INCLUDES: | | |
| | | - Moldboard 14' x 27" x 1" (4267mm x 686mm x 25mm) | | |
| | | - Curved Cutting Edge, 8" x 3/4" (203mm x 19mm) | | |
| | | - End Bits, Standard, With Overlay | | |

WORK TOOLS

| | | | | |
|---|----------|---|-------|-------|
| L | 393-4882 | NO HITCH | 0 | NC |
| L | 337-7510 | HITCH, TOWING | 0 | \$720 |
| | | Retrieval hitch. Does not include pin | | |
| L | 324-0889 | RIPPER/SCARIFIER | 2,120 | |
| | | Hydraulic, rear mounted ripper with three straight ripper shanks. | | |
| | | Can accommodate two additional ripper shanks and nine scarifier teeth which must be ordered separately. | | |
| | | INCLUDES: Ripper Mounting | | |
| | | REQUIRES: HYDRAULICS BASE (RIP) | | |

Joystick Steering capabilities shall be ISO 5010

Yes ☒ No ☐
Page # 26

Primary steering shall be achieved via a left-hand joystick, using an intuitive steering control system.

Yes ☒ No ☐
Page # 814 SPEC p. 3

Secondary steering shall be a standard feature.

Yes ☒ No ☐
Page # 15, 55

TIRES

All six wheels shall be **10 in** by **24 in** size multi-piece tire rims and shall provide mounting for **14.00 R24** tires.

Yes ☒ No ☐
Page # 32

Tires shall be Goodyear, Bridgestone/Firestone, or Michelin only **14.00 x R24 12PR** Bias Tires.

Yes ☒ No ☐
Page # 140 TIRES →

BRAKES

Service brakes shall be multi-disc, oil-cooled and completely sealed.

Yes ☒ No ☐
Page # 8

OIL ANALYSIS

To be included at no cost of the duration of the warranty period selected at intervals recommended by the manufacturer's warranty and maintenance schedule.

Yes ☒ No ☐
Page #

WEIGHT (STANDARD OPERATING)

Base machine weight shall not be less than **37,420 lbs.** Weight shall include standard machine configuration, lubricants, coolants, full fuel tank and operator of **200lbs** This is factory specified operating weight only. No additional weights may be added for purpose of meeting these specifications.

Yes ☒ No ☐
Page # 1, 19, 20

| USE | REF NO. | LANE 2 / 3 MANDATORY | Ship Weight lbs | LIST PRICE AT DEALER |
|-----|------------|----------------------|--------------------|-------------------------|
|-----|------------|----------------------|--------------------|-------------------------|

TIRES, RIMS, AND WHEELS (CONT.)**MAXAM**

| | | |
|---|----------|--|
| L | 578-9458 | TIRES 17.5R25 MA MS202 ** MP 0 Maxam MS202 2* on 14- x 25- multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (8600 lbs) 3900kg.* ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER |
| L | 578-9460 | TIRES 14.00R24 MA MS202 * MP 0 FOR USE IN LANE 3 ONLY Maxam MS202 2* on 14- x 25- multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (8600 lbs) 3900kg.* ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER |

BRIDGESTONE

| | | |
|---|----------|---|
| L | 252-0720 | TIRES, 14.0R24 BS VUT * L2 MP 1,012 FOR USE IN LANE 3 ONLY Bridgestone VUT 1* on 10" x 24" multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (8045 lbs) 3650 kg.** ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER |
| L | 252-0775 | TIRES, 17.5R25 BS VKT * D2A MP 1,810 Bridgestone VKT 1* on 14" x 25" multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (8045 lbs) 3650 kg.** ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER |
| L | 252-0708 | TIRES, 14.0R24 BS VSW * G2 MP 1,481 FOR USE IN LANE 3 ONLY Bridgestone VSW 1* on 10" x 24" multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (8045 lbs) 3650 kg.** ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER |
| L | 310-7331 | TIRES, 17.5R25 BS VSW * G2 MP 1,888 Bridgestone VSW 1* on 14" x 25" multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (8045 lbs) 3650 kg.** ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER |

MICHELIN

| | | |
|---|----------|--|
| L | 252-0701 | TIRES, 14.0R24 MX XSNO + * G2 MP. 1,282 FOR USE IN LANE 3 ONLY Michelin XSNO 1* on 10" x 24" multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (7824 lbs) 3550 kg.** ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER |
| L | 252-0679 | TIRES, 14.0R24 MX XGLA2 * G2 MP 1,069 Michelin XGLA2 1* on 10" x 24" multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (7824 lbs) 3550 kg.** ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER |

| USE | REF NO. | LANE 2 / 3 MANDATORY | Ship Weight lbs | LIST PRICE AT DEALER |
|-----|------------|----------------------|--------------------|-------------------------|
|-----|------------|----------------------|--------------------|-------------------------|

TIRES, RIMS, AND WHEELS (CONT.)***MICHELIN (Cont.)***

| | | | | |
|---|----------|---|--|--|
| L | 252-0777 | TIRES, 17.5R25 MX XSNO+ * G2 MP. 1,093 Michelin XSNO+ 1* on 14" x 25" multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (8045 lbs) 3650 kg.** ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER | | |
| L | 252-0771 | TIRES, 17.5R25 MX XTLA * L2 MP. 1,371 Michelin XTLA 1* on 14" x 25" multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (8045 lbs) 3650 kg.** ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER | | |
| L | 254-7904 | TIRES, 14.0R24 MX XGLA2 * G2 SP. 709 FOR USE WITH LANE 3 ONLY Michelin XGLA 1* on 9" x 24" single piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (7824 lbs) 3550 kg.** ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER | | |
| L | 254-7971 | TIRES, 17.5R25 MX XTLA * L2 SP. 979 Michelin XTLA 1* on 13" x 25" single piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (8045 lbs) 3650 kg.** ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER | | |

SHIPPING TIRES

| | | | | |
|---|----------|---|--|--|
| L | 440-3433 | TIRES, 17.5 SHIPPING, MP. 274 FOR USE WITH LANE 3 ONLY Due to the height of the shipping tires, unloading will most likely require a crane to avoid damaging the bottom of the machine. Shipping tire for use during shipment of machine only. Solid rubber band mounted on 14" x 25" multi-piece rims. Must be replaced with pneumatic tire before delivering to customer ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER | | |
| L | 448-5577 | TIRES, 14.0 SHIPPING, MP. 90 FOR USE IN LANE 3 ONLY Due to the height of the shipping tires, unloading will most likely require a crane to avoid damaging the bottom of the machine. Shipping tire for use during shipment of machine only. Solid rubber band mounted on 10" x 24" multi-piece rims. Must be replaced with pneumatic tire before delivering to customer. ONLY FOR USE WITH: 577-3021 140 15A MOTOR GRADER | | |

TIRES (AWD MACHINES)***APPLICATION SPECIFIC***

| | | | | |
|---|----------|---|--|--|
| L | 515-5404 | TIRES, 14.0R24 SOIL TRACTION MP. 0 Tire group received will be one of the tire groups listed below: - Bridgestone VKT 1* on 10" x 24" multi-piece rims. - Michelin XGLA2 1* on 10" x 24" multi-piece rims. THE TIRE MANUFACTURER DOES NOT RECOMMEND THIS TIRE FOR INDIVIDUAL TIRE LOADS EXCEEDING (8045 lbs) 3650 kg.** ONLY FOR USE WITH: 577-3022 140 15A AWD MOTOR GRADER | | |
|---|----------|---|--|--|

140/150/160

Motor Graders



| | 140/140 AWD | | 150/150 AWD | | 160/160 AWD | |
|--|-------------|------------|-------------|------------|-------------|------------|
| Engine Model | Cat® C9.3 | | Cat C9.3 | | Cat C9.3 | |
| Base Power (1st gear) – Net | 133 kW | 179 hp | 149 kW | 200 hp | 165 kW | 221 hp |
| Base Power (1st gear) – Net (Metric) | | 181 hp | | 202 hp | | 224 hp |
| VHP Plus Range – Net | 133-172 kW | 179-231 hp | 149-188 kW | 200-252 hp | 165-203 kW | 221-272 hp |
| VHP Plus Range – Net (Metric) | | 181-234 hp | | 202-255 hp | | 224-276 hp |
| AWD Range – Net | 141-188 kW | 189-252 hp | 156-203 kW | 210-272 hp | 172-219 kW | 231-293 hp |
| AWD Range – Net (Metric) | | 192-255 hp | | 213-276 hp | | 234-298 hp |
| Moldboard – Blade Width | 3.7 m | 12 ft | 3.7 m | 12 ft | 4.2 m | 14 ft |
| Operating Weight, Typically Equipped | 19 344 kg | 42,647 lb | 19 935 kg | 43,950 lb | 20 660 kg | 45,547 lb |
| Operating Weight, Typically Equipped AWD | 20 236 kg | 44,614 lb | 20 827 kg | 45,917 lb | 21 552 kg | 47,514 lb |

Features

Emissions Reduction

Cat emissions reduction technology is designed to be transparent to the operator and meets U.S. EPA Tier 4 Final/EU Stage V standards.

Operator Comfort

Industry leading cab and intuitive joystick controls give you unmatched comfort and visibility. New seat offers you heated/ventilated options.

Ease of Service

Drawbar-Circle-Moldboard features make it easy to maintain factory tightness for better grading results. New engine enclosure lights make service more convenient in low light.

Efficient Performance

New Economy Mode helps you save fuel – up to 10 percent.

Integrated Technologies

Cat Connect makes smart use of technology and services to help you monitor, manage and enhance job site operations.

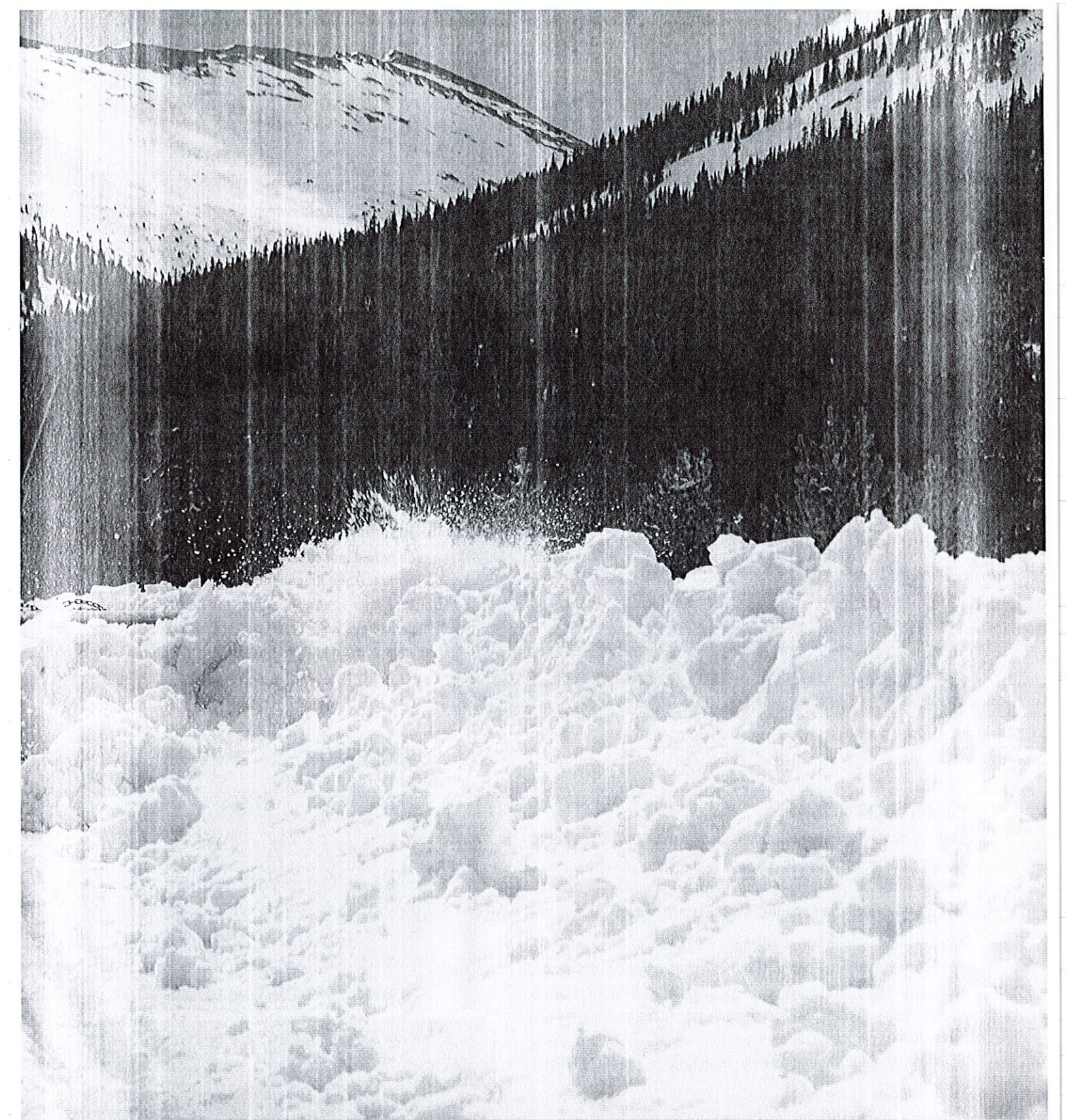
Safety

Features like Operator Not Present monitoring, hydraulic lockout and redundant steering and braking systems help you meet your safety goals.

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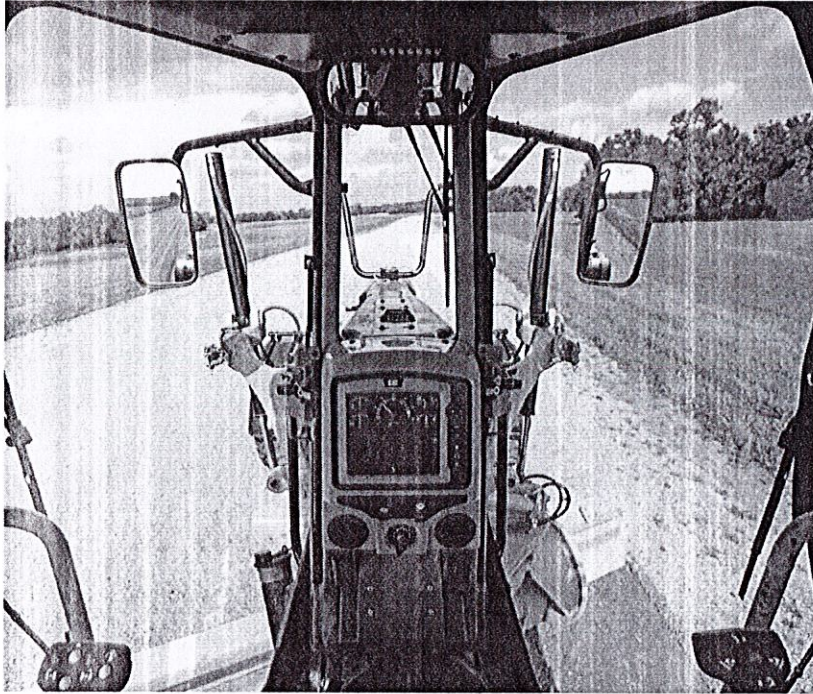




The 140/150/160 Motor Graders bring the latest emissions reduction technology to the most durable, productive and comfortable motor graders on the market. From building roads to maintaining them, motor graders are designed to help you get more work done in less time. Outstanding durability, unprecedented operator comfort and ease of service help to maximize your return on investment. The 140/150/160 Motor Graders meet U.S. EPA Tier 4 Final/EU Stage V standards.

Operator Station

Comfort, productivity, advanced technology



Visibility

Good visibility is key to your safety and efficiency. Angled cab doors, tapered engine enclosure and a sloped rear window make it easy to see the moldboard and tires, as well as behind the machine. An optional rear vision camera further enhances lines of sight all around the machine.

In-Dash Instrument Cluster

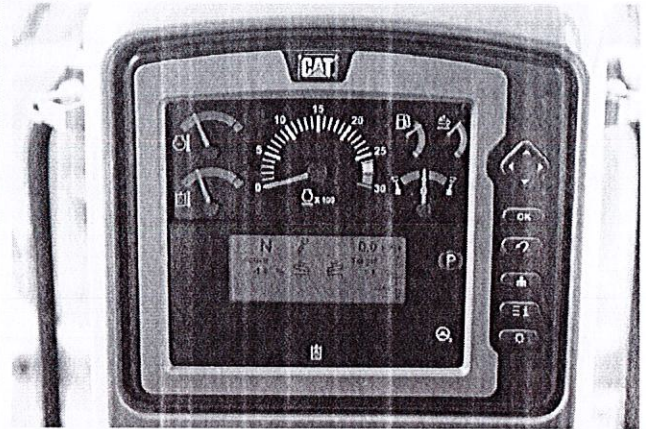
A redesigned message display shows machine performance and diagnostic information, including DEF tank levels. Now located in the center console, it also displays Cat Grade Control Cross Slope readings conveniently in front of the operator.

Comfort and Control

Experience the most comfortable cab in the industry. Joystick controls replace levers, so hand and arm movement is reduced by 78%, helping reduce operator fatigue for better productivity. Rocker and control switches are in easy reach.

An updated seat with softer cushions and three-position cushion tilt adds to your overall comfort. You can even upgrade to a heated or heated/ventilated seat. An optional seat belt indicator feature is also available. Control pods can be adjusted electronically, making it easy to set your ideal operating position. Multiple isolation mounts significantly reduce sound and vibration for a more relaxed work environment.

The high capacity Heating, Ventilation and Air Conditioning (HVAC) system dehumidifies and pressurizes the cab, seals out dust and helps keep windows clear. Pop-out louvers circulate fresh air. An optional deluxe radio with CD features MP3 and Bluetooth technology.



Machine and Implement Controls

Unprecedented precision and ease of operation



Two electro-hydraulic joysticks with electronically adjustable control pods help position operators for optimal comfort, visibility and productive operation.

Joystick Functions

The left joystick controls machine direction, steering, articulation, return-to-center, wheel lean, gear selection, left moldboard lift cylinder and float.

The right joystick controls drawbar, circle and moldboard functions as well as electronic throttle control and manual differential lock/unlock.

The steer tire angle matches the joystick position. A brake tensioning system holds the joystick in position until the operator moves it. The steering control automatically reduces steering sensitivity at higher ground speeds for predictable control.

Infinitely variable roller switches control the rear ripper and/or front lift group (when equipped). Optional Programmable Auxiliary Hydraulic Pod controls up to six additional hydraulic circuits.

Electronic Throttle Control

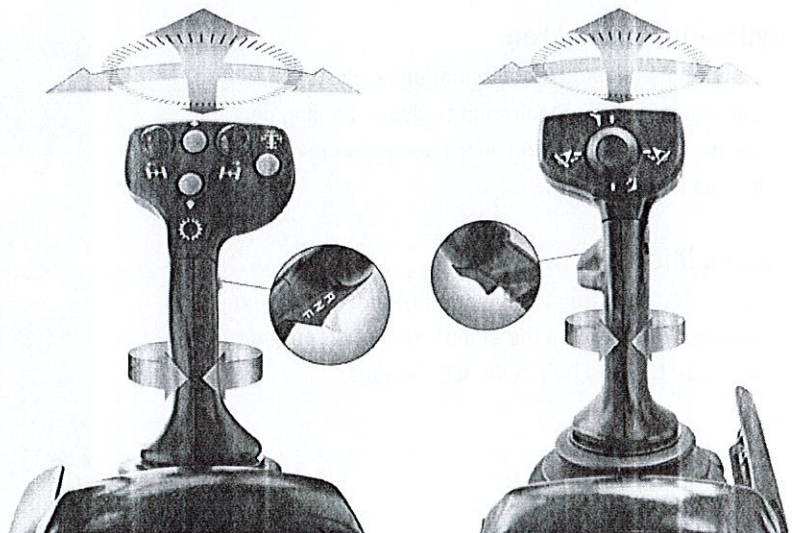
Electronic Throttle Control helps improve productivity by providing the best match of horsepower and torque for the demands of the application.

Articulation Return-to-Center

Automatically returns the machine to a straight frame position from any angle with the touch of a button.

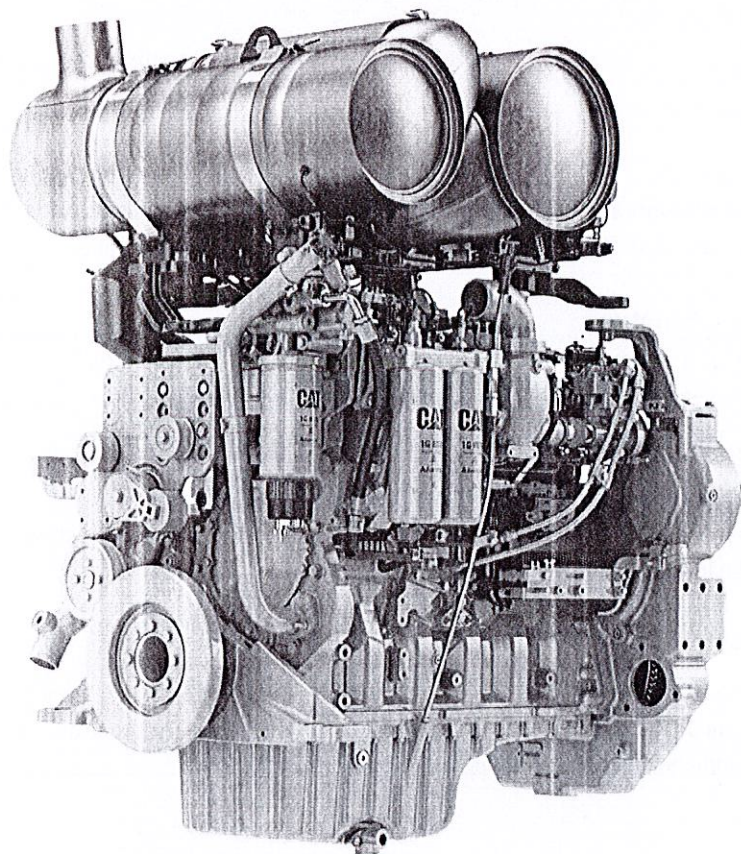
Selectable Blade Lift Modes

Choose the blade lift modulation mode that best fits your application or operating style: Fine, Normal, or Coarse.



Engine

Power and reliability



A Cat C9.3 engine gives you the performance you need to maintain consistent grading speeds for maximum productivity. Every U.S. EPA Tier 4 Final/EU Stage V engine is equipped with a combination of proven electronic, fuel, air and aftertreatment components. Applying proven technologies systematically and strategically helps meet your high expectations for productivity, fuel efficiency, reliability and service life.

Hydraulic Demand Fan

The hydraulic demand fan automatically adjusts speed according to cooling requirements. When cooling demand is reduced, you benefit from more power to the ground and improved fuel efficiency.

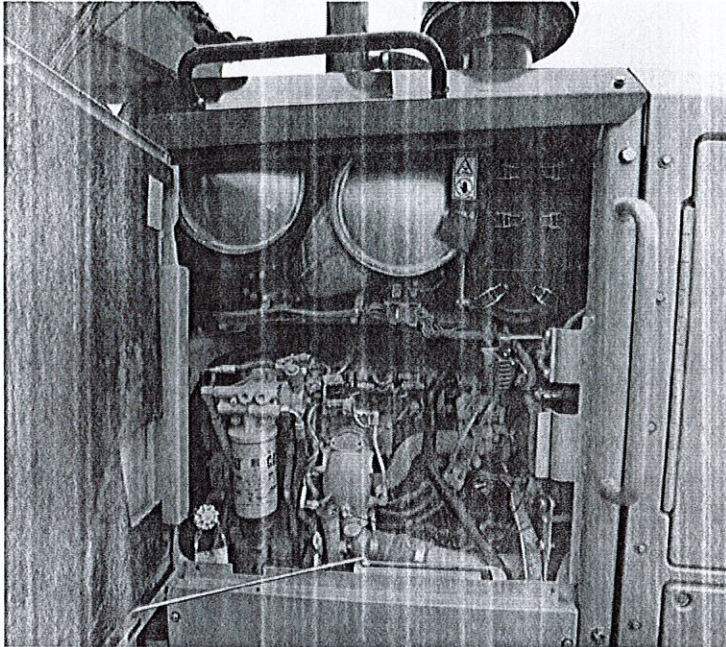
Engine Idle Shutdown Timer

This standard feature can be software-enabled by your Cat dealer to shut down the engine after a set period of time to save you fuel and help reduce emissions.



Emissions Technology

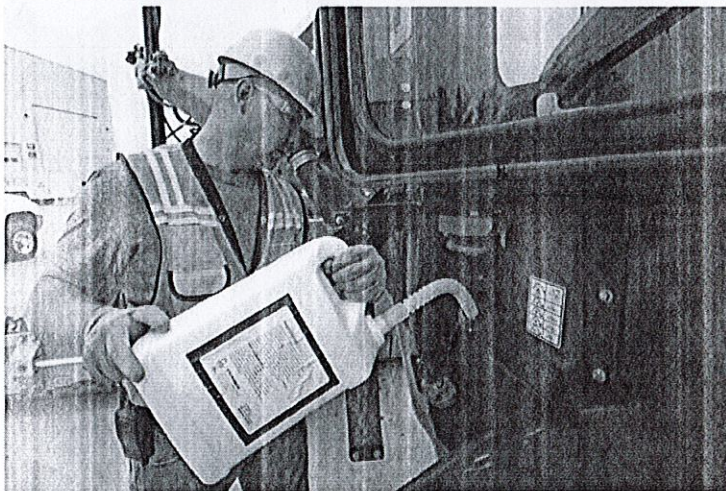
Proven, integrated solutions



Emissions reduction technology on the 140/150/160 Motor Graders is designed to be transparent, with no action required from the operator. There is no need to stop. Regeneration runs automatically at cold start-up and, if needed, in the background while you work.

Aftertreatment Technologies

Caterpillar designed Tier 4 Interim products with Tier 4 Final standards in mind. To meet the additional 80 percent reduction in NOx emissions required by EPA Tier 4 Final/EU Stage V emission standards, Caterpillar engineers only needed to add one new system to the already proven aftertreatment solution in use, Selective Catalytic Reduction (SCR).

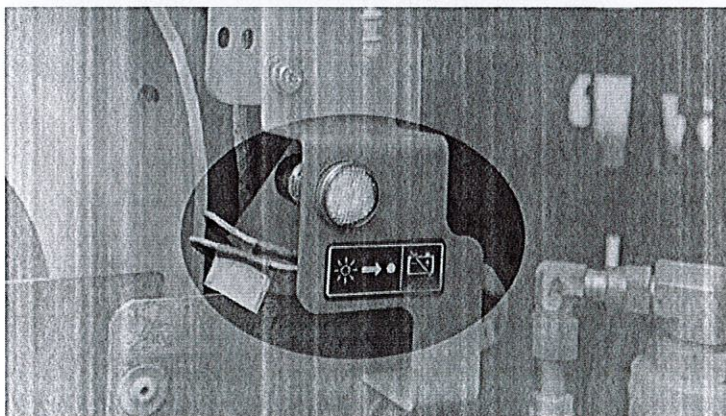


Diesel Exhaust Fluid

Selective Catalytic Reduction utilizes Diesel Exhaust Fluid (DEF), which can be conveniently filled from ground level. Simply refill the DEF tank when you refuel. A gauge on the dash shows your fluid level.

When you turn the machine off, a pump will automatically purge the DEF lines. A light located inside the rear engine compartment will turn off, telling you the purge is complete and that it is safe to turn off the electrical disconnect. If the engine/aftertreatment temperatures are high, a Delayed Engine Shutdown will activate automatically to cool the machine and then purge the lines.

For complete aftertreatment information, please refer to your machine's Operation and Maintenance Manual.



Power Train

Maximum power to the ground

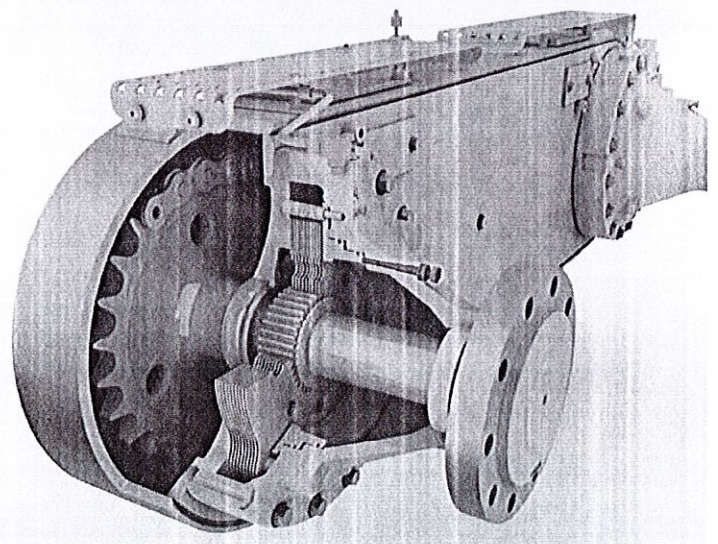
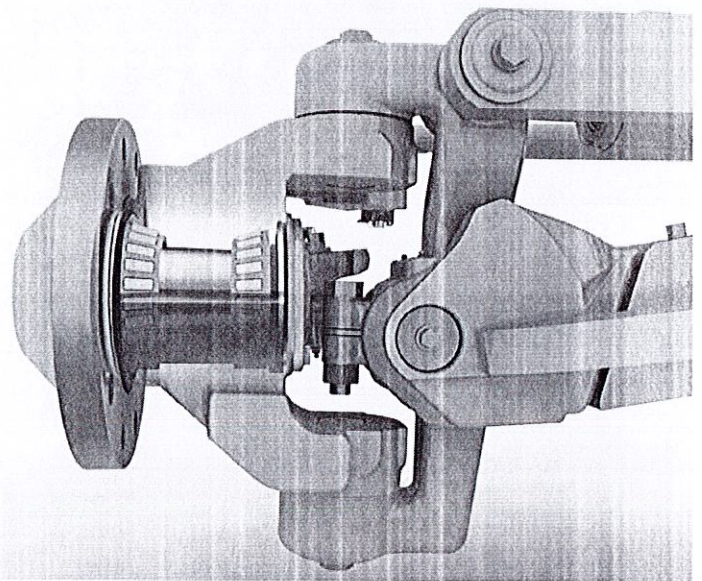
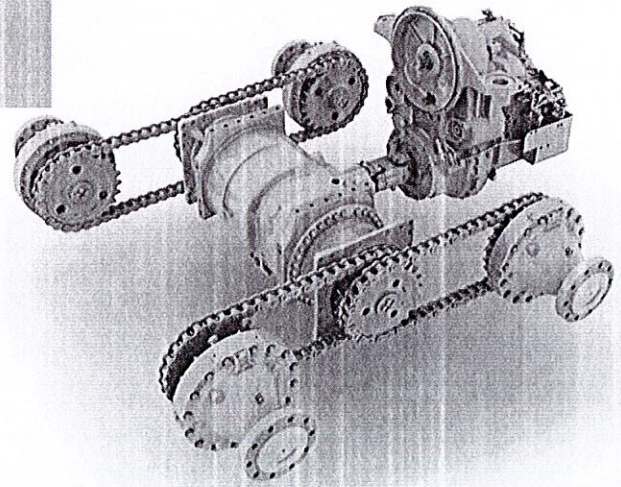
- Standard Automatic Differential Lock/Unlock monitors machine and application parameters to unlock/re-lock the differential during operation, improving production and enhancing comfort while protecting the power train.
- Full Electronic Clutch Pressure Control optimizes inching modulation for smooth shifts and directional changes.
- Programmable Autoshift option simplifies operation by allowing you to program the transmission to shift at optimal points to match your application.
- New standard Economy Mode can be turned on to help save fuel by reducing engine speed so the machine works in a more efficient range. The average fuel savings is up to 10 percent, depending on the application.
- Power Shift Countershaft Transmission maximizes power to the ground.
- Engine Over-Speed Protection prevents downshifting until an acceptable safe travel speed has been established.

Front and Rear Axles

The sealed spindle keeps front axle bearings lubricated and protected from contaminants. The Cat "Live Spindle" design places the larger tapered roller bearing on the outside, where the load is greater, extending bearing life. A bolt-on modular rear axle improves serviceability and contamination control with easy access to differential components.

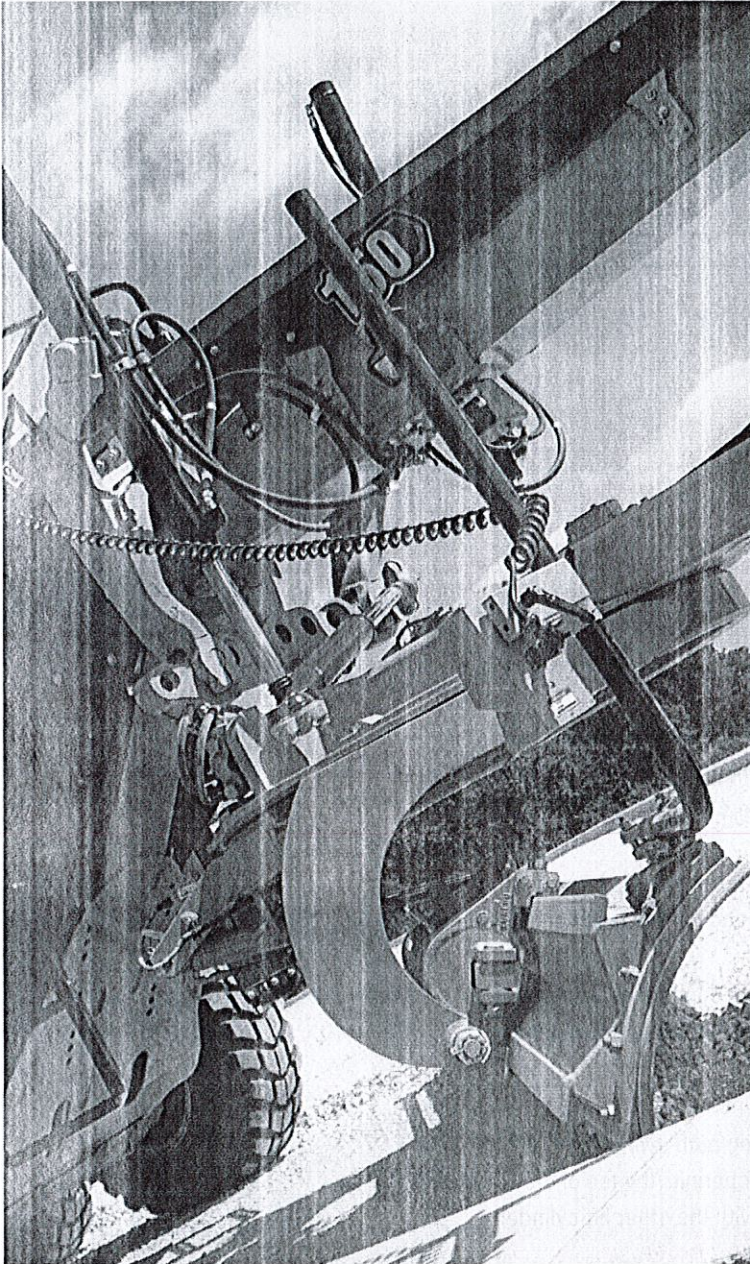
Hydraulic Brakes

Oil-bathed multi-disc service brakes are hydraulically actuated for smooth, predictable braking and lower operating costs. Brakes are located at each tandem wheel and have a large total brake surface area to give you dependable stopping power and longer life.



Structures and Drawbar-Circle-Moldboard

Service ease and precise blade control



Caterpillar designs motor grader frame and drawbar components to give you performance and durability. The one-piece forged steel circle stands up to high stress loads, and a sacrificial wear system helps keep your service time and costs down.

The articulation hitch features a large tapered roller bearing to carry loads evenly and smoothly. It is sealed to prevent contamination and a locking pin prevents articulation for safety during service or transport.

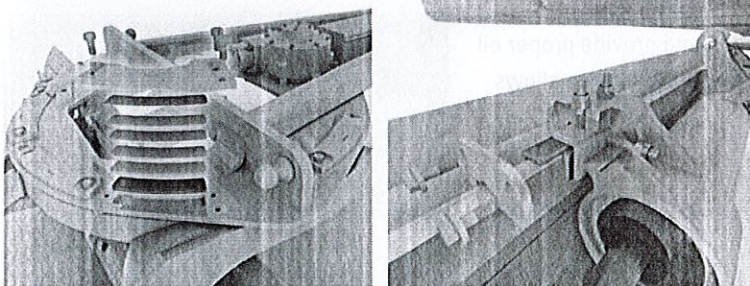
Easy Maintenance for More Uptime

The drawbar, circle and moldboard are designed to make it easy to keep the components tight. One person can easily adjust or replace the patented top-adjust drawbar wear inserts from the top of the drawbar plate, reducing downtime to save you money. Durable nylon composite wear inserts maximize circle torque and component life. Sacrificial brass wears strips between the blade mounting group and moldboard can be easily adjusted and replaced. The Shimless Moldboard Retention System uses vertical and horizontal adjusting screws to keep moldboard wear strips aligned for reduced blade chatter and precise blade control.

Blade Angle and Moldboard

An aggressive blade angle, optimized moldboard curvature and large throat clearance help you work more efficiently by allowing material to roll more freely along the blade.

Heat-treated rails, hardened cutting edges and end bits, and heavy duty bolts to give you greater moldboard reliability and long service life. The link bar allows extreme moldboard positioning for easier bank sloping and ditch cutting/cleaning.



Hydraulics

Advanced machine control



Responsive Hydraulics

A proven load-sensing system and advanced electro-hydraulics give you superior implement control and responsive hydraulic performance that helps make your operator's job easier. Continuously matching hydraulic flow/pressure to power demands creates less heat and reduces power consumption.

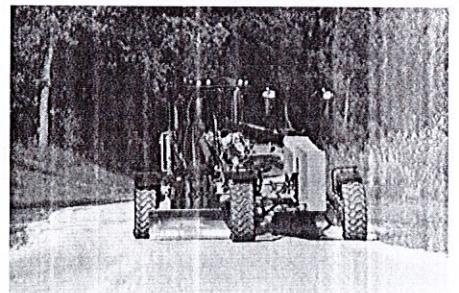
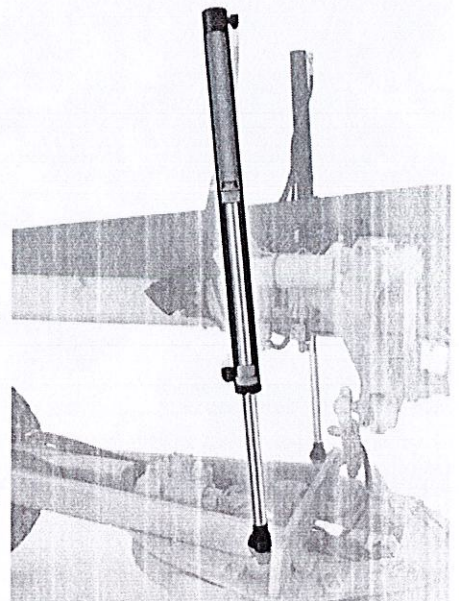
- Consistent, Predictable Movement – Proportional Priority Pressure-Compensating (PPP-C) valves have different flow rates for the head and rod ends of the cylinder, so you can count on consistent, predictable implement response.
- Balanced Flow – Hydraulic flow is proportioned to give you confidence that all implements will operate simultaneously without slowing the engine or speed of some implements.

Blade Float

Allows the blade to move freely under its own weight. By floating both cylinders, the blade can follow the contours of the ground. Floating only one cylinder permits the toe of the blade to follow a hard surface while the operator controls the slope with the other lift cylinder.

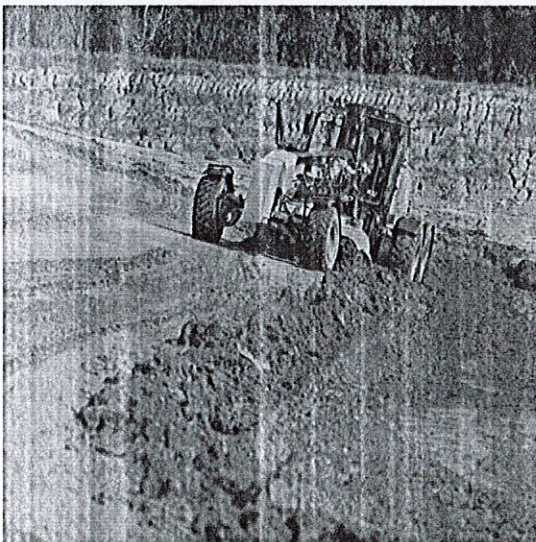
Independent Oil Supply

Large, separate hydraulic oil supplies prevent cross-contamination and provide proper oil cooling, which reduces heat build-up and extends component life. Cat XT™ hose allows high pressures for maximum power and reduced downtime.



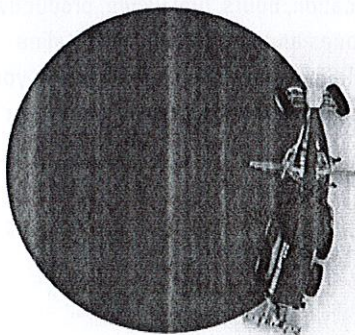
All Wheel Drive (AWD)

Expanded machine versatility



■ Without Steering Compensation

■ With Steering Compensation



If you work in soft underfoot conditions where traction can be a challenge, optional All Wheel Drive (AWD) can give you the additional power to the ground you need to work more efficiently in mud, gravel, sand or snow. The added traction helps reduce sliding on side slopes.

- Dedicated left and right pumps give you more precise hydraulic control. The infinitely variable pumps and motors maximize torque in each gear.
- AWD automatically increases horsepower to maximize your power to the ground.
- Standard Hydrostatic Mode disengages the transmission and provides hydraulic power to the front wheels only. Infinitely variable ground speed between 0-8 km/h (0-5 mph) is ideal for precise finish work.
- Cat Steering Compensation System enables a "powered turn" by adjusting the outside front tire speed up to 50% faster than the inside tire. This gives you improved control, reduces surface damage and greatly reduces turning radius in poor underfoot conditions.

Integrated Technologies

Monitor, manage, and enhance job site operations



Cat Connect makes smart use of technology and services to improve your job site efficiency. Using the data from technology-equipped machines, you'll get more information and insight into your equipment and operations than ever before.

Cat Connect technologies offer improvements in these key areas:



EQUIPMENT
MANAGEMENT

Equipment Management – increase uptime and reduce operating costs.



PRODUCTIVITY

Productivity – monitor production and manage job site efficiency



SAFETY

Safety – enhance job site awareness to keep your people and equipment safe.

Featured Cat Connect technologies include:

Link

Link technologies provide wireless capability to machines enabling two-way transfer of information collected by on-board sensors, control modules, and other Cat Connect technologies using off-board apps, such as our VisionLink software.

Product Link™/VisionLink®

Product Link takes the guesswork out of equipment management. Track location, hours, fuel usage, productivity, idle time, diagnostic codes and more through the online VisionLink interface. Manage your fleet in real time so you can maximize efficiency, improve productivity, and lower operating costs.

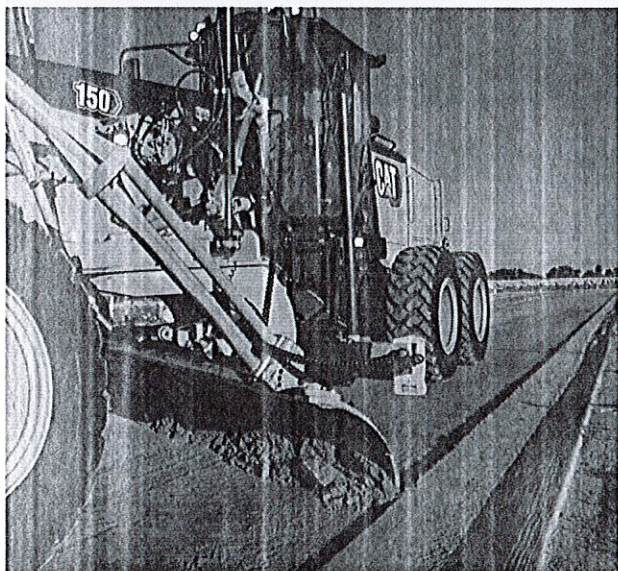


Grade

Grade technologies combine digital design data, in-cab guidance, and automatic blade controls to enhance grading accuracy, reduce rework, and lower costs related to production earthmoving and rough, fine and finish grade applications.

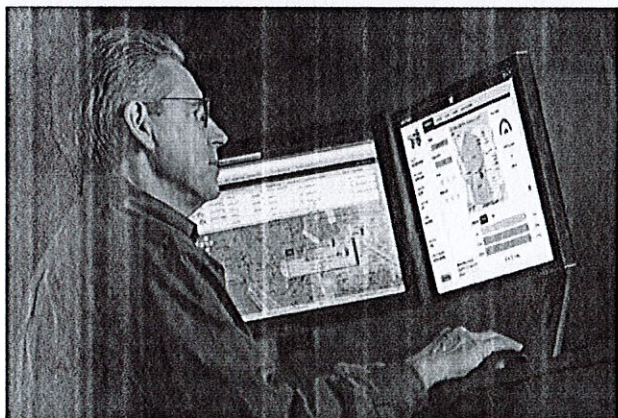
Cat Grade Control Cross Slope

Cat Grade Control Cross Slope is an optional fully integrated, factory installed system that helps your operator improve grading efficiency and more easily maintain accurate cross slopes. The system automatically controls one side of the blade, reducing manual operator inputs by as much as 50 percent. Experienced operators can maintain peak efficiency levels throughout more of the work day, while less experienced operators can be more productive faster. The system is job-ready from day one, and scalable for the future with AccuGrade™ upgrade kits that provide additional 2D and/or 3D control.



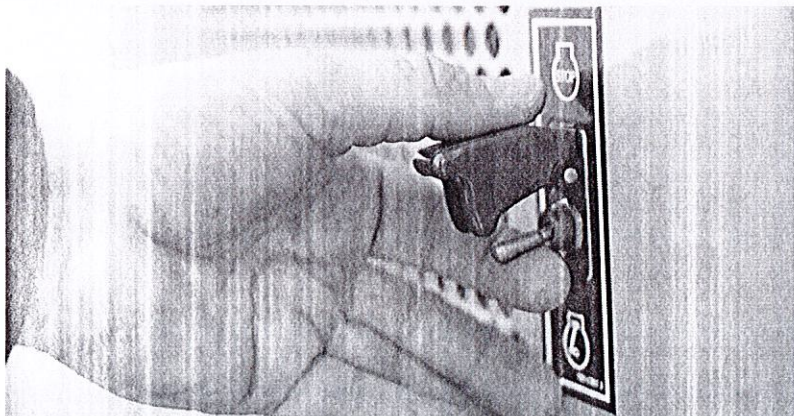
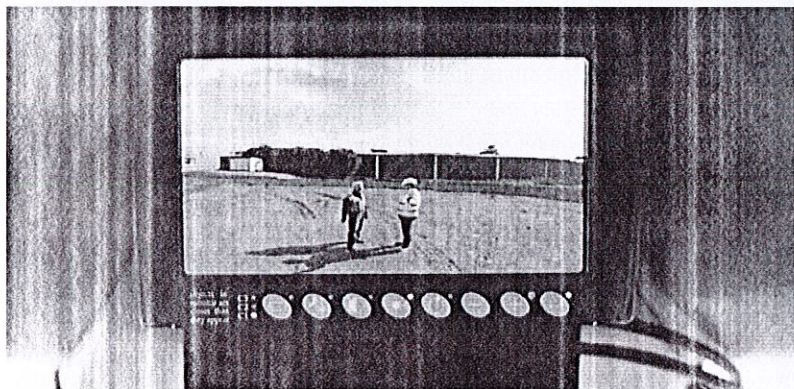
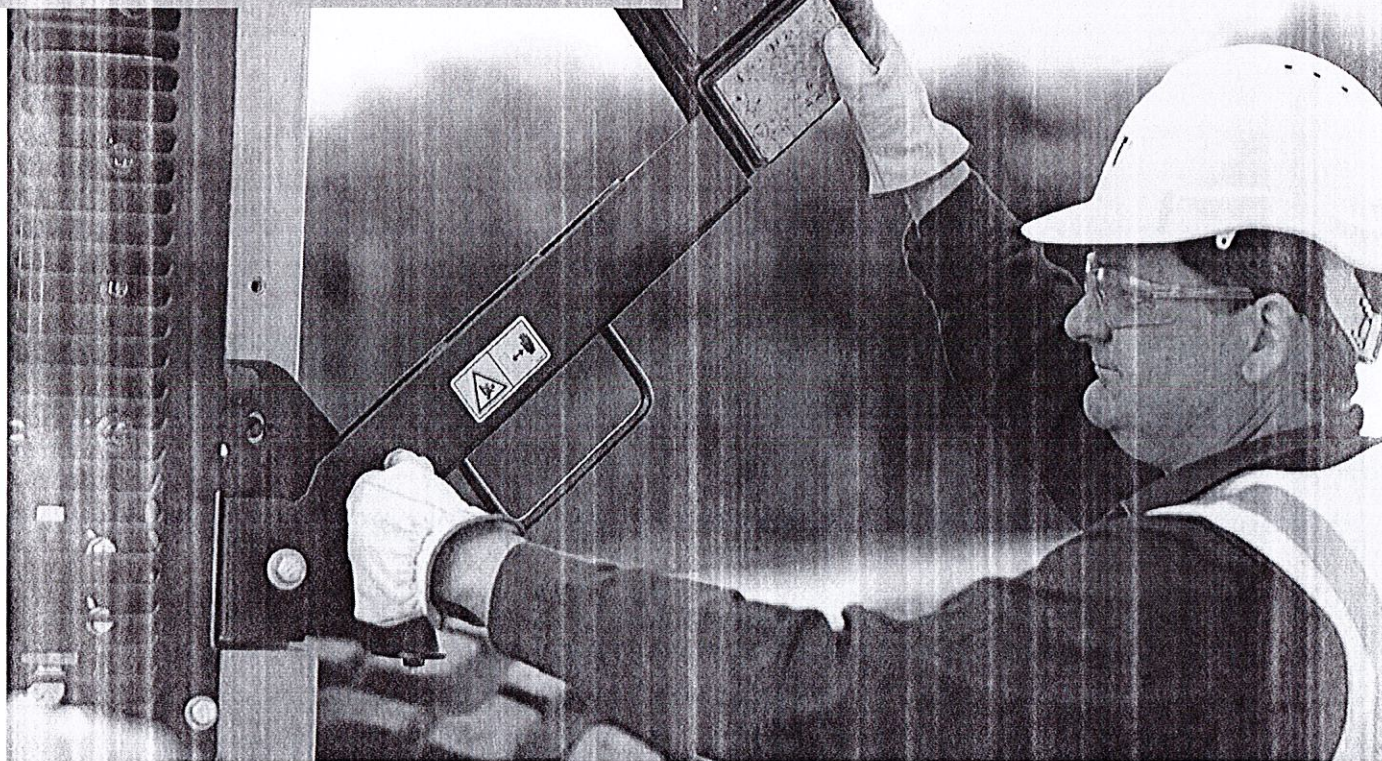
Cat AccuGrade

AccuGrade is an optional dealer-installed grade control system that provides higher accuracy capabilities to the Cat Cross Slope system by adding Sonic, Laser, GPS, and/or Universal Total Station (UTS) technology when the job requires. In-cab guidance helps operators work more confidently and get to grade faster, in fewer passes, using less material, improving productivity and accuracy by nearly 50 percent over conventional methods. Grade stakes and checkers are minimized, making the job site safer and more cost effective. An AccuGrade Attachment Ready Option can be ordered as a factory or dealer-installed option. It includes built-in mounting points and internal wiring for easy installation of the AccuGrade system.



Safety

Designed with protection in mind



Safety Features

- Optional rearview camera with in-cab monitor
- New optional seat belt indicator light reminds operator to fasten safety belt
- Grouped, ground level service points
- Laminated front window glass
- Optional LED Lighting
- Ground-level electrical disconnect switch
- Ground-level engine shutoff switch
- Anti-glare paint eases night operation
- Optional front and rear fenders

Operator Presence Monitoring System

Standard system keeps the parking brake engaged and hydraulic implements disabled until the operator is seated and the machine is ready for operation.

Speed Sensitive Steering

Standard function makes steering less sensitive as ground speed increases for greater operator confidence and control.

Secondary Steering System

Standard feature automatically engages an electric hydraulic pump in case of a drop in steering pressure so the operator can steer the machine to a stop.

Hydraulic Lockout

Disables all implement functions while still providing machine steering control. This standard safety feature is especially useful while roading.

Brake Systems

Brakes are located at each tandem wheel to eliminate braking loads on the power train. Redundant brake systems utilize accumulators to enable stopping in case of machine failure.

Walkways and Grab Rails

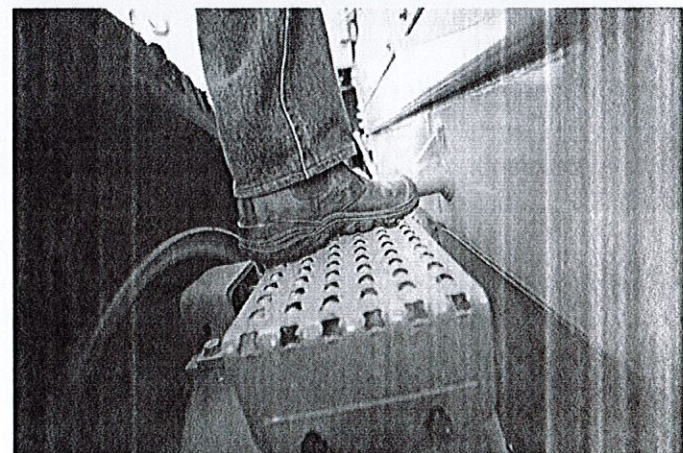
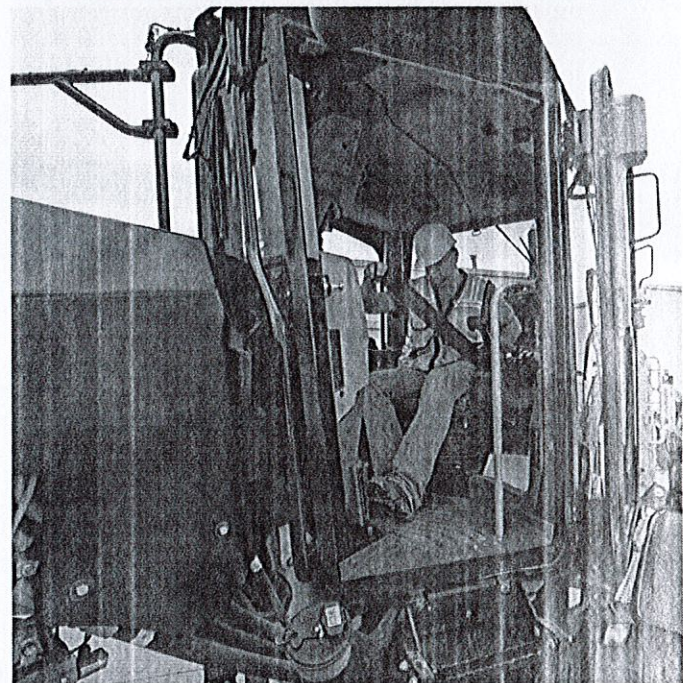
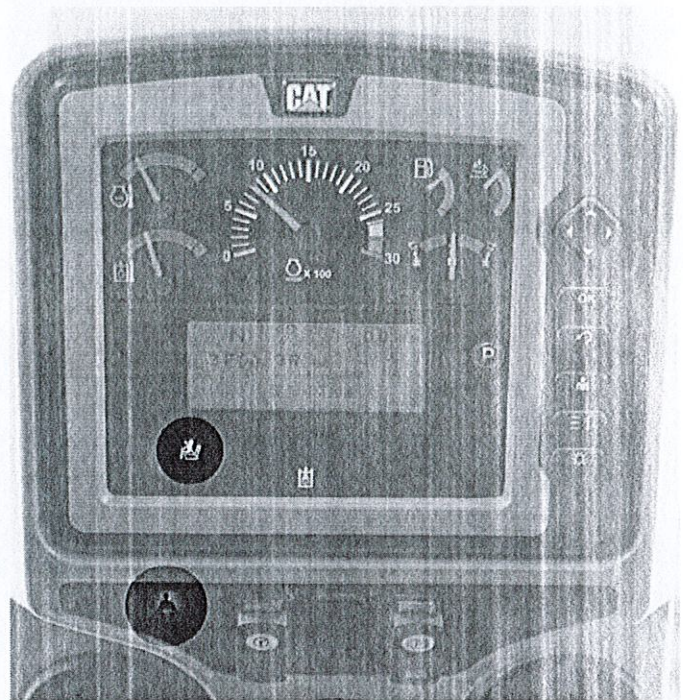
Perforated steel tandem walkways and convenient grab rails give you a sturdy platform when moving on, off and around the machine.

Circle Drive Slip Clutch

Protects the drawbar, circle and moldboard from shock loads when the blade encounters an immovable object. This standard feature also reduces the possibility of abrupt directional changes in poor traction conditions.

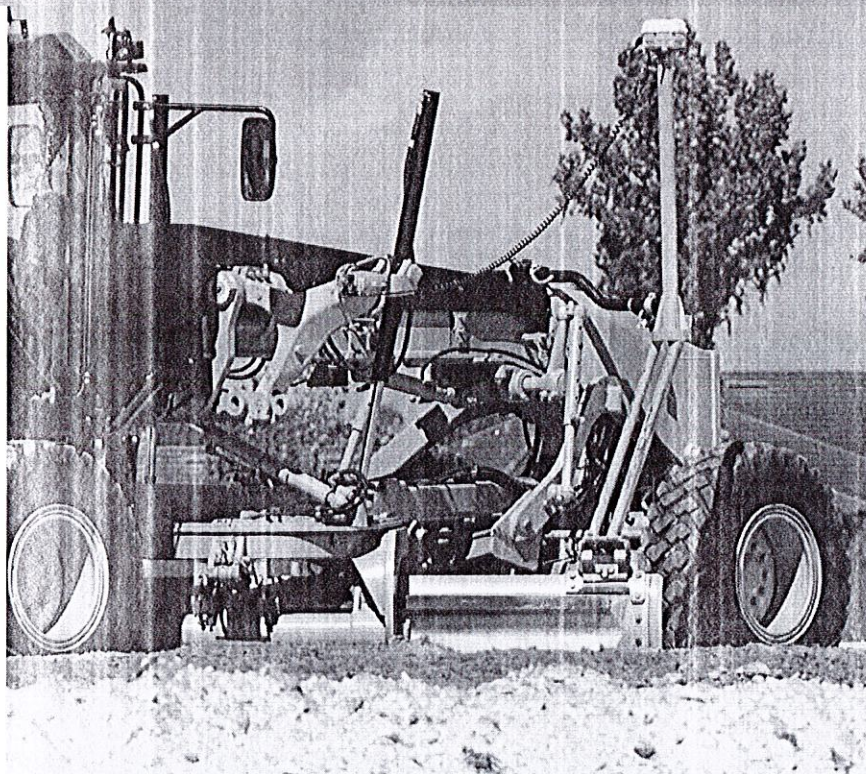
Blade Lift Accumulators

Help absorb impact loads to the moldboard by allowing vertical blade travel. This optional feature helps reduce wear and aids operator safety.



Work Tools and Attachments

Equip your machine for the job



Moldboard Options

The 140, 150, and 160 motor graders come equipped with a 3.7 m (12 ft) moldboard. An optional 4.3 m (14 ft) blade is available for all models, as well as a 4.9 m (16 ft) moldboard for the 160.

Ground Engaging Tools (GET)

A variety of tools are available from Cat Work Tools, including cutting edges, graderbits and end bits, all designed for maximum service life and productivity.

Front Mounted Groups

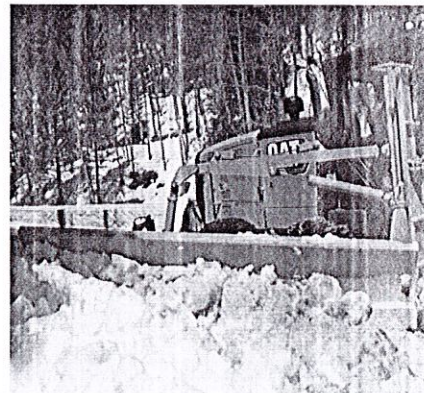
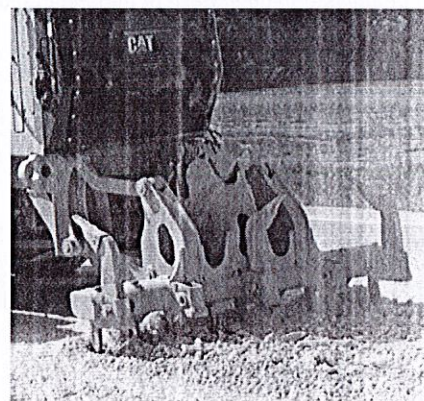
A front mounted push plate or front lift group are available. The front lift group can be combined with a front dozer blade or front scarifier for added versatility.

Rear Ripper/Scarifier

Made to penetrate tough material fast and rip thoroughly for easier movement with the moldboard. The ripper includes three shanks (with holders for five). Nine scarifier shanks can also be added for additional versatility.

Snow Removal Work Tools

Snow plow, snow wing and mounting options increase machine versatility and utilization throughout the year.



Smart Machine Systems

Advanced Diagnostics

- Cat Messenger, combined with full systems integration, enhances diagnostic capability for quick analysis of critical data.
- Electronic Technician (Cat ET) lets service technicians access stored diagnostic data and configure machine parameters through the Cat Data Link.
- Low Battery Elevated Idle raises idle speed when low system voltage is detected, ensuring adequate system voltage and improving battery reliability.
- Automatic Engine Deration protects the engine by automatically lowering engine torque output and alerting the operator if critical conditions are detected.



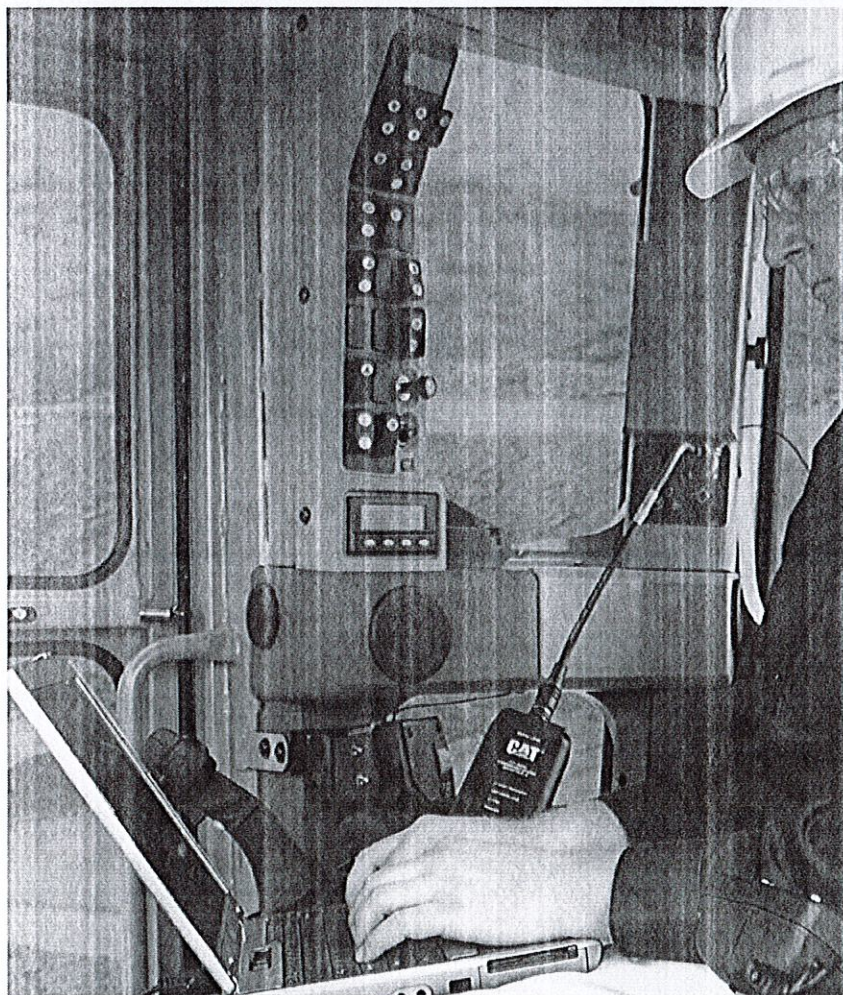
Serviceability and Customer Support

When uptime counts

Cat motor graders are designed to help you increase uptime and reduce costs. Grouped service points and extended service intervals save maintenance time. New optional LED lights in the left hand compartment makes it more convenient to service the machine in low light.

Unparalleled Dealer Support

When it comes to supporting you, Cat dealers are second to none. From machine selection and purchase to maintenance support and rebuilds, Cat dealers have the experience and capabilities to help keep you up and running.



Sustainability

Thinking generations ahead



Fuel Efficiency

- Integrated machine systems and technologies improve productivity for greater accuracy, allowing the machine to do more work per gallon of fuel.
- New Economy Mode feature allows the machine to work in the most efficient engine speed range to help reduce fuel use.

Green House Gas Emissions

- Reduced fuel consumption means reduced CO₂ emissions.

Material Efficiency and Lifecycle Costs

- Replaceable wear parts save maintenance time and cost, and extend major component life.
- Major components are built to be rebuilt, eliminating waste and saving customers money by giving the machine and/or major components a second – and even third – life.
- Approximately 95% of machine materials can be recycled (ISO 16714) to conserve valuable natural resources and further enhance machine end-of-life value.

Sound

- Reduced engine noise and quieter cabs mean lower operator and spectator sound levels.

Safety

- Ecology drains help make draining fluids more convenient and help prevent spills.
- Cartridge style hydraulic fluid filters provide safe clean draining of filters prior to replacement, helping to prevent fluid spills.
- A variety of safety features help safeguard operators and others on the job site.

140/140 AWD Motor Graders Specifications

Engine

| | | | |
|--------------------------------------|--------------------------------------|--------------------|-------------------|
| Engine Model | Cat C9.3 | | |
| Emissions | U.S. EPA Tier 4 Final/ EU Stage V | | |
| Base Power (1st gear) – Net | 133 kW | 179 hp | |
| Base Power (1st gear) – Net (Metric) | | | 181 hp |
| VHP Plus Range – Net | 133-172 kW | 179-231 hp | |
| VHP Plus Range – Net (Metric) | | | 181-234 hp |
| AWD Range – Net | 141-188 kW | 189-252 hp | |
| AWD Range – Net (Metric) | | | 192-255 hp |
| Displacement | 9.3 L | 567.5 in³ | |
| Bore | 115 mm | 4.5 in | |
| Stroke | 149 mm | 5.9 in | |
| Torque Rise | 38% | | |
| Maximum Torque (VHP Plus) | 1138 N·m | 840 lb-ft | |
| Maximum Torque (AWD On) | 1247 N·m | 920 lb-ft | |
| Speed @ Rated Power | 2,000 rpm | | |
| Number of Cylinders | 6 | | |
| Derating Altitude | 3050 m | 10,000 ft | |
| High Ambient – Fan Speed | | | |
| Standard | 1,400 rpm | | |
| Maximum | 1,550 rpm | | |
| Minimum | 500 rpm | | |
| Standard Capability | 43° C | 109° F | |
| High Ambient Capability | 50° C | 122° F | |
| Gear – Net Power | VHP Plus kW (hp) | AWD Off kW (hp) | AWD On kW (hp) |
| Forward | | | |
| 1st | 133 (179) | 141 (189) | 149 (200) |
| 2nd | 141 (189) | 149 (200) | 164 (220) |
| 3rd | 149 (200) | 156 (210) | 168 (225) |
| 4th | 156 (210) | 160 (215) | 172 (231) |
| 5th | 160 (215) | 164 (220) | 188 (252) |
| 6th | 164 (220) | 168 (225) | 188 (252) |
| 7th | 168 (225) | 172 (231) | 188 (252) |
| 8th | 172 (231) | 172 (231) | 188 (252) |
| Reverse | | | |
| 1st | 133 (179) | 133 (179) | 133 (179) |
| 2nd | 141 (189) | 141 (189) | 141 (189) |
| 3rd–6th | 149 (200) | 149 (200) | 149 (200) |

Engine (cont'd)

- Net power is tested per ISO 9249, SAE J1349, and EEC 80/1269 Standards in effect at the time of manufacture.
- VHP Plus is standard for the 140 and 140 AWD.
- Net power advertised is the power available at rated speed of 2,000 rpm, measured at the flywheel when engine is equipped with fan running at minimum speed, air cleaner, muffler and alternator.
- No engine derating required up to 3050 m (10,000 ft).
- Power as declared per ISO 14396
Rated rpm 2,000
VHP+ = 173 kW (232 hp)
AWD = 189 kW (253 hp)
- All nonroad U.S. EPA Tier 4, European Union (EU) Stage V and Japan (MLIT) Step 4 diesel engines are required to use only Ultra Low Sulfur Diesel (ULSD) fuels containing 15 ppm (mg/kg) sulfur or less. Biodiesel blends up to B20 (20% blend by volume) are acceptable when blended with 15 ppm (mg/kg) sulfur or less ULSD. B20 should meet ASTM D7467 specification (biodiesel blend stock should meet Cat biodiesel spec, ASTM D6751 or EN 14214). Cat DEO-ULS™ or oils that meet the Cat ECF-3, API CJ-4, and ACEA E9 specification are required. Consult your OMM for further machine specific fuel recommendations.
- Cat engines equipped with a Selective Catalytic Reduction (SCR) system are required to use:
 - Diesel Exhaust Fluid (DEF) which meets the requirements outlined in the International Organization for Standardization (ISO) standard 22241-1.

Power Train

| | | |
|-----------------------|---------------------------------|-----------------------|
| Forward/Reverse Gears | 8 Forward/6 Reverse | |
| Transmission | APECS, Direct Drive, Powershift | |
| Brakes | | |
| Service | Multiple Oil Disc | |
| Service, Surface Area | 23 000 cm ² | 3,565 in ² |
| Parking | Multiple Oil Disc | |
| Secondary | Dual Circuit | |

Hydraulic System

| | | |
|-------------------------|-----------------|--------------|
| Circuit Type | Parallel | |
| Pump Type | Variable Piston | |
| Pump Output | 210 L/min | 55.7 gal/min |
| Maximum System Pressure | 24 150 kPa | 3,500 psi |
| Reservoir Tank Capacity | 64.0 L | 16.9 gal |
| Standby Pressure | 6100 kPa | 885 psi |

- Pump output measured at 2,150 rpm.

140/140 AWD Motor Graders Specifications

Operating Specifications

| | | |
|-------------------------------------|-----------|------------|
| Top Speed | | |
| Forward | 46.6 km/h | 29.0 mph |
| Reverse | 36.8 km/h | 23.0 mph |
| Turning Radius, Outside Front Tires | 7.8 m | 25 ft 7 in |
| Steering Range – Left/Right | 50° | |
| Articulation Angle – Left/Right | 20° | |
| Forward | | |
| 1st | 4.1 km/h | 2.5 mph |
| 2nd | 5.5 km/h | 3.4 mph |
| 3rd | 8.0 km/h | 5.0 mph |
| 4th | 11.0 km/h | 6.9 mph |
| 5th | 17.1 km/h | 10.6 mph |
| 6th | 23.3 km/h | 14.5 mph |
| 7th | 32.0 km/h | 19.9 mph |
| 8th | 46.6 km/h | 29.0 mph |
| Reverse | | |
| 1st | 3.2 km/h | 2.0 mph |
| 2nd | 6.0 km/h | 3.7 mph |
| 3rd | 8.7 km/h | 5.4 mph |
| 4th | 13.5 km/h | 8.4 mph |
| 5th | 25.3 km/h | 15.7 mph |
| 6th | 36.8 km/h | 23.0 mph |

• Calculated with no slip and 14.0R24 tires.

Service Refill

| | | |
|-------------------------------------|--------|----------|
| Fuel Capacity | 394 L | 104 gal |
| Cooling System | 57.0 L | 15.0 gal |
| Hydraulic System | | |
| Total | 100 L | 26.4 gal |
| Tank | 64.0 L | 16.9 gal |
| Engine Oil | 30.0 L | 7.9 gal |
| Trans./Diff./Final Drives | 70.0 L | 18.5 gal |
| Tandem Housing (Each) | 76.0 L | 20.0 gal |
| Front Wheel Spindle Bearing Housing | 0.5 L | 0.13 gal |
| Circle Drive Housing | 7.0 L | 1.8 gal |
| Diesel Exhaust Fluid | 22.0 L | 5.8 gal |

Frame

| | | |
|----------------------------|---------|---------|
| Circle | | |
| Diameter | 1530 mm | 60.2 in |
| Height | 138 mm | 5.4 in |
| Blade Beam Thickness | 40.0 mm | 1.6 in |
| Drawbar | | |
| Height | 152 mm | 6.0 in |
| Width | 76.2 mm | 3.0 in |
| Thickness | 12.7 mm | 0.50 in |
| Front-Top/Bottom Plate | | |
| Width | 305 mm | 12.0 in |
| Thickness | 22.0 mm | 0.87 in |
| Front Frame Structure | | |
| Height | 321 mm | 12.6 in |
| Width | 305 mm | 12.0 in |
| Front Axle | | |
| Height to Center | 596 mm | 23.5 in |
| Wheel Lean, Left/Right | 18° | |
| Total Oscillation per Side | 32° | |

• Front-top/bottom plate – width tolerance ± 2.5 mm (0.098 in).

Tandems

| | | |
|--------------------|---------|---------|
| Height | 506 mm | 19.9 in |
| Width | 201 mm | 7.9 in |
| Sidewall Thickness | | |
| Inner | 16.0 mm | 0.63 in |
| Outer | 18.0 mm | 0.71 in |
| Drive Chain Pitch | 50.8 mm | 2.0 in |
| Wheel Axle Spacing | 1523 mm | 60.0 in |
| Tandem Oscillation | | |
| Front Up | 15° | |
| Front Down | 25° | |

140/140 AWD Motor Graders Specifications

Moldboard

| | | |
|---------------------|-----------|-----------|
| Blade Width | 3.7 m | 12 ft |
| Moldboard | | |
| Height | 610 mm | 24.0 in |
| Thickness | 22.0 mm | 0.87 in |
| Arc Radius | 413 mm | 16.3 in |
| Throat Clearance | 166 mm | 6.5 in |
| Cutting Edge | | |
| Width | 152 mm | 6.0 in |
| Thickness | 16.0 mm | 0.60 in |
| End Bit | | |
| Width | 152 mm | 6.0 in |
| Thickness | 16.0 mm | 0.60 in |
| Blade Pull | | |
| Base GVW | 11 462 kg | 25,269 lb |
| Maximum GVW | 15 541 kg | 34,262 lb |
| Base GVW (AWD) | 16 170 kg | 35,649 lb |
| Maximum GVW (AWD) | 22 512 kg | 49,630 lb |
| Blade Down Pressure | | |
| Base GVW | 7275 kg | 16,038 lb |
| Maximum GVW | 13 294 kg | 29,309 lb |
| Base GVW (AWD) | 8151 kg | 17,970 lb |
| Maximum GVW (AWD) | 13 294 kg | 29,309 lb |

Blade Range

| | | |
|---|---------|---------|
| Circle Centershift | | |
| Right | 728 mm | 28.7 in |
| Left | 695 mm | 27.4 in |
| Moldboard Sideshift | | |
| Right | 660 mm | 26.0 in |
| Left | 510 mm | 20.1 in |
| Maximum Blade Position Angle | 90° | |
| Blade Tip Range | | |
| Forward | 40° | |
| Backward | 5° | |
| Maximum Shoulder Reach Outside of Tires | | |
| Right | 1978 mm | 77.9 in |
| Left | 1790 mm | 70.5 in |
| Maximum Lift Above Ground | 480 mm | 18.9 in |
| Maximum Depth of Cut | 715 mm | 28.1 in |

Ripper

| | | |
|--------------------------------------|-----------|-----------|
| Ripping Depth, Maximum | 426 mm | 16.8 in |
| Ripper Shank Holders | 5 | |
| Ripper Shank Holder Spacing | 533 mm | 21.0 in |
| Penetration Force | 9440 kg | 20,812 lb |
| Pryout Force | 12 607 kg | 27,794 lb |
| Machine Length Increase, Beam Raised | 1031 mm | 40.6 in |

Scarifier

| | | |
|--------------------------------|---------|---------|
| Front, V-Type: Working Width | 1205 mm | 47.4 in |
| Front, V-Type, 5 or 11 Tooth | | |
| Working Width | 1031 mm | 40.6 in |
| Scarifying Depth, Maximum | 467 mm | 18.4 in |
| Scarifier Shank Holders | 5/11 | |
| Scarifier Shank Holder Spacing | 116 mm | 4.6 in |
| Mid, V-Type | | |
| Working Width | 1184 mm | 46.6 in |
| Scarifying Depth, Maximum | 292 mm | 11.5 in |
| Scarifier Shank Holders | 11 | |
| Scarifier Shank Holder Spacing | 116 mm | 4.6 in |
| Rear | | |
| Working Width | 2133 mm | 84.0 in |
| Scarifying Depth, Maximum | 426 mm | 16.8 in |
| Scarifier Shank Holders | 9 | |
| Scarifier Shank Holder Spacing | 267 mm | 10.5 in |

Weights

| | | |
|--------------------------------------|-----------|-----------|
| Gross Vehicle Weight, Base | | |
| Total | 16 974 kg | 37,420 lb |
| Front Axle | 4238 kg | 9,343 lb |
| Rear Axle | 12 736 kg | 28,077 lb |
| Gross Vehicle Weight, Maximum | | |
| Total | 25 013 kg | 55,144 lb |
| Front Axle | 7745 kg | 17,075 lb |
| Rear Axle | 17 268 kg | 38,069 lb |
| Operating Weight, Typically Equipped | | |
| Total | 19 344 kg | 42,647 lb |
| Front Axle | 5468 kg | 12,055 lb |
| Rear Axle | 13 876 kg | 30,592 lb |

140/140 AWD Motor Graders Specifications

Weights – AWD

| | | |
|--------------------------------------|-----------|-----------|
| Gross Vehicle Weight, Base | | |
| Total | 17 966 kg | 39,609 lb |
| Front Axle | 4749 kg | 10,469 lb |
| Rear Axle | 13 217 kg | 29,140 lb |
| Gross Vehicle Weight, Maximum | | |
| Total | 25 013 kg | 55,144 lb |
| Front Axle | 7745 kg | 17,075 lb |
| Rear Axle | 17 268 kg | 38,069 lb |
| Operating Weight, Typically Equipped | | |
| Total | 20 236 kg | 44,614 lb |
| Front Axle | 5945 kg | 13,107 lb |
| Rear Axle | 14 291 kg | 31,507 lb |

- Base operating weight on standard machine configuration is calculated with full fuel tank, coolant, lubricants, operator and 14.0R24 tires with single-piece (SP) rims.
- Typically equipped operating weight is calculated with push block, rear ripper/scarifier, 14.0R24 tires with single-piece (SP) rims, and other equipment.

Standards

| | |
|-----------|--------------------|
| ROPS/FOPS | ISO 3471/ISO 3499 |
| Steering | ISO 5010 |
| Brakes | ISO 3450 |
| Sound | ISO 6394; ISO 6395 |

- The declared dynamic operator sound pressure level is 71 dB(A) for the 140 and 140 AWD when "ISO 6396:2008" is used to measure the value for a European Union "CE" marked machine. The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds.
- The declared exterior sound power level is 107 dB(A) for the 140 and 140 AWD when the value is measured according to the dynamic test procedures and the conditions that are specified in "ISO 6395:2008." The measurement was conducted for a European Union "CE" marked machine at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds and during diesel particulate filter regeneration.

Air Conditioning System

The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a (Global Warming Potential = 1430). The system contains 1.8 kg of refrigerant which has a CO₂ equivalent of 2.574 metric tonnes.

150/150 AWD Motor Graders Specifications

Engine

| | | | |
|--------------------------------------|--------------------------------------|--------------------|-------------------|
| Engine Model | Cat C9.3 | | |
| Emissions | U.S. EPA Tier 4 Final/ EU Stage V | | |
| Base Power (1st gear) – Net | 149 kW | 200 hp | |
| Base Power (1st gear) – Net (Metric) | | 202 hp | |
| VHP Plus Range – Net | 149-188 kW | 200-252 hp | |
| VHP Plus Range – Net (Metric) | | 202-255 hp | |
| AWD Range – Net | 156-203 kW | 210-272 hp | |
| AWD Range – Net (Metric) | | 213-276 hp | |
| Displacement | 9.3 L | 567.5 in³ | |
| Bore | 115 mm | 4.5 in | |
| Stroke | 149 mm | 5.9 in | |
| Torque Rise | 39% | | |
| Maximum Torque (VHP Plus) | 1247 N·m | 920 lb-ft | |
| Maximum Torque (AWD On) | 1355 N·m | 1,000 lb-ft | |
| Speed @ Rated Power | 2,000 rpm | | |
| Number of Cylinders | 6 | | |
| Derating Altitude | 3050 m | 10,000 ft | |
| High Ambient – Fan Speed | | | |
| Standard | 1,400 rpm | | |
| Maximum | 1,550 rpm | | |
| Minimum | 500 rpm | | |
| Standard Capability | 43° C | 109° F | |
| High Ambient Capability | 50° C | 122° F | |
| Gear – Net Power | VHP Plus kW (hp) | AWD Off kW (hp) | AWD On kW (hp) |
| Forward | | | |
| 1st | 149 (200) | 156 (210) | 164 (220) |
| 2nd | 156 (210) | 164 (220) | 180 (241) |
| 3rd | 164 (220) | 172 (231) | 184 (247) |
| 4th | 172 (231) | 176 (236) | 188 (252) |
| 5th | 176 (236) | 180 (241) | 203 (272) |
| 6th | 180 (241) | 184 (247) | 203 (272) |
| 7th | 184 (247) | 188 (252) | 203 (272) |
| 8th | 188 (252) | 188 (252) | 203 (272) |
| Reverse | | | |
| 1st | 149 (200) | 149 (200) | 149 (200) |
| 2nd | 156 (210) | 156 (210) | 156 (210) |
| 3rd–6th | 164 (220) | 164 (220) | 164 (220) |

Engine (cont'd)

- Net power is tested per ISO 9249, SAE J1349, and EEC 80/1269 Standards in effect at the time of manufacture.
- VHP Plus is standard for the 150/150 AWD.
- Net power advertised is the power available at rated speed of 2,000 rpm, measured at the flywheel when engine is equipped with fan running at minimum speed, air cleaner, muffler and alternator.
- No engine derating required up to 3050 m (10,000 ft).
- Power as declared per ISO 14396
Rated rpm 2,000
VHP+ = 189 kW (253 hp)
AWD = 204 kW (274 hp)
- All nonroad U.S. EPA Tier 4, European Union (EU) Stage V and Japan (MLIT) Step 4 diesel engines are required to use only Ultra Low Sulfur Diesel (ULSD) fuels containing 15 ppm (mg/kg) sulfur or less. Biodiesel blends up to B20 (20% blend by volume) are acceptable when blended with 15 ppm (mg/kg) sulfur or less ULSD. B20 should meet ASTM D7467 specification (biodiesel blend stock should meet Cat biodiesel spec, ASTM D6751 or EN 14214). Cat DEO-ULS or oils that meet the Cat ECF-3, API CJ-4, and ACEA E9 specification are required. Consult your OMM for further machine specific fuel recommendations.
- Cat engines equipped with a Selective Catalytic Reduction (SCR) system are required to use:
 - Diesel Exhaust Fluid (DEF) which meets the requirements outlined in the International Organization for Standardization (ISO) standard 22241-1.

Power Train

| | | |
|-----------------------|---------------------------------|-----------------------|
| Forward/Reverse Gears | 8 Forward/6 Reverse | |
| Transmission | APECS, Direct Drive, Powershift | |
| Brakes | | |
| Service | Multiple Oil Disc | |
| Service, Surface Area | 23 000 cm ² | 3,565 in ² |
| Parking | Multiple Oil Disc | |
| Secondary | Dual Circuit | |

Hydraulic System

| | | |
|-------------------------|-----------------|--------------|
| Circuit Type | Parallel | |
| Pump Type | Variable Piston | |
| Pump Output | 210 L/min | 55.7 gal/min |
| Maximum System Pressure | 24 150 kPa | 3,500 psi |
| Reservoir Tank Capacity | 64.0 L | 16.9 gal |
| Standby Pressure | 6100 kPa | 885 psi |

- Pump output measured at 2,150 rpm.

150/150 AWD Motor Graders Specifications

Operating Specifications

| | | |
|-------------------------------------|-----------|------------|
| Top Speed | | |
| Forward | 46.6 km/h | 29.0 mph |
| Reverse | 36.8 km/h | 23.0 mph |
| Turning Radius, Outside Front Tires | 7.8 m | 25 ft 7 in |
| Steering Range – Left/Right | 50° | |
| Articulation Angle – Left/Right | 20° | |
| Forward | | |
| 1st | 4.1 km/h | 2.5 mph |
| 2nd | 5.5 km/h | 3.4 mph |
| 3rd | 8.0 km/h | 5.0 mph |
| 4th | 11.0 km/h | 6.9 mph |
| 5th | 17.1 km/h | 10.6 mph |
| 6th | 23.3 km/h | 14.5 mph |
| 7th | 32.0 km/h | 19.9 mph |
| 8th | 46.6 km/h | 29.0 mph |
| Reverse | | |
| 1st | 3.2 km/h | 2.0 mph |
| 2nd | 6.0 km/h | 3.7 mph |
| 3rd | 8.7 km/h | 5.4 mph |
| 4th | 13.5 km/h | 8.4 mph |
| 5th | 25.3 km/h | 15.7 mph |
| 6th | 36.8 km/h | 23.0 mph |

• Calculated with no slip and 14.0R24 tires.

Service Refill

| | | |
|-------------------------------------|--------|----------|
| Fuel Capacity | 394 L | 104 gal |
| Cooling System | 57.0 L | 15.0 gal |
| Hydraulic System | | |
| Total | 100 L | 26.4 gal |
| Tank | 64.0 L | 16.9 gal |
| Engine Oil | 30.0 L | 7.9 gal |
| Trans./Diff./Final Drives | 70.0 L | 18.5 gal |
| Tandem Housing (Each) | 76.0 L | 20.0 gal |
| Front Wheel Spindle Bearing Housing | 0.5 L | 0.13 gal |
| Circle Drive Housing | 7.0 L | 1.8 gal |
| Diesel Exhaust Fluid | 22.0 L | 5.8 gal |

Frame

| | | |
|----------------------------|---------|---------|
| Circle | | |
| Diameter | 1530 mm | 60.2 in |
| Height | 138 mm | 5.4 in |
| Blade Beam Thickness | 40.0 mm | 1.6 in |
| Drawbar | | |
| Height | 152 mm | 6.0 in |
| Width | 76.2 mm | 3.0 in |
| Thickness | 12.7 mm | 0.50 in |
| Front-Top/Bottom Plate | | |
| Width | 305 mm | 12.0 in |
| Thickness | 22.0 mm | 0.87 in |
| Front Frame Structure | | |
| Height | 321 mm | 12.6 in |
| Width | 305 mm | 12.0 in |
| Front Axle | | |
| Height to Center | 596 mm | 23.5 in |
| Wheel Lean, Left/Right | 18° | |
| Total Oscillation per Side | 32° | |

• Front-top/bottom plate – width tolerance ± 2.5 mm (0.098 in).

Tandems

| | | |
|--------------------|---------|---------|
| Height | 506 mm | 19.9 in |
| Width | 201 mm | 7.9 in |
| Sidewall Thickness | | |
| Inner | 16.0 mm | 0.63 in |
| Outer | 18.0 mm | 0.71 in |
| Drive Chain Pitch | 50.8 mm | 2.0 in |
| Wheel Axle Spacing | 1523 mm | 60.0 in |
| Tandem Oscillation | | |
| Front Up | 15° | |
| Front Down | 25° | |

150/150 AWD Motor Graders Specifications

Moldboard

| | | |
|---------------------|-----------|-----------|
| Blade Width | 3.7 m | 12 ft |
| Moldboard | | |
| Height | 610 mm | 24.0 in |
| Thickness | 22.0 mm | 0.87 in |
| Arc Radius | 413 mm | 16.3 in |
| Throat Clearance | 166 mm | 6.5 in |
| Cutting Edge | | |
| Width | 152 mm | 6.0 in |
| Thickness | 16.0 mm | 0.60 in |
| End Bit | | |
| Width | 152 mm | 6.0 in |
| Thickness | 16.0 mm | 0.60 in |
| Blade Pull | | |
| Base GVW | 11 672 kg | 25,732 lb |
| Maximum GVW | 15 541 kg | 34,262 lb |
| Base GVW (AWD) | 16 484 kg | 36,341 lb |
| Maximum GVW (AWD) | 22 512 kg | 49,630 lb |
| Blade Down Pressure | | |
| Base GVW | 7475 kg | 16,480 lb |
| Maximum GVW | 13 294 kg | 29,308 lb |
| Base GVW (AWD) | 8351 kg | 18,411 lb |
| Maximum GVW (AWD) | 13 294 kg | 29,308 lb |

Blade Range

| | | |
|---|---------|---------|
| Circle Centershift | | |
| Right | 728 mm | 28.7 in |
| Left | 695 mm | 27.4 in |
| Moldboard Sideshift | | |
| Right | 660 mm | 26.0 in |
| Left | 510 mm | 20.1 in |
| Maximum Blade Position Angle | 90° | |
| Blade Tip Range | | |
| Forward | 40° | |
| Backward | 5° | |
| Maximum Shoulder Reach Outside of Tires | | |
| Right | 1978 mm | 77.9 in |
| Left | 1790 mm | 70.5 in |
| Maximum Lift Above Ground | 480 mm | 18.9 in |
| Maximum Depth of Cut | 715 mm | 28.1 in |

Ripper

| | | |
|--------------------------------------|-----------|-----------|
| Ripping Depth, Maximum | 426 mm | 16.8 in |
| Ripper Shank Holders | 5 | |
| Ripper Shank Holder Spacing | 533 mm | 21.0 in |
| Penetration Force | 9440 kg | 20,812 lb |
| Pryout Force | 12 607 kg | 27,794 lb |
| Machine Length Increase, Beam Raised | 1031 mm | 40.6 in |

Scarifier

| | | |
|--------------------------------|---------|---------|
| Front, V-Type: Working Width | 1205 mm | 47.4 in |
| Front, V-Type, 5 or 11 Tooth | | |
| Working Width | 1031 mm | 40.6 in |
| Scarifying Depth, Maximum | 467 mm | 18.4 in |
| Scarifier Shank Holders | 5/11 | |
| Scarifier Shank Holder Spacing | 116 mm | 4.6 in |
| Mid, V-Type | | |
| Working Width | 1184 mm | 46.6 in |
| Scarifying Depth, Maximum | 292 mm | 11.5 in |
| Scarifier Shank Holders | 11 | |
| Scarifier Shank Holder Spacing | 116 mm | 4.6 in |
| Rear | | |
| Working Width | 2133 mm | 84.0 in |
| Scarifying Depth, Maximum | 426 mm | 16.8 in |
| Scarifier Shank Holders | 9 | |
| Scarifier Shank Holder Spacing | 267 mm | 10.5 in |

Weights

| | | |
|--------------------------------------|-----------|-----------|
| Gross Vehicle Weight, Base | | |
| Total | 17 323 kg | 38,191 lb |
| Front Axle | 4355 kg | 9,601 lb |
| Rear Axle | 12 968 kg | 28,590 lb |
| Gross Vehicle Weight, Maximum | | |
| Total | 25 013 kg | 55,144 lb |
| Front Axle | 7745 kg | 17,075 lb |
| Rear Axle | 17 268 kg | 38,069 lb |
| Operating Weight, Typically Equipped | | |
| Total | 19 935 kg | 43,950 lb |
| Front Axle | 5692 kg | 12,549 lb |
| Rear Axle | 14 243 kg | 31,401 lb |

150/150 AWD Motor Graders Specifications

Weights – AWD

Gross Vehicle Weight, Base

| | | |
|------------|-----------|-----------|
| Total | 18 316 kg | 40,380 lb |
| Front Axle | 4865 kg | 10,726 lb |
| Rear Axle | 13 451 kg | 29,654 lb |

Gross Vehicle Weight, Maximum

| | | |
|------------|-----------|-----------|
| Total | 25 013 kg | 55,144 lb |
| Front Axle | 7745 kg | 17,075 lb |
| Rear Axle | 17 268 kg | 38,069 lb |

Operating Weight, Typically Equipped

| | | |
|------------|-----------|-----------|
| Total | 20 827 kg | 45,917 lb |
| Front Axle | 6169 kg | 13,601 lb |
| Rear Axle | 14 658 kg | 32,316 lb |

- Base operating weight on standard machine configuration is calculated with full fuel tank, coolant, lubricants, operator and 14.0R24 tires with multi-piece (MP) rims.
- Typically equipped operating weight is calculated with push block, transmission guard, rear ripper/scarifier, 14.0R24 tires with multi-piece (MP) rims, and other equipment.

Standards

| | |
|-----------|--------------------|
| ROPS/FOPS | ISO 3471/ISO 3499 |
| Steering | ISO 5010 |
| Brakes | ISO 3450 |
| Sound | ISO 6394; ISO 6395 |

- The declared dynamic operator sound pressure level is 71 dB(A) for the 150 and 150 AWD when "ISO 6396:2008" is used to measure the value for a European Union "CE" marked machine. The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds.
- The declared exterior sound power level is 107 dB(A) for the 150 and 150 AWD when the value is measured according to the dynamic test procedures and the conditions that are specified in "ISO 6395:2008." The measurement was conducted for a European Union "CE" marked machine at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds and during diesel particulate filter regeneration.

Air Conditioning System

The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a (Global Warming Potential = 1430). The system contains 1.8 kg of refrigerant which has a CO₂ equivalent of 2.574 metric tonnes.

160/160 AWD Motor Graders Specifications

Engine

| | | | |
|--------------------------------------|--------------------------------------|--------------------|-------------------|
| Engine Model | Cat C9.3 | | |
| Emissions | U.S. EPA Tier 4 Final/ EU Stage V | | |
| Base Power (1st gear) – Net | 165 kW | 221 hp | |
| Base Power (1st gear) – Net (Metric) | | | 224 hp |
| VHP Plus Range – Net | 165-203 kW | 221-272 hp | |
| VHP Plus Range – Net (Metric) | | | 224-276 hp |
| AWD Range – Net | 172-219 kW | 231-293 hp | |
| AWD Range – Net (Metric) | | | 234-298 hp |
| Displacement | 9.3 L | 567.5 in³ | |
| Bore | 115 mm | 4.5 in | |
| Stroke | 149 mm | 5.9 in | |
| Torque Rise | 39% | | |
| Maximum Torque (VHP Plus) | 1355 N·m | 1,000 lb-ft | |
| Maximum Torque (AWD On) | 1464 N·m | 1,079 lb-ft | |
| Speed @ Rated Power | 2,000 rpm | | |
| Number of Cylinders | 6 | | |
| Derating Altitude | 3050 m | 10,000 ft | |
| High Ambient – Fan Speed | | | |
| Standard | 1,400 rpm | | |
| Maximum | 1,550 rpm | | |
| Minimum | 500 rpm | | |
| Standard Capability | 43° C | 109° F | |
| High Ambient Capability | 50° C | 122° F | |
| Gear – Net Power | VHP Plus kW (hp) | AWD Off kW (hp) | AWD On kW (hp) |
| Forward | | | |
| 1st | 165 (221) | 172 (231) | 180 (241) |
| 2nd | 172 (231) | 180 (241) | 195 (262) |
| 3rd | 180 (241) | 188 (252) | 199 (267) |
| 4th | 188 (252) | 191 (257) | 203 (272) |
| 5th | 191 (257) | 195 (262) | 219 (293) |
| 6th | 195 (262) | 199 (267) | 219 (293) |
| 7th | 199 (267) | 203 (272) | 219 (293) |
| 8th | 203 (272) | 203 (272) | 219 (293) |
| Reverse | | | |
| 1st | 165 (221) | 165 (221) | 165 (221) |
| 2nd | 172 (231) | 172 (231) | 172 (231) |
| 3rd–6th | 180 (241) | 180 (241) | 180 (241) |

Engine (cont'd)

- Net power is tested per ISO 9249, SAE J1349, and EEC 80/1269 Standards in effect at the time of manufacture.
- VHP Plus is standard for the 160/160 AWD.
- Net power advertised is the power available at rated speed of 2,000 rpm, measured at the flywheel when engine is equipped with fan running at minimum speed, air cleaner, muffler and alternator.
- No engine derating required up to 3050 m (10,000 ft).
- Power as declared per ISO 14396
Rated rpm 2,000
VHP+ = 204 kW (274 hp)
AWD = 220 kW (295 hp)
- All nonroad U.S. EPA Tier 4, European Union (EU) Stage V and Japan (MLIT) Step 4 diesel engines are required to use only Ultra Low Sulfur Diesel (ULSD) fuels containing 15 ppm (mg/kg) sulfur or less. Biodiesel blends up to B20 (20% blend by volume) are acceptable when blended with 15 ppm (mg/kg) sulfur or less ULSD. B20 should meet ASTM D7467 specification (biodiesel blend stock should meet Cat biodiesel spec, ASTM D6751 or EN 14214). Cat DEO-ULS or oils that meet the Cat ECF-3, API CJ-4, and ACEA E9 specification are required. Consult your OMM for further machine specific fuel recommendations.
- Cat engines equipped with a Selective Catalytic Reduction (SCR) system are required to use:
– Diesel Exhaust Fluid (DEF) which meets the requirements outlined in the International Organization for Standardization (ISO) standard 22241-1.

Power Train

| | | |
|-----------------------|---------------------------------|-----------------------|
| Forward/Reverse Gears | 8 Forward/6 Reverse | |
| Transmission | APECS, Direct Drive, Powershift | |
| Brakes | | |
| Service | Multiple Oil Disc | |
| Service, Surface Area | 23 000 cm ² | 3,565 in ² |
| Parking | Multiple Oil Disc | |
| Secondary | Dual Circuit Control | |

Hydraulic System

| | | |
|-------------------------|-----------------|--------------|
| Circuit Type | Parallel | |
| Pump Type | Variable Piston | |
| Pump Output | 210 L/min | 55.5 gal/min |
| Maximum System Pressure | 24 150 kPa | 3,503 psi |
| Reservoir Tank Capacity | 64.0 L | 16.9 gal |
| Standby Pressure | 6100 kPa | 885 psi |

- Pump output measured at 2,150 rpm.

160/160 AWD Motor Graders Specifications

Operating Specifications

| | | |
|-------------------------------------|-----------|------------|
| Top Speed | | |
| Forward | 47.4 km/h | 29.5 mph |
| Reverse | 37.4 km/h | 23.3 mph |
| Turning Radius, Outside Front Tires | 7.8 m | 25 ft 7 in |
| Steering Range – Left/Right | 50° | |
| Articulation Angle – Left/Right | 20° | |
| Forward | | |
| 1st | 4.1 km/h | 2.6 mph |
| 2nd | 5.6 km/h | 3.5 mph |
| 3rd | 8.1 km/h | 5.1 mph |
| 4th | 11.2 km/h | 7.0 mph |
| 5th | 17.4 km/h | 10.8 mph |
| 6th | 23.7 km/h | 14.7 mph |
| 7th | 32.6 km/h | 20.3 mph |
| 8th | 47.4 km/h | 29.5 mph |
| Reverse | | |
| 1st | 3.3 km/h | 2.0 mph |
| 2nd | 6.1 km/h | 3.8 mph |
| 3rd | 8.8 km/h | 5.5 mph |
| 4th | 13.7 km/h | 8.5 mph |
| 5th | 25.7 km/h | 16.0 mph |
| 6th | 37.4 km/h | 23.3 mph |

• Calculated with no slip and 14.0R24 tires.

Service Refill

| | | |
|-------------------------------------|--------|----------|
| Fuel Capacity | 394 L | 104 gal |
| Cooling System | 57.0 L | 15.0 gal |
| Hydraulic System | | |
| Total | 100 L | 26.4 gal |
| Tank | 64.0 L | 16.9 gal |
| Engine Oil | 30.0 L | 7.9 gal |
| Trans./Diff./Final Drives | 70.0 L | 18.5 gal |
| Tandem Housing (Each) | 87.0 L | 22.9 gal |
| Front Wheel Spindle Bearing Housing | 0.5 L | 0.13 gal |
| Circle Drive Housing | 7.0 L | 1.8 gal |
| Diesel Exhaust Fluid | 22.0 L | 5.8 gal |

Frame

| | | |
|----------------------------|---------|---------|
| Circle | | |
| Diameter | 1553 mm | 61.1 in |
| Height | 160 mm | 6.3 in |
| Blade Beam Thickness | 40.0 mm | 1.6 in |
| Drawbar | | |
| Height | 152 mm | 6.0 in |
| Width | 76.2 mm | 3.0 in |
| Thickness | 12.7 mm | 0.50 in |
| Front-Top/Bottom Plate | | |
| Width | 305 mm | 12.0 in |
| Thickness | 22.0 mm | 0.87 in |
| Front Frame Structure | | |
| Height | 321 mm | 12.6 in |
| Width | 305 mm | 12.0 in |
| Front Axle | | |
| Height to Center | 596 mm | 23.5 in |
| Wheel Lean, Left/Right | 18° | |
| Total Oscillation per Side | 32° | |

• Front-top/bottom plate – width tolerance ± 2.5 mm (0.098 in).

Tandems

| | | |
|--------------------|---------|---------|
| Height | 572 mm | 22.5 in |
| Width | 204 mm | 8.0 in |
| Sidewall Thickness | | |
| Inner | 17.5 mm | 0.69 in |
| Outer | 18.0 mm | 0.71 in |
| Drive Chain Pitch | 50.8 mm | 2.0 in |
| Wheel Axle Spacing | 1523 mm | 60.0 in |
| Tandem Oscillation | | |
| Front Up | 15° | |
| Front Down | 25° | |

160/160 AWD Motor Graders Specifications

Moldboard

| | | |
|---------------------|-----------|-----------|
| Blade Width | 4.2 m | 14 ft |
| Moldboard | | |
| Height | 610 mm | 24.0 in |
| Thickness | 22.0 mm | 0.87 in |
| Arc Radius | 413 mm | 16.3 in |
| Throat Clearance | 166 mm | 6.5 in |
| Cutting Edge | | |
| Width | 152 mm | 6.0 in |
| Thickness | 16.0 mm | 0.60 in |
| End Bit | | |
| Width | 152 mm | 6.0 in |
| Thickness | 16.0 mm | 0.60 in |
| Blade Pull | | |
| Base GVW | 11 762 kg | 25,931 lb |
| Maximum GVW | 15 541 kg | 34,262 lb |
| Base GVW (AWD) | 16 700 kg | 36,817 lb |
| Maximum GVW (AWD) | 22 512 kg | 49,630 lb |
| Blade Down Pressure | | |
| Base GVW | 7713 kg | 17,004 lb |
| Maximum GVW | 13 294 kg | 29,308 lb |
| Base GVW (AWD) | 8589 kg | 18,935 lb |
| Maximum GVW (AWD) | 13 294 kg | 29,308 lb |

Blade Range

| | | |
|---|---------|---------|
| Circle Centershift | | |
| Right | 728 mm | 28.7 in |
| Left | 695 mm | 27.4 in |
| Moldboard Sideshift | | |
| Right | 660 mm | 26.0 in |
| Left | 510 mm | 20.1 in |
| Maximum Blade Position Angle | 90° | |
| Blade Tip Range | | |
| Forward | 40° | |
| Backward | 5° | |
| Maximum Shoulder Reach Outside of Tires | | |
| Right | 2278 mm | 89.7 in |
| Left | 2090 mm | 82.3 in |
| Maximum Lift Above Ground | 452 mm | 17.8 in |
| Maximum Depth of Cut | 750 mm | 29.5 in |

Ripper

| | | |
|--------------------------------------|-----------|-----------|
| Ripping Depth, Maximum | 426 mm | 16.8 in |
| Ripper Shank Holders | 5 | |
| Ripper Shank Holder Spacing | 533 mm | 21.0 in |
| Penetration Force | 9440 kg | 20,812 lb |
| Pryout Force | 12 924 kg | 28,493 lb |
| Machine Length Increase, Beam Raised | 1031 mm | 40.6 in |

Scarifier

| | | |
|--------------------------------|---------|---------|
| Front, V-Type: Working Width | 1205 mm | 47.4 in |
| Front, V-Type, 5 or 11 Tooth | | |
| Working Width | 1031 mm | 40.6 in |
| Scarifying Depth, Maximum | 467 mm | 18.4 in |
| Scarifier Shank Holders | 5/11 | |
| Scarifier Shank Holder Spacing | 116 mm | 4.6 in |
| Mid, V-Type | | |
| Working Width | 1184 mm | 46.6 in |
| Scarifying Depth, Maximum | 292 mm | 11.5 in |
| Scarifier Shank Holders | 11 | |
| Scarifier Shank Holder Spacing | 116 mm | 4.6 in |
| Rear | | |
| Working Width | 2133 mm | 84.0 in |
| Scarifying Depth, Maximum | 426 mm | 16.8 in |
| Scarifier Shank Holders | 9 | |
| Scarifier Shank Holder Spacing | 267 mm | 10.5 in |

Weights

| | | |
|--------------------------------------|-----------|-----------|
| Gross Vehicle Weight, Base | | |
| Total | 17 563 kg | 38,719 lb |
| Front Axle | 4494 kg | 9,907 lb |
| Rear Axle | 13 069 kg | 28,812 lb |
| Gross Vehicle Weight, Maximum | | |
| Total | 25 013 kg | 55,144 lb |
| Front Axle | 7745 kg | 17,075 lb |
| Rear Axle | 17 268 kg | 38,069 lb |
| Operating Weight, Typically Equipped | | |
| Total | 20 660 kg | 45,547 lb |
| Front Axle | 6004 kg | 13,237 lb |
| Rear Axle | 14 656 kg | 32,310 lb |

160/160 AWD Motor Graders Specifications

Weights – AWD

| | | |
|--------------------------------------|-----------|-----------|
| Gross Vehicle Weight, Base | | |
| Total | 18 555 kg | 40,908 lb |
| Front Axle | 5004 kg | 11,033 lb |
| Rear Axle | 13 551 kg | 29,875 lb |
| Gross Vehicle Weight, Maximum | | |
| Total | 25 013 kg | 55,144 lb |
| Front Axle | 7745 kg | 17,075 lb |
| Rear Axle | 17 268 kg | 38,069 lb |
| Operating Weight, Typically Equipped | | |
| Total | 21 552 kg | 47,514 lb |
| Front Axle | 6481 kg | 14,289 lb |
| Rear Axle | 15 071 kg | 33,225 lb |

- Base operating weight on standard machine configuration is calculated with full fuel tank, coolant, lubricants, operator and 14.0R24 tires with multi-piece (MP) rims.
- Typically equipped operating weight is calculated with push block, transmission guard, rear ripper/scarifier, 17.5R25 tires with multi-piece (MP) rims, and other equipment.

Standards

| | |
|-----------|--------------------|
| ROPS/FOPS | ISO 3471; ISO 3499 |
| Steering | ISO 5010 |
| Brakes | ISO 3450 |
| Sound | ISO 6394; ISO 6395 |

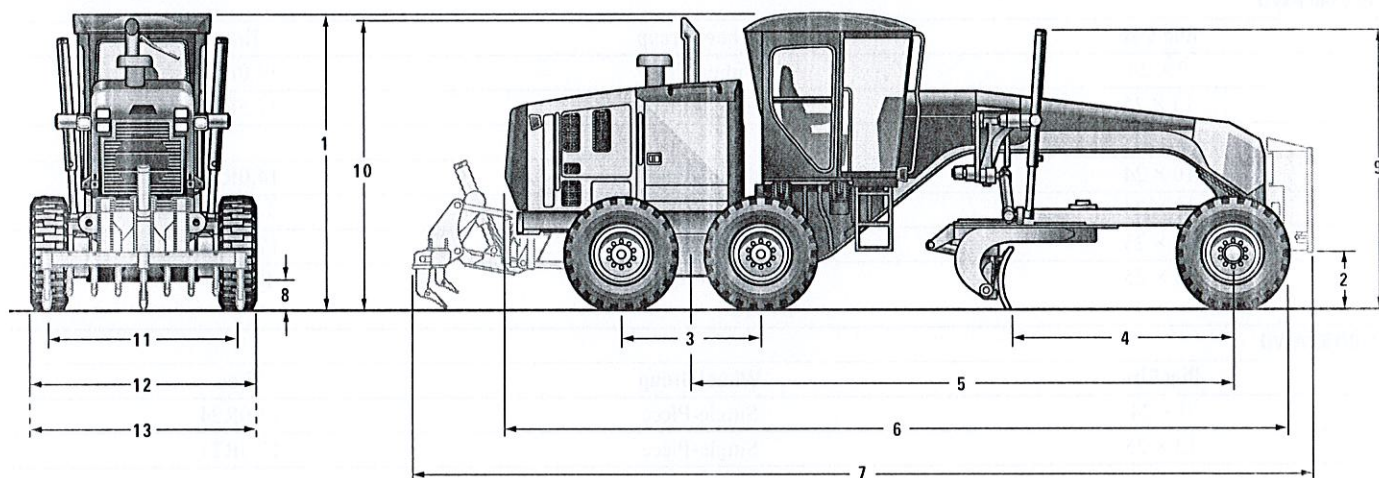
- The declared dynamic operator sound pressure level is 71 dB(A) for the 160 and 160 AWD when "ISO 6396:2008" is used to measure the value for a European Union "CE" marked machine. The measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds.
- The declared exterior sound power level is 107 dB(A) for the 160 and 108 dB(A) for the 160 AWD when the value is measured according to the dynamic test procedures and the conditions that are specified in "ISO 6395:2008." The measurement was conducted for a European Union "CE" marked machine at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds and during diesel particulate filter regeneration.

Air Conditioning System

The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a (Global Warming Potential = 1430). The system contains 1.8 kg of refrigerant which has a CO₂ equivalent of 2.574 metric tonnes.

Motor Graders Specifications

Dimensions



| | 140/140 AWD | | 150/150 AWD | | 160/160 AWD | |
|--|-------------|------|-------------|------|-------------|------|
| | mm | in | mm | in | mm | in |
| 1 Height – Top of Cab | 3308 | 130 | 3308 | 130 | 3308 | 130 |
| 2 Height – Front Axle Center | 596 | 23.5 | 596 | 23.5 | 596 | 23.5 |
| 3 Length – Between Tandem Axles | 1523 | 60.0 | 1523 | 60.0 | 1523 | 60.0 |
| 4 Length – Front Axle to Moldboard | 2552 | 100 | 2552 | 100 | 2552 | 100 |
| 5 Length – Front Axle to Mid Tandem | 6123 | 241 | 6123 | 241 | 6123 | 241 |
| 6 Length – Front Tire to Rear of Machine | 8912 | 351 | 8912 | 351 | 8912 | 351 |
| 7 Length – Counterweight to Ripper | 10 136 | 399 | 10 136 | 399 | 10 136 | 399 |
| 8 Ground Clearance at Rear Axle | 339 | 13.3 | 339 | 13.3 | 339 | 13.3 |
| 9 Height to Top of Cylinders | 3040 | 120 | 3040 | 120 | 3040 | 120 |
| 10 Height to Exhaust Stack | 3256 | 128 | 3256 | 128 | 3256 | 128 |
| 11 Width – Tire Center Lines | 2140 | 84.3 | 2140 | 84.3 | 2140 | 84.3 |
| 12 Width – Outside Rear Tires | 2511 | 98.9 | 2511 | 98.9 | 2511 | 98.9 |
| 13 Width – Outside Front Tires | 2511 | 98.9 | 2511 | 98.9 | 2511 | 98.9 |

• Calculated with 14.0R24 Tires.

Motor Graders Specifications

Optional Tire Arrangements

Common Tire Options

140/140 AWD

| Rim Size | Wheel Group | Tires |
|----------|--------------|---------|
| 9 × 24 | Single-Piece | 14.0R24 |
| 13 × 25 | Single-Piece | 17.5R25 |
| 10 × 24 | Multi-Piece | 14.0R24 |
| 10 × 24 | Multi-Piece | 14.0-24 |
| 14 × 25 | Multi-Piece | 17.5R25 |
| 14 × 25 | Multi-Piece | 17.5-25 |

150/150 AWD

| Rim Size | Wheel Group | Tires |
|----------|--------------|---------|
| 9 × 24 | Single-Piece | 14.0R24 |
| 13 × 25 | Single-Piece | 17.5R25 |
| 10 × 24 | Multi-Piece | 14.0R24 |
| 10 × 24 | Multi-Piece | 14.0-24 |
| 14 × 25 | Multi-Piece | 17.5R25 |
| 14 × 25 | Multi-Piece | 17.5-25 |

160/160 AWD

| Rim Size | Wheel Group | Tires |
|----------|--------------|---------|
| 9 × 24 | Single-Piece | 14.0R24 |
| 13 × 25 | Single-Piece | 17.5R25 |
| 10 × 24 | Multi-Piece | 14.0R24 |
| 10 × 24 | Multi-Piece | 14.0-24 |
| 14 × 25 | Multi-Piece | 17.5R25 |
| 14 × 25 | Multi-Piece | 17.5-25 |

Note: Consult your dealer for individual tire width, size and brand.

Standard Equipment

Standard equipment may vary. Consult your Cat dealer for details.

POWER TRAIN

- Air cleaner, dual stage, dry type, diesel, with automatic engine derate and automatic dust ejector, service indicator through Cat Messenger
- Air-to-air after cooler (ATAAC)
- Belt, serpentine, automatic tensioner
- Brakes, oil disc, four-wheel, hydraulic
- Demand fan, hydraulic, swing-out
- Diesel exhaust fluid tank, 22.0 L (5.8 gal) ground level access, and sediment drain
- Differential Lock/Unlock, Automatic
- Drain, engine oil, ecology
- Economy mode
- Electronic over speed protection
- Engine, C9.3, U.S. EPA Tier 4 Final/EU Stage V emission standards
- Fuel tank, 394 L (104 gal), ground level access and sediment drain
- Parking brake – multi-disc, sealed, oil-cooled
- Priming pump, fuel
- Rear axle, modular
- Sediment drain, fuel tank
- Tandem drive
- Transmission, 8F/6R, powershift, direct drive, Advanced Productivity Electronic Control Strategy (APECS)

ELECTRICAL

- Alarm, back up
- Alternator, 150 ampere, sealed
- Batteries, maintenance free, heavy duty, 1125 CCA
- Breaker panel, ground accessible
- Cab harness and electrical hydraulic valves
- Electrical system, 24V
- Grade Control Ready – Cab harness, software, electrical hydraulic valves, bosses and brackets
- Lights, roof-mounted roading, reversing, LED stop and tail
- Product Link
- Starter, electric

OPERATOR ENVIRONMENT

- Accelerator
- Air conditioning with heater
- Arm and wrist rest, electronically adjustable
- Articulation, automatic Return-to-Center
- Cat Messenger operator information system
- Centershift pin indicator
- Coat hook
- Cup holder
- Display, digital speed and gear
- Doors, left and right side with wiper
- Gauge, machine level
- Gauge cluster (analog) – fuel, articulation, engine coolant temp, engine RPM, hydraulic oil temp, regen, DEF
- Hour meter, digital
- Joystick hydraulic controls right/left blade lift with float position, circle drive, blade sideshift and tip, centershift, front wheel lean, articulation and power steering
- Joystick, adjustable armrests
- Joystick gear selection
- Joystick hydraulic power steering
- Ladders, cab, left and right side
- Lights, night time cab
- Mirror, inside rearview, wide angle
- Power port, 12V
- Radio Ready, Entertainment
- ROPS cab, sound suppressed 70 dB(A)
- Seat, cloth-covered, comfort suspension
- Seat belt, retractable 76 mm (3 in)
- Storage area for cooler/lunchbox
- Throttle control, electronic
- Windows, laminated glass:
 - fixed front with intermittent wiper
 - door with intermittent wipers (3)
- Windows: tempered
 - left and right side wipers
 - rear and intermittent wiper

FLUIDS

- Antifreeze
- Extended Life Coolant to -35°C (-30°F)

TIRES, RIMS AND WHEELS

- Partial allowance for tires on 254×607 mm (10×24 in) multi-piece rims is included in the base machine price and weight

OTHER STANDARD EQUIPMENT

- Accumulators, brake, dual certified
- Anti-glare paint
- Bumper, rear, integrated with hitch
- CD ROM Parts Book
- Clutch, circle drive slip
- Cutting edges
 - 152×16 mm ($6 \times 5/8$ in)
 - curved DH-2 steel
 - 19 mm ($3/4$ in) mounting bolts
- Doors (3), engine compartment, locking
- Drawbar – 6 shoes, replaceable wear strips
- Electrical hydraulic valves, hydraulic lines for base 8 functions
- Endbits
 - 16 mm ($5/8$ in) DH-2 steel
 - 19 mm ($3/4$ in) mounting bolts
- Fluid check, ground level
- Frame, articulated, with safety lock
- Ground level engine shutdown
- Hammer (emergency exit)
- Horn, electric
- Hydraulic lines for base functions
- Lockout, hydraulic implement (for roading and servicing)
- Moldboard
- Mounting, cab roof accessories
- Pump, hydraulic, high capacity, 98 cm^3 (6 in^3)
- Radiator, cleanout access (both sides with swing doors)
- Secondary steering
- Serviceability, LH side
- S-O-SSM ports: engine, hydraulic, transmission, coolant, fuel
- Tandem walkway/guards
- Tool box

Optional Equipment

Optional Equipment

Optional equipment may vary. Consult your Cat dealer for details.

| | kg* | lb* | | kg* | lb* | | kg* | lb* |
|---------------------------------|-----|-----|--|-----|-------|---|------|-------|
| ELECTRICAL | | | POWER TRAIN | | | WORK TOOLS/G.E.T. | | |
| • Alternator, 280 ampere | 2 | 5 | • All Wheel Drive | 892 | 1,967 | • Blade extension, left hand, 610 mm (2 ft) | 113 | 249 |
| • Batteries: | | | • Precleaner, snow | 2 | 5 | • Blade extension, right hand, 610 mm (2 ft) | 113 | 249 |
| – extreme duty, 1,400 CCA | 14 | 30 | • Starter, extreme duty, 1,000 Amps | 22 | 48 | • Counterweight | 427 | 939 |
| • Lights: | | | • Transmission, autoshift | 2 | 5 | • Cutting edges, curved | 43 | 95 |
| – Headlights, high | 38 | 84 | OTHER ATTACHMENTS | | | • Endbits, overlay | 24 | 52 |
| – Headlights, low | 35 | 77 | • Auto Articulate | | | • Front lift group, mounting | 5 | 11 |
| – Working lights, basic | 9 | 20 | • Stable Blade | | | • Front lift group, mechanical | 680 | 1,500 |
| – Working lights, plus, LED | 10 | 22 | • Cat GRADE: | | | • Grader bit, narrow and super penetration | 181 | 400 |
| – Warning: beacon or strobe | 2 | 5 | – Digital Blade Slope Meter | | | • Mid-Mount Scarifier, Package | 917 | 2,017 |
| – Mounting for warning light | 5 | 11 | – Cross Slope Indicate | | | • Moldboard | | |
| GUARDS | | | – Cross Slope | | | – 4267 mm × 610 mm × 22 mm (14 ft × 24 in × 7/8 in) | 147 | 323 |
| • Articulation guard | 5 | 11 | – Cat Production Measurement | | | – 4267 mm × 686 mm × 25 mm (14 ft × 27 in × 1 in) | 284 | 625 |
| • Fenders, front | 121 | 266 | • AccuGrade ARO | 46 | 101 | 160/160 AWD only: | 472 | 1,040 |
| • Fenders, front, AWD | 56 | 124 | • Integrated cross slope | 47 | 103 | – 4877 mm × 686 mm × 25 mm (16 ft × 27 in × 1 in) | | |
| • Fenders, rear | 156 | 344 | • Accumulators, blade lift | 55 | 121 | • Push plate | 1285 | 2,833 |
| • Front axle guard | 13 | 30 | • Camera, rearview | 9 | 20 | • Ripper, rear | 1042 | 2,292 |
| • Sound suppression (bottom) | 110 | 243 | • Cat Product Link 321SR | 13 | 29 | • Ripper tooth | 28 | 61 |
| • Sound suppression (enclosure) | 15 | 33 | • Cat Product Link 522 | 13 | 29 | • Scarifier, front | 434 | 956 |
| • Transmission | 141 | 311 | • Circle Saver | 4.5 | 10 | • Snow Arrangement | 161 | 355 |
| OPERATOR ENVIRONMENT | | | • Drain, ecology, engine Wiggins | 2 | 5 | • Snow Wing Ready Package | 119 | 262 |
| • Mirrors, outside: | | | • Heater, engine coolant: | | | • Tow hitch | 53 | 116 |
| – heated 24V | 15 | 33 | – 120V | 1 | 3 | MACHINE ARRANGEMENTS | | |
| – mounted | 15 | 33 | – 240V | 1 | 3 | • Canadian Arrangement | 2 | 4 |
| • Comfort Plus Arrangement | 2 | 4 | • Hydraulic arrangements with one or more additional hydraulic valves are available for rear ripper, dozer, snow plow and snow wing. | | | • European Arrangement | 289 | 637 |
| • Comfort Premium Arrangement | 3 | 7 | • Snow wing mounting, frame ready | 91 | 200 | • TUV Rooding Arrangement | 451 | 994 |
| | | | • Starting aid, ether | 0.5 | 1 | | | |
| | | | • Reversing fan, automatic or manual | 6 | 13 | | | |

*Weights shown are to be added to the standard configuration when option is chosen.

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AEHQ7144-04 (07-2019)
Replaces AEHQ7144-03
Build Number: 15A



MOTOR GRADERS**BID SPECIFICATION FOR 140 OR EQUIVALENT**

Bid specs are intended for use by North American buyers only and are subject to change. Model configuration may change depending on country of use. Please contact your local Caterpillar dealer for the most up-to-date specifications for your area.

| Category | Specification |
|-------------------------|--|
| BASIC SPECIFICATIONS | Machine shall be designed and built by the manufacturer. |
| BASIC SPECIFICATIONS | Base Machine Weight shall not be less than 31,508 lb (14,212 kg). Weight shall include: standard machine configuration, lubricants, coolants, full fuel tank and operator of 200 lbs (91 kg). |
| BASIC SPECIFICATIONS | Max saleable weight of the machine shall not be less than 50,420 lb (22,870 kg). Weight shall be the heaviest possible combination of compatible attachments, also including lubricants, full fuel tank and operator of 200 lbs (91 kg). |
| BASIC SPECIFICATIONS | Machine length from the front outside edge tire to end of tow hitch shall not be less than 334.8 in (8,504 mm). |
| BASIC SPECIFICATIONS | Machine Wheel Base (distance from front axle to mid tandem) shall not be less than 239.6 in (6,086 mm). |
| BASIC SPECIFICATIONS | Machine length from counterweight to ripper shall not exceed 394.2 in (10,013 mm). |
| BASIC SPECIFICATIONS | Machine height to top of the cab shall not exceed 132 in (3,354 mm). |
| BASIC SPECIFICATIONS | Front frame shall be a flanged box section construction which removes welds from high stress areas |
| BASIC SPECIFICATIONS | The rear frame shall have two box section channels with an integrated bumper. |
| BASIC SPECIFICATIONS | A standard rear hitch shall be provided. |
| ENGINE | Engine shall be designed and built by the manufacturer. |
| ENGINE | Engine shall be a turbo-charged, direct injection, four stroke, 6-cylinder diesel engine. |
| ENGINE | Engine shall be electronically controlled for more efficient fuel injection and fuel burn. |
| ENGINE | Engine displacement shall not be less than 7.2L (439 in ³). |
| ENGINE | Engine will increase its low idle speed to 1,000 rpm when the battery voltage is below 24.5 volts for more than 5 minutes to ensure adequate system voltage and battery reliability. |
| ENGINE | Engine shall develop a rated net flywheel power of at least 171 HP (128 kW) in 1st gear and 191 HP (143 kW) in 4th gear through 8th gear. |
| ENGINE | Rated engine power shall not be achieved at an engine speed greater than 2000 rpm. |
| ENGINE | Peak engine power shall not be achieved at an engine speed greater than 2000 rpm. |
| ENGINE | Engine shall be isolation/resilient mounted to minimize sound and vibration. |
| ENGINE | Engine shall be certified EPA Tier 3 and European Union Stage IIIa |
| ENGINE | Altitude deration will not occur at altitudes less than 10,000 ft (3048 m). The deration rate above 3048 m (10,000 ft) shall be 1.5% per 305 m (1000 ft). |
| ENGINE | Engine shall allow for at least 500 hours of operation between oil changes. |
| ENGINE | Engine enclosure and daily service points shall be accessible from ground level, and grouped on the left side of the machine. |
| ENGINE | Ether starting aid shall be available and must automatically meter ether injection to prevent engine damage. |
| ENGINE | Engine shall automatically lower engine torque and alert the operator if critical conditions are detected. |
| ENGINE | Engine compartment doors shall be lockable without the use of external locks. |
| ENGINE | A jacket water heater shall be available to assist in cold weather starting. |
| POWERTRAIN/TRANSMISSION | Transmission shall be designed and built by the machine manufacturer. |
| POWERTRAIN/TRANSMISSION | Transmission shall be a direct drive, power shift, countershaft type. |
| POWERTRAIN/TRANSMISSION | Transmission shall not have less than 8 forward speeds and 6 reverse speeds. |
| POWERTRAIN/TRANSMISSION | Transmission shall have 5 working gears between 0-10.8 mph (0-17.4 km/h), for dirt applications. |
| POWERTRAIN/TRANSMISSION | Differential Lock/Unlock shall be electro-hydraulically controlled, as a standard feature. |
| POWERTRAIN/TRANSMISSION | Differential Lock/Unlock shall not have speed restrictions for engaging/disengaging. |
| POWERTRAIN/TRANSMISSION | Differential Lock/Unlock shall be a multi-disc design. |
| POWERTRAIN/TRANSMISSION | Final drive shall be a planetary design. |
| POWERTRAIN/TRANSMISSION | A programmable auto-shift transmission option shall be available. |
| POWERTRAIN/TRANSMISSION | Machine shall be equipped with an electronic inching pedal for improved modulation and machine control. |
| POWERTRAIN/TRANSMISSION | Transmission shall be isolated/resilient mounted to reduce sound and vibration. |
| BRAKES | Service brakes shall be multi-disc, oil-cooled and completely sealed. |
| BRAKES | Service brakes shall be air actuated, utilizing dual independent brake circuits. |
| BRAKES | Entire braking system shall meet all requirements of ISO 3450: 1996. |
| BRAKES | Service brakes shall provide a minimum of 3,712 in ² (23,948 cm ²) of total friction material surface area used at each of the four tandem wheels to eliminate braking loads on the power train. |
| BRAKES | Parking brake shall be multi-disc, oil-cooled, air actuated and sealed |
| HYDRAULIC SYSTEM | Hydraulics system shall be a closed center, load sensing type, with a variable displacement, proportional priority pressure axial piston-type pump. |
| HYDRAULIC SYSTEM | Standard hydraulic implement pump shall produce between 0 and 20.9 gallon/min (79.0 L/min) of max oil flow. |
| HYDRAULIC SYSTEM | Optional high flow implement pump shall produce between 0 and 55.5 gallon/min (210.0 L/min) of max oil flow. |
| HYDRAULIC SYSTEM | Implement valves shall be proportional priority pressure compensating for consistent response, when multi-functioning any combination of implement controls and independent of engine speed. |
| HYDRAULIC SYSTEM | Hydraulic system shall be fully sealed, using Duo-cone and O-ring seals to prevent contamination and spillage. |
| HYDRAULIC SYSTEM | All implement hydraulic connections shall have O-ring face seals for leak prevention. |
| HYDRAULIC SYSTEM | Lock valves shall be integrated into the main implement valve to prevent cylinder drift. |
| HYDRAULIC SYSTEM | The maximum hydraulic system pressure shall be no more than 3,698.5 psi (25,500 kPa). |
| HYDRAULIC SYSTEM | The hydraulic stand-by pressure shall be no more than 522 psi (3600 kPa). |
| FRONT AXLE AND TANDEMS | Front axle shall be an arched design for maximum ground clearance. |

MOTOR GRADERS

BID SPECIFICATION FOR 140 OR EQUIVALENT

Bid specs are intended for use by North American buyers only and are subject to change. Model configuration may change depending on country of use. Please contact your local Caterpillar dealer for the most up-to-date specifications for your area.

| Category | Specification |
|-----------------------------|--|
| FRONT AXLE AND TANDEMS | Front axle oscillation shall be no less than 32 degrees total, per side 16 degrees up, 16 degrees down. |
| FRONT AXLE AND TANDEMS | Front wheel steering angle shall be no less than 47.5 degrees left or right. |
| FRONT AXLE AND TANDEMS | Front wheel spindle bearings shall be a large diameter roller bearing. |
| FRONT AXLE AND TANDEMS | Front wheel spindle maintenance intervals shall be no less than 2000 hrs. |
| FRONT AXLE AND TANDEMS | Mechanical steering stops located at each wheel and steering cylinder relief valves shall be present to prevent steering system damage during normal operation. |
| FRONT AXLE AND TANDEMS | Maximum front wheel lean shall be no less than 18 degrees left or right. |
| FRONT AXLE AND TANDEMS | Machine turning radius shall not exceed 24 ft 9 in (7.5 m) using front steering, full articulation and unlocked differential. |
| FRONT AXLE AND TANDEMS | Steering tie rod ends shall be heat induction hardened. |
| FRONT AXLE AND TANDEMS | Tandem chain pitch shall not be less than 2.0 in (50.8 mm). |
| FRONT AXLE AND TANDEMS | Distance between center of tandem wheels shall be no less than 60 in (1523 mm). |
| FRONT AXLE AND TANDEMS | Tandems shall be capable of oscillating 15 degrees front tandem up and 25 degrees front tandem down, with full machine articulation and having no interference between tandem wheel and machine structure. |
| OPERATORS STATION | An enclosed cab with ROPS (Rollover Protective Structure) according to ISO 3471: 1986-1997 shall be provided. |
| OPERATORS STATION | FOPS (Falling Object Protective Structure) shall be provided according to ISO 3449. |
| OPERATORS STATION | Cab shall be isolation-mounted to the front frame section of the machine. |
| OPERATORS STATION | Cab doors shall have a hold-open clasp with a ground-level release and in addition to, a release in the cab. |
| OPERATORS STATION | Cab shall have fixed front window of laminated glass with intermittent wiper. |
| OPERATORS STATION | Wipers shall be available on rear windows. |
| OPERATORS STATION | A rear sun shade shall be available. |
| OPERATORS STATION | A rear defroster fan shall be available. |
| OPERATORS STATION | Left and right side cab doors shall be standard. |
| OPERATORS STATION | Operator cab fresh air-filter shall be accessible for clean out and replacement, from behind the operator's seat |
| OPERATORS STATION | A 25,000 BTU/h (12.3 kW) heater with integral pressurizer and four-speed fan shall be standard |
| OPERATORS STATION | Machine shall have no less than 14 adjustable vents, positioned to direct air to front windows and operator. |
| OPERATORS STATION | Auxiliary controls shall be available for control of attachment implements and/or work tools |
| OPERATORS STATION | An instrument cluster shall be provided that includes a differential lock, throttle lock, brake air, coolant temperature, fuel and articulation angle gauge. |
| OPERATORS STATION | Digital machine hour meter shall be provided. |
| OPERATORS STATION | Seat shall be a cloth-covered suspension seat with, 3-inch (76 mm) retractable seat belts, with adjustments for fore-aft position, seat height, seat back angle, thigh support, and lumbar support. |
| OPERATORS STATION | Radio ready arrangement including 24V to 12V converter, two speakers, antenna and wiring shall be standard. |
| OPERATORS STATION | Machine shall have the AccuGrade™ system fully integrated into the machine design with integral hydraulic and electrical components as part of optional performance package with high flow implement pump |
| OPERATORS STATION | AccuGrade™ automatic blade control system attachment ready option shall be available from the factory. This option shall include additional mounting brackets and electrical harnesses for easy installation of the electronics kit. |
| DRAWBAR, CIRCLE & MOLDBOARD | Moldboard shall have a bank slope angle capability of at least 90 degrees to both sides. |
| DRAWBAR, CIRCLE & MOLDBOARD | There will be no more than 6 replaceable wear inserts between the circle and drawbar |
| DRAWBAR, CIRCLE & MOLDBOARD | Drawbar wear strips shall be replaceable drop-in inserts, made from nylon composite material. |
| DRAWBAR, CIRCLE & MOLDBOARD | Circle outside diameter shall be no less than 60.2 in (1530 mm). |
| DRAWBAR, CIRCLE & MOLDBOARD | Circle shall be a single piece, rolled-ring forging, with raised wear surfaces on the top and bottom. |
| DRAWBAR, CIRCLE & MOLDBOARD | Circle teeth contact surfaces shall be induction-hardened on the front 240 degrees of the circle. |
| DRAWBAR, CIRCLE & MOLDBOARD | Moldboard shall have a hydraulic tip control through a range of 40 degrees fore and 5 degrees aft. |
| DRAWBAR, CIRCLE & MOLDBOARD | The standard moldboard shall be at least 12 ft (3657 mm) long, 24 in (610 mm) high and no less than 7/8 in (22 mm) thick. |
| DRAWBAR, CIRCLE & MOLDBOARD | A 14 ft (4267 mm) long, 24 in (610 mm) high and no less than 7/8 in (22 mm) thick moldboard shall be available. |
| DRAWBAR, CIRCLE & MOLDBOARD | The standard mounting hardware for cutting edges and end bits shall be 3/4 in (19 mm) |
| DRAWBAR, CIRCLE & MOLDBOARD | Moldboard slide rails shall be constructed of a heat-treated, high carbon steel. |
| DRAWBAR, CIRCLE & MOLDBOARD | Slide rails shall be hardened and continuously welded |
| DRAWBAR, CIRCLE & MOLDBOARD | Throat clearance with standard moldboard shall be at least 4.7 in (120 mm). |
| DRAWBAR, CIRCLE & MOLDBOARD | Blade lift and center shift cylinders shall have replaceable bronze-alloy wear inserts in the ball sockets with removable shims to insure the ability to remove free play throughout the useful wear insert life. |
| DRAWBAR, CIRCLE & MOLDBOARD | Link bar shall have 7 positions for increased versatility. |

MOTOR GRADERS**BID SPECIFICATION FOR 140 OR EQUIVALENT**

Bid specs are intended for use by North American buyers only and are subject to change. Model configuration may change depending on country of use. Please contact your local Caterpillar dealer for the most up-to-date specifications for your area.

| Category | Specification |
|--|---|
| DRAWBAR, CIRCLE & MOLDBOARD | The moldboard retention system shall have two retention points located on the left and right side of the moldboard. The surface area shall not be less than 58016 mm ² (89.92 in ²). |
| DRAWBAR, CIRCLE & MOLDBOARD | The drawbar shall feature welded protective wear plates to prevent lift group contact with the primary drawbar structure. |
| ELECTRICAL | Machine shall have, 750 CCA heavy-duty maintenance-free batteries standard. |
| ELECTRICAL | Machine shall have 190 amp-hour, 1400 CCA extra heavy-duty batteries available. |
| ELECTRICAL | Machine shall have an 115-amp alternator as standard. |
| ELECTRICAL | Starting system shall be a 24V direct electric type. |
| ELECTRICAL | A 24 V to 12 V converter with 10-amp capacity shall be standard. |
| ELECTRICAL | Electrical system shall have a master disconnect switch with a removable key (in addition to the ignition switch), accessible from the ground level. |
| ELECTRICAL | A 24V to 12V converter with 25-amp capacity shall be available. |
| ELECTRICAL | White reversing lamps and red stop lamps shall be standard. |
| ELECTRICAL | High and low bar headlights with front turn signals shall be available. |
| SERVICEABILITY | A guard shall be available to protect the machine's transmission from debris. |
| SERVICEABILITY | A guard shall be available to suppress sound from the engine. |
| SERVICEABILITY | A two-way communication tool shall give service technicians easy access to stored diagnostic data and allow configuration of machine parameters. |
| SERVICEABILITY | Machine shall provide 3 points of contact on all areas of the machine, for mounting and dismounting. |
| SERVICEABILITY | The articulation joint shall have mechanical locking device to prevent frame articulation while servicing or transporting machine. |
| SERVICEABILITY | Left and right side tandem case assemblies shall be covered with punched steel plate to provide an adequate platform for standing and walking. |
| SERVICEABILITY | High-speed engine oil drain system shall be made optional |
| SERVICEABILITY | Sampling ports shall be accessible from the tandem level and provide access to the engine, hydraulic, coolant, and fuel ports. |
| MINIMUM SERVICE FILL CAPACITIES | Standard fuel tank capacity shall not be less than 86.6 gallons (305 L). |
| MINIMUM SERVICE FILL CAPACITIES | Standard cooling system capacity shall not be less than 10.6 gallons (40 L). |
| MINIMUM SERVICE FILL CAPACITIES | Standard hydraulic tank capacity shall not be less than 14.5 gallons (55 L). |
| MINIMUM SERVICE FILL CAPACITIES | Standard engine oil capacity shall not be less than 4.8 gallons (18 L). |
| MINIMUM SERVICE FILL CAPACITIES | Standard tandem housing capacity shall not be less than 16.9 gallons (64 L) each. |
| MINIMUM SERVICE FILL CAPACITIES | Standard front wheel spindle bearing housing shall not be less than 0.1 gallons (0.5 L). |
| MINIMUM SERVICE FILL CAPACITIES | Standard circle drive housing capacity shall not be less than 1.9 gallons (7 L) |
| SAFETY AND ENVIRONMENTAL | Machine shall have back-up lights and sounding alarm as standard when reverse gears are selected. |
| SAFETY AND ENVIRONMENTAL | A circle drive slip clutch shall be provided as standard, to reduce horizontal moldboard impact damage. |
| SAFETY AND ENVIRONMENTAL | Blade lift accumulators shall be available, to reduce vertical impact damage. |
| SAFETY AND ENVIRONMENTAL | An external emergency kill switch shall be available for ground level engine shut down. |
| SAFETY AND ENVIRONMENTAL | Electrical system shall have a master disconnect switch with a removable key and lock (in addition to the ignition switch). |
| SAFETY AND ENVIRONMENTAL | A guard shall be available to protect the machine's transmission from debris. |
| SAFETY AND ENVIRONMENTAL | Machine shall provide dual exits allowing for emergency egress should one side become obstructed |
| SAFETY AND ENVIRONMENTAL | Machine shall have laminated glass for the front windows and doors to protect the operator from shattered glass. |
| ADDITIONAL FEATURES | A rear ripper/scarifier shall be available. |
| ADDITIONAL FEATURES | Rear ripper shall have five ripper shank holders and 9 scarifier shank holders. |
| ADDITIONAL FEATURES | Rear ripper shall have a working penetration of maximum 18.2 in (462 mm) and a penetration force of at least 19,166 lb (8694 kg) |
| ADDITIONAL FEATURES | A front lift group shall be available |
| ADDITIONAL FEATURES | A front scarifier and mid-mount scarifier shall be available. |
| ADDITIONAL FEATURES | A snow wing frame ready option shall be available. |
| ADDITIONAL FEATURES | Rear fenders shall meet ISO-3457 requirements and shall not interfere with the ability to fully open any cab or engine enclosure, or service access doors. |
| ADDITIONAL FEATURES | An integrated communication tool providing flow of vital machine data and location shall be available. This system shall give automatic updates on machine parameters such as machine hours, machine condition, location, fault codes and alarms. |
| ADDITIONAL FEATURES | All core machine systems shall be electronically connected optimizing performance and preventing machine damage |

Effective with sales to the first user on or after June 1, 2015

CATERPILLAR LIMITED WARRANTY

For Selected Machine Models Designated by Caterpillar with 12 Month/Unlimited Hour Warranty

Worldwide

Caterpillar Inc. or any of its subsidiaries ("Caterpillar") warrants the following products sold by it to be free from defects in material and workmanship:

- New earthmoving, construction, material handling, forestry product, paving product, compact wheel loader, mini hydraulic excavator, skid steer loader, multi terrain loader, and compact track loader machines designated by Caterpillar as having 12-months/unlimited hour warranty. See your Cat® dealer for a complete listing of covered models.

- Attachments/work tools installed on such machines prior to delivery (unless covered by the Cat Work Tool warranty statement or another manufacturer's warranty). Hammer tool points and compacting plates used on hydraulic hammers are not warranted.

An additional warranty against breakage is applicable to certain Cat ground engaging tools. An additional warranty against wear is applicable to all landfill compactor tips when used in residential waste landfills. Refer to the applicable warranty statements for coverage detail.

This warranty does not apply to:

- Cat Batteries
- Mobil-trac belts, rubber tracks used on multi terrain loaders, compact track loaders, and mini hydraulic excavators
- Cat Work Tools
- Select models designated by Caterpillar that are sold in India and China

These products are covered by other Caterpillar warranties.

This warranty is subject to the following:

Warranty Period

For new machines and work tools/attachments the warranty period is 12-months/unlimited hours, starting from date of delivery to the first user.

Note:

- For hydraulic line's quick connect/disconnect components sold on compact wheel loaders, mini hydraulic excavators, skid steer loaders, multi terrain loaders, and compact track loader machines, the warranty period is 50 hours starting from the date of delivery to the first user.
- For Draglines, Electric Rope Shovels, Hard Rock Movers, Hard Rock Feeders; the warranty period is not to exceed 24 months from shipment of the last major component from the Caterpillar place of manufacture.

Caterpillar Responsibilities

If a defect in material or workmanship is found during the warranty period, Caterpillar will, during normal working hours and at a place of business of a Cat dealer or other source approved by Caterpillar:

- Provide (at Caterpillar's choice) new, remanufactured, or Caterpillar approved repaired parts or assembled components needed to correct the defect.

Note: New, remanufactured, or Caterpillar approved replacement parts provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product in which installed as if such parts were original components of that product. Items replaced under this warranty become the property of Caterpillar.

- Replace lubricating oil, filters, antifreeze, and other service items made unusable by the defect.
- Provide reasonable and customary labor needed to correct the defect.

User Responsibilities

The user is responsible for:

- Providing proof of delivery date to the first user.

- Labor costs, except as stated under "Caterpillar Responsibilities."
- Transportation costs, except as stated under "Caterpillar Responsibilities."
- Premium or overtime labor costs.
- Parts shipping charges in excess of those that are considered usual and customary.
- Local taxes, if applicable.
- Costs to investigate complaints, unless the problem is caused by a defect in Caterpillar material or workmanship.
- Giving timely notice of a warrantable failure and promptly making the product available for repair.
- Performance of the required maintenance (including use of proper fuel, oil, lubricants, and coolant) and items replaced due to normal wear and tear.
- Allowing Caterpillar access to all electronically stored data.

Limitations

Caterpillar is not responsible for:

- Failures resulting from any use or installation that Caterpillar judges improper.
- Failures resulting from attachments, accessory items, and parts not sold or approved by Caterpillar.
- Failures resulting from abuse, neglect, and/or improper storage or repair.
- Failures resulting from user's delay in making the product available after being notified of a potential product problem.
- Failures resulting from unauthorized repair or adjustments, and unauthorized fuel setting changes.

(Continued on the reverse side....)

This warranty covers every major component of the products. Claims under this warranty should be submitted to a place of business of a Cat dealer or other source approved by Caterpillar. For further information concerning either the location to submit claims or Caterpillar as the issuer of this warranty, write Caterpillar Inc., 100 N. E. Adams St., Peoria, IL USA 61629.

Caterpillar's obligations under this Limited Warranty are subject to, and shall not apply in contravention of, the laws, rules, regulations, directives, ordinances, orders, or statutes of the United States, or of any other applicable jurisdiction, without recourse or liability with respect to Caterpillar.

A) For products operating outside of Australia, Fiji, Nauru, New Caledonia, New Zealand, Papua New Guinea, the Solomon Islands, and Tahiti, the following is applicable:

NEITHER THE FOREGOING EXPRESS WARRANTY NOR ANY OTHER WARRANTY BY CATERPILLAR, EXPRESS OR IMPLIED, IS APPLICABLE TO ANY ITEM CATERPILLAR SELLS THAT IS WARRANTED DIRECTLY TO THE USER BY ITS MANUFACTURER.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXCEPT CATERPILLAR EMISSION-RELATED COMPONENTS WARRANTY FOR NEW ENGINES, WHERE APPLICABLE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISION OF MATERIAL AND SERVICES, AS SPECIFIED HEREIN.

CATERPILLAR IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

CATERPILLAR EXCLUDES ALL LIABILITY FOR OR ARISING FROM ANY NEGLIGENCE ON ITS PART OR ON THE PART OF ANY OF ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN RESPECT OF THE MANUFACTURE OR SUPPLY OF GOODS OR THE PROVISION OF SERVICES RELATING TO THE GOODS.

IF OTHERWISE APPLICABLE, THE VIENNA CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS IS EXCLUDED IN ITS ENTIRETY.

B) For products operating in Australia, Fiji, Nauru, New Caledonia, New Zealand, Papua New Guinea, the Solomon Islands, and Tahiti, the following is applicable:

THIS WARRANTY IS IN ADDITION TO WARRANTIES AND CONDITIONS IMPLIED BY STATUTE AND OTHER STATUTORY RIGHTS AND OBLIGATIONS THAT BY ANY APPLICABLE LAW CANNOT BE EXCLUDED, RESTRICTED OR MODIFIED ("MANDATORY RIGHTS"). ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED (BY STATUTE OR OTHERWISE), ARE EXCLUDED, WITHOUT LIMITING THE FOREGOING PROVISIONS OF THIS PARAGRAPH, WHERE A PRODUCT IS SUPPLIED FOR BUSINESS PURPOSES, THE CONSUMER GUARANTEES UNDER THE CONSUMER GUARANTEES ACT 1993 (NZ) WILL NOT APPLY.

NEITHER THIS WARRANTY NOR ANY OTHER CONDITION OR WARRANTY BY CATERPILLAR, EXPRESS OR IMPLIED (SUBJECT ONLY TO THE MANDATORY RIGHTS), IS APPLICABLE TO ANY ITEM CATERPILLAR SELLS THAT IS WARRANTED DIRECTLY TO THE USER BY ITS MANUFACTURER.

IF THE MANDATORY RIGHTS MAKE CATERPILLAR LIABLE IN CONNECTION WITH SERVICES OR GOODS, THEN TO THE EXTENT PERMITTED UNDER THE MANDATORY RIGHTS, THAT LIABILITY SHALL BE LIMITED AT CATERPILLAR'S OPTION TO (a) IN THE CASE OF SERVICES, THE SUPPLY OF THE SERVICES AGAIN OR THE PAYMENT OF THE COST OF HAVING THE SERVICES SUPPLIED AGAIN AND (b) IN THE CASE OF GOODS, THE REPAIR OR REPLACEMENT OF THE GOODS, THE SUPPLY OF EQUIVALENT GOODS, THE PAYMENT OF THE COST OF SUCH REPAIR OR REPLACEMENT OR THE ACQUISITION OF EQUIVALENT GOODS.

CATERPILLAR EXCLUDES ALL LIABILITY FOR OR ARISING FROM ANY NEGLIGENCE ON ITS PART OR ON THE PART OF ANY OF ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN RESPECT OF THE MANUFACTURE OR SUPPLY OF GOODS OR THE PROVISION OF SERVICES RELATING TO THE GOODS.

CATERPILLAR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES UNLESS IMPOSED UNDER MANDATORY RIGHTS. IF OTHERWISE APPLICABLE, THE VIENNA CONVENTION (CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS) IS EXCLUDED IN ITS ENTIRETY.

C) For products supplied in Australia:

IF THE PRODUCTS TO WHICH THIS WARRANTY APPLIES ARE:

- I. PRODUCTS OF A KIND ORDINARILY ACQUIRED FOR PERSONAL, DOMESTIC OR HOUSEHOLD USE OR CONSUMPTION; OR
- II. PRODUCTS THAT COST AUD 40,000 OR LESS,

WHERE THOSE PRODUCTS WERE NOT ACQUIRED FOR THE PURPOSE OF RE-SUPPLY OR FOR THE PURPOSE OF USING THEM UP OR TRANSFORMING THEM IN THE COURSE OF PRODUCTION OR MANUFACTURE OR IN THE COURSE OF REPAIRING OTHER GOODS OR FIXTURES, THEN THIS SECTION C APPLIES.

THE FOLLOWING MANDATORY TEXT IS INCLUDED PURSUANT TO THE AUSTRALIAN CONSUMER LAW AND INCLUDES REFERENCES TO RIGHTS THE USER MAY HAVE AGAINST THE DIRECT SUPPLIER OF THE PRODUCTS: OUR GOODS COME WITH GUARANTEES THAT CANNOT BE EXCLUDED UNDER THE AUSTRALIAN CONSUMER LAW. YOU ARE ENTITLED TO A REPLACEMENT OR REFUND FOR A MAJOR FAILURE AND COMPENSATION FOR ANY OTHER REASONABLY FORESEEABLE LOSS OR DAMAGE. YOU ARE ALSO ENTITLED TO HAVE THE GOODS REPAIRED OR REPLACED IF THE GOODS FAIL TO BE OF ACCEPTABLE QUALITY AND THE FAILURE DOES NOT AMOUNT TO A MAJOR FAILURE. THE INCLUSION OF THIS TEXT DOES NOT CONSTITUTE ANY REPRESENTATION OR ACCEPTANCE BY CATERPILLAR OF LIABILITY TO THE USER OR ANY OTHER PERSON IN ADDITION TO THAT WHICH CATERPILLAR MAY HAVE UNDER THE AUSTRALIAN CONSUMER LAW.

TO THE EXTENT THE PRODUCTS FALL WITHIN THIS SECTION C BUT ARE NOT OF A KIND ORDINARILY ACQUIRED FOR PERSONAL, DOMESTIC OR HOUSEHOLD USE OR CONSUMPTION, CATERPILLAR LIMITS ITS LIABILITY TO THE EXTENT IT IS PERMITTED TO DO SO UNDER THE AUSTRALIAN CONSUMER LAW TO, AT ITS OPTION, THE REPAIR OR REPLACEMENT OF THE PRODUCTS, THE SUPPLY OF EQUIVALENT PRODUCTS, OR THE PAYMENT OF THE COST OF SUCH REPAIR OR REPLACEMENT OR THE ACQUISITION OF EQUIVALENT PRODUCTS.

THE WARRANTY SET OUT IN THIS DOCUMENT IS GIVEN BY CATERPILLAR INC. OR ANY OF ITS SUBSIDIARIES, 100 N. E. ADAMS ST, PEORIA, IL USA 61629, TELEPHONE 1 309 675 1000. THE USER IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH MAKING A CLAIM UNDER THE WARRANTY SET OUT IN THIS DOCUMENT, EXCEPT AS EXPRESSLY STATED OTHERWISE IN THIS DOCUMENT, AND THE USER IS REFERRED TO THE BALANCE OF THE DOCUMENT TERMS CONCERNING CLAIM PROCEDURES, CATERPILLAR RESPONSIBILITIES AND USER RESPONSIBILITIES.

TO THE EXTENT PERMISSIBLE BY LAW, THE TERMS SET OUT IN THE REMAINDER OF THIS WARRANTY DOCUMENT (INCLUDING SECTION B) CONTINUE TO APPLY TO PRODUCTS TO WHICH THIS SECTION C APPLIES.

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CONTROL YOUR COSTS MINIMIZE YOUR RISKS

This plan safeguards your investments in new, used and rebuilt machines beyond the standard warranty period. It includes all parts and labor to protect you against failures caused by defects in materials and workmanship. With the Powertrain Equipment Protection Plan, you can increase the predictability of service and maintenance costs—and reduce unplanned downtime.

WHAT WE DO

- Perform necessary inspections to confirm eligibility
- Install parts approved by Caterpillar on covered repairs
- Validate your enrollment in the program

WHAT YOU DO

- Operate equipment according to the Cat Operation & Maintenance Manual (OMM)
- Have recommended preventive maintenance performed at intervals specified in the OMM
- Upon request, provide proof of preventive maintenance compliance (receipts, copies of work orders, invoices)
- Promptly provide the machine for repair in the event of a covered failure

COVERED COMPONENTS

Engine & Accessories

Engine - Internal Components

Oil Cooler

Manifolds

Fan Motor

Water Pump

Fuel Injection Pumps

Injectors

Lift / Transfer Pump

Senders / Solenoids / Sensors

Thermostat

Flywheel & Torque Converter

Engine Oil Filter Mount

Turbocharger

AC Compressor / Condenser

Electronic Control Modules

Oil Hoses / Lines (non-hydrostatic)

Cylinder Block

Piston

Piston Rings

Piston & Connecting Rod

Crankshaft, Main Bearings & Rod

Bearings

Camshaft & Camshaft Bearings

Timing / Accessory Gears

Timing Chain / Belt

Inlet / Exhaust Valve

Valve Cover & Base

Valve Spring & Guide

Rocker Arm

Rocker Shaft Assembly

Push Rod

Balancer

Fuel Pump / Governor Drive

Oil Pump

Oil Pan Group

Fan & Fan Drive

Transmission

Transmissions

Hydraulic Controls

Transmission Oil Filter Base

Transmission Gears

Final Drives/Planetary

Drive Shafts

Transfer Case

Hydrostatic Pumps &

Drive Motors

Linkage / Lines Connected to

Hystat Pump

Drive (pilot / eh) Control Valves

Bevel and Transfer Case

Drive Line/Drive Axle

Axles

Axle Seals

Final Drive & Wheel

Final Drive Case / Bore

Final Drive Chain

Final Drive Gears

Axle Shaft

Drive Axle Oil Pump

Steering

Steering Clutch

Steering Clutch & Brake Control Valve

Hydraulic Systems

Hydraulic Oil Coolers

EXCLUSIONS

If a component is not listed, it may not be included in the plan. Other exclusions include:

- > Improper or abusive use of the machine
- > Lubricating oil, antifreeze, filters, consumables and other maintenance items replaced during the covered component repair, unless such items are rendered unusable by a covered component failure
- > Failures caused by normal wear-out
- > Freight charges for parts shipments
- > Travel time and mileage involved in getting to a job site
- > Hauling costs and / or retrieval costs
- > Overtime labor costs
- > Repair costs resulting from the failure of any non-covered components
- > Downtime loss
- > Equipment rental charges
- > Any incidental / consequential damages or costs incurred as a result of a covered component failure.
- > Modifications unless approved by Caterpillar

Examples of covered and excluded components or items are listed here. The actual dealer contract will govern. For a complete list of included components and more information on Cat Equipment Protection Plans, contact your local Cat dealer.



Employment Eligibility Verification

Version:
Terrence M. Tilton

User ID:
TMOF5402

Last Login:
09:22 AM - 01/06/2012 Log Out



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Company Information

Company Name: Thompson Tractor Co., Inc.

[View / Edit](#)

Company ID Number: 47130

Doing Business As (DBA) Name:

DUNS Number:

Physical Location:

Address 1: 2401 Pinson Highway

Address 2:

City: Birmingham

State: AL

Zip Code: 35217

County: JEFFERSON

Mailing Address:

Address 1: P O. Box 10367

Address 2:

City: Birmingham

State: AL

Zip Code: 35202-0367

Additional Information:

Employer Identification Number: 630377478

Total Number of Employees: 1,000 to 2,499

Parent Organization:

Administrator:

Organization Designation:

Employer Category:

NAICS Code: 423 - MERCHANT WHOLESALERS, DURABLE GOODS

[View / Edit](#)

Total Hiring Sites: 40

[View / Edit](#)

Total Points of Contact: 3

[View / Edit](#)

[View / Edit](#)

Request for Taxpayer Identification Number and Certification

Give form to the
requester. Do not
send to the IRS.

| | | |
|---|---|--|
| Print or type See Specific Instructions on page 2. | Name (as shown on your income tax return) Thompson Tractor Co., Inc. DBA Thompson Power Systems, Thompson Lift Truck Co. | |
| | Business name, if different from above and The Cat Rent Store | |
| | Check appropriate box: <input type="checkbox"/> Individual/Sole proprietor <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Limited liability company. Enter the tax classification (D=disregarded entity, C=corporation, P=partnership) ▶ <input checked="" type="checkbox"/> Exempt payee <input type="checkbox"/> Other (see instructions) ▶ | |
| | Address (number, street, and apt. or suite no.) P O Box 10367 2401 Pinson Hwy. Tarrant, AL 35217 | |
| | City, state, and ZIP code Birmingham, AL 35202-0367 | |
| List account number(s) here (optional) Lockbox Remit To: P O Box 934065, Atlanta, GA 31193-4005 | | |
| Requester's name and address (optional) | | |
| Taxpayer Identification Number (TIN) | | |

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

| |
|---|
| Social security number : : : |
| or Employer identification number 63 : 0377478 |

Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. See the instructions on page 4.

| | | |
|-----------|---|--------|
| Sign Here | Signature of U.S. person ▶ <i>Linda L. Duncan, Controller</i> | Date ▶ |
|-----------|---|--------|

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

The person who gives Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States is in the following cases:

- The U.S. owner of a disregarded entity and not the entity.

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the Employer issues a tentative nonconfirmation based upon a photo non-match. The Employer will determine whether the employee contests the tentative nonconfirmation as soon as possible after the Employer receives it.

4. If the employee contests a tentative nonconfirmation issued by DHS, the Employer will provide the employee with a referral letter and instruct the employee to contact the Department through its toll-free hotline within 8 Federal Government work days.

5. If the employee contests a tentative nonconfirmation based upon a photo non-match, the Employer will provide the employee with a referral letter to DHS. DHS will electronically transmit the result of the referral to the Employer within 10 Federal Government work days of the referral unless it determines that more than 10 days is necessary.

6. The Employer agrees that if an employee contests a tentative nonconfirmation based upon a photo non-match, the Employer will send a copy of the employee's Form I-551 or Form I-766 to DHS for review by:

- Scanning and uploading the document, or
- Sending a photocopy of the document by an express mail account (furnished and paid for by DHS).

7. The Employer understands that if it cannot determine whether there is a photo match/non-match, the Employer is required to forward the employee's documentation to DHS by scanning and uploading, or by sending the document as described in the preceding paragraph, and resolving the case as specified by the Immigration Services Verifier at DHS who will determine the photo match or non-match.

ARTICLE IV

SERVICE PROVISIONS

The SSA and DHS will not charge the Employer for verification services performed under this MOU. The Employer is responsible for providing equipment needed to make inquiries. To access the E-Verify System, an Employer will need a personal computer with Internet access.

ARTICLE V

PARTIES

This MOU is effective upon the signature of all parties, and shall continue in effect for as long as the SSA and DHS conduct the E-Verify program unless modified in writing by the mutual consent of all parties, or terminated by any party upon 30 days prior written notice to the others. Any and all system enhancements to the E-Verify program by DHS or SSA, including but not limited to the E-Verify checking against additional data sources and instituting new verification procedures, will be covered under this MOU and will not cause the need for a supplemental MOU that outlines these changes. DHS agrees to train employers on all changes made to E-Verify through the use of mandatory refresher tutorials and updates to the E-Verify manual. Even

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without changes to E-Verify, the Department reserves the right to require employers to take mandatory refresher tutorials.

Termination by any party shall terminate the MOU as to all parties. The SSA or DHS may terminate this MOU without prior notice if deemed necessary because of the requirements of law or policy, or upon a determination by SSA or DHS that there has been a breach of system integrity or security by the Employer, or a failure on the part of the Employer to comply with established procedures or legal requirements. Some or all SSA and DHS responsibilities under this MOU may be performed by contractor(s), and SSA and DHS may adjust verification responsibilities between each other as they may determine.

Nothing in this MOU is intended, or should be construed, to create any right or benefit, substantive or procedural, enforceable at law by any third party against the United States, its agencies, officers, or employees, or against the Employer, its agents, officers, or employees.

Each party shall be solely responsible for defending any claim or action against it arising out of or related to E-Verify or this MOU, whether civil or criminal, and for any liability wherefrom, including (but not limited to) any dispute between the Employer and any other person or entity regarding the applicability of Section 403(d) of IIRIRA to any action taken or allegedly taken by the Employer.

The employer understands that the fact of its participation in E-Verify is not confidential information and may be disclosed as authorized or required by law and DHS or SSA policy, including but not limited to, Congressional oversight, E-Verify publicity and media inquiries, and responses to inquiries under the Freedom of Information Act (FOIA).

The foregoing constitutes the full agreement on this subject between the SSA, DHS, and the Employer.

The individuals whose signatures appear below represent that they are authorized to enter into this MOU on behalf of the Employer and DHS respectively.

To be accepted as a participant in E-Verify, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify Operations at 888-464-4218.

Employer Thompson Tractor Co., Inc.

Frank M Wright

Name (Please type or print)

Title

Electronically Signed

07/11/2007

Signature

Date

Department of Homeland Security – Verification Division

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**INFORMATION REQUIRED
FOR THE E-VERIFY PROGRAM**

Information relating to your Company:

Company Name: Thompson Tractor Co., Inc.

Company Facility Address: 2401 Pinson Highway
Birmingham, AL 35217

Company Alternate Address: P.O. Box 10367
Birmingham, AL 35202-0367

County or Parish: JEFFERSON

Employer Identification Number: 630377478

North American Industry
Classification Systems Code: 423

Parent Company: _____

Number of Employees: 1,000 to
2,499 Number of Sites Verified for: 5

Are you verifying for more than 1 site? If yes, please provide the number of sites verified for in each State.

- GEORGIA 5 site(s)

Information relating to the Program Administrator(s) for your Company on policy questions or operational problems:

| | | | |
|-------------------|-----------------------------------|-------------|------------------|
| Name: | Kimberly A Stark | Fax Number: | (205) 849 - 4565 |
| Telephone Number: | (205) 849 - 4279 | | |
| E-mail Address: | kimberlystark@thompsontractor.com | | |
| Name: | Frank M Wright | Fax Number: | (205) 849 - 4854 |
| Telephone Number: | (205) 849 - 4267 | | |
| E-mail Address: | frankwright@thompsontractor.com | | |

Company ID Number: 47130

USCIS Verification Division

Name (Please type or print)

Title

Electronically Signed

07/11/2007

Signature

Date