

Agency: Commerce, Community and Economic Development**Grants to Named Recipients (AS 37.05.316)****Grant Recipient: Bristol Bay Native Association****Federal Tax ID: 92-0041473****Project Title:****Project Type: Equipment and Materials**

Bristol Bay Native Association - Safety Equipment Purchase - Manokotak, Aleknagik and Togiak

State Funding Requested: \$845,000**House District: 37 / S**

One-Time Need

Brief Project Description:

Purchase and coordinate delivery of Safety Equipment to Manokotak, Togiak and Aleknagik.

Funding Plan:

Total Project Cost:	\$975,000
Funding Already Secured:	(\$130,000)
FY2012 State Funding Request:	<u>(\$845,000)</u>
Project Deficit:	\$0

*Funding Details:**Manokotak has secured \$30,000 to go towards their Road Grader. Aleknagik has secured \$100,000 for their Loader.***Detailed Project Description and Justification:**

The communities of Aleknagik, Togiak and Manokotak are all in need of equipment to keep their communities' roads in safe operating conditions. Each town has equipment between 30 - 40 years old, and continual maintenance costs makes the purchase of new equipment necessary and more cost effective for the communities.

The Bristol Bay Native Association will purchase and coordinate the delivery of this equipment to each of the three towns, with no indirect charges for the service.

Purchases will include:

Togiak - Caterpillar 160M Road Grader - \$345,000
 Manokotak - Road Grader - \$330,000 - (\$30K already pledged from City)
 Aleknagik - Loader w/ Dozer - \$300,000 - (\$100K pledged from BBEDC)

Project Timeline:

BBNA will coordinate purchase and delivery of equipment as soon as funding is available.

Entity Responsible for the Ongoing Operation and Maintenance of this Project:

The Cities of Aleknagik, Manokotak, and Togiak

Grant Recipient Contact Information:

Name:	Ralph Andersen
Title:	President and CEO
Address:	PO Box 310 Dillingham, Alaska 99576
Phone Number:	(907)842-5257
Email:	randersen@bbna.com

Has this project been through a public review process at the local level and is it a community priority? Yes No

CITY OF MANOKOTAK
P.O. BOX 170
MANOKOTAK, AK 99628
PH: 907-289-1027
FAX: 907-289-1082

Dear Representatives/Senators:

The City of Manokotak is requesting funds for the replacement motor grader to continue critical road maintenance for the Manokotak community. .

The City of Manokotak is making this formal request to the State of Alaska to contribute, through the capital budget process, the financial resources for the acquisition of a motor grader described in the enclosure. The community of Manokotak has over 500 residents and located in southwest Alaska with over 8 miles of road to maintain on a regular basis. This includes regular maintenance, snow removal and repairs as determined by the City. These services are critical to public safety and welfare of the residents of Manokotak.

The motor grader to be replaced has outlived its useful life, and parts and service are not readily available. It is more cost effective to replace the grader entirely.

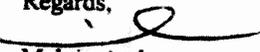
Our request for funds to complete the planning and design phases and to determine the estimated costs and lease revenue is as follows:

Total Request: \$300,000

Purpose: Replacement Motor Grader and associated training and attachments.

Find attached a description of the motor grader, specification sheet and current price.

Regards,


Melvin Andrew
Mayor, City of Manokotak

**Manokotak Village Council
P.O. Box 169
Manokotak, Ak 99628
PH: (907) 289-2067 or 1227
Fax: (907) 289-1235**

February 4, 2011

Mayor Melvin Andrew
P.O. Box 170
Manokotak, AK 99628

RE: Letter of Support - Motor Grader Replacement

Mayor Andrew:

The Manokotak Village Council is writing this letter of support for the funding request being submitted to the State of Alaska legislature by the City of Manokotak. The purpose of the request is to secure the necessary capital project funds to replace the old worn "Gallion" motor grader.

Our community is located at two sites separated by 5 miles of gravel road. The school is located at the "Housing" site and students from the original site are bused to the school each day. The road needs regular grading as erosion and traffic take its toll on the stability of the road. The road grader is a critical piece of equipment the community relies on to keep our roads maintained, clear of snow and repaired.

Manokotak Village Council forwards this letter of support for this important funding request by the City of Manokotak's.

Regards,



Moses "Moody" Toyukuk
President,
Manokotak Village Council

**CONTRACT AWARD
AMENDMENT TWO**

STATE OF ALASKA
HQ, STATE EQUIPMENT FLEET (Contracting Authority)
2200 E. 42nd Avenue
Anchorage, Alaska 99508
(907-269-0800)

CONTRACT AWARD NUMBER

CA1500-10

ORDERING DEPARTMENT HEADQUARTERS, STATE EQUIPMENT FLEET 2200 E. 42ND AVENUE ANCHORAGE, ALASKA 99508	COMMODITY CODE	DATE OF CONTRACT 4/19/10
	NUMBER & PERIOD OF RENEWAL OPTIONS TWO ONE YEAR RENEWALS	PR NO./DATE ASSIGNED
	DATE INITIAL CONTRACT BEGINS 4/19/10	DATE INITIAL CONTRACT ENDS 4/18/11
CONTRACTOR NC MACHINERY ADDRESS 6450 ARCTIC BLVD. ANCHORAGE, AK 99519 CONTRACT NAME JEFF SCOTT TELEPHONE NUMBER 786-7534	GS VENDOR CODE:	
	ISSUED IN ACCORDANCE WITH BID # SEF- 1500	DATED: 2/10/10
	PRICE ADJ. REQ. PRIOR TO EACH RENEWAL:	
	CPI/PPI BASE INDEX POINTS & MO/YR:	
	REVIEW DATE:	RENEWALS EXPIRE (MO/YR):
	ESTIMATED VALUE OF INITIAL TERM:	REBID:

SEND INVOICES IN DUPLICATE TO: DOT&PF, STATE EQUIPMENT FLEET, 2200 E. 42ND AVENUE, ANCHORAGE AK 99508

NOTE: This order constitutes a binding commitment between the State and the contractor listed hereon. Unauthorized modification without the expressed prior approval of the contracting authority will result in a financial obligation on the contractor and/or unauthorized State personnel making the change.

DESCRIPTION

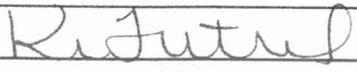
DECEMBER 1, 2010

THIS AMENDMENTS PER SPECIAL TERMS AND CONDITIONS ALLOWS FOR A MANUFACTURER PRICE INCREASE.

CAT BASE PRICES WILL INCREASE 6% AS REFLECTED ON BID ORDER SHEET.

HENKE MANUFACTURING ITEMS WILL INCREASE 6% AS REFLECTED ON BID ORDER SHEET.

CONTRACTING AUTHORITY NAME & TITLE
KRISTI FUTREL, CONTRACTING OFFICER III

SIGNATURE 

TELEPHONE NO.: 907-269-0793 **FAX NO.:** 907-269-0801

IMPORTANT 1. Contract award number and ordering department name must appear on all invoices and documents relating to this order.
2. The State is registered for tax free transactions under Chapter 32, IRS Code Registration No. 92-601185. Items are for the exclusive use of the State and not for resale.

Pricing on the Model Requested by the City of Manokotak

CONTRACT CA1500-10 MOTOR GRADERS

Replacing V-

NC Machinery
6450 Arctic Blvd.
Anchorage, AK 99519

Contract Start Date 4/19/10
Contract Expiration Date 4/18/2011
(Extension expire 4/18/2013 if utilized)

<u>Qty.</u>	<u>Description</u>	<u>Make/Model</u>	<u>Price</u>	<u>PO TOTAL</u>
0	Motor Grader, minimum 35,000 pound	CAT 140M	\$ 260,019.00	\$ -
0	Warranty, Year Two (2)		\$ 2,040.00	\$ -
0	Warranty, Year Three (3)		\$ 90.00	\$ -
0	Supplemental Emergency Power Steering		\$ -	\$ -
0	Tire Studs		\$ 972.00	\$ -
0	Push Block	CAT	\$ 3,318.00	\$ -
0	Scarifier	CAT	\$ 11,368.00	\$ -
0	Snow Wing, 12 Foot	Henke	\$ 16,289.00	\$ -
0	Snow Plow (Multi-Directional)	Kenke	\$ 26,512.00	\$ -
0	Auto Lube System	Beka Max	\$ 12,222.00	\$ -
0	Training in Anchorage		\$ 1,000.00	\$ -
0	Training in Fairbanks		\$ 1,500.00	\$ -
0	Training in Juneau		\$ 1,500.00	\$ -
0	Diagnostic tools, Year One (1)		\$ 1,900.00	\$ -
0	Diagnostic tools, Year Two (2)		\$ 1,900.00	\$ -
0	Diagnostic tools, Year Three (3)		\$ 1,900.00	\$ -
0	Oil Sampling, Year One (1) -REQUIRED		\$ 384.00	\$ -
0	Oil Sampling, Year Two (2) -REQUIRED		\$ 384.00	\$ -
0	Oil Sampling, Year Three (3) -REQUIRED		\$ 384.00	\$ -
0	Publications – Per Set		\$ 825.00	\$ -
0	Final Inspections – Per Person		\$ 1,000.00	\$ -
Additional Options				
0	INSTALLATION, ACCUGRADE READY		\$ 6,360.00	\$ -
	Allows the Motor Grader to be equipped with either a Cross Slope, Sonic, Laser, GPS, or ATS electronics kit. Provides cab switches, software, harnesses for sensors, mounting for sensors and blade mast bracket.			
0	CAMERA, REAR VISION		\$ 2,380.00	\$ -
	Provides a 115 degree color camera mounted on the rear of the hood that is connected to a 7 inch (178mm) LCD color display mounted in the cab which shows the view behind the machine			
0	AWD Option		\$ 33,814.00	\$ -
PO TOTAL				\$ -

**CITY OF
MANOKOTAK**

RESOLUTION 11-10

A RESOLUTION of the Manokotak City Council authorizing the Manokotak City Administration to seek and secure public and private financial resources for the replacement of heavy equipment necessary for maintenance of community-wide roads and infrastructure.

WHEREAS, the residents of Manokotak, Alaska are citizens of the Municipality of Manokotak, the State of Alaska and the United States of America

WHEREAS, the City of Manokotak will be able to utilize favorable rates for the acquisition of heavy equipment through the competitive bid process.

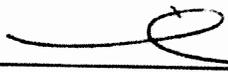
WHEREAS, NC machinery is recognized as a highly qualified company to provide heavy equipment, part and deliver service to rural Alaska.

WHEREAS, There is a need to replace the City owned "Gallion" motor grader to continue critical maintenance of the road system in Manokotak, Alaska.

NOW THEREFORE BE IT RESOLVED THAT Manokotak City Council authorizes and directs the Manokotak City Administration to request financial and in-kind support from local, State of Alaska and United States Federal agencies to secure the needed financial resources to secure an adequate replacement motor grader to enable the City of Manokotak to continue critical road maintenance for the public good.

PASSED AND ADOPTED by the City Council of Manokotak at a regular meeting thereof held on the 3rd day of February, 2011 by the following vote: Yes 6 No 0

1-yes - Teleconference

Signed  Mayor

Attest: *Laura John* City Clerk

140M2/ 140M2 AWD

Motor Graders

CAT®



Engine

Engine Model	Cat® C9.3 ACERT™ VHP	
Base Power (1st gear) – Net	144 kW	193 hp
VHP range – Net	144-166 kW	193-223 hp
VHP Plus range – Net	144-181 kW	193-243 hp

Moldboard

Blade width	3.7 m	12 ft
-------------	-------	-------

Weights

Gross Vehicle Weight – base	17 196 kg	37,911 lb
Gross Vehicle Wt, base – front axle	4211 kg	9,284 lb
Gross Vehicle Wt, base – rear axle	12 985 kg	28,627 lb

Features

Operator Station

A revolutionary cab design provides unmatched comfort, visibility and ease of use, making the operator more confident and productive.

Engine and Power Train

Combining power management with ACERT™ Technology delivers maximum power and efficiency while reducing the environmental impact.

Structures, Drawbar, Circle and Moldboard

Durable structures with fast and simple DCM adjustments deliver precise material control while lowering operating costs.

Hydraulics

The M2 motor grader electro-hydraulics enable advanced machine controls with precise and predictable movements.

Integrated Electronic Solutions

Full systems integration optimizes machine performance and availability.

All Wheel Drive (AWD)

Maximum productivity with six powered wheels. Hydrostatic Mode powers only the front wheels, perfect for precise finish work. Steering Compensation adjusts the outside front tire speed for tighter turns, less scuffing and tire wear, and improved control.

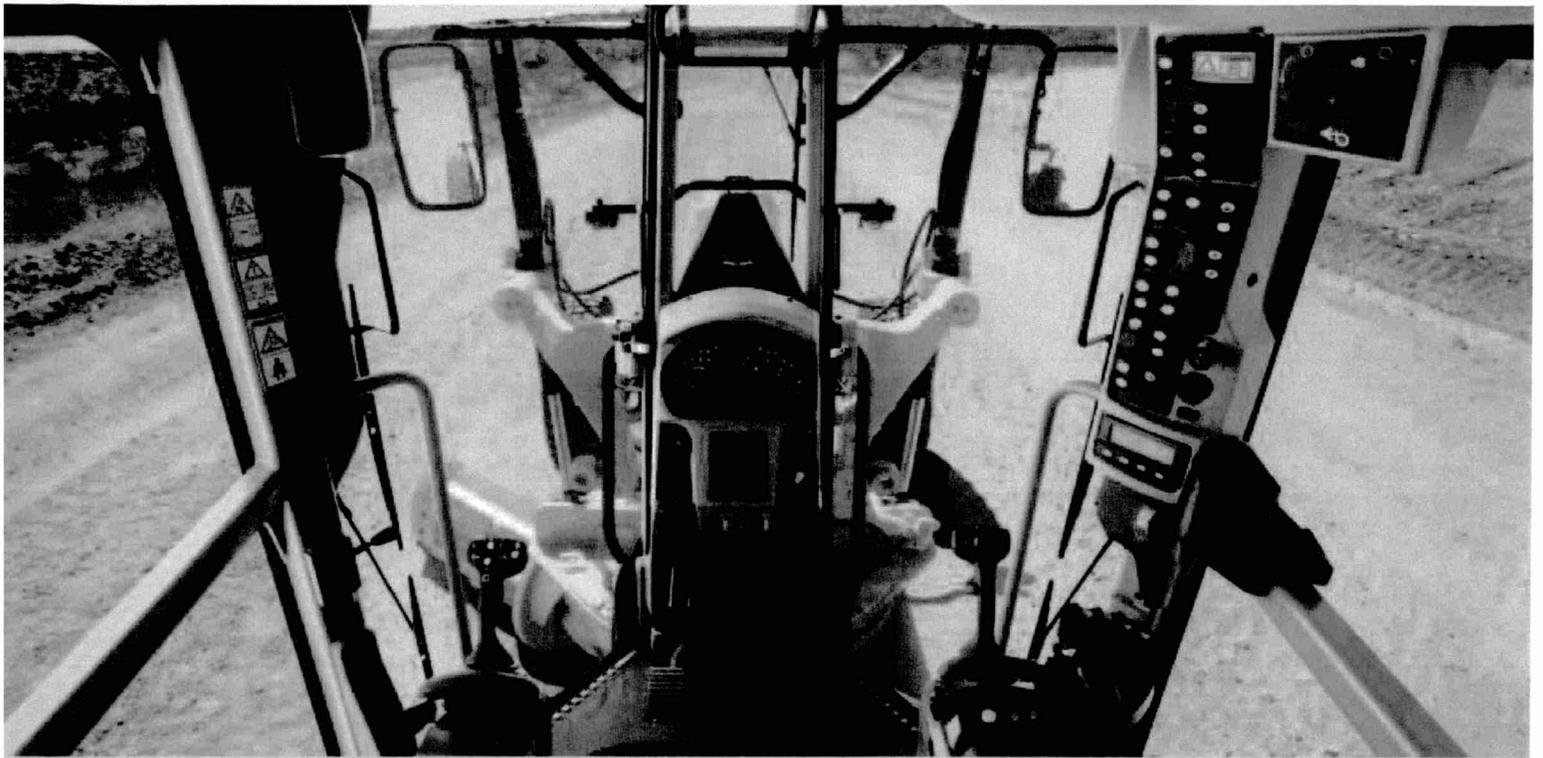
Contents

Operator Station.....	3
Steering and Implement Controls	4
Engine and Emissions Technologies.....	5
Power Train.....	6
Structures and DCM.....	7
All-Wheel Drive (AWD)	8
Hydraulics	9
Integrated Electronic Solutions.....	10
Work Tools and Attachments.....	11
Safety.....	12
Customer Support.....	13
Sustainability	13
140M2/140M2 AWD	
Motor Grader Specifications	14
140M2/140M2 AWD Standard Equipment.....	18
140M2/140M2 AWD Optional Equipment	19



The M Series 2 continues the legacy of quality already established by Cat motor graders. The extensive validation program, combined with improvements to the manufacturing process, allows Caterpillar to further enhance our quality.

The end result of this development process is a motor grader line with breakthrough technologies, tested in the field and built around real applications and real customer needs.



Operator Station

Comfort, productivity, advanced technology.

Visibility

Angled cab doors, a tapered engine enclosure and patented sloped rear window assure excellent visibility to the work area. Optional anti-icing glass increases visibility and working capability.

Maximum Control, Maximum Comfort

Caterpillar has built the most comfortable cab in the industry, replacing the control levers and steering wheel with two joystick controls, and lengthening the cab for more leg room. Machine design features, like angled doors, provide excellent visibility.

Operator Comfort

The Cat® Comfort Series suspension seat and arm/wrist rests are fully adjustable for improved comfort and productivity. Extra leg room, easy-to-reach long-life rocker switches and revolutionary joystick controls make this the most comfortable cab in the industry.

Standard HVAC system

The high capacity system dehumidifies and pressurizes the cab, circulates fresh air, seals out dust and keeps windows clear.

Low Interior Sound and Vibration Levels

Multiple isolation mounts along with relocated hydraulic pump and valves significantly improve operator comfort and productivity.

In-Dash Instrument Cluster

Easy-to-read, high-visibility gauges and warning lamps keep the operator aware of critical system information.

Steering and Implement Controls

Unprecedented precision and ease of operation.



Ease of Operation

Two electro-hydraulic joysticks require up to 78% less hand and wrist movement than conventional lever controls for greatly enhanced operator comfort and efficiency. The intuitive control pattern allows both new and experienced operators to quickly become productive.

Joystick Functions

Optimum control at your fingertips:

- The left joystick primarily controls the machine direction and speed including steering, articulation, return-to-center, wheel lean, gear selection, left moldboard lift cylinder and float.
- The right joystick primarily controls drawbar, circle and moldboard functions including right moldboard lift cylinder and float, moldboard slide and tip, circle turn, drawbar center shift, electronic throttle control and differential lock/unlock.

Intuitive Steering Control

Joystick lean angle mirrors the steer tires' turning angle. 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 comfortable and predictable control.

Electronic Throttle Control

Provides easy, precise and consistent throttle operation. An automatic/manual mode switch offers flexibility for different applications and operator preferences.

Articulation Return-to-Center

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

Auxiliary Pod and Ripper Control (Optional)

Ergonomically positioned to allow simple, comfortable operation for the multiple hydraulic options.

- Four fingertip controls and a mini joystick maximize control of up to six hydraulic circuits. Individual functions can be programmed with Electronic Technician (Cat ET). The auxiliary hydraulic pod is provided when the machine is configured with three or more auxiliary functions.
- Infinitely variable roller switches provide precise control of the rear ripper and/or front lift group (when equipped).





Engine and Emissions Technologies

Next generation solutions for tough regulations.

Cat® C9.3 Engine with ACERT™ Technology

The Cat C9.3 engine meets U.S. EPA Tier 4 Interim and EU Stage IIIB emissions regulations using an ideal combination of electronic, fuel, air and after-treatment components.

- Innovative Air Management Systems match turbo performance to rated output for high productivity, excellent fuel efficiency, long life and low operating costs.
- Cat NOx Reduction System captures, cools and routes a small quantity of exhaust gas back into the combustion chamber where it lowers combustion temperatures and reduces NOx emissions.
- Cat Regeneration System (CRS) is used when supplemental regeneration is needed. CRS elevates exhaust gas temperatures to promote oxidation and burn off soot in the Diesel Particulate Filter.
- Cat Clean Emissions Module (CEM), a flexible Caterpillar designed modular system, protects the components, minimizes the after-treatment footprint and simplifies maintenance.

Performance

The Cat C9.3 engine has superior torque and lugging capability to pull through sudden, short-term loads and maintain consistent, desirable grading speeds to get work done faster without downshifting.

Hydraulic Demand Fan

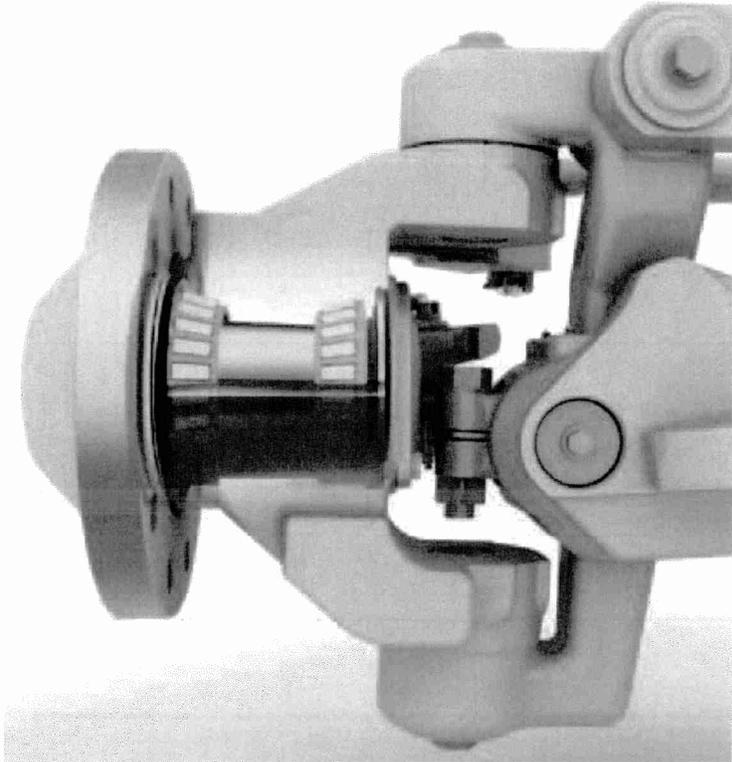
Cooling fan speed automatically adjusts according to engine cooling needs, reducing demand on the engine, puts more horsepower to the ground and improving fuel efficiency.

High Pressure Common Rail Fuel Systems

Improves precision and control with full electronic injection that boosts performance and reduces soot.

Power Train

Maximum power to the ground.



Front Axle

The Cat sealed spindle keeps bearings free from contaminants and lubricated in a light weight oil. The Cat “Live Spindle” design places the larger tapered roller bearing outboard where the load is greater, extending bearing life.

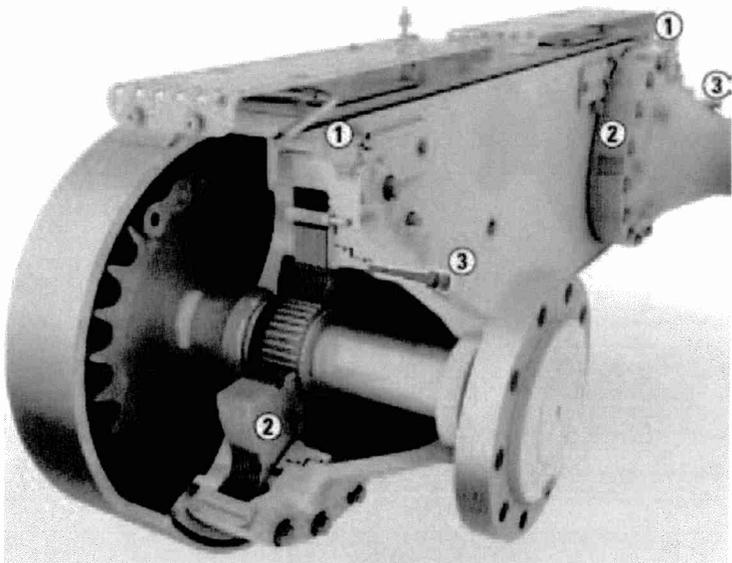
Inching Pedal

Allows precise control of machine movements and excellent modulation, critical in close-quarter work or finish grading.

Smooth Shifting Transmission

Several key innovations ensure smooth, powerful shifts.

- Full Electronic Clutch Pressure Control (ECPC) system optimizes inching modulation for smooth shifts and directional changes, reducing stress on gears.
- Controlled Throttle Shifting helps to smooth directional and gear changes without using the inching pedal.
- Load Compensation ensures consistent shift quality regardless of blade or machine load.
- Programmable Autoshift lets the operator match shift parameters to the job so shifts occur at optimal points.
- Power Shift Countershaft Transmission and the Cat C9.3 engine maximize power to the ground. Eight forward/six reverse gears optimize productivity.
- Engine Over-Speed Protection prevents downshifting until a safe travel speed has been established.



Bolt-On Modular Rear Axle

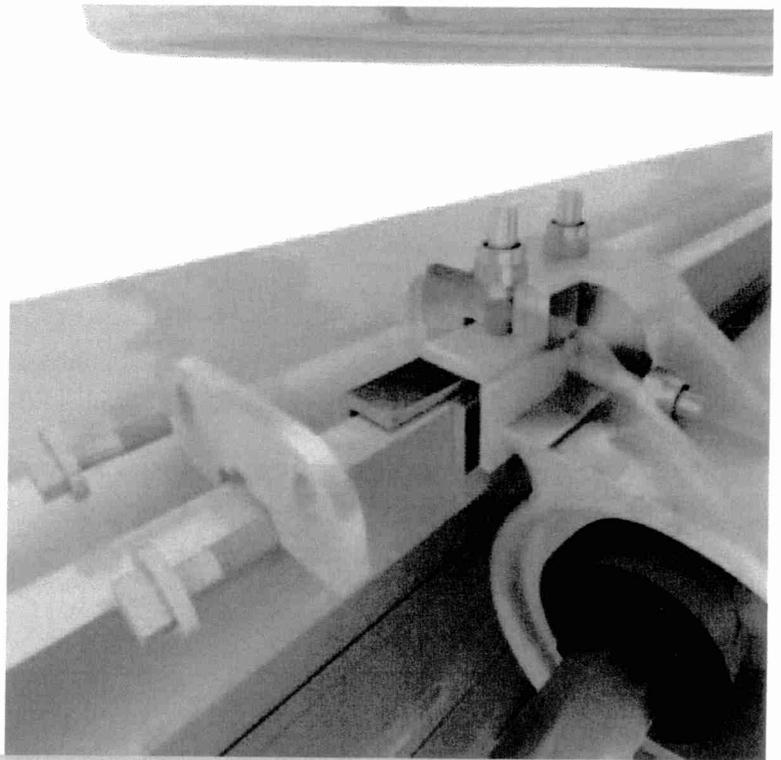
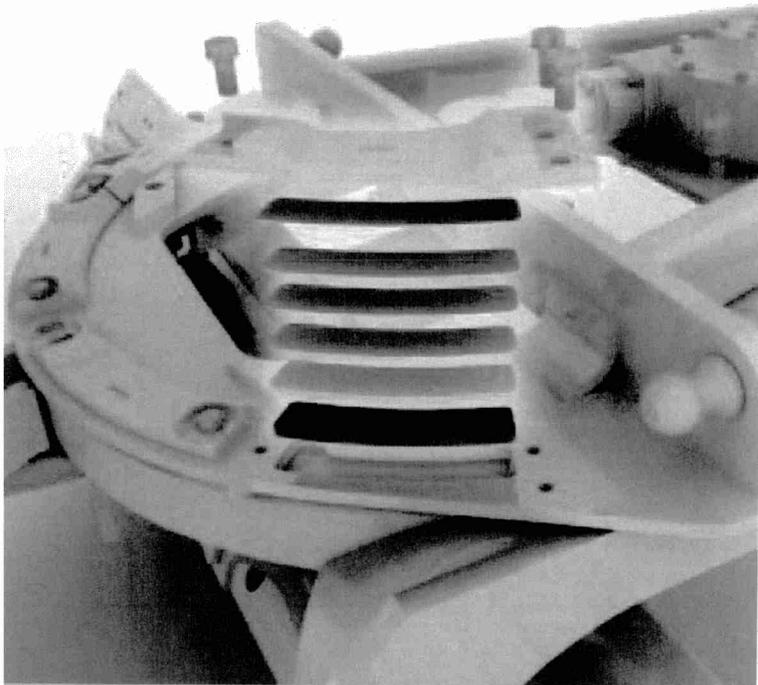
Improves serviceability and contamination control with easy access to differential components.

Hydraulic Brakes

Hydraulically actuated, oil bathed, multi-disc service brakes at each tandem wheel (1) offer the industry’s largest total brake surface area (2) for dependable stopping power and long brake life. The brake wear indicator/compensator system (3) maintains brake performance and indicates brake wear without disassembly, for fast servicing and longer brake service life. The spring-applied, hydraulically released multi-disc parking brake, sealed and oil-cooled for long life and low service, is integrated into the Operator Presence System to prevent unintended machine movement.

Automatic Differential Lock (Optional)

Unlocks the differential during a turn, re-locks when straight, for easier operation and lower power train protection.



Structures and DCM

Service ease and precise blade control.

Heavy Duty Durability

The frame, drawbar and one-piece forged steel circle are designed for durability in heavy duty applications. The strong A-frame drawbar uses a durable tubular design. The front 240° of circle teeth are hardened to reduce wear and ensure component reliability.

Articulation Hitch

A large tapered roller bearing at the lower pivot carries loads evenly and smoothly. Sealed to prevent contamination, a locking pin prevents articulation for safety during service or transport.

Aggressive Blade Angle

Allows material to roll more freely along the blade, particularly dry materials or cohesive soils. Better material control gets the job done faster, requires less power and saves fuel.

Fast, Easy Adjustment Means Tight Components

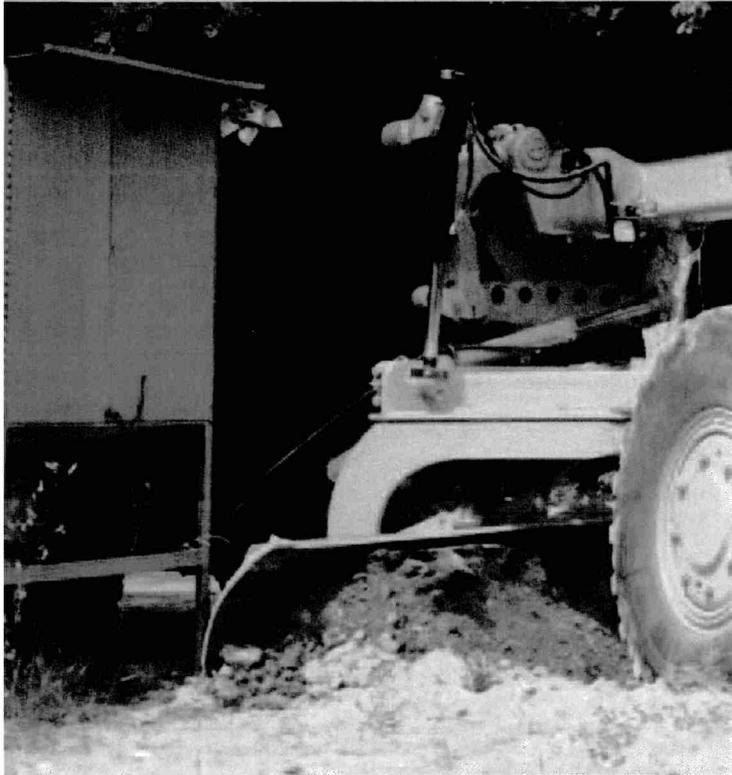
Shims and patented top-adjust wear strips are easy to add or replace, dramatically reducing downtime and operating costs. Durable nylon composite wear inserts maximize circle torque and component life. Sacrificial brass wear strips between the blade mounting group and moldboard can be replaced easily. Shimless Moldboard Retention System uses vertical and horizontal adjusting screws to keep moldboard wear strips aligned for reduced blade chatter, precise blade control and dramatic reductions in service time.

Moldboard

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

All-Wheel Drive (AWD)

Expanded machine versatility.



All Wheel Drive (AWD)

The AWD arrangement utilizes dedicated left and right pumps for precise hydraulic control. The infinitely variable pumps and motors maximize torque in each gear. This delivers the most power to the ground in the industry and increases productivity.

Maximum Net Power

When AWD is engaged, flywheel horsepower is automatically increased by an additional 41 kW (55 hp) compared to the rear drive model. This offsets the parasitic losses and maximizes net power to the ground for increased productivity.

Hydrostatic Mode

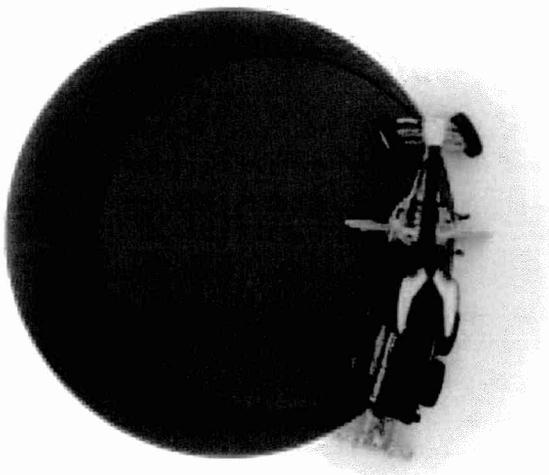
Standard with AWD, this mode disengages the transmission and provides hydraulic power to the front wheels only. The ground speed is infinitely variable between 0-8 km/h (0-5 mph), perfect for precise finish work.

Steering Compensation

Cat Steering Compensation System enables a “powered turn” by adjusting the outside front tire speed up to 50% faster than the inside tire. The result is improved control, less damage to surfaces and a dramatic reduction of turning radius in poor underfoot conditions.

■ Without Steering Compensation

■ With Steering Compensation





Hydraulics

Advanced machine control.

Advanced Electro-Hydraulic System

Incorporates a state-of-the-art electro-hydraulic system as the foundation for revolutionary changes in machine and advanced joystick controls.

Blade Float

Allows the blade to move freely under its own weight. By floating both cylinders, the blade can follow the contours of the road, especially useful when removing snow. 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.

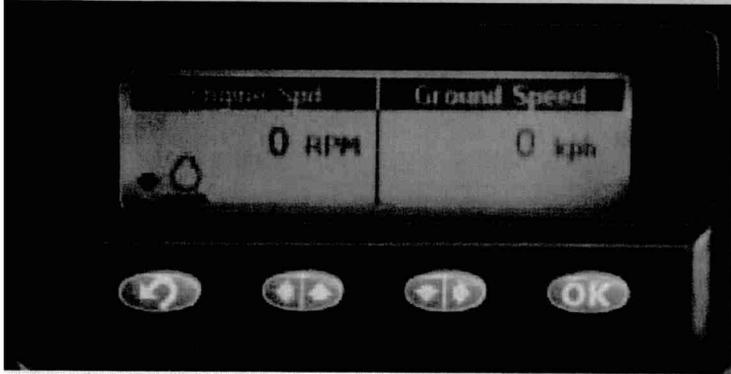
Load Sensing Hydraulics (PPPC)

The proven load-sensing system and the advanced Proportional Priority Pressure-Compensating (PPPC or “triple P – C”) electro-hydraulic valves provide superior implement control and enhanced machine performance in all applications. Continuously matching hydraulic flow/pressure to power demands creates less heat and reduces power consumption.

- Consistent, Predictable Movement – PPPC valves have different flow rates for the head (red) and rod ends (blue) of the cylinder, ensuring consistent extension and retraction speeds.
- Balanced Flow – Hydraulic flow is proportioned so all implements operate simultaneously with little effect on the engine or implement speeds.

Integrated Electronic Solutions

Advanced technology for optimized performance.



"Smart Machine" Integrates Core Systems

Sharing key data among systems optimizes machine performance.

- Cat Messenger, combined with full systems integration, enhances diagnostic capability. Machine system errors are displayed in both text and fault codes 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.
- Product Link streamlines diagnostics, reducing downtime, maintenance scheduling and costs by communicating vital machine data and location.
- Low Battery Elevated Idle raises idle speed when low system voltage is detected, ensuring adequate system voltage and improving battery reliability.

Automatic Blade Control

The AccuGrade™ System components and mounts are fully integrated into the machine, so system installation is quick and easy. Integral hydraulic and electrical components are standard on M Series 2 (Grade Control Ready).

- The optional Cat AccuGrade™ System automatically controls the blade, improving operator efficiency and productivity. AccuGrade technology reduces the need for traditional survey stakes or grade checkers, so you can reach grade faster and in fewer passes.
- The AccuGrade™ Attachment Ready Option provides additional mounting brackets, cab controls and electrical harnesses for easy installation of Cross Slope, Sonic, Laser, GPS or ATS electronics kits.

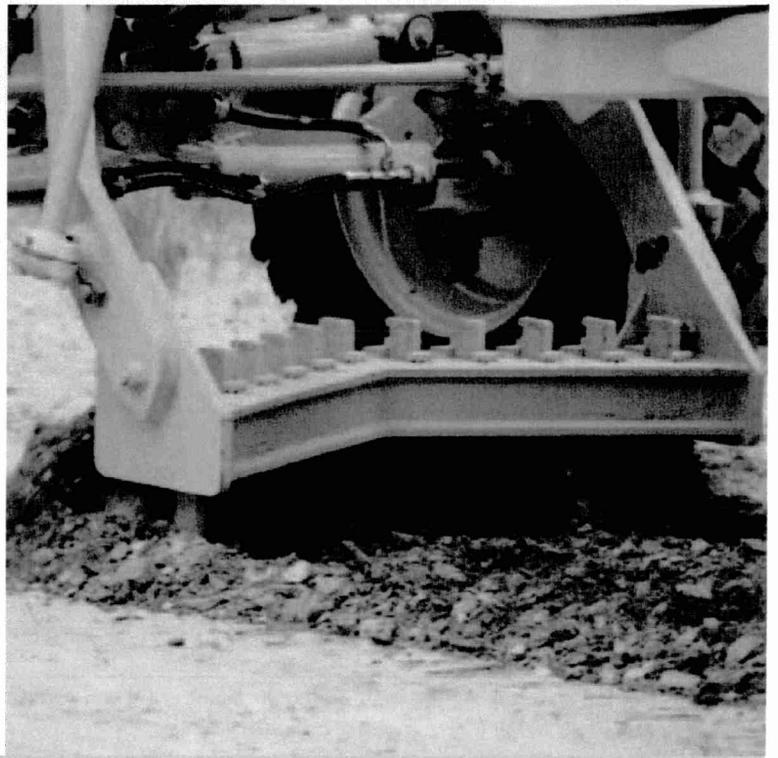
AccuGrade™ Attachment Ready Option

The AccuGrade System is fully integrated into the machine design, making installation quick and easy. Integral hydraulic and electrical components are standard on the M Series 2 (Grade Control Ready). The AccuGrade Attachment Ready Option provides additional mounting brackets, cab controls and electrical harnesses for easy installation of the Cross Slope, Sonic, Laser, GPS or ATS electronics kits.

Automatic Engine Deration

Protects the engine by automatically lowering engine torque output and alerting the operator if critical conditions are detected.





Work Tools and Attachments

Equip your machine for the job.

Moldboard Options

Standard 3.7 m (12 ft) or optional 4.3 m (14 ft). Left side extensions are also available.

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/counterweight 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

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

Safety

Protect your most valuable resource.



Designed with Protection in Mind

Features are designed to enhance operator and job site safety, such as optional HID lighting, drop-down rear lights and a rear view camera. Among many standard safety features are laminated glass, back-up lights, perforated tandem walkways and grab rails.

Operator Presence System

The parking brake remains engaged and hydraulic implements disabled until the operator is seated and the machine is ready for safe operation.

Secondary Steering System

Automatically engages an electric hydraulic pump in case of a drop in steering pressure, allowing the operator to steer the machine to a stop.

Hydraulic Lockout

A simple switch located in the cab disables all implement functions while still providing machine steering control. This 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, further increasing operational safety.

Circle Drive Slip Clutch

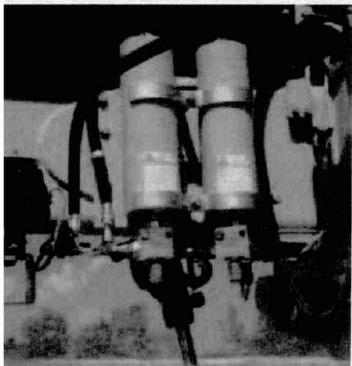
This standard feature protects the drawbar, circle and moldboard from shock loads when the blade encounters an immovable object. It also reduces the possibility of abrupt directional changes in poor traction conditions.

Blade Lift Accumulators

This optional feature uses accumulators to help absorb impact loads to the moldboard by allowing vertical blade travel. Blade lift accumulators reduce unnecessary wear and help to avoid unintended machine movement for increased operator safety.

Front and Rear Fenders (Optional)

To help reduce objects flying from the tires, as well as build-up of mud, snow and debris, optional fenders can be added.



Customer Support

Unparalleled worldwide support.

Renowned dealer service

From helping you choose the right machine to financing and ongoing support, your Cat dealer provides the best in sales and service.

Manage your costs with preventive maintenance programs like S•O•SSM analysis, Coolant Sampling and guaranteed maintenance contracts.

Stay productive with best-in-class parts availability. Your Cat dealer can even help boost your profits with operator training.

And when it's time for component replacement, your Cat dealer can help you save even more. Genuine Cat Remanufactured parts carry the same warranty and reliability as new products at savings of 40 to 70 percent for power train and hydraulic components.



Sustainability

Resourceful productivity.

Conserving Resources and Investments

Cat Motor Graders are designed to meet tougher emissions regulations, reduce customer costs and conserve natural resources. Integrated machine systems and technologies improve productivity for greater accuracy, lower fuel use and reduced machine wear. Extended service intervals reduce maintenance time/cost and waste. Ecology drains help protect against spills. Replaceable wear parts save maintenance time and cost, as well as extend major component life. Major structures and components are built to be rebuilt, reducing waste and replacement costs.



1. At right, ecology drains.

140M2/140M2 AWD Motor Grader Specifications

Engine

Engine Model	Cat® C9.3 ACERT™ VHP	
Base Power (1st gear) – Net	144 kW	193 hp
VHP range – Net	144-166 kW	193-223 hp
VHP Plus range – Net	144-181 kW	193-243 hp
AWD range – Net	151-196 kW	202-263 hp
Displacement	9.3 L	567.5 in ³
Bore	115 mm	4.5 in
Stroke	149 mm	5.9 in
Torque rise	50	
Max torque	1247 N·m	920 lb ft
Max torque, gears 4-8	1247 N·m	920 lb ft
Speed @ rated power	2,100 rpm	
Number of cylinders	6	
Derating altitude	3048 m	10,000 ft
Std – Fan speed		
Max	1,350 rpm	
Min	500 rpm	
Std – Ambient Capability	43° C	109° F
Hi Ambient – Fan speed		
Max	1,550 rpm	
Min	500 rpm	
Hi Ambient Capability	50° C	122° F
VHP – gear		
1F, Net	144 kW	193 hp
2F, Net	151 kW	202 hp
3F, Net	159 kW	213 hp
4-8F, Net	166 kW	223 hp
1R, Net	144 kW	193 hp
2R, Net	151 kW	202 hp
3-6R, Net	159 kW	213 hp

VHP Plus – gear

1F, Net	144 kW	193 hp
2F, Net	151 kW	202 hp
3F, Net	159 kW	213 hp
4F, Net	166 kW	223 hp
5F, Net	170 kW	228 hp
6F, Net	174 kW	233 hp
7F, Net	177 kW	237 hp
8F, Net	181 kW	243 hp

- Net power is tested per ISO 9249, SAE J1349, and EEC 80/1269 Standards in effect at the time of manufacture.
- VHP Plus is an optional attachment for the 140M2; standard for the 140M2 AWD.
- Net power advertised is the power available at rated speed of 2,100 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 3048 m (10,000 ft).

Power Train

Forward/Reverse Gears	8 Fwd/6 Rev
Transmission	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	60 L 15.85 gal
Standby Pressure	4200 kPa 609 psi

- Pump output measured at 2,150 rpm

Operating Specifications

Top Speed		
Fwd.	46.6 km/h	29 mph
Rev.	36.8 km/h	22.9 mph
Turning radius, outside front tires	7.76 m	25 ft 6 in
Steering range – left/right	50°	
Articulation angle – left/right	20°	
Fwd.		
1st	4.05 km/h	2.52 mph
2nd	5.5 km/h	3.42 mph
3rd	7.99 km/h	4.97 mph
4th	11.02 km/h	6.85 mph
5th	17.1 km/h	10.63 mph
6th	23.27 km/h	14.46 mph
7th	32.04 km/h	19.91 mph
8th	46.6 km/h	28.96 mph
Rev.		
1st	3.19 km/h	1.98 mph
2nd	5.98 km/h	3.72 mph
3rd	8.7 km/h	5.41 mph
4th	13.51 km/h	8.4 mph
5th	25.29 km/h	15.7 mph
6th	36.8 km/h	22.87 mph

Service Refill

Fuel Capacity	416 L	110 gal
Cooling system	56 L	14.8 gal
Hydraulic system		
Total	100 L	26.4 gal
Tank	64 L	16.9 gal
Engine Oil	30 L	7.9 gal
Trans./Diff./ Final Drives	65 L	17.2 gal
Tandem housing	64 L	16.9 gal
(each)		
Front wheel spindle bearing housing	0.5 L	0.13 gal
Circle drive housing	7 L	1.8 gal

Frame

Circle		
Diameter	1530 mm	60.2 in
Blade beam thickness	40 mm	1.6 in
Drawbar		
Height	152 mm	6 in
Width	76.2 mm	3 in
Thickness	12.7 mm	0.5 in
Front-top/bottom plate		
Width	300 mm	11.8 in
Thickness	16 mm	0.63 in
Front frame structure		
Height	304.8 mm	12 in
Width	304.8 mm	12 in
Thickness	15.9 mm	0.63 in
Front axle		
Height to center	600 mm	23.6 in
Wheel lean, left/right	18°	

Front axle – total
oscillation per side

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

Tandems

Height	506 mm	19.9 in
Width	210 mm	8.3 in
Sidewall thickness		
Inner	16 mm	0.63 in
Outer	18 mm	0.71 in
Drive chain pitch	50.8 mm	2 in
Wheel axle spacing	1522.8 mm	59.95 in
Tandem oscillation		
Front up	15°	
Front down	25°	

Moldboard

Blade width	3.7 m	12 ft
Moldboard		
Height	610 mm	24 in
Thickness	22 mm	0.87 in
Arc radius	413 mm	16.3 in
Throat clearance	166 mm	6.5 in
Cutting edge		
Width	152 mm	6 in
Thickness	16 mm	0.6 in
End Bit		
Width	152 mm	6 in
Thickness	16 mm	0.6 in
Blade Pull		
Base GVW	7142 kg	15,745 lb
Max GVW	9092 kg	20,044 lb
Down Pressure		
Base GVW	7222 kg	15,922 lb
Max GVW	10 380 kg	22,884 lb

Blade Range

Circle centershift		
Right	728 mm	28.7 in
Left	695 mm	27.4 in
Moldboard sideshift		
Right	660 mm	26 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	77.87 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 in
Shank holder spacing		
Min	533 mm	21 in
Max	533 mm	21 in
Penetration force	9440 kg	20,768 lb
Pryout force	12 552 kg	27,614.4 lb
Machine length increase, beam raised	1031 mm	40.6 in

140M2/140M2 AWD Motor Grader Specifications

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
-----------------------------------	--------	--------

Front, V-Type		
---------------	--	--

Scarifying depth, maximum	1031 mm	40.6 in
------------------------------	---------	---------

Scarifier shank holders	5/11	
----------------------------	------	--

Scarifier shank holder spacing	467 mm	18.4 in
-----------------------------------	--------	---------

Rear		
------	--	--

Working width	2133 mm	84 in
---------------	---------	-------

Ripping depth, maximum	426 mm	16.8 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	17 196 kg	37,911 lb
-------	-----------	-----------

Front axle	4211 kg	9,284 lb
------------	---------	----------

Rear axle	12 985 kg	28,627 lb
-----------	-----------	-----------

Gross Vehicle Weight – Max		
----------------------------	--	--

Total	22 583 kg	49,787 lb
-------	-----------	-----------

Front axle	6052 kg	13,343 lb
------------	---------	-----------

Rear axle	16 531 kg	36,444 lb
-----------	-----------	-----------

Operating Wt, typically equipped		
----------------------------------	--	--

Total	19 120 kg	42,152 lb
-------	-----------	-----------

Front axle	5124 kg	11,297 lb
------------	---------	-----------

Rear axle	13 996 kg	30,856 lb
-----------	-----------	-----------

- Base operating weight calculated on standard machine configuration with 14.00-24 10PR (G-2) tires, full fuel tank, coolant, lubricants and operator.

Weights – AWD

Gross Vehicle Weight – Max		
----------------------------	--	--

Total	22 583 kg	49,787 lb
-------	-----------	-----------

Front axle	6391 kg	14,090 lb
------------	---------	-----------

Rear axle	16 192 kg	35,697 lb
-----------	-----------	-----------

Operating Wt, typically equipped		
----------------------------------	--	--

Total	20 012 kg	44,119 lb
-------	-----------	-----------

Front axle	5663 kg	12,486 lb
------------	---------	-----------

Rear axle	14 349 kg	31,633 lb
-----------	-----------	-----------

Standards

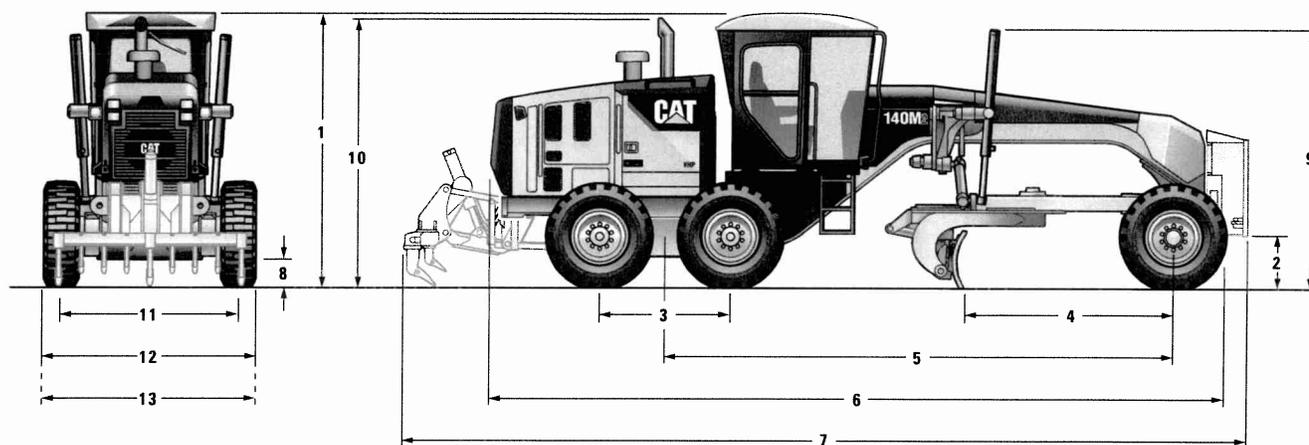
ROPS/FOPS	ISO 3471/ISO 3499
-----------	-------------------

Steering	ISO 5010
----------	----------

Brakes	ISO 3450, ISO 10265
--------	---------------------

Sound	ISO 6394; ISO 6395
-------	--------------------

Dimensions



1	Height – Top of Cab	3287 mm	129.4 in
2	Height – Front Axle Center	600 mm	23.6 in
3	Length – Between Tandem Axles	1523 mm	60 in
4	Length – Front Axle to Moldboard	2557 mm	100.7 in
5	Length – Front Axle to Mid Tandem	6126 mm	241 in
6	Length – Front Tire to Rear of Machine	8898 mm	350.3 in
7	Length – Counterweight to Ripper	10 140 mm	399.2 in
8	Ground Clearance at Rear Axle	344 mm	13.5 in
9	Height to Top of Cylinders	3043 mm	119.8 in
10	Height to Exhaust Stack	3242 mm	127.6 in
11	Width – Tire Center Lines	2141 mm	84.3 in
12	Width – Outside Rear Tires	2581 mm	101.6 in
13	Width – Outside Front Tires	2581 mm	101.6 in

Optional Tire Arrangements

Total machine width and changes in machine weight are shown for common tire options.

Wheel Group	Tires	Width – Outside Front Tires		Width – Outside Rear Tires		Tire Arrangement Weight	
10x24 MP	14.00R24 Bridgestone VUT 1 Star	2550 mm	100.4 in	2550 mm	100.4 in	303 kg	667 lb
10x24 MP	14.00R24 Michelin XGLA2 1 Star	2567 mm	101.1 in	2567 mm	101.1 in	327 kg	720 lb
10x24 MP	14.00R24 Michelin XSNO Plus 1 Star	2557 mm	100.7 in	2557 mm	100.7 in	425 kg	936 lb
10x24 MP	14.00R24 Bridgestone VKT 1 Star	2562 mm	100.9 in	2562 mm	100.9 in	520 kg	1,146 lb
14x25 MP	17.5R25 Michelin XHA 1 Star	2754 mm	108.4 in	2754 mm	108.4 in	628 kg	1,384 lb
14x25 MP	17.5R25 Bridgestone VKT 1 Star	2734 mm	107.6 in	2734 mm	107.6 in	695 kg	1,532 lb

- Based off the Standard Arrangement, AWD Arrangements will have between 44 mm (1.7 in) – 240 mm (9.4 in) additional width.
- For a complete list of tire options, contact your local Cat dealer.

140M2/140M2 AWD 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
Differential, lock/unlock
Drain, engine oil, ecology
Electronic over speed protection
Engine, C9.3 with ACERT Technology, Tier 4 Interim and EU Stage IIIB emissions regulations
Fuel tank, 416 L (110 gal), ground level access and sediment drain
Muffler, under hood
Parking brake – multi-disc, sealed, oil-cooled
Priming pump, fuel
Rear axle, modular
Sediment drain, fuel tank
Tandem drive
Transmission, 8F/6R, power shift, direct drive
VHP (Variable Horsepower)

ELECTRICAL

Alarm, back up
Alternator, 150 ampere, sealed
Batteries, maintenance free, heavy duty, 1,125 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 Ready
Starter, electric

OPERATOR ENVIRONMENT

Accelerator
Air conditioning with heater
Arm and wrist rest, adjustable
Articulation, automatic Return-to-Center
Ashtray and lighter
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
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 side and rear (3)

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 – $3658 \times 610 \times 22$ mm ($12 \text{ ft} \times 24 \text{ in} \times 7/8 \text{ in}$)
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
Tow hitch

140M2/140M2 AWD Optional Equipment

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

	kg	lb
ELECTRICAL		
Alternator, 250 ampere	2	5
Batteries:		
extreme duty, 1,400 CCA	14	30
Converter, communication (CB)	5	11
Lights:		
Headlights, high	5	11
Headlights, low	5	11
Working lights, basic	9	20
Working lights, plus	10	22
Warning: Beacon or Strobe	2	5
Mounting for Warning Light	5	11

GUARDS		
Fenders, Front	56	123
Fenders, Rear	34	75
Sound suppression (Bottom)	110	243
Sound suppression (Enclosure)	110	243
Transmission	141	311

OPERATOR ENVIRONMENT		
Anti-icing Glass	14	31
Fan, defroster, rear window	2	4
Mirrors, outside:		
heated 24V mounted	15	33
mounted	15	33
Precleaner, HVAC	5	10
Radio ready, AM/FM	9	20
Seat, air suspension, cloth	2	5
Shade, sun	2	5
Wiper/washer, rear	2	4

	kg	lb
POWER TRAIN		
All Wheel Drive	590	1,300
Differential Lock, Automatic	9	20
Engine, variable horsepower plus (VHP Plus)	0	0
Fuel tank, fast fill	14	31
Oil, Hydraulic, Biodegradable Synthetic	0	0
Precleaner, snow	2	4.4
Starter, Heavy Duty, 1,000 Amp	10	22
Transmission, autoshift	2	5

OTHER ATTACHMENTS		
AccuGrade ARO	39	85
Accumulators, blade lift	77	170
AutoLube, Lincoln	23	50
AutoLube, Lincoln, ripper enhancement	5	10
Camera, rearview	9	20
Cat Product Link 321SR	5	10
Compressor/tank, Air	23	50
Drain, ecology, engine Wiggins	2	5
Fenders, front, AWD	56	124
Fenders, rear	119	262
Heater, engine coolant:		
120V	1	3
220V	1	3
Hydraulic arrangements with one or more additional hydraulic valves are available for rear ripper, dozer, snow plow and snow wing.		
Ladder, cab, right side	7	15
Security system	2	5
Snow wing mounting, frame ready	91	200
Sound suppression	15	32
Starting aid, Ether	0.5	1

	kg	lb
WORK TOOLS/G.E.T.		
Blade extension, left hand, 610 mm (2 ft)	113	249
Cutting Edges, curved	43	95
Endbits, overlay	24	52
Front lift group, mounting	5	11
Front lift group, mechanical	680	1,500
Grader bit, narrow and super penetration	181	400
Mid-Mount Scarifier, Package	942	2,077
Mid-Mount Scarifier, Mounting	57	125
Moldboard		
4267 mm × 610 mm × 22 mm (14 ft × 24 in × 7/8 in)	100	220
4267 mm × 686 mm × 25 mm (14 ft × 27 in × 1 in)	257	567
Push plate, counterweight	885	1,951
Ripper, mounting	32	70
Ripper, rear	962	2,120
Ripper tooth	28	61
Scarifier, front	434	956
Snow Arrangement	161	355
Snow Wing Ready Package	114	355

MACHINE ARRANGEMENTS		
Canadian Arrangement	2	4
European Arrangement	289	637
European Rooding Arrangement	451	994

140M2/140M2 AWD Motor Graders

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com

© 2010 Caterpillar Inc.
All rights reserved

AEHQ6111 (08-2010)

Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

CAT, CATERPILLAR, SAFETY.CAT.COM, their respective logos, "Caterpillar Yellow" and the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

