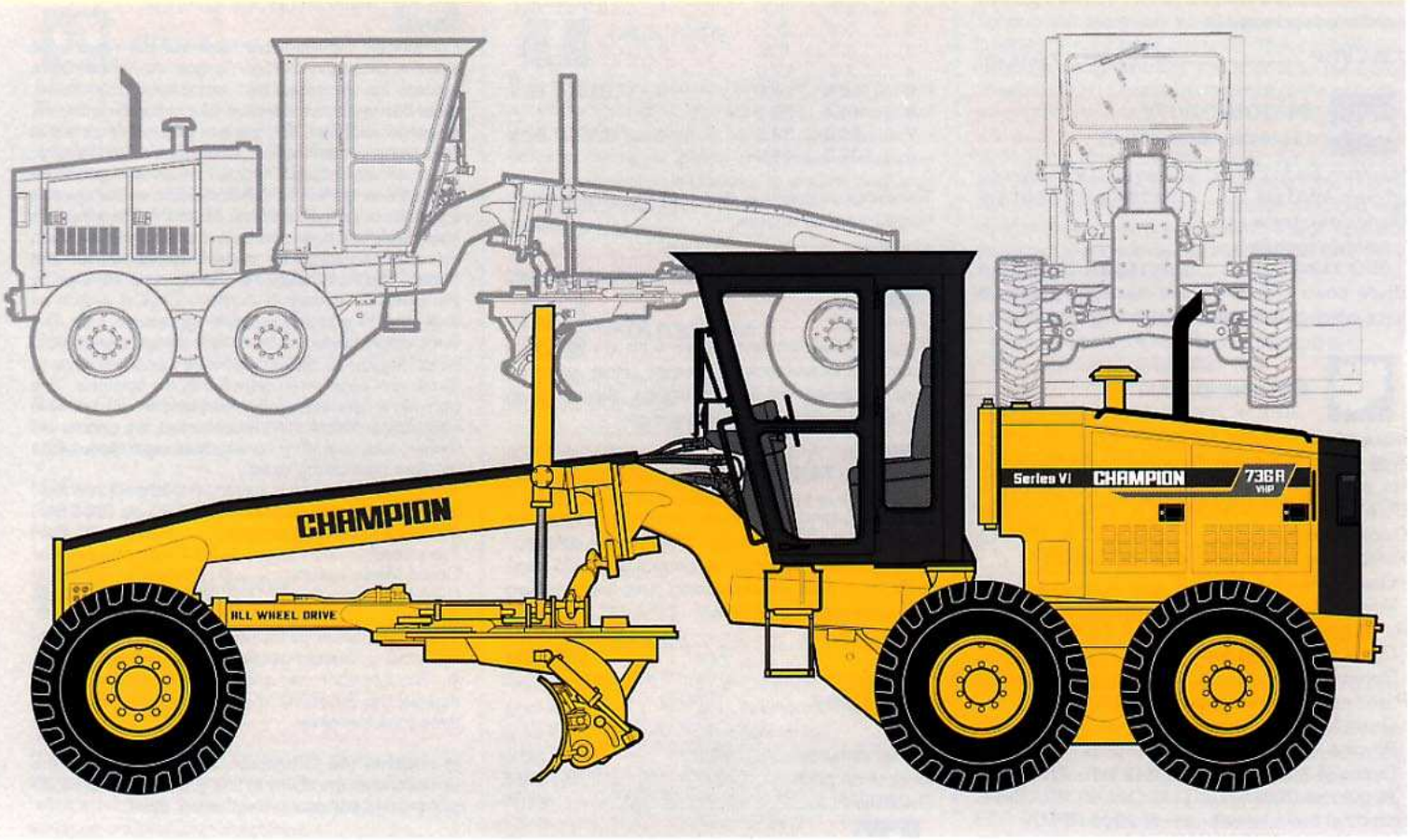
CHAMPION

Series VI

736A VHP

ALL WHEEL DRIVE MOTOR GRADER



KEY FEATURES:

- Low emission, high efficiency Cummins diesel engine
- 8400 fully sequential direct drive powershift transmission with "Smart Shifter" controller
- Choice of fully enclosed, quiet, comfortable ROPS cab in full height or low profile configurations, or ROPS canopy
- Moveable Blade Control System
- Load-sensing, closed center hydraulic system with fully-adjustable, low-effort, controls
- Full front and rear frame sections for all attachment applications

ALL WHEEL DRIVE:

- separate hydraulic pump & speed sensor for each front wheel
- variable aggression for job matching
- maintains aggression at both front wheels through turns
- creep feature allows hydrostatic drive at front wheels from 0-2.0 mph (0-3,2 km/h) for optimum finegrading
- wheel motor efficiencies maintained in both forward and reverse
- AWD available at speeds up to 20.2 mph (32,5 km/h)

MODEL	736A VHP	
	AWD off	AWD on
Configuration	Articulated Frame, All Wheel Drive	
Engine	Cummins 6C8.3	
Output (SAE J1349)	180 hp (134 kW) gears 1,2 200 hp (149 kW) gears 3-8	200 hp (149 kW) All Gears
Base weight	35,730 lb. (16 208 kg)	
Blade down pressure	19,113 lb. (8 670 kg)	
Blade pull	22,266 lb. (10 099 kg)	29,766 lb. (13 501 kg)

CHAMPION MOTOR GRADERS

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736A VHP - Specifications

BASE OPERATING WEIGHT (Standard Equipment)

Weights shown include full cab with ROPS, all operating fluids and operator.

736A VHP

Total ..... 35,730 lbs (16 208 kg)
On front wheels ..... 10,990 lbs (4 985 kg)
On rear wheels ..... 24,740 lbs (11 223 kg)

Typically equipped operating weight: includes 17.5 x 25, 12 pr., G2 tires on 14" (356 mm) rims and 14' x 29" x 1" (4 222 mm x 740 mm x 25 mm) moldboard and scarifier.

736A VHP ..... 38,762 lbs (17 584 kg)

PRODUCTIVITY (Standard Equipment)

Maximum blade pull (no wheel slip, 0.9 traction coefficient AWD on) ..... 29,766 lbs (13 501 kg)
Blade down pressure
- cutting capability
(ISO 7134) ..... 19,113 lbs (8 670 kg)

Blade down pressure is the maximum downward force which may be applied at the cutting edge.

ENGINE DATA

Make/Model ..... Cummins 6C8.3
Type ..... 4-Cycle, Turbocharged, Aftercooled
No. of cylinders ..... In Line 6
Bore & stroke ..... 4.49 x 5.32 in. (114 x 135 mm)
Displacement ..... 504.5 cu. in. (8,27 L)
Rated gross brake horsepower @ 2200 RPM
- Gears forward 1, 2 and
Reverse 1 ..... 193 hp (144 kW)
Rated gross brake horsepower @ 2200 RPM
- Gears forward 3-8 and
Reverse 2-4 ..... 215 hp (160 kW)
Rated net brake horsepower @ 2200 RPM
- Gears forward 1, 2 and
Reverse 1 ..... 180 hp (134 kW)
Torque @ 1500 RPM ..... 542 lb.ft (735 N.m)
Torque rise (Net) 24%
Rated net brake horsepower @ 2200 RPM
- Gears forward 3-8 and
Reverse 2-4 ..... 200 hp (149 kW)
Torque @ 1500 RPM ..... 711 lb.ft (964 N.m)
Torque Rise (Net) 53%

***All Wheel Drive Engaged**

Rated gross brake horsepower @ 2200 RPM
- All gears ..... 215 hp (160 kW)
Rated net brake horsepower @ 2200 RPM
- All gears ..... 200 hp (149 kW)
Torque @ 1500 RPM ..... 711 lb.ft (964 N.m)
Torque rise (Net) 53%

Engine equipped with a two stage, dual element, dry-type air cleaner with evacuator and dash-mounted service indicator. 24 volt starting and electrical system with 75 amp (1800 watt) brushless alternator with internal voltage regulator. Two heavy duty 12 volt maintenance-free batteries with 625 cold cranking amps (CCA) and 180 minutes reserve capacity per battery. 900 CCA batteries available optionally. System includes battery disconnect.

Performance: Rated net brake horsepower SAE standard J1349/ISO 3046-2 conditions with water pump, lubricating oil pump, fuel system, air cleaner, muffler, alternator, and cooling fan.

TRANSMISSION

Make/Model ..... Champion 8400
Fully sequential, direct drive, powershift transmission. Engine cannot be started if transmission is in gear. Single lever transmission controller provides electronic self-diagnostics. The flywheel mounted, multi-disc master clutch is oil-cooled for long life.

Ground speeds at 2200 RPM with standard tires:

Forward			Reverse		
Gears	mph	km/h	Gears	mph	km/h
1	2.7	4,3	1	2.7	4,3
2	3.8	6,1			
3	5.3	8,5	2	5.3	8,5
4	7.4	12,0			
5	10.4	16,7	3	10.4	16,7
6	14.4	23,2			
7	20.2	32,5	4	20.2	32,5
8	27.9	44,9			

Transmission guard is standard equipment and is hinged for easy access.

DIFFERENTIAL / FINAL DRIVE

Make/Model ..... Champion SR40
Single reduction final drive with an operator controlled lock/unlock differential. Rear axles are case hardened, full floating design, supported on double row spherical roller bearings.

TANDEMS

Oscillating tandem case has internal gusseting for maximum torsional strength. Field-proven split ring/flanged sleeve tandem mounting and 1" (25 mm) thick inner wall resists flexing from side loading during severe applications.

Depth		24.5"	(622 mm)
Width		8.25"	(210 mm)
Thickness	- inner wall	1.0"	(25 mm)
	- outer wall	0.75"	(19 mm)
Center distance		61.5"	(1 562 mm)
Drive chain pitch		2.0"	(51 mm)
Oscillation			±15°

BRAKES

Service Brakes: ..... Foot Operated
Fade resistant, hydraulically actuated, oil disc service brakes located at the four (4) tandem drive wheels are self-adjusting, fully sealed and maintenance-free. System features cross-over dual braking circuits for even braking on both sides of the grader. Includes reserve power assist and operator warning system (visual and audible).

Parking Brake: ..... Hand Operated
Independent, disc-type hand brake on transmission output shaft and effective on all four (4) tandem drive wheels. Includes visual and audible operator warning system for parking brake on, transmission in gear condition.

Braking systems to:
SAE Recommended Practice J1473 OCT. 90, and J1152 APR. 80; ISO 3450-1993-01-28. Champion uses asbestos-free brake components.

WHEELS & TIRES (Standard Equipment)

Tire size ..... 14.00 x 24, G-2
Ply rating (pr.) 12
Rim size ..... 10" (254 mm)
Bolt-on rims are not interchangeable between the front wheels and the tandem wheels

FRONT AXLE

Type ..... Fully welded steel truss, gusseted for torsional strength, oscillates on a single 3.5" (89 mm) diameter center pivot pin
Wheel lean ..... 15° R & L
Oscillation ..... 16° up and down
Ground clearance ..... 23.5" (597 mm)
Two 3" (76 mm) diameter wheel lean cylinders with lock valve are standard equipment.

ALL WHEEL DRIVE

Completely independent from the main hydraulic system, Champion's High Torque All Wheel Drive system incorporates two variable displacement, closed loop piston pumps, and a separate reservoir, oil cooler and filter. The system eliminates potential fluid cross-contamination. Champion's AWD design automatically adjusts hydraulic flow and pressure to the drive system to match tandem wheel speeds in all tractive conditions. Each front wheel is independently powered by a 2-speed motor. Each motor is controlled by its own speed sensor and pump. The All Wheel Drive System is controlled by the operator through a positive On/Off switch as well as a 15 position variable aggression dial. The front wheel speed sensors will always match front wheel speed to tandem wheels speed relative to the level of aggression selected by the operator. This provides optimum job matching in all tractive conditions. When AWD is selected, the engine will deliver maximum VHP horsepower regardless of the working gear being used.
Typical Operating pressure .... 3,000 psi (206 Bar)
Maximum Operating pressure5, 000 psi (344 Bar)
Minimum Operating pressure ..... 500 psi (34 Bar)
Top speed ..... 20.2 mph (32.5 km/h)
Creep Mode speed ..... 0 -2 mph (0 - 3.2 km/h)
Maximum Rimpull ..... 7, 500 lbs (3 402 kg)

The Champion High Torque All Wheel Drive system operates in forward gears 1-7 and reverse gears 1-4. The operator may shift from 7th AWD into 8th and back to 7th AWD at any time for maximum high speed performance.

In addition the Champion System provides the operator with the ability to fine grade in Creep Mode using only hydrostatic front wheel drive.

The Champion High Torque All Wheel Drive system offers infinite speed control below 2mph (3.2 km/h) for fine grading as well as a top speed of 20.2 mph (32,5 km/h) for snow plowing.

The AWD controller is integral with the electronic 8400 transmission controller, thereby supplying the same diagnostic features found in the Champion 8400 transmission.

The Champion AWD motors maintain maximum efficiency in both forward and reverse.

OPERATING MODES
(All Wheel Drive or Tandem Drive)

- On-Off Selection
- Creep Mode - Hydrostatic front wheel drive only for optimum control and manouverability while fine grading.
- Manual Mode - allows the operator to match front wheel agression setting to specific applications.

AWD FEATURES

- Maximum start-up torque
- Power maintained in either direction
- Smooth operation in low speeds
- Maintains front wheel agression in turns
- One speed sensor at each front wheel
- Hydrostatic Creep Mode feature

736A VHP - Specifications

STEERING

Hydraulic power front wheel steering incorporating two steering cylinders. Meets SAE J1511 OCT. 90 with optional supplemental steering.

Minimum turning radius using front axle steering, articulation, wheel lean and unlocked differential:
..... 24'4" (7 417 mm)
Steering arc ..... 72°
Frame articulation angle ..... 22°
Articulation lock standard.

FRAME

Full front and rear frame sections.
Front: Fully welded box section. Lowered nose plate on front frame provides excellent forward visibility.
Minimum dimensions of
box section ..... 10.5" x 14.0" (267 mm x 356 mm)
Plate thickness - top & bottom .. 1.25" (32 mm)
- sides ..... 1.0" (25 mm)
Vertical section modulus
..... at arch 163 cu.in. (2 676 cm.³)
..... min. 137.7 cu.in. (2 256 cm.³)
..... max. 283.9 cu.in. (4 652 cm³)
Linear weight - min-max
..... 148.7 - 244.2 lbs/ft (221.3 - 363.4 kg/m)

Rear: Full rear frame permits modular powertrain mounting for ease of service and simplifies attachment mounting.

Minimum dimensions of
rear frame ..... 4.0" x 11.0" (102 mm x 279 mm)
Plate thickness ..... 1.0" (25 mm)

ARTICULATION

Twin 5" (127 mm) hydraulic cylinders articulate frame 22° right and left. Anti-drift lock valve.

CIRCLE

Hardened teeth, cut on the outside of the circle for maximum leverage and minimum wear. Circle is fabricated from high tensile steel and running surfaces are precision machined.

The circle is held positively in place at six points by three adjustable clamp plates and three adjustable guide shoes, providing optimum circle support and load distribution. The primary set of clamps and guide shoes is located at the front of the circle where greatest loading occurs. DURAMIDE™-faced clamp and guide shoes prevent metal to metal contact. DURAMIDE™ is a synthetic bearing material that maximizes service life and reduces circle system maintenance requirements.
Diameter ..... 66.25" (1 683 mm)
Thickness ..... 1.25" (32 mm)
Adjustable guide shoes 3
Adjustable Clamp plates 3

CIRCLE DRIVE

Champion's dual cylinder circle drive system uses direct-acting hydraulic power for exceptional turning and holding capability under full load. The circle drive system uses hardened drive pinions and is fully protected against impact damage by an overload cushion valve as standard equipment.
Hydraulic drive cylinders 2
Points of leverage 2
Rotation ..... 360°

DRAWBAR

Fully welded box section. Narrow 'T' design permits optimum visibility to the work area. Drawbar ball stud provides an adjustment to compensate for different tire sizes. Blade lift cylinder anchors are straddle-mounted on drawbar to provide maximum strength and support.
Dimensions of box
section ..... 6.5" x 6.5" (165 mm x 165 mm)
Plate thickness .. 1.0" & 0.75" (25 mm & 19 mm)

MOLDBOARD

Standard moldboard with
replaceable end bits ..... 12' x 25" x 7/8"
..... (3 658 mm x 635 mm x 22 mm)
Blade material ..... SAE 1050 high carbon steel
Edge: through hardened ..... 6" x 5/8" boron steel
..... (152 mm x 16 mm)
Bolt spacing ..... 6" (152 mm)
- drill size ..... 5/8" (16 mm)
Slide rails supported with DURAMIDE™ bearings.

BLADE RANGE: MOVEABLE BLADE CONTROL SYSTEM

(Dimensions shown with standard moldboard)

	LEFT	RIGHT
Reach outside tires- articulated frame	120.0" (3 048 mm)	119.5" (3 035 mm)
Reach outside tires - straight frame	79.5" (2 019 mm)	79" (2 007 mm)
Blade slide	26.5" (673 mm)	26.5" (673 mm)
Circle side shift	30.5" (775 mm)	29.5" (749 mm)
Maximum bank sloping angle	90°	90°
Blade ground clearance	17.5" (445 mm)	
Blade cutting depth	32.0" (813 mm)	
Blade tilt range	44° forward	6.5° back

Superior blade mobility permits steep ditch cutting angles and back sloping without putting the front tire on the slope.

CAB & CONTROLS

All controls and guages are housed in a fully adjustable steering pedestal or right hand console. Located in the pedestal head are the engine oil pressure, coolant temperature and fuel level gauges, transmission gear indicator and a three-level electronic monitoring display. Pedestal located switches include: differential lock/unlock, independent moldboard floats (optional) and combination turn signal, hazard lights, and high beam headlight switch. Heater and wiper/washer controls, lighting and accessory switches are grouped in the operator's right hand console. This console also contains the ignition key and access to the circuit breaker panel. Located to the right of the operator, above the console, are the AWD On/Off switch, a 15 position variable aggression dial and the hydrostatic Creep On/Off switch. An accelerator/decelerator foot pedal and slider type hand throttle are standard equipment. Outside mounted rear view mirrors (L&R) are standard. Inside operator noise exposure is limited to 75dB(A) per SAE J919 JUNE 86 (enclosed cab).

CAB OPTIONS:
- High capacity heater/air conditioner c/w adjustable vents, temperature control and 3 speed fan.
- Fully adjustable, suspension seat
- Lower opening vent windows
- Rear windshield wipers and washers
- Lower front window wipers and washers
- Modular, 24 volt radio and cassette player with remote control
- Operator Convenience Package (lunch box, Thermos bottle, ashtray)
- 24 volt to 12 volt convertors for electrical accessories or two way radio installations

Full Height Cab with ROPS
INSIDE DIMENSIONS:
Height ..... 74.0" (1 880mm)
Width @ controls ..... 56.0" (1 422 mm)
Depth @ controls ..... 55.5" (1 410 mm)

An optional Low Profile Cab is available with an inside height of 62" (1 575 mm). All Champion cabs and canopies are designed to meet or exceed SAE J1040 APR. 88, ISO 3471/1-1986(E), and 86/295/EEC ROPS requirements. The seat belt is 3" (76 mm) wide and meets SAE J386 JUNE 93; ISO 6683-1981(E). A cushioned vinyl covered bucket seat with fore & aft and height adjustment is standard.

LOAD SENSING HYDRAULICS

Closed center hydraulic system senses load requirements and maintains system pressure 250 psi (17,25 Bar) above the load pressure.

When hydraulic pressure is not required, system pressure is only 90 psi (6,2 Bar).

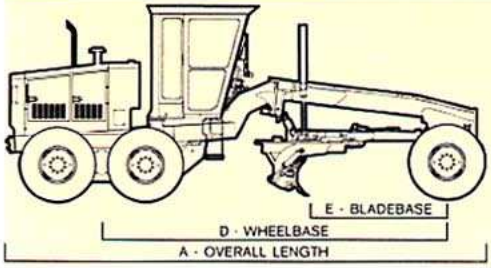
System features industry standard control arrangement c/w low effort feathering type, short throw levers located on a fully adjustable contol pedestal.

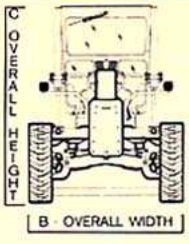
System incorporates lock valves to prevent cylinder drift under load in the following circuits: blade lift, moldboard tilt, circle shift, wheel lean, articulation and scarifier (optional). All hoses and fittings are equipped with o-ring seals.

Pump design features include cast iron end covers and center housing, and one-piece gear and shaft assembly to ensure reliability and long service life.

Maximum pressure ..... 2,500 psi (172 Bar)
Output at 2200 RPM ..... 0-50.5 gpm (0-191 lpm)
Filtration ..... 7 micron spin-on type

DIMENSIONS





A Overall length 27' 10" (8 484 mm)
B Overall width .... 8' 4" (2 540 mm)
C Overall height 11' 2" (3 404 mm)
- with Low Profile Cab ..... 10' 2" (3 099 mm)
D Wheelbase ..... 20' 0" (6 096 mm)
E Tread width .... 6' 10" (2 083 mm)
F Bladebase - ISO 7134 ..... 8' 6" (2 591 mm)

736A VHP - Specifications

STANDARD FEATURES

- Champion "High Torque" All Wheel Drive with hydrostatic Creep feature
- Operator controlled, lock/unlock differential final drive
- 4-wheel, cross-over, dual braking system with reserve power assist
- Hand-operated park brake with operator warning alarm and indicator
- Fully-sequential, direct drive, powershift 8400 transmission, with transmission guard
- 13.5" (343 mm) diameter, 4-plate, full oil master clutch
- Moveable blade control system for optimum blade mobility.
- Full front and rear frame sections designed to absorb shock loading of rear attachments
- Circle drive cushion valve protects circle drive against impact damage
- Hardened circle teeth cut on outside of circle for maximum turning power
- Hardened circle drive pinions for maximum wear resistance
- Isolation-mounted cab, transmission and engine for reduced noise and vibration
- Adjustable steering control pedestal with tilt head for maximum operator comfort
- Gauges include: coolant temperature, engine oil pressure, fuel, hourmeter, dash-mounted air cleaner service indicator, articulation angle indicator, three-level electronic monitoring system - M4 - with visual and audible warnings
- Load-sensing, closed-center hydraulic system with short-throw, low effort control levers. Hydraulically operated blade lift, circle turn, moldboard slide and tilt, circle shift and wheel lean functions.
- Feathering-type controls for precise blade adjustments
- 100 gallon fuel capacity
- DURAMIDE™ wear strips on circle guide and clamp plates prevent metal-to-metal contact for maximum service life.
- Hinged radiator guard for easy trash clean out.
- Back-up lights
- Back-up alarm with automatic volume levels
- Painted High Gloss Champion Yellow, and Grey
- Lockable tool box with storage space for scarifier shanks
- Engine side panels c/w locks

OPTIONAL EQUIPMENT

	lbs.	Kg
Accumulators - blade lift (2)	130	59
Air conditioner - 29,000 BTU -HFC-134a (non-CFC refrigerant)		
Brush guards	40	18
Cab		
- canopy shell with ROPS - deduct (200)		(91)
- FOPS protection for ROPS cabs	220	100
- low profile cab with ROPS - deduct(200)		(91)
Cab heater - 49,000 BTU - with cab pressurizer and replaceable filter	30	14
Defroster fan	3	1
Engine block heater	3	1
Engine precleaner - Turbo II	6	3
Exhaust aspirated precleaner	6	3
Ether cold start	10	4
Exhaust rain cap	-	-
Fan - blower type (suction type is standard)	0	0
First user lifetime frame warranty	0	0
Float control - Right and Left independent, electric	15	7
Hub odometer	0	0
Hydraulic manifold cover	10	4
Hydraulic tank heater	3	1
Jack - 20 ton (18.5 tonne)	35	16
24 volt radio/cassette player	6	3
Lights		
- beacon (amber or blue)	4	2
- clearance lights front & rear	2	1
- front-mounted plow lights - 2		
- high	120	54
- low	100	45
- Headlights with dimmer switch	0	0
- Moldboards lights - 2	2	1
- Rear flood lights - 2	2	1
- Snow wing lights - 2	2	1
Machine Monitor Plus package - M44	0	0
(Audible and visual warnings for transmission and hydraulic filter restriction, low engine oil pressure, high coolant temperature, high transmission temperature, and low transmission clutch pressure)		
Moldboards		
- 14' x 25" x 7/8" (4 267 mm x 635 mm x 22 mm)	280	127
- 12' x 29" x 1" (3 658 mm x 737 mm x 25 mm)	340	154
- 13' x 29" x 1" (3 962 mm x 737 mm x 25 mm)	490	222
- 14' x 29" x 1" (4 267 mm x 737 mm x 25 mm)	640	290
Moldboard extensions R & L - 2' (610 mm)	200	91
Moldboard edges -Carbide 3/4" x 5"	-	-
Operator convenience package - lunch box, steel vacuum bottle and holder, ash tray	10	5
Paint - custom colors	-	-
Radiator shutters - hinged	10	4

OPTIONAL EQUIPMENT (continued)

	lbs.	Kg
Reflectors - rear	-	-
Remote valve for attachments - 3 or 5 bank - remote mount	25	11
Supplemental steering (power assisted)meets SAE J53 OCT.84	61	28
Suspension seat	55	25
Tie-down brackets	100	45
Tires -17.5 x 25, 12 pr., G2, 14" (356 mm) rims	942	428
Tool kit	-	-
Transmission sump heater	-	-
Tropical protection	-	-
Vandalism protection	8	4
Wheel weights for rear wheels only - each	250	113
Window -opening - lower front	-	-
Window -opening sliders - left/right	-	-
Wiper and washer - front	-	-
Wiper and washer - rear	-	-
Wiper and washer - lower front windows	-	-

CHAMPION ATTACHMENTS

A-Frame		850 lbs.	(386 kg)
Dozer blade	- 8' (2 438 mm)	1,600 lbs.	(726 kg)
	- 9' (2 743 mm)	1,650 lbs.	(749 kg)
One-way plow		2,350 lbs.	(1 067 kg)
Push block		1,050 lbs.	(476 kg)
Ripper-scarifier, rear		2,680 lbs.	(1216 kg)
Scarifier, front, with 11 teeth		1,725 lbs.	(782 kg)
Snow wing	- front-mounted	2,900 lbs.	(1 317 kg)
	- rear-mounted	3,100 lbs.	(1 407 kg)
V-plow	- 9' (2 743 mm)	2,560 lbs.	(1 161 kg)
	- 10' (3 048 mm)	2,720 lbs.	(1 234 kg)
Fully Hydraulic Wing			
	- Hi-bench	4800 lbs.	(2 177 kg)
	- Low bench	4000 lbs.	(1 814 kg)

CAPACITIES

	U.S.Gal.	Imp.Gal.	Litres
Fuel tank	100.0	83.3	378.5
Transmission	10.2	8.5	38.8
Final drive	6.0	5.0	23.0
Tandems (ea.)	26.4	22.0	100.0
Hydraulic oil tank	23.8	19.8	90.0
Coolant antifreeze protection to -58° F (-50° C)	11.9	9.9	45.0
Engine oil	5.9	4.9	22.4
AWD hydraulic oil	20.0	17	76

CHAMPION MOTOR GRADERS

A Company within the Volvo Construction Equipment Group

Specifications subject to change without notice. Some items included in this brochure are optional.
™ DURAMIDE is a registered trademark of Champion Road Machinery Limited.
Your safety and the safety of those around you depends on using care and judgement when operating and servicing your grader. Do not operate the grader until you read and understand the warnings and instructions in the operator's manual.

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