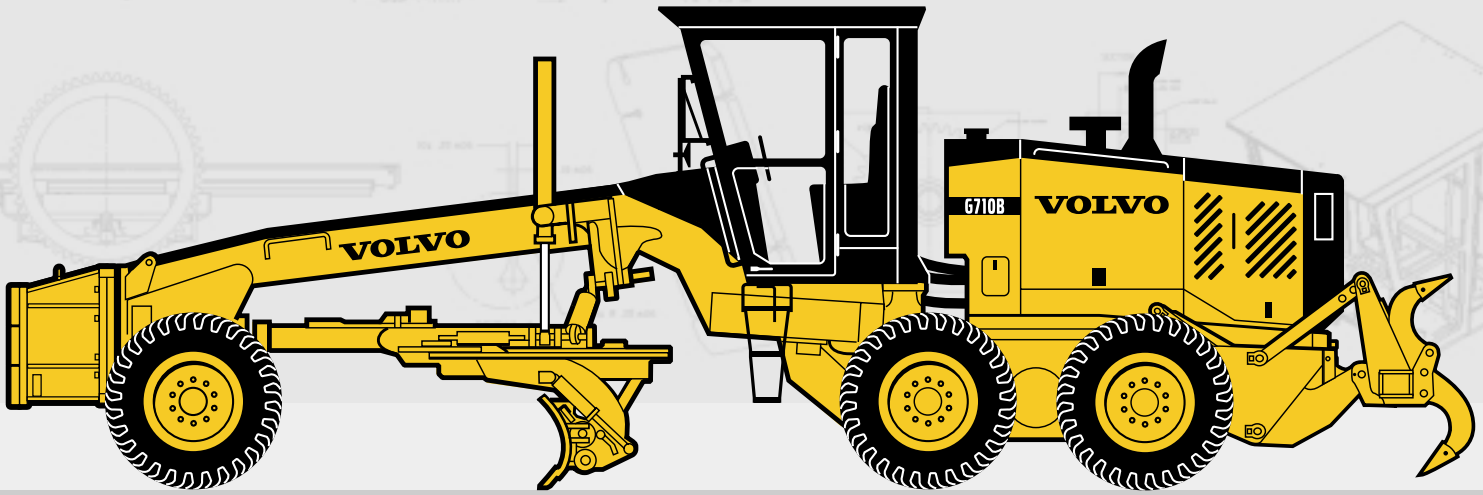
VOLVO MOTOR GRADER

G710B

AUSTRALIAN VERSION

TANDEM DRIVE



- **Configuration:** Articulated frame
- **Engine model:** Volvo D7DGAE2
- **Maximum net engine output @1900 RPM (per SAE J1349):** 110 - 133 kW **(148 - 179 hp)**
- **Base weight:** 17 400 kg **(38,360 lb)**
- **Blade down force:** 8 853 kg **(19,518 lb)**
- **Blade pull:** 11 112 kg **(24,496 lb)**

- 8400 fully sequential direct drive powershift transmission
- Fully enclosed, low profile ROPS cab with FOPS protection
- Moveable Blade Control System
- Load sensing, Closed Centre Hydraulic System
- Fully adjustable control pedestal with low effort hydraulic controls
- Full front and rear frame sections designed for attachment mounting
- Engine cooling module with efficient, variable speed, hydraulically driven cooling fan
- Single lever “Smart Shifter” transmission control with gear memory feature

- Hydraulically Boosted Dual Crossover Braking System with reserve power assist
- Heavy duty lock/unlock differential
- Contronic Monitoring System for all machine functions
- Full range of front and rear mounted attachments available
- Rear mounted ripper/scarifier and front push block standard equipment
- Equipped with the fuel efficient, long life Volvo engine that complies to the EPA Tier II, EU Stage II emission standards

VOLVO

Base operating weight (Australian standard)

Weights shown include low profile cab with ROPS/FOPS, all operating fluids and operator.

G710B

Total . . . . . 17 400 kg **(38,360 lb)**
On front wheels . . . . . 5 054 kg **(11,142 lb)**
On rear wheels. . . . . 12 346 kg **(27,218 lb)**

Australian equipped operating weight:

includes 14:00 x 24, 12 PR, G-2 tyres on 254 mm **(10")** 3 piece rims, 3 658 x 635 x 22 mm **(12' x 25" x 7/8")** moldboard, push block and rear ripper/scarifier.

Maximum weight capacity . . 20 865 kg **(46,000 lb)**
Maximum weight - front . . . . 6 622 kg **(14,600 lb)**
Maximum weight - rear. . . . 14 243 kg **(31,400 lb)**

Weight adjustments for various options are listed at rear of brochure.

Productivity (Standard equipment)

Blade pull at base operating weight (no wheel slip, 0.9 traction co-efficient) . . . . 11 112 kg **(24,496 lb)**
Blade down force
- cutting capability (ISO 7134) . . . . . 8 853 kg **(19,518 lb)**

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

Engine data

G710B

Make/Model . . . . . Volvo D7DGAE2
Type . . . . . 4 Cycle, Turbocharged, Aftercooled
No. of cylinders . . . . . In Line 6
Bore & stroke. . . . . 108 x 130 mm **(4.25" x 5.11")**
Displacement . . . . . 7,1 l **(436 cu in)**
Maximum net engine output @ 1900 RPM (per SAE J1349). . . . . 110-133 kW **(148-179 hp)**
Rated gross brake horsepower @ 2200 RPM
- Gears forward 1, 2 and Reverse 1 . . . . . 110 kW **(148 hp)**
- Gears forward 3-8 and Reverse 2-4 . . . . . 129 kW **(173 hp)**

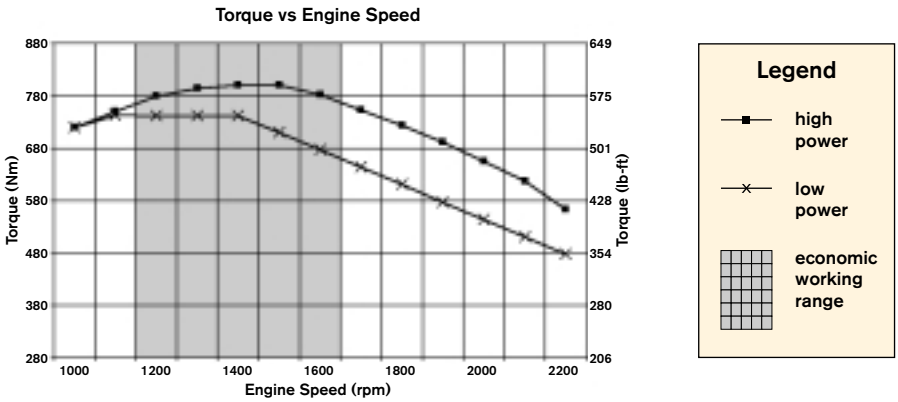
Rated net brake horsepower @ 2200 RPM
- Gears forward 1, 2 and Reverse 1 . . . . . 105 kW **(141 hp)**
  Torque @ 1100 RPM . . . . . 743 N.m **(548 lb.ft)**
  Torque rise 53.3%
- Gears forward 3-8 and Reverse 2-4 . . . . . 124 kW **(166 hp)**
  Torque @ 1400 RPM . . . . . 801 N.m **(591 lb.ft)**
  Torque rise 41.7%

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

Engine complies to EPA Tier II, EU Stage II exhaust emission standard.

Engine cooling system designed with singular cooler installations, and utilizes a highly efficient, variable speed, hydraulically driven cooling fan.

Engine performance curve



Engine data (continued)

Engine equipped with a two stage, dual element, dry type air cleaner with exhaust aspirator and service indicator. 24 volt starting and electrical system with 80 amp **(1920 watt)** alternator with internal voltage regulator. Two heavy duty 12 volt maintenance free batteries with 660 cold cranking amps (CCA) and 160 minutes reserve capacity per battery. 1300 CCA batteries available optionally. System includes battery disconnect.

Transmission

Make/Model . . . . . Volvo 8400

Fully sequential, direct drive, powershift transmission. Engine cannot be started if transmission is in gear. Single lever "Smart Shifter" electronic transmission controller provides self-diagnostics. The flywheel mounted, multi-disc master clutch is oil cooled and lubricated for long life.

Ground speeds at 2200 RPM with standard tyres (1400 x 24, 12 PR-G2):

Forward			Reverse		
Gears	km/h	mph	Gears	km/h	mph
1	4,0	2.5	1	4,0	2.5
2	5,6	3.5			
3	7,8	4.9	2	7,8	4.9
4	10,8	6.8			
5	15,3	9.6	3	15,3	9.6
6	21,4	13.4			
7	29,7	18.6	4	29,7	18.6
8	41,5	25.9			

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

Perma Lube U joints on the input/output drive shafts.

Differential / Final drive

Make/Model. . . . . Volvo SR30

Single reduction final drive with an operator controlled lock/unlock differential. Rear axles are induction hardened, supported on double row spherical roller bearings.

Tandems

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

Depth. . . . . 622 mm **(24.50")**
Width. . . . . 210 mm **(8.25")**
Thickness • inner wall . . . . . 25 mm **(1.00")**
• outer wall . . . . . 19 mm **(0.75")**
Centre distance . . . . . 1 562 mm **(61.50")**
Drive chain pitch . . . . . 44 mm **(1.75")**
Oscillation . . . . . ±15°

Brakes

Service Brakes: Foot operated

Fade resistant, hydraulically actuated, wet multiple disc service brakes located at the 4 tandem drive wheels are self-adjusting, fully sealed and maintenance free. System features crossover dual braking circuits for uniform braking on both sides of the grader. Includes reserve power assist and operator warning system (visual and audible).

Parking Brake

Spring applied hydraulic release independent, disc type parking brake on transmission output shaft and effective on all 4 tandem drive wheels. Includes visual and audible operator warning system for parking brake on, transmission in gear condition. Transmission will not engage with park brake on.

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

Wheels & tyres (Standard equipment)

Tyre size . . . . . 14:00 x 24, G-2
Ply rating (PR) 12
Rim size, 3 piece with rim locks . . . 254 mm **(10.0")**

Bolt-on rims are interchangeable front and rear.

Front axle

Type: Robotically welded steel truss, gusseted for torsional strength, oscillates on a single 80 mm **(3.15")** diameter centre pivot pin.

Wheel lean . . . . . 18° R & L
Oscillation . . . . . 16° up and down
Ground clearance at centre line . . . 610 mm **(24.0")**

Two 76 mm **(3")** diameter wheel lean cylinders and lock valve are standard equipment.

Steering

Hydrostatic power front wheel steering incorporating two steering cylinders. Meets SAE J1511 OCT. 90. Secondary steering assist is standard.

Minimum turning radius using front axle steering, articulation, wheel lean and unlocked differential . . . . . 7 772 mm **(25'6")**
Steering arc . . . . . 72°
Frame articulation angle . . . . . 22°

Articulation lock standard.

Frame

Full front and rear frame sections.

Front: Robotically welded box section. Dual sloped front frame provides excellent forward visibility.

Minimum dimensions of
box section . . . . . 267 x 356 mm **(10.5" x 14")**
Plate thickness. . . . . 19 mm **(0.75")**
Vertical section modulus
at arch. . . . . 1 950 cm^3 **(119 cu in)**
minimum. . . . . 1 663 cm^3 **(101.5 cu in)**
maximum. . . . . 3 474 cm^3 **(212 cu in)**
Linear weight - minimum-maximum . . . . . 159.4 - 346.0 kg/m **(107.1 - 232.5 lb/ft)**

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

Minimum dimensions of
rear frame. . . . . 102 x 254 mm **(4.0" x 10.0")**
Plate thickness . . . . . 9.5 mm **(0.375")**

Articulation

Twin 114 mm **(4.5")** hydraulic cylinders articulate the frame 22° right and left. Anti-drift lock valve ensures stable operation.

Circle

Hardened teeth, cut on the outside of the circle for maximum leverage and minimum wear.

The circle is supported at six points by three adjustable clamp plates and three adjustable guide shoes, providing optimum circle support and load distribution. DURAMIDE™ faced clamp and guide shoes prevent metal-to-metal contact and provide maximum service life.

DURAMIDE™ is a synthetic bearing material that maximizes service life and reduces circle system maintenance requirements.

Diameter. . . . . 1 683 mm **(66.25")**
Thickness. . . . . 32 mm **(1.25")**
Adjustable guide shoes. 3
Adjustable clamp plates 3

Circle drive

The Volvo 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 protected against impact damage by an overload relief valve as standard equipment.

Hydraulic drive cylinders 2
Points of leverage 2
Rotation . . . . . 360°

Drawbar

Robotically welded box section. Narrow "T" design permits optimum visibility to the work area. Drawbar ball stud provides an adjustment to compensate for different tyre sizes. Blade lift cylinder anchors are straddle mounted on drawbar to provide maximum strength and support.

Dimensions of
box section. . . . . 165 x 165 mm **(6.5" x 6.5")**
Plate thickness . . . . . 25 & 19 mm **(1.0" & 0.75")**

Moldboard

Standard moldboard with
replaceable end bits. . . . . 3 658 x 635 x 22 mm **(12' x 25" x 7/8")**
Blade material . . . . . SAE 1050 high carbon steel
Edge: through hardened. . . 152 x 16 mm boron steel **(6" x 5/8")**
Bolt spacing . . . . . 152 mm **(6")**
• bolt size . . . . . 16 mm **(5/8")**

Slide rails supported by DURAMIDE™ bearings.

Blade range: Moveable Blade Control System

(Dimensions shown with standard moldboard)

	LEFT	RIGHT
Reach outside tyres - articulated frame	3 035 mm **(119.5")**	3 061 mm **(120.5")**
Reach outside tyres - straight frame	2 019 mm **(79.5")**	2 045 mm **(80.5")**
Blade slide	673 mm **(26.5")**	673 mm **(26.5")**
Circle side shift	775 mm **(30.5")**	749 mm **(29.5")**
Maximum bank sloping angle	90°	90°
Blade ground clearance	445 mm **(17.5")**	
Blade cutting depth	800 mm **(31.5")**	
Blade tilt range	47° forward 5° back	

Superior blade mobility permits steep ditch cutting angles and back sloping outside overall machine width.

Cab & controls

Fully enclosed low profile ROPS/FOPS cabin is standard. All the controls are located in a 90° arc forward and to the right of the operator. Forward of the operator are the engine oil pressure, coolant temperature and fuel level gauges, transmission gear indicator and a multi-function Contronic monitoring display. Located in the fully adjustable steering pedestal are the following switches: differential lock/unlock, hazard lights, combination turn signal, horn and high beam headlight. 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 and fuse panel. An accelerator/decelerator foot pedal and slider type hand throttle are standard equipment. Outside mounted rear view mirrors (L&R) on breakaway brackets and a convex interior mirror are standard. Interior operator noise level does not exceed 75db(A) enclosed cab, when tested using AS 2012.2-1990/(ISO-6394) standards.

Cab standard equipment

- High capacity heater/air conditioner c/w adjustable vents, temperature control and variable speed fan
- Fully adjustable, suspension seat
- Rear windshield wipers and washers
- Lower front window wipers and washers
- Modular, 12 volt radio and cassette player
- Operator Convenience Package (lunch box, steel vacuum bottle, cup holder and ashtray)
- 25 AMP 24 volt to 12 volt convertor for electrical accessories or two way radio installations
- Bubble type slope meter
- Transmission and Hydraulic Filter restriction warning
- Low hydraulic oil level and temperature indicator
- Speedo/Odometer

Low profile cab with ROPS and FOPS
Inside dimensions

Height. . . . . 1 575 mm **(62.0")**
Width @ controls. . . . . 1 422 mm **(56.0")**
Depth @ controls. . . . . 1 410 mm **(55.5")**

An optional full height cab is available with an inside height of 1 880 mm **(74")**. All Volvo Grader 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 seatbelt is 76 mm **(3")** wide and meets SAE J386 JUNE 93; ISO 6683-1981(E).

Load sensing hydraulics

Closed Centre Hydraulic System senses load requirements and maintains system pressure 24 Bar **(350 psi)** above the load pressure.

System features industry standard control arrangement complete with low effort, feathering type short throw levers located on a fully adjustable steering pedestal.

System incorporates lock valves to prevent cylinder drift under load in the following circuits: blade lift, moldboard tilt, circle shift, wheel lean, circle turn and articulation.

Hydraulic system features include axial piston pump, pressure and flow compensated, variable displacement with high output for smooth multi-functioning.

The pump drive shaft is equipped with Perma Lube U joints.

Maximum pressure . . . . . 186 Bar **(2,700 psi)**
Output 2200 RPM . . . 0-284 lpm **(0-75 U.S. gpm)**
Filtration . . . . . 10 micron spin-on type

Capacities

	Litres	U.S.Gal.
Fuel tank	378.5	100.0
Transmission	38.0	10.0
Final drive	23.0	6.0
Tandems (each)	100.0	26.4
Hydraulic oil tank	134.0	35.4
Coolant antifreeze protection to -58° F (-50° C) approx.	28.0	7.4
Engine oil	32.0	8.45

Attachments

(Optional unless otherwise stated as standard equipment)

"A" Frame . . . . . 318 kg **(700 lb)**

Snow

Hydraulic Wing
- high bench . . . . . 2 177 kg **(4,800 lb)**
- low bench . . . . . 1 814 kg **(4,000 lb)**

One Way Snow Plow . . . . . 1 065 kg **(2,350 lb)**

"V" Snow Plow
- 2 743 mm **(9')** . . . . . 1 134 kg **(2,500 lb)**
- 3 042 mm **(10')** . . . . . 1 202 kg **(2,650 lb)**

Earth

Dozer Blade
- 2 438 mm **(8')** . . . . . 1 188 kg **(2,620 lb)**
- 2 743 mm **(9')** . . . . . 1 302 kg **(2,870 lb)**
- 3 048 mm **(10')** . . . . . 1 415 kg **(3,120 lb)**

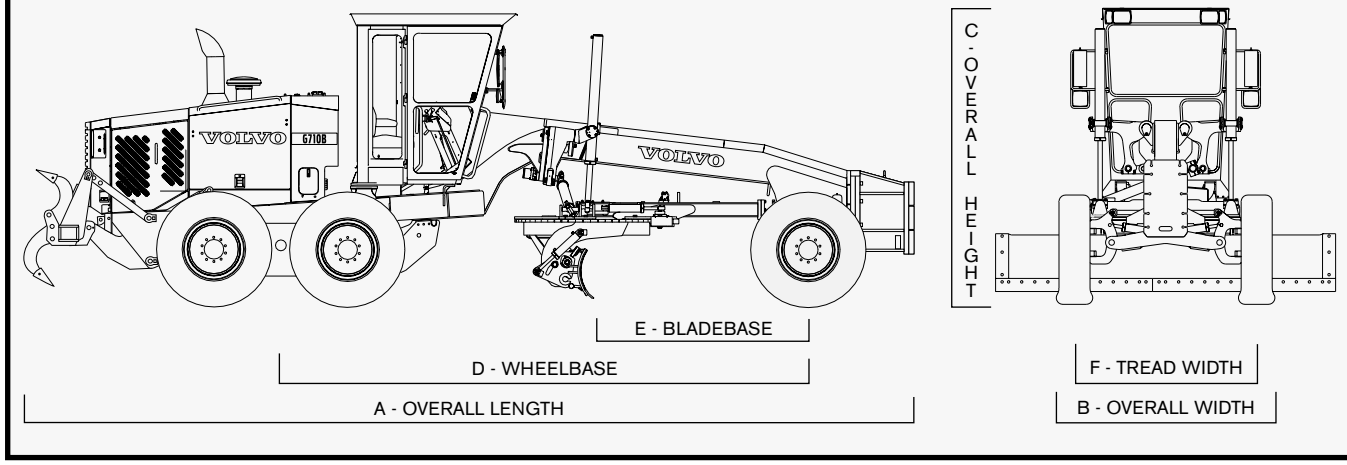
Front Mounted Scarifier . . . . . 807 kg **(1,780 lb)**
Mid-mount Scarifier . . . . . 782 kg **(1,725 lb)**
Push Block . . . . . 510 kg **(1,125 lb)** - Standard equipment
Ripper/Scarifier, rear . . . . . 1 306 kg **(2,880 lb)** - Standard equipment
Windrow Eliminator . . . . . 590 kg **(1,300 lb)**

Dimensions

A Overall length . . . . . 10 402 mm **(34'2")**
D Wheelbase . . . . . 6 096 mm **(20'0")**
E Bladebase
- ISO 7134 . . . . . 2 616 mm **(8'7")**

B Overall width . . . . . 2 540 mm **(8'4")**
C Overall cab height . . . . . 3 429 mm **(11'3")**
- with Low Profile Cab . . . . . 3 124 mm **(10'3")**

F Tread width . . . . . 2 083 mm **(6'10")**



AUSTRALIAN STANDARD FEATURES

Operator controlled, lock/unlock differential final drive

4 wheel, crossover, dual braking system with reserve power assist

Park brake with operator warning alarm and indicator

Fully sequential, direct drive, powershift 8400 transmission, with transmission guard

343 mm **(13.5")** diameter, 4 plate, full oil master clutch

Moveable Blade Control System for optimum blade mobility

Full front and rear frame sections designed to withstand shock loading of attachments

Circle drive relief valve protects circle drive against impact damage

Hardened circle teeth cut on outside of circle for maximum leverage and minimum wear

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, air cleaner service indicator, articulation angle indicator, multi-function Contronic Monitoring System with visual and audible warnings

Load sensing, Closed Centre Hydraulic System with short throw, low effort control levers. Hydraulically operated blade lift, circle turn, moldboard slide and tilt, circle shift, articulation, rear ripper/scarifier and wheel lean functions

Feathering type controls for precise blade adjustments

Deluxe, cloth covered, fully adjustable suspension seat

378.5 l **(100 U.S. gallon)** fuel tank capacity

Dual leaning wheel cylinders

DURAMIDE™ wear strips on circle clamp plates and guide shoes prevent metal-to-metal contact for maximum service life

Hinged cooling module door for easy trash clean out

Backup lights

Backup alarm with automatic volume levels

Painted high gloss Volvo yellow and grey

Lockable tool box with storage space for scarifier shanks

Engine side panels complete with locks

Left and right outside rear view mirrors with breakaway brackets

Interior rear view mirror

Exhaust aspirated air cleaner

Front cab wiper and washer

Air conditioner - 35,000 BTU
- HFC-134a (non-CFC refrigerant)

Low profile cab with ROPS and FOPS protection

Cab heater - 50,000 BTU
- with cab pressurizer and replaceable filter

Float control on Blade lift cylinders
- right and left detent style independent, electric

Hydraulic manifold cover

24 volt radio/cassette player

Lights
- Beacon
- Clearance lights front & rear
- Front mounted plow lights - 2
- Headlights with dimmer switch
- Moldboard lights - 2

Moldboards
- 3 658 x 635 x 22 mm **(12' x 25" x 7/8")**

Reflectors - side

Secondary steering (power assisted)

Tyres
- 14.00 x 24, 12 PR, G2 on 3 piece 254 mm **(10")** rims

Tool kit

Window - opening sliders - left/right

Wiper and washer - rear

Wiper and washer - lower front

Bubble type slope meter

Engine coolant filter

Pre-Cleaner - Turbo II Centrifugal type

Operator convenience package
- lunch box, steel vacuum bottle, cup holder and ashtray

Remote lube manifold (rear articulation cylinders pivots and tandem pivots)

Wheel Rim locks

Lockable fluid fill points

Front pusher block

Rear ripper/scarifier

1x Spare main hydraulic spool function

OPTIONAL EQUIPMENT

	kg	lb
Accumulators - blade lift (2)	55	122
Brush guards	18	40
Cab		
• canopy shell with ROPS - deduct	(284)	(625)
Defroster fans		
• Left front	1	3
• Right front	1	3
Engine block heater	1	3
Lights		
• Front mounted plow lights - 2		
• high mount	54	120
• Snow wing lights - 2	1	2

	kg	lb
Fenders		
• Front	36	80
• Rear	182	400
Moldboards		
• 4 267 x 635 x 22 mm **(14' x 25" x 7/8")**	109	240
Moldboard extensions R or L - 610 mm **(2')**	86	190
Moldboard edges - carbide 19 x 127 mm **(3/4" x 5")**	-	-
100 amp alternator	0	0
Paint - custom colors	-	-
Low ambient fluids	0	0

	kg	lb
Remote valve for attachments		
• 3 or 5 bank - remote mount	39	85
Sideshift accumulator	23	50
Tie down brackets	45	100
Tyres		
• 17.5 x 25, 12 PR, TL on 3 piece 356 mm **(14")** rims	479	1,056
Transmission sump heater	-	-
Vandalism protection	4	8
Wheel weights for front or rear - each	113	250
Window - opening - lower front	-	-

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. Volvo Motor Graders Limited is an ISO 9001 and 14001 registered company. www.volvo.com

Under our policy of continuous product development and improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine.

Consult your Volvo dealer for recommended option and attachment selection.

VOLVO

Construction Equipment

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