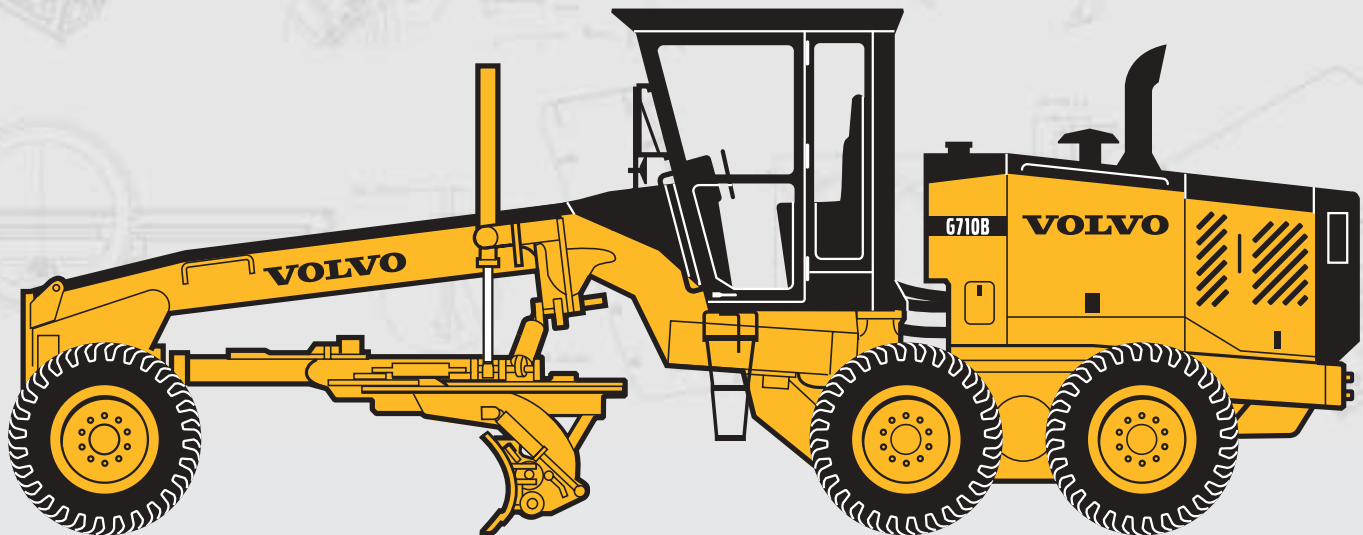


# VOLVO MOTOR GRADER G710B

## TANDEM DRIVE



- **Configuration:** Articulated frame
- **Engine model:** Volvo D7DGAE2
- **Maximum net engine output @1900 RPM (per SAE J1349):** 148 - 179 hp (110 - 133 kW)
- **Base weight:** 33,400 lb (15 150 kg)
- **Blade down force:** 16,968 lb (7 697 kg)
- **Blade pull:** 21,343 lb (9 681 kg)
- 8400 fully sequential direct drive powershift transmission
- Choice of fully enclosed, ROPS cab in full height or low profile configuration, or ROPS canopy
- Moveable Blade Control System
- Load sensing, Closed Center 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
- Equipped with the fuel efficient, long life Volvo engine that complies to the EPA Tier II, EU Stage II emission standards

# VOLVO



### Operating weight (Standard equipment)

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

#### Base

Total ..... 33,400 lb (15 150 kg)  
On front wheels ..... 9,686 lb (4 394 kg)  
On rear wheels ..... 23,714 lb (10 757 kg)

#### Typically equipped operating weight:

includes 14.00 x 24, 12 PR, G-2 tires on 10" (254 mm) rims and 14' x 25" x 7/8" (4 267 x 635 x 22 mm) moldboard and scarifier.

G710B ..... 35,650 lb (16 171 kg)

Maximum combined capacity ..... 46,000 lb (20 865 kg)

Maximum weight - front ..... 14,600 lb (6 622 kg)

Maximum weight - rear ..... 31,400 lb (14 243 kg)

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

Note that adding weight and attachments to the base grader may necessitate a tire upgrade since the maximum weight capacity of the tire may be exceeded.



### Productivity (Standard equipment)

Blade pull at base weight (no wheel slip, 0.9 traction co-efficient) ..... 21,343 lb (9 681 kg)

Blade down force

• cutting capability  
(ISO 7134) ..... 16, 968 lb (7 697 kg)

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 ..... 4.25" x 5.11" (108 x 130 mm)

Displacement ..... 436 cu in (7,1 l)

Maximum net engine output @ 1900 RPM

(per SAE J1349) ..... 148-179 hp (110-133 kW)

Rated gross brake horsepower @ 2200 RPM

• Gears forward 1, 2 and

Reverse 1 ..... 148 hp (110 kW)

• Gears forward 3-8 and

Reverse 2-4 ..... 173 hp (129 kW)

Rated net brake horsepower @ 2200 RPM

• Gears forward 1, 2 and

Reverse 1 ..... 141 hp (105 kW)

Torque @ 1100 RPM ..... 548 lb.ft (743 N.m)

Torque rise ..... 53.3%

• Gears forward 3-8 and

Reverse 2-4 ..... 166 hp (124 kW)

Torque @ 1400 RPM ..... 591 lb.ft (801 N.m)

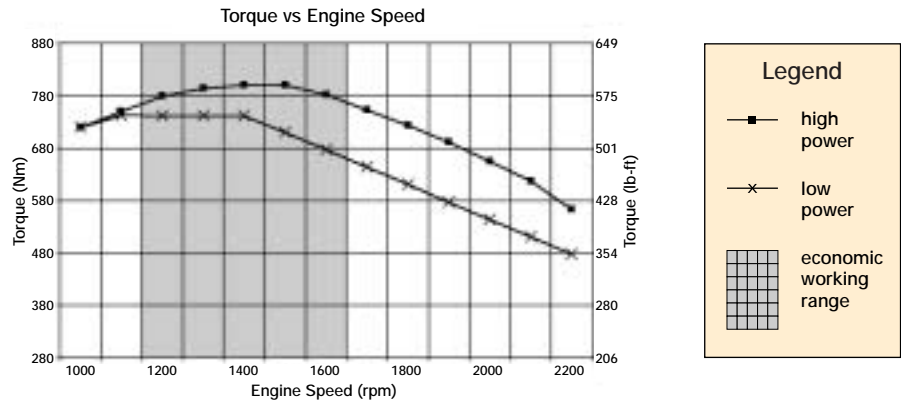
Torque rise ..... 41.7%

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 tires:

Forward	Reverse
Gears.....mph.....km/h	Gears.....mph.....km/h
1.....2.4.....3,8	1.....2.4.....3,8
2.....3.4.....5,4	
3.....4.6.....7,4	2.....4.6.....7,4
4.....6.5.....10,4	
5.....9.2.....14,7	3.....9.2.....14,7
6.....12.7.....20,5	
7.....17.8.....28,5	4.....17.8.....28,5
8.....24.9.....39,8	

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 with 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 ..... 24.50" (622 mm)

Width ..... 8.25" (210 mm)

Thickness • inner wall ..... 1.00" (25 mm)

• outer wall ..... 0.75" (19 mm)

Center distance ..... 61.50" (1 562 mm)

Drive chain pitch ..... 1.75" (44 mm)

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



 **Wheels & tires  
(Standard equipment)**

Tire size ..... 13.00 x 24, G-2  
 Ply rating (PR) ..... 12  
 Rim size ..... 9.0" (**229 mm**) One piece rim  
 Bolt-on rims are interchangeable between front and rear. Multiple piece rims available.

 **Front axle**

Type: Robotically welded steel truss, gusseted for torsional strength, oscillates on a single 3.15" (**80 mm**) diameter center pivot pin.  
 Wheel lean ..... 18° R & L  
 Oscillation ..... 16° up and down  
 Ground clearance ..... 23.5" (**597 mm**)  
 A single 4" (**102 mm**) diameter wheel lean cylinder with lock valve is standard equipment.  
 Two 3" (**76 mm**) diameter wheel lean cylinders with lock valve are available optionally.

 **Steering**

Hydrostatic power steering of front wheels incorporating two steering cylinders. Meets SAE J1511 OCT. 90 with optional secondary steering.  
 Minimum turning radius using front axle steering, articulation, wheel lean and unlocked differential ..... 25'5" (**7 747 mm**)  
 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 . . . . . 10.5" x 14" (**267 x 356 mm**)

Plate thickness . . . . . 0.75" (**19 mm**)

Vertical section modulus

at arch . . . . . 119 cu in (**1 950 cm<sup>3</sup>**)

minimum . . . . . 101.5 cu in (**1 663 cm<sup>3</sup>**)

maximum . . . . . 212 cu in (**3 474 cm<sup>3</sup>**)

Linear weight - minimum-maximum . . . . .  
107.1 - 232.5 lb/ft (**159.4 - 346.0 kg/m**)

Rear: Full perimeter rear frame permits modular powertrain mounting for ease of service and is ideal for attachment mounting. Optional first user lifetime warranty on frame and articulation joint.

Minimum dimensions of

rear frame . . . . . 4.0" x 10.0" (**102 x 254 mm**)

Plate thickness . . . . . 0.375" (**9.5 mm**)



## Articulation

Twin 4.5" (**114 mm**) 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.

Circle to drawbar support is provided at 9 points. Three upper circle wear plates, three adjustable clamp plates and three adjustable guide shoes combine to ensure optimum circle support and load distribution. DURAMIDE™ wear plates and bearings at the clamp and guide shoes prevent metal-to-metal contact and provide maximum service life.

DURAMIDE™ is a synthetic bearing material that provides long 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

Upper circle wear 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

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 x 165 mm**)

Plate thickness . . . . . 1.0" & 0.75" (**25 & 19 mm**)



## Moldboard

Standard moldboard with

replaceable end bits . . . . . 12" x 25" x 7/8"  
(**3 658 x 635 x 22 mm**)

Blade material . . . . . SAE 1050 high carbon steel

Edge: through hardened . . . . . 6" x 5/8" boron steel  
(**152 x 16 mm**)

Bolt spacing . . . . . 6" (**152 mm**)

• bolt size . . . . . 5/8" (**16 mm**)

Slide rails supported by DURAMIDE™ bearings.



## Blade range: Moveable Blade Control System

(Dimensions shown with standard moldboard)

### LEFT

### RIGHT

Reach outside tires - articulated

frame . . . . . 119.5" (**3 035 mm**) . . . . . 120.5" (**3 061 mm**)

Reach outside tires - straight

frame . . . . . 79.5" (**2 019 mm**) . . . . . 80.5" (**2 045 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 . . . . . 17.0" (**432 mm**)

Blade cutting depth . . . . . 32.0" (**813 mm**)

Blade tilt range . . . . . 47° forward 5° back

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



## Cab & controls



All controls are located in a 90° arc forward and to the right of the operator. Enclosed cab has a fully adjustable, cloth covered suspension seat as standard and comes with a 3" (**76 mm**) seat belt. Located 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 (if equipped), 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) and a convex interior mirror are standard. Interior operator noise levels average 75 dB(A) per ISO 6394 (enclosed cab).

### Cab options

- High capacity heater/air conditioner c/w adjustable vents, temperature control and variable speed fan
- Lower opening front windows
- Rear windshield wipers and washers
- Lower front window wipers and washers
- Modular, 24 volt radio and cassette player
- Operator Convenience Package included with air conditioner option (lunch box, steel vacuum bottle, cup holder and ashtray)
- 24 volt to 12 volt converter for electrical accessories or two way radio installations 25 or 60 amp available
- Bubble type slope meter
- Transmission and hydraulic filter restriction warning
- Low hydraulic oil and hydraulic oil temperature indicator
- Speedometer/odometer

### Full height cab with ROPS

#### Inside dimensions

Height . . . . . 74.0" (**1 880 mm**)

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 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 3" (**76 mm**) wide and meets SAE J386 JUNE 93; ISO 6683-1981(E).



### Load sensing hydraulics

Closed Center Hydraulic System senses load requirements and maintains system pressure 350 psi (**24 Bar**) 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 . . . . . 2,700 psi (**186 Bar**)  
Output 2200 RPM. . . . . 0-75 U.S. gpm (**0-284 lpm**)  
Filtration . . . . . 10 micron spin-on type



### Capacities

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



### Attachments

(Optional unless otherwise stated as standard equipment)

#### Snow

Hydraulic Wing	
• high bench . . . . .	4,800 lb (2 177 kg)
• low bench . . . . .	4,000 lb (1 814 kg)
One Way Snow Plow . . . . .	2,350 lb (1 065 kg)
"V" Snow Plow	
• 9' (2 743 mm) . . . . .	2,500 lb (1 134 kg)
• 10' (3 042 mm) . . . . .	2,650 lb (1 202 kg)

#### Earth

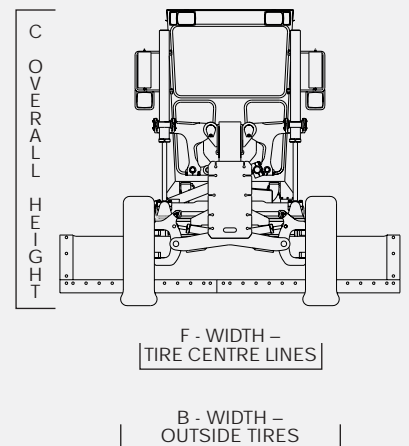
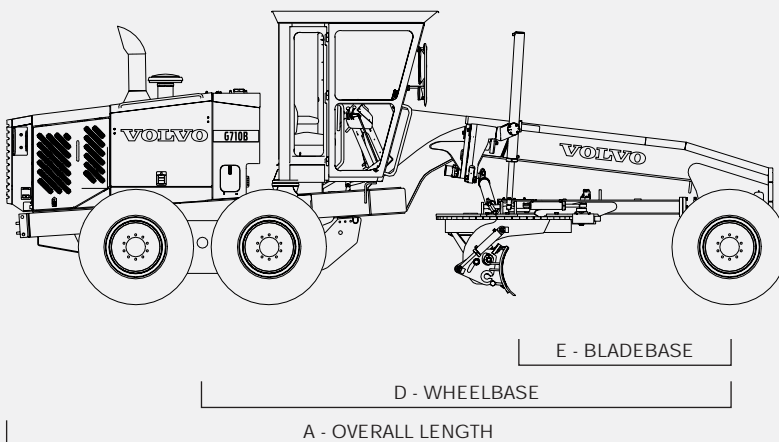
Dozer Blade	
• 8' (2 438 mm) . . . . .	2,620 lb (1 188 kg)
• 9' (2 743 mm) . . . . .	2,870 lb (1 302 kg)
Front Mounted Scarifier . . . . .	1,780 lb (807 kg)
Mid-mount Scarifier . . . . .	1,725 lb (782 kg)
Push Block . . . . .	1,125 lb (510 kg)
Ripper/Scarifier, rear . . . . .	2,880 lb (1 306 kg)

### Dimensions with standard equipment

All dimensions are approximate

- A Overall length . . . . . 29'10" (9 093 mm)
- D Wheelbase . . . . . 20'0" (6 096 mm)
- E Bladebase
- ISO 7134 . . . . . 8'7" (2 616 mm)

- B Overall width . . . . . 8'2" (2 489 mm)
- C Overall height . . . . . 11'1" (3 378 mm)
- with Low Profile Cab . . . . . 10'1" (3 073 mm)
- F Width – Tire centre lines . . . . . 6'10" (2 083 mm)



## STANDARD FEATURES

Operator controlled, lock/unlock differential final drive	Hardened circle drive pinions for maximum wear resistance	100 U.S. gallon <b>(378.5 l)</b> fuel tank capacity
4 wheel, crossover, dual braking system with reserve power assist	Isolation mounted cab, transmission and engine for reduced noise and vibration	DURAMIDE™ wear strips on circle clamp plates and guide shoes prevent metal-to-metal contact for maximum service life
Park brake with operator warning alarm and indicator	Adjustable steering control pedestal with tilt head for maximum operator comfort	Hinged cooling module doors for easy trash clean out
Fully sequential, direct drive, powershift 8400 transmission, with transmission guard	Gauges include: coolant temperature, engine oil pressure, fuel level, hourmeter, air cleaner service indicator, articulation angle indicator, multi-function Contronic Monitoring System with visual and audible warnings	Lights; backup, tail, stop and directional
13.5" <b>(343 mm)</b> diameter, 4 plate, oil cooled and lubricated master clutch	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, wheel lean functions and articulation	Backup alarm with automatic volume levels
Moveable Blade Control System for optimum blade mobility	Feathering type controls for precise blade adjustments	Painted high gloss Volvo yellow and gray
Full front and rear frame sections designed to withstand shock loading of attachments	Deluxe, cloth covered, fully adjustable suspension seat when grader is equipped with an enclosed cab	Lockable tool box with storage space for scarifier shanks
Circle drive counter-balance valve protects against impact damage		Engine side panels complete with locks
Hardened circle teeth cut on outside of circle for maximum leverage and minimum wear		Left and right outside rear view mirrors
		Interior rear view mirror
		Exhaust aspirated air cleaner
		Front cab wiper and washer standard when grader is equipped with an enclosed cab
		VHP - variable horsepower

## OPTIONAL EQUIPMENT

	lb	kg		lb	kg		lb	kg
Accumulators - blade lift (2) . . . . .	122	55	• Front mounted plow lights - 2			Second leaning wheel cylinder . . . . .	30	14
Accumulators - sideshift . . . . .	50	23	• high mount . . . . .	120	54	Secondary steering (power assisted) . . . . .	95	43
Air conditioner - 35,000 BTU			• low mount . . . . .	100	45	Tie down brackets . . . . .	100	45
• HFC-134a (non-CFC refrigerant) . . . . .	130	59	• Headlights with dimmer switch . . . . .	0	0	Tires		
Brush guards . . . . .	40	18	• Moldboards lights - 2 . . . . .	2	1	• 14.00 x 24, 12 PR, G-2,		
Cab			• Rear flood lights - 2 . . . . .	2	1	10" <b>(254 mm)</b> rims . . . . .	230	104
• Canopy shell with ROPS - deduct . . . (625) (284)			• Snow wing lights - 2 . . . . .	2	1	• 17.5 x 25, 12 PR, L-2,		
• FOPS protection for ROPS cabs . . . . .	220	100	Fenders			14" <b>(356 mm)</b> rims . . . . .	825	374
• Low Profile Cab			• Front . . . . .	80	36	• Consult your Volvo dealer for full		
with ROPS - deduct . . . . . (270) (122)			• Rear . . . . .	400	182	range of tire and wheel options		
Cab heater - 50,000 BTU with cab			Moldboards			Tool kit . . . . .	35	16
pressurizer and replaceable filter . . . . .	60	27	• 13' x 25" x 7/8"			Transmission sump heater . . . . .	-	-
Defroster fans . . . . .	3	1	<b>(3 962 x 635 x 22 mm)</b> . . . . .	110	50	Low ambient fluids . . . . .	-	-
Engine block heater . . . . .	3	1	• 14' x 25" x 7/8"			Vandalism protection . . . . .	8	4
Engine precleaner - Turbo II . . . . .	6	3	<b>(4 267 x 635 x 22 mm)</b> . . . . .	219	99	Wheel weights front or rear - each . . . . .	250	113
First user lifetime frame warranty . . . . .	0	0	Moldboard extensions			Window - opening - lower front . . . . .	-	-
Float control, right and left detent style			R or L - 2' <b>(610 mm)</b> . . . . .	190	86	Window - opening sliders - left/right . . . . .	-	-
independent . . . . .	15	7	Moldboard edges - carbide 3/4" x 5"			Wiper and washer - rear . . . . .	-	-
Front attachment float control, detent style,			<b>(19 x 127 mm)</b> . . . . .	-	-	Wiper and washer - lower front . . . . .	-	-
independent of other float valves . . . . .	15	7	100 amp alternator . . . . .	0	0	Rear tailgate guard . . . . .	200	90
Hydraulic tank heater . . . . .	3	1	Paint - custom colors . . . . .	-	-	Intermittent wipers, front and rear . . . . .	-	-
24 volt radio/cassette player . . . . .	6	3	Polar protection . . . . .	0	0			
Lights			Reflectors - side . . . . .	-	-			
• Beacon (amber or blue) . . . . .	10	4	Remote valve for attachments					
• Clearance lights front & rear . . . . .	2	1	• 3 or 5 bank . . . . .	85	39			

*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](http://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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