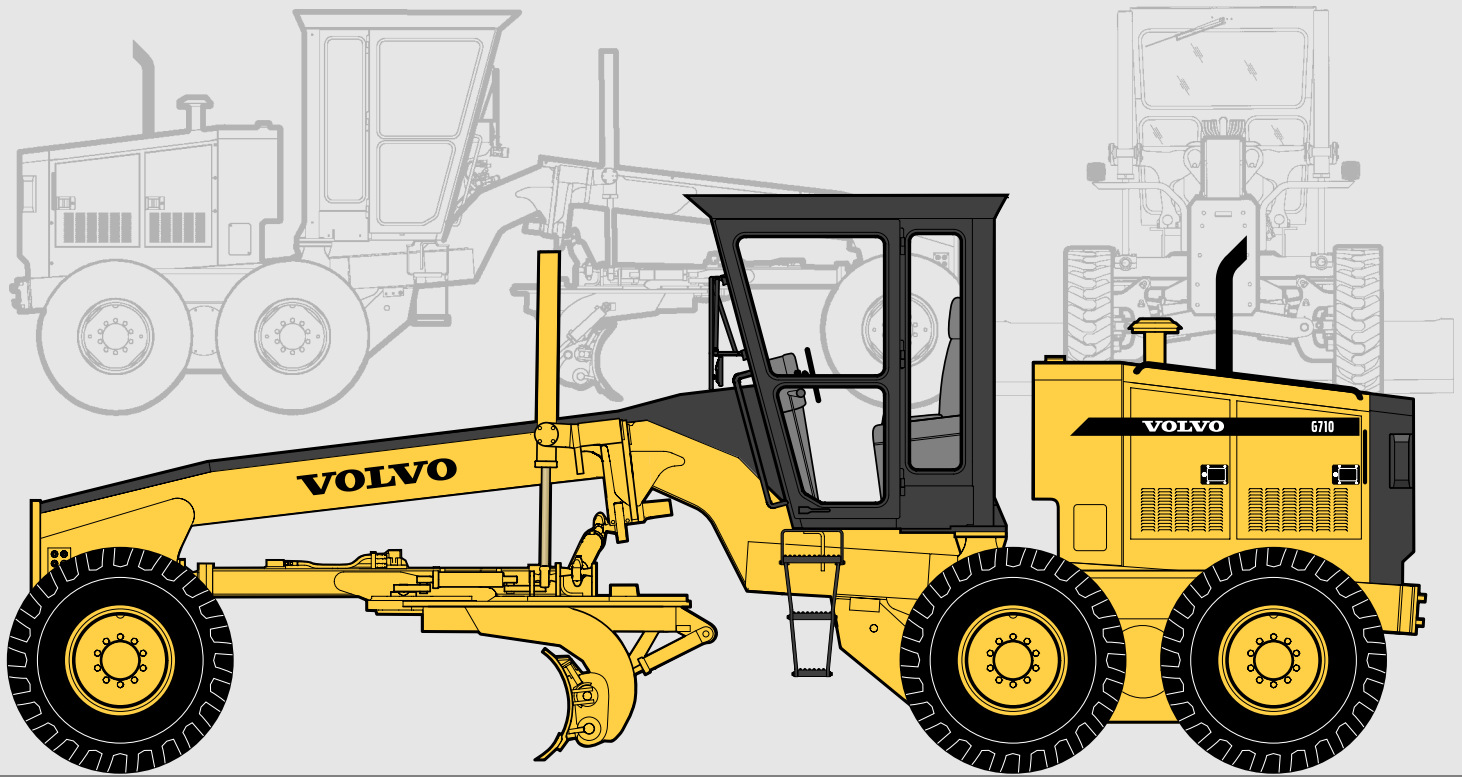


# VOLVO MOTOR GRADER G710 / G710 VHP

TANDEM DRIVE



## KEY FEATURES:

- 8400 fully sequential direct drive powershift transmission with 13.5" (343 mm) clutch
- Choice of fully enclosed, quiet, comfortable ROPS cab in full height or low profile configuration, or ROPS canopy
- Moveable Blade Control System
- Load sensing, closed center hydraulic system
- Fully adjustable, low effort controls
- Full front and rear frame sections for all attachment applications
- Single lever transmission control with "Smart Shifter" feature
- Hydraulically Boosted Dual Braking System with reserve power assist
- Heavy duty lock/unlock differential
- Three level electronic operator warning system
- 12' (3 658 mm) moldboard
- Full range of front and rear mounted attachments

MODEL	G710	G710 VHP
Configuration	Articulated Frame	Articulated Frame
Engine	Cummins 6B5.9	Cummins 6B5.9
Output (SAE J1349)	140 hp (104 kW)	135-160 hp (101-119 kW)
Base weight	30,630 lb (13 894 kg)	30,630 lb (13 894 kg)
Blade down pressure	16,494 lb (7 482 kg)	16,494 lb (7 482 kg)
Blade pull	19,109 lb (8 668 kg)	19,109 lb (8 668 kg)

**VOLVO**



## BASE OPERATING WEIGHT (Standard Equipment)

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

### G710 / G710 VHP

Total ..... 30,630 lb (13 894 kg)  
On front wheels ..... 9,400 lb (4 264 kg)  
On rear wheels ..... 21,230 lb (9 630 kg)

Weight adjustments for various options are listed.

**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 mm x 635 mm x 22 mm) moldboard.

**G710 / G710 VHP** ..... 31,360 lb (14 225 kg)



## PRODUCTIVITY (Standard Equipment)

Maximum blade pull (no wheel slip, 0.9 traction co-efficient) ..... 19,109 lb (8 668 kg)

Blade down pressure

- cutting capability

(ISO 7134) ..... 16,494 lb (7 482 kg)

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



## ENGINE DATA

### G710

Make/Model ..... Cummins 6B5.9

Type ..... 4 Cycle, Turbocharged

No. of cylinders ..... In Line 6

Bore & stroke ... 4.02" x 4.72" (102 mm x 120 mm)

Displacement ..... 359 cu in (5,9 L)

Rated gross brake horsepower

@ 2200 RPM ..... 148 hp (110 kW)

Rated net brake horsepower

@ 2200 RPM ..... 140 hp (104 kW)

Torque

@ 1600 RPM ..... 440 lb.ft (596 N.m)

Torque rise (Net) ..... 30.4%

### G710 VHP

Make/Model ..... Cummins 6B5.9

Type ..... 4 Cycle, Turbocharged, Aftercooled

No. of cylinders ..... In Line 6

Bore & stroke ... 4.02" x 4.72" (102 mm x 120 mm)

Displacement ..... 359 cu in (5,9 L)

Rated gross brake horsepower @ 2200 RPM

- Gears forward 1, 2 and

Reverse 1 ..... 149 hp (111 kW)

- Gears forward 3-8 and

Reverse 2-4 ..... 174 hp (130 kW)

Rated net brake horsepower @ 2200 RPM

- Gears forward 1, 2 and

Reverse 1 ..... 135 hp (101 kW)

Torque @ 1200 RPM ..... 422 lb.ft (572 N.m)

Torque rise (Net) ..... 34.5%

- Gears forward 3-8 and

Reverse 2-4 ..... 160 hp (119 kW)

Torque @ 1500 RPM ..... 590 lb.ft (800 N.m)

Torque rise (Net) ..... 49.6%

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 50 amp (1200 watt) 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, alternator and cooling fan.



## TRANSMISSION

Make/Model ..... Volvo 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 ..... 2.4 ..... 3.8 ..... 1 ..... 2.4 ..... 3.8

2 ..... 3.4 ..... 5.4 ..... 2 ..... 4.6 ..... 7.4

3 ..... 4.6 ..... 7.4 ..... 3 ..... 9.2 ..... 14.7

4 ..... 6.5 ..... 10.4 ..... 4 ..... 17.8 ..... 28.5

5 ..... 9.2 ..... 14.7

6 ..... 12.7 ..... 20.5

7 ..... 17.8 ..... 28.5

8 ..... 24.9 ..... 39.8

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



## DIFFERENTIAL / FINAL DRIVE

Make/Model ..... Volvo SR30

Single reduction final drive with an operator

controlled lock/unlock differential. Rear axles are

case hardened, 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 ..... 24.50" (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, oil disc service

brakes located at the 4 tandem wheels are

self-adjusting, fully sealed and maintenance free.

System features crossover 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 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. 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)

Bolt-on rims are interchangeable front and rear.



## 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 ..... 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

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 ..... 25'5" (7 747 mm)

Steering arc ..... 72°

Frame articulation angle ..... 22°

Articulation lock standard



## FRAME

Full front and rear frame sections

**Front:** Fully welded box section. Dual sloped front

frame provides excellent forward visibility.

Minimum dimensions of

box section ..... 10.5" x 14" (267 mm 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 rear frame permits modular powertrain

mounting for ease of service and simplifies

attachment mounting.

Minimum dimensions of

rear frame ..... 4.0" x 10.0" (102 mm 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



## CIRCLE

Hardened teeth, cut on the outside of the circle for

maximum leverage and minimum wear. Circle is

fabricated from high tensile steel and all running

surfaces are precision machined.

The circle is held 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 clamp 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

and provide maximum service life.

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

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 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)
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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)  
 - drilling size ..... 5/8" (16 mm) bolts  
 Slide rails supported by DURAMIDE™ bearings.



## BLADE RANGE: MOVEABLE BLADE CONTROL SYSTEM

(Dimensions shown with standard moldboard)

	LEFT	RIGHT
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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 .....	32.5" (826 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 and gauges are housed in the fully adjustable steering pedestal and 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. An accelerator/decelerator foot pedal and slider type hand throttle are standard equipment. Outside mounted rear view mirrors (L&R) are standard. Interior operator noise level ranges from 78 to 81 dB(A) per ISO 6394 (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, steel vacuum bottle and holder, ashtray)
- 24 volt to 12 volt convertor for electrical accessories or two way radio installations

### 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 2" (51 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.



## CAPACITIES

	U.S.Gal.	Imp.Gal.	Litres
Fuel tank .....	100.0	83.3	378.5
Transmission .....	10.0	8.4	38.0
Final drive .....	6.0	5.0	23.0
Tandems (each) .....	26.4	22.0	100.0
Hydraulic oil tank .....	23.8	19.8	90.0
Coolant antifreeze protection to -58° F (-50° C) approx ...	12.4	10.3	45.0
Engine oil .....	3.8	3.2	14.0



## 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 steering 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



## ATTACHMENTS

\*A\* Frame .....

700 lb (318 kg)
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### 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)

Snow Wing

- rear mounted .....	3,100 lb (1 406 kg)
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\*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) .....	1,600 lb (725 kg)
- 9' (2 743 mm) .....	1,650 lb (748 kg)
Push Block .....	1,125 lb (510 kg)

Ripper/Scarifier, rear .....

2,625 lb (1 190 kg)
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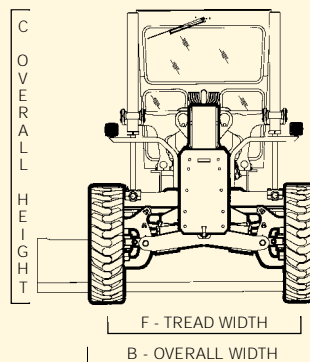
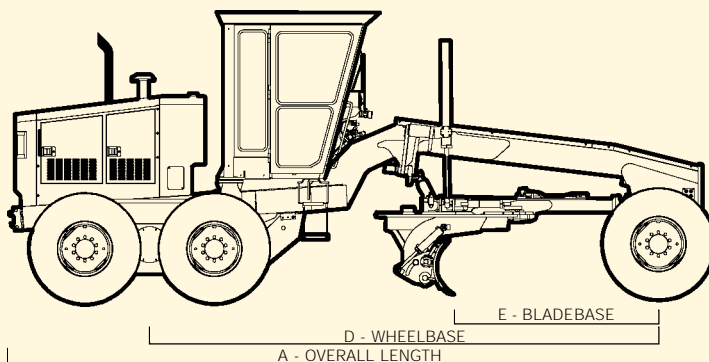
Scarifier with 11 teeth .....

1,725 lb (782 kg)
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Windrow Eliminator .....

1,300 lb (590 kg)
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## DIMENSIONS



A	Overall length .....	27'9" (8 458 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)
D	Wheelbase .....	20'0" (6 096 mm)
E	Bladebase	
	- ISO 7134 .....	8'7" (2 616 mm)
F	Tread width .....	6'10" (2 083 mm)

## STANDARD FEATURES

Operator controlled, lock/unlock differential final drive  
 4 wheel, crossover, 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  
 Backup lights  
 Backup alarm with automatic volume levels  
 Painted High Gloss Volvo Yellow and Gray  
 Lockable tool box with storage space for scarifier shanks  
 Engine side panels c/w locks  
 Left and right outside rear view mirrors

## OPTIONAL EQUIPMENT

	lb	Kg
Accumulators - blade lift (2) .....	130	59
Air conditioner - 29,000 BTU		
- HFC-134a (non-CFC refrigerant) .....	130	59
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 fans .....	3	1
Dual leaning wheel cylinder .....	25	11
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
Hydraulic manifold cover .....	10	4
Hydraulic tank heater .....	3	1
24 volt radio/cassette player .....	6	3
Lights		
- Beacon (amber or blue) .....	10	4
- Clearance lights front & rear .....	2	1
- Front mounted plow lights - 2		
- high mount .....	120	54
- low mount .....	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 system - M044 ..	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)		

## OPTIONAL EQUIPMENT (continued)

	lb	Kg
Moldboards		
- 14' x 25" x 7/8"		
(4 267 mm x 635 mm x 22 mm) .....	280	127
Moldboard extensions		
R & L - 2' (610 mm) .....	200	91
Moldboard edges - Carbide 3/4" x 5"		
(19 mm x 127 mm) .....	-	-
Operator convenience package		
- lunch box, steel vacuum bottle		
and holder, ashtray .....	10	5
Paint - custom colors .....	-	-
Polar protection .....	0	0
Radiator shutters - hinged .....	10	4
Reflectors - rear .....	-	-
Remote lube manifold for articulation		
cylinders .....	0	0
Remote valve for attachments		
- 3 or 5 bank .....	25	11
70 amp alternator .....	0	0
Sideshift accumulator .....	45	20
Supplemental steering (power		
assisted) meets SAE J53 OCT.84 .....	61	28
Suspension seat .....	55	25
Tie down brackets .....	100	45
Tires		
- 14:00 x 24, 12 PR, G-2,		
10" (254 mm) rims .....	450	204
- 17.5 x 25,12 PR, L-2,		
14" (356 mm) rims .....	1,032	468
Rim locks included with 3 piece rims...	0	0
Tool kit .....	-	-
Transmission sump heater .....	-	-
Tropical protection .....	-	-
Vandalism protection .....	8	4
Wheel weights front or rear - 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 .....	-	-

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# VOLVO

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