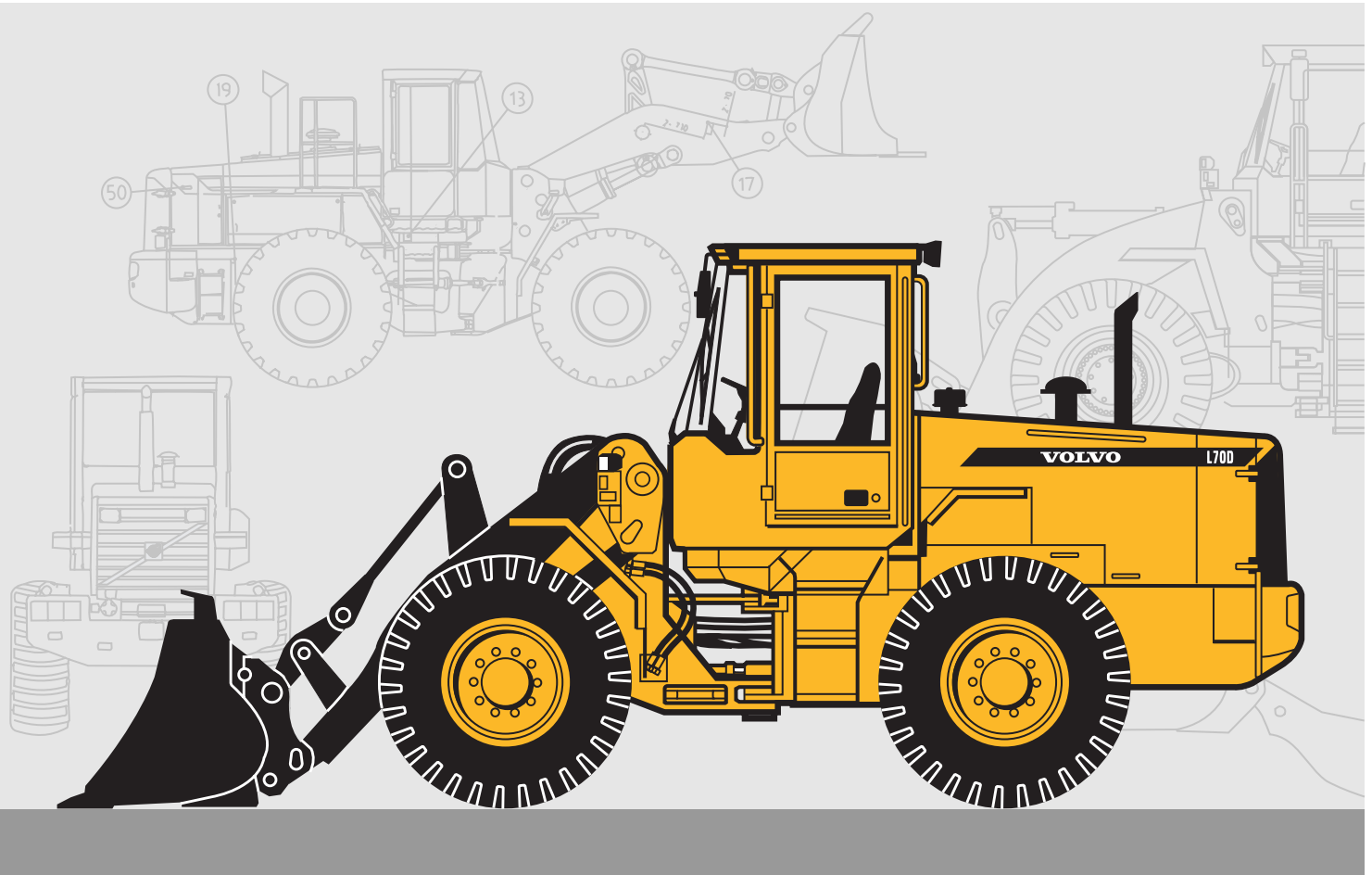


## VOLVO WHEEL LOADER

# L70D



- **Engine output SAE J1995:**  
gross 94 kW (128 hp)  
**ISO 9249, SAE J1349:**  
net 91 kW (124 hp)

- **Operating weight:** 10,9–12,2 t

- **Bucket volume:** 1,6–5,0 m<sup>3</sup>

- **Volvo transmission with APS II**
  - 2nd generation Automatic Power Shift with mode selector
  - optimises performance

- **Wet disc brakes**
  - fully sealed oil-circulation cooled, outboard mounted

- **Torque Parallel Linkage**
  - high breakout torque throughout the working range
  - excellent parallel lift-arm action

- **Care Cab II**
  - pressurized cab with high comfort and safety

- **Contronic II**
  - 2nd generation monitoring system

- **Load-sensing** working hydraulics and steering system
- Pilot-operated working hydraulics

#### **Optional equipment**

- Hydraulic attachment bracket
- Power take-off for hydraulically powered attachments
- Boom Suspension System

# VOLVO



## SERVICE

The Contronic II monitoring system provides information on machine condition, routine maintenance schedules and minimizes time required for troubleshooting.

**Service accessibility:** Large, easy-to-open engine access doors with gas struts. Swing-out radiator grille and radiator.

Fuel tank .....	190 l	Transmission .....	17 l
Engine coolant .....	40 l	Engine oil .....	16 l
Hydraulic tank .....	65 l	Axle front / rear .....	24/24 l



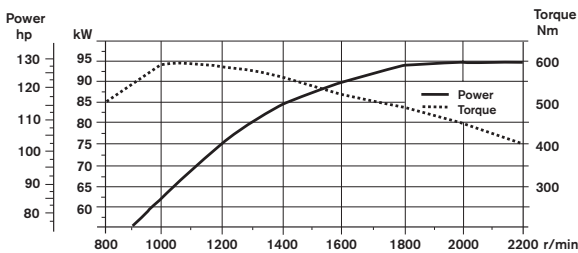
## ENGINE

The Volvo engine offers high torque and quick response at low rpm also under full load. The machine operates at low engine speeds, which contributes to good fuel economy, less noise, less wear and longer life.

**Engine:** High performance, low emission 6-cylinder, in-line, direct-injected, turbocharged, intercooled 4-stroke diesel engine with wet replaceable cylinder liners.

**Air cleaning:** three-stage.

Engine Volvo TD 63 KGE	
Max power at .....	35 r/s (2 000 r/min)
SAE J1995 gross .....	94 kW (128 hp)
ISO 9249, SAE J1349 net .....	91 kW (124 hp)
With optional Noise reduction	
kit EU2002 net .....	93 kW (126 hp)
Rated power at .....	36,6 r/s (2 200 r/min)
SAE J1995 gross .....	94 kW (128 hp)
ISO 9249, SAE J1349 net .....	89 kW (122 hp)
With optional Noise reduction	
kit EU 2002 net .....	92 kW (125hp)
Max. torque at .....	16,7 r/s (1 000 r/min)
SAE J1995 gross .....	595 Nm
ISO 9249, SAE J1349 net .....	590 Nm
Displacement .....	5,48 l



## ELECTRICAL SYSTEM

Contronic II monitoring system with increased function control. Electrical system with circuit boards, well protected by fuses. The system is pre-wired for installation of optional equipment.

**Central warning system:** Central warning light for the following functions, (buzzer with gear engaged: Engine oil pressure, transmission oil temperature, brake pressure, parking brake, steering system pressure, coolant temperature, transmission oil temperature, hydraulic oil temperature, overspeeding in engaged gear, computer malfunction.

Voltage .....	24 V
Batteries .....	2x12 V
Battery capacity .....	2x105 Ah
Cold cranking capacity, ea .....	690 A
Reserve capacity, ea .....	185 min
Alternator rating .....	1 680 W / 60 A
Starter-motor output .....	5,4 kW (7,3 hp)



## DRIVETRAIN

The drivetrain and working hydraulics are well-matched to each other and reliable design. Quick acceleration boosts productivity. Volvo system-compatible design facilitates servicing.

**Torque converter:** Single-stage

**Transmission:** Volvo Power Shift transmission of countershaft type with single-lever control. Fast and smooth forward/reverse shifting.

**Shifting system:** Volvo Automatic Power Shift (APS II) with mode selector.

**Axles:** Volvo, fully floating axle shafts with planetary-type hub reductions. Cast-steel axle housing. Fixed front axle and oscillating rear axle. 100 % differential lock on front axle (option).

Transmission .....	Volvo HT 90	
Torque multiplication .....	2,85:1	
Speeds, max forward/reverse .....	High	Low (option)
1 .....	7,0 km/h	1,9 km/h
2 .....	14,0 km/h	3,7 km/h
3 .....	26,0 km/h	7,3 km/h
4 .....	44,0 km/h	13,6 km/h
Measured with tires .....	20.5 R25* L2	
Front axle .....	Volvo / AWB 15	
Oscillation, rear axle .....	±13°	
Ground clearance at		
13° oscillation .....	420 mm	



## BRAKE SYSTEM

Simple, reliable system with few parts ensures high availability and safety. Self-adjusting internal oil circulation-cooled disc brakes give long service intervals.

**Service brakes:** Volvo, dual-circuit system with nitrogen-charged accumulators. Fully hydraulically operated enclosed internal oil circulation-cooled disc brakes. Transmission declutch during braking can be preselected by a switch on the instrument panel.











**Parking brake:** Mechanically operated drum brake on front axle input shaft.

**Secondary brake:** Either of the service brake circuits or the parking brake fulfills the safety requirements.

**Standards:** The brake system complies with the requirements of ISO 3450, SAE J1473

Number of discs/wheel .....	1
Number of accumulators .....	3
Volume, each .....	0,5 l






# OPERATIONAL DATA, VOLVO L70D

	GENERAL PURPOSE								LIGHT MATERIAL		
											
Tires 20.5 R25	Teeth	Teeth	Teeth	Teeth	Bolt-on edges	Bolt-on edges	Bolt-on edges	Bolt-on edges	Bolt-on edges	Bolt-on edges	
Volume, heaped ISO/SAE	m <sup>3</sup>	1,6	1,6	1,8	1,8	1,7	1,7	1,9	1,9	3,1	5,0
Volume at 110% fill factor	m <sup>3</sup>	1,8	1,8	2,0	2,0	1,9	1,9	2,1	2,1	3,4	5,5
Static tipping load, straight	kg	8340	7880	8250	7790	8160	7700	8070	7620	7310	7380
at 35° turn	kg	7490	7050	7400	6960	7310	6880	7230	6800	6500	6550
at full turn	kg	7240	6800	7150	6720	7060	6640	6980	6560	6270	6310
Breakout force	kN	97,6	88,1	91,2	82,9	92,5	84,0	86,9	79,4	61,4	53,2
A	mm	6950	7040	7010	7110	7050	7150	7120	7220	7570	7790
E	mm	840	940	910	1000	920	1020	990	1090	1420	1650
H *)	mm	3040	2970	2990	2920	2940	2870	2890	2820	2600	2450
L	mm	5010	5060	5070	5120	5010	5060	5070	5120	5280	5570
M *)	mm	900	980	950	1030	910	980	960	1030	1310	1490
N *)	mm	1560	1610	1590	1630	1520	1560	1540	1580	1610	1670
V	mm	2500	2500	2500	2500	2500	2500	2500	2500	2550	2650
a <sub>1</sub> clearance circle	mm	11070	11100	11100	11140	11100	11130	11130	11170	11410	11640
Operating weight	kg	10870	11110	10910	11150	10950	11190	10990	11230	11340	11620

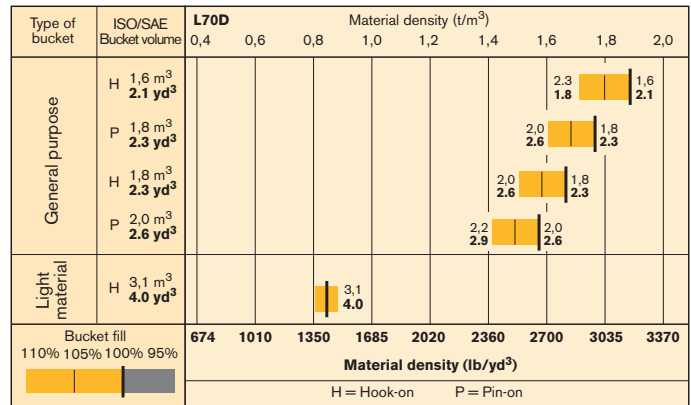
\*) at 45° tipping angle

## BUCKET SELECTION CHART

The choice of bucket is determined by the density of the material and the expected bucket fill factor. The TP Linkage uses a very open bucket design, has very good roll back in all positions plus fills the bucket very well. This means that the actual volume carried is often larger than the rated capacity of the bucket. Bucket fill factor in different materials and how they affect the actual bucket volume are shown below. **Example: Sand and gravel. Fill factor ~ 105%. Density 1,7 t/m<sup>3</sup>. Result: The 1,8 m<sup>3</sup> bucket carries 1,9 m<sup>3</sup>. For optimum stability always consult the bucket selection chart.**

Material	Bucket fill, %		Material density, t/m <sup>3</sup>	ISO/SAE bucket volume, m <sup>3</sup>	Actual volume, m <sup>3</sup>
Earth/Clay	~ 110		~ 1,8	1,6	~ 1,8
			~ 1,6	1,8	~ 2,0
			~ 1,4	2,0	~ 2,2
Sand/Gravel	~ 105		~ 1,9	1,6	~ 1,7
			~ 1,7	1,8	~ 1,9
			~ 1,5	2,0	~ 2,1
Aggregate	~ 100		~ 1,9	1,6	~ 1,6
			~ 1,7	1,8	~ 1,8
Rock	≤ 100		~ 1,6	2,0	~ 2,0
			~ 1,7	1,6	~ 1,6

The size of rock buckets is optimized for optimal penetration and filling capability rather than the density of the material.



## SUPPLEMENTAL OPERATING DATA

		Tires			Extended fenders
		17.5 R25* L2	600-26.5	555/70 R25	
Width over tires	mm	-90	+175	+ -0	-
Ground clearance	mm	-60	-65	-50	-
Tipping Load, full turn	kg	-190	-380	+110	+245
Operating weight	kg	-330	-510	+190	+200

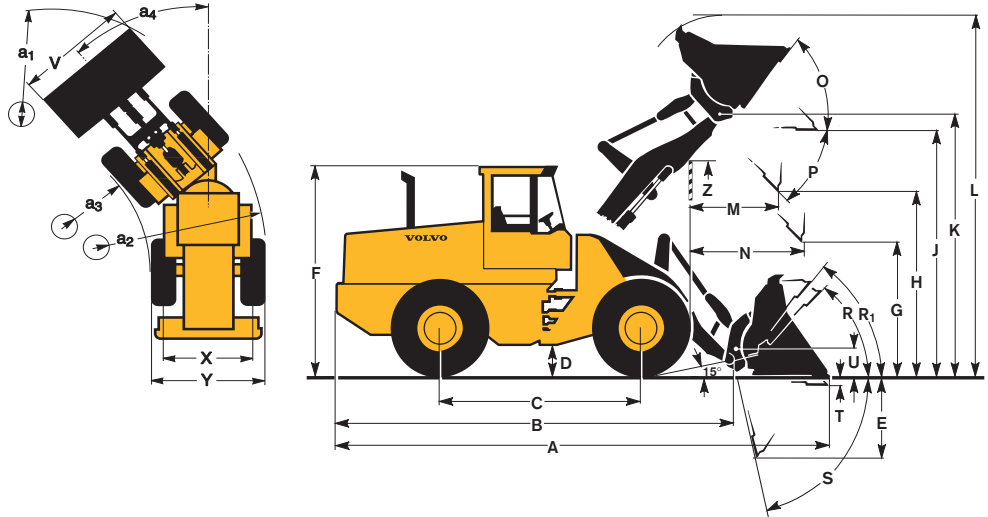
## OPERATIONAL DATA & DIMENSIONS

Tires: 20.5 R25\* L2

B	5 900 mm
C	2 840 mm
D	430 mm
F	3 210 mm
G	2 135 mm
J	3 580 mm
K	3 880 mm
O	56°
P	45°
R	44°
R <sub>1</sub> *	48°
S	78°
T	50 mm
U	440 mm
X	1 860 mm
Y	2 390 mm
Z	3 170 mm
a <sub>2</sub>	5 100 mm
a <sub>3</sub>	2 710 mm
a <sub>4</sub>	±40°

\* Carry position SAE

Where applicable, specifications and dimensions are in accordance with ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 5998, SAE J818, ISO 8313.

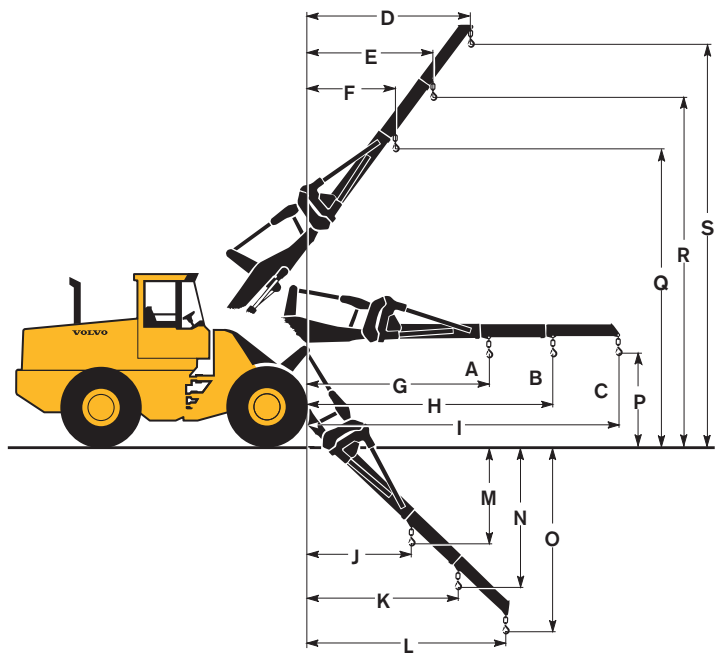


## MATERIAL HANDLING ARM (Hook on)

Tires: 20.5 R25\* L2

A	1 620 kg
B	1 280 kg
C	1 050 kg
D	2 510 mm
E	1 940 mm
F	1 410 mm
G	3 260 mm
H	4 300 mm
I	5 430 mm
J	1 020 mm
K	1 370 mm
L	1 760 mm
M	2 190 mm
N	3 170 mm
O	4 230 mm
P	1 500 mm
Q	5 320 mm
R	6 210 mm
S	7 190 mm

Order No: 92 007  
Operating weight: 10 840 kg



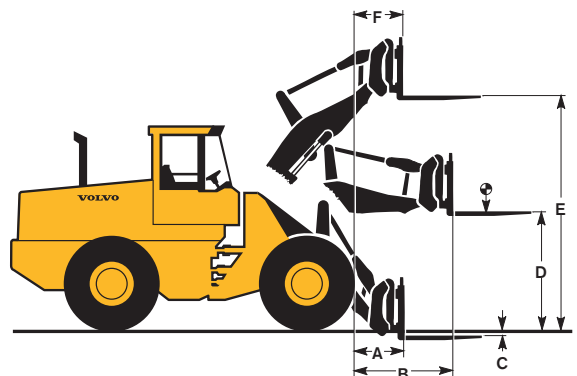
## PALLET FORK (Hook on)

Tires: 20.5 R25\* L2

A	840 mm
B	1 560 mm
C	-80 mm
D	1 830 mm
E	3 730 mm
F	670 mm

Fork tine order no. (R/L): 93 525/93 526  
Length: 1 200 mm  
Fork frame order no: 80 041  
Width: 1 500 mm  
Rated operating load\*: 4 100 kg  
at load center distance: 600 mm  
Operating weight: 10 910 kg

\* acc. std EN 474-3, firm and level ground





## STEERING SYSTEM

Easily operated steering results in fast work cycles. The power-efficient system results in good fuel economy, good directional stability and a smooth ride.

**Steering system:** Load-sensing hydrostatic articulated steering.

**System supply:** The steering system has priority feed from a load-sensing axial piston pump.

**Pump:** Double variable-flow axial piston pump.

**Steering cylinders:** Two double-acting cylinders.

Steering cylinders .....	2
Bore .....	63 mm
Piston rod diameter .....	40 mm
Stroke .....	370 mm
Relief pressure .....	21 MPa
Max. flow .....	80 l/min
Maximum articulation .....	±40°



## CAB

Care Cab II with wide door opening and comfortable instep. Inside of cab lined with noise-absorbent materials. Noise and vibration suppressing suspension. Good all-round visibility through large glass areas. Curved front windshield of green-tinted glass. Ergonomically positioned controls and instruments permit a comfortable operating position.

**Instrumentation:** All important information is centrally located in the operator's field of vision. Display for Contronic II monitoring system, in center console on dashboard.

**Heater and defroster:** Heater coil with filtered fresh air and fan with four speeds. Defroster vents for all window areas.

**Operator's seat:** Operator's seat with adjustable suspension and retractable seatbelt. The seat is mounted on a bracket on the rear cab wall. The forces from the retractable seatbelt are absorbed by the seat rails. Meets ISO/DIS 7096-1997.

**Standard:** The cab is tested and approved according to ROPS (ISO/CD 3471, SAE J1040), FOPS (ISO 3449, SAE J231). The cab meets with requirements according to ISO 6055 ("protective roof for high-lift vehicles") and SAE J386 ("Operator Restraint System").

Emergency exits .....	2
Sound level in cab ISO 6396 .....	71 dB (A)
External sound level	
According to ISO 6395 .....	LwA 106 dB (A)
According to EU 2002 requirements .....	LwA 104 dB (A)
According to Blue Angel .....	LwA 101 dB (A)
Ventilation .....	9 m <sup>3</sup> /min
Heating capacity .....	11 kW
Air conditioning (optional) .....	8 kW



## HYDRAULIC SYSTEM

The Load-sensing hydraulics distribute exactly the quantity of oil required for the function used. Load-sensing gives precise control of the hydraulics throughout the lifting range. High pump capacity provides quick movements.

**Pump:** The load-sensing double axial piston pump adjusts the oil requirements of the function used via indication through a load-sensing line. The flow is directed to the function used via a central valve block. Steering function always has priority.

**Valve:** Double-acting 2-spool valve. The control valve is actuated by a 2-spool pilot valve.

**Lift function:** The valve has four functions: raise, hold, lower and float. Inductive/magnetic automatic boom kickout can be switched on and off and is adjustable to any position between maximum reach and full lifting height.

**Tilt function:** The valve has three functions: rollback, hold and dump. Inductive/magnetic automatic bucket positioner, that can be switched on and off.

**Cylinders:** Double-acting cylinders for all functions.

**Filter:** Full-flow filtration through 20 µm (absolute) filter cartridge.

Axial piston pump	
Relief pressure .....	26,0 MPa
Flow .....	160l/min
at .....	10 MPa
and engine speed .....	36,7 r/s (2 200 r/min)
Pilot system	
Relief pressure .....	3,0 MPa
Cycle times	
Raise* .....	5,1 s
Dump* .....	1,3 s
Lower, empty .....	3,0 s
Total cycle time .....	9,4 s

\* with load as per ISO 5998 and SAE J818



## LIFT-ARM SYSTEM

The TP Linkage combines high breakout torque throughout the working range with nearly exact parallel lift-arm action. These features together with high lift height and long reach make the lift-arm system equally as good in bucket loading as in work with fork attachments and material handling arms.

Lift cylinder .....	2
Bore .....	100 mm
Piston rod diameter .....	70 mm
Stroke .....	734 mm
Tilt cylinder .....	1
Bore .....	150 mm
Piston rod diameter .....	80 mm
Stroke .....	440 mm

## STANDARD EQUIPMENT

### Engine

Low emission engine  
Volvo TD 63 KGE  
Air cleaner, dry type,  
dual element, exhaust aspirated  
precleaner  
Water separator  
Coolant level, sight gauge  
Muffler, spark arresting  
Engine intake manifold  
pre-heater  
Fan guard

### Electrical System

24 V – prewired for optional  
accessories  
Alternator, 24 V, 60 A  
Battery disconnect switch  
Fuel gauge  
Hourmeter  
Horn, electric  
Instrument panel with symbols  
Lights:  
• driving (2-Front), halogen  
with high/low beam  
• parking lights  
• stop/tail combination  
(2 rear)  
• turn signals with hazard  
warning switch  
• working lights, halogen  
(2 front/2 rear)  
• Instrument lighting

### Contronic II monitoring system

Contronic II ECU  
Contronic II display  
Shut down to idle at:  
• high engine coolant temp  
• low engine oil pressure  
• high transm. oil temp  
Neutral start interlock  
Brake performance test  
Test function for warning &  
indicator lights  
Warning & indicator lights:  
• engine oil pressure  
• engine coolant temperature  
• air cleaner restriction  
• alternator malfunction  
• working lights  
• high beam driving lights  
• direction indicator, hazard  
• transmission oil pressure  
• transmission oil temperature  
• brake system pressure  
• parking brake applied  
• hydraulic oil level  
• low fuel level

### Drivetrain

Transmission: modulated with single  
lever control, Automatic Power  
Shift and operator controlled  
deutch  
Forward and reverse switch  
Tires 20.5-25\*L2

### Brake System

Wet, internal oil circulation cooled  
disc brakes, 4-wheel, dual circuit  
brake system  
Secondary brake system,  
accumulator supplied  
Parking brake alarm

### Cab

ROPS (SAE J1040CC) (ISO 3471),  
FOPS (SAE J 231) (ISO 3449).  
Acoustical lining  
Ashtray  
Cigarette lighter  
Door lockable (left side access)  
Heater/defroster/pressurizer  
11 kW 37500 Btu/h with four  
speed blower fan  
Filtered air  
Floor mat  
Interior light  
Interior rearview mirror (2)  
Openable window, right-hand side  
Safety glass, tinted  
Retractable seat belt (SAE J386)  
Speedometer (in Contronic II  
display)  
Adjustable hydraulic lever console  
Seat, ergonomically designed, sus-  
pension adjustable  
Storage compartment  
Sun visor  
Windshield wiper, front and rear

Windshield washer, front & rear  
Intermittent wiper, front  
Cab access steps and handrails  
Exterior rear view mirrors, 2

### Hydraulic System

Main valve, 2-spool, pilot-operated  
Pilot valve, 2-spool  
Dual axial piston pump  
Hydraulic control lever safety latch  
Hydraulic pressure test ports, Quick  
connect  
Hydraulic fluid level, sight gauge  
Hydraulic oil cooler  
Bucket leveler, automatic with posi-  
tion indicator, adjustable  
Boom lever detent  
Boom kickout, automatic, adjustable  
Boom lowering system

### External Equipment

Isolation mounts: cab, engine, trans-  
mission  
Lifting lugs  
Side panels, engine hood  
Steering frame lock  
Vandalism lock, provision for:  
batteries, engine oil  
Towing hitch with pin

## OPTIONAL EQUIPMENT *(Standard in certain markets)*

### Service and maintenance

Tool box  
Tool kit  
Wheel nut wrench kit  
Automatic lubrication system  
Automatic lubrication system,  
for attachment bracket  
Refill pump for automatic  
lubrication system

### Engine

Cold starting aid, engine  
coolant pre-heater  
Coolant filter  
Pre-cleaner, oil bath type  
Pre-cleaner, turbo type  
Crankcase ventilation oil trap  
Fuel filter, extra large  
Fuel fill strainer  
Radiator/hydraulic oil cooler,  
corrosion protected

### Electrical system

Working lights front, extra  
Working lights rear, extra  
Rotating beacon, amber with  
collapsible mount  
Reverse alarm (SAE J994)  
Head lights assym. left  
Alternator 100 A  
Light, registration plate  
Side marker lights  
Alternator, brushless 50 A

### Drivetrain

Transmission, 8-speed  
100 % Differential lock, front axle  
100 % Differential lock, front axle  
and limited slip rear axle  
Limited slip differential, front and  
rear axle  
Speed limiter 20 km/h or 30km/h

### Cab

Installation kit for radio incl. power  
outlet 12V  
Hand throttle  
Sliding ventilation window, door  
Sliding window, right side  
Operator's seat, heated  
Air suspended operator's seat  
Armrest (left) for ISRI operators seat  
3 inch retractable seat belt  
Air conditioner 8 kW, 27 300 Btu/h  
Air Conditioner with corrosion  
protected condensor  
Cab filter for asbestos contaminated  
environment  
Spinner knob on steering wheel  
Sun blinds, front and rear windows  
Sun blinds, side windows  
AM/FM radio with cassette deck  
Lunch box holder  
Steering wheel, adjustable tilt,  
telescopic  
Instructor seat

### Brake system

Dual service brake pedals  
Electro-hydraulic operated parking  
brake

### Hydraulic System

Hydraulic control, 3rd function  
Adjustable flow for 3rd function  
Detent 3rd function  
Hydraulic control, 3rd and 4th  
function  
Hydraulic controls, 5th/6th function  
Hydraulic power take off G.P.  
Hydraulic power take off  
heavy duty H.D.  
Hydraulic single acting lifting  
function  
Arctic kit, hoses and accumulators  
Hydraulic oil cooler  
Boom Suspension System (BSS)  
Attachment bracket with separate  
locking system  
Biodegradable hydraulic fluid  
Single lever control

### External equipment

Mudguards, full coverage, swing out  
Mudguards widener  
Mudguards, axle mounted  
Mudguards, small  
Counterweight, logging

### Other equipment

Comfort Drive Control (CDC)  
Sign, slow moving vehicle  
Sign 50 km/h  
Secondary steering  
Noise reduction EU 2002  
Noise reduction Blue angel  
Noise reduction CAB

### Tires

17.5-25      20.5-25  
17.5R25\*    20.5R25\*  
600-26.5 Twin  
550/65 R25

### Protective equipment

Protective guards for front running  
lights, indicators and front working  
lights  
Protective guards for rear working  
lights  
Protective guards for rear lights  
Windshield guard  
Window guards for side and rear  
window  
Cover plate under cab  
Belly guard, front and rear  
Heavy duty main valve cover plate

### Attachments

Buckets  
Fork equipment  
Material handling arm  
Timber grapples  
Snow blade  
Broom  
Cutting edge, 3 pc reversible,  
bolt-on  
Bucket teeth, bolt-on  
Bucket teeth, weld-on  
Bale clamp  
Drum rotator

*Under our policy of continuous product 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.*

# VOLVO

Construction Equipment

Ref. No. 21 6 669 2319      English  
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