• 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 m³
• 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
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 EU2002 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

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


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
  - 1: 7,0 km/h
  - 2: 14,0 km/h
  - 3: 28,0 km/h
  - 4: 44,0 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

ELECTRICAL SYSTEM

Conronic 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)

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
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/m³. Result: The 1.8 m³ bucket carries 1.9 m³. For optimum stability always consult the bucket selection chart.

### BUCKET SELECTION CHART

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

### SUPPLEMENTAL OPERATING DATA

<table>
<thead>
<tr>
<th>Tires 20.5 R25</th>
<th>GENERAL PURPOSE</th>
<th>LIGHT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Teeth</td>
<td>Teeth</td>
</tr>
<tr>
<td>Volume, heaped ISO/SAE m³</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Volume at 110% fill factor m³</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Static tipping load, straight kg</td>
<td>8340</td>
<td>7880</td>
</tr>
<tr>
<td>at 35° turn kg</td>
<td>7490</td>
<td>7050</td>
</tr>
<tr>
<td>at full turn kg</td>
<td>7240</td>
<td>6800</td>
</tr>
<tr>
<td>Breakout force kN</td>
<td>97.6</td>
<td>88.1</td>
</tr>
<tr>
<td>A mm</td>
<td>6950</td>
<td>7040</td>
</tr>
<tr>
<td>E mm</td>
<td>840</td>
<td>940</td>
</tr>
<tr>
<td>H *) mm</td>
<td>3040</td>
<td>2970</td>
</tr>
<tr>
<td>L mm</td>
<td>5010</td>
<td>5060</td>
</tr>
<tr>
<td>M *) mm</td>
<td>900</td>
<td>980</td>
</tr>
<tr>
<td>N *) mm</td>
<td>1560</td>
<td>1610</td>
</tr>
<tr>
<td>V mm</td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>a, clearance circle mm</td>
<td>11070</td>
<td>11100</td>
</tr>
<tr>
<td>Operating weight kg</td>
<td>10870</td>
<td>11110</td>
</tr>
</tbody>
</table>

*) at 45° tipping angle

### OPERATIONAL DATA, VOLVO L70D

- **Tires 20.5 R25**
- **Width over tires mm**
- **Ground clearance mm**
- **Tipping Load, full turn kg**
- **Operating weight kg**

### MATERIAL DENSITY TABLE

| Material Density (t/m³) | Type of bucket |
|---|---|---|---|---|---|---|
| 1.6 | 1.8 | 2.0 | 2.2 | 1.8 |
| 1.7 | 1.9 | 2.1 | 2.2 | 2.3 |
| 1.8 | 2.0 | 2.2 | 2.3 | 2.3 |
| 1.9 | 2.1 | 2.3 | 2.4 | 2.3 |
| 2.0 | 2.2 | 2.4 | 2.5 | 2.3 |

- **Material density (lb/yd³)**
- **Material fill factor**

### BUCKET SELECTION CHART

<table>
<thead>
<tr>
<th>Material</th>
<th>Bucket fill, %</th>
<th>Material density, t/m³</th>
<th>ISO/SAE bucket volume, m³</th>
<th>Actual volume, m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth/Clay</td>
<td>~ 110</td>
<td>~ 1.8</td>
<td>1.6</td>
<td>~ 1.8</td>
</tr>
<tr>
<td>Sand/Gravel</td>
<td>~ 105</td>
<td>~ 1.9</td>
<td>1.6</td>
<td>~ 1.7</td>
</tr>
<tr>
<td>Aggregate</td>
<td>~ 100</td>
<td>~ 1.9</td>
<td>1.6</td>
<td>~ 1.6</td>
</tr>
<tr>
<td>Rock</td>
<td>≤ 100</td>
<td>~ 1.7</td>
<td>1.6</td>
<td>~ 1.6</td>
</tr>
</tbody>
</table>

The size of rock buckets is optimized for optimal penetration and filling capability rather than the density of the material.
Where applicable, specifications and dimensions are in accordance with ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 5998, SAE J818, ISO 8313.

**OPERATIONAL DATA & DIMENSIONS**

**Tires: 20.5 R25° L2**

<table>
<thead>
<tr>
<th>Letter</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>5 900 mm</td>
</tr>
<tr>
<td>C</td>
<td>2 840 mm</td>
</tr>
<tr>
<td>D</td>
<td>430 mm</td>
</tr>
<tr>
<td>F</td>
<td>3 210 mm</td>
</tr>
<tr>
<td>G</td>
<td>2 135 mm</td>
</tr>
<tr>
<td>J</td>
<td>3 580 mm</td>
</tr>
<tr>
<td>K</td>
<td>3 880 mm</td>
</tr>
<tr>
<td>O</td>
<td>56°</td>
</tr>
<tr>
<td>P</td>
<td>45°</td>
</tr>
<tr>
<td>R</td>
<td>44°</td>
</tr>
<tr>
<td>R*</td>
<td>48°</td>
</tr>
<tr>
<td>S</td>
<td>78°</td>
</tr>
<tr>
<td>T</td>
<td>50 mm</td>
</tr>
<tr>
<td>U</td>
<td>440 mm</td>
</tr>
<tr>
<td>X</td>
<td>1 860 mm</td>
</tr>
<tr>
<td>Y</td>
<td>2 390 mm</td>
</tr>
<tr>
<td>Z</td>
<td>3 170 mm</td>
</tr>
<tr>
<td>a₂</td>
<td>5 100 mm</td>
</tr>
<tr>
<td>a₃</td>
<td>2 710 mm</td>
</tr>
<tr>
<td>a₄</td>
<td>±40°</td>
</tr>
</tbody>
</table>

* Carry position SAE

**MATERIAL HANDLING ARM (Hook on)**

Order No: 92 007
Operating weight: 10 840 kg

**PALLET FORK (Hook on)**

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°

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.

<table>
<thead>
<tr>
<th>Axial piston pump</th>
<th>Relief pressure</th>
<th>26.0 MPa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flow</td>
<td>160 l/min</td>
</tr>
<tr>
<td></td>
<td>at 10 MPa</td>
<td>36.7 r/s (2 200 r/min)</td>
</tr>
<tr>
<td><strong>Pilot system</strong></td>
<td>Relief pressure</td>
<td>3.0 MPa</td>
</tr>
<tr>
<td></td>
<td>Cycle times</td>
<td>5.1 s</td>
</tr>
<tr>
<td></td>
<td>Raise</td>
<td>1.3 s</td>
</tr>
<tr>
<td></td>
<td>Dump</td>
<td>3.0 s</td>
</tr>
<tr>
<td></td>
<td>Lower, empty</td>
<td>9.4 s</td>
</tr>
<tr>
<td></td>
<td>Total cycle time</td>
<td>9.4 s</td>
</tr>
</tbody>
</table>

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 m³/min
Heating capacity: 11 kW
Air conditioning (optional): 8 kW

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.

<table>
<thead>
<tr>
<th>Lift cylinder</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore</td>
<td>100 mm</td>
</tr>
<tr>
<td>Piston rod diameter</td>
<td>70 mm</td>
</tr>
<tr>
<td>Stroke</td>
<td>734 mm</td>
</tr>
<tr>
<td>Tilt cylinder</td>
<td>1</td>
</tr>
<tr>
<td>Bore</td>
<td>150 mm</td>
</tr>
<tr>
<td>Piston rod diameter</td>
<td>80 mm</td>
</tr>
<tr>
<td>Stroke</td>
<td>440 mm</td>
</tr>
</tbody>
</table>
**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/taillight combination (2 rear)  
• turn signals with hazard warning switch  
• working lights, halogen (2 front/2 rear)  
• Instrument lighting  

**Contrain II monitoring system**  
Contrain II ECU  
Contrain 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  

**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 37,500 Btu/h with four speed blower fan  
Filtered air  
Floor mat  
Interior light  
Interior rearview mirror (2)  
Operable window, right-hand side  
Safety glass, tinted  
Retractable seat belt (SAE J386)  
Speedometer (in Contrain II display)  
Adjustable hydraulic lever console  
Seat, ergonomically designed, suspension adjustable  
Storage compartment  
Sun visor  
Windshield wiper, front and rear  

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

**Service and maintenance**  
Tool box  
Tool kit  
Wrench 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  

**Contrain II monitoring system**  
Contrain II ECU  
Contrain 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 declutch  
Forward and reverse switch  
Tires 20.5-25*1/2  

**Hydraulic System**  
Hydraulic control, 3rd function  
Adjustable flow for 3rd function  
Dentet 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 wider  
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*  
500/65 R25  
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 Contrain II display)  
Adjustable hydraulic lever console  
Seat, ergonomically designed, suspension adjustable  
Storage compartment  
Sun visor  
Windshield wiper, front and rear  

**Warranty**  
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.