Item # 24

Volvo LC450H Landfill Compactor

Vendor Contact Information:

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Model: Volvo LC450H Landfill Compactor

Volvo LC450H Landfill Compactor	LC450H
Customer supplied tires	LCX90006
Max. fan speed, hot climate	LC30002
Fuel fill strainer	LC30007
Hand throttle control	LC30009
Engine auto shutdown	LC30011
Delayed Engine Shutdown	LC30024
Air pre-cleaner, turbo type	LC31001
Engine D13 Tier 4f US	LC32013
Engine block heater, 120 V USA	LC33002
Diff lock Fr 100%, lim slip Re	LC35001
Speed limiter, 20 km/h	LC38001
Premium Comfort ISRI operators seat	LC41017
ACC, corr prot. condenser	LC42002
Radio with BlueTooth/USB/AUX	LC43004
Radio kit , left-side	LC44002
Steering wheel knob	LC45001
Window, sliding, door	LC45003
ACC control panel, F-scale	LC45004
Sun blinds, rear windows	LC45007
Cab air pre-clean, cyclone	LC45012
Rear view camera incl. Monitor	LC45016
Comfort Drive Control, CDC	LC45024
Unive Key US, Remote door open	LC45032
Rearview mirrors,el.adj& heat.	LC45201
Work Lights CAB, 4 LED	LC50014
CAB Side & entrance light LED	LC50015
LED Work lights fr/re f LED	LC50021
Warning Beacon LED, Automatic	LC51004
Jump start connector,NATO-Type	LC53008
LOTO, Lock out tag out	LC53009
Reverse alarm, White Noise	LC54002
Oil sampling valve	LC71002
Refl stickers Machine contour	LC83007
Cover plate, HD, front frame	LC86011
Fire supression system	LC86029
Emergency Shutdown	LC86035
CareTrack Subscription	LC88010
SAS Terra Supplied Semi U-Blade with wear plates on pusher arms and replacable bolt on edge	LC00000
SAS Terra Wheels	LC00001
SAS Terra supplied 8.5" twist torque cleats with hardfacing on tips	LC00002
SAS Terra supplied inverted chevron - 30 cleats per wheel (cleat pattern)	LC00003

Volvo Construction Equipment
Building Tomorrow

LC450H

Volvo Landfill Compactors 40.8 t / 90,000 lb 416 hp

PURPOSE-BUILT FOR WASTE

Introducing the LC450H, the first purpose-built landfill compactor from Volvo. Built on decades of experience in providing solutions to the waste and recycling industry, we have combined our expertise to work in partnership with Terra Compactor Wheel Corp., a leading manufacturer of landfill compaction wheels, cleats, rolling wire guards, and machine parts.

Through our range of products and services, including articulated haulers, wheel loaders, excavators and attachments, we have long been committed to producing machines which are up to the challenges of waste applications. In the LC450H we have created a landfill compactor designed to deliver outstanding performance and maximum uptime in the toughest environments.

"Over the years, our waste and recycling customers have said they'd like us to bring the reliability and productivity that our machines are known for to a purpose-built landfill compactor. Landfill conditions are typically rugged and demanding on machines.

We designed the LC450H to withstand the rigors of this type of work, fitting it with durable wear parts, heavy-duty guarding and an efficient powertrain."

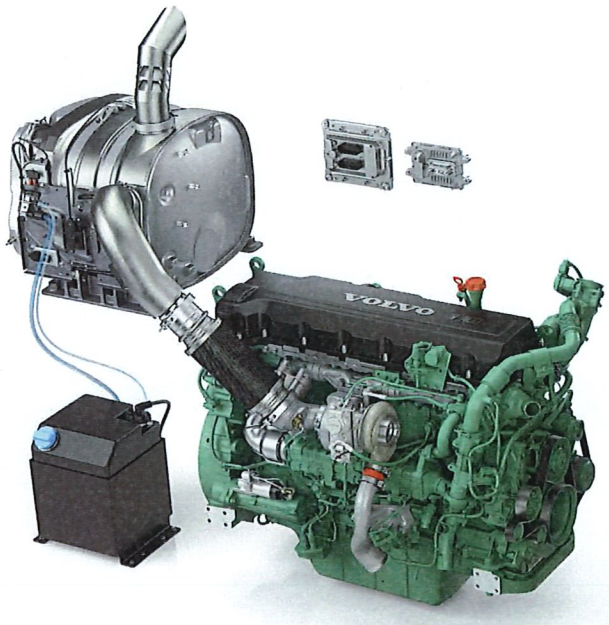
Mark DeBrosse, Product Manager at Volvo Construction Equipment.

Unrivalled performance

With a powerful engine that works in harmony with the axles and the transmission, the LC450H delivers an unrivalled level of performance. With superior traction, high ground clearance and a choice of blade, the specialized landfill compactor is the perfect partner in waste applications.

Power up, fuel down

The 90,000lb LC450H is powered by a 416 horsepower Volvo D13J Tier 4 Final engine, featuring passive and automatic regeneration. The engine and axles work in perfect harmony with the HTL310 transmission with lock-up converter, delivering high torque output and excellent fuel efficiency.



Choice of blade

The LC450H can be equipped with a Terra semi-U or straight blade, allowing operators to select the option which best fits their needs.

UP TO THE CHALLENGE

The LC450H makes easy work of difficult conditions. A 100% dog clutch differential lock in the front, and limited slip at the rear, contribute towards outstanding machine traction. With a 24 inch ground clearance, the LC450H can easily travel across high obstacles.

KEEPING YOU SAFE

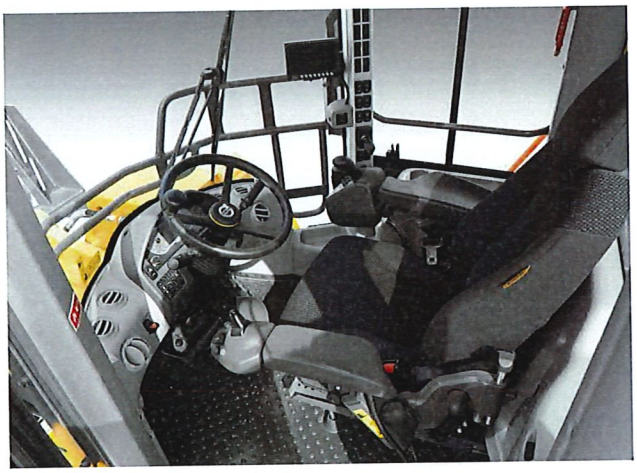
Operators can feel safe thanks to the ROPS/FOPS protected cab and windshield guard, and breathe easy thanks to the RESPA cab filtration system, including a powered pre-cleaner, filter and pressurizer in one unit.

The operator's choice

When an operator enters the LC450H, they are stepping inside the industry-leading Volvo cab, boasting a range of features to keep operators safe, comfortable and working at their best.

Comfortably productive

To reduce fatigue and improve productivity, Comfort Drive Control lets operators steer the machine from a small lever. The machine's single lever blade control, with integrated forward/neutral/reverse, gives the operator the choice to control the transmission with their left or right hand.



All-around visibility

The LC450H is equipped with a range of features to give the operator a clear and unobstructed view of the worksite. A rear-view camera, electronically adjusted heated external rear-view mirrors, and LED work lights to the front, rear and side, all contribute towards excellent visibility.

Easy cab access

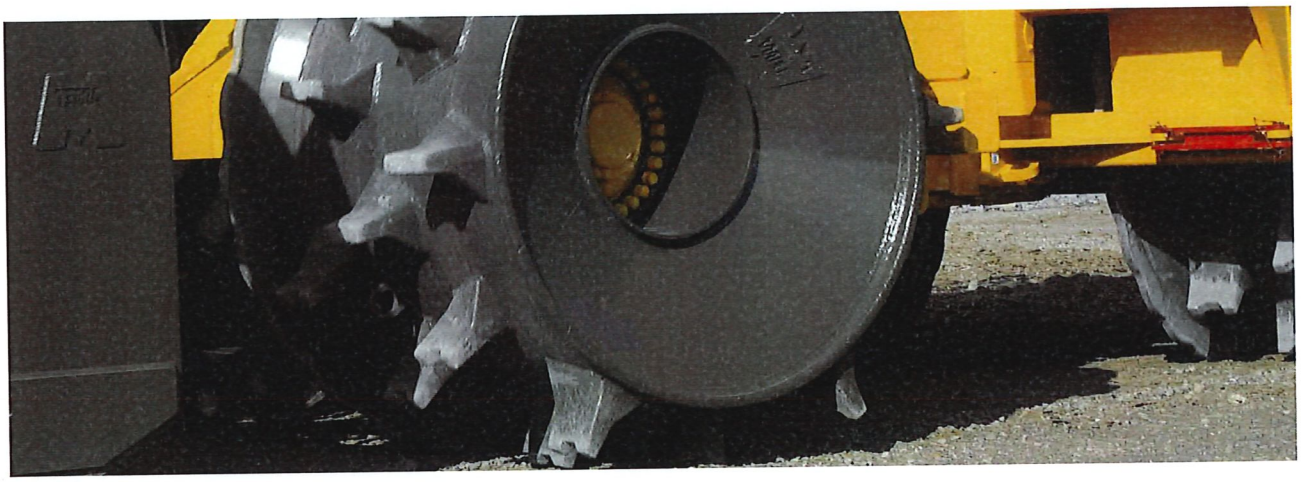
Climb into the LC450H with ease, with high-visibility steps and handrails supporting convenient entry and egress to the machine.

Durable by design

When working in tough environments you need a machine that is up to the challenge. Built to last, with a durable design and extensive protection to the machine and engine, you can count on the LC450H to succeed in waste applications.

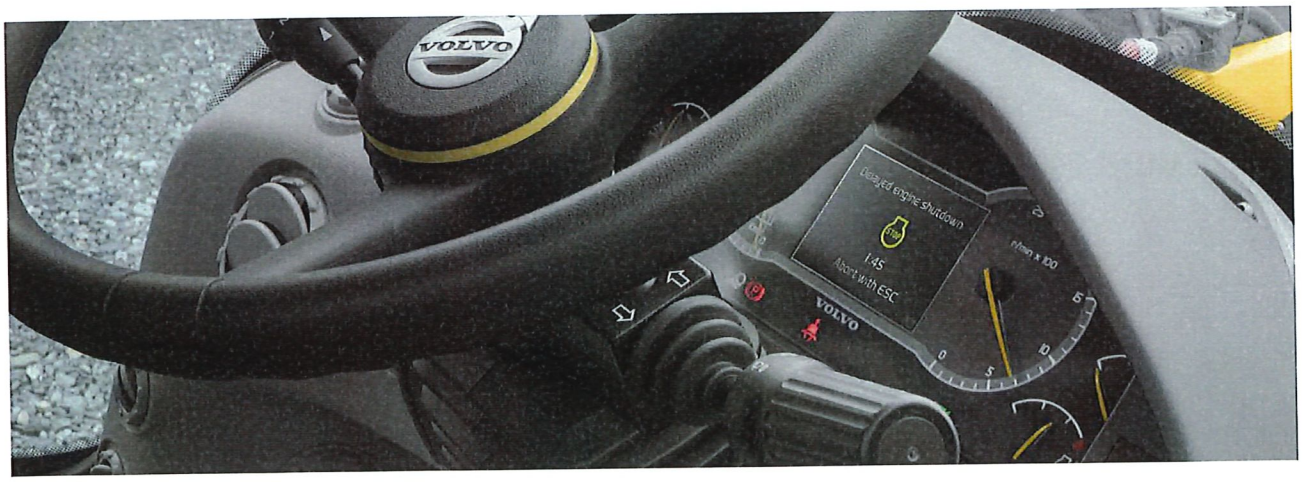
Keep on rolling

For durability you can depend on, the LC450H is supplied with wheels from Terra Compactor Wheel Corp. as standard. The wheels are equipped with a weld-on rolling wire guard, designed to prevent wire from wrapping around the axles and damaging the seals. A 1.25 inch-thick wheel wrapper with horizontal and vertical hardfacing on the edges provides further machine strength and protection. The wheels feature 8.5 inch-tall cleats with hardfacing on the tips, with the option of two-cleat patterns and three-cleat configurations.



Engine protection

Reduce engine wear with the air pre-cleaner, engine intake and delayed engine shutdown. The new delayed engine shutdown helps to reduce component wear by turning off the machine once the turbo-charger has cooled down to the appropriate temperature. This intelligent function can be scheduled by the operator to activate automatically.



HEAVY-DUTY GUARDING

Maximize performance and minimize machine wear with extensive protection throughout the LC450H, including radiator grill guard, center pin guard, swing down belly pans, front and rear differential guards, and axle seal guards. Two striker bars cover both the front and rear wheels to keep potentially damaging material away from the machine.

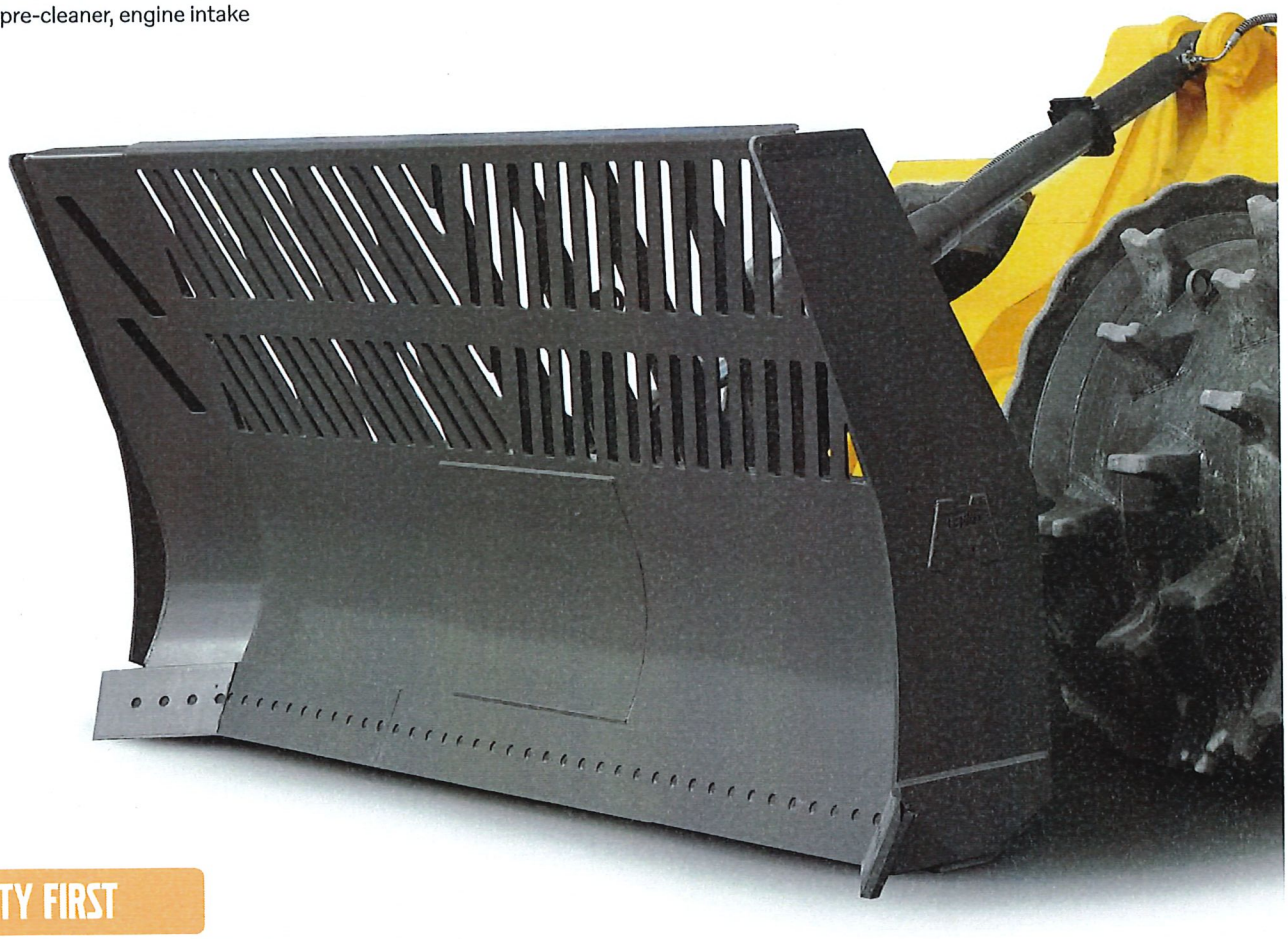
Take on the tough stuff

UNRIVALLED PERFORMANCE

- Volvo D13J Tier 4 final engine
- HTL310 transmission with lock-up converter
- Lock-up differential: dog clutch front and limited slip rear
- 24 inch ground clearance
- Terra compactor blade: straight or semi U

DURABLE BY DESIGN

- Guarding on radiator grill, center pin, swing down belly guards, front and rear differentials and axle seal
- Striker bars cover front and rear wheels
- Delayed engine shutdown
- Air pre-cleaner, engine intake



SAFETY FIRST

- ROPS/FOPS cab, fitted with windshield guard
- RESPA air filter
- Rear-view camera
- LED work lights, front, rear and side
- Rotating beacon
- Fire Suppression System

COMFORT AND CONVENIENCE

- Easy cab access
- Comfort Drive Control: lever steering
- Electronically adjusted/heated external rear view mirrors
- Single lever blade control

SIMPLE SERVICING

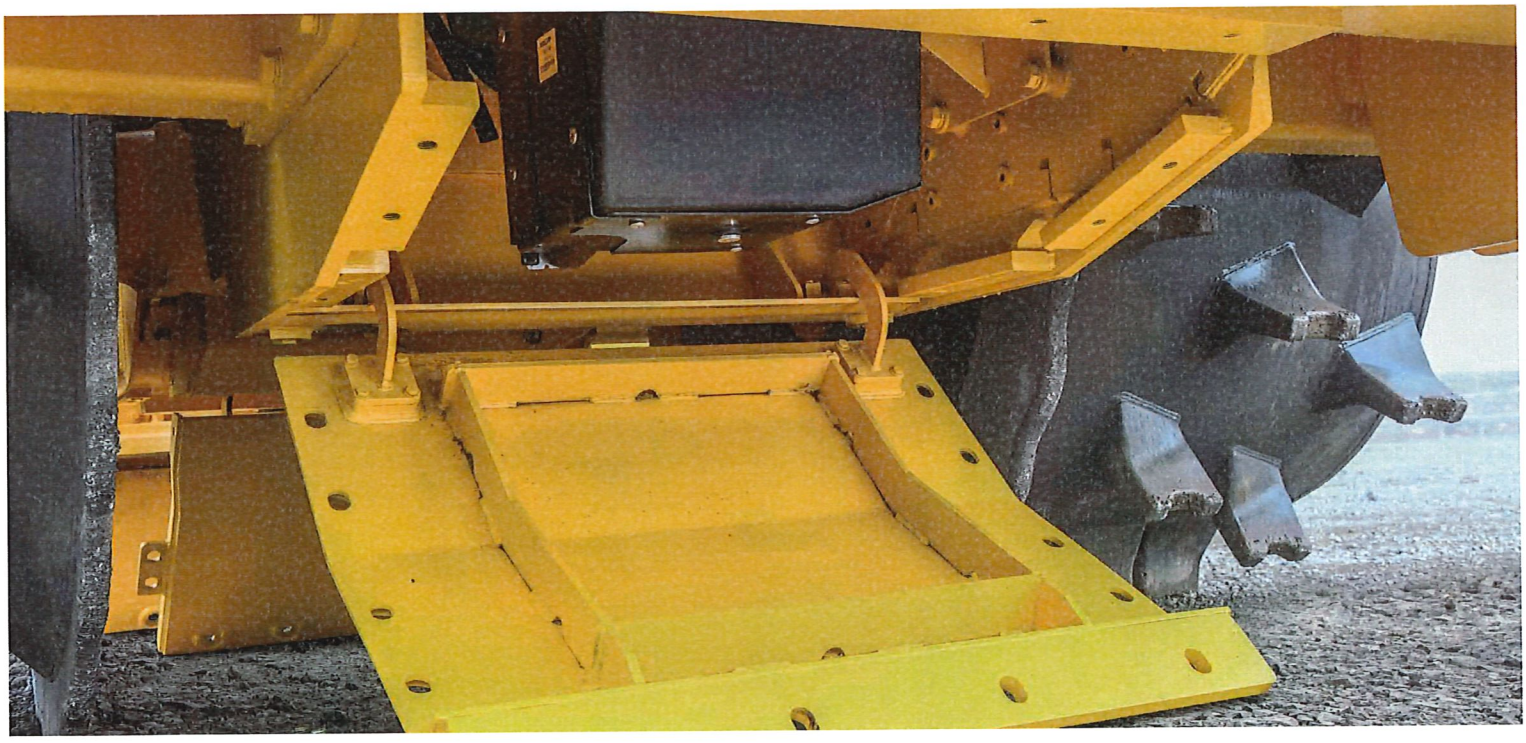
- Grouped filters, ground-level access to major components
- Swing down belly guards
- Tilting cab to 30° or 70°
- Electronically-operated engine hood
- Maintenance-free rear axle trunnion
- Passive and automatic regeneration

NON-STOP SUPPORT

- 24-hour parts delivery guarantee
- Certified technicians
- ActiveCare Direct
- Customer Support Agreements
- Financial Services

TERRA WHEELS: KEEP ON ROLLING

- Weld-on rolling wire guard
- 1.25 inch-thick wheel wrapper
- 8.5 inch tall cleats, three cleat configurations and two cleat patterns
  - o Terra Twist Torque, High-Density Traction or a combination of both
  - o Standard or inverted chevron pattern



INDUSTRY-LEADING SERVICEABILITY

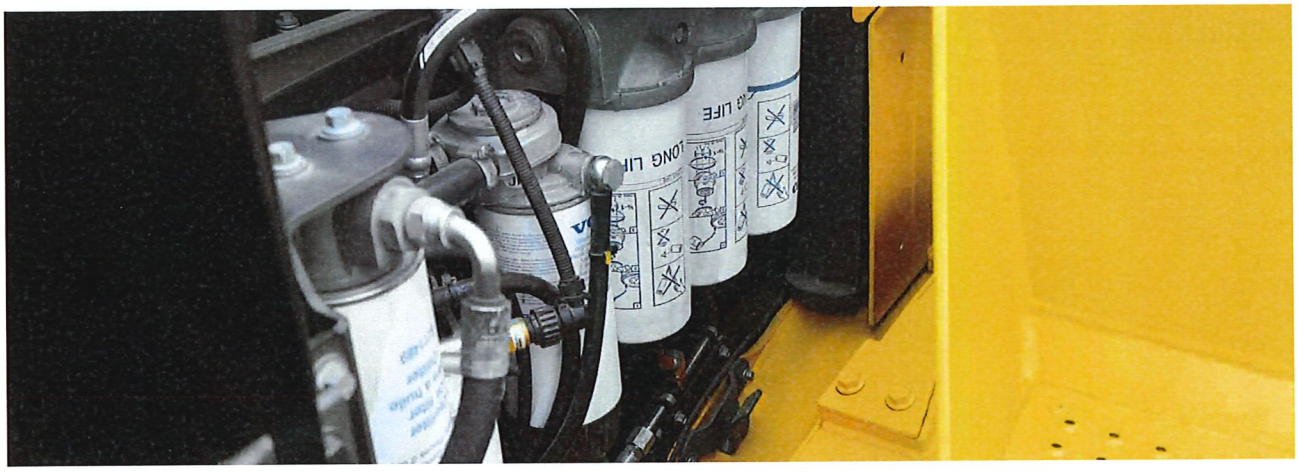
For simple servicability, the Volvo cab can be tilted to either a 30° or 70° angle, and the engine hood is operated electronically. Swing down belly guards to the front, center and rear, further support convenient servicing.

Simple servicing

Regular service and maintenance is a vital part of keeping your machine in top condition and performing at its best. The LC450H is designed to make servicing simple, supporting quick and easy maintenance to keep uptime to a maximum.

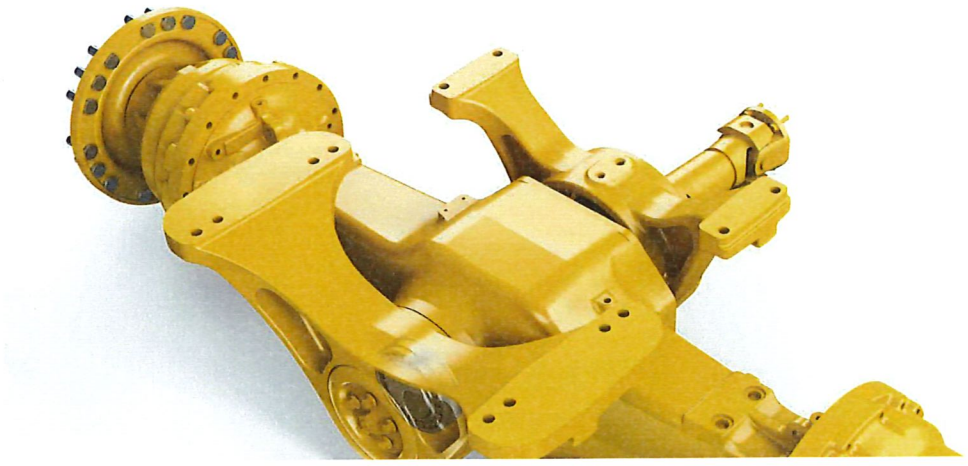
Unrestricted access

Complete routine checks with speed and ease, from the ground level or machine platform. Grouped filters are accessed by removable side panels, and the remote oil drain also provides easy maintenance access. The engine oil check and fill are accessed without needing to remove any panels.



Maintenance-free components

Minimize machine downtime and increase components life thanks to maintenance-free rear axle trunnion bearings.

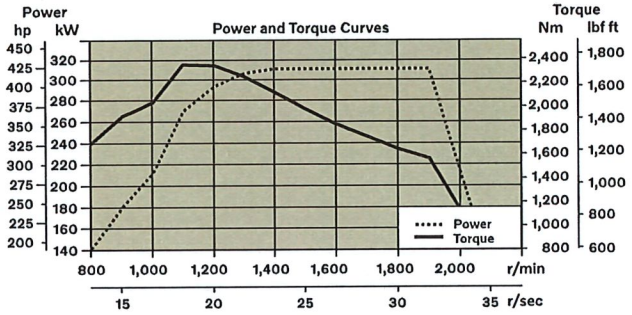


Volvo LC450H in detail

Engine

V-ACT Stage IV/Tier 4F 13 liter, 6-cylinder straight turbocharged diesel engine, with 4 valves per cylinder, overhead camshaft and electronically controlled unit injectors. The engine has wet replaceable cylinder liners and replaceable valve guides and valve seats.
The throttle applications is transmitted electrically from the throttle pedal or the hand throttle.
Air Cleaning: 2 stages.
Cooling system: Hydrostatic, electronically controlled fan and intercooler of the air-to-air type.

Engine	Volvo	D13J
Max. power at	r/min (r/s)	1,500 (25)
SAE J1995 gross	kW (hp)	310 (416)
ISO 9249, SAE J1349 net	kW (hp)	309 (414)
Max. torque at	r/min (r/s)	1,100 (18.3)
SAE J1995 gross	Nm (ft lbf)	2,343 (1,728)
ISO 9249, SAE J1349 net	Nm (ft lbf)	2,328 (1,717)
Displacement	l (in³)	12.8 (782)



Electrical System

Central warning system: Contronic electrical system with central warning light and buzzer for following functions: - Serious engine fault - Low steering system pressure - Over speed warning engine - Interruption in communication (computer fault)
Central warning light and buzzer with the gear engaged for the following functions: - Low engine oil pressure - High engine oil temperature - High charge air temperature - Low coolant level - High coolant temperature - High crank case pressure - Low transmission oil pressure - High transmission oil temperature - Low brake pressure - Engaged parking brake - Fault on brake charging - Low hydraulic oil level - High hydraulic oil temperature - Overspeeding in Engaged gear - High brake cooling oil temperature front and rear axles.

Voltage	V	24
Batteries	V	2 x 12
Battery capacity	Ah	2 x 170
Cold cranking capacity, approx	A	1000
Alternator rating	W/A	2,280/80
Starter motor output	kW	7

Hydraulic System

System supply: One main load-sensing axial piston pump with variable displacement.
The steering system always has priority.
Valve: Double-acting single spool valve controlled by a single spool pilot valve.
Filter: Full flow filtration through 10 micron (absolute) filter cartridge.

Blade Lift System

Lift function: The valve has three positions; raise, hold and lower position.

Lift cylinder double acting		1
Cylinder bore diameter	mm (in)	120 (4.7)
Piston rod diameter	mm (in)	80 (3.1)
Stroke	mm (in)	1065 (41.9)
Working pressure maximum for pump for steering-, brake-, pilot- and working hydraulic system	MPa (psi)	22.5 ± 0.4 (3,265 ± 60)
Flow	l/min (gal/min)	202 (53.4)
at	MPa (psi)	10 (1,450)
engine speed	r/min (r/s)	1,900 (31.6)
Cycle times from ground level		
Lift	s	3
Lower	s	2
Total cycle time	s	5

Blade Capacity

Semi-U	m3 (yd3)	16.3 (21.3)
Straight	m3 (yd3)	14.9 (19.5)

Blade Weights

Semi-U	kg (lb)	3,350 (7,380)
Straight	kg (lb)	3,340 (7,360)

Steering System

Steering system: Load-sensing, hydrostatic articulated steering.
Steering cylinders: Two double-acting cylinders.

Cylinder bore	mm (in)	90 (3.5)
Rod diameter	mm (in)	60 (2.4)
Stroke	mm (in)	525 (20.7)
Working pressure	MPa (psi)	26 (3770)
Maximum flow	l/min (gal/min)	202 (53.4)
Maximum articulation	±	° 37

Pilot system

working pressure	MPa (psi)	3.2 - 4.0 (465 - 580)
Auxiliary Brake and cooling fan pump		
Type		Gear
Working pressure maximum	MPa (psi)	25.0 ± 0.5 (3,625 ±75)
Flow	l/min (gal/min)	83 (21.9)
at	MPa (psi)	10 (1,450)
engine speed	r/min (r/s)	1,900 (31.6)

Drivetrain

Torque converter: Single-stage.
Transmission: Volvo countershaft transmission with single lever control. Fast and smooth fully automatic shifting of gears 1 - 2 with Pulse Width Modulation (PWM) valve. Torque converter with lockup.
Axles: Volvo fully floating axle shafts with planetary hub reductions and nodular iron axle housing.
Fixed front axle and oscillating rear axle. 100% differential lock on the front axle with limited slip rear. Axle oil cooling with filter.

Transmission	Volvo	HTL310
Torque multiplication, stall ratio		2.02:1
Maximum speed, forward/reverse		
1st gear	km/h (mi/h)	6.7/6.6 (4.2 / 4.1)
2nd gear	km/h (mi/h)	9.6/9.6 (6.0 / 6.0)
Front axle/rear axle		AWB 50B / 41
Rear axle oscillation	±	° 5
Ground clearance	mm (in)	605 (24)

Brake System

Service brake: Volvo dual-circuit system with nitrogen-charged accumulators. Outboard-mounted fully hydraulic operated, fully sealed oil circulation-cooled wet disc brakes.
Parking brake: Dry disc brake. Applied by spring force, electro-hydraulic release with a switch on the instrument panel.
Secondary brake: Dual brake circuits with rechargeable accumulators. One circuit for the parking brake fulfills all safety requirements.
Standard: The brake system complies with the requirements of ISO 3450.
Number of brake discs per wheel front/rear 2 - 1

Accumulators	l (gal)	2 x 1.0 + 1 x 0.5 (2 x 0.26 + 1 x 0.13)
Accumulators for parking brake	l (gal)	1 x 0.5 (1 x 0.13)
Wheel Dimensions		
Drum Diameter (OD)	mm (in)	1562 (61.5)
Drum Width	mm (in)	1207 (47.5)
Overall Diameter 8.5" Cleat	mm (in)	1994 (78.5)
Width over wheels	mm (ft in)	4007 (13' 1.75")
Inverted Chevron Pattern		
Cleats Per Wheel		30
Weight Twist Torque Cleats	kg (lb)	3,300 (7,250)
Weight HDT Cleats	kg (lb)	3,235 (7,130)
Weight Combination Twist Torque (18) & HDT (12) Cleats	kg (lb)	3,265 (7,200)
Standard Chevron Pattern		
Cleats Per Wheel		28
Weight Twist Torque Cleats	kg (lb)	3,245 (7,160)
Weight HDT Cleats	kg (lb)	3,200 (7,050)
Weight Combination Twist Torque (14) & HDT (14) Cleats	kg (lb)	3,220 (7,100)

Cab

Instrumentation: All important information is centrally located in the operator's field of vision. Display for Contronic monitoring system.
Heater and defroster: Heater coil with filtered fresh air and fan with auto and 11 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 and floor. The forces from the retractable seatbelt are absorbed by the seat rails.
Standard: The cab is tested and approved according to ROPS (ISO 3471), FOPS (ISO 3449).
The cab meets with requirements according to ISO 6055 (Operator overhead protection - Industrial trucks) and SAE J386 ("Operator Restraint System").
Refrigerant of the type R134a is used when this machine is equipped with air conditioning. Contains fluorinated greenhouse gas R134a, Global Warming Potential 1,430 t CO2-eq

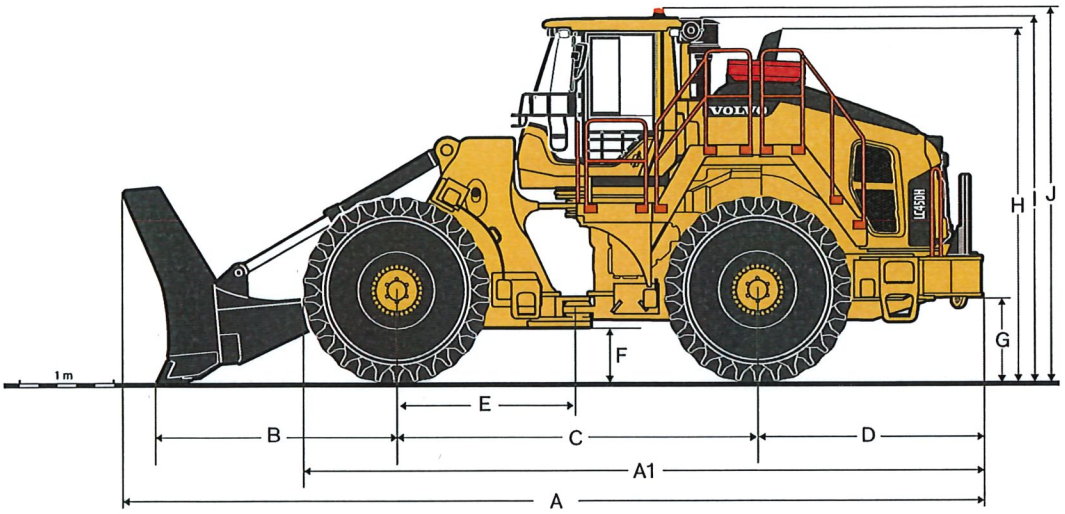
Ventilation	m³/min (yd³/min)	9 (11.8)
Heating capacity	kW	16
Air conditioning	kW	7.5

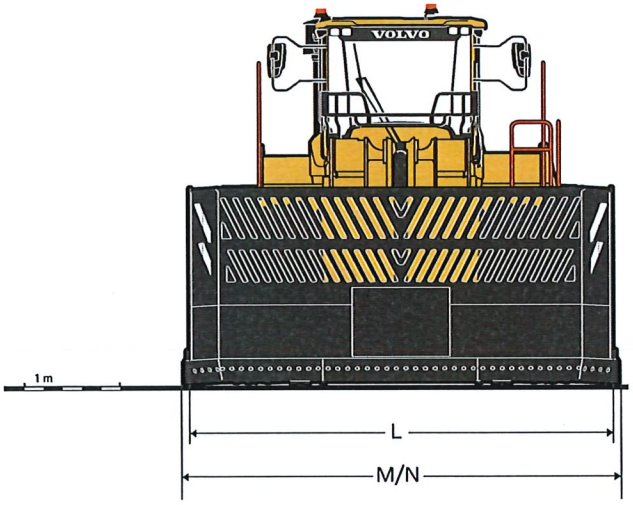
Service Refill

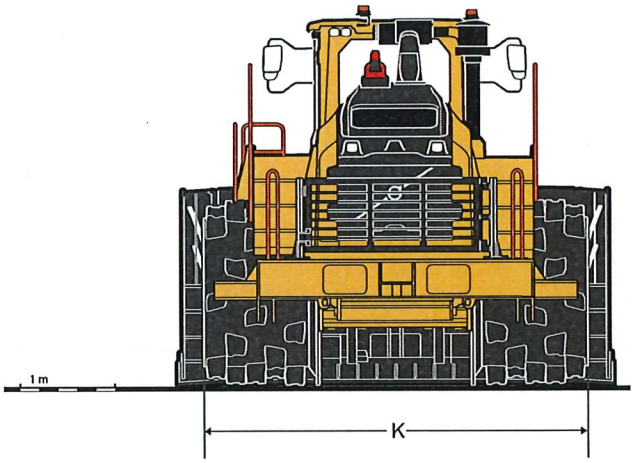
Service accessibility: Large, easy-to-open hood covering whole engine department, electrically operated. Fluid filters and component breather air filters promote long service intervals. Possibility to monitor, log and analyze data to facilitate troubleshooting.

Fuel tank	l (gal)	731 (193)
DEF/AdBlue® tank	l (gal)	80 (21.1)
Engine coolant	l (gal)	55 (14.5)
Hydraulic oil tank	l (gal)	226 (59.7)
Transmission oil	l (gal)	48 (12.7)
Engine oil	l (gal)	50 (13.2)
Axle oil front	l (gal)	78 (20.6)
Axle oil rear	l (gal)	80 (21.1)

Specifications







DIMENSIONS

Description		mm	ft in
A	Overall length to top of blade	9,000	29'6"
A1	Overall length (without blade)	7,135	23'5"
B	Blade to cl front axle	2,505	8'3"
C	Wheelbase	3,800	12'6"
D	Cl rear axle to rear bumper	2,345	7'8"
E	Cl front axle to articulation	1,900	6'3"
F	Ground clearance at articulation	605	2'0"
G	Height to bottom of rear bumper	915	3'0"
H	Height to top of exhaust outlet	3,720	12'3"
I	Overall height (beacon down)	3,845	12'7"
J	Overall height (beacon up)	3,990	13'1"
K	Overall width at wheels	4,010	13'2"
L	Width over blade	4,570	15'
M	Width over blade to end bits (semi-u blade)	4,550	14'11"
N	Width over blade to end bits (straight blade)	4,665	15'0"

Maximum Operating Weight (equipped with semi-U blade, 30 Twist Torque cleat and inverted chevron pattern): 40 800 kg (90,000 lb)

Equipment

STANDARD EQUIPMENT

Engine

- Engine D13 Tier 4f US
- Exhaust after treatment system
- Preheating of induction air
- Fuel fill strainer
- Fuel pre filter with water trap, Fuel Filter
- Fuel Heater
- Crankcase breather oil trap
- Exhaust heat insulation
- Exterior radiator air intake protection
- Hand throttle control
- Engine auto shutdown
- Air precleaner, Turbo II
- Engine block heater, 120 V
- Radiator , corr prot
- Max. fan speed, hot climate
- Reversing Fan

Electrical

- 24 V, pre wired for optional accessories
- Alternator 24 V/ 80 A
- Battery disconnect switch with lock out tag out
- Fuel gauge
- Hour meter
- Electric horn
- Instrument cluster:
  - Fuel level
  - Transmission temperature
  - Coolant temperature
  - Instrument lighting
- Work Lights CAB, LED, Dual front & rear
- Automatic activation of rear work lights when reversing
- Work lights cab, LED, 4 front, 3 rear
- Work lights engine hood, LED, 2 rear
- Warning beacon, flashing strobe light, main switch operated
- Radio BlueTooth/USB/AUX no CD
- LH Radio mounting kit including 20 amp converter, speakers & 12v outlet
- Seat belt indicator external green beacon light

Contronic monitoring system

- Monitoring and logging of machine data
- Contronic display
- Fuel consumption
- Ambient temperature
- Clock
- Test function for warning and indicator lights
- Warning and indicator lights:
  - Battery charging
  - Parking brake
- Warning and display message:
  - Regeneration
  - Engine coolant temperature
  - Charge air temperature
  - Engine oil temperature
  - Engine oil pressure
  - Transmission oil temperature
  - Transmission oil pressure
  - Hydraulic oil temperature
  - Brake pressure
  - Parking brake applied
  - Brake charging
  - Axle oil temperature
  - Steering pressure
  - Crankcase pressure
- Level warnings:
  - Fuel level
  - Engine oil level
  - Engine coolant level
  - Transmission oil level
  - Hydraulic oil level
  - Washer fluid level
  - Engine torque reduction in case of malfunction indication:
  - High engine coolant temperature
  - High engine oil temperature
  - Low engine oil pressure
  - High crankcase pressure
  - High charge air temperature
- Engine shutdown to idle in case of malfunction indication:
  - High transmission oil temperature
  - Slip in transmission clutches
- Keypad, background lit
- Start interlock when gear is engaged

STANDARD EQUIPMENT

Drivetrain

- Automatic Power Shift
- Fully automatic gearshifting, with lock-up torque converter
- Speed limiter (6 mph)
- PWM controlled gearshifting
- Forward and reverse switch by hydraulic lever console
- Indicator glass for transmission oil level
- Differentials: Front, 100% hydraulic diff lock, limited slip rear axle
- Axle oil coolers

Brake system

- Dual brake circuits
- Dual brake pedals
- Secondary brake system
- Parking brake, electrical hydraulic
- Brake wear indicators

Cab

- ROPS (ISO 3471), FOPS (ISO 3449)
- Tiltable Cab
- Unive Key US, Remote door open
- Acoustic inner lining
- Ashtray
- Cigarette lighter, 24 V power outlet
- Lockable door
- Cab heating with fresh air inlet and defroster
- Automatic heat control
- Air conditioning w/ corrosion prot. condenser & ACC (auto climate control)
- Fresh air inlet with two filters
- Respa cab air filtration system - for very dusty environments
- Floor mat
- Interior lights
- Interior mirror on the left, rear view camera color, LCD monitor on right
- Dual exterior rear view mirrors, electrically adjustable, heated
- Sliding window in door, right side
- Tinted safety glass
- Adjustable steering wheel
- Steering knob
- Single lever hydraulic control
- Comfort Drive Contr, CDC, el-hydr (Joystick Steering)
- Operator`s seat, Volvo, air suspended, HD for CDC
- Retractable seat belt (SAE J386)
- Storage compartment
- Document pocket
- Sun visor
- Sun blinds front and rear window
- Beverage holder
- Lunch box holder
- Anchorage manual
- Back up alarm
- Windshield washer front and rear
- Interval function for front and rear wipers
- Decals, English/Spanish

Hydraulic system

- Main valve, double acting single spool
- Variable displacement axial piston pump for:
- Working hydraulics, steering, brake system, and cooling fan
- Electro-hydraulic servo control
- Electric lever lock
- Double acting hydraulic cylinders
- Indicator glass for hydraulic oil level
- Hydraulic oil cooler

Service and maintenance

- Engine oil remote drain and fill
- Lubrication manifolds, ground accessible
- Pressure check connections: transmission and hydraulic, quick connects
- Tool box, lockable
- Oil sampling ports
- Cleaner kit, Air blow gun
- CareTrack 6 yr subscription
- CareTrack, 3G + GSM/Satellite capable
- Jump start connector, NATO-Type

External equipment

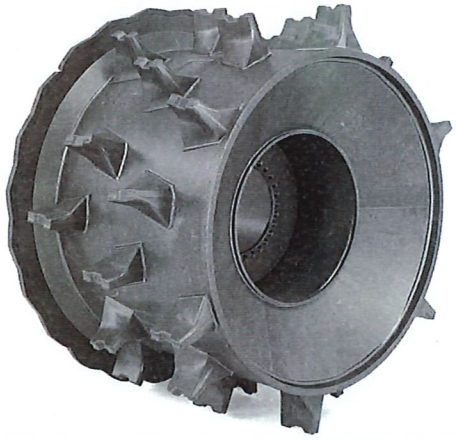
- Fire supression system
- Viscous cab mounts
- Rubber engine and transmission mounts
- Easy to open engine hood
- Frame, joint lock
- Vandalism lock prepared for:
  - Engine compartment
  - Radiator grille

STANDARD EQUIPMENT
Special Applications Solutions (SAS) Supplied Standard Specifications
SAS supplied speciality built rear bumber, fender and steps left and right
SAS supplied striker bars 4 front 4 rear
SAS supplied radiator guard
SAS supplied windshield guard
SAS supplied guarding engine, transmission, center hinge, under cab, front frame, front and rear axle, front and rear differential
SAS supplied front and rear axle seal guards
SAS supplied hand railings, grab rails
SAS Supplied bull dozer arrangement
SAS Terra supplied wheels with rolling wire guard

OPTIONAL EQUIPMENT
Delete Fire supression system
Premium Deluxe ISRI Seat
SAS Terra supplied blade
Straight blade
Semi u-blade
SAS Terra supplied cleat pattern
Inverted or standard chevron patern
SAS Terra supplied cleats
8.5" HDT or twist torgue or combination

SELECTION OF VOLVO OPTIONAL EQUIPMENT

Terra Twist Torque cleats

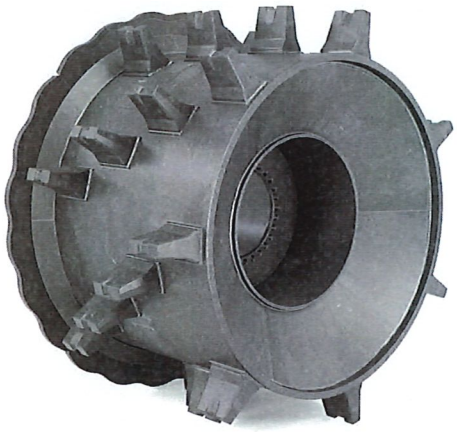


With extended puncture points, the right and left handed cleats create a twisting action which punctures and tightens the waste at the wrapper surface, resulting in superior compaction and stability.

Pictured with inverted chevron pattern

Cleats are equally spaced across the wheel wrapper allowing for consistent compaction.
Recommended for Municipal Solid Waste (MSW) and Construction and Debris (C&D) sites.

Terra High-Density Traction cleats

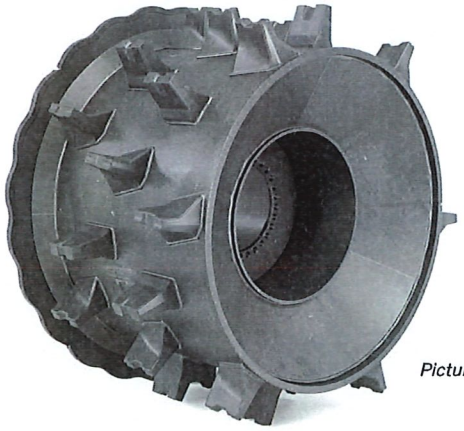


With a wide top cutting surface, the blunt design provides excellent penetration, crushing and shredding of materials for maximum compaction.

Pictured with standard chevron pattern

Design allows more wrapper space between rows of cleats for superior self-cleaning.
Suitable for MSW, sludge, clay or sticky adhesive type materials.
Recommended for C&D sites.

Terra Twist Torque and High-Density Traction combo



Pictured with inverted chevron pattern

Not all products are available in all markets. Under our policy of continuous 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.

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Warranty – Disclaimers – Limitations
Limited Warranty

Volvo Construction Equipment North America ("Volvo CE") hereby extends to its authorized dealers ("Dealer") and the Dealer's end-use customers ("Customer", and both Dealer and Customer are referred to herein as a "Buyer"), who purchase a new Volvo construction equipment machine ("Machine") or new Volvo part ("Part", both of which are referred to herein as a "Product") from Volvo the following limited warranty:

Subject to the exceptions and limitations set forth below, Volvo CE or Dealer will repair or replace any part of a new Machine or new Part which proves to be defective in material or workmanship during the following periods (the "Warranty Period"):

Volvo wheel loaders: 12 months/2500 hours, whichever first occurs
Volvo articulated haulers: 12 months/2500 hours, whichever first occurs
Volvo hydraulic excavators: 12 months/2500 hours, whichever first occurs
Volvo motor graders: 12 months/2500 hours, whichever first occurs
Volvo compactors: 12 months/2500 hours, whichever first occurs
24 month unlimited hours on DD90 and larger compactors
Volvo pavers: 12 months/2500 hours, whichever first occurs
24 month unlimited hours on 6000 / 7000 series pavers
Volvo milling: 12 months/2500 hours, whichever first occurs
Volvo compact wheel loaders (up to 100 net hp.): 12 months/unlimited hours
Volvo skid steer loaders: 12 months/unlimited hours; Lifetime arm for one-sided
Volvo compact hydraulic excavators (less than 11 metric tons): 12 months/unlimited hours
Volvo backhoe loaders: 12 months/unlimited hours
Volvo engines: 12 months/2500 hours, whichever first occurs
Volvo parts: 6 months/1500 hours, whichever first occurs
Volvo remanufactured components: 12 months/2500 hours, whichever first occurs
Volvo Attachments: 12 months

The Warranty Period commences immediately following the delivery of said Product to the Buyer who first puts said Product into use. The foregoing limited warranty shall include the labor cost to accomplish the repair or replacement of the defective part provided that the repair or replacement was performed by a Dealer.

The foregoing warranty does not cover: (i) any Product found to have been damaged by abuse, accident, other casualty or a failure to maintain or use the warranted Product in accordance with the applicable manuals or instructions (Buyer is required to use only original equipment manufacturer filters during the Warranty Period); (ii) the labor costs to repair or replace defective Parts after the expiration of the Warranty Period of the Machine in which such Part is located; (iii) overtime labor premiums; (iv) costs and expenses associated with the transportation of Dealer's service personnel to and from the location of the warranted Product; (v) any parts, components, attachments or accessories for which Buyer receives a separate warranty by the manufacturer or producer thereof (in specified cases said warranty may be administered by Volvo CE); (vi) maintenance items or ground engaging parts that have achieved their normal service life.

DISCLAIMER OF IMPLIED WARRANTIES AND LIMITATION OF REMEDIES

THE FOREGOING WARRANTY TO BUYER IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

REMEDIES AVAILABLE TO BUYER ARE LIMITED TO MAKING A CLAIM UNDER THE FOREGOING WARRANTY AND ARE EXCLUSIVE AND EXPRESSLY LIMITED TO OBTAINING THE PARTS AND LABOR IN ACCORDANCE WITH THE TERMS OF SAID WARRANTY.

Warranty – Disclaimers – Limitations

LIMITATIONS OF LIABILITY AND DAMAGES

Regardless of whether a claim against Volvo CE or Dealer is based on the foregoing warranty or is an action in contract, tort (negligence or strict liability) or otherwise, their respective liability for losses, damages or expenses of any kind arising from the design, manufacture, repair or sale of the Products is limited, unless otherwise prohibited by law, to an amount not exceeding the cost performing the obligations contained in the foregoing warranty, and in no event shall their respective or joint liability exceed the value of the Product or part thereof giving rise to such liability.

CONSEQUENTIAL AND SIMILAR DAMAGES NOT RECOVERABLE

Except for performing the obligations of the foregoing warranty in accordance with its terms, Volvo CE and Dealer shall have no liability for loss, damage, or expense, directly or indirectly, attributable to a loss of use of a Product, loss or damage to property other than the Product, loss or damage to the Product or any part thereof or any other economic or commercial loss, including, without limitation, lost profits or special or consequential damages (except liability for any type of consequential damages which by law may not be disclaimed). The parties intend that this prohibition against consequential and similar damages will survive and be effective even if the limitation of remedies in the foregoing sections is found to fail of its essential purpose under section 2-719 of the Uniform Commercial Code.

ALLOCATION OF RISK

The foregoing warranty disclaimers, limitations of liability and limitation of remedies are bargained allocations of risks among (i) the Customer who purchased the Product; (ii) the Dealer who sold the Product, and (iii) Volvo CE, which is a third party beneficiary of the contract of sale between the Customer and the Dealer. The Buyer of the Product accepts the foregoing warranty and the other bargained for allocations of risk as part of the agreed price for the purchase of the Product to which the foregoing warranty applies. Volvo CE is prepared to offer different warranties and other allocations of risk for other prices. However, any such change in the warranty or the allocation of risks must be confirmed in writing by Volvo CE.

STATUTE OF LIMITATIONS

Any action by a Buyer of a Product for breach of contract, for breach of warranty arising under, or for a cause of action arising out of the sale of a Product, whether based on contract, tort (negligence or strict liability) or otherwise, shall be commenced within one (1) year after the cause of action has accrued. Any such cause of action shall be deemed to have accrued at the earlier of (i) the discovery of the defect or breach, or (ii) the expiration of the applicable Warranty Period.