

FSA

Volvo Construction Equipment  
Building Tomorrow



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# LC450H

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



# 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

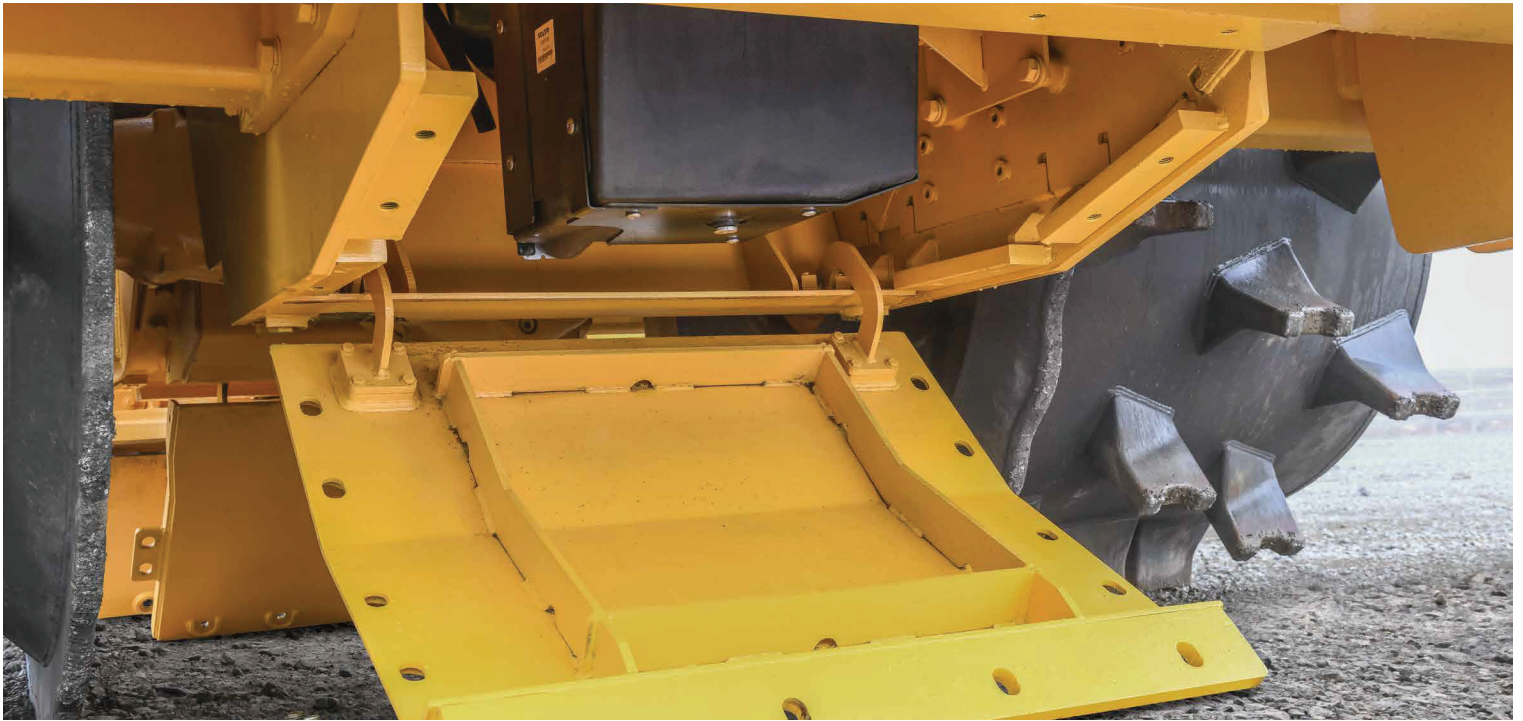
- Grouped filters, ground-level access to major components
- Swinging down belly guards
- Tilting cab to 30° or 70°
- Electronically-operated engine hood
- Maintenance-free rear axle trunnion
- Passive and automatic regeneration

## 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

## NON-STOP SUPPORT

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



# INDUSTRY-LEADING SERVICEABILITY

For simple serviceability, 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

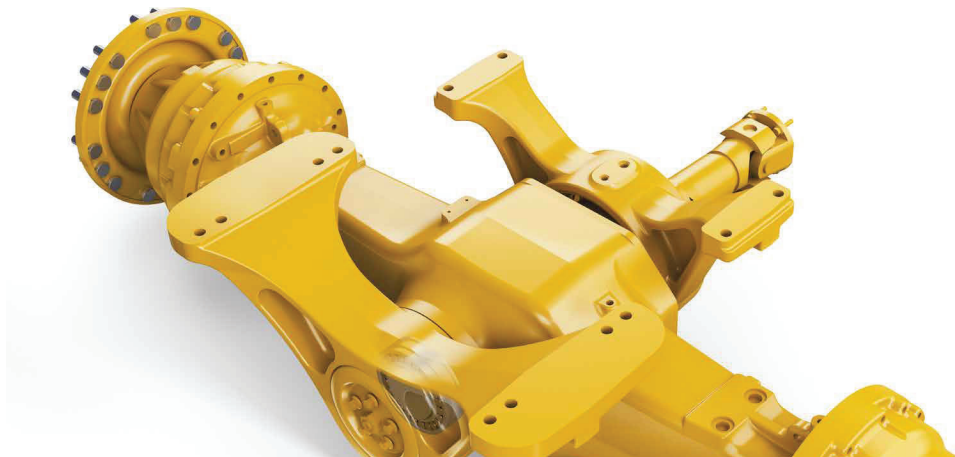
Complete routine checks with speed and ease, from the ground level or machine platform. Grouped filters are accessed by removable side panels, and the remote oil drain also provides easy maintenance access. The engine oil check and fill are accessed without needing to remove any panels.



## Spin on oil filters

## Maintenance-free components

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



# Volvo LC450H in detail

## Engine

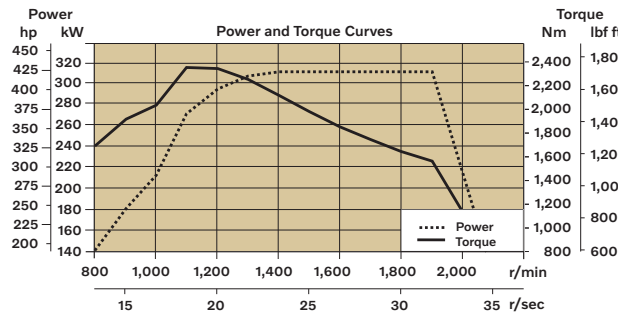
V-ACT Stage IV/Tier 4F 13 liter, 6-cylinder straight turbocharged diesel engine with 4 valves per cylinder, overhead camshaft and electronically controlled unit injectors. The engine has wet replaceable cylinder liners and replaceable valve guides and valve seats.

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 (in <sup>3</sup> )	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

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	m <sup>3</sup> (yd <sup>3</sup> )	16.3 (21.3)
Straight	m <sup>3</sup> (yd <sup>3</sup> )	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)
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## 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 T1 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 CO<sub>2</sub>-eq

Ventilation	m <sup>3</sup> /min (yd <sup>3</sup> /min)	9 (11.8)
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Heating capacity	kW	16
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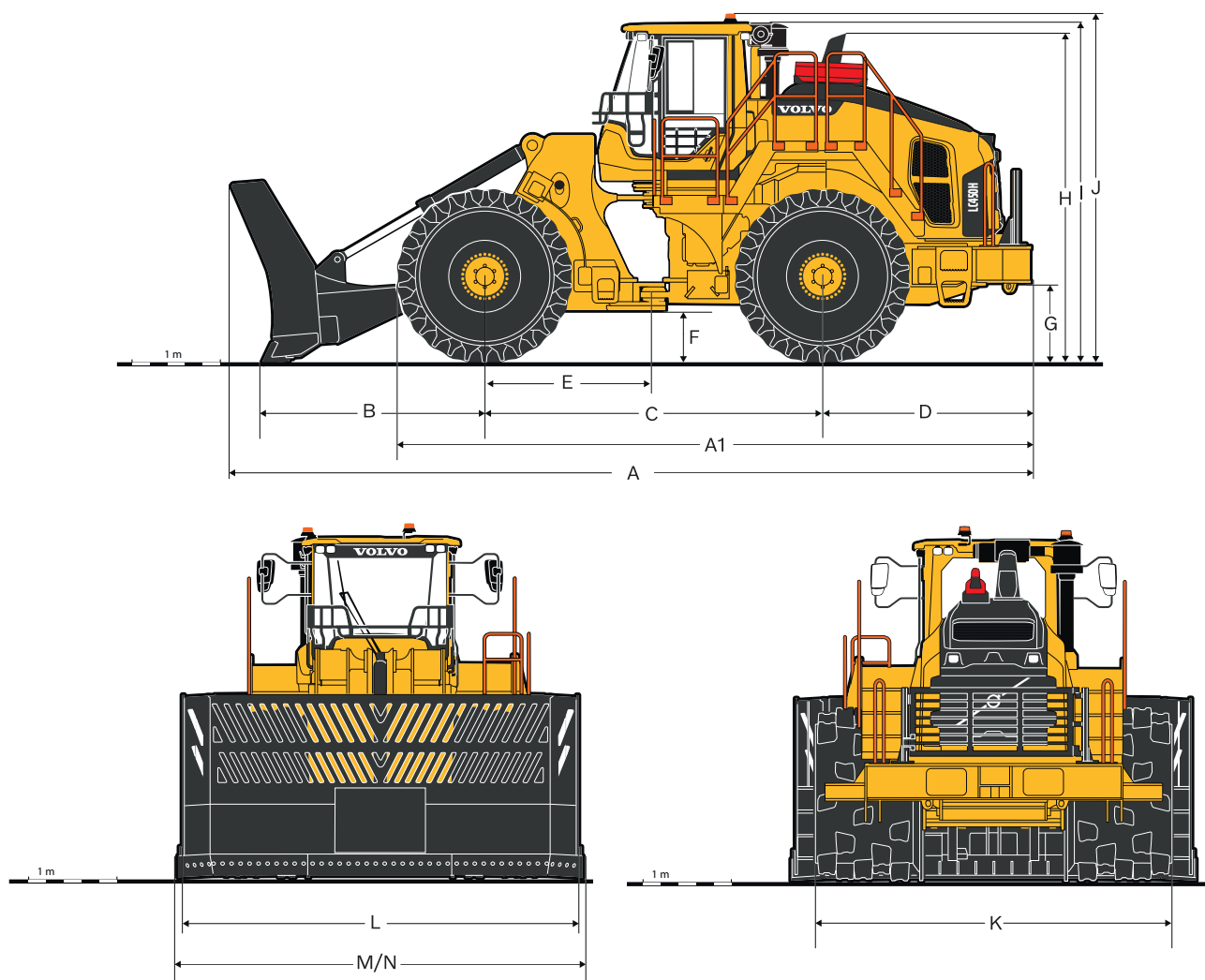
Air conditioning	kW	7.5
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## Service Refill

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 CI front axle	2,505	8'3"
C	Wheelbase	3,800	12'6"
D	CI rear axle to rear bumper	2,345	7'8"
E	CI 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)

Tilttable 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



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**STANDARD EQUIPMENT****Special Applications Solutions (SAS) Supplied Standard Specifications**

SAS supplied speciality built rear bumper, 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

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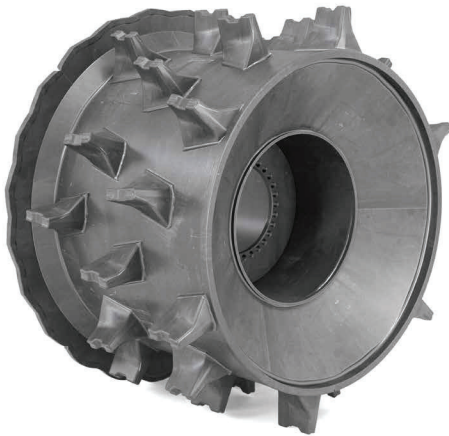
**OPTIONAL EQUIPMENT**

Delete Fire suppression system  
Premium Deluxe ISRI Seat  
SAS Terra supplied blade  
Straight blade  
Semi u-blade  
SAS Terra supplied cleat pattern  
Inverted or standard chevron pattern  
SAS Terra supplied cleats  
8.5" HDT or twist torque or combination

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**SELECTION OF VOLVO OPTIONAL EQUIPMENT**

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**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*

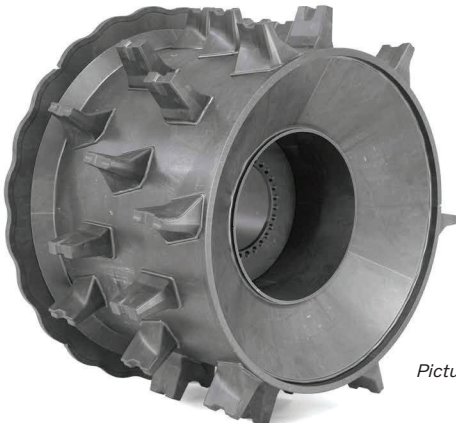
Cleats are equally spaced across the wheel wrapper allowing for consistent compaction.  
Recommended for Municipal Solid Waste (MSW) and Construction and Debris (C&D) sites.

**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.

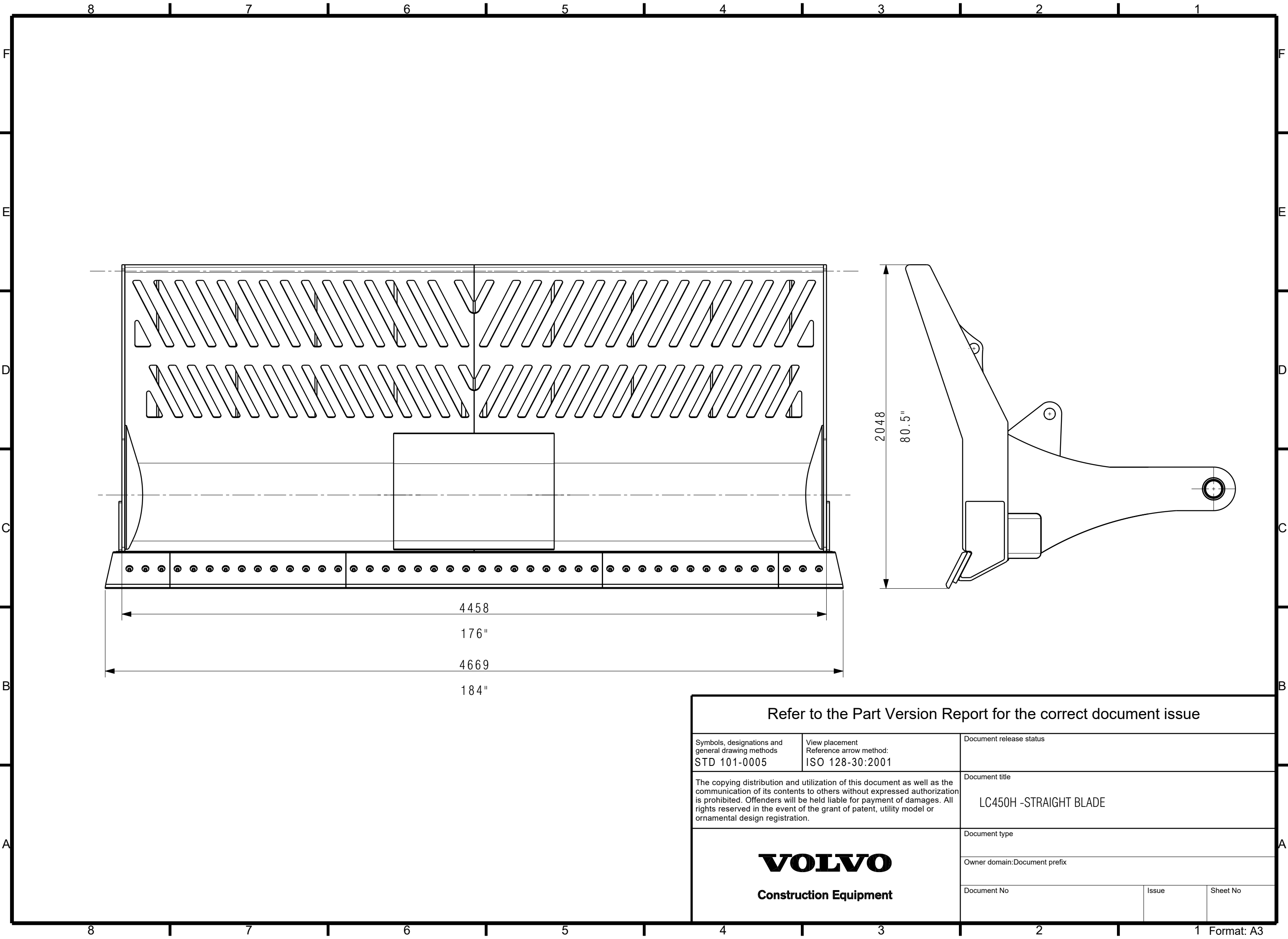
*Pictured with standard chevron pattern*

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*







## LC450H Order List

Description	Article
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
Lunch box holder	LC45023
Comfort Drive Control, CDC	LC45024
Anchorage manual	LC45027
Unive Key US, Remote door open	LC45032
Coin tray	LC45037
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
Cleaner kit, Air blow gun	LC71010
Decals, Eng/Spa ,el-hydr	LC83004
Refl stickers Machine contour	LC83007
Cover plate, HD, front frame	LC86011
Fire supression system	LC86029
Emergency Shutdown	LC86035
CareTrack Subscription	LC88010
CareTrack +SAT, North America	LC88018
Deactivate SAT software	LC88020
SAS Terra supplied std. chevron cleat pattern 28 per wheel (replaces inverted chevron clean pattern)	Recommended Std
SAS Terra supplied 8.5" twist torque cleats with hardfacing on tips	Recommended Std
SAS Terra Supplied Semi U-Blade with wear plates on pusher arms and replacable bolt on edge	Recommended Std



**Volvo Construction Equipment North America**  
**Warranty – Disclaimers – Limitations**  
**Limited Warranty for Governmental / Municipalities**

Volvo Construction Equipment North America (“Volvo CE”) hereby extends to its authorized dealers (“Dealer”) and the Dealer’s Governmental / Municipalities 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/1500 hours, whichever first occurs  
24 months unlimited hours on DD90 and larger compactors
- Volvo pavers: 12 months/1500 hours, whichever first occurs  
24 months unlimited hours on 6000 / 7000 series pavers
- Volvo milling: 12 months/1500 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.