

# EC330B

EC330B

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**California**

**Proposition 65 Warning**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

**California**

**Proposition 65 Warning**

Battery posts, terminals and other related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and other reproductive harm.

**Wash hands after handling.**

## Foreword

This Operator Manual is intended as a guide for the correct use and maintenance of the machine. Therefore, study it carefully before starting and operating the machine, or before carrying out any preventive maintenance.

Keep the manual in the intended place in the cab so that it is always at hand. Replace it immediately, if it is lost.

The manual describes the applications for which the machine primarily is intended and is written to apply to all markets. We therefore ask you to disregard the sections which are not applicable to your machine or to the work for which you use your machine.

Many hours are spent on design and production to make a machine that is as efficient and safe as possible. The accidents which occur in spite of this, are mostly caused by the human factor. A safety conscious person and a well maintained machine make a safe, efficient and profitable combination. **Therefore, read the safety instructions and follow them.**

We continually strive to improve our products and to make them more efficient through changes to their design. We retain the right to make these improvements on products which have already been delivered.

We also retain the right to change data and equipment, as well as instructions for service and maintenance without prior notice.

## Safety regulations

It is the operator obligation to know and follow the applicable national and local safety regulations. The safety instructions in this manual only apply to cases when there are no national or local regulations.

**NOTE : This manual has been adapted to cover all markets. Disregard optional or special equipment included for various markets, which are not applicable to your machine.**



### WARNING!

The symbol above appears at various points in the manual together with a warning text. It means:

**Warning, be alert! Your safety is involved! It is the obligation of the operator to make sure that all warning decals are in place on the machine and that they are readable. Accidents may otherwise occur.**

**Get to know the capacity and limits of your machine!**

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Instruments and controls

Operating instructions



Safety when servicing

Service and maintenance

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This symbol, which is shown at various places in the Operator's Manual together with a warning statement, means:



### **WARNING!**

**Warning, be alert! Your safety is involved!**

**To ignore the risks may lead to an accident, serious injuries or death.**

**It is the obligation of the operator to make sure that all warning decals are in place on the machine and that they are readable. Accidents may otherwise occur.**

**Get to know the capacity and limits of your machine!**

## **Handling and maintenance of the machine**

Volvo Construction Equipment is responsible only if:

- the machine has been used in a correct way and been maintained in accordance with the instructions contained in the Operator's Manual and Service Manuals.
- prescribed service and prescribed inspections have been carried out at the stated points in time.
- the recommended lubricants according to the manual have been used.
- fitted security seals are unbroken or that adjustments and refitting of security seals has been carried out by an authorized dealer workshop.
- all modifications and repairs performed, and methods used, have been prescribed by Volvo.
- only Volvo genuine spare parts/accessories, or genuine spare parts/accessories which meet Volvo's requirements, have been used.



### **WARNING!**

**An operator of an excavator must have sufficient knowledge and instructions before he/she operates the machine.**

**An untrained operator can cause serious injuries or even death.**

**Never use an excavator which has no Operator's Manual.**

**Understand the warning plates and symbols on the machine and its operator instructions before you begin to use the machine.**

## Communication equipment, installation

### IMPORTANT!

All installation of optional electronic communication equipment must be performed by trained professionals and in accordance with Volvo Construction Equipment instructions applicable to the specified machine.

### Protection from electromagnetic interference

This machine has been tested in accordance with EU directive 89/336EEC governing electromagnetic interference. It is therefore very important that all non-approved electronic accessories, such as communication equipment, should be tested before installation and use, since they can cause interference to the electronic systems of the machine.

### Mobile telephones

To obtain the best functionality, mobile telephones should be permanently installed in the electrical system of the excavator, with a permanently antenna fixed on the cab, installed as advised by the manufacturer. If a portable mobile telephone is used, note that this can constantly transmit information to its base station, even when the telephone is not used. For this reason, it should not be located right beside electronic equipment in the machine, such as directly on a control panel etc.

### Guidelines

The following guidelines must be followed during installation:

- The antenna placement must be chosen to give good adaptation to the surroundings.
- The antenna cable must be of the coaxial type. Be careful to ensure that the cable is undamaged, that the sheath and braid are not split at the ends, the braid covers the connector ferrules and has good galvanic contact with them.
- The mating surface between the antenna mounting bracket and the bodywork must have clean metal surfaces, with all dirt and oxide removed. Protect the mating surfaces against corrosion after installation to maintain good galvanic contact.
- Remember to separate interfering and interfered cables physically. Interfering cables consist of the communication equipment's supply cables and antenna cable. Interfered cables are those which are connected to electronic devices in the machine. Install the cables as close as possible to earthed(grounded) sheet metal surfaces, since the sheet metal has a shielding effect.



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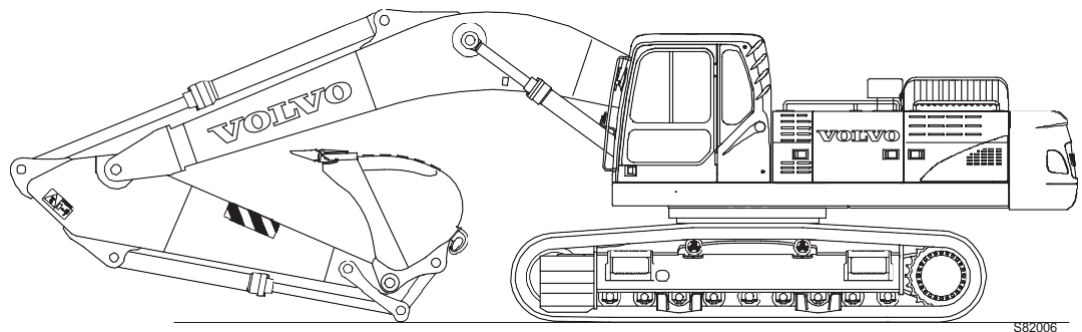
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# Presentation



## General

### Intended use

The machine is intended to be used in the way described in this manual. If the machine is used in another way or in potentially dangerous environments, e.g. explosive atmosphere or areas with dust containing asbestos, special safety regulations must be followed and the machine be equipped for such use.

Contact the manufacturer/ dealer for further information.

### Engine

The engine is a straight six-cylinder, four stroke, direct injection diesel with 9.6 liter cylinder volume, turbo charged, intercooled and electronic controller fuel injection, EMS (Engine Management System) with a cast iron block and cylinder head. Volvo engine D12CECE2

### Electrical system

The electrical system consists of engine starting system, charging system, machine monitoring system, engine/ pump control system and air conditioning system.

Engine speed is controlled by a rotary switch that incrementally changes rpm, and an auto idle system that automatically engages low idle when the machine is not operated for 5 seconds or more.

Engine condition can be checked via the VECU (Vehicle Electronic Control Unit) by the data connection between EMS (Engine Management System) and VECU.

### Hydraulic pump

The hydraulic pump assembly consists of two pumps connected by a splined coupling. The two pumps are driven simultaneously as the engine rotation is transmitted to the front drive shaft.

The pump consist of rotary group, swash plate group and valve block group.

The displacement of the pump is controlled by the regulator, and engine output power is effectively utilized by the proportional solenoid valve.

## Main control valve

The control valve consists of two 5-spool blocks and an intermediate block connected by screws. They contain six main spools for digging units, three spools for conflux and straight travel, a spool for the option unit, a main relief valve, port relief valves, holding valves and check valves. These are remotely controlled by the servo hydraulic system.

## Track motor and gearbox

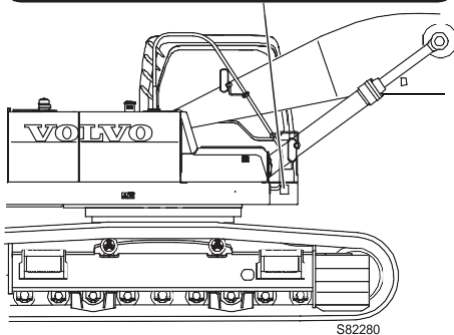
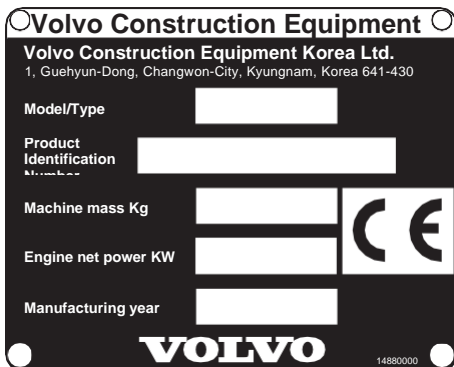
The track motor is a variable axial piston motor that consists of a housing, a rotary group and a port plate. The housing contains the swash angle control screw. The rotary group consists of the cylinders and the pistons. The port plate consists of the counterbalance valve, the check valves, the relief valves and the displacement changeover valve.

The gearbox has a three-stage planetary mechanism has three sets of sun gears, planetary gears and pinion gears, driven by the splined output shaft of the track motor mounted directly to the gearbox. The gearbox also houses the spring applied, hydraulically released parking brake assembly.

## Swing motor and gearbox

The swing motor is a fixed axial piston motor. The rotary group consists of a cylinder block and nine pistons located in the cylinder. The cover section has relief valves, an anti-cavitation valves and anti-rebound valves. The housing has a delay valve and a disk type brake.

The gearbox is composed of the sun gear, the planetary gear, the pinion gear and the housing. The power supplied to the output shaft of the swing motor reduces motor speed through the sun gear and the planetary gear, developing high torque that is transmitted to the pinion gear.



## CE marking and Declaration of Conformity

### NOTE :

**Applies only to machines marketed within the EU/ EEA.**

This machine is CE marked. This means that, when delivered to the customer, the machine meets the applicable “Essential Health and Safety Requirements”, according to the EU Machine Safety Directive. Any person carrying out an alteration that affects the safety of the machine, is responsible for the consequences.

The machine is supplied together with a Declaration of Conformity with the EU Machine Safety Directive. The documentation is a valuable document, which should be kept safe and always be kept in the machine.

If the machine is used for purposes, or with other special bodies or add-ons, other than described in these instructions, safety must at all times and in each case be maintained. The person carrying out such action is also responsible for the action, which, in some cases, may require a new CE marking and the issue of a new Declaration of Conformity in compliance with the EU Machine Safety Directive.

**Volvo Construction Equipment is only responsible for a machine which is used with approved equipment and spare parts specified by Volvo Construction Equipment.**

## EU EMC Directive

The electronic equipment of the machine may in some cases cause interference to other electronic equipment, or suffer from external electromagnetic interference, which may constitute safety risks.

The EU EMC directive on “Electromagnetic compatibility”, 89 / 336 / EEC, provides general description of what demands can be made on the machine out of a safety point of view, where permitted limits have been determined and given according to international standards.

A machine or device which meets the requirements should be CE marked. Our machines have been tested particularly for electromagnetic interference. The CE marking of the machine and the declaration of conformity also cover the EMC directive.

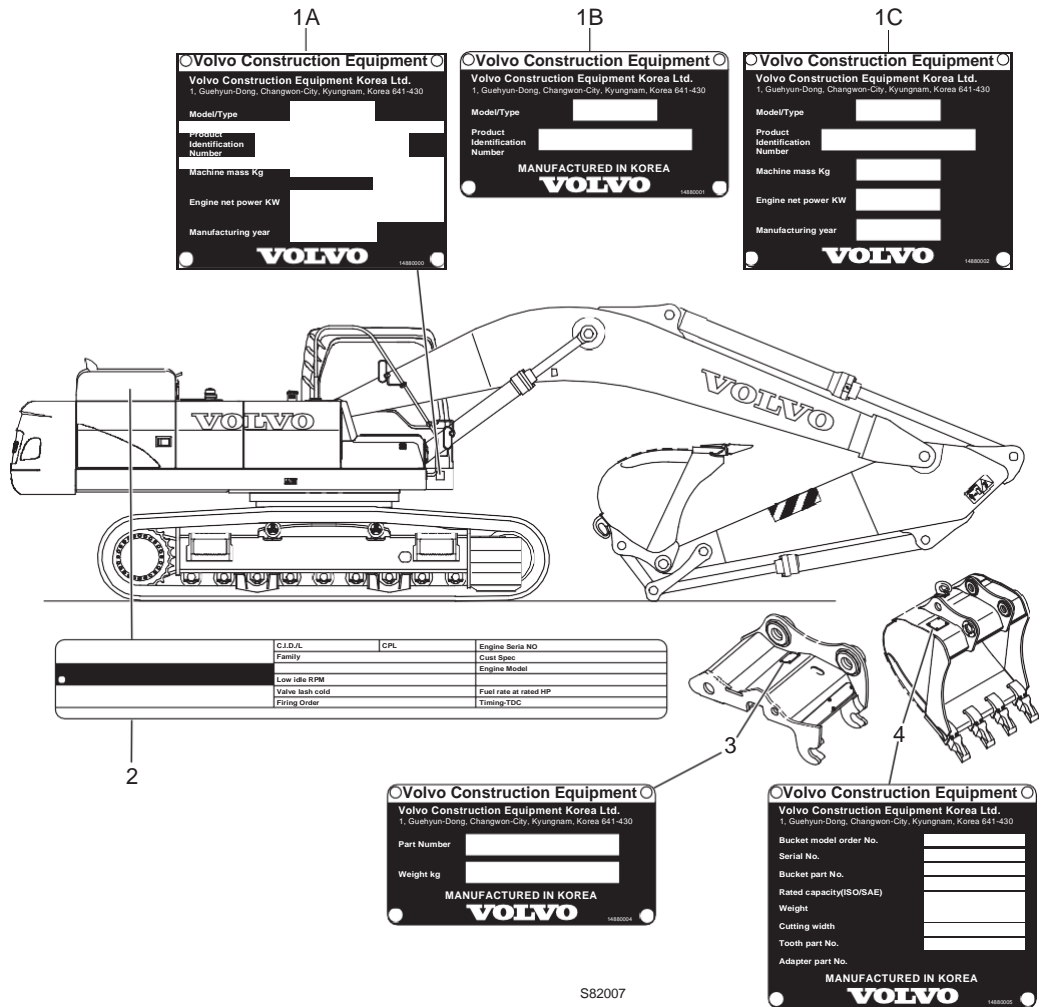
If other electronic equipment is fitted to this machine, the equipment must be CE marked and tested on the machine with regard to electromagnetic interference.

# Plates and decals

## Product plates

This illustration and text below show which product plates are found on the machine.

When ordering spare parts and when making enquires by telephone or correspondence, the model designation and **Product Identification Number (PIN)** should be stated.



- 1 Product plate with **Product Identification Number, PIN** for the complete machine (shows the model, serial numbers, machine weight, engine output and when applicable CE approval). The plate is positioned on the right side of the upper frame.
  - 1A:** Product plate, version for EU market
  - 1B:** Product plate, version for North America, International market
  - 1C:** Product plate, version for Middle East market
- 2 The engine type designation, part and serial numbers are stamped into both sides of the cylinder block.

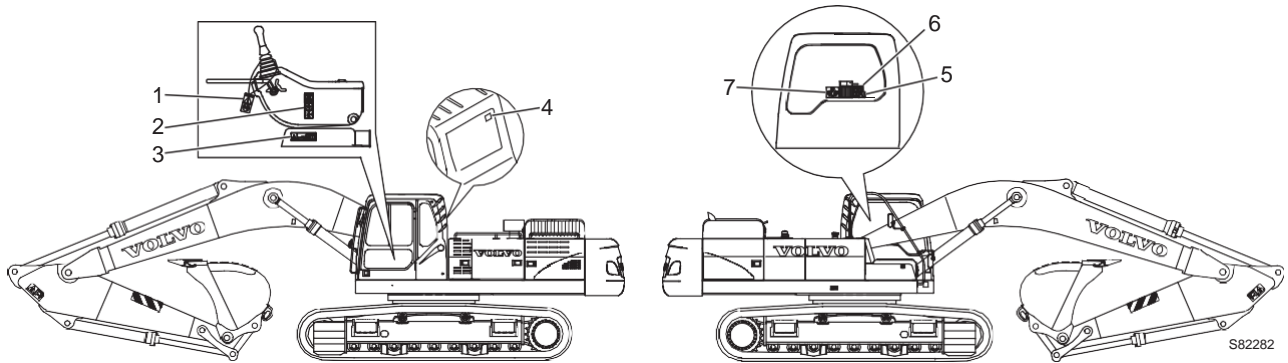
- 3 The quickfit nameplate is attached on the outside of the quick-fit. (shows part number and weight)
- 4 The bucket nameplate is attached on the top of the bucket. (shows the bucket model order Number, serial number, bucket part number, rated capacity, weight, cutting width, tooth part number and adapter part number)



### Information and warning plates

The following depicts various warning and information texts that may be affixed to the machine and their mounting location. The operator must know and pay attention to the warning and safety information on each decal and plate. Decals / plates that are lost, damaged, illegible, painted over or not clearly visible must be replaced immediately.

The part number (order number) of the respective plates / decals can be found in the Parts Catalogue.



#### 1 Do not start the engine



S80606

#### 2 Safety locking

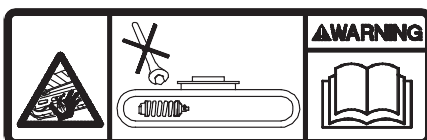
See *Safety locking system on page 60.*



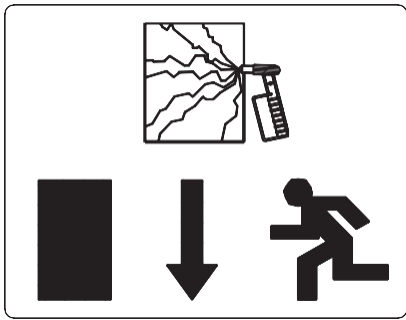
S82335

#### 3 Do not unscrew the recoil spring

See *Inspecting and adjusting the track slack on page 166.*



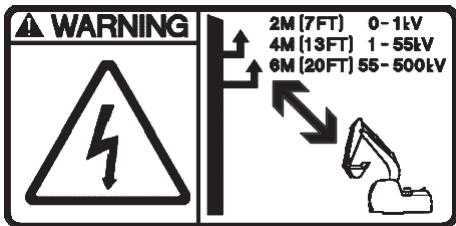
S80599



S80954

#### 4 Emergency exit

See *The emergency hammer (B) should be used in emergency situations for:* on page 65.



S80602

#### 5 Warning, high voltage

See *Never operate close to a high tension power line* on page 76.



S82004

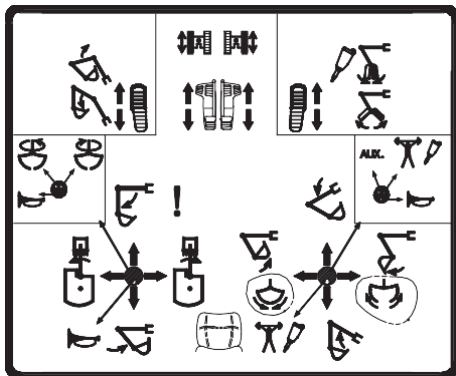
#### 6 Warning when operating the optional attachment

If the excavator is equipped with an adjustable boom or quickfit bucket, the digging arm with its boom fully retracted can damage the driver's cab.



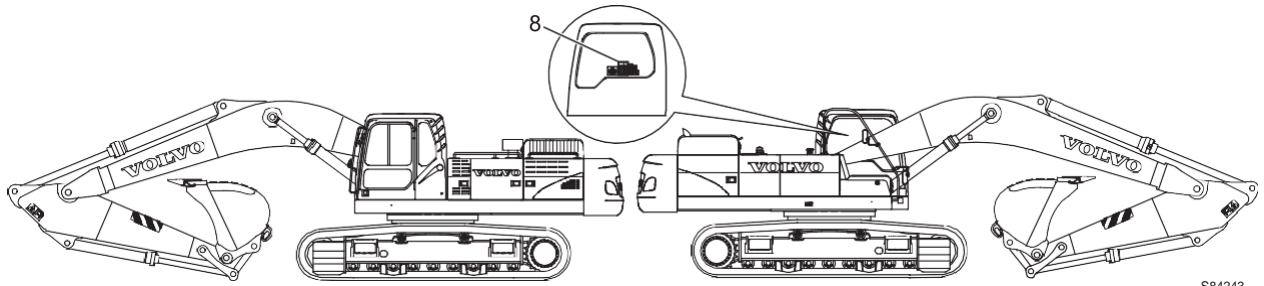
**WARNING!**

If the machine is equipped with any other attachments (quickfit, hammer, large bucket,...), that may damage the operator cab and other structure.



S81209

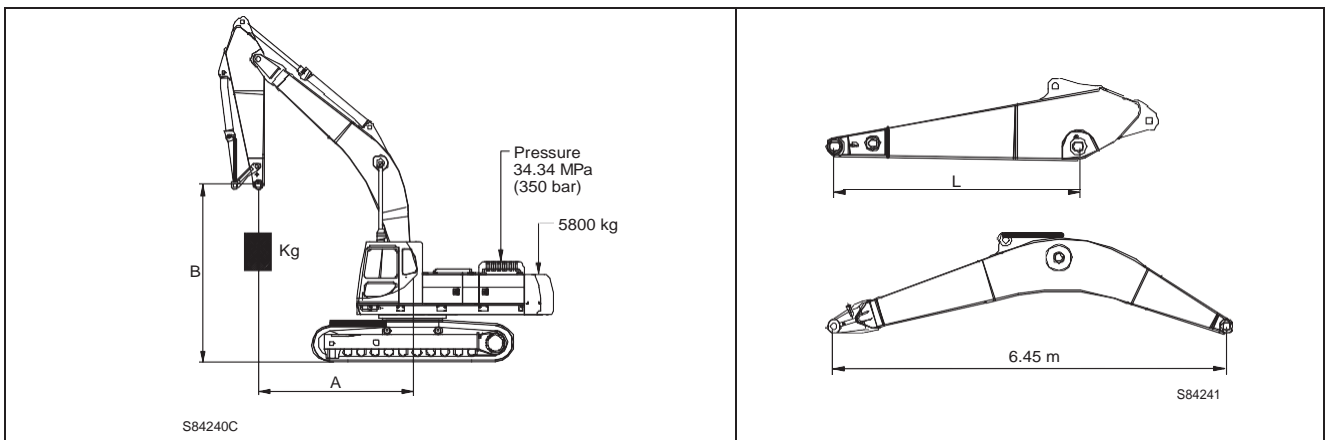
#### 7 Operating optional attachments



S84243

**8 Lifting capacity table**

Shoe 600 mm (kg)



S84240C

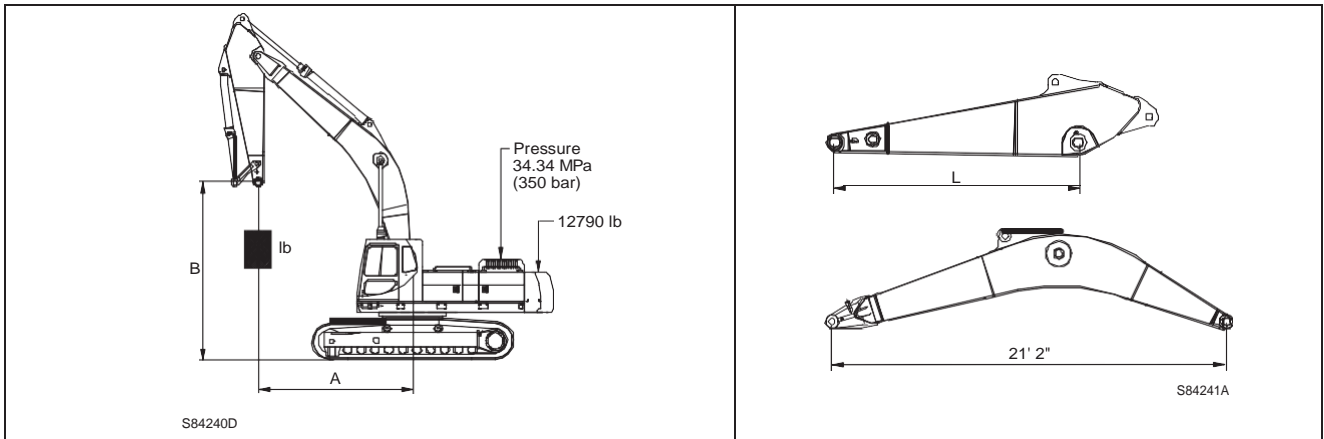
S84241

L	A	0.0 m		1.5 m		3.0 m		4.5 m		6.0 m		7.5 m		9.0 m		Maximum	
	B																
2.6 m	7.5 m															*8870	7040
	6.0 m									*10780	9060	9690	6260			*8590	5600
	4.5 m							*15940	13380	*12380	8600	9480	6070			7610	4870
	3.0 m							*20110	12190	13090	8090	9200	5830			7090	4500
	1.5 m							*15570	11550	12620	7690	8960	5600			6960	4380
	0.0 m							*20140	11390	12370	7470	8800	5460			7180	5460
	-1.5 m					*14290	*14290	20240	11430	12310	7420	8770	5430			7870	4910
	-3.0 m					*25570	23930	*19860	11630	12440	7530					9430	5860
3.2 m	-4.5 m					*20920	*20920	*16010	12030							*12040	8230
	7.5 m											*7920	6580			*7120	6240
	6.0 m											*8050	6510			*6920	5130
	4.5 m							*12290	*12290	*9890	8910	*8710	6290	7200	4650	*6990	4540
	3.0 m							*15880	12700	*11600	8360	9400	6010	7070	4530	6590	4220
	1.5 m							*18490	11830	12840	7890	9120	5750	6930	4400	4670	4110
	0.0 m							*19440	11480	12500	7590	8910	5570	6830	4310	6630	4190
	-1.5 m						*13820	*13820	*19200	11420	12370	7480	8820	5490		7160	4510
3.9 m	-3.0 m			*16340	*16340	*21900	*21900	*17960	11550	12420	7520	8880	5550		8300	5210	
	-4.5 m					*20830	*20830	*15380	11870	*11540	7760					*9990	6790
	-6.0 m																
	9.0 m															*6060	*6060
	7.5 m											*8000	6760			*5650	5340
	6.0 m											*8370	6620	*6980	4780	*5520	4480
	4.5 m									*10230	9090	*9230	6350	7240	4660	*5560	3990
	3.0 m							*16260	13020	*12290	8440	9440	6010	7050	4490	*5760	3710
3.9 m	1.5 m							*19870	12840	12840	7840	9070	5680	6860	4310	5760	3600
	0.0 m					*8400	*8400	20030	11200	12360	7420	8790	5420	6700	4170	5870	3650
	-1.5 m			*8840	*8840	*13010	*13010	19760	10990	12110	7210	8630	5280	6630	4100	6250	3870
	-3.0 m			*13770	*13770	*18880	*18880	19810	11030	12080	7180	8610	5260			7060	4370
	-4.5 m			*19650	*19650	*27110	23010	*19370	11290	12260	7340	8810	5440			8760	5410
	-6.0 m					*20590	*20590	*14990	11830							*11060	8120

\* Power booster ON

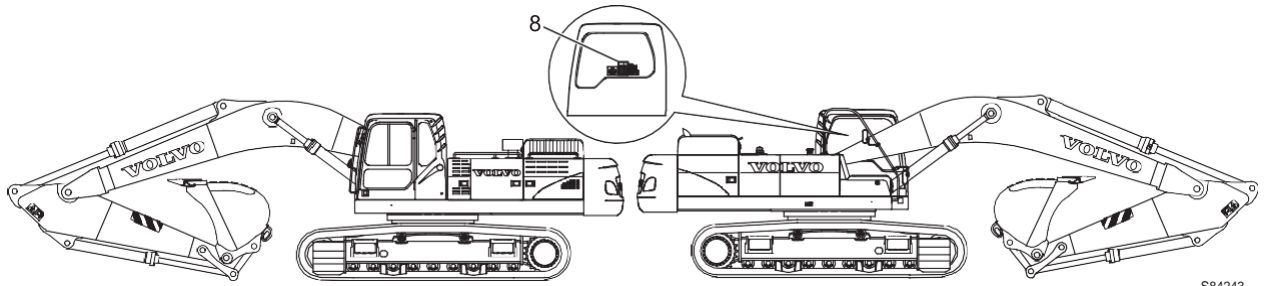


Shoe 23.6 in (lb)



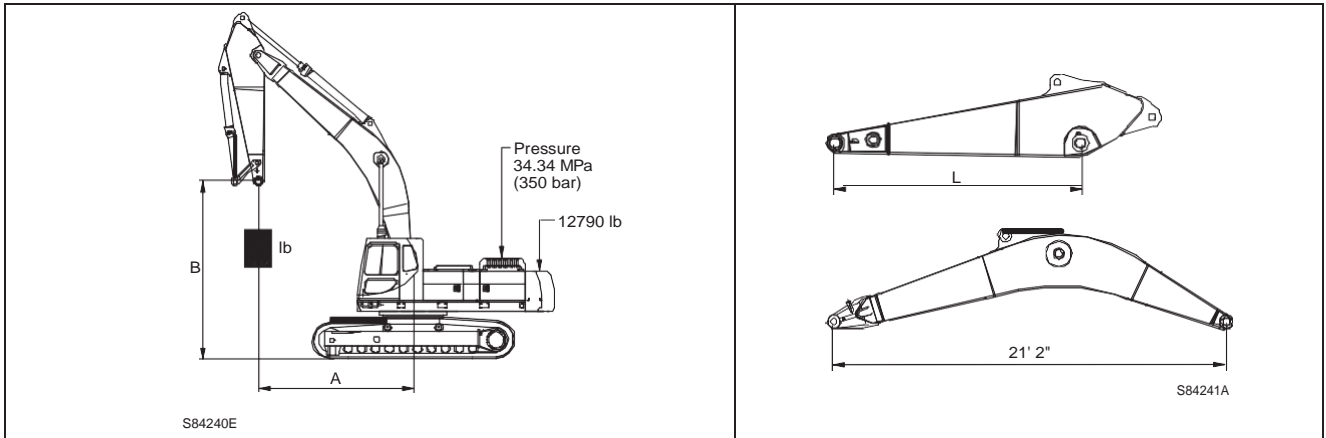
L	A	0.0 ft		5.0 ft		10.0 ft		15.0 ft		20.0 ft		25.0 ft		30.0 ft		Maximum	
	B																
8' 6"	25 ft									*20050	19990					*19670	15890
	20 ft									*23460	19510	20800	13450			*18980	12490
	15 ft							*34150	28910	*26800	18570	20390	13080			16860	10790
	10 ft							*43120	26370	28170	17480	19820	12560			15660	9940
	5 ft							*38070	24910	27160	16600	19290	12080			15340	9660
	0 ft							43230	24520	26600	16110	18950	11780			15830	9920
	-5 ft					*32520	*32520	43320	24590	26470	16000	18900	11730			17390	10860
	-10 ft					*57130	51140	*43020	25020	26760	16250					20950	13020
10' 6"	-15 ft					*44960	*44960	*34250	25940						*26490	18580	
	25 ft											*16010	14100			*15760	14040
	20 ft											*17650	14010			*15280	11440
	15 ft							*26390	*26390	*21430	19230	*18990	13560			*15400	10060
	10 ft							*34110	27460	*25090	18060	20260	12980	15210	9760	14570	9330
	5 ft							*39890	25540	27640	17040	19650	12420	14920	9490	14280	9080
	0 ft							*42110	24730	26900	16390	19210	12020	14730	9310	14630	9250
	-5 ft					*31280	*31280	*41640	24590	26610	16140	19020	11860			15820	9970
12' 1"	-10 ft			*36620	*36620	*49630	*49630	*38910	24870	26730	16240	19180	12000			18420	11570
	-15 ft			*44880	*44880	*33070	25590	*24590	16790						*22040	15250	
	-20 ft																
	25 ft											*17720	14490			*12520	11980
	20 ft											*18350	14240	*13560	10220	*12180	9980
	15 ft									*22170	19600	*20130	13680	15560	10020	*12240	8840
	10 ft							*34950	28120	*26600	18220	20330	12960	15170	9660	*12680	8210
	5 ft							*42860	25540	27630	16930	19540	12250	14760	9280	12710	7960
12' 1"	0 ft					*19100	*19100	42910	24130	26580	16010	18930	11690	14440	8980	12940	8050
	-5 ft			*19720	*19720	*29390	*29390	42300	23640	26040	15540	18580	11380	14300	8850	13800	8560
	-10 ft			*30830	*30830	*42720	*42720	42410	23730	25980	15490	18560	11370			15650	9690
	-15 ft			*44210	*44210	*58790	49240	*41790	24310	26400	15850					19580	12100
	-20 ft					*43640	*43640	*31640	25570							*24340	18620
	-25 ft																

\* Power booster ON



S84243

Shoe 31.5 in (lb)



S84240E

S84241A

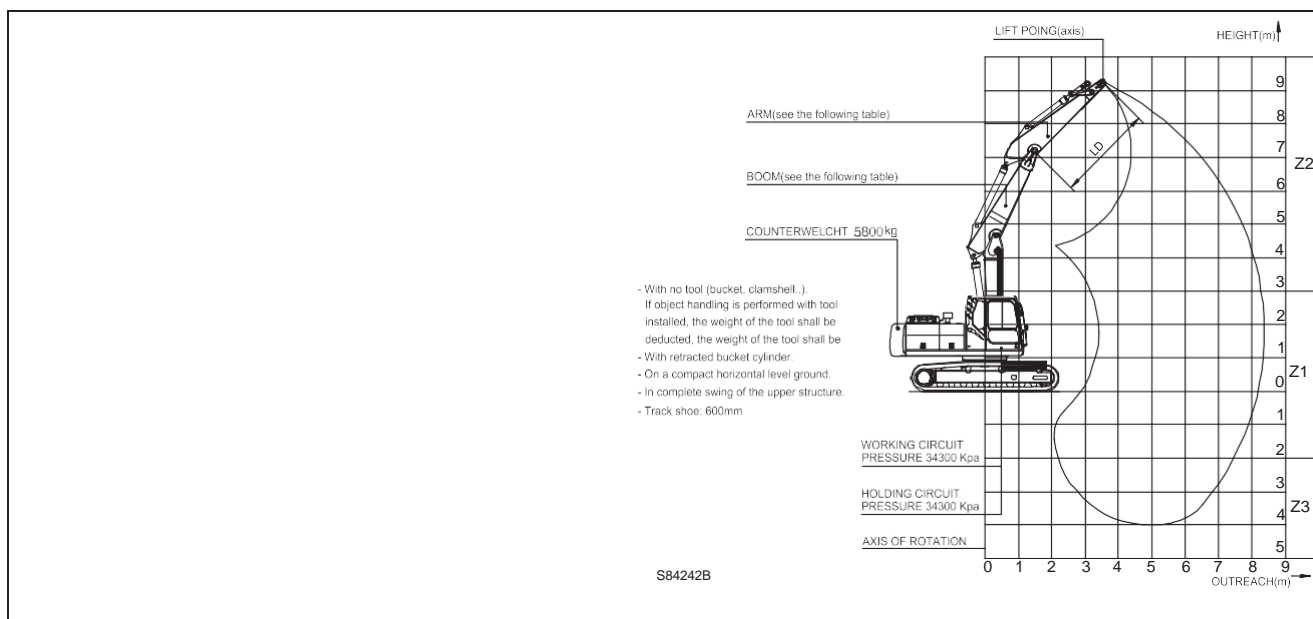
L	A	0.0 ft		5.0 ft		10.0 ft		15.0 ft		20.0 ft		25.0 ft		30.0 ft		Maximum			
	B																		
8' 6"	25 ft									*20050	20490					*19670	16310		
	20 ft									*23460	20010	21410	13820			*18980	12850		
	15 ft							*34150	29640	*26800	19060	21010	13450			17390	11120		
	10 ft							*43120	27100	29010	17970	20430	12930			16170	10250		
	5 ft							*38070	25640	28000	17090	19910	12460			15840	9970		
	0 ft								44570	25250	27450	16610	19570	12160			16350	10240	
	-5 ft						*32520	*32520	44670	25330	27320	16500	19520	12110			17960	11210	
	-10 ft						*57130	52550	*43020	25750	27610	16750					21620	13430	
-15 ft						*44960	*44960	*34250	26670							*26490	19120		
10' 6"	25 ft											*16010	14480			*15760	14430		
	20 ft											*17650	14400			*15280	11780		
	15 ft							*26390	*26390	*21430	19750	*18990	13950			*15400	10370		
	10 ft							*34110	28220	*25090	18580	*20870	13370	15720	10070	15060	9640		
	5 ft							*39890	26300	*28380	17550	20290	12810	15430	9800	14760	9380		
	0 ft							*42110	25490	27780	16910	19850	12410	15240	9630	15140	9560		
	-5 ft						*31280	*31280	*41640	25350	27480	16650	19660	12250			16360	10300	
	-10 ft			*36620	*36620	*49630	*49630	*38910	25630	27610	16760	19820	12390			19030	11940		
-15 ft					*44880	*44880	*33070	26360	*24590	17310					*22040	15710			
-20 ft																			
12' 1"	25 ft											*17720	14860			*12520	12310		
	20 ft											*18350	14610	*13560	10520	*12180	10270		
	15 ft									*22170	20100	*20130	14050	16050	10320	*12240	9110		
	10 ft							*34950	28850	*26600	18720	20940	13330	15660	9960	*12680	8480		
	5 ft							*42860	26280	28480	17420	20150	12620	15250	9580	13140	8220		
	0 ft							*19100	*19100	44250	24870	27430	16510	19540	12070	14920	9280	13380	8320
	-5 ft			*19720	*19720	*29390	*29390	43650	24370	26890	16040	19200	11760	14780	9150	14270	8850		
	-10 ft			*30830	*30830	*42720	*42720	43760	24470	26820	15980	19180	11740			16170	10010		
	-15 ft			*44210	*44210	*58790	50660	*41790	25050	27240	16350					20220	12480		
	-20 ft					*43640	*43640	*31640	26300							*24340	19160		
-25 ft																			

\* Power booster ON

**Shoe 600 mm (kg)**

**Working conditions:**

- With no tool (bucket, clamshell.).  
If object handling is performed with tool installed, the weight of the tool shall be deducted, the weight of the tool shall be
- With retracted bucket cylinder.
- On a compact horizontal level ground.
- In complete swing of the upper structure.
- Track shoe: 600 mm



		OUTREACH IN METERS - LOADS IN kg						
		OUTREACH (m)	3.0 m	4.5 m	6.0 m	7.5 m	9.0 m	
BOOM length 6.45 m	ARM (LD)	LD=2.6	Z2	-	11390	7690	5830	-
			Z1	14290		7420	5430	-
			Z3	20920		7530	-	-
		LD=3.2	Z2	-	11420	8360	6010	4530
			Z1	13820		7480	5490	4310
			Z3	20830		7520	5550	-
		LD=3.9	Z2	-	10990	8440	6010	4490
			Z1	8400		7210	5280	4100
			Z3	18880		7180	5260	-