Document Title: **Machine description** **EW140B,**	Function Group: **000**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Machine EW140B, description

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

EW140B is a wheeled excavator with a 360 degree slew movement.

The machine is equipped with a computerised monitoring system, vehicle control unit (V-ECU) which in turn works with engine control unit (E-ECU) and transmission control unit (T-ECU).

The machine is equipped with a Volvo Cologne D5D low-emission diesel engine, which is adapted for this excavator model. The engine is controlled by an engine control unit (E-ECU).

The diesel engine powers the working pump of the machine. The pump provides hydraulic flow to the working hydraulics, travel motor and any outrigger legs and support blade. One part of the double gear pump provides hydraulic flow to the servo hydraulics and the cooling fan for the hydraulic oil cooler. The other part provides hydraulic flow to the brakes and the steering circuit. The brake circuit has priority over the steering circuit. The tandem pump is mounted on the engine and is driven via the engine timing gears. The hydraulic system is monitored by the control unit for the transmission (T-ECU).

The machine has a load-sensing hydraulic system which always ensures that each movement receives oil according to the demand.

Propulsion of the machine is obtained with a hydraulic travel motor with variable displacement.

The travelling gearbox has two gears which are hydraulically operated. It is a so called Power Shift gearbox, which means that shifting is possible while the machine is moving. The brakes for the gear shifting are automatically applied by spring force and released by servo pressure. The gearbox is mounted on the rear axle.

The parking brake, which is applied by spring force, is integrated in the gearbox and makes use of the brake discs in the gearbox.

The superstructure is slewed using an axial piston motor with integrated planetary gear. The slew brake is negative, that is, it is applied automatically by spring force and released with the system pressure.

The slew pinion drives against a slew ring with internal ring gear. The slew ring connects the superstructure with the undercarriage.

A centre passage connects the superstructure and undercarriage hydraulically and electrically.

The cab is equipped with an ergonomic operator seat, ventilation and filtration system. The cab is also prepared for air conditioning.

The boom cylinders are provided with line-rupture valves.

Different combinations of boom, dipper arm and attachments can be offered. This manual describes the most common standard alternatives.

When ordering spare parts and when making enquiries on the telephone or by correspondence, the model designation and serial number should be given. When applicable, the information marked on individual parts should also be given.

Document Title: **Component locations**	Function Group: **000**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Component locations

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

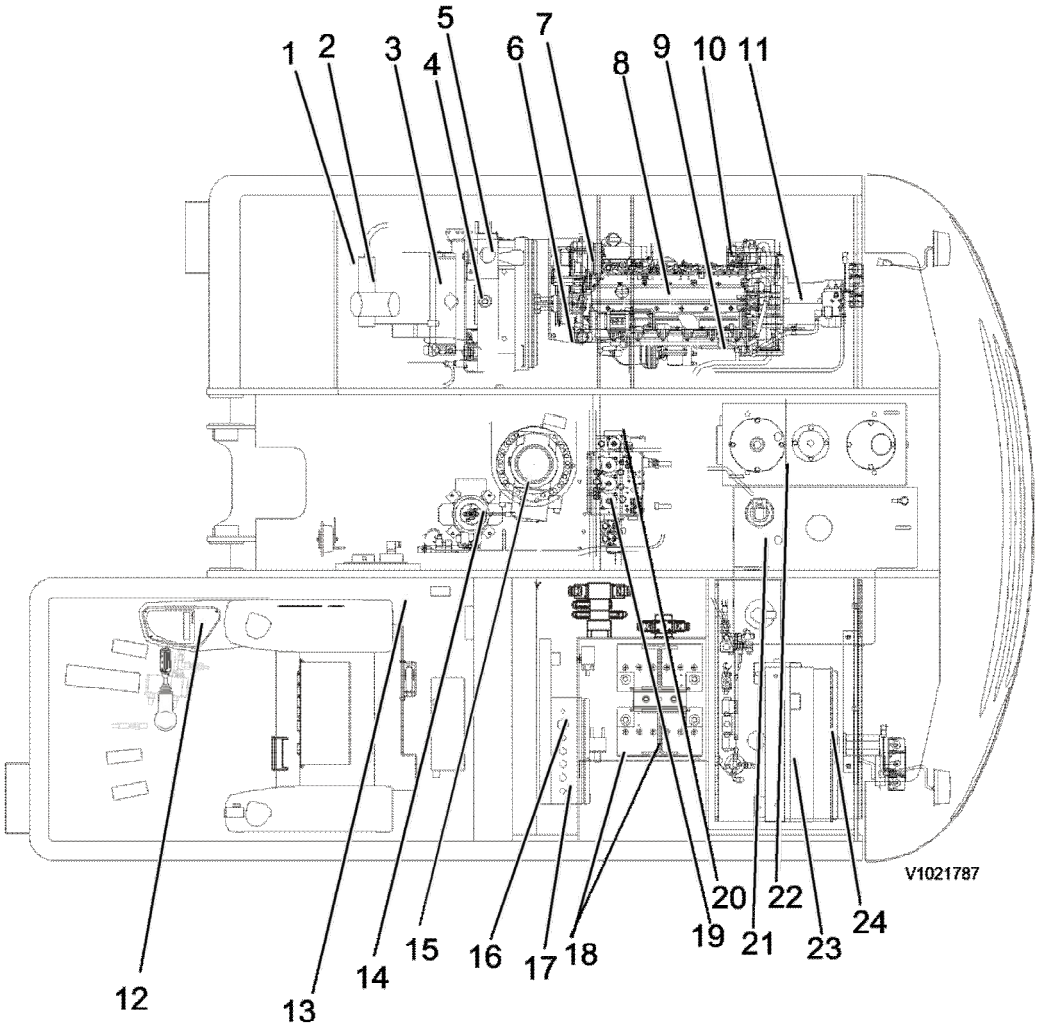


Figure 1
Component position

1. Vehicle control unit, E-ECU	13. Vehicle control unit (V-ECU)
2. Air filter	14. Centre passage
3. Expansion tank	15. Slew unit
4. Radiator	16. Transmission control unit (T-ECU)

5. Intercooler	17. Fuse box
6. AC compressor	18. Batteries
7. Alternator	19. Valve block A
8. Diesel engine	20. Valve block B
9. Starter motor	21. Diesel tank
10. Working pump	22. Hydraulic oil tank
11. Servo pump	23. Condenser
12. Instrument control unit (I-ECU)	24. Hydraulic oil cooler

Document Title: **Product plates**	Function Group: **000**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Product plates

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

When ordering spare parts, and in all telephone enquiries or correspondence the model designation and the Product Identification Number (PIN) must always be quoted.

Product plate

The product plate on the machine shows the manufacturer's name and address, model designation, PIN, machine weight, engine output, production year and year of delivery. There is also room for the CE mark. The plate is positioned under the boom on the superstructure frame.

Engine product plate

The engine product plate contains type designation and part and serial numbers and is positioned on the engine inside the rear engine cover on the right side of the machine.

Travel gearbox product plate

The gearbox product plate contains type designation and part and serial numbers and is positioned on the travel gearbox.

Axle product plate

The axle product plate contains type designation and part and serial numbers and is positioned on each axle.

VOLVO

Service Information

Document Title: **Volvo standard tightening torques**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Volvo standard tightening torques

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

The tightening torques in the following tables apply to bolts and nuts with tensile strength. The tables should be used as a general instruction for tightening bolts and nuts without specified values. The charts contains values for course thread bolts and nuts.
Torque values should be increased with ≈10%, for flange bolts.
All standard torques for bolts are without surface treatment.
The standard torque for bolts lubricated with oil should be reduced with 20% of the given value.

Standard tightening torque charts

Bolt size Metric Coarse Threads	**Tensile strength 8.8**		**Tensile strength 10.9**	
	(Nm)	**(lbf ft)**	**(Nm)**	**(lbf ft)**
M5	6	4	8	6
M6	10	7	14	11
M8	25	18	35	26
M10	50	37	70	52
M12	87	64	122	90
M14	139	103	195	144
M16	213	157	299	220
M18	293	216	413	305
M20	416	307	585	432
M24	719	530	1010	745
M27	1060	782	1490	1100
M30	1140	840	2025	1493
M36	2500	1844	3600	2653

Bolt size Inch SAE Coarse Threads	**Tensile strength 5**		**Tensile strength 8**	
	(lbf ft)	**(Nm)**	**(lbf ft)**	**(Nm)**
1/4	10	13,6	14	19
5/16	21	28,5	29	39,3
3/8	37	50,2	52	70
7/16	59	80	84	114
1/2	90	122	128	174
9/16	130	176	184	250
5/8	180	244	254	345

3/4	320	434	451	612
7/8	515	700	728	988
1	775	1052	1091	1480
1 1/8	953	1290	1545	2100
1 1/4	1344	1823	2180	2960
1 3/8	1600	2170	2650	3600
1 1/2	2000	2714	3200	4340

Hydraulic connections, general

Before fitting pipe couplings, plugs and hoses:

- Make sure that the sealing surfaces are clean and free from pores or scratches.
- Check elastic seal rings for defects.
- Oil in threads, sealing surfaces and contact surfaces except for ORFS-connections (ORFS = O-Ring Face Seal).

Applying Torque correction factor by tool angle

Correction factor		
Tool angle	**ORFS**	**Stud-end**
Allowable tolerance	±10%	- 0%, +10%
±0˚ ~ ±30˚	5% over torque	
±30˚ ~ ±45˚	20% over torque	
±45˚	NOT allowable	

Tool access angle

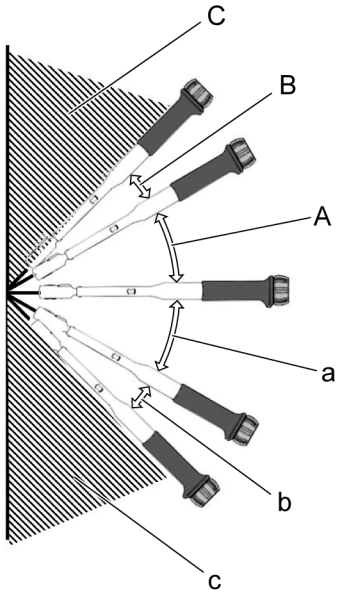


Figure 1
Tool access angle

A: +0˚ ~ +30˚

B: +30˚ ~ +45˚

C: +45˚

a: -0˚ ~ -30˚

b: -30˚ ~ -45˚

c: -45˚

ORFS female swivel fitting

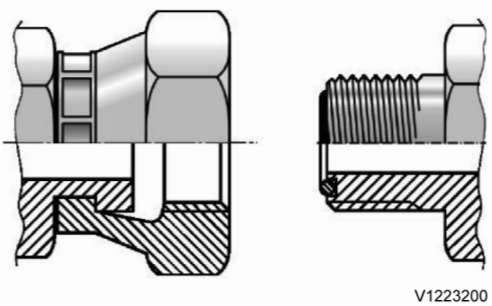


Figure 2

Threads type	Assembly position	Threads	Standard torque		±0˚ ~ ±30˚		±30° ~ ±45°	
			(Nm)	(lbf ft)	(Nm)	(lbf ft)	(Nm)	(lbf ft)
UN-UNF	ORFS	UNF 9/16-18	29 ±3	21.4 ±2.2	30.5 ±3.1	22.1 ±2.2	36.5 ±3.7	26.9 ±2.7
		UN 11/16-16	44 ±4	32.5 ±3.0	46.2 ±4.6	34.1 ±3.4	55.4 ±5.5	40.9 ±4.1
		UN 13/16-16	63 ±6	46.5 ±4.4	66.2 ±6.6	48.8 ±4.9	79.4 ±7.9	58.6 ±5.9
		UNS 1-14	106 ±8	78.2 ±5.9	111.3 ±11.1	82.1 ±8.2	133.6 ±13.4	98.5 ±9.9
		UN 1 3/16-12	140 ±12	103.3 ±8.9	147.0 ±14.7	108.4 ±10.8	176.4 ±17.6	130.1 ±13.0
		UN 1 7/16-12	175 ±15	129.1 ±11.1	183.8 ±18.4	135.6 ±13.6	220.5 ±22.1	162.6 ±16.3
		UN 1 11/16-12	270 ±20	199.1 ±14.8	283.5 ±28.4	209.1 ±20.9	340.2 ±34.0	250.9 ±25.1
	Stud-end	UNF 7/16-20	21 +2.1	15.4 +1.5	22.1 +2.2	16.3 +1.6	26.5 +2.7	19.5 +2.0
		UNF 1/2-20	37 +3.7	27.3 +2.7	38.9 +3.9	28.7 +2.9	46.6 +4.7	34.4 +3.4
		UNF 9/16-18	47 +4.7	34.7 +3.5	49.4 +4.9	36.4 +3.6	59.2 +5.9	43.7 +4.4
		UNF 3/4-16	81 +8.1	59.7 +6.0	85.1 +8.5	62.8 +6.3	102.1 +10.2	75.3 +7.5
		UNF 7/8-14	141 +14.1	104.0 +10.4	148.1 +14.8	109.2 +10.9	177.7 +17.8	131.1 +13.1
		UN 1 1/16-12	189 +18.9	139.4 +13.9	198.5 +19.9	146.4 +14.6	238.1 +23.8	175.6 +17.6
		UN 1 5/16-12	284 +28.4	209.5 +21.0	298.2 +29.8	219.9 +22.0	357.8 +35.8	263.9 +26.4
		UN 1 5/8-12	347 +34.7	255.9 +25.6	364.4 +36.4	268.8 +26.9	437.2 43.7	322.5 +32.3

	UN 1 7/8-12	425 +42.5	313.5 +31.4	446.3 +44.6	329.2 +32.9	535.5 +53.6	395.0 +39.5

G thread 30˚ cone female swivel fitting

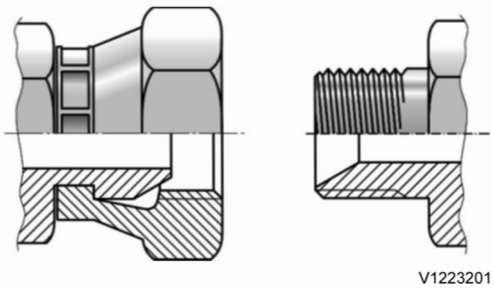


Figure 3

Threads type	Assembly position	Threads	Standard torque		±0˚ ~ ±30˚		±30° ~ ±45°	
			(Nm)	(lbf ft)	(Nm)	(lbf ft)	(Nm)	(lbf ft)
PF	ORFS	G 1/4-19	25 ±2.5	18.4 ±1.8	26.3 ± 2.6	19.4 ±1.9	31.5 ±3.2	23.2 ±2.3
		G 3/8-19	49 ±4.9	36.1 ±3.6	51.5 ± 5.2	38.0 ±3.8	61.7 ±6.2	45.5 ±4.6
		G 1/2-14	59 ±5.9	43.5 ±4.4	62.0 ± 6.2	45.7 ±4.6	74.3 ±7.4	54.8 ±5.5
		G 3/4-11	119 ±11.9	87.8 ±8.8	125.0 ±12.5	92.2 ±9.2	149.9 ±15.0	110.6 ±11.1
		G 1-11	140 ±14	103.3 ±10.3	147.0 ±14.7	108.4 ±10.8	176.4 ±17.6	130.1 ±13.0
		G 1 1/4-11	173 ±17.3	127.6 ±12.8	181.7 ±18.2	134.0 ±13.4	218.0 ±21.8	160.8 ±16.1
		G 1 1/2-11	205 ±20.5	151.2 ±15.1	215.3 ±21.5	158.8 ±15.9	258.3 ±25.8	190.5 ±19.1
	Stud-end	G 1/8-19	22 +2.2	16.2 +1.6	23.1 +2.3	17.0 +1.7	27.7 +2.8	20.4 +2.0
		G 1/4-19	52 +5.2	38.4 +3.8	54.6 +5.5	40.3 +4.0	65.5 +6.6	48.3 +4.8
		G 3/8-19	85 +8.5	62.7 +6.3	89.3 +8.9	65.9 +6.6	107.1 +10.7	79.0 +7.9
		G 1/2-14	105 +10.5	77.4 +7.7	110.3 +11.0	81.4 +8.1	132.3 +13.2	97.6 +9.8
		G 3/4-11	210 +21	154.9 +15.5	220.5 +22.1	162.6 +16.3	264.6 +26.5	195.2 +19.5
		G 1-11	400 +40	295.0 +29.5	420.0 +42.0	309.8 +31.0	504.0 +50.4	371.7 +37.1
		G 1 1/4-11	525 +52.5	387.2 +38.7	551.3 +55.1	406.6 +40.7	661.5 +66.2	487.9 +48.8
		G 1 1/2-11	630 +63.1	464.7 +46.5	661.5 +66.2	487.9 +48.8	793.8 +79.4	585.5 +58.6

Document Title: **Tightening torques**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Tightening torques

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Wheel nuts

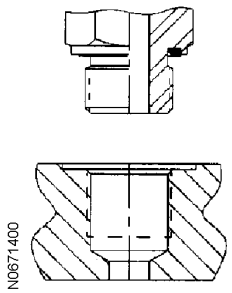
Wheel nuts		
 N0672000		
Thread M	**Wrench size (width across flats)**	**Tightening torque (Nm)**
M22 x 1.5	30	560 – 600

Hydraulic connections, general

Before fitting pipe couplings, plugs and hoses:

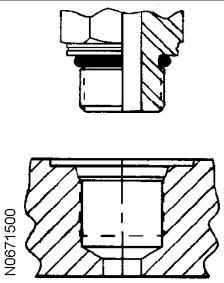
- Make sure that the sealing surfaces are clean and free from pores or scratches.
- Check elastic seal rings for defects.
- Oil in threads, sealing surfaces and contact surfaces except for ORFS-connections (ORFS = O-Ring Face Seal).

Valve connections

Valve connections, ORFS-connections with ED seals (DIN 3852 form E)		
 N0671400		
Connection thread (mm)	**Wrench size, width across flats (mm)**	**Tightening torque (Nm)**
M10 x 1.0		19
M12 x 1.5	17	37
M14 x 1.5	22	58
M16 x 1.5	22	74
M18 x 1.5	24	94
M20 x 1.5		130
M22 x 1.5	27	140
M27 x 2.0	32	190
M33 x 2.0	41	330

M42 x 2.0	50	470
M48 x 2.0	55	570
Connection thread (inches)	**Wrench size, width across flats (mm)**	**Tightening torque (Nm)**
G 1/8	17 alt. 19	19
G 1/4	19 alt. 22	58
G 3/8	22 alt. 27	84
G 1/2	27 alt. 32	120
G 3/4	32 alt. 41	190
G 1	41 alt. 46	330
G 1 1/4	50	470
G 1 1/2	55	570

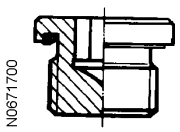
Valve connections, ORFS-connections with O-ring seals (ISO 6149)



Connection thread (mm)	**Wrench size, width across flats (mm)**	**Tightening torque (Nm)**
M8 x 1.0		11
M10 x 1.0		21
M12 x 1.5	17 alt. 19	37
M14 x 1.5	19 alt. 22	47
M16 x 1.5	22	58
M18 x 1.5	24 alt. 27	74
M22 x 1.5	27 alt. 32	110
M27 x 2.0	32	180
M33 x 2.0	32, 41 alt. 46	330
M42 x 2.0	50	350
M48 x 2.0	55	440
Connection thread (inches)	**Wrench size, width across flats (mm)**	**Tightening torque (Nm)**
7/16 – 20 UNF	16	21
1/2 – 20 UNF		26
9/16 – 18 UNF	19	37
3/4 – 16 UNF	22	74
7/8 – 14 UNF	27	110
1 1/16 – 12 UNF	41	180
1 5/16 – 12 UNF	41	284
1 5/8 – 12 UNF	50	300
1 7/8 – 12 UNF	55	390

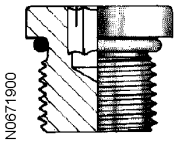
Blanking plugs

Blanking plugs with ED seal



Connection thread (mm)	Allen key dim. (mm)	Tightening torque (Nm)
M10 x 1.0	5	12
M12 x 1.5	6	25
M14 x 1.5	6	35
M16 x 1.5	8	55
M18 x 1.5	8	65
M20 x 1.5	10	80
M22 x 1.5	10	90
M26 x 1.5	12	100
M27 x 2.0	12	140
M33 x 2.0	17	230
M42 x 2.0	22	360
M48 x 2.0	24	360
Connection thread (inches)	**Allen key dim. (mm)**	**Tightening torque (Nm)**
G 1/8	5	13
G 1/4	6	30
G 3/8	8	60
G 1/2	10	80
G 3/4	12	140
G 1	17	200
G 1 1/4	22	400
G 1 1/2	24	450

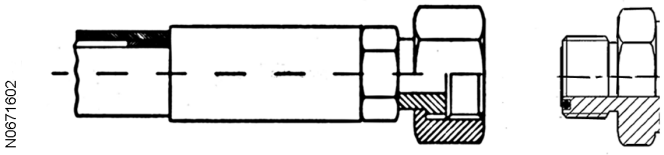
Blanking plugs with O-ring seal (ISO 6149)



Connection thread (mm)	Allen key dim. (mm)	Tightening torque (Nm)
M10 x 1.0	5	20
M12 x 1.5	6	35
M14 x 1.5	6	45
M16 x 1.5	8	55
M18 x 1.5	8	70
M20 x 1.5	10	80
M22 x 1.5	10	100
M26 x 1.5	12	130
M27 x 2.0	12	170
M33 x 2.0	14	310
M42 x 2;0	22	330

ORFS-connections

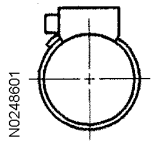
ORFS-connections (ISO 8434-3)



Thread (inches)	Wrench size, width across flats (mm)	Tightening torque (Nm) *

9/16 – 18 UNF	17 alt. 19	25
11/16 – 16 UN	22	35
13/16 – 16 UN	24	55
1 – 14 UNS	30	85
1 3/16 – 12 UN	36	120
1 7/16 – 12 UN	41 alt. 46	160
1 11/16 – 12 UN	50	200
2 – 12 UN	60	260
* Threads and sealing surface must not be oiled in before tightening.		

Hose clamps

Hose clamps with worms		
		
Intended for hose outside diameter (mm)	**Wrench size, width across flats (mm)**	**Tightening torque (Nm)**
10 – 19	7	2.5
20 – 30	7	3.5
31 – 49	7	4.5
50 – 231	7	5.5

Bolts and nuts

The pretensioning force achieved at a given tightening torque depends on the coefficient of friction of the bolted joint.
The coefficient of friction in turn depends on the surface texture, surface treatment and lubricated condition. The values are calculated assuming a coefficient of friction of 0.2 for a dry chromated flange bolt and 0.15 for a lubricated chromated flange bolt. The lower torque for Allen bolts and traditional hex bolts, in relation to flange bolts, is due to the shorter torque arm for the frictional force under the bolt head (smaller diameter of bolt head).

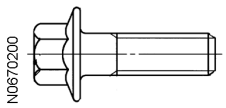
The following abbreviations for surface treatment are used in the tables:

- Fe/Zn-Fe = Black chromated zinc - iron
- FZB = Blank chromated

NOTE!
In some body parts, there are weld bolts with much lower strength than normal bolts of the same dimension.

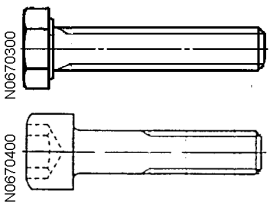
NOTE!
When Nordloc washer is used, increase the torque by 20%.

NOTE!
Bolts provided with liquid alt. micro-capsuled thread locker or thread sealant shall be tightened with the same torque as a lubricated bolt of the same type.

Flange bolts						
						**Blind rivet nut**
Thread (mm)	**Wrench size, width across flats (mm)**	**Torque (Nm)**				**Torque (Nm)**
		8.8 Fe/Zn-Fe Dry	**8.8 Fe/Zn-Fe Lubricated**	**10.9 Phosphated**	**10.9 Phosphated Lubricated**	**Dry**

M5	8	7	6			6
M6	10	12	10			10
M8	12	28	24			24
M10	14	56	48	70	60	48
M12	17	100	85	125	105	82
M14	18	160	140	200	175	
M16	21	250	220	320	275	

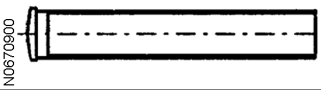
Hex bolts and Allen head bolts



Blind rivet nut

	Wrench size (width across flats)		**Torque (Nm)**				**Torque (Nm)**
Thread (mm/inch)	**Hex bolt (mm/inch)**	**Allen head bolt (mm/ inch)**	**8.8 FZB & Fe/Zn-Fe Dry**	**8.8 FZB & Fe/Zn-Fe Lubricated**	**10.9 Phosphated Lubricated**	**12.9 Untreated Lubricated**	**Dry**
M5	8	4	6	5			6
M6	10	5	10	9		20	10
M8	13	6	25	22		40	24
M10	16	8	50	44	60	80	48
M12	18	10	90	75	105	140	82
M14	21	12	140	125	175	220	
M16	24	14	220	190	275	340	
M20	30	17	450	380	540	650	
M24	36	19	770	660	900	1 120	
M27	41	–	1 100	940	1 350	1 620	
M30	46	22	1 500	1 280	1 840	2 210	
M36	55		2 500	2 300	3 210	3 850	
1/4 UNC	7/16	3/16	12	10	15	20	
5/16 UNC	1/2	1/4	25	21	30	40	
3/8 UNC	9/16	5/16	45	38	55	70	
7/16 UNC	5/8		65	55	90		
1/2 UNC	3/4	3/8	100	85	130	170	
9/16 UNC	13/16		145	123	190		

Nuts on weld bolts (material S235JRG2-EN 10025)



Thread	**Torque (Nm)**
M6	5
M8	12

Tolerances

Modern high-quality torque wrenches normally give a variation of ± 5 % of the indicated value. This, together with variations in friction coefficient, gives a range in the pretensioning force of approximately ± 16 % for lubricated bolted joints and ± 29

% for dry bolted joints.

Document Title: **Conversion tables**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Conversion tables

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Length

Unit	**cm**	**m**	**km**	**in**	**ft**	**yd**	**mile**
cm	1	0.01	0.00001	0.3937	0.03281	0.01094	0.000006
m	100	1	0.001	39.37	3.2808	1.0936	0.00062
km	100000	1000	1	39370.7	3280.8	1093.6	0.62137
in	2.54	0.0254	0.000025	1	0.08333	0.02777	0.000015
ft	30.48	0.3048	0.000304	12	1	0.3333	0.000189
yd	91.44	0.9144	0.000914	36	3	1	0.000568
mile	160930	1609.3	1.6093	63360	5280	1760	1
1 mm = 0.1 cm - 1 mm = 0.001 m							

Area

Unit	**cm^2**	**m^2**	**km^2**	**a**	**ft^2**	**yd^2**	**in^2**
cm^2	1	0.0001	-	0.000001	0.001076	0.000012	0.155000
m^2	10000	1	0.000001	0.01	10.764	1.1958	1550.000
km^2	-	1000000	1	10000	1076400	1195800	-
a	0.01	100	0.0001	1	1076.4	119.58	-
ft^2	-	0.092903	-	0.000929	1	0.1111	144.000
yd^2	-	0.83613	-	0.008361	9	1	1296.00
in^2	6.4516	0.000645	-	-	0.006943	0.000771	1
1 ha = 100 a - 1 $mile^2$ = 259 ha = 2.59 km^2							

Volume

Unit	**cm^3 = cc**	**m^3**	**l**	**in^3**	**ft^3**	**yd^3**
cm^3 = ml	1	0.000001	0.001	0.061024	0.000035	0.000001
m^3	1000000	1	1000	61024	35.315	1.30796
dm^3(l)	1000	0.001	1	61.024	0.035315	0.001308
in^3	16.387	0.000016	0.01638	1	0.000578	0.000021
ft^3	28316.8	0.028317	28.317	1728	1	0.03704
yd^3	764529.8	0.76453	764.53	46656	27	1
1 gal (US) = 3785.41 cm^3 = 231 in^3 = 0.83267 gal (UK)						

Weight

Unit	g	kg	t	oz	lb
g	1	0.001	0.000001	0.03527	0.0022
kg	1000	1	0.001	35.273	2.20459
t	1000000	1000	1	35273	2204.59
oz	28.3495	0.02835	0.000028	1	0.0625
lb	453.592	0.45359	0.000454	16	1
1 ton (metric) = 1.1023 ton (US) = 0.9842 ton (UK)					

Pressure

Unit	kp/cm^2	bar	$Pa=N/m^2$	kPa	lbf/in^2	lbf/ft^2
kp/cm^2	1	0.98067	98066.5	98.0665	14.2233	2048.16
bar	1.01972	1	100000	100	14.5037	2088.6
$Pa=N/m^2$	0.00001	0.001	1	0.001	0.00015	0.02086
kPa	0.01020	0.01	1000	1	0.14504	20.886
lbf/in^2	0.07032	0.0689	6894.76	6.89476	1	144
lbf/ft^2	0.00047	0.00047	47.88028	0.04788	0.00694	1
kg/cm^2 = 735.56 Dry (mmHg) = 0.96784 atm						

Unit explanations

Unit	abbreviation
Newton meter	Nm
Kilopoundmeter	kpm
Kilopascal	kPa
Megapascal	MPa
Kilowatt	kW
kilojoule	kJ
British thermal unit	Btu
Calorie	ca

Approx. conversion

SI unit	Conversion factor	Non SI	Conversion factor	SI
Torque				
Nm	x10.2	=kg/cm	x0.8664	=lb in
Nm	x0.74	=lbf·ft	x1.36	=Nm
Nm	x0.102	=kg/m	x7.22	=lbft
Pressure (Pa = N/m^2)				
kPa	x4.0	$=in.H_2O$	x0.249	=kPa
kPa	x0.30	=in.Hg	x3.38	=kPa
kPa	x0.145	=psi	x6.89	=kPa
bar	x14.5	=psi	x0.069	=bar
kp/cm^2	x14.22	=psi	x0.070	$=kp/cm^2$
N/mm^2	x145.04	=psi	x0.069	=bar
MPa	x145	=psi	x0.00689	=MPa
Power (W = J/s)				
kW	x1.36	=hp(cv)	x0.736	=kW

kW	x1.34	=bhp	x0.746	=kW
kW	x0.948	=Btu/s	x1.055	=kW
W	x0.74	=ft·lb/s	x1.36	=W
Energy (J = Nm)				
kJ	x0.948	=Btu	x1.055	=kJ
J	x0.239	=calorie	x4.19	=J
Speed and acceleration				
m/s^2	x3.28	=ft/s^2	x0.305	=m/s^2
m/s	x3.28	=ft/s	x0.305	=m/s
km/h	x0.62	=mph	x1.61	=km/h
Horsepower/torque				
Bhp x5252 rpm= TQ (lb·ft)			TQ x rpm 5252=bhp	
Temperature				
ºC =(ºF-32)/1.8			ºF =(ºC x1.8) +32	
Flow factor				
l/min (dm^3/min)	x0.264	= US gal/min x3.785		=liter/min

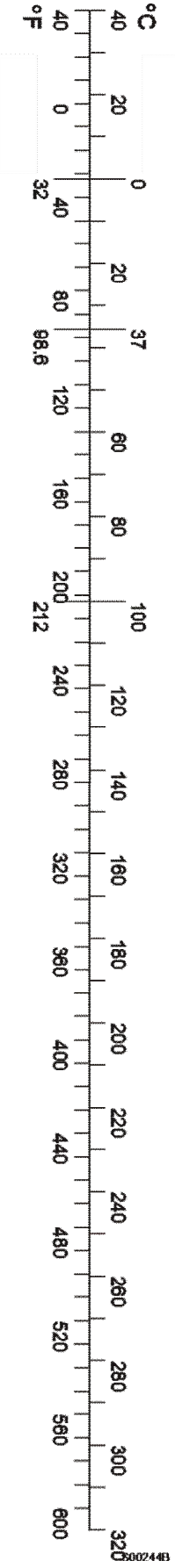


Figure 1

Document Title: **Engine, specifications**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Engine, specifications

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Model	**Used in**	**Power**	**Engine speed (rpm)**
D5D EBE 2	EW140B	92 kW	1900 rpm

Type	**Four-stroke diesel**
Combustion system	Direct injection
Number of cylinders	4
Number of valves	8
Displacement	4.7 dm^3 (1.24 US gal)
Rotational direction	Facing flywheel, counter-clockwise
Compression ratio	17.5:1
Injection order	1-3-4-2
Low idle	800 rpm
Max. rpm fully loaded	1900 rpm

Document Title: **Capacities**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Capacities

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Volumes	
Engine oil	15 l (3.9 US gal)
Fuel tank	250 l (66 US gal)
Electrically driven fuel filling pump, flow capacity at 3 m height	50 l/min (13.2 US gal/min)
Cooling system (incl. glycol)	21.5 l (5.6 US gal)
Hydraulic system, total	235 l (61.1 US gal)
Hydraulic oil tank	120 l (31.2 US gal)
Travel gearbox	2.7 l (0.7 US gal)
Rear axle, wet disc brakes	11 l (2.9 US gal)
Rear axle, drum brakes	11 l (2.9 US gal)
Front axle	8.5 l (2.3 US gal)
Hub reduction gears, wet discs	1.0 l (0.3 US gal)
Hub reduction gears, drum discs	1.0 l (0.3 US gal)

Document Title: **Engine, weights**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Engine, weights

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Engine, dry, approx.	430 kg (948 lb)

Document Title: **Cylinder head, specifications**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Cylinder head, specifications

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Bolts for cylinder head

Thread	M14
Length	141 mm (5.55 in)

Valve seat location

Diameter: inlet exhaust	 49.0 +0.025 mm (1.93 +0.00098 in) 43.5 +0.025 mm (1.79 +0.00098 in)
Depth: inlet exhaust	 11 +1mm (0.43 +0.040 in) 11 +1mm (0.43 +0.040 in)

Cylinder head gasket

Marking	**Intended for piston height**
1 hole	0.28-0.54 mm (0.011-0.021 in)
2 holes	0.54-0.64 mm (0.021-0.025 in)
3 holes	0.64-0.75 mm (0.025-0.030 in)

Document Title: **Cylinder block, specifications**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Cylinder block, specifications

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Cylinder diameter (liner)	108 +0.02 mm (4.25 +0.0008 in)
Wear limit	108.1 mm (4.256 in)
Stroke	130 mm (5.12 in)
Sealing surface for liner, height	8.92 +0.03 mm (0.351 +0.0012 in)
Piston cooling nozzle	2-hole

Document Title: **Cylinder liner, specifications**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Cylinder liner, specifications

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Sealing surface against cylinder block, height	9.0 -0.02 mm (0.354 -0.0008 in)
Liner height above cylinder block	0.03-0.08 mm (0.0012-0.0031 in)

Document Title: **Pistons, specifications**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Pistons, specifications

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Number of ring grooves	3
Piston pin, diameter	42 -0.006 mm (1.65 -0.00024 in)
Max. height of pistons above cylinder block face	0.28-0.75 mm (0.011-0.03 in)
Marking against flywheel side	Flywheel symbol

Combustion chamber	
Diameter	71 ±0.1 mm (2.8 ±0.004 in)
Depth	16.66 ±0.1 mm (0.66 ±0.004 in)

Document Title: **Piston rings, specifications**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Piston rings, specifications

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Compression rings	
Quantity	2
Piston ring clearance in groove: Upper compression ring Lower compression ring	 tapered 0.17 mm (0.0067 in)
Piston ring clearance in groove: Upper compression ring Lower compression ring	 0.8 mm (0.032 in) 2.5 mm (0.098 in)

Oil scraper	
Quantity	1
Width, incl. spring	3 mm (0.118 in)
Piston ring clearance in groove	0.10 mm (0.004 in)
Piston ring gap in ring opening	1.15 mm (0.0453 in)

Document Title: **Valve mechanism, specifications**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Valve mechanism, specifications

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Valves

Valve disc diameter: inlet exhaust	 48.0 ±0.01 mm (1.89 ±0.004 in) 42.0 ±0.01 mm (1.65 ±0.004 in)
Spindle diameter: inlet exhaust	 8.98 -0.015 mm (0.354 -0.00059 in) 8.96 -0.015 mm (0.353 -0.00059 in)
Valve disc edge: inlet exhaust	 2.1 mm (0.083 in) 1.8 mm (0.071 in)
Angle valve seat: inlet exhaust	 29.5° 44.5°
Seat angle: inlet exhaust	 30° 45°
Distance valve disc – cylinder head underside	1.5 mm (0.059 in)
Valve clearance, cold engine, setting value: inlet exhaust	 0.30 mm (0.0118 in) 0.50 mm (0.0197 in)

Valve seat inserts

Outside diameter, standard: inlet exhaust	 49.09 ±0.02 mm (1.933 ±0.0008 in) 43.06 ±0.02 mm (1.695 ±0.0008 in)
Height: inlet exhaust	 7.5 ±0.1 mm (0.295 ±0.004 in) 7.9 ±0.1 mm (0.311 ±0.004 in)

Valve guides

Inside diameter	9.025 +0.025 mm (0.3553 +0.00098 in)
Clearance, valve stem – guide inlet, max. exhaust, max.	 0.10 mm (0.0040 in) 0,13 mm (0.0051 in)

Valve springs

Type	Single
Wire diameter	4.5 mm (0,177 ±0.0012 in)
Length, unloaded	64.7 ±1.3 mm (2.55 ±0.051 in)

Document Title: **Camshaft, specifications**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Camshaft, specifications

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Drive	Gear
Radial clearance	0.050-0.124 mm (0.0020-0.00490 in)
Axial clearance	0.1-0.5 mm (0.0040-0.020 in)

Bearing bushings

Quantity	7
Bearing bushings, inside diameter	65.0 +0.054 mm (2.559 +0.00213 in)
Wear limit	65.08 mm (2.562 in)
Thickness	1.988 +0.012 mm (0.0783 +0.00047 in)
Position for bearing bushing closest to flywheel	2 +0.2 mm (0.08 +0.008 in) From cylinder block outer edge

Document Title: **Crankshaft, specifications**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Crankshaft, specifications

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

General

Axial clearance	0.1-0.3 mm (0.0040-0.0120 in)
Radial clearance	0.03-0.092 mm (0.0012-0.0036 in)
Max "run-out"	0.07 mm (0.0028 in)

Main bearing pins

Diameter, standard	85.00-84.98 mm (3.3464-3.3457 in)
Oversize 0.25 mm (0.0098 in)	84.75-84.48 mm (3.3366-3.3260 in)
Max. out-of-round	0.01 mm (0.0004 in)
Width, standard	38.0 +0.06 mm (1.496 +0.0024 in)

Main bearings

Type	Replaceable
Inside diameter	85.030-85.066 mm (3.3476-3.3490 in)
Thickness, standard	2,727-2.735 mm (0.107362-0.107677 in)
Oversize 0.25 mm (0.0098 in)	2.852-2.860 mm (0.112283-0.112598 in)

Thrust washers (thrust bearing)

Thickness, standard	2.9 +0.05 mm (0.114 +0.0020 in)
Oversize	0.2 mm (0.008 in)

Big-end bearing journals

Diameter, standard	68.00-67.98 mm (2.67715-2.67637 in)
Oversize 0.25 mm (0.0098 in)	67.75-67.73 mm (2.66732-2.66653 in)
Max. out-of-round	0.01 mm (0.0004 in)

Document Title: **Connecting rods, specifications**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile: **EW140B Volvo**			

Connecting rods, specifications

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EW140B Volvo			

Marking connecting rod resp. cap	Number code
Length C-C	210 ±0.06 mm (8.27 ±0.0024 in)
Piston pin end, bushing inside diameter Wear limit	42.04-42.05 mm (1.6551-1.6555 in) 0.08 mm (0.0032 in)
Piston pin end, bushing outside diameter	45.58-45.62 mm (1.7945-1.7961 in)
Hole diameter in connecting rod, piston pin end	45.5 +0.02 mm (1.79 + 0.0008 in)
Connecting rod end, inside diameter with mounted bearings	72,5 +0,02 mm (2.854 + 0.0008 in)
Max. clearance crankshaft – connecting rod	0.3-0.4 mm (0.012-0.016 in)

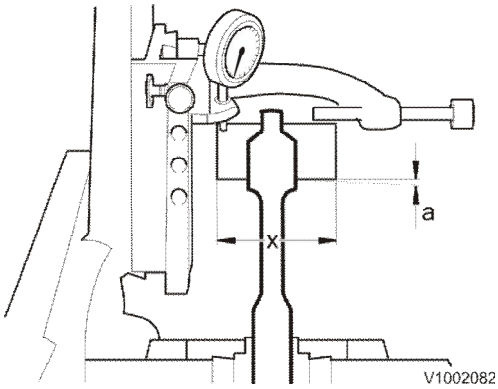


Figure 1

Parallelism
Measurement "a" max. 0.05 mm (0.0020 in) over a distance x = 100 mm (3.94 in).

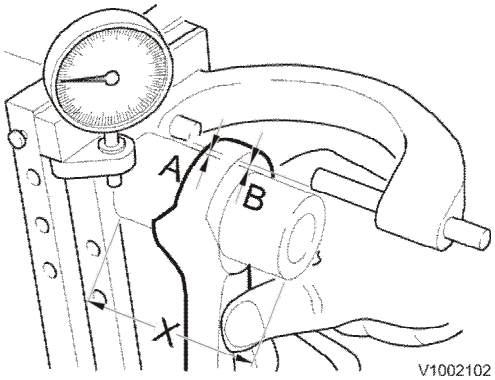


Figure 2