Document Title: **Description, general**	Function Group: **000**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Description, general

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

The EC37F and ECR40F are Compact excavators with a track chain drive. ECR40F is an short radius excavators.

The engine is a vertical, water-cooled, in-line, three cylinder, four-stroke diesel engine with direct injection. It is a low emission engine with automatic idle control.

The drive movement takes place via two tracks. Each track is driven by an axial piston engine with two speeds and a planetary gear.

The hydraulic system is a hydraulic load-sensing system which guarantees complete independence of the individual movements.

The superstructure swivel movement is guaranteed by a hydraulic radial piston motor which directly (i.e. without reduction gear) drives a ball-mounted swing ring gear with internal toothing and remote lubrication.

The undercarriage consists of a centre section in X-form to increase the torsional rigidity and chamfered side members.

Document Title: **Product plate, description**	Function Group: **000**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Product plate, description

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

The following illustrations and descriptions show the product plates on the excavator.

When ordering spare parts and for telephone enquiries and in correspondence, always quote the model designation and product identification number.

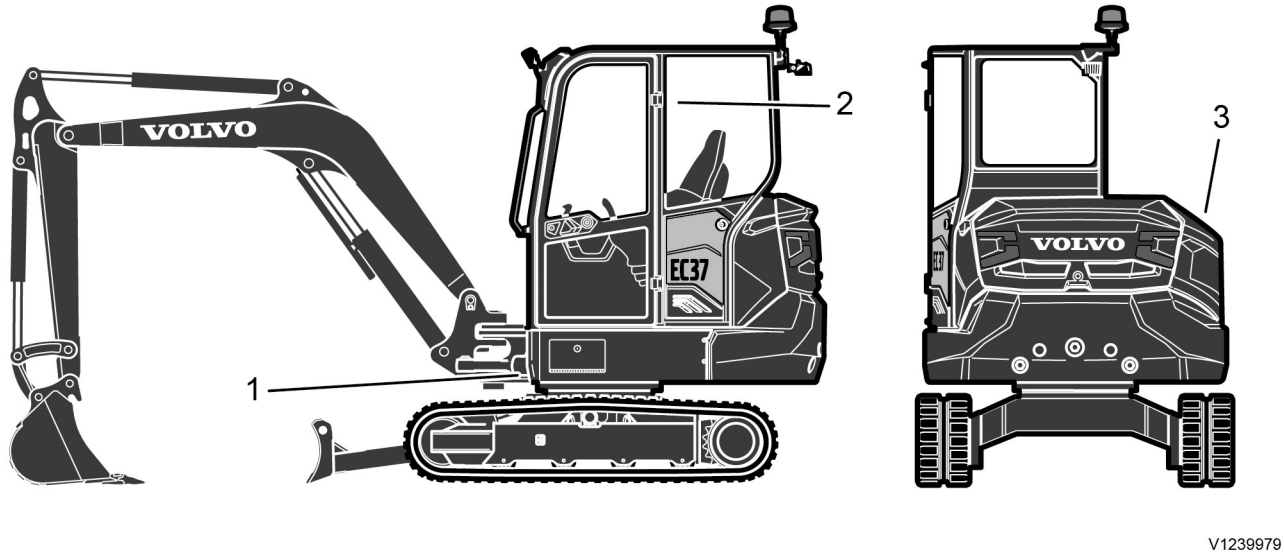


Figure 1

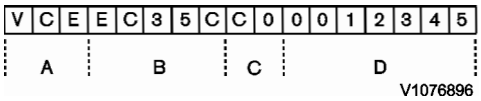


Figure 2
Example of 17 digit PIN number on PIN plate

A. World Manufacturing Code
B. Machine description
C. Check letters
D. Serial number

1 Product Identification plate (PIN) and supplementary PIN plate (EU countries only)
The product plate contains name and address of the manufacturer, model/type designation and 17 digit PIN number.
The supplementary plate contains information about machine mass in kg, engine net power in Kw, manufacturing year, machine serial number and a CE-mark.

Machine mass

The machine mass in kg on the supplementary PIN plate is based on the most standard definition of the machine in accordance with ISO 6016. For safety reasons, 103% of the machine mass will be shown on the supplementary PIN plate.

2 TOPS/ROPS and OPG plate

The plate is located inside the cab above the rear windscreen. TOPS (Tip-Over-Protection-Structure) and ROPS (Roll-Over-Protection-Structure) provide protection in case the machine should turn over. OPG (Operator Protective Structure) provides protection against falling down objects.

3 Engine identification plate

The engine identification plate contains information about manufacturer, designation and engine serial number. It is located on the engine head cover.

Document Title: **Component locations**	Function Group: **000**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Component locations

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

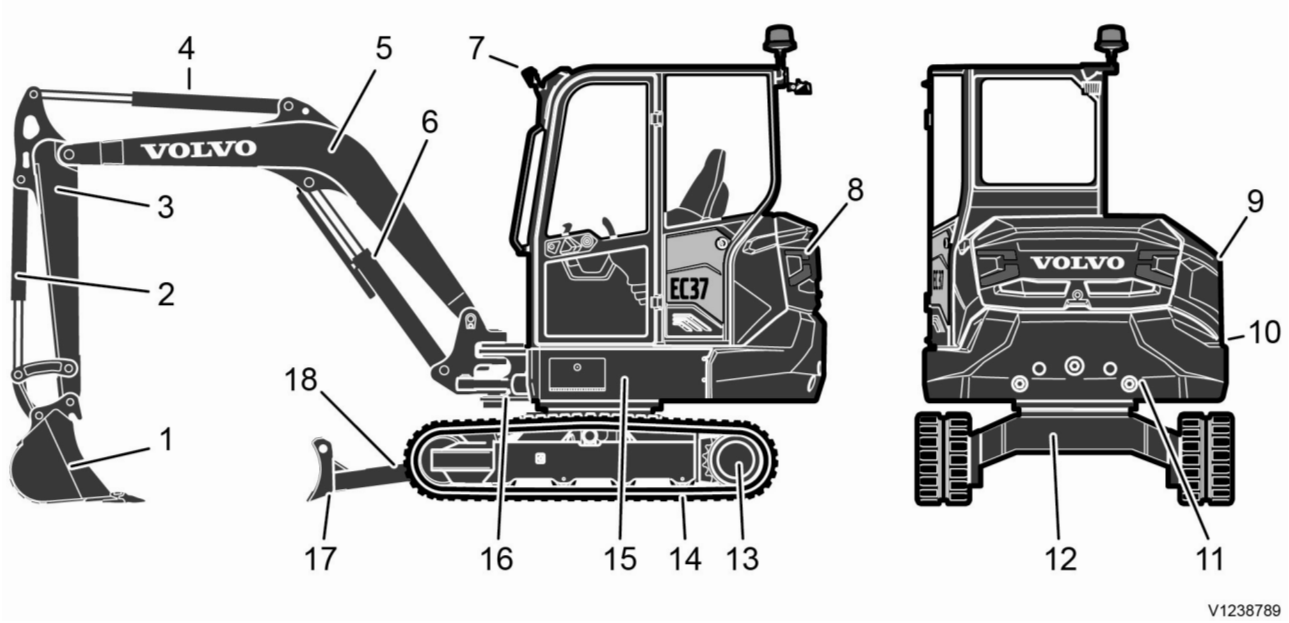


Figure 1
Component locations

1	Bucket	10	Battery disconnect switch
2	Bucket cylinder	11	Additional counterweight (optional)
3	Dipper arm	12	Undercarriage
4	Dipper arm cylinder	13	Travel motor
5	Boom	14	Tracks
6	Boom cylinder	15	Superstructure
7	Working lights	16	Boom offset cylinder
8	Rear hood	17	Dozer blade
9	Engine hood	18	Dozer blade cylinder

Document Title: **Measurement conversion tables**	Function Group: **030**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Measurement conversion tables

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

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/cm²	bar	Pa=N/m²	kPa	lbf/in²	lbf/ft²
kp/cm²	1	0.98067	98066.5	98.0665	14.2233	2048.16
bar	1.01972	1	100000	100	14.5037	2088.6
Pa=N/m²	0.00001	0.001	1	0.001	0.00015	0.02086
kPa	0.01020	0.01	1000	1	0.14504	20.886
lbf/in²	0.07032	0.0689	6894.76	6.89476	1	144
lbf/ft²	0.00047	0.00047	47.88028	0.04788	0.00694	1
kg/cm² = 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/m²)				
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/cm²	x14.22	=psi	x0.070	=kp/cm²
N/mm²	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

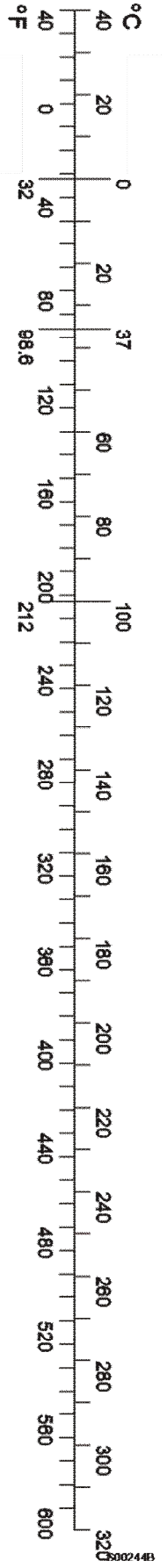


Figure 1

Document Title: **Volvo standard tightening torques**	Function Group: **030**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Volvo standard tightening torques

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

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

Document Title: **Weight**	Function Group: **030**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Weight

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

Machine weight, MUC[T1]	3710 kg (8179.15 lb)

[T1]The total machine weight (as specified on the machine's PIN plate) is calculated according to the most usual configuration (MUC). MUC comprises cab, rubber chain, standard pin bucket and a full fuel tank.

NOTE!
Check the respective Operator's manual for additional machine configurations.

Document Title: **Capacities**	Function Group: **030**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Capacities

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

Changing volumes	
Engine	Engine, capacities
Coolant	Cooling system, specification
Fuel tank	Fuel tank, specifications
Hydraulic tank	Hydraulic tank, specifications
Travel motor	Travel motor, specifications
Hydraulic system, capacity	Hydraulic system, specification

Document Title: **Transporting and lifting the machine**	Function Group: **050**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Lifting machine

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

Follow the instruction in the operator manual. Refer to Lifting machine

Document Title: **Operation numbers for additional work**	Function Group: **070**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **Compact Excavators (CEX)**			

Operation numbers for additional work

Showing Selected Profile

These operations can be used to identify work that is not included in the time guide or described in the methods in the Service Manual. When these operations are used, a description of the work that has been performed must be provided.

Other work related to engine
Op. no. 070-210
This operation can be used when work has been done related to the engine and function group 2 when no applicable method description was available. When this operation is used, additional information is required:

- Description of work that has been done

Other work related to electrical system
Op. no. 070-310
This operation can be used when work has been done related to the electrical system and function group 3 when no applicable method description was available. When this operation is used, additional information is required:

- Description of work that has been done

Other work related to transmission, gearbox, travel motor, swing motor
Op. no. 070-410
This operation can be used when work has been done related to the transmission, gearbox, travel motor or swing motor and function group 4 when no applicable method description was available. Hhen this operation is used, additional information is required:

- Description of work that has been done

Other work related to drive axle
Op. no. 070-470
This operation can be used when work has been done related to the drive axle and function group 46 when no applicable method description was available. When this operation is used, additional information is required:

- Description of required work that have been done

Other work related to brake system
Op. no. 070-510
This operation can be used when work has been done related to the brake system and function group 5 when no applicable

method description was available. When this operation is used, additional information is required:

- Description of work that has been done

Other work related to steering system
Op. no. 070-610
This operation can be used when work has been done related to the steering system and function group 6 when no applicable method description was available. When this operation is used, additional information is required:

- Description of work that has been done

Other work related to frame link, axle suspension
Op. no. 070-710
This operation can be used when work has been done related to the frame link, axle suspension and other parts related to function group 7 when no applicable method description was available. When this operation is used, additional information is required:

- Description of work that has been done

Other work related to cab, air conditioning
Op. no. 070-810
This operation can be used when work has been done related to the cab, air conditioning and other parts related to function group 8 when no applicable method description was available. When this operation is used, additional information is required:

- Description of work that has been done

Other work related to hydraulic system
Op. no. 070-910
This operation can be used when work has been done related to the hydraulic system and other parts related to function group 9 when no applicable method description was available. When this operation is used, additional information is required:

- Description of work that has been done

Document Title: **Infrared Thermometer**	Function Group: **080**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Infrared Thermometer

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

Gun Style Infrared Thermometer Laser Sight Model: SIG1

9998519Infrared thermometer (user instruction in FGI 080)Application

This tool can be used to measure fast and easy temperature differences. For instance in case of troubleshooting it is sometimes necessary to measure temperature differences on two equal parts with the same surface.

⚠ WARNING

Never point the device towards the eyes permanent eye damage may occur. Use extreme caution when using the laser. Keep out of the reach of children. Be careful around mirror surfaces since mirrors can reflect the laser. Looking into the reflected laser is just as damaging as looking directly at the laser.

General information

1. Field of view: The SIG1 takes it's measurement from a circle of a size determined by a simple ratio of 10:1. The diameter of this circle is 1/10 the distance between the target and the tip of the SIG1. For example, if you're standing 20 feet (610 cm) from your target, the size of the circle you're taking the average temperature of will be 2 feet (61 cm) wide.
2. If you want to get the temperature of something small, such as a pipe, you must get close enough for the pipe to take up the whole viewing area circle. Otherwise the pipe and the background temperatures will be averaged into the reading.
3. You need to be aware that if the target surface is reflective enough, it may reflect infrared from other objects. For example, if you take a reading of a shiny metal surface, the infrared energy of your face may reflect enough energy off the surface to affect the reading. For this reason, it's a good idea to put non-reflective tape or paint on reflective surfaces when taking infrared temperature readings.

NOTE!

The measured temperature will be lower than actual.

Operation

1. Point the laser towards the target to be measured.
2. Pull trigger to light the target with the laser and measure its surface temperature.
3. As long as the trigger is held down, the SIG1 will constantly update the measurement and the blue backlight will illuminate the display.
4. When the trigger is pulled the red laser dot will shine about 1/4" above the centre of the circular area being measured by the thermometer.
5. Once the trigger is released, the last measurement will be shown and held until the trigger is pressed again or until the SIG1 turns off.

Document Title: **E-4510**	Function Group: **080**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

E-4510

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

Cab support

Dimensions on the drawing are given in mm.

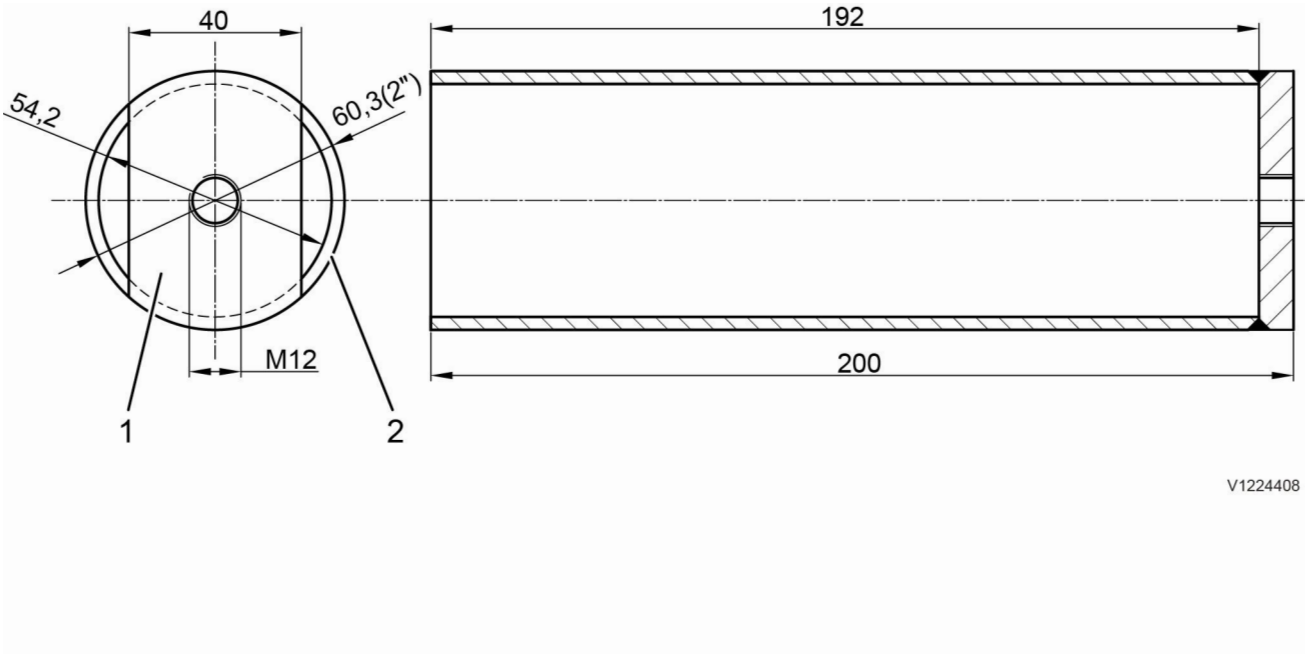


Figure 1
E-4508

Cab support		
1	Flat iron bar 40x8 mm, l = 60 mm	S355J2
2	Welded steel tube EN 10219, 60,3x2,9 mm, l = 192 mm	S235JRH
	Flange screw M12x80, DIN6921	

Document Title: **E-4511**	Function Group: **080**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

E-4511

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

Plugs

The parts are used to close Specma quick couplings of a certain size.
53836797 and 54721327 should be screwed together to obtain a tight plug. 53836781 is stand-alone and can be inserted into a suitable connection.

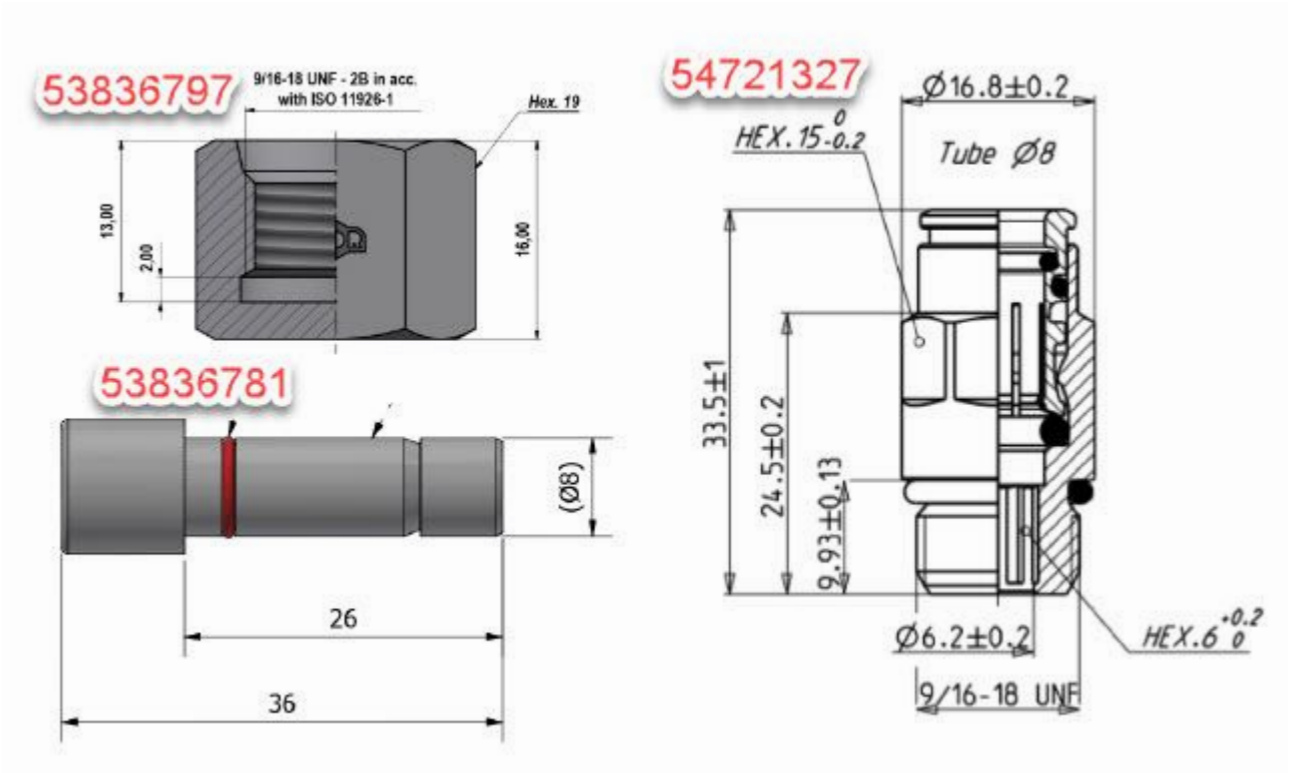


Figure 1
Plugs

VOLVO

Service Information

Document Title:	Function Group:	Information Type:	Date:
Welding on the machine	**091**	**Service Information**	**3/30/2026**
Profile: **EC37F**			

Go back to Index Page

Welding on the machine

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

NOTE!
Welding on the machine is not allowed. If welding on the machine is needed it has to be approved by R&D. Otherwise all additional welding is under customer responsibilities.

Document Title: **Welding on the machine**	Function Group: **091**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Go back to Index Page

Welding on the machine

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

NOTICE

During electric welding on the machine or attachments connected to the machine, components such as bearings and electric units may be damaged if the ground cable is connected incorrectly.

The following actions should be taken before starting electric welding to eliminate these risks:

1. Turn off the electric power using the battery disconnector.
2. Disconnect the battery.
   NOTE!
   Negative and positive poles
3. Disconnect the following electronic units:
   – Vehicle control unit (V-ECU)
4. Bring the welder earth connection as close to the weld point as possible, and ensure that no current is flowing via a bearing.

If welding is necessary on the boom or dipper arm, the following basic rules should be followed:

1. Welding beads should be laid down in the longitudinal direction.
2. If possible, weld in the middle of the metal section and never closer than **80 mm** to an edge.
3. Do not weld near the welded connections of the cylinder mounting eyes. Minimum distance from eye's weld to weld for weld lug = **100 mm**.
4. Do not weld close to where a metal plate has been bent.

Document Title: **Hydraulic cylinders, dieseling**	Function Group: **091**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Hydraulic cylinders, dieseling

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

If air enters the hydraulic cylinders during work on the hydraulic system, this can lead to spontaneous ignition, an effect known as dieseling. This occurs if a favourable mixture of air and hydraulic oil is compressed when the piston approaches its end position in the cylinder. A sufficiently high temperature can be reached for the mixture to spontaneously ignite.

NOTICE

The dieseling effect may result in burnt piston seals and bushings.

In order to prevent dieseling, the lines for the hydraulic cylinders must be bled after work is completed, as follows:

- Operate the digging equipment several times with no load and full cylinder strokes.
- Position the dipper arm and bucket cylinders so that any air collects at the cylinder's outlet side, that is, it should be the highest point. The piston should be at the opposite end of the cylinder. Wait approx. 1 minute from the time that the cylinder has reached its position before running the piston towards the outlet side. Repeat 3 to 5 times.
- The boom cylinders, which cannot be pointed downward, must be run in and out approx. 5 times without bucket load.

NOTICE

If the cylinders are pressurized either through lifting of the machine or lifting of a load in the bucket, without first performing the mentioned bleeding movements, the seals will likely be damaged.

If a cylinder is to be pressure-tested after a repair, the piston rod should be run in and out a few times before increasing the pressure to testing pressure.

Document Title: **Recommended lubricants**	Function Group: **160**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Recommended lubricants

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

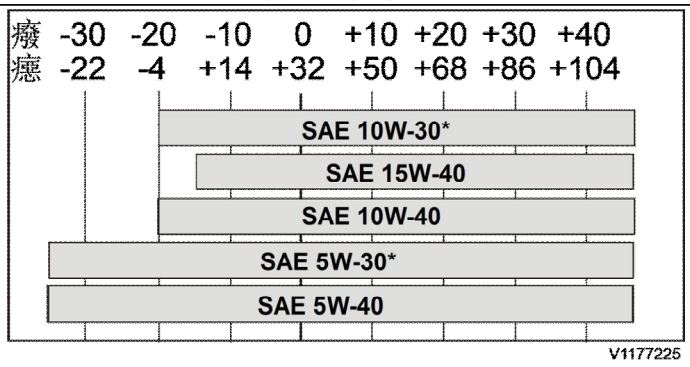
Other mineral oils can be used with the recommended viscosity set points.

If other oil qualities are used (e.g. biodegradable oil), approval of Volvo CE is required.

If the hydraulic system is factory-filled with biodegradable hydraulic oil (see sticker on filler tube), only the oil quality specified on the sticker may be used for topping up.

NOTE!
BIO oil and mineral oil (hydrocarbon oils) must be disposed of separately. Mixing prohibited!

Engine oil

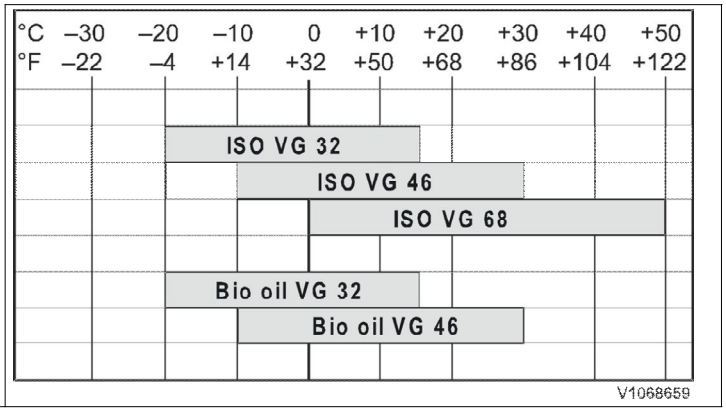
Engine	**Oil grade**	**Recommended viscosity at varying ambient temperatures**
D1.7A	Volvo Engine Oil, VDS-4 Volvo Engine Oil, VDS-4.5 API: CJ-4 or CK-4 ACEA: E9	 *) VDS-4 or VDS-4.5 approved oils only. Other oils can be used up to +30 °C (86 °F)

Changing intervals vary according to oil grade and sulphur content in fuel:

Oil grade	**Sulphur content of the fuel (ppm) , (10000 ppm = 1%)**	
	< 15	>15
	Oil change interval	
Volvo Engine Oil, VDS-4 Volvo Engine Oil, VDS-4.5	500 hours	Not allowed!
API: CJ-4 or CK-4	250 hours	Not allowed!
ACEA: E9		

Hydraulic oil

Hydraulic oil	**Oil grade**	**Recommended viscosity at varying ambient temperatures**
Hydraulic system	Volvo Hydraulic Oil	

	Volvo Biodegradable Hydraulic Oil [T1]	

[T1]If the machine is filled with Volvo Biodegradable Hydraulic oil this oil must also be used when filling and changing. The mineral oil content in bio oil should not exceed 2%. If changing from mineral oil to bio oil, contact a workshop authorised by Volvo CE.

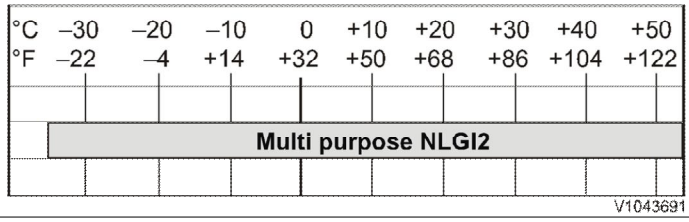
Changing intervals vary according to type of oil:

Hydraulic oil	**Oil change interval**
Mineral oil	1000 hours
Bio oil	750 hours

Track gearbox

	Oil grade	**Recommended viscosity at varying ambient temperatures**
Track gearbox oil	Volvo Axle Oil 97321 80W-90 Volvo Axle Oil 97321 80W-140 or 85W-140	

Grease

	Oil grade	**Recommended viscosity at varying ambient temperatures**
Pin and bush Slew ring gear	Volvo Super Grease Lithium EP2	

Cooling system

	Coolant	
Cooling system	Volvo coolant VCS	**NOTE!** Volvo coolant VCS should be used only.

Coolant	**Coolant change interval**
Volvo coolant VCS	Refer to Service Programme or at least every 4th year.

NOTE!
Use engine oil of type SAE 10W, SAE 10W/30 or SAE 15W/40 if starting the engine at an ambient temperature of less than 0° C, even if during the day the ambient temperature rises to 10°C.

NOTE!
Use Volvo genuine coolant when refilling or changing the coolant, otherwise the coolant system can be damaged like corrosion.

NOTICE

Volvo Coolant VCS must never be mixed with any other coolant or corrosion protection to avoid damage to the engine.

Document Title: **Alternative fuels**	Function Group: **160**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Alternative fuels

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

Hydro-treated vegetable oil (HVO) and fatty acid methyl ester (FAME) biodiesel are both made from renewable raw materials such as vegetable oils and animal fats, but they are chemically processed in different ways.

Hydro-treated vegetable oil (HVO)
HVO is created using a chemical process called hydro-treating. Hydro-treating creates an oxygen-free hydrocarbon product that is very similar to distillate diesel fuel and is well suited for use in diesel engines. HVO that conforms to EN15940 is approved for use in Volvo Construction Equipment 4–16 L diesel engines with no changes to maintenance intervals. Engines in the 0–4 L segment are not included in this approval.

Biodiesel
Biodiesel is a product made from renewable resources such as vegetable oils or animal fat. Biodiesel that has been chemically processed into fatty acid methyl ester (FAME) can be blended with distillate diesel fuel and used in some diesel engines. Unblended biodiesel is referred to as B100 because it is 100% biodiesel.
Rapeseed methyl ester (RME) is the most common type of FAME used in Europe. Soy methyl ester (SME) and sunflower oil methyl ester (SOME) are the most common types of FAME used in the US.
Although use of FAME biodiesel is now a legal requirement in some markets, it is not as suitable for use in diesel engines as conventional diesel fuel or HVO (hydro-treated vegetable oil).

Biodiesel fuel requirements
The FAME biodiesel blends specified in the table below are approved for use if:

- The biodiesel is pre-blended by the fuel supplier
- The biodiesel used in the blend conforms to EN14214 or ASTM D6751
- The distillate fuel used in the blend meets fuel sulphur requirements
- The distillate fuel used in the blend conforms to EN590 or ASTM D975
- B1-B5 biodiesel blends conform to EN590 or ASTM D975
- B6-B7 biodiesel blends conform to EN590 or ASTM D7467
- B8-B20 biodiesel blends conform to ASTM D7467
- B10 biodiesel blends conform to EN16734
- B20 and B30 biodiesel blends conform to EN16709
- B50 biodiesel blend from components biodiesel EN14214 / ASTM D6751 + distillate fuel EN590 / ASTM D975
- B100 biodiesel conform to EN14214 or ASTM D6751

Engine emission designation	**Engine size**	**Acceptable blend**
EU Stage II / US Tier 2 * EU Stage IIIA / US Tier 3 * EU Stage IIIB / US Tier 4 interim EU Stage IV & V / US Tier 4 final	Below D4 / 4 litres	Up to B7 (exceptions listed below)
* As Tier 2 and Tier 3 emissions regulations ended in 2005 and 2010 respectively, engines produced since then typically **meet Stage II / Stage IIIA regulations**, allowing their sale in less regulated markets.		

		B0-B5	**B6-B7**	**B8-B20**	**B21-B30**	**HVO 100**
North America	Approved engine	All DIESEL engines (incl.	All DIESEL engines (incl. CR)		NA	NA Investigatio

		CR)			n on going in 2021, contact your dealer after July 2021 for update
	Required fuel standard	ASTM D975	ASTM D7467		
	Notes	• Need to blend "ASTM D975-compliant mineral oil diesel fuel" with "ASTM D6751-compliant bio fuel (B100)"			
		• B100 fuel needs to be sourced from BQ-9000 certification holders.			
	Preparation before use	• Nothing	• Replacement of fuel filters		
	Maintenance	• Refer to an application manual	• Replace fuel filter at one half (1/2)		
			• Drain tank in case of storage more than 1 month		
Europe	Approved engine	All DIESEL engines (incl. CR)		NA	NA Investigation on going in 2021, contact your dealer after July 2021 for update
	Required fuel standard	EN590			
	Notes	• Need to blend "EN590-compliant mineral oil diesel fuel" with "EN 14241-compliant bio fuel (B100)"			
	Preparation before use	• Nothing			
	Maintenance	• Refer to an application manual			
Indonesia	Approved engine	NA	All mechanical DIESEL engines		NA Investigation on going in 2021, contact your dealer after July 2021 for update
	Required fuel standard		SNI 7182		
	Preparation before use		• Replacement of fuel filters		
	Maintenance		• Replace fuel filter at one half (1/2)		
			• Drain tank in case of storage more than 1 month		
				• Replace the fuel hoses every 500h or 2 year	
Thailand	Approved engine	All mechanical DIESEL engines			NA Investigation on going in 2021, contact your dealer after July 2021 for update
	Required fuel standard	Need to conform to The Department of Energy Business Notification Re: Properties and Quality of Diesel			
	Preparation before use	• Nothing		• Replacement of fuel filters	
	Maintenance	• Refer to an application manual		• Replace fuel filter at one half (1/2)	
				• Replace the fuel hoses every 500h or 2 year	
				• Drain tank in case of storage more than 1 month	

NOTE!
Failures directly caused by the use of poor quality biofuel, or any other fuel not conforming to standards, are not factory defects and the manufacturer's warranty does not apply.

Maintenance interval requirements
Additional service actions and shorter maintenance intervals are mandatory when using biodiesel.

Effects of biodiesel on engine oil

Using biodiesel can lead to increased oil dilution. Use engine oil analysis tools frequently to check for fuel dilution and monitor engine oil condition. Check the engine oil level daily. Always change the engine oil if the oil level rises above the maximum fill level.

Effects of biodiesel on fuel systems

Biodiesel dissolves and loosens some fuel system deposits. During the initial conversion to biodiesel, loosened deposits will travel to the fuel filters and require more frequent fuel filter replacements. Start with new fuel filters when using biodiesel for the first time.

Biodiesel is aggressive to some materials used in fuel system components. Inspect seals, hoses, rubber and plastic components every 10 hours. Repair or replace any components that are damaged, softened or leaking. Clean biodiesel from painted surfaces immediately to prevent paint damage.

Biodiesel is more sensitive to bacteria and water contamination than distillate diesel fuel.

- Use as much fuel as possible before refilling the fuel tank in order to prevent bacteria growth if a machine is in regular use, e.g. regularly uses up a tank of fuel within a week. In climates where condensation is a risk, or when the machine is working for short durations, keep the fuel tank full.
- Do not use biodiesel in machines with low utilization or operating time.
- Do not store machines for more than 4 weeks without flushing biodiesel out of the fuel system by operating the machine through at least one full tank of distillate diesel fuel.
- Always follow the manufacturer's storage recommendations and "best-before" dates for each delivery of biodiesel.

Effects of biodiesel on exhaust after-treatment systems

Biodiesel leaves higher levels of ash in diesel particulate filters and may require more frequent diesel particulate filter (DPF) regeneration and cleaning. Biodiesel can cause deviations in temperatures and functionality of the DPF burner and may cause fault codes or errors.

Effects of biodiesel on cold weather operation

Biodiesel has a high viscosity at temperatures below 0 ˚C (32 ˚F) and may cause problems starting the engine. Use a fuel heater or park machines in a heated building if possible.

Effects of biodiesel on emissions compliance

Engines are certified to comply with U.S. EPA, California and EU emissions standards based upon the use of test fuels with specifications established by these regulatory agencies. Alternative fuels, including biodiesel, that are not substantially similar to the required test fuels may adversely affect engine emissions compliance. As a result, Volvo does not warrant that the engine will conform to applicable Federal or California and EU emissions limits when operated on, or having previously being operated on, biodiesel or other alternative fuels that are not substantially similar to specified test fuels used for certification, nor if biodiesel / regular diesel is used in blends that exceed the recommendations.

Document Title: **Coolant**	Function Group: **160**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F**			

Coolant

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			

The Volvo Coolant VCS is replaced by the Volvo Coolant VCS-2.

Only use Volvo Coolant VCS or VCS-2 when topping up or changing coolant.
NOTE!
To avoid damage to engine and cooling system, Volvo Coolant VCS and VCS-2 must never be mixed with other brands of coolant or additives.

The Volvo Coolant VCS-2 is orange.
The Volvo Coolant VCS is yellow.
Volvo Coolant VCS and VCS-2 can be mixed, the color of the coolant changes depending on the mixing ratio.

When using concentrated Volvo Coolant VCS or VCS-2 and clean water, the mixture should contain 40–60% concentrated coolant and 60–40% clean water.
The amount of concentrated coolant must never be less than 40% of the total mixture, see table below.

Volvo Coolant VCS

Freeze protection down to	**Mixed-in amount of concentrated coolant**
-25 °C (-13 °F)	40%
-35 °C (-31 °F)	50%
-46 °C (-51 °F)	60%

Volvo Coolant VCS-2

Freeze protection down to	**Mixed-in amount of concentrated coolant**
-25 °C (-13 °F)	40%
-37 °C (-35 °F)	50%
-45 °C (-49 °F)	60%

The concentrated coolant must not be mixed with water that contains a high degree of lime (hard water), salt or metals.

The clean water for the cooling system must also meet the following requirements:

Description	**Value**
Total number of solid particles	< 300 ppm
Total hardness	< 120 ppm or 7° dH
Chloride	< 40 ppm

Sulphate	< 100 ppm
pH value	6.5 – 8.5
Silica	< 20 ppm
Iron	< 0.10 ppm
Manganese	< 0.05 ppm
Electrical conductivity	< 400 µS/cm
Organic material, COD-Mn	< 8 ppm

If there is any doubt about the water quality, use ready-mixed Volvo Coolant VCS or VCS-2, which contains 40% concentrated coolant.
Do not mix with any other ready-mixed coolants since this may result in engine damage.

Document Title:	Function Group:	Information Type:	Date:
Purpose of fluid analysis	**160**	**Service Information**	**3/30/2026**
Profile: **EC37F, EC37F**			

Purpose of fluid analysis

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			
EC37F			

Operational issues in machines, engines and other components are often reflected in current condition of the fluid. Fluid analysis determines when the properties of the fluid have reached a point at which they are no longer serviceable or the machine is starting to develop a problem.

This helps in three main business areas:

Maintenance

- Identify contamination and wear and identify corrective actions such as fluid and filter replacements.
- Reduce in-service failures by improving machine maintenance.
- Establish condition based fluid drain intervals and maintenance actions.

Management

- Improve business reliability and productivity.
- Improve manufactured products quality and reduce waste and spoilage.
- Reduce unnecessary maintenance such as time dependent component replacements.
- Assist in product selection (e.g. lube oils, coolants, greases), to make the machine to run most efficiently.

Uptime

- Reduce machine downtime.
- Increase the machine's overall usable life.
- Extend drain intervals, reduce oil consumption, reduce disposal costs and reduce environmental impact.

Keys to successful fluid analysis

A successful fluid analysis program requires an organized and sustained effort. No preventive maintenance initiative will reach its goal without integrating processes for continued improvement and a conscious effort by both user and laboratory to work together in all aspects of the program to achieve optimal machine health and reliability.

These proven steps are key

- Clearly define program goals and requirements to be sure the test packages utilized are appropriate for the application and the service is being fully utilized on a regular, on-going basis.
- Take representative samples that are indicative of the true condition of the fluid and the component so that the testing and analysis performed is accurate and reliable.
- Have a frequent communication with the laboratory to optimize both laboratory interpretations and recommendations as well as machine diagnostics and maintenance action.
- Provide complete and accurate sample information so that data analysts may provide an accurate interpretation of the test results with well-informed, actionable maintenance or diagnostic recommendations.
- Review test reports promptly to be sure abnormal or critical machine or fluid conditions are addressed quickly and equipment damage and production losses are minimized.

Document Title: **Fluid analysis, tools**	Function Group: **160**	Information Type: **Service Information**	Date: **3/30/2026**
Profile: **EC37F, EC37F**			

Fluid analysis, tools

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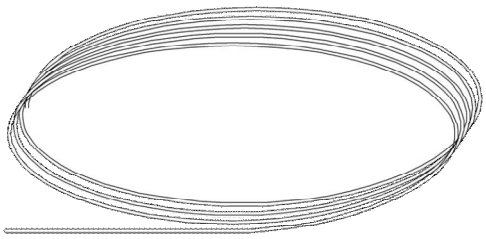
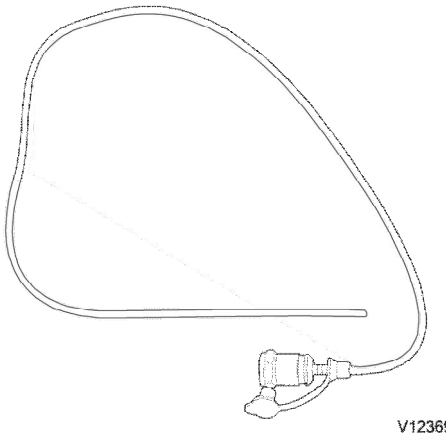
Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
EC37F			
EC37F			

Sampling equipment

Image	Part No.	Description	Comment
 V1236918 **Figure 1**	*TUBE* (VOE54041577)	Tubing roll	Roll of tubing 100 ft (North America only)
	TUBE (VOE54538320)	Tubing short	10 m tubing (all regions except for North America)
	TUBE (VOE54059017)	Tubing short	1 m tubing (all regions except for North America)
 V1236920 **Figure 2**	*HOSE* (VOE14025152)	Sampling hose	For pressurized systems