Document Title: **Description, complete machine**	Function Group: **000**	Information Type: **Service Information**	Date: **4/10/2025**
Profile: **A40G Volvo**			

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Complete machine, descriptions

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
A40G Volvo	Braås	322001	329999
A40G Volvo	Braås	332001	339999
A40G Volvo	Braås	342001	349999
A40G Volvo	Braås	352001	359999
A40G Volvo	Pederneiras	752001	759999

The machine consists of two main sections, the tractor unit and the load unit. The two units are joined by the frame joint, which allows movement about a vertical bearing for steering. The frame joint also allows twisting of the units in relation to each other along a horizontal axis.

Engine

The machine is equipped with a straight six cylinder, four-stroke, turbocharged diesel engine with direct injection and intercooler (charge-air cooler). The engine has an overhead camshaft and each cylinder has one unit injector. The cylinder head is common for all cylinders and has four valves per cylinder.

D13J and D16J

The engines comply with US Tier 4 final and California Tier 4 final emission requirements and EU Stage IV emission requirements.
Engines intended for EU and built after 1 January 2019 comply with the EU Stage V emission requirements.
These require low sulphur content in the fuel.
The engines feature external, cooled exhaust recirculation (EGR - Exhaust Gas Recirculation) and an exhaust aftertreatment system (EATS - Exhaust AfterTreatment System).
EATS consists of a diesel particulate filter (DPF), catalysts, and injection of AdBlue®/DEF. The system has a built-in cleaning function, regeneration, which uses increased temperature to clean the EATS.
EATS is monitored and controlled by the aftertreatment control module (ACM).

D13F and D16F

The engines meet emission requirements for Stage II. The engines can handle fuels with higher sulphur content than engines D13J and D16.

D16E

The engines only apply to the markets in Brazil, LAM, and China.

Electrical system

Machines with engine alternative D13J and D16J have eight control units (ECU).
Machines with engine alternative D13F and D16F have six control units (ECU).
Machines with engine alternative D16E have seven control units (ECU).

- **V-ECU**
  Located on the left side in the cab in front of the circuit board. The V-ECU is the upper of the two ECUs.
  Handles brakes, gearshifting, steering, and cooling fan control on the machine.
- **V2-ECU**
  Located on the left side in the cab in front of the circuit board. The V2-ECU is the lower of the two ECUs.
  Handles dumping system, brake cooling system, ATC, and differential locks.

Handles Full Suspension, when applicable.

- **W-ECU**
  Located on the left side in the cab over the circuit board.
  Handles CareTrack. (Telematic system for remote monitoring of information from the machine).
- **HMIM**
  Located on the left side in the cab over the circuit board.
  Handles information for the operator via instrumentation, information display unit, warning lights, and instruments.
- **ECC**
  Located in the cab on the right side under the gear selector.
  Handles the climate control system.

Applies to machines with engine alternative D13J and D16J:

- **ECM (E-ECU)**
  Located on the left side of the engine.
  Handles the engine.
- **ACM**
  Located under the engine hood on the leading edge of the right front fender.
  Handles the exhaust aftertreatment system.
- **Engine Gateway**
  Located on the front cab wall under the left instrument panel.
  Handles communication between the engine system and the machine system.

Applies to machines with engine alternative D13F and D16F:

- **E–ECU**
  Located on the left side of the engine.
  Handles the engine.

Applies to machines with engine alternative D16E:

- **E–ECU**
  Located on the left side of the engine.
  Handles the engine.
- **Engine Gateway**
  Located on the front cab wall under the left instrument panel.
  Handles communication between the engine system and the machine system.

Power transmission

The **transmission** is fully automatic and of the planetary gear type. It has a torque converter with free-wheel stator and automatic direct clutch (Lock-up) in all gears. The transmission has nine forward gears and three reverse gears.

The **dropbox** has a differential type which distributes torque equally between the front axle and rear axles, reducing tire and road wear, as well as fuel consumption. The longitudinal differential features a lock function.

ATC, Automatic Traction Control, automatically controls engagement and disengagement of the longitudinal differential lock and 6–wheel drive as needed.

The **drive axles** are equipped with a differential and planetary gear hub reductions. All drive axles have differential lock.

Brake system

Engine brake

Depending on setting of switches, an engine brake is available to reduce wear of the brakes.

Service brake

The service brake is operated hydraulically. All wheel axles are equipped with sealed, wet multi-disc brakes and external oil cooler.

The brake system and hydraulic system have a common oil tank. The brake cooling system has a separate oil tank.

Parking brake

The hydraulic parking brake acts on the propeller shaft to the front bogie axle, and on the front axle as well through the dropbox.

The longitudinal differential lock in the dropbox is engaged at the same time as the parking brake is applied, which means that the propeller shaft locks the front axle and the front bogie axle.

Steering system

The steering system is self-compensating, hydromechanical with secondary steering function. A ground-dependent pump on the dropbox means that the steering works even if the engine stops as long as the machine is rolling forward.

Full Suspension (FS-system)

Machines with the designation FS feature **F**ull **S**uspension, which is an all-hydraulic suspension system. Machines with Full Suspension do not have standard bogie beams, rubber springs, and shock absorbers. Instead the machine's frame and wheel axles are connected using six double-acting hydraulic cylinders. Each wheel has a position sensor, enabling adaptation of the suspension to ground conditions and load, which increases productivity and operator comfort.

Cab

The cab features an automatically controlled heating and ventilation system with defroster system for the windows. Air conditioning is standard. The cab has three emergency exits, the door and the front side windows on both right and left side. These are broken with the hammer in the cab if evacuation is necessary that way.

FOPS and ROPS

The cab is approved as a protective cab according to FOPS and ROPS standards, see page CE-marking, EMC-directive. FOPS is an abbreviation of Falling Objects Protective Structure (roof protection) and ROPS is an abbreviation of Roll Over Protective Structure (roll over protection).

If any part of the cab's protective design features is affected by plastic deformation or cracks, the cab must be replaced immediately.

Never make any unauthorized changes to the cab, e.g., lowering the roof height, drilling, welding on of brackets for fire extinguishers, radio antenna, or other equipment without first discussing the modifications, via a dealer, with personnel at Volvo CE's design and engineering department. They will decide if the modification can lead to the approval becoming invalid.

Hydraulics

The hydraulic system consists of five hydraulic pumps of the piston pump type with continuously variable displacement.
Two of these pumps are used for the steering and dump system, two for fan drive, and one is a ground-depend pump mounted on the dropbox. Of the two pumps for fan drive, one is for the intercooler's cooling fan, which also is used when dumping, and one is for the radiator's cooling fan. The radiator's fan pump is also used for charging of brake pressure.
The ground-dependent hydraulic pump is mounted on the dropbox and delivers oil, via a non-return valve, to the steering system when the machine is rolling forward.

Machines with FS (Full Suspension) have an extra hydraulic pump for the FS-system.

Dumping system

The machine features an electric dump lever which sends an electric signal to two electro-hydraulic valves. These send a hydraulic signal to the dumping valve which controls the load body's movement. The machine has damping at the upper and lower load body positions.

Document Title: **Product identification plates**	Function Group: **000**	Information Type: **Service Information**	Date: **4/10/2025**
Profile: **A40G Volvo**			

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Product plates

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Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
A40G Volvo	Braås	322001	329999
A40G Volvo	Braås	332001	339999
A40G Volvo	Braås	342001	349999
A40G Volvo	Braås	352001	359999
A40G Volvo	Pederneiras	752001	759999

The illustration and text below show the product plates that should be found on the machine.

When ordering spare parts and when making enquiries by telephone or correspondence, the model designation and **P**roduct **I**dentification **N**umber **(PIN)** should be stated.

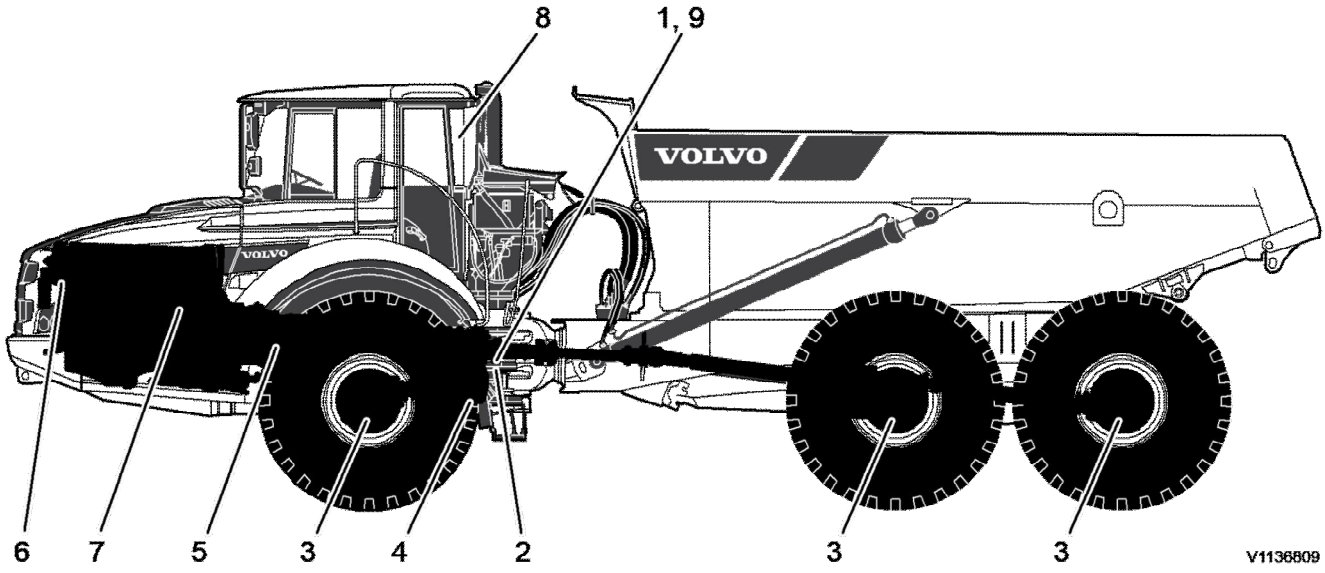


Figure 1

1. The data plate is located on the left side of the tractor unit's frame by the steering joint. The data plate varies depending on the market. The information is indicated as follows:

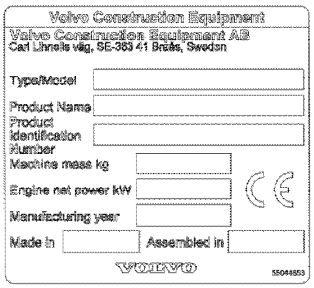


Figure 2
Data plate for countries within the EU/EEC

- manufacturer's name and address
- type/model for complete machine
- product name
- **P**roduct **I**dentification **N**umber (**PIN**)
- machine weight (machine's most common configuration)
- motor power
- year of manufacture
- month of manufacture (only countries within Eurasian Customs Union)
- country of manufacture
- assembled in

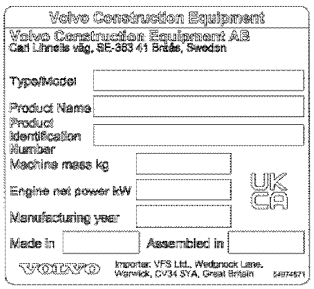


Figure 3
UKCA identification plate

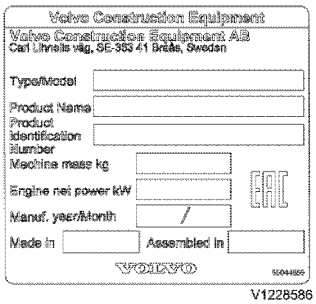


Figure 4
Data plate for countries within Eurasian Customs Union

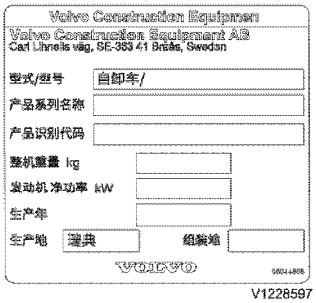
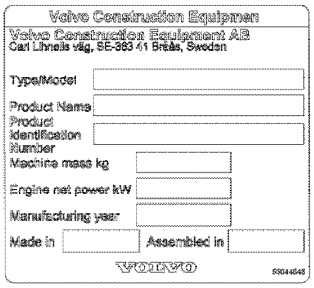


Figure 5
Data plate for China

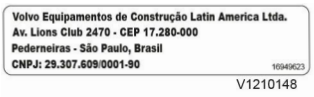
V1187107

Figure 6
Additional eco label for China



V1228596

Figure 7
Data plate for rest of the world



V1210148

Figure 8
Additional sign with Brazilian address

2. The machine's serial number is stamped into the frame on the left side of the tractor unit, by the steering joint.
3. The drive axles' serial numbers are located on the axle housing.
4. The dropbox's serial number is located at the front, on its right side.
5. The transmission's type designation and serial number are located on its left side.
6. The decal “Important Engine Information” is located on the front of the engine and on the left side of the tractor unit's frame by the steering joint.
7. The engine's type designation, part number, and serial number are stamped into the engine on both sides.
8. Cab type, type approval, and serial number are located on the left side in the cab, on the pillar to the left of the door (seen from inside the cab), closest to the rear window.
9. Engine and exhaust decal with the engine's type designation and component number.

VOLVO

Service Information

Document Title: **Information and warning decals**	Function Group: **000**	Information Type: **Service Information**	Date: **4/10/2025**
Profile: **A40G Volvo**			

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Information and safety decals

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Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
A40G Volvo	Braås	322001	329999
A40G Volvo	Braås	332001	339999
A40G Volvo	Braås	342001	349999
A40G Volvo	Braås	352001	359999
A40G Volvo	Pederneiras	752001	759999

The machine operator should know and pay attention to the warnings and information on decals and plates. Decals may differ depending on the machine and the market.

The decals must be kept clean so that they can be read. Replace damaged, overpainted or missing decals and plates immediately.

The spare part number (order number) is shown on the decals/plates and in the part catalogue.

NOTE!
The text "WARNING" is shown on warning decals in North America.

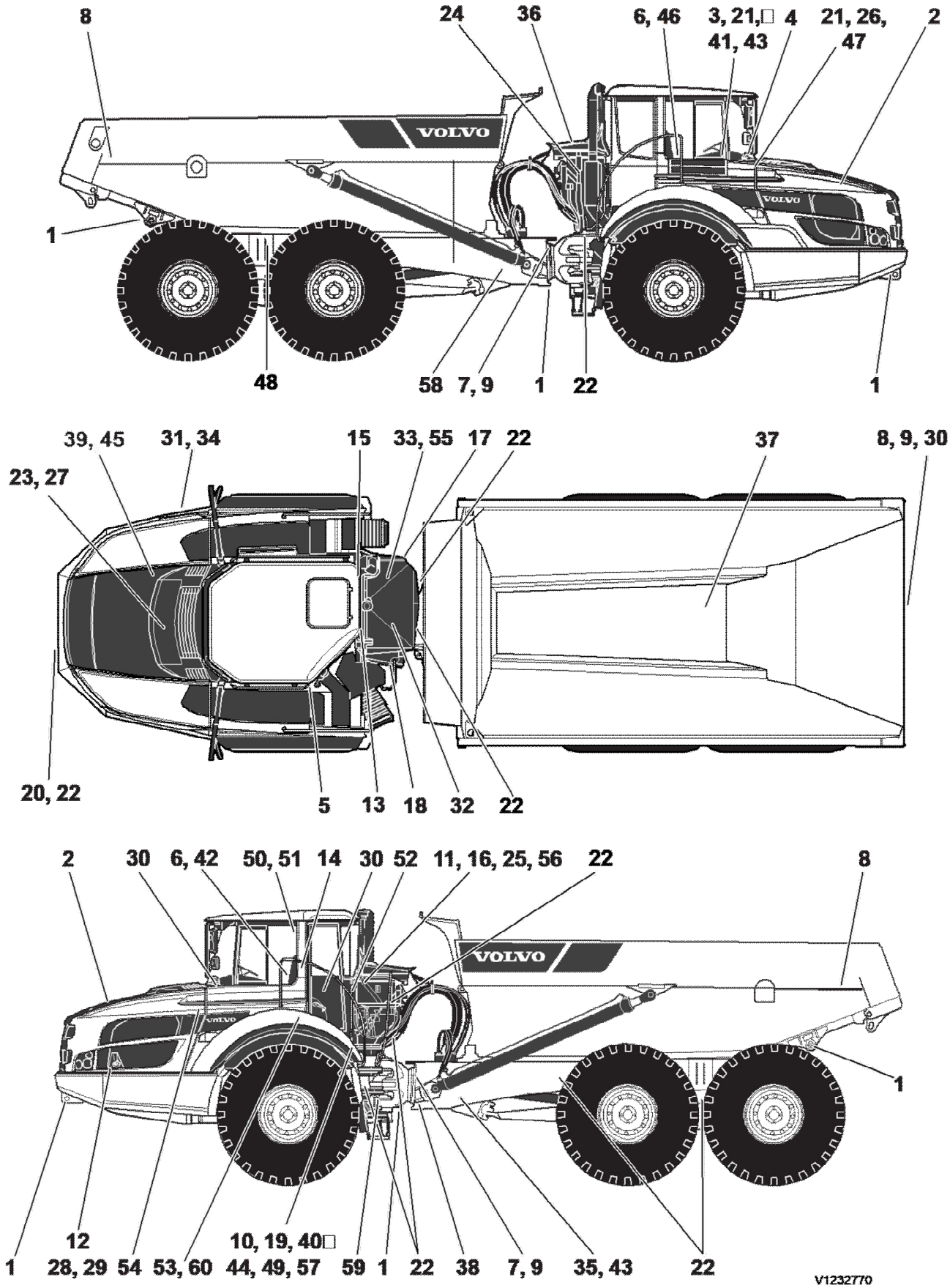

8
24
36
6, 46
3, 21,□ 4
41, 43
21, 26,
47
2
1
48
58
7, 9
1
22
1
39, 45
31, 34
15
33, 55
17
22
37
8, 9, 30
23, 27
20, 22
5
13
18
32
22
2
30
6, 42
50, 51
14
30
52
11, 16, 25, 56
22
8
1
12
1
28, 29
54
53, 60
10, 19, 40□
44, 49, 57
59
1
22
38
7, 9
35, 43
22
V1232770

Figure 1

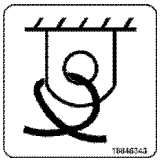


Figure 2

1. Attaching point for lashing
Spare part number: 16846343

Figure 3

2. Avoid aiming water jets at sound absorbents
Spare part number North America: 16929638
Spare part number China: 16315803
Spare part number, all other markets: 16929639

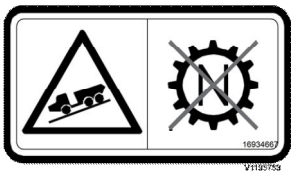


Figure 4

3. WARNING! Do not operate downhill with the gear selector in neutral. Only change gear with the accelerator released.
Spare part number North America: 16929626
Spare part number China: 16934522
Spare part number, all other markets: 16934667

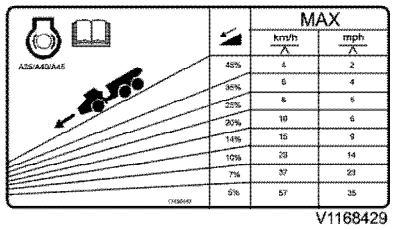


Figure 5

4. Retarder diagram
Spare part number: 17450443

Figure 6

5. Oil fill point transmission
Spare part number: 11197518

Figure 7

6. Emergency exit
Spare part number: 11116814

Figure 8

7. WARNING! Risk of crushing – articulated frame steering
Spare part number North America: 16929620
Spare part number, all other markets: 16901162

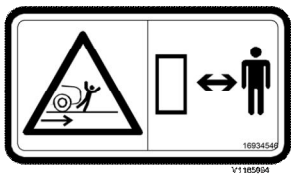


Figure 9

8. WARNING! Do not stand within the work area of a reversing machine
Spare part number North America: 16929627
Spare part number, all other markets: 16934546

Figure 10

9. WARNING! Do not lean in under raised load body unless it is blocked
Spare part number North America: 16929625
Spare part number, all other markets: 16934539

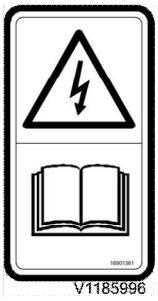


Figure 11

NOTE! Only the market.
10. WARNING! Before connecting start cables, read the Operator's Manual.
Spare part number North America: 16929621
Spare part number, all other markets: 16901361

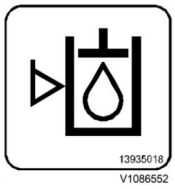


Figure 12

11. Hydraulic oil
Spare part number: 13935018

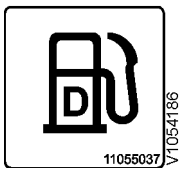


Figure 13

12. Fuel
Spare part number: 11055037

Figure 14

13. Sound pressure level (LpA) in cab
Spare part number 70 dB: 11180148
Spare part number 72 dB: 11180150

Figure 15

14. Sound power level (LwA) outside machine
Spare part number 112 dB: 11180167
Spare part number 110 dB (optional equipment): 11180165

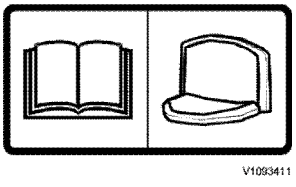


Figure 16

15. Compartment for Operator's Manual
Spare part number: 15164402

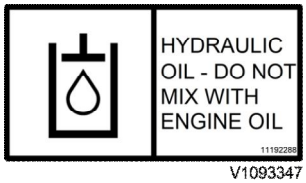


Figure 17

NOTE! Only North American market.
16. Hydraulic oil. Do not mix with engine oil
Spare part number: 11192288

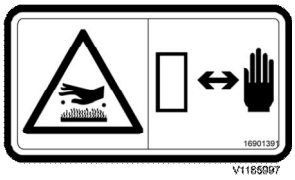


Figure 18

17. WARNING! Hot surfaces
Spare part number North America: 16929623
Spare part number, all other markets: 16901391

Figure 19

18. Oil fill point dropbox
Spare part number: 15170937

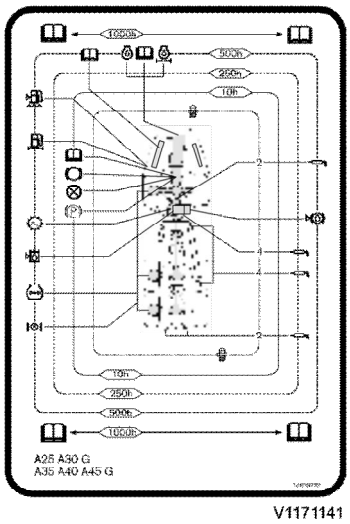


Figure 20

19. Service decal
Spare part number: 16893723

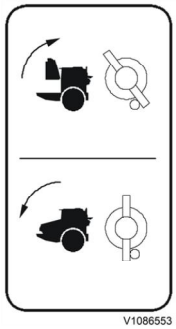


Figure 21

20. Engine hood
Spare part number: 11116228

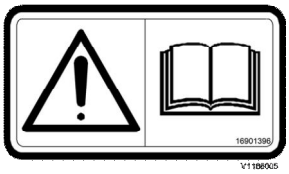


Figure 22

21. Read the Operator's Manual
Spare part number North America: 16929624
Spare part number, all other markets: 16901396

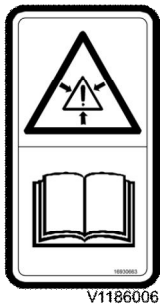


Figure 23

22. System/component with pressure
Spare part number North America: 16929633
Spare part number, all other markets: 16930663

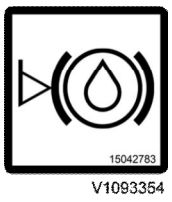


Figure 25

Figure 24

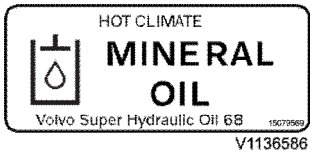
23. WARNING! Hot coolant
Spare part number North America: 16948457
Spare part number, all other markets: 16943076

24. Brake cooling oil
Spare part number: 11116416

V1093357

Figure 26

25. Synthetic ester
Spare part number: 11411924



V1136586

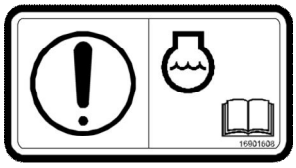
Figure 27

25. Mineral oil for warm climate
Spare part number: 15079569

V1215618

Figure 28

26. The air conditioning system is filled with R134a.
Spare part number: 1635465



V1186007

Figure 29

27. WARNING! Only use Volvo coolant VCS – read the Operator's Manual
Spare part number North America: 16902967
Spare part number, all other markets: 16901608

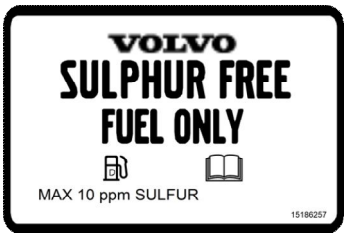
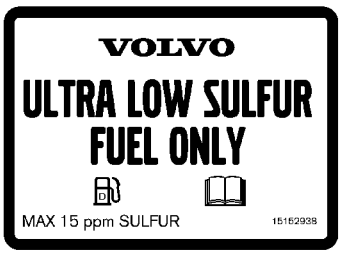


Figure 30

28. Fuel decal
Max. 10 ppm SULPHUR (only EU).
Spare part number: 15186257



V1093047

Figure 31

29. Fuel decal
Max. 15 ppm SULPHUR (only North America).
Spare part number: 15152938

V1186008

Figure 32

30. WARNING! The machine may not carry a heavier load

V1186067

Figure 33

31. Do not step on this surface

than that which is stated on the decal (only on machines with body extensions for light materials).
Spare part number: 16929637, 16929636

Spare part number North America: 16929632
Spare part number China: 16925043
Spare part number, all other markets: 16901531

Figure 34

32. Hydraulic oil
Spare part number: 4948103

Figure 35

33. Brake cooling oil
Spare part number: 15042783

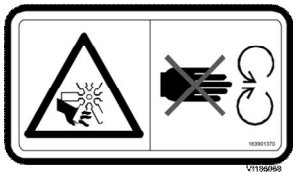


Figure 36

34. WARNING! Rotating parts
Spare part number North America: 16929622
Spare part number China: 16925041
Spare part number, all other markets: 16901370

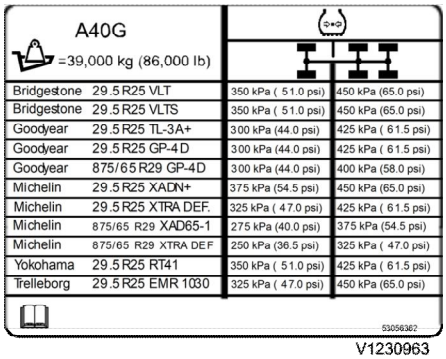


Figure 37

35. Tyre pressure
Spare part number A35G: 54656545
Spare part number A40G: 53036362
Spare part number A45G: 53036813

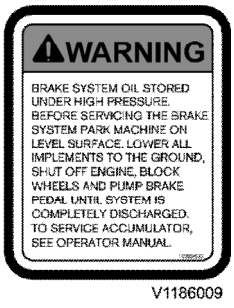


Figure 38

NOTE! Only North American market.
36. WARNING! High pressure in the brake system
Spare part number: 16929630

Figure 39

NOTE! Only North American market.
37. WARNING! Spring under high pressure
Spare part number: 4952177

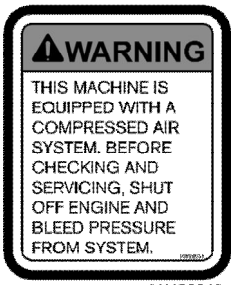
Figure 41

NOTE! Only North American market.

Figure 40

NOTE! Only North American market.
38. Disconnect the steering joint lock before moving the machine
Spare part number: 16929628

39. Do not use flammable gas in the air intake. Risk of fire.
Spare part number: 16929629



V1186013

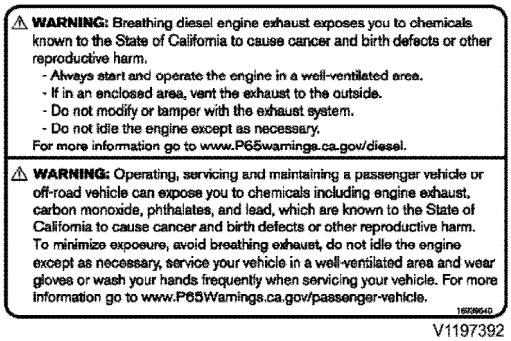
Figure 42

NOTE! Only North American market.
40. Information compressed air system. Turn off the engine and depressurise the systems before checking and servicing.
Spare part number: 16929631

V1186014

Figure 43

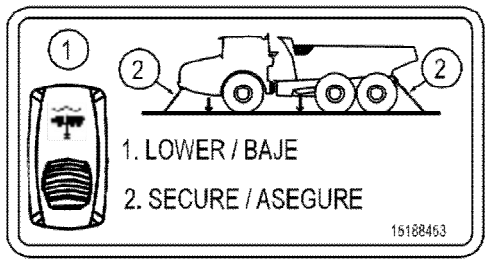
41. Apply the parking brake before leaving the operator's seat
Spare part number: 16929634



V1197392

Figure 44

NOTE! Only North American market.
42. Information diesel exhausts
Spare part number: 16939540



V1178504

Figure 45

43. For all lashing in connection with transport of FS-machine, lower the machine to bottom position
Spare part number: 15188453

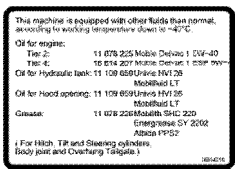


Figure 46

44. The machine is equipped with other fluids than normal for operating in temperatures down to -40 °C
Spare part number: 16814210

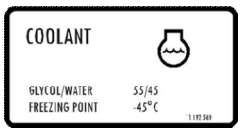


Figure 47

45. The machine has coolant with another mix ratio than normal for operating in temperatures down to -45 °C
Spare part number: 11192569

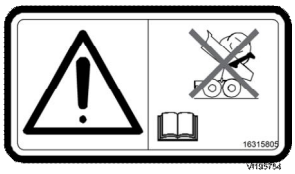
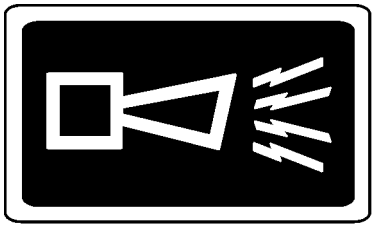


Figure 48

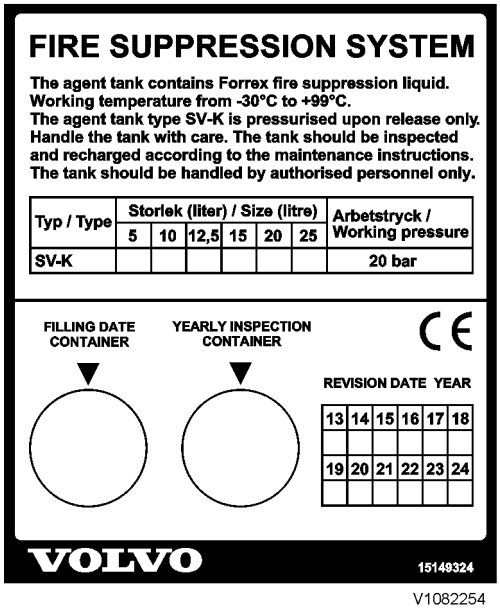
46. Overhung tailgate
Spare part number North America: 16929635
Spare part number China: 16315807
Spare part number, all other markets: 16315805



V1082252

Figure 49

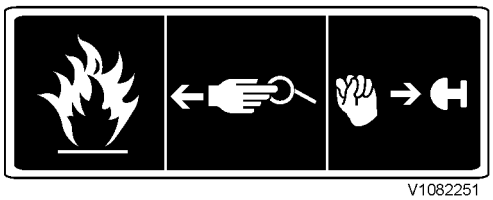
47. Strobe light and sound
Fire Suppression System (optional equipment)
Spare part number: 15126353



V1082254

Figure 50

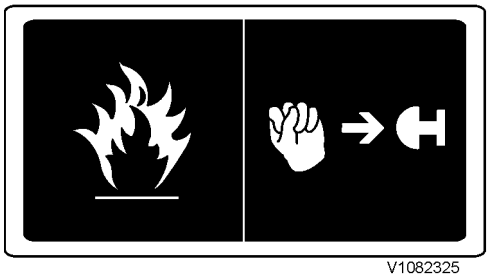
48. Extinguishing agent tank decal
Fire Suppression System (optional equipment)
Spare part number: 15149324



V1082251

Figure 51

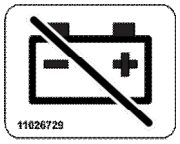
49. Manual activation
Fire Suppression System (optional equipment)
Spare part number: 15126559



V1082325

Figure 52

50. Inner activation button
Fire Suppression System (optional equipment)
Spare part number: 15126372



V1118495

Figure 53

51. Battery disconnector
Fire Suppression System (optional equipment)
Spare part number: 11026729

Figure 54

52. Handheld fire extinguisher
Fire Suppression System (optional equipment)
Spare part number: 15126327

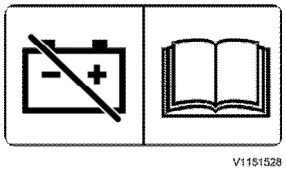


Figure 55

53. Emergency switch
Spare part number: 55281792

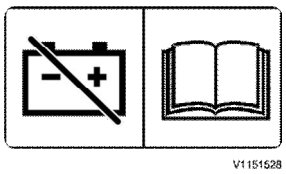


Figure 56

54. Service switch
Spare part number: 16892452

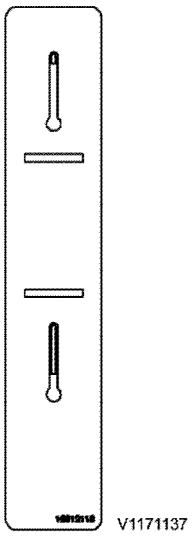


Figure 57

55. Brake cooling oil level
Spare part number: 16912118

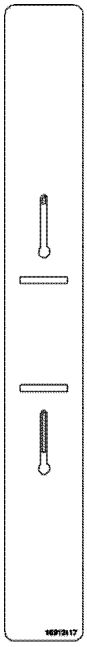

V1171142

Figure 58

56. Hydraulic oil level, only applies to standard machine
Spare part number: 16912117

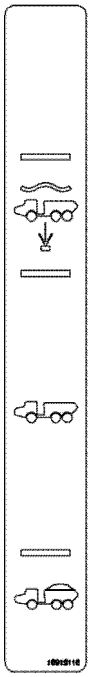
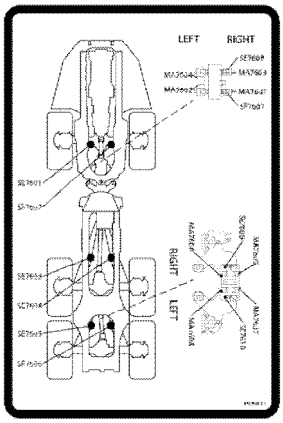

V1171143

Figure 59

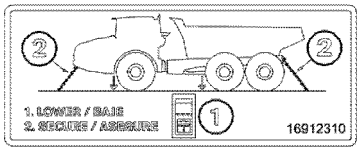
56. Hydraulic oil level, only applies to FS-machine
Spare part number: 16912116



V1171145

Figure 60

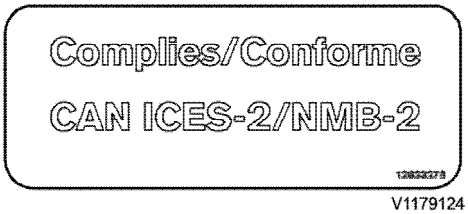
57. Hydraulic suspension, only applies to FS-machine
Spare part number: 15084850



V1171115

Figure 61

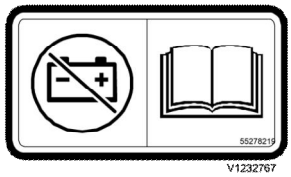
58. For all lashing in connection with transport of FS-machine, lower the machine to bottom position
Spare part number: 16912310



V1179124

Figure 62

NOTE! Only North American market.
59. Meets Canadian EMC-requirements



V1232767

Figure 63

60. Emergency switch
Spare part number North America: 55278292
Spare part number, all other markets: 55278219

Spare part number: 12833278

VOLVO

Service Information

Document Title: **Weights**	Function Group: **030**	Information Type: **Service Information**	Date: **4/10/2025**
Profile: **A40G Volvo**			

Go back to Index Page

Weights

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
A40G Volvo	Braås	322001	329999
A40G Volvo	Braås	332001	339999
A40G Volvo	Braås	342001	349999
A40G Volvo	Braås	352001	359999
A40G Volvo	Pederneiras	752001	759999

	kg (approx.)	**lb.**
Operating weight [T1]	29860	65830
Engine, complete	1400	3086
Engine and transmission, complete	2160	4762
Transmission	468	1032
Dropbox	363	800
Front axle	1558	3435
Front bogie axle	1639	3613
Rear bogie axle	1533	3380

[T1]If the machine is equipped with body extensions for light materials, operating weight increases by 2420 kg (5335 lb).

Document Title: **Tyre equipment and recommended tyre pressures**	Function Group: **030**	Information Type: **Service Information**	Date: **4/10/2025**
Profile: **A40G Volvo**			

Go back to Index Page

Tyre equipment and recommended tyre pressures

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
A40G Volvo	Braås	322001	329999
A40G Volvo	Braås	332001	339999
A40G Volvo	Braås	342001	349999
A40G Volvo	Braås	352001	359999
A40G Volvo	Pederneiras	752001	759999

If tyres other than those specified are used, contact the tyre manufacturer's dealer for information about correct rolling circumference and air pressure.

NOTE!
Avoid mixing tyres with different circumferences and type designations on the same axle. This may lead to unnecessary wear on the drive train and also other properties of the machine.

NOTE!
Remember that changing to another type of tyre requires changes in the machine's software via the authorised service tool.

NOTE!
For machines with load weighing (optional equipment), inspection of the equipment should take place in connection with changing wheels. Inspection of the cable and its attachment points as well as load cell must take place.

Tyre pressure in tyres at 39000 kg (86 000 lb) payload [T1]			
Tyre equipment	**Front kPa (psi)**	**Rear kPa (psi)**	**Parameter value for speedometer (QM). mm (in)**
Bridgestone 29.5 R25 VLT	350 (51.0)	450 (65.0)	5700 (224)
Bridgestone 29.5 R25 VLTS	350 (51.0)	450 (65.0)	5700 (224)
Goodyear 29.5 R25 TL-3A+	300 (44.0)	425 (61.5)	5700 (224)
Goodyear 29.5 R25 GP-4D	300 (44.0)	425 (61.5)	5700 (224)
Goodyear 875/65 R29 GP-4D	300 (44.0)	400 (58.0)	5700 (224)
Michelin 29.5 R25 XADN+	375 (54.5)	450 (65.0)	5700 (224)
Michelin 29.5 R25 XTRA DEF.	325 (47.0)	425 (61.5)	5700 (224)
Michelin 875/65 R29 XAD65-1	275 (40.0)	375 (54.5)	5700 (224)
Michelin 875/65 R29 XTRA DEF.	250 (36.5)	325 (47.0)	5700 (224)
Yokohama 29.5 R25 RT41	350 (51.0)	425 (61.5)	5700 (224)
Trelleborg 29.5 R25 EMR 1030	325 (47.0)	450 (65.0)	5700 (224)

[T1]Specified payload is maximum load for a standard machine, also for individual occasions. Conversion of the machine or fitting optional equipment may require other tyre pressures. If this is the case then approval for use and recommended tyre

pressure for the changed conditions are obtained from the tyre supplier.

Maximum permitted difference in rolling circumference

If a situation should nevertheless arise where different types of tyre must be used, there are rules for how much difference in rolling circumference is permitted.
Different values apply, depending on where on the machine the tyre is fitted.

Different cases	Maximum permitted difference in rolling circumference
1	2% Tyres with greatest rolling circumference must be fitted on the front axle
2	1,5%
3	1,5%

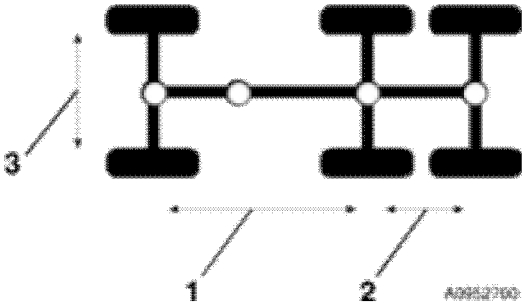


Figure 1

Example of calculation of difference in rolling circumference
Conditions
Case 3 – tyres on the same axle
Rolling circumference according to the tyre supplier:
Goodyear 875/65 R29 GP-4D — 5666 mm
Goodyear 29.5 R25 GP-4D — 5637 mm

Calculation: 5666/5637≈1005

Answer: 0.5%

Conclusion: Maximum permitted difference is 1.5% and the calculation result is 0.5%, which means that mixing these tyres is approved.

Document Title: **Engine, basic check**	Function Group: **090**	Information Type: **Service Information**	Date: **4/10/2025**
Profile: **A40G Volvo**			

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Engine, basic check

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
A40G Volvo	Braås	322001	329999
A40G Volvo	Braås	332001	339999
A40G Volvo	Braås	342001	349999
A40G Volvo	Braås	352001	359999
A40G Volvo	Pederneiras	752001	759999

WARNING

Certain tests are performed with the parking brake released. Make sure that the machine does not start to roll when the parking brake is released.

Basic check, purpose
The purpose of the basic check is to give quick and reliable information about the system general health.

The normal procedure is that after collecting basic information, reading faultcodes and parameter control perform the basic check (if the fault hasn't been previously determined).

Checklist before basic check
Before the basic check is executed it should be ruled out that the problems don't occur depending on any certain elementary faults.
Therefore always check:

Checking	**Explanation**	**Reference**
Fuses	FU71/72, F70	Wiring diagram WD306
	FU17, FU23, FU24, FU30, FU31, FU40	Electrical distribution box, description
Fuel	Level	
Engine stop, internal Engine stop (optional equipment)	May not be pressed in	
Gearshift selector	Shall be in position N	
Battery voltage	Shall be over 24 V	
Engine	Visual check of hoses, connections, cable harnesses and components.	
Parameters	Check settings for relevant parameters.	See: Software parameters, description

Op nbr 090-001

Total procedure time (hr): 0.70

Basic check
This operation also includes required tools and times for applicable parts of the following operations:

- Service positions

Engine off

1. Place the machine in service position, see Service positions.
2. Place the start key in position **1**.
3. Select "Service mode" in the information display unit. See: Service mode, description.
4. Check the **coolant temperature**.
   If the engine is cold, the coolant temperature should be the same as the ambient temperature.
   If the engine is at operating temperature, the coolant temperature should be 77–95 °C and the same as shown by the temperature gauge in the information display unit.

Coolant temperature  V1069860	XX °C/°F

5. Check the **coolant level**. It should be over the MIN level. This is indicated by a symbol in the information display unit. Compare to the actual coolant level.

Coolant level  V1091337	XXXX

6. Check the **engine oil level**. It shall be between MAX and MIN lines on the oil dipstick.

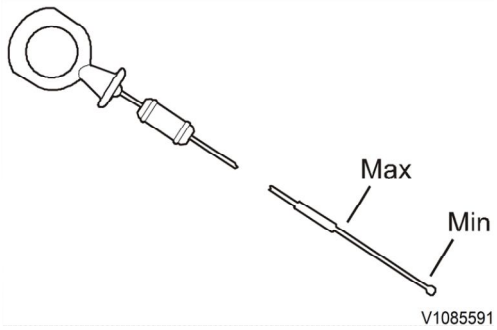

Figure 1
Oil dipstick

7. Check the **engine oil temperature**.
   If the engine is cold, the engine oil temperature should be the same as the ambient temperature.
   If the engine is at operating temperature, the temperature should be 0–10 ºC below the coolant temperature.
   At abnormal temperature, troubleshoot the sensor and the cable harness.

Engine oil temperature  V1082281	XX °C/°F

Engine running

8. Start the engine.

9. Check that there are no alarms related to the engine, see: Information display, vehicle messages.

10. Run the engine to operating temperature (77–95 °C).

11. Check that the engine responds to throttle application.

12. Check the **pressure-drop indicator**. It shall indicate "clogged air filter" if the vacuum pressure after the filter is too high.
    Check the sensor by covering the air inlet before the filter housing with a stiff board that cannot be sucked in. The air supply before the filter is restricted and the sensor should now indicate "clogged air filter".

Air filter  V1082280	XXXX

13. Check the **coolant temperature**. If the engine is at operating temperature, the coolant temperature should be between 77–95 °C and the same as shown by the temperature gauge in the information display unit.
    If the engine is cold, the coolant temperature should be the same as the ambient temperature.

Coolant temperature  V1069860	XX °C/°F

14. Check the **coolant level**. It should be above the MIN level. Check if the level in the expansion tank has dropped after start.

Coolant level  V1091337	XXXX

15. Check the **engine oil temperature**. At normal operating temperature, it should be approx. 0–10 °C below the coolant temperature.

Engine oil temperature  V1082281	XX °C/°F

16. Check the **engine oil pressure** in the information display unit.

Engine oil pressure  V1082279	XX bar/psi

17. Check the **engine speed**. It shall match the tachometer. Check also that the values for low and high idle match the engine's specifications (parameters).

Engine speed  V1091718	XXXX rpm

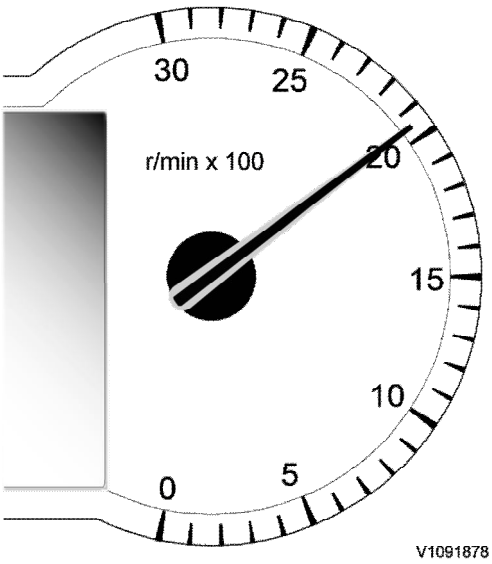

Figure 2
Tachometer

18. Check that there is no noise or leakage.

Document Title: **Electrical system, basic check**	Function Group: **090**	Information Type: **Service Information**	Date: **4/10/2025**
Profile: **A40G Volvo**			

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Electrical system, basic check

Showing Selected Profile

Valid for serial numbers			
Model	**Production site**	**Serial number start**	**Serial number stop**
A40G Volvo	Braås	322001	329999
A40G Volvo	Braås	332001	339999
A40G Volvo	Braås	342001	349999
A40G Volvo	Braås	352001	359999
A40G Volvo	Pederneiras	752001	759999

Basic check, purpose
The purpose of the basic check is to give quick and reliable information about the system general health.

The normal procedure is that after collecting basic information, reading faultcodes and parameter control perform the basic check (if the fault hasn't been previously determined).

Checklist before basic check
Before the basic check is executed it should be ruled out that the problems don't occur depending on any certain elementary faults.
Therefore always check:

Checking	**Explanation**	**Reference**
Fuses	Check that all fuses are intact	Electrical distribution box, description
Engine stop, internal Engine stop (optional equipment)	Shall not be activated (pressed in)	
Alternator	Checking belts and belt tension	Electrical system, special instructions for servicing, general
Parameters	Check settings for relevant parameters.	Software parameters, description

Op nbr 090-002

Basic check
This operation also includes required tools and times for applicable parts of the following operations:

- Service positions

1. Place the machine in service position, see Service positions.
   NOTE!
   Check that the main electric power is not on, that is, ignition is in position OFF (0).

2. Check the batteries' electric connections.

3. Turn on the main electric power by turning the ignition from position 0 to position R.

4. Check that the electrical system powers up (is supplied with voltage) and that start figure with machine hours is

shown in the information display unit.

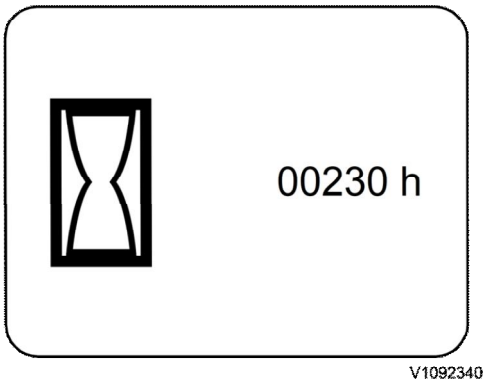

Figure 1
Machine hours

5. Turn the ignition to position **1**. The control light test is run at the same time as a rotating Volvo logo is shown on the information display unit.
   NOTE!
   If the machine is equipped with theft protection, the display figure for entering the code is shown.

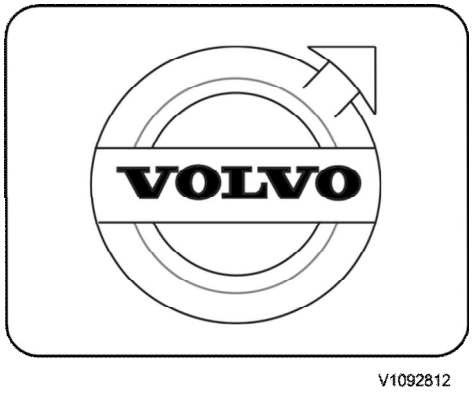

Figure 2
Volvo logotype

6. Check that the electronics start and that the operating display is shown. The operating display that is shown is the same as when the electronics were shut down. The charging light (battery symbol) should be on constantly with a red light.

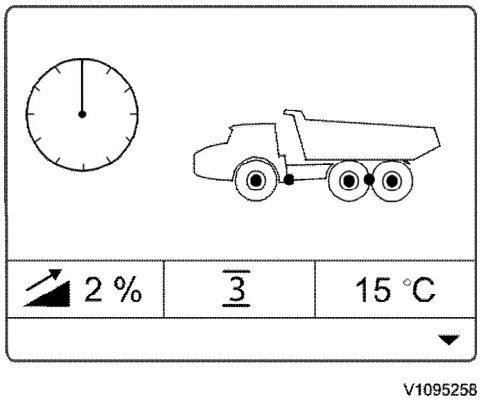

Figure 3
Operating display 1, shown as default

7. Check that the system voltage is above 24 V by entering service mode and selecting "5 Electrical system". See Service mode, description.

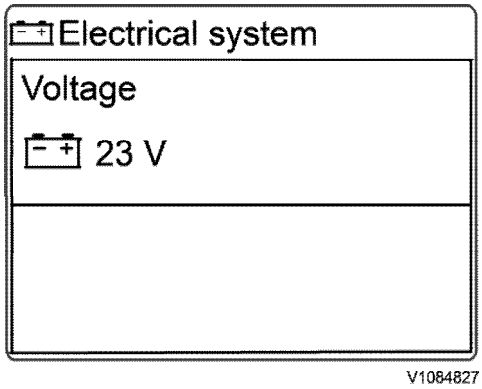

Figure 4
System voltage

8. Activate headlights, high beams and flashing hazard lights. Walk around the machine and check that the lights are on/flash. Restore.

9. Activate and check interior lighting. Restore.

10. Activate and check the ventilation fan. Restore.

11. Activate the floor switch for differential locks (all) and check that the control lights are on. Restore.

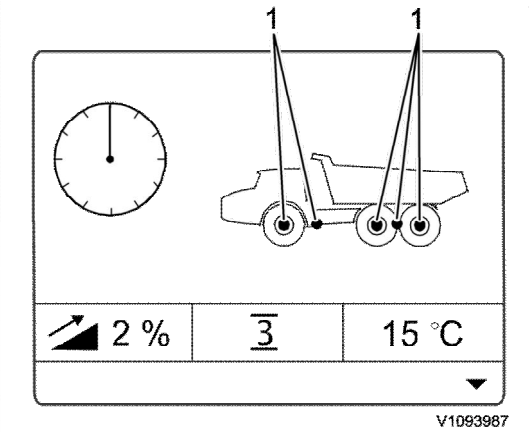

Figure 5

1. Control lights differential locks

12. Start the engine by turning the ignition to position 2. Check that:

- The preheating symbol in the operating display first turns on and then turns off
- The charging light turns off

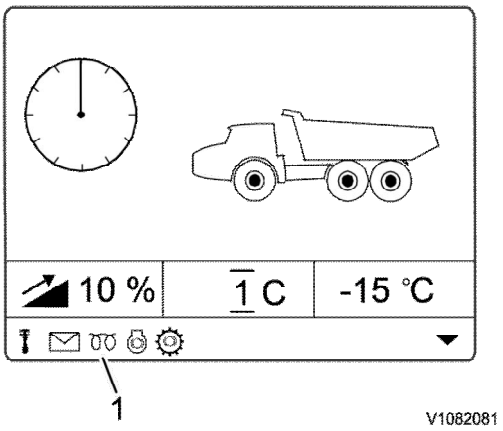

Figure 6

1. Symbol for preheating

13. Check that the system voltage increases to ≈ 28 V by entering service mode and selecting "5 Electrical system". See Service mode, description.

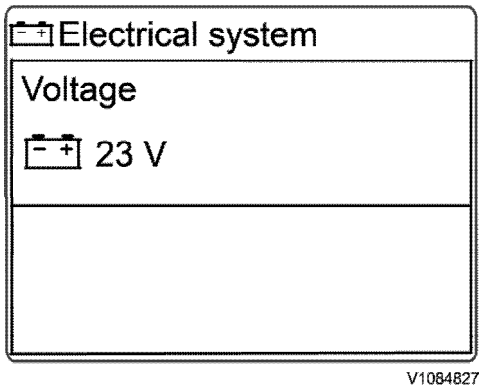

Figure 7
System voltage

14. Run up the load body. Then lower the load body by moving the dump lever to lowering position with hold function. Check that the dump lever remains in hold position (hold solenoid) until the load body is down. When the body is down, the dump lever returns to float position.
NOTE!
When lowering, check that the dump lever goes to float position when any of the following occurs:

- Ignition is turned to position **0**
- The operator stands up

15. Activate the load and dump brake and check that the symbols for the load and dump brake as well as service brake turn on. Reset by moving the gear selector from neutral position.

Figure 8
Symbol for load and dump brake (amber)

Figure 9
Symbol for service brake (green)

16. **NOTE!**
Only applies to machines with hydraulic suspension.

Set the switch for the hydraulic suspension in normal position by pressing in the upper part of the switch.

Check that the machine is being adjusted and that the operating display shows yellow arrows and spring. The arrows should flash at the same rate.

When normal position has been reached, check that the operating display shows green arrows and spring for approx. 10 seconds. Then the arrows and spring should disappear from the operating display.

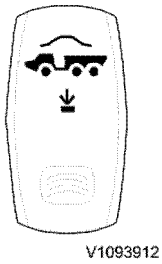

Figure 10
Switch for hydraulic suspension

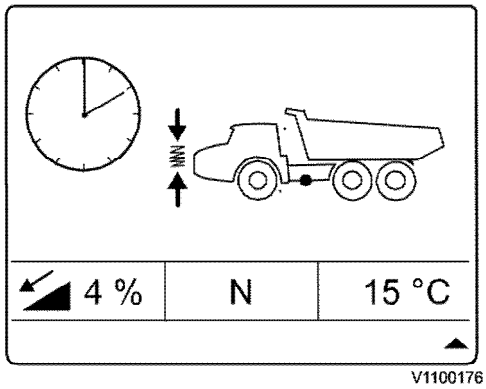

Figure 11
Adjusting towards normal position (yellow arrows and spring) and normal position reached (green arrows and spring)

17. **NOTE!**
Only applies to machines with hydraulic suspension.

Set the switch for the hydraulic suspension in bottom position by pressing in the lower part of the switch. To change the switch, the red lock device has to be slid down.

Check that the machine is being adjusted and that the operating display shows yellow arrow and spring. The arrow under the spring flashes.

When bottom position has been reached, check that the operating display shows green arrow and spring.