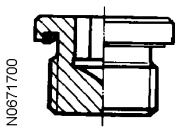
Document Title: **Tightening torques, blanking plugs**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile:			

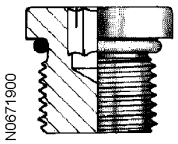
Tightening torques, blanking plugs

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

VOLVO

Service Information

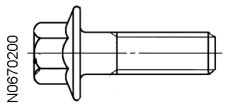
Document Title: **Tightening torques, bolts and nuts**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile:			

Tightening torques, 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 lubricatedcondition. The values are calculated assuming a coefficient of friction of 0.2 for a dry chromated flange bolt and 0.15 for a lubricatedchromated 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).

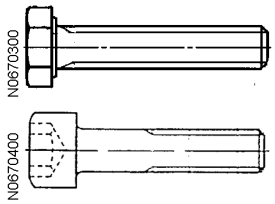
The following abbreviations for surface treatment are used in the tables:
Fe/Zn-Fe = Black chromated zinc - iron
FZB =Blank chromated

Flange bolts



Thread (mm)	**Wrench size, width across flats (mm)**	**Tightening torque (Nm)**	
		8.8 Fe/Zn-Fe Dry	**8.8 Fe/Zn-Fe Lubricated**
M5	8	7	6
M6	10	12	10
M8	12	28	24
M10	14	56	48
M12	17	100	85
M14	18	160	140
M16	21	250	220

Hex bolts and Allen head bolts



	Wrench size (width across flats)		**Tightening torque (Nm)**			
Thread (mm)	**Hexagon (mm)**	**Allen head (mm)**	**8.8 FZB and Fe/Zn-Fe Dry**	**8.8 FZB and Fe/Zn-Fe Lubricated**	**10.9 Lubricated**	**12.9 Untreated Lubricated**
M5	8	4	6	5		
M6	10	5	10	9		20
M8	13	6	25	22		40
M10	16	8	50	44	60	80

M12	18	10	90	75	105	140
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

Wheel nuts		
N0672000 		
Thread M	**Wrench size (width across flats)**	**Tightening torque (Nm)**
M22 x 1.5	30	420

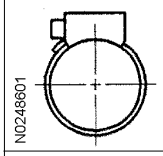
Document Title:	Function Group:	Information Type:	Date:
Tightening torques, general tolerances	**030**	**Service Information**	**3/23/2026**
Profile:			

Tightening torques, general 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: **Tightening torques, hose clips**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile:			

Tightening torques, hose clips

Hose clamps with worms		
 N0248601		
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

VOLVO

Service Information

Document Title: **Tightening torques, hydraulic couplings, general**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile:			

Tightening torques, hydraulic couplings, general

Before fitting pipe couplings, plugs and hoses.

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

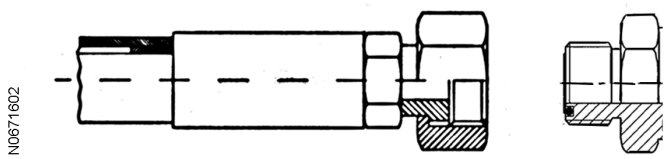
VOLVO

Service Information

Document Title:	Function Group:	Information Type:	Date:
Tightening torques, ORFS connections	**030**	**Service Information**	**3/23/2026**
Profile:			

Tightening torques, ORFS connections

ORFS-connections (ISO 8434-3)



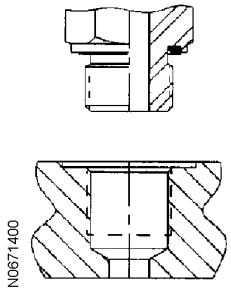
Thread (inches)	Wrench size, width across flats (mm)	Tightening torque (Nm) *
9/16 – 18 UNF	17 alt. 19	25
11/16 – 16 UN	22	35
13/16 – 16 UN	24	55
1 – 14 UNS	30	85
1 3/16 – 12 UN	36	120
1 7/16 – 12 UN	41 alt. 46	160
1 11/16 – 12 UN	50	200
2 – 12 UN	60	260

* Threads and sealing surface must not be oiled in before tightening.

Document Title: **Tightening torques, valve connections**	Function Group: **030**	Information Type: **Service Information**	Date: **3/23/2026**
Profile:			

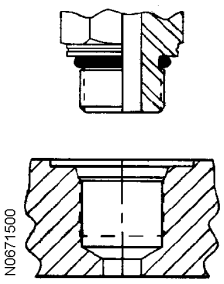
Tightening torques, valve connections

Valve connections, ORFS connections with ED seals (DIN 3852 form E)



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

Document Title:	Function Group:	Information Type:	Date:
Time Guide	**070**	**Service Information**	**3/23/2026**
Profile:			

Time Guide

EW140

1		Standard parts, service

17		Service
1763-02	0.25	Jump starting the machine, connecting the cables
1763-01	0.25	Jump starting the machine, removing the cables
1711-15	8.00	Arrival and pre-delivery inspection
1721-15	2.00	Warranty service, 1
1722-15	2.00	Warranty service, 2

2		Engine with mounting and equipment

21		Engine
210-01	6.00	Engine assembly, remove
210-04	23.00	Engine assembly, recondition
210-02	6.50	Engine assembly, install
2111-01	2.50	Cylinder head, remove
2112-03	6.00	Cylinder head, replace gasket
2111-09	6.25	Cylinder head, check for leaks
2111-02	3.00	Cylinder head, install
213-04	20.00	Engine block, ream cylinder liner seatings (all)
213-10	10.00	Engine block, measure cylinder wear (all)
213-03	14.00	Engine block, replace cylinder liners and pistons (all)
2141-08	1.00	Valves, inspect (all)
2142-04	1.50	Valves, adjust (all)
2116-03	0.50	Valve cover, replace gasket
2167-03	6.00	Crankshaft, replace front seal
2167-03	7.00	Crankshaft, replace rear seal
2172-03	2.00	Oil sump gasket, replace

2211-03	4.00	Oil pump, replace
218-01	3.00	Engine mounting, RH front, remove
218-02	3.25	Engine mounting, RH front, install
218-01	3.00	Engine mounting, LH front, remove
218-02	3.25	Engine mounting, LH front, install
218-01	2.50	Engine mounting, RH rear, remove
218-02	2.75	Engine mounting, RH rear, install
218-01	2.00	Engine mounting, LH rear, remove
218-02	3.00	Engine mounting, LH rear, install

23		**Fuel system**
2341-01	1.50	Fuel tank, remove
2341-02	1.00	Fuel tank, install
2344-01	0.50	Fueling pump, remove
2344-02	0.75	Fueling pump, install
2361-01	1.50	Injection pump, remove
2361-02	1.75	Injection pump, install
2366-03	0.75	Injection pump, replace regulator housing seal
2331-01	0.50	Feed pump, remove
2331-04	1.25	Feed pump, recondition
2331-02	0.50	Feed pump, install
2331-08	0.25	Feed pump, check feed pressure
2371-03	0.50	Injector, replace
2379-03	1.00	Injector, replace copper sleeve
2371-08	2.00	Injectors, check and adjust (all)

25		**Inlet system, exhaust system**
2521-03	1.50	Exhaust pipe, replace pipe between silencer (muffler) and turbo-compressor
252-03	2.00	Exhaust system, replace silencer (muffler)
2511-03	1.00	Exhaust manifold, replace gasket
255-01	1.00	Turbo-compressor, remove
255-04	3.00	Turbo-compressor, recondition
255-02	1.00	Turbo-compressor, install
2562-03	0.75	Inlet, change main and safety filters
2566-03	0.50	Electric air preheater, replace preheater relay

26		**Cooling system**
2611-01	2.00	Radiator, water/oil, remove

2611-02	2.00	Radiator, water/oil, install
2615-03	0.75	Radiator, replace top coolant hose
2615-03	3.00	Radiator, replace bottom coolant hose
2612-01	0.75	Expansion tank, remove
2612-02	1.00	Expansion tank, install
2621-01	2.00	Coolant pump for engine, remove
2621-04	6.00	Coolant pump for engine, recondition
2621-02	2.50	Coolant pump for engine, install
2627-03	1.00	Thermostat, replace
2634-01	1.00	V-belts, remove
2634-02	1.00	V-belts, install

27		**Engine control**
2751-05	0.50	Speed control, set throttle device
277-05	0.50	Automatic speed reduction, adjust
277-03	1.25	Automatic speed reduction, replace cylinder

3		**Electrical system, warning system, information system, instruments**

30		**Electrical system, general**
300-05	0.25	Road lighting, set

31		**Battery**
311-01	0.50	Battery, remove
311-02	0.50	Battery, install
37142-03	0.25	Battery, replace earth cable
37143-01	0.50	Battery isolator switch, remove
37143-02	0.50	Battery isolator switch, install

32		**Alternator, charge regulator**
320-08	0.25	Charging system, check charging voltage
321-01	1.25	Alternator, remove
321-02	1.50	Alternator, install
321-03	2.75	Alternator, replace carbon brushes
322-03	2.25	Alternator, replace charge regulator

33		**Starting system**

3314-01	1.00	Starter motor, remove
3314-02	1.00	Starter motor, install
3318-03	3.00	Starter motor, replace magnetic coil
37182-03	0.75	Starter motor, replace earth (ground) cable
334-01	0.25	Starting lock, remove
334-02	0.25	Starting lock, install

35		**Lighting**
352-03	0.50	Headlights, replace and adjust

36		**Other electrical equipment**
361-03	0.25	Direction indicators, replace glass or bulb
3621-03	0.50	Other equipment, replace horn
3631-03	0.75	Other equipment, replace upper windscreen wiper motor
3631-03	0.75	Other equipment, replace lower windscreen wiper motor
3634-03	0.25	Other equipment, replace windscreen washer pump
9149-03	0.50	Solenoid valve, replace

37		**Cable, fuse, relay**
3721-03	1.25	Linde box, replace + learning
37211-01	2.50	Electrical distribution box A1, remove
37211-02	2.50	Electrical distribution box A1, install

38		**Instrument, sensor, warning and information system**
3864-03	1.00	Sensors and detector switches, replace operating latch
3864-03	0.75	Sensors and detector switches, replace position sensor for window
3864-03	0.75	Sensors and detector switches, replace level sensor for fuel
3864-03	0.75	Sensors and detector switches, replace pressure switch for control
3864-03	0.75	Sensors and detector switches, replace pressure switch for brake
3864-03	0.75	Sensors and detector switches, replace pressure switch for brake
3864-03	1.00	Sensors and detector switches, replace pressure switch automatic speed reduction
3864-03	0.75	Sensors and detector switches, replace pressure switch for brake lights
3864-03	1.00	Sensors and detector switches, change position sensor upper part
3864-03	1.25	Sensors and detector switches, replace temperature sensor for hydraulic oil
3864-03	0.25	Sensors and detector switches, replace temperature switch for cold starting
3864-03	0.50	Sensors and detector switches, replace pressure switch for parking brake
3864-03	0.50	Sensors and detector switches, replace pressure switch for drive pedal
3864-03	0.25	Sensors and detector switches, replace temperature sensor for coolant
3864-03	0.25	Sensors and detector switches, replace pressure switch for engine oil
3864-03	0.25	Sensors and detector switches, replace pressure switch for hydraulic oil filter
3864-03	0.25	Sensors and detector switches, replace pressure switch for air filter
3864-03	0.75	Sensors and detector switches, replace pressure switch for overload
3864-03	0.25	Sensors and detector switches, replace rpm transmitter for engine

366-01	1.00	Central unit A3, remove
366-02	2.00	Central unit A3, install
3872-01	0.25	Display unit A9, remove
3872-02	0.25	Display unit A9, install

39		**Miscellaneous**
3932-03	0.25	Radio or tape player, replace
3937-03	1.50	Voltage divider, replace
3939-03	0.25	Loudspeaker, replace

4		**Power transmission**

43		**Gearbox, mechanical**
4314-04	20.00	Driving gearbox for wheeled machines, recondition

44		**Hydrostatic drive**
4411-01	1.25	Drive motor, remove
4411-02	1.50	Drive motor, install
4412-01	5.50	Slew motor, remove
4412-02	5.00	Slew motor, install
4431-01	4.00	Central passage, remove
4431-03	11.00	Central passage, replace seals and bearings
4431-02	5.00	Central passage, install

45		**Propeller shaft**
451-03	1.00	Transmission shaft, front, replace
451-03	1.00	Transmission shaft, rear, replace
4513-03	1.00	Transmission shaft, replace intermediate bearing

46		**Front axle, rear axle**
461-01	2.50	Axle, front, remove
4612-04	30.00	Axle, front, fully recondition
461-02	3.00	Axle, front, install
463-01	3.00	Axle, rear, remove
4632-04	43.00	Complete rear axle with driving gearbox, fully recondition
463-02	3.50	Axle, rear, install

49		**Other, slow system**
4922-03	24.00	Slewing ring, replace

5		Brake

6		Steering

7		Frame, springs, damping, axle suspension, wheel/track unit

71		Frame
716-01	0.75	Counterweight, remove
716-02	0.75	Counterweight, install

76		Shock absorber, axle locking, anti roll bar, level/side control
7631-01	0.50	Swing lock cylinder, remove
7631-03	2.00	Swing lock cylinder, replace seal
7631-02	0.50	Swing lock cylinder, install
91233-03	0.50	Swing lock cylinder, replace seals in hydraulic lock

77		Wheels, tracks
771-01	0.75	Front wheel, remove
771-02	1.00	Front wheel, install
771-01	0.75	Rear wheel, remove
771-02	1.00	Rear wheel, install
7742-01	0.75	Stone guard rings, remove
7742-02	1.25	Stone guard rings, install

8		Machinery house, cab

81		Cab without door, windows, panes, hatch
8102-01	2.00	Cab, remove
8102-02	2.50	Cab, install

83		Doors, hatch, cover plate
8315-01	0.75	Cab door, remove door latch
8315-02	1.00	Cab door, install door latch
8344-03	0.50	Cab door, replace door lock
837-03	1.75	Engine hood, replace
837-03	0.50	Engine hood, gas spring replace
837-03	0.50	Engine hood, lock replace

84		Trim part outside, glass, sealing moulding
843-01	0.50	Window glass, remove
843-02	-	Window glass, install (see Service Bulletin 843EXC04)
8431-01	0.75	Upper front window, remove
8431-02	0.50	Upper front window, install

85		Cab interior/Upholstery
8521-01	0.50	Drivers seat, remove
8521-02	0.75	Drivers seat, install

87		Air conditioning unit
8735-01	1.00	Heater valve, remove
8735-02	1.00	Heater valve, install
873-01	0.75	Heater fan, remove
873-02	1.00	Heater fan, install
8732-01	2.50	Heater element, remove
8732-02	2.50	Heater element, install

9		Hydraulic system, digging/handling equipment, miscellaneous equipment

91		Working hydraulics, servo hydraulics
910-05	3.00	Hydraulic pressure, set
9111-01	3.00	Hydraulic oil tank, remove
9111-02	3.50	Hydraulic oil tank, install
9112-03	0.50	Pipes and hoses, work hydraulic system, replace hose on head
9112-03	1.25	Pipes and hoses, work hydraulic system, replace hose in base machine
9112-03	1.50	Pipes and hoses, work hydraulic system, replace hose to centre
9112-03	0.75	Pipes and hoses, work hydraulic system, replace pipe on unit
91235-01	0.50	Line breakage valve (hose breakage valve) for jib cylinder, remove
91235-02	0.75	Line breakage valve (hose breakage valve) for jib cylinder, install
91236-01	0.25	Line breakage valve (hose breakage valve) for shaft cylinder, remove
91236-02	0.25	Line breakage valve (hose breakage valve) for shaft cylinder, install
91237-01	0.50	Line breakage valve (hose breakage valve) for knuckle cylinder, remove
91237-02	0.25	Line breakage valve (hose breakage valve) for knuckle cylinder, install
91237-01	0.25	Line breakage valve (hose breakage valve) for knuckle cylinder, remove
91237-02	0.25	Line breakage valve, front, (hose breakage valve) for knuckle cylinder, install
9125-01	2.50	Valve block A, remove
9125-02	2.00	Valve block A, install

9125-01	3.00	Valve block B, remove
9125-02	2.75	Valve block B, install
9121-01	0.25	Directional valve, remove spring
9121-02	0.25	Directional valve, install spring
9121-03	0.50	Directional valve, replace spool
91211-01	0.25	Directional valve for slew, remove spring
91211-02	0.25	Directional valve for slew, install spring
91211-03	0.50	Directional valve for slew, replace spool
9122-01	0.25	Pressure limiting valve, remove
9122-02	0.25	Pressure limiting valve, install
9127-01	0.25	Refilling valve, remove
9127-02	0.25	Refilling valve, install
912-01	0.25	Shock and refilling valve, remove
912-02	0.25	Shock and refilling valve, install
594-03	1.00	Retardation valve, replace seal
913-01	1.75	Working pump, remove
913-02	2.25	Working pump, install
9145-01	0.25	Accumulator for servo pressure, remove
9145-02	0.25	Accumulator for servo pressure, install
9148-03	0.25	Control pressure valve, pedal, adjust
9143-01	0.75	Servo pump, remove
9143-02	0.75	Servo pump, install
9147-03	0.75	Pipes and hoses, servo hydraulic system, replace hose on head
9147-03	0.75	Pipes and hoses, servo hydraulic system, replace hose in base machine
9147-03	0.50	Pipes and hoses, servo hydraulic system, replace pipe on unit

92		**Mechanical equipment/attachment**
924-03	2.00	Tool attachment, replace
9243-01	0.75	Cylinder for hydraulic tool attachment (quick-release), remove
9243-02	1.25	Cylinder for hydraulic tool attachment (quick-release), install

97		**Unit, digging**
9723-03	**1.50**	**Support blade equipment, replace support blade**
9722-03	1.00	Support blade equipment, replace support blade cylinder
970-01	1.00	Head bearings, remove link bearings

970-02	1.50	Head bearings, install link bearings
972-01	0.75	Support leg, remove
972-02	1.00	Support leg, install
91231-01	1.50	Support leg, remove hydraulic lock
91231-02	1.75	Support leg, install hydraulic lock
9722-01	1.25	Support leg, remove hydraulic cylinder
9722-02	1.50	Support leg, install hydraulic cylinder
9741-01	6.00	Boom section, front, remove
9741-01	8.00	Boom section, rear, remove
9741-02	7.00	Boom section, rear, install
9741-02	6.50	Boom section, front, install
9741-01	5.00	Monoboom, remove
9741-02	6.00	Monoboom, install
9743-01	0.75	Boom cylinder LH, remove
9743-02	1.25	Boom cylinder LH, install
9743-01	0.75	Boom cylinder RH, remove
9743-02	1.25	Boom cylinder RH, install
9743-03	2.50	Boom cylinder, replace upper shaft
9743-03	0.75	Boom cylinder, replace lower shaft
9751-01	1.50	Shank, remove
9751-02	2.50	Shank, install
9751-03	1.00	Shank, replace shaft between shank and jib
9752-03	1.25	Link system, replace lever arm
9752-03	2.00	Link system, replace links
9753-01	1.00	Shank cylinder, remove
9753-02	1.25	Shank cylinder, install
9753-03	0.75	Shank cylinder, replace upper shaft
9753-03	0.50	Shank cylinder, replace lower shaft
9754-01	1.25	Knuckle cylinder, remove
9754-02	1.50	Knuckle cylinder, install
9754-03	0.50	Knuckle cylinder, replace front seal
9754-03	1.00	Knuckle cylinder, replace rear seal
9755-01	0.75	Bucket cylinder, remove
9755-02	0.75	Bucket cylinder, install
9755-03	0.50	Bucket cylinder, replace upper shaft
9755-03	0.50	Bucket cylinder, replace lower shaft

Document Title:	Function Group:	Information Type:	Date:
Hydraulic oil, cleaning	**160**	**Service Information**	**3/23/2026**
Profile:			

Hydraulic oil, cleaning

Op nbr 160-03

NOTE!
Before changing filter, thoroughly clean the area around the filter.

Clean the oil:

- Following larger repairs on the hydraulic system, for example, changing valve block or hydraulic oil tank.
- After oil tests have shown that oil is contaminated.
- On machines with repeated malfunctions of the hydraulic system.

Cleaning can be performed as follows with the hydraulic system internal filter device:

1. Operate the machine so that the hydraulic oil temperature is minimum 35 °C.
2. Thoroughly clean the filter canister in the hydraulic oil tank and change filters.
3. Clean the oil for 3 hours during normal operation of the machine.
4. Change the filter.

Document Title:	Function Group:	Information Type:	Date:
Hydraulic oil, description	**160**	**Service Information**	**3/23/2026**
Profile:			

Hydraulic oil, description

The oil contains selected additives that provide good oxidation stability, corrosion protection and good lubricating characteristics as well as compatibility with bearings containing lead alloys.

The ester base gives the oil a very high viscosity index and good characteristics at low temperatures.

Document Title:	Function Group:	Information Type:	Date:
Hydraulic oil, specifications	**160**	**Service Information**	**3/23/2026**
Profile:			

Hydraulic oil, specifications

Oil type	Viscosity	Ambient temperature	Miscibility	Comment
Mineral oil *)	ISO VG 32	-30 to +35 °C	Can be mixed with mineral oil ISO VG 46	
Mineral oil *)	ISO VG 46	-15 to +50 °C	Can be mixed with mineral oil ISO VG 32	
PANOLIN HLP SYNTH 46 Biologically degradable synthetic oil	Same as for mineral oil ISO VG 46	-15 to +50 °C		When changing from mineral oil to synthetic oil, contact a Volvo CE authorized workshop
BP BIOHYD SE-S 46 biologically degradable synthetic oil	Same as for mineral oil ISO VG 46	-15 to +50 °C		When changing from mineral oil to synthetic oil, contact a Volvo CE authorized workshop

*) SS 155 434 AV
DIN 51 524-HVLP
ISO 6743/4 HV
Volvo Standard Hydraulic oil/Hydraulic fluid 98 601

VOLVO

Service Information

Document Title:	Function Group:	Information Type:	Date:
Hydraulic oil, storage and handling	**160**	**Service Information**	**3/23/2026**
Profile:			

Hydraulic oil, storage and handling

- The hydraulic oil must be stored either in tanks or barrels that are well sealed.
- Containers used for transporting hydraulic oil must only be used for this purpose.
- Oil should be stored under cover or in temperature-controlled premises. If oil is stored outdoors, the barrels should be stored horizontally so that water cannot enter and the barrel markings are not eradicated.

Document Title: **Jump starting of machine, removal of cables**	Function Group: **1763**	Information Type: **Service Information**	Date: **3/23/2026**
Profile:			

Jump starting of machine, removal of cables

Op nbr 1763-01

1. Remove the cable **3** between the free minus terminal of the booster battery unit and the chassis.
2. Remove the cable **2** between the free minus terminal on the booster battery unit and the plus connection on the machine batteries.
3. Remove the cable **1** between the two booster batteries.
4. Fit the cover over the battery compartment.

CAUTION

Make sure that the cover does not contact the battery terminals.

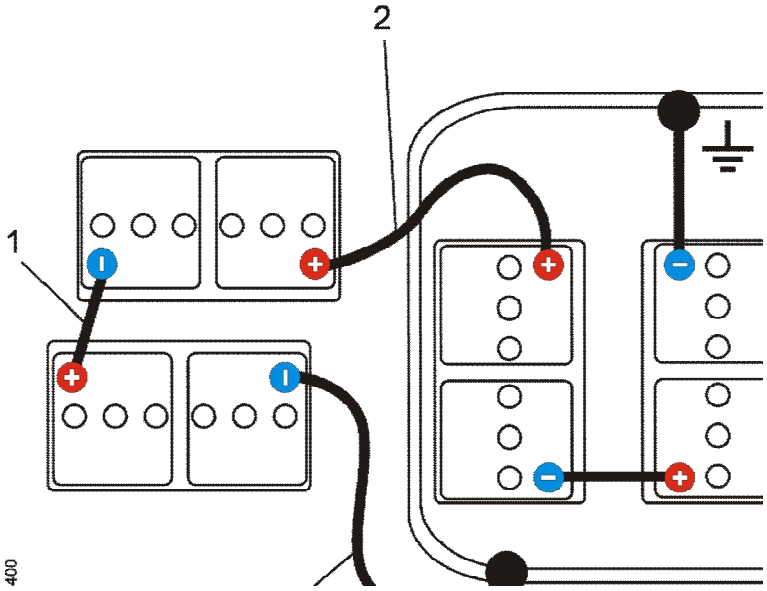


Figure 1
Jump starting of machine

1. Cable between booster batteries
2. Positive cable
3. Ground cable

Document Title: **Jump starting of machine, description**	Function Group: **1763**	Information Type: **Service Information**	Date: **3/23/2026**
Profile:			

Jump starting of machine, description

If the batteries are discharged, separate booster batteries or the batteries in another machine can be used. If another machine is used, that machine's diesel engine must be turned off and the ignition key must be removed.

⚠ CAUTION

Never use a charging unit connected to the general supply of electricity.

VOLVO

Service Information

Document Title: **Jump starting of machine, connection of cables**	Function Group: **1763**	Information Type: **Service Information**	Date: **3/23/2026**
Profile:			

Jump starting of machine, connection of cables

Op nbr 1763-02

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Tools:

Booster battery, 2 pcs., 12 V 100 Ah

Cables, 3 pcs.

WARNING

The booster battery negative terminal must not under any circumstances be connected directly to the negative terminal of the discharged batteries.

A discharged or frozen battery can explode due to the current surge if directly connected to a fully charged battery. This may cause personal injuries.

In order to reduce the risk of a current surge, the electrical resistance in the booster circuit should be increased. This is done by always connecting the booster package negative terminal to a suitable ground connection on the machine frame.

1. Remove the cover above the batteries.

   CAUTION

   Make sure that the cover does not contact the battery terminals.

2. Connect a cable **1** between the two booster batteries.

3. Connect a cable **2** between the free plus terminal on the booster battery unit and the plus cable terminal on the machines batteries.

4. Connect a cable **3** between the free negative terminal on the booster battery unit and a suitable chassis connection on the machine superstructure.

5. Start the diesel engine.

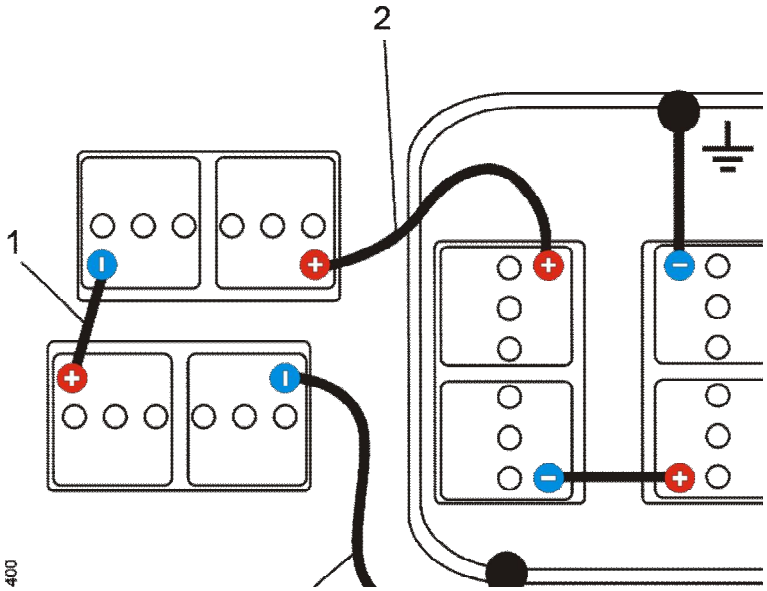

Figure 1
Jump starting of machine

1. Cable between booster batteries
2. Positive cable
3. Ground cable

Document Title: **Vacuum pump, disconnection**	Function Group: **1791**	Information Type: **Service Information**	Date: **3/23/2026**
Profile:			

Vacuum pump, disconnection

Op nbr 1791-01

14 360 000 Vacuum pump
14 360 112 Adapter

1. Turn off the electric power to the vacuum pump.
2. Remove the plug from the 24V socket.
3. Remove the hose from the adapter.
4. Remove the adapter and immediately fit the air filter.

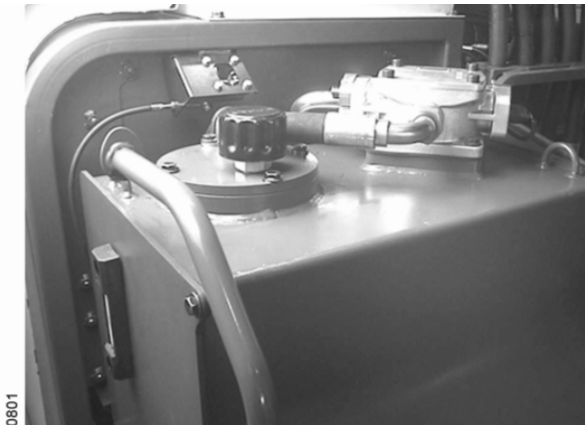

Figure 1
Hydraulic oil tank, restored to operating state

Document Title: **Vacuum pump, connection**	Function Group: **1791**	Information Type: **Service Information**	Date: **3/23/2026**
Profile:			

Vacuum pump, connection

Op nbr 1791-02

14 360 000 Vacuum pump
14 360 112 Adapter

CAUTION

The air filter is located above the filtered hydraulic oil. Therefore, thoroughly clean the surfaces closest to the filter. Do not leave the connection for the filter open for longer time than it takes to fit the adapter.

1. Place the vacuum pump on the hydraulic oil tank.
2. Remove the air filter **3** and immediately fit the adapter **1**.
3. Connect the hose **2** to the adapter **1** .

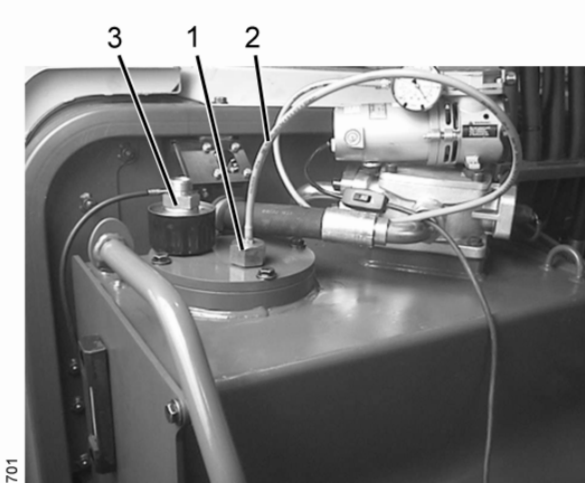

Figure 1
Connection of vacuum pump

1	Adapter	3	Air filter
2	Hose		

4. Connect the plug to the 24V outlet in the operator's cab located on the left control panel or connect to the outlet behind the operator's cab.
5. Start the vacuum pump.
6. Adjust the vacuum pump by using the adjusting knob **1** .

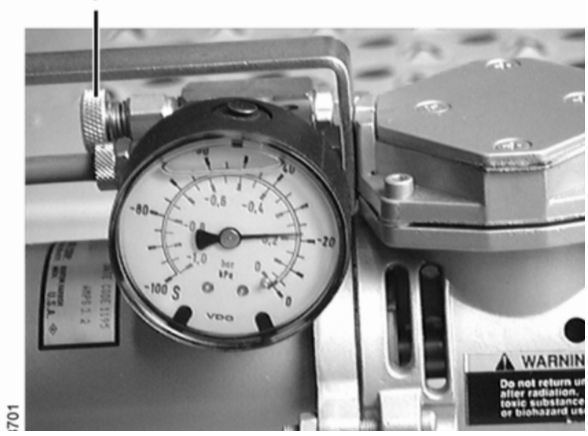

Figure 2
Vacuum pump

1. Adjusting knob

7. Let the pump work for 2 – 3 minutes until the vacuum is -300 mbar.

8. Adjust the vacuum so that leaks will not occur during work on the hydraulic system.

CAUTION

The vacuum pressure must not drop below -300 mbar as there is a risk that the hydraulic oil tank will be damaged.