Document Title: **Digging data**	Function Group: **030**	Information Type: **Service Information**	Date: **3/18/2026**
Profile:			

Digging data

Digging data in metres (ft)		
Boom length	**7.6 (24.93)**	**ME 6.6 (21.65)**
Dipper arm length	**3.25 (10.66)**	**2.75 (9.02)**
Max. reach	13.3 (43.62)	11.7 (38.38)
Max. reach at ground level	13.1 (42.97)	11.4 (37.39)
Max. digging depth	8.4 (27.55)	7.2 (23.62)
Max. height, ground - tooth tip	13.3 (43.62)	11.5 (37.72)
Max. height, ground - bucket hinge	11.5 (37.72)	10.0 (32.8)
Max. dump height	9.3 (30.5)	7.8 (25.58)
Max. practical dump height	6.5 (21.32)	5.5 (18.04)
Practical digging depth when the material's angle of repose is 45°	6.9 (22.63)	5.9 (19.35)
Max. vertical digging depth	5.2 (17.06)	2.5 (8.2)
Min. front slew radius	4.8 (15.74)	4.7 (15.42)

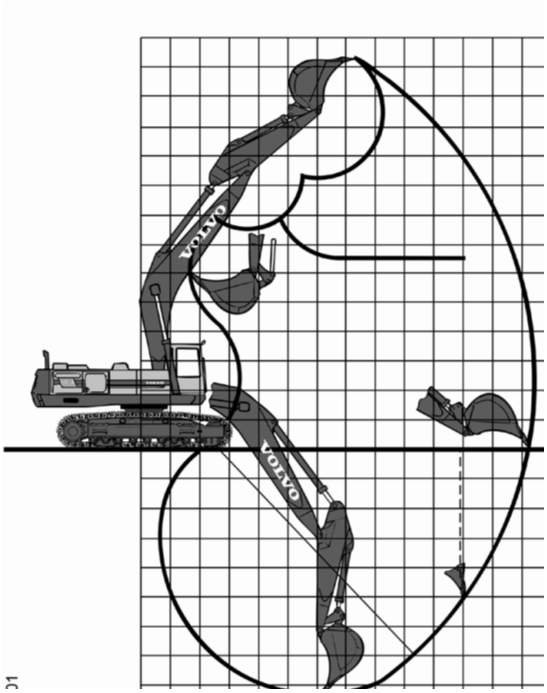


Figure 1
Digging diagram, EC650

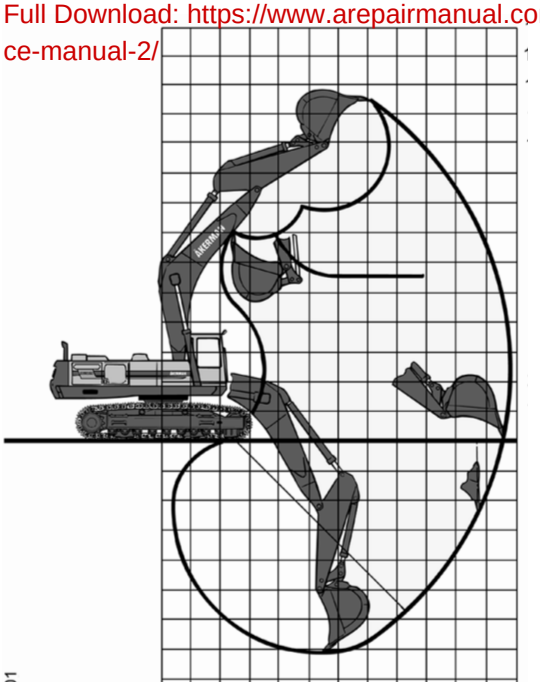
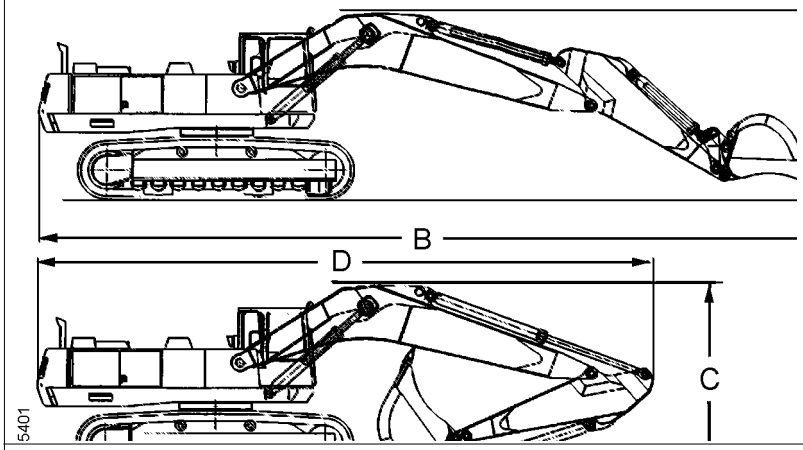


Figure 2
Digging diagram, EC650ME

Document Title: **Dimensions**	Function Group: **030**	Information Type: **Service Information**	Date: **3/18/2026**
Profile:			

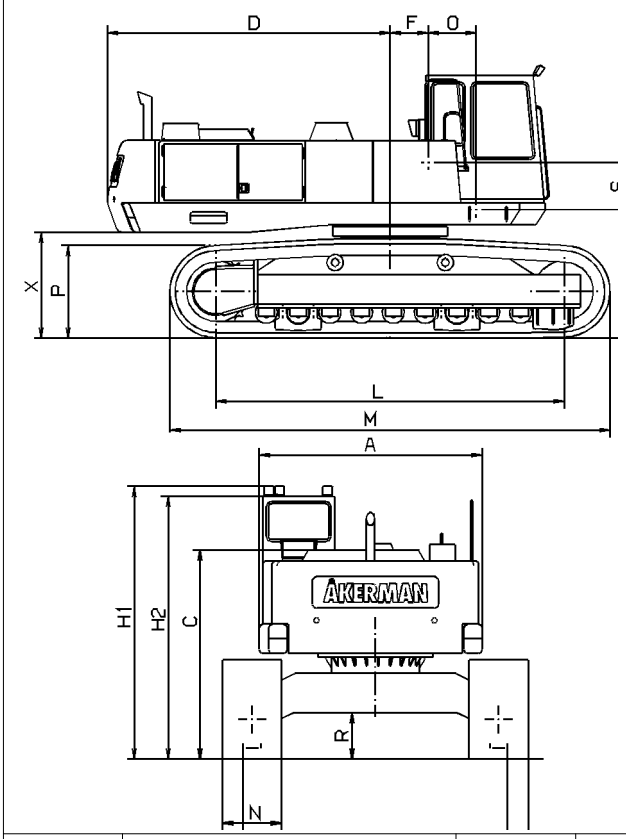
Dimensions

Transport data in metres (ft)



Boom length	**7.6 (24.93)**	**ME 6.6 (21.65)**
Dipper arm length	**3.25 (10.66)**	**2.75 (9.02)**
Min. transport length with retracted digging equipment (D)	13.28 (43.56)	12.49 (40.97)
Min. transport height with retracted digging equipment (C)	4.15 (13.61)	4.65 (15.25)
Total length with extended digging equipment (B)	16.95 (55.6)	15.29 (50.15)
Min. transport height with extended digging equipment (A)	4.10 (13.45)	4.44 (14.56)

Main dimensions in metres (ft)



A	3.03 (9.94)	H1	3.74 (12.27)	P	1.25 (4.10)
B	4.15 (13.61)	H2	3.60 (11.81)	R	0.63 (2.07)
C	2.85 (9.35)	I	4.73 (15.51)	S	0.64 (2.10)
D	3.84 (12.60)	M	5.98 (19.61)	U	3.59 (11.78)
F	0.52 (1.71)	N	0.80 (2.62)	X	1.44 (4.72)
G	2.39 (7.84)	O	0.65 (2.13)		

Document Title: **Lifting data**	Function Group: **030**	Information Type: **Service Information**	Date: **3/18/2026**
Profile:			

Lifting data

Permitted load in kg based on ISO 10567 / SAE J1097 for stationary machines on firm, level supporting surface.

WARNING

Lifting data refers to loads attached to the end of the dipper arm. If equipment is fitted for lifting, its weight must be subtracted from the table values. A maximum load of 14 000 kg (30 800 lbs) may be attached to the bucket hook/ quickfit hook.

Lifting data for EC650 with followin equipment:

- Counterweight 12 000 kg (26 400 lbs)
- Track 800 mm (31.5 in)
- Boom 7.6 m (24.9 ft)
- Dipper arm 3.25 m (10.66 ft)
- Shock pressure 40 MPa (5800 psi)
- Working pressure 34 MPa (4930 psi)

A = Bucket hinge height, m (ft)
B = Outreach, m (ft)

B	6.0 (19.7)		8.0 (26.2)		10.0 (32.8)		Max. load, kg (lbs)/ Max. outreach, m (ft)	
A	J0721100 	J0721000 	J0721100 	J0721000 	J0721100 	J0721000 	J0721100 	J0721000 
8.0 (26.2)	-	-	11 320* (24 904*)	11 320* (24 904*)	-	-	11 190* / 9.5 (24 618*/31.2)	11 190* / 9.5 (24 618*/31.2)
6.0 (19.7)	14 820* (32 604*)	14 820* (32 604*)	12 180* (26 796*)	12 180* (26 796*)	10 990* (24 178*)	10 940 (24 178)	10 920* / 10.5 (24 024*/34.4)	10 090* / 10.5 (22 198*/34.4)
4.0 (13.1)	18 400* (40 480*)	18 400* (40 480*)	13 640* (30 008*)	13 640* (30 008*)	11 460* (25 212*)	10 560 (23 232)	10 860* / 11.0 (23 892*/36.08)	9 130* / 11.0 (20 086*/36.08)
2.0 (6,5)	21 130* (46 486*)	20 520 (45 144)	14 990* (32 978*)	13 820 (30 404)	12 010* (26 433*)	10 170 (22 374)	10 920* / 11.1 (24 024*/36.4)	8 780* / 11.1 (19 316*/36.4)
0.0 (0)	21 640* (47 608*)	19 940 (43 868)	15 610* (33 352*)	13 340 (29 348)	12 180* (26 796*)	9 900 (21 780)	11 070* / 10.8 (24 354*/35.42)	8 960* / 10.8 (19 712*/35.42)
-2.0 (-6.5)	20 440* (44 968*)	19 830 (43 626)	15 130* (33 286*)	13 170 (28 974)	11 360* (24 992*)	9 870 (21 714)	10 920* / 10.2 (24 024*/33.46)	9 650* / 10.2 (21 230*/33.46)

*) Load limited by hydraulic capacity (other values limited by machine stability).

Lifting data for EC650i with following equipment:

- Counterweight 12 000 kg (26 400 lbs)
- Track 800 mm (31.5 in)
- Boom 10.3 m (33.78 ft)
- Dipper arm 8.1 m (26.57 ft)
- Shock pressure 40 MPa (5800 psi)
- Working pressure 30 MPa (4350 psi)

A = Bucket hinge height, m (ft)
B = Outreach, m (ft)

B	8.0 (26.2)	10.0 (32.8)	12.0 (39.4)	14.0 (45.9)	16.0 (52.5)	Max. load, kg (lbs) / Max.

						outreach,m (ft)
A						
16.0 (52.5)	10 060* (22 132*)	8 720* (19 184*)	6 210* (13 662*)	-	-	6 210* / 12.0 (13 662*/39.4)
12.0 (39.4)	-	10 400* (22 880*)	9 230* (20 306*)	7 590 (16 698)	-	5 350* / 15.5 (11 770*/50.8)
8.0 (26.2)	11 830* (26 026*)	10 980* (24 156*)	9 450* (20 790*)	7 440 (16 368)	5 960 (13 112)	5 150 / 17.4 (11 330/57.07)
4.0 (13.1)	14 950* (32 890*)	11 450 (25 190)	8 800 (19 360)	7 010 (15 422)	5 720 (12 584)	4 630 / 18.3 (10 186/60.02)
0.0 (0)	13 780 (30 316)	10 280 (22 616)	8 070 (17 754)	6 550 (14 410)	5 440 (11 968)	4 460* / 18.2 (9 812*/59.7)
-4.0 (-13.1)	11 780* (25 916*)	9 570* (21 054*)	7 680 (16 896)	6 080* (13 376')	4 370* (9 614*)	4 220* / 16.2 (9 284*/53.1)
*) Load limited by hydraulic capacity (other values limited by machine stability).						

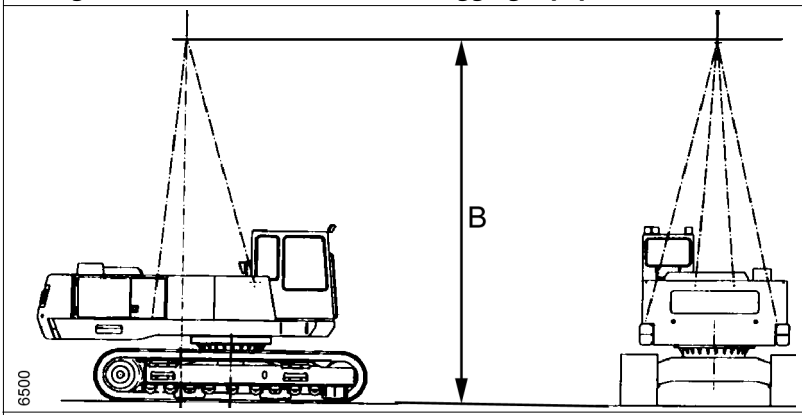
Document Title:	Function Group:	Information Type:	Date:
Lifting instructions	**030**	**Service Information**	**3/18/2026**
Profile:			

Lifting instructions

NOTE!

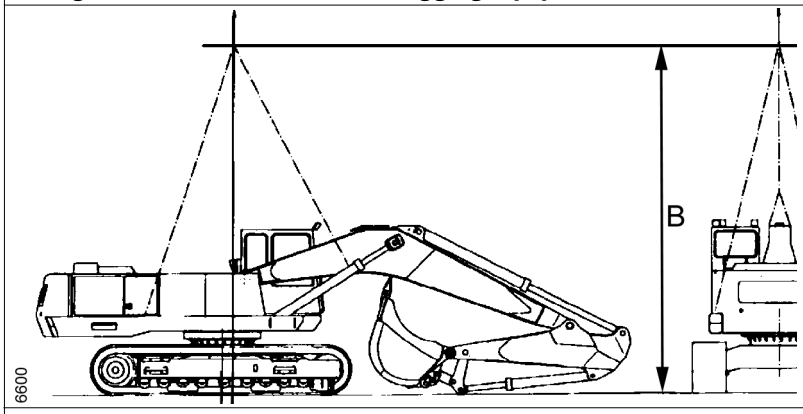
The designated lifting eyes must be used when the machine is lifted.

Lifting instructions, machine without digging equipment



	A	B
Basic machine	0.98 m 3.21 ft	10.0 m 32.8 ft
Basic machine without counterweight	0.27 m 0.89 ft	10.0 m 32.8 ft
Basic machine without cab and counterweight	0.28 m 0.92 ft	10.0 m 32.8 ft

Lifting instructions, machine with digging equipment



	A	B
EC650	0.16 m 0.52 ft	10.0 m 32.8 ft
EC650ME	0.12 m 0.39 ft	10.0 m 32.8 ft

Document Title: **Product and component marking**	Function Group: **030**	Information Type: **Service Information**	Date: **3/18/2026**
Profile:			

Product and component marking

Undercarriage

The article and modification numbers of the undercarriage are stamped in front of the slew ring.

Figure 1

Undercarriage: article and modification numbers

Superstructure

The article and modification numbers of the superstructure and the serial number of the machine are stamped on the right-hand boom attachment.

Figure 2

Superstructure: article and modification numbers

Engine

The type designation, product and serial numbers are stamped on the left-hand side of the engine on the top edge of the engine block.

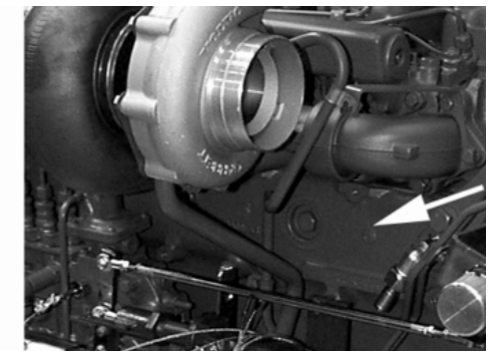


Figure 3
Engine: product and serial numbers

Product plate
The product plate with model designation and Product Identification Number (PIN) is located on the outside of the cab under the left rear side window.

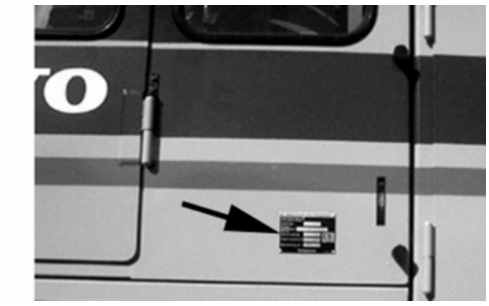


Figure 4
PIN plate location

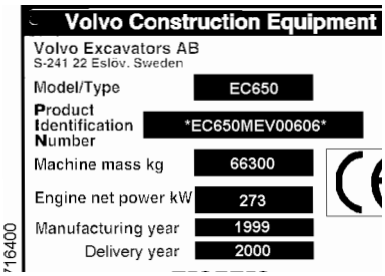


Figure 5
PIN plate

Hydraulic cylinders
The article and modification numbers of hydraulic cylinders are stamped on the cylinder barrel.

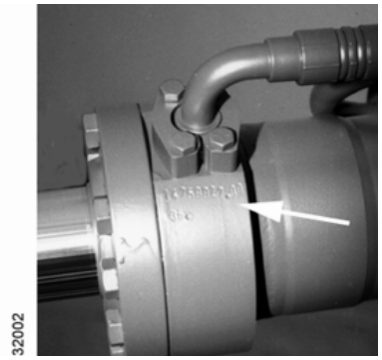


Figure 6
Hydraulic cylinder marking

Piston rods
The article and modification numbers of piston rods are stamped on the end surface of the piston rods.

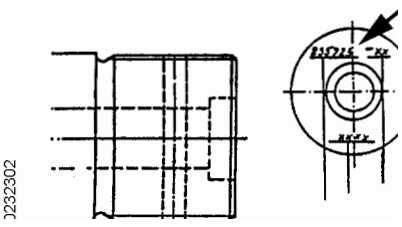


Figure 7
Piston rod marking

Buckets

The bucket plate with article number, weight and volume is located on the top of the bucket.

Figure 8
Bucket

Document Title: **Tightening torques**	Function Group: **030**	Information Type: **Service Information**	Date: **3/18/2026**
Profile:			

Tightening torques

Injector nozzle

Injector nozzle	
	Torque (Nm)
Nut for adjusting screw	50 (37 lbf ft)

Track shoes

Bolts for track shoes	
Thread	**Tightening torque (Nm)**
1 – 14 UNF	400 (295 lbf ft) + tightening through a further 120° or 1400 ±115 (1033 ± 84.8 lbf ft)

Cylinder head

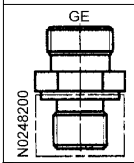
Cylinder head	
Cylinder	**Torque, Nm (lbf ft)**
Boom cylinder	650 (479.5)
Dipper arm cylinder	650 (479.5)
Bucket cylinder	650 (479.5)

Hydraulic connections, general

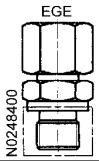
Before fitting pipe couplings, plugs and hoses:

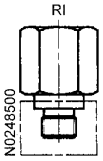
- Make sure that the sealing surfaces are clean and free from pores and scratches, and have the prescribed surface structure.
- Check elastic sealing rings for defects.
- Oil in threads, fittings (cones), and sealing and contact surfaces.

Valve connections

Valve connections, GE type pipe couplings									
	**Thread (inch/mm)**	**Pressure class (MPa)**	**(psi)**	**Pipe o.d. (mm)**	**(in)**	**Wrench size, width across flats (mm)**	**(in)**	**Torque *) (Nm)**	**(lbf ft)**
14 012 413	G 1/4	31.5	4567.5	8	0.31	19	0.75	40	29.5
957 030	G 1/4	31.5	4567.5	10	0.39	19	0.75	40	29.5
14 012 423	G 1/2	31.5	4567.5	15	0.59	27	1.06	90	66.4
14 012 431	G 3/4	31.5	4567.5	22	0.87	32	1.26	180	132.7
14 216 010	G 1/4	40	5800	8	0.31	19	0.75	54	39.8
14 012 428	G 3/4	40	5800	20	0.79	32	1.26	180	132.7
14 012 432	G 1	40	5800	25	0.98	41	1.61	315	232.3
14 012 433	G 1 1/4	40	5800	30	1.18	50	1.97	450	331.9
14 012 436	G 1 1/2	40	5800	38	1.5	55	2.17	540	398.3

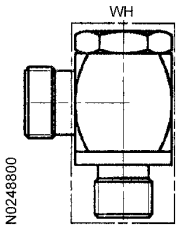
14 025 136	M 12x1.5	31.5	4567.5	8	0.31	17	0.67	30	22.1
14 100 430	M 14x1.5	31.5	4567.5	10	0.39	19	0.75	45	33.2
14 213 266	M 16x1.5	31.5	4567.5	12	0.47	22	0.87	54	39.9
14 012 424	M 18x1.5	31.5	4567.5	15	0.59	24	0.94	80	59.01
14 012 430	M 26x1.5	31.5	4567.5	22	0.87	32	1.26	180	132.7
14 012 416	M 14x1.5	40	5800	8	0.31	19	0.75	54	39.9
14 211 561	M 16x1.5	40	5800	10	0.39	22	0.87	72	53.1
14 266 715	M 22x1.5	40	5800	16	0.63	27	1.06	135	99.6
14 211 250	M 27x2.0	40	5800	20	0.79	32	1.26	180	132.7
14 025 324	M 33x2.0	40	5800	25	0.98	41	1.61	315	232.3
14 012 433	M 42x2.0	40	5800	30	1.18	50	1.97	450	331.9
–	M 48x2.0	40	5800	38	1.5	55	2.17	540	398.3
∗) Conditions: Oiled thread and contact surface.									

Valve connections, EGE type pipe couplings									
	**Thread (inch/mm)**	**Pressure class (MPa)**	**(psi)**	**Pipe o.d. (mm)**	**(in)**	**Wrench size, width across flats (mm)**	**(in)**	**Torque ∗) (Nm)**	**(lbf ft)**
14 023 056	G 1/4	31.5	4567.5	8	0.31	19	0.75	40	29.5
14 023 611	G 1/4	31.5	4567.5	10	0.39	19	0.75	40	29.5
14 012 381	G 1/2	31.5	4567.5	15	0.59	27	1.06	90	66.4
–	G 3/4	31.5	4567.5	22	0.87	32	1.26	180	132.7
–	G 1/4	40	5800	8	0.31	19	0.75	54	39.8
14 211 062	G 3/4	40	5800	20	0.79	32	1.26	180	132.7
14 012 382	G 1	40	5800	25	0.98	41	1.61	315	232.3
14 042 775	G 1 1/4	40	5800	30	1.18	50	1.97	450	331.9
14 023 190	G 1 1/2	40	5800	38	1.5	55	2.17	540	398.3
–	M 12x1.5	31.5	4567.5	8	0.31	17	0.67	30	22.1
14 341 573	M 14x1.5	31.5	4567.5	10	0.39	19	0.75	45	33.2
14 340 537	M 16x1.5	31.5	4567.5	12	0.47	22	0.87	54	39.9
–	M 18x1.5	31.5	4567.5	15	0.59	24	0.94	80	59.01
–	M 26x1.5	31.5	4567.5	22	0.87	32	1.26	180	132.7
–	M 14x1.5	40	5800	8	0.31	19	0.75	54	39.9
–	M 16x1.5	40	5800	10	0.39	22	0.87	72	53.1
–	M 22x1.5	40	5800	16	0.63	27	1.06	135	99.6
14 211 244	M 27x2.0	40	5800	20	0.79	32	1.26	180	132.7
	M 33x2.0	40	5800	25	0.98	41	1.61	315	232.3
14 016 813	M 42x2.0	40	5800	30	1.18	50	1.97	450	331.9
–	M 48x2.0	40	5800	38	1.5	55	2.17	540	398.3
∗) Conditions: Oiled thread and contact surface.									

Valve connections, RI type reduction couplings									
	**Thread (inch/mm)**	**Pressure class (MPa)**	**(psi)**	**Pipe o.d. (mm)**	**(in)**	**Wrench size, width across flats (mm)**	**(in)**	**Torque ∗∗) (Nm)**	**(lbf ft)**

*)	G 1/4	31.5	4567.5	8	0.31	19	0.75	40	29.5
*)	G 1/4	31.5	4567.5	10	0.39	19	0.75	40	29.5
*)	G 1/2	31.5	4567.5	15	0.59	27	1.06	90	66.4
*)	G 3/4	31.5	4567.5	22	0.87	32	1.26	180	132.7
–	G 1/4	40	5800	8	0.31	19	0.75	54	39.8
*)	G 3/4	40	5800	20	0.79	32	1.26	180	132.7
*)	G 1	40	5800	25	0.98	41	1.61	315	232.3
*)	G 1 1/4	40	5800	30	1.18	50	1.97	450	331.9
*)	G 1 1/2	40	5800	38	1.5	55	2.17	540	398.3
*)	M 12x1.5	31.5	4567.5	8	0.31	17	0.67	30	22.1
*)	M 14x1.5	31.5	4567.5	10	0.39	19	0.75	45	33.2
*)	M 16x1.5	31.5	4567.5	12	0.47	22	0.87	54	39.9
*)	M 18x1.5	31.5	4567.5	15	0.59	24	0.94	80	59.01
*)	M 26x1.5	31.5	4567.5	22	0.87	32	1.26	180	132.7
*)	M 14x1.5	40	5800	8	0.31	19	0.75	54	39.9
*)	M 16x1.5	40	5800	10	0.39	22	0.87	72	53.1
*)	M 22x1.5	40	5800	16	0.63	27	1.06	135	99.6
*)	M 27x2.0	40	5800	20	0.79	32	1.26	180	132.7
*)	M 33x2.0	40	5800	25	0.98	41	1.61	315	232.3
*)	M 42x2.0	40	5800	30	1.18	50	1.97	450	331.9
*)	M 48x2.0	40	5800	38	1.5	55	2.17	540	398.3
*) There are several different art. nos. and across-flats widths for each connection diameter. **) Conditions: Oiled thread and contact surface.									

Valve connections, type WH banjo connections

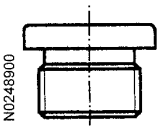


	Thread (inch/mm)	Pressure class (MPa)	(psi)	Pipe o.d. (in) (mm)		Wrench size, width across flats (mm)	(in)	Torque *) (Nm)	(lbf ft)
14 026 430	G 1/4	31.5	4567.5	8	0.31	19	0.75	50	36.9
14 026 431	G 1/4	31.5	4567.5	10	0.39	19	0.75	50	36.9
14 026 152	G 1/2	31.5	4567.5	15	0.59	30	1.18	130	95.9
14 214 142	G 1/4	40	5800	8	0.31	19	0.75	50	36.9
14 211 073	G 3/4	40	5800	20	0.79	36	1.42	250	184.4
14 213 319	M 12x1.5	31.5	4567.5	8	0.31	19	0.75	50	36.9
14 213 320	M 14x1.5	31.5	4567.5	10	0.39	19	0.75	60	44.3
14 213 321	M 16x1.5	31.5	4567.5	12	0.47	24	0.94	90	66.4
14 026 454	M 18x1.5	31.5	4567.5	15	0.59	27	1.06	110	82.1
14 215 499	M 22x1.5	31.5	4567.5	18	0.71	30	1.18	150	110.6

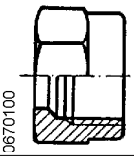
*) Conditions: Oiled thread and contact surface.

Blanking plugs

VS/VSTI type blanking plugs with ED seal	

 N0248900	Thread (inch/mm)	Pressure class (MPa)	(psi)	Hex socket dim (mm)	(in)	Torque ∗) (Nm)	(lbf ft)
14 023 406	G 1/8	40	5800	5	0.20	13	9.6
14 023 407	G 1/4	40	5800	6	0.24	30	22.1
14 023 408	G 3/8	40	5800	8	0.31	60	44.2
14 023 409	G 1/2	40	5800	10	0.39	80	59.01
14 023 410	G 3/4	40	5800	12	0.47	140	103.3
14 023 411	G 1	40	5800	17	0.67	200	147.5
14 215 723	G 1 1/4	40	5800	22	0.87	450	331.9
14 023 412	G 1 1/4	31.5	4567.5	22	0.87	400	295.04
14 023 413	G 1 1/2	31.5	4567.5	24	0.94	450	331.9
14 024 363	M 10x1.0	40	5800	5	0.20	12	8.8
14 211 624	M 12x1.5	40	5800	6	0.24	25	18.4
14 211 623	M 14x1.5	40	5800	6	0.24	35	25.8
14 211 625	M 16x1.5	40	5800	8	0.31	55	40.6
14 024 814	M 18x1.5	40	5800	8	0.31	65	47.9
14 024 233	M 22x1.5	40	5800	10	0.39	90	66.4
14 340 607	M 26x1.5	40	5800	12	0.47	100	73.7
14 266 484	M 27x2.0	40	5800	12	0.47	140	103.3
14 267 223	M 33x2.0	40	5800	17	0.67	230	169.7
14 212 167	M 42x2.0	31.5	4567.5	22	0.87	360	265.5
∗) Conditions: Oiled thread and contact surface.							

Pipe nuts

Pipe nuts								
 D670100								
Thread (mm)	**Pressure class (MPa)**	**(psi)**	**Pipe o.d. (mm)**	**(in)**	**Wrench size (width across flats) (mm)**	**(in)**	**Torque (Nm)**	**(lbf ft)**
M12x1.5	31.5	4567.5	6	0.24	14	0.55	25	18.4
M14x1.5	31.5	4567.5	8	0.31	17	0.67	35	25.8
M16x1.5	31.5	4567.5	10	0.39	19	0.75	45	33.2
M18x1.5	31.5	4567.5	12	0.47	22	0.87	75	55.3
M22x1.5	31.5	4567.5	15	0.59	27	1.06	110	81.1
M26x1.5	31.5	4567.5	18	0.71	32	1.26	180	132.7
M30x2.0	31.5	4567.5	22	0.87	36	1.42	280	206.5
M36x2.0	31.5	4567.5	28	1.10	41	1. 61	300	221.3
M45x2.0	31.5	4567.5	35	1.38	50	1 .97	450	331.9
M52x2.0	31.5	4567.5	42	1.65	60	2. 36	680	501.6
M14x1.5	40	5800	6	0.24	17	0.67	45	33.2
M16x1.5	40	5800	8	0.31	19	0.75	65	47.9
M18x1.5	40	5800	10	0.39	22	0. 87	80	59

M20x1.5	40	5800	12	0.47	24	0.94	100	73.7
M22x1.5	40	5800	14	0.55	27	1.06	140	103.3
M24x1.5	40	5800	16	0.63	30	1.18	160	118
M30x2.0	40	5800	20	0.79	36	1.42	350	258.2
M36x2.0	40	5800	25	0.98	46	1.81	450	331.9
M42x2.0	40	5800	30	1.18	50	1.97	650	479.4
M52x2.0	40	5800	38	1.50	60	2.36	800	590

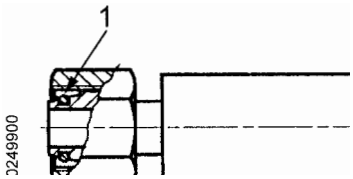
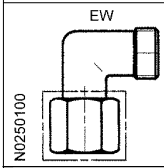


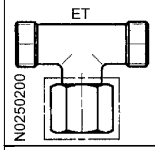
Figure 1
DKO connection

1. O-ring

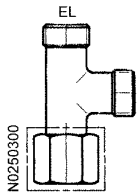
DKO-connections

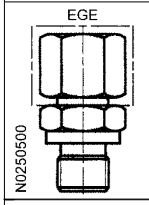
Tighten DKO connections with an open-ended torque wrench.

DKO connections, EW type pipe couplings									
	**DKO thread (mm)**	**Pressure class (MPa)**	**(psi)**	**Pipe o.d. (mm)**	**(in)**	**Wrench size, width across flats (mm)**	**(in)**	**Torque (Nm)**	**(lbf ft)**
14 012 391	M14x1.5	31.5	4567.5	8	0.31	17	0.67	30	22.1
14 012 393	M16x1.5	31.5	4567.5	10	0.39	19	0.75	40	29.5
14 012 395	M22x1.5	31.5	4567.5	15	0.59	27	1.06	75	55.3
14 012 397	M30x2.0	31.5	4567.5	22	0.87	36	1.42	110	81.1
14 012 392	M16x1.5	40	5800	8	0.31	19	0.75	40	29.5
14 310 009	M18x1.5	40	5800	10	0.39	22	0.87	50	36.8
14 214 854	M24x1.5	40	5800	16	0.63	30	1.18	80	59
14 012 396	M30x2.0	40	5800	20	0.79	36	1.42	120	88.5
14 012 398	M36x2.0	40	5800	25	0.98	46	1.81	170	125.4
–	M36x2.0	40	5800	25	0.98	41	1.61	170	125.4
14 012 399	M42x2.0	40	5800	30	1.18	50	1.97	250	184.4
14 016 972	M52x2.0	40	5800	38	1.50	60	2.36	350	258.2

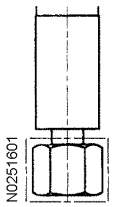
DKO connections, ET type pipe couplings									
	**DKO thread (mm)**	**Pressure class (MPa)**	**(psi)**	**Pipe o.d. (mm)**	**(in)**	**Wrench size, width across flats (mm)**	**(in)**	**Torque (Nm)**	**(lbf ft)**
14 012 387	M14x1.5	31.5	4567.5	8	0.31	17	0.67	30	22.1
14 012 388	M16x1.5	31.5	4567.5	10	0.39	19	0.75	40	29.5
14 012 389	M22x1.5	31.5	4567.5	15	0.59	27	1.06	75	55.3
14 043 552	M30x2.0	31.5	4567.5	22	0.87	36	1.42	110	81.1
–	M16x1.5	40	5800	8	0.31	19	0.75	40	29.5
–	M18x1.5	40	5800	10	0.39	22	0.87	50	36.8
–	M24x1.5	40	5800	16	0.63	30	1.18	80	59

14 211 064	M30x2.0	40	5800	20	0.79	36	1.42	120	88.5
14 024 423	M36x2.0	40	5800	25	0.98	46	1.81	170	125.4
–	M36x2.0	40	5800	25	0.98	41	1.61	170	125.4
14 012 390	M42x2.0	40	5800	30	1.18	50	1.97	250	184.4
–	M52x2.0	40	5800	38	1.50	60	2.36	350	258.2

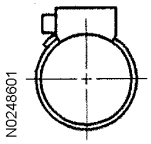
DKO connections, EL type pipe couplings									
	**DKO thread (mm)**	**Pressure class (MPa)**	**(psi)**	**Pipe o.d. (mm)**	**(in)**	**Wrench size, width across flats (mm)**	**(in)**	**Torque (Nm)**	**(lbf ft)**
14 012 383	M14x1.5	31.5	4567.5	8	0.31	17	0.67	30	22.1
14 052 740	M16x1.5	31.5	4567.5	10	0.39	19	0.75	40	29.5
14 012 384	M22x1.5	31.5	4567.5	15	0.59	27	1.06	75	55.3
14 043 547	M30x2.0	31.5	4567.5	22	0.87	36	1.42	110	81.1
14 215 487	M16x1.5	40	5800	8	0.31	19	0.75	40	29.5
–	M18x1.5	40	5800	10	0.39	22	0.87	50	36.8
14 341 816	M24x1.5	40	5800	16	0.63	30	1.18	80	59
14 211 065	M30x2.0	40	5800	20	0.79	36	1.42	120	88.5
14 012 385	M36x2.0	40	5800	25	0.98	46	1.81	170	125.4
–	M36x2.0	40	5800	25	0.98	41	1.61	170	125.4
14 012 386	M42x2.0	40	5800	30	1.18	50	1.97	250	184.4
14 016 554	M52x2.0	40	5800	38	1.50	60	2.36	350	258.2

DKO connections, EGE type pipe couplings									
	**DKO thread (mm)**	**Pressure class (MPa)**	**(psi)**	**Pipe o.d. (mm)**	**(in)**	**Wrench size, width across flats (mm)**	**(in)**	**Torque (Nm)**	**(lbf ft)**
*)	M14x1.5	31.5	4567.5	8	0.31	17	0.67	30	22.1
*)	M16x1.5	31.5	4567.5	10	0.39	19	0.75	40	29.5
*)	M22x1.5	31.5	4567.5	15	0.59	27	1.06	75	55.3
–	M30x2.0	31.5	4567.5	22	0.87	36	1.42	110	81.1
–	M16x1.5	40	5800	8	0.31	19	0.75	40	29.5
–	M18x1.5	40	5800	10	0.39	22	0.87	50	36.8
–	M24x1.5	40	5800	16	0.63	30	1.18	80	59
*)	M30x2.0	40	5800	20	0.79	36	1.42	120	88.5
*)	M36x2.0	40	5800	25	0.98	46	1.81	170	125.4
–	M36x2.0	40	5800	25	0.98	41	1.61	170	125.4
*)	M42x2.0	40	5800	30	1.18	50	1.97	250	184.4
*)	M52x2.0	40	5800	38	1.50	60	2.36	350	258.2
*) There are several different art. nos. for each connection thread.									

DKO connections, Parker series 46 type hydraulic hoses	

	**DKO thread (mm)**	**Pressure class (MPa)**	**(psi)**	**Pipe o.d. (mm)**	**(in)**	**Wrench size, width across flats (mm)**	**(in)**	**Torque (Nm)**	**(lbf ft)**
1)	M14x1.5	31.5	4567.5	8	0.31	17	0.67	30 2)	22.1
1)	M16x1.5	31.5	4567.5	10	0.39	19	0.75	40 3)	29.5
1)	M22x1.5	31.5	4567.5	15	0.59	27	1.06	75 4)	55.3
1)	M30x2.0	31.5	4567.5	22	0.87	36	1.42	110	81.1
1)	M16x1.5	40	5800	8	0.31	19	0.75	40	29.5
–	M18x1.5	40	5800	10	0.39	22	0.87	50	36.8
–	M24x1.5	40	5800	16	0.63	30	1.18	80	59
1)	M30x2.0	40	5800	20	0.79	36	1.42	120	88.5
–	M36x2.0	40	5800	25	0.98	46	1.81	170	125.4
1)	M36x2.0	40	5800	25	0.98	41	1.61	170	125.4
1)	M42x2.0	40	5800	30	1.18	50	1.97	250	184.4
1)	M52x2.0	40	5800	38	1.50	60	2.36	350	258.2
1) There are several different art. nos. for each connection thread. 2) Old hoses of Parker series 43 type should be tightened to 15 Nm (11 lbf ft). 3) Old hoses of Parker series 43 type should be tightened to 25 Nm (18.4 lbf ft). 4) Old hoses of Parker series 43 type should be tightened to 45 Nm (33.2 lbf ft).									

Hose clips

Hose clips with worm screws, PA-RI type						
	**For outside diameter (mm)**	**(in)**	**Wrench size, width across flats (mm)**	**(in)**	**Torque (Nm)**	**(lbf ft)**
943 469	10 – 13	0.39 – 0.51	7	0.28	2.5	1.9
943 470	(13) – 16	(0.51) – 0.63	7	0.28	2.5	1.9
–	(16) – 19	(0.63) – 0.75	7	0.28	2.5	1.9
13 943 472	(19) – 23	(0.75) – 0.91	7	0.28	3.5	2.6
943 473	(23) – 27	(0.91) – 1.06	7	0.28	3.5	2.6
13 943 474	(27) – 30	(1.06) – 1.18	7	0.28	3.5	2.6
943 475	(30) – 36	(1.18) – 1.42	7	0.28	4.5	3.3
943 476	(36) – 43	(1.42) – 1.69	7	0.28	4.5	3.3
943 477	(43) – 49	(1.69) – 1.93	7	0.28	4.5	3.3
943 478	(49) – 54	(1.93) – 2.13	7	0.28	5.5	4
943 479	(54) – 64	(2.13) – 2.52	7	0.28	5.5	4
943 480	(64) – 73	(2.52) – 2.87	7	0.28	5.5	4
943 481	(73) – 83	(2.87) – 3.27	7	0.28	5.5	4
943 482	(83) – 93	(3.27) – 3.66	7	0.28	5.5	4
943 483	(93) – 110	(3.66) – 4.33	7	0.28	5.5	4
943 484	(110) – 136	(4.33) – 5.35	7	0.28	5.5	4
943 485	(136) – 163	(5.35) – 6.42	7	0.28	5.5	4
968 941	(163) – 180	(6.42) – 7.09	7	0.28	5.5	4
14 042 985	(205) – 231	(8.07) – 9.09	7	0.28	5.5	4

 N0662100						
4 786 255	(39) – 45	(1.54) – 1.77	5 (hex socket)	0.2	5	3.7
14 261 828	(49) – 55	(1.93) – 2.17	5 (hex socket)	0.2	5	3.7
4 786 573	(61) – 67	(2.4) – 2.64	5 (hex socket)	0.2	5	3.7
11 063 268	(73) – 79	(2.87) – 3.11	5 (hex socket)	0.2	5	3.7

Nuts and bolts

The pretensioning force achieved at a given tightening torque depends mainly on the coefficient of friction of the bolted joint.

The coefficient of friction in turn depends on the surface texture, surface treatment and lubrication, etc. The values are calculated assuming a coefficient of friction of 0.2 for a dry chromated flange bolt and 0.15 for a lubricated chromated flange bolt. Hex socket bolts and traditional hex bolts do not require as high tightening torques as flange bolts since bolt head diameters are smaller and moments of frictional force are correspondingly lower.

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

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

NOTE!

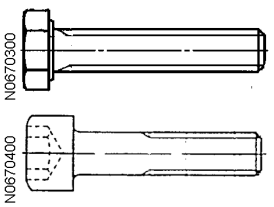
Some body parts have weld bolts, the strength of which is much lower than normal bolts of the same dimension.

NOTE!

When using a Nordloc washer, increase the torque by 20%.

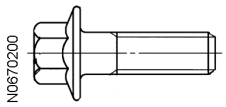
NOTE!

Tighten bolts with liquid or micro-encapsulated thread lock or thread seal to the same torque as lubricated bolts of the same type.

Hex bolts and hex socket bolts							
 N0670300 N0670400							**Blind rivet nut**
	Wrench size (width across flats)		**Torque, Nm, (lbf ft)**				**Torque, Nm, (lbf ft)**
Thread (mm/inch)	**Hex bolt (mm/inch)**	**Hex socket bolt (mm/ inch)**	**8.8 FZB & Fe/Zn-Fe Dry**	**8.8 FZB & Fe/Zn-Fe Lubricated**	**10.9 Phosphated Lubricated**	**12.9 Untreated Lubricated**	**Dry**
M5	8	4	6 (4.4)	5 (3.7)			6 (4.4)
M6	10	5	10 (7.4)	9 (6.6)		20 (14.7)	10 (7.4)
M8	13	6	25 (18.4)	22 (16.2)		40 (29.5)	24 (17.7)
M10	16	8	50 (36.8)	44 (32.4)	60 (44.3)	80 (59)	48 (35.4)
M12	18	10	90 (66.4)	75 (55.3)	105 (77.4)	140 (103)	82 (60.5)
M14	21	12	140 (103.3)	125 (92.2)	175 (129)	220 (162.3)	
M16	24	14	220 (162.3)	190 (140.1)	275 (202.8)	340 (250.8)	
M20	30	17	450 (331.9)	380 (280.3)	540 (398.3)	650 (479.4)	
M24	36	19	770 (567.9)	660 (486.8)	900 (663.8)	1120 (826.1)	
M27	41	–	1100 (811.4)	940 (693.3)	1350 (995.7)	1620 (1194.9)	

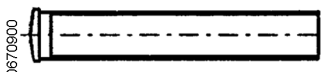
M30	46	22	1500 (1106.4)	1280 (944.1)	1840 (1357.2)	2210 (1630.1)	
M36	55		2500 (1844)	2300 (1696.5)	3210 (2367.7)	3850 (2839.7)	
1/4 UNC	7/16	3/16	12 (8.8)	10 (7.4)	15 (11)	20 (14.7)	
5/16 UNC	1/2	1/4	25 (18.4)	21 (15.5)	30 (22.1)	40 (29.5)	
3/8 UNC	9/16	5/16	45 (33.2)	38 (28)	55 (40.6)	70 (51.6)	
7/16 UNC	5/8		65 (47.9)	55 (40.6)	90 (66.4)		
1/2 UNC	3/4	3/8	100 (73.7)	85 (62.7)	130 (95.9)	170 (125.4)	
9/16 UNC	13/16		145 (106.9)	123 (90.7)	190 (140.1)		

Flange bolts



Thread (mm)	**Wrench size, width across flats (mm)**	**Torque, Nm (lbf ft)**				**Blind rivet nut**
		8.8 Fe/Zn-Fe Dry	**8.8 Fe/Zn-Fe Lubricated**	**10.9 Phosphated**	**10.9 Phosphated Lubricated**	**Torque, Nm (lbf ft)**
						Dry
M5	8	7 (5.2)	6 (4.4)			6 (4.4)
M6	10	12 (8.8)	10 (7.4)			10 (7.4)
M8	12	28 (20.6)	24 (17.7)			24 (17.7)
M10	14	56 (41.3)	48 (35.4)	70 (51.6)	60 (44.3)	48 (35.4)
M12	17	100 (73.7)	85 (62.7)	125 (92.2)	105 (77.4)	82 (60.5)
M14	18	160 (118)	140 (103.3)	200 (147.5)	175 (129)	
M16	21	250 (184.4)	220 (162.3)	320 (263)	275 (202.8)	

Nuts and weld bolts (material: S235JRG2-EN 10025)



Thread	**Torque (Nm)**
M6	5 (3.7 lbf ft)
M8	12 (8.8 lbf ft)

Tolerances

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

Document Title: **Volumes**	Function Group: **030**	Information Type: **Service Information**	Date: **3/18/2026**
Profile:			

Volumes

Volumes		**US gal**
Fuel tank	770 l	203.3
Hydraulically driven fuel filling pump, capacity	approx. 90 l/min	23.8/min
Cooling system (incl. glycol)	72 l	19.01
Hydraulic system, total	840 l	221.8
Hydraulic oil tank	530 l	139.9
Engine	29 l	7.7
Pump gear	2.3 l	0.61
Slew gear	50 l	13.2
Slew ring	25 l	6.6
Travel gearboxes	12.5 l x 2	3.3 x 2

Document Title: **Weights**	Function Group: **030**	Information Type: **Service Information**	Date: **3/18/2026**
Profile:			

Weights

Weights (kg)		**lbs**
Basic machine equipped with 800 mm (31.5 in) tracks, 7.6 m (24.6 ft) boom and 3.25 m (10.6 ft) dipper arm	66 300	145 860
Superstructure including counterweight and engine	26 100	57 420
Engine including pump gearbox and pumps	1 775	3 905
Counterweight	12 000	26 400
Boom 7.6 m (24.9 ft)	6 500	14 300
Dipper arm 3.25 m (10.66 ft)	3 700	8 140
Boom cylinder	410	902
Dipper arm cylinder	545	1 199
Bucket cylinder	375	825
Pump gearbox (without pumps)	172	378.4
Hydraulic pump	60	132
Hydraulic oil cooler	33	72.6
Slew gearbox (without slew brake and slew motor)	315	693
Slew motor	36	79.2
Slew brake	56	123.2
Slew pinion shaft	214	470.8
Slew ring	633	139.3
Centre passage, complete	78	171.6
Centre passage housing	36	79.2
Rotor shaft for centre passage	18	39.6
Travel gear	640	1 408
Travel motor	55	121
Valve block (without valves and installation components)	415	913
Directional valve (8 per valve block)	39	85.8
Cab	335	737
Fuel tank	250	550
Hydraulic oil tank	455	1 001
Track, 600 mm (23.6 in)	1 988	4 373.6
Track, 800 mm (31.5 in)	2 342	5152.4
Drive sprocket	170	374
Top roller	47	103.4
Bottom roller	144	316.8

Ground pressure
The ground pressures specified are for complete machines equipped with 7.6 m (24.9 ft) boom, 3.25 m (10.6 ft) dipper arm and 3 300 l (871.2 US gal) bucket.

Ground pressure		
Track gauge	**Operating weight**	**Ground pressure**

800 mm 31.5 in	66 300 kg 145 860 lbs	78.6 kPa (0.786 kp/cm²) 11.4 (psi) (1.72 lbf/in²)
600 mm 23.6 in	64 900 kg 142 780 lbs	102.6 kPa (0.786 kp/cm²) 14.8 (psi) (1.72 lbf/in²)

Document Title: **Time Guide**	Function Group: **070**	Information Type: **Service Information**	Date: **3/18/2026**
Profile:			

Time Guide

EC650

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	9.00	Engine assembly, remove
210-04	30.00	Engine assembly, recondition
210-02	11.00	Engine assembly, install
211-01	5.50	Cylinder head, remove, all
211-03	10.00	Cylinder head, replace gasket, all
211-09	1.50	Cylinder head removed, check for leaks
211-02	8.00	Cylinder head, install, all
213-04	24.00	Engine block, ream cylinder liner seatings (all)
213-10	12.50	Engine block, measure cylinder wear (all)
213-03	20.00	Engine block, replace cylinder liners and pistons (all)
2141-08	2.00	Valves, inspect (all)
2142-04	1.50	Valves, adjust (all)
2115-03	1.00	Valve covers, replace gasket
2167-03	9.00	Crankshaft, replace front seal
2167-03	13.00	Crankshaft, replace rear seal

2125-03	10.00	Cylinder head cover, replace gasket
2153-03	10.00	Transmission, replace drive gear
2152-03	7.00	Timing gear cover, replace gasket
2172-03	3.00	Oil sump gasket, replace
2211-03	4.00	Oil pump, replace
218-01	1.50	Engine mounting, RH front, remove
218-02	1.00	Engine mounting, RH front, install
218-01	3.00	Engine mounting, LH front, remove
218-02	2.50	Engine mounting, LH front, install
218-01	1.00	Engine mounting, RH rear, remove
218-02	1.00	Engine mounting, RH rear, install
218-01	1.50	Engine mounting, LH rear, remove
218-02	1.50	Engine mounting, LH rear, install

23		**Fuel system**
2342-01	2.00	Fuel tank, remove
2342-02	2.50	Fuel tank, install
2349-03	1.75	Fuel tank, replace mounting
2334-03	0.25	Fuel tank, replace filter
2344-01	0.50	Fueling pump, remove
2344-02	0.75	Fueling pump, install
2349-01	0.50	Fuel shutoff valve, remove
2349-02	0.50	Fuel shutoff valve, install
2361-01	5.00	Injection pump, remove
2361-02	6.00	Injection pump, install
2361-08	1.50	Injection pump, check and adjust injection angle
2366-03	3.00	Injection pump, replace regulator housing seal
2331-01	1.50	Feed pump, remove
2331-02	1.50	Feed pump, install
2331-08	1.00	Feed pump, check feed pressure
2371-03	0.75	Injector, replace
2379-03	1.50	Injector, replace copper sleeve
2371-08	5.00	Injectors, check and adjust (all)

25		**Inlet system, exhaust system**
2521-03	2.00	Exhaust pipe, replace pipe between silencer (muffler) and turbo-compressor
252-03	1.00	Exhaust system, replace silencer (muffler)
2511-03	2.50	Exhaust manifold, replace gasket

255-01	1.50	Turbo-compressor, remove
255-04	3.50	Turbo-compressor, recondition
255-02	1.50	Turbo-compressor, install
2566-03	0.50	Electric air preheater, replace preheater relay

26		**Cooling system**
2611-01	2.00	Radiator, remove
2611-02	2.50	Radiator, install
2615-03	0.75	Radiator, replace top coolant hose
2615-03	1.25	Radiator, replace bottom coolant hose
2612-01	0.50	Expansion tank, remove
2612-02	0.75	Expansion tank, install
2621-01	1.50	Coolant pump for engine and intercooler, remove
2621-04	2.00	Coolant pump for engine and intercooler, recondition
2621-02	2.00	Coolant pump for engine and intercooler, install
2627-03	2.50	Thermostat, replace
2634-01	1.00	V-belts, remove
2634-02	1.00	V-belts, install
2691-03	2.50	Engine heater, replace
2691-03	1.00	Engine heater, replace control unit
2691-03	1.00	Engine heater, replace fuel pump
2691-03	1.00	Engine heater, replace water pump
2691-03	1.00	Engine heater, replace timer
2691-03	2.00	Engine heater, replace fan motor

27		**Engine control**
272-03	2.00	Throttle cable, replace
273-03	2.00	Stop cable, replace
277-05	0.25	Automatic speed reduction, adjust
277-03	0.75	Automatic speed reduction, replace cylinder

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

31		**Battery**
311-01	0.50	Battery, remove
311-02	0.75	Battery, install
37142-03	0.75	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	0.50	Charging system, check charging voltage
321-01	1.50	Alternator, remove
321-02	2.00	Alternator, install
321-03	1.50	Alternator, replace carbon brushes
321-03	1.00	Alternator, replace belt
3221-03	0.25	Alternator, replace charge regulator

33		**Starting system**
331-01	0.75	Starter motor, remove
331-02	1.00	Starter motor, install
3318-03	3.50	Starter motor, replace magnetic coil
334-01	0.50	Starting lock, remove
334-02	0.50	Starting lock, install

36		**Other electrical equipment**
3621-03	0.75	Other equipment, replace horn
3621-03	1.00	Other equipment, replace upper windscreen wiper motor
3621-03	1.00	Other equipment, replace lower windscreen wiper motor
3634-03	0.25	Other equipment, replace windscreen washer pump
9149-03	1.00	Solenoid valve, replace
364-03	0.50	Switches in cab, replacement

37		**Cable, fuse, relay**
3721-01	2.00	Electrical distribution box A1. remove
3721-02	2.25	Electrical distribution box A1. install

38		**Instrument, sensor, warning and information system**
386-03	0.75	Sensors and detector switches, replace operating latch
386-03	0.75	Sensors and detector switches, replace level sensor for fuel
386-03	0.75	Sensors and detector switches, replace monitor for hydraulic oil level
386-03	0.50	Sensors and detector switches, replace monitor for coolant level
386-03	0.75	Sensors and detector switches, replace monitor for engine oil level
386-03	0.50	Sensors and detector switches, replace temperature sensor for hydraulic oil
386-03	0.50	Sensors and detector switches, replace temperature sensor for coolant
386-03	0.75	Sensors and detector switches, replace sensor for engine oil pressure
386-03	0.50	Sensors and detector switches, replace pressure switch for air filter

386-03	0.75	Sensors and detector switches, replace pressure switch for overload
386-03	0.75	Sensors and detector switches, replace rpm transmitter for engine
386-03	1.00	Sensors and detector switches, replace end position monitor for boom
386-03	2.00	Sensors and detector switches, replace end position monitor for dipper arm
386-03	0.50	Sensors and detector switches, replace monitor for suction line valve
3873-01	0.50	Central unit A3, remove
3873-02	0.50	Central unit A3, install
3872-01	0.50	Display unit A9, remove
3872-02	0.50	Display unit A9, install

39		**Miscellaneous**
3932-03	0.50	Radio or tape player, replace
3937-03	0.50	Voltage divider, replace
3939-03	0.50	Loudspeaker, replace

4		**Power transmission**

43		**Gearbox, mechanical**
4311-01	4.50	Travel gearbox, remove
4311-02	5.00	Travel gearbox, install
4312-01	4.00	Slew gearbox, remove
4312-02	5.00	Slew gearbox, install
4312-01	6.00	Slew pinion shaft, remove
4312-02	6.50	Slew pinion shaft, install
4313-01	4.00	Pump gearbox, remove
4313-03	11.00	Pump gearbox, replace seal
4313-02	4.50	Pump gearbox, install

44		**Hydrostatic drive**
4411-01	1.25	Drive motor, remove
4411-02	1.00	Drive motor, install
4412-01	0.50	Slew motor, remove
4412-02	0.75	Slew motor, install
443-03	7.00	Central passage, replace
443-03	10.00	Central passage, replace seals and bearings

49		**Other, slow system**
4922-01	0.50	Slewing ring, remove seal
4922-02	2.00	Slewing ring, install seal
4922-3	38.00	Slewing ring, replace

4924-03	4.00	Slew brake, replace discs and seals

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

71		**Frame**
716-01	2.00	Counterweight, remove
716-02	2.50	Counterweight, install

77		**Wheels, tracks**
7751-01	2.00	Front wheel, remove
7751-03	4.00	Front wheel, replace
7751-02	2.50	Front wheel, install
7752-01	2.00	Driving wheel, remove
7752-02	2.50	Drive wheel, install
7753-01	1.00	Track, open
7753-02	1.50	Track, assemble
7753-01	0.25	Track, slacken
7753-10	0.25	Track, tighten
7753-04	6.00	Track, recondition with splice link kit
77531-01	2.00	Track chain, remove
77531-02	3.00	Track chain, install
77551-01	1.50	Upper roller, remove
77551-02	1.00	Upper roller, install
7756-01	1.25	Lower roller, remove
7756-02	1.50	Lower roller, install
7757-01	1.25	Track anti-shed device, remove
7757-02	1.25	Track anti-shed device, install
77582-01	3.25	Compression cylinder, remove
77582-02	4.00	Compression cylinder, install
77581-01	3.00	Spring pack, remove
77581-00	1.00	Spring pack, destruct
77581-02	4.00	Spring pack, install

8		**Machinery house, cab**

81		**Cab without door, windows, panes, hatch**
810-01	0.75	Operators cab, remove

810-02	0.75	Operators cab, install

83		**Doors, hatch, cover plate**
831-03	0.50	Cab door, replace door latch
8313-03	1.50	Cab door, replace weatherstripping
8313-03	1.00	Cab door, replace door lock
837-03	1.00	Engine hood, replace
837-03	0.50	Engine hood, gas spring replace (1 pc)
837-03	1.00	Engine hood, lock replace
837-03	0.75	Access door over main valve block, replace

84		**Trim part outside, glass, sealing moulding**
843-01	0.25	Window glass, remove
843-02	1.00	Window glass, install
8431-01	0.75	Upper front window, remove
8431-02	0.75	Upper front window, install
844-01	0.25	Sliding window, remove
844-02	0.75	Sliding window, install

85		**Cab interior/Upholstery**
852-01	0.50	Drivers seat, remove
852-02	0.75	Drivers seat, install

87		**Air conditioning unit**
8735-01	0.75	Heater valve, remove
8735-02	0.50	Heater valve, install
873-01	1.00	Heater fan, removal
873-02	1.00	Heater fan, installation
8732-01	1.00	Heater element, remove
8732-02	1.00	Heater element, install
874-03	1.25	Cooling plant, replace thermostat for AC
874-01	1.50	Cooling plant, discharge
8743-03	4.00	Cooling plant, replace compressor
8746-03	4.50	Cooling plant, replace condenser
8747-03	3.75	Cooling plant, replace drying filter
874-02	1.50	Cooling plant, charge refrigerant
8744-03	1.00	Cooling plant, replace V-belt

9		**Hydraulic system, digging/handling equipment, miscellaneous equipment**

910-05	3.25	Hydraulic pressure, set
9113-03	1.50	Oil cooler shunt, replace shunt valve
9111-01	3.00	Hydraulic oil tank, remove
9111-02	3.50	Hydraulic oil tank, install
9112-03	0.75	Pipes and hoses, work hydraulic system, replace hose on head
9112-03	2.00	Pipes and hoses, work hydraulic system, replace hose in base machine
9112-03	2.50	Pipes and hoses, work hydraulic system, replace hose to centre passage
9112-03	1.00	Pipes and hoses, work hydraulic system, replace pipe on unit
9113-01	2.00	Hydraulic oil cooler, remove
9113-02	2.00	Hydraulic oil cooler, install
91235-01	1.50	Line breakage valve (hose breakage valve) for boom cylinder, remove
91235-02	1.50	Line breakage valve (hose breakage valve) for boom cylinder, install
91235-04	1.75	Line breakage valve (hose breakage valve) for boom cylinder, recondition
91251-01	1.50	Slew valve block (P1-block), remove
91251-02	1.25	Slew valve block (P1-block), install
91215-03	1.00	Valves, working hydraulic system, replace seal, float valve
9121-01	1.00	Directional valve, remove spring
9121-02	0.75	Directional valve, install spring
9121-03	1.50	Directional valve, replace spool
9122-01	0.50	Pressure limiting valve, remove
9122-02	0.50	Pressure limiting valve, install
9127-01	0.50	Refilling valve, remove
9127-02	0.50	Refilling valve, install
91252-01	5.00	Main valve block, remove
91252-02	5.00	Main valve block, install
913-01	1.75	Working pump, fixed, remove
913-03	5.00	Working pump, fixed, replace seal
913-02	2.00	Working pump, fixed, install
913-01	1.50	Working pump, variable, remove
913-03	4.75	Working pump, variable, replace seal
913-02	2.00	Working pump, variable, install
9148-05	2.50	Control pressure valve, check (all digging movement and slew function)
9148-05	1.00	Control pressure valve, adjust (time per operation)
9148-04	1.75	Control pressure valve, recondition insert (time per operation)