

580N
580SN-WT
580SN
590SN
Tractor Loader Backhoe

SERVICE MANUAL

Part number 84516378

English

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INTRODUCTION

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Safety rules

▲ DANGER

Improper operation or service of this machine can result in an accident.
Do not operate this machine or perform any lubrication, maintenance, or repair on it until you have read and understood the operation, lubrication, maintenance, and repair information.
Failure to comply will result in death or serious injury.

D0010A

▲ WARNING

Maintenance hazard!
Always perform all service procedures punctually at the intervals stated in this manual. This ensures optimum performance levels and maximum safety during machine operation.
Failure to comply could result in death or serious injury.

W0132A

▲ WARNING

Pressurized system!
Before attempting any service procedure, it is your responsibility to know the number of accumulators on the machine, and the correct procedure for releasing the pressure of each accumulator.
Failure to comply could result in death or serious injury.

W0136A

NOTICE: *Extreme working and environmental conditions require shortened service intervals.*

Use Case fluids, lubricants, and filters for the best protection and performance of your machine. All fluids, lubricants, and filters must be disposed of in compliance with environmental standards and regulations. Contact your dealer with any questions regarding the service and maintenance of this machine.

Read the safety decals and information decals on the machine. Read the Operator's Manual and safety manual. Understand the operation of the machine before you start any service.

Before you service the machine, put a 'Do Not Operate' tag on the steering wheel or over the key switch. Ensure the tag is at a location where everyone who might operate or service the machine may see clearly. One tag is included with your new machine. Additional tags are available from your dealer.

Plastic and resin parts

- Avoid using gasoline, paint thinner, etc. when cleaning plastic parts, console, instrument cluster, etc.
- Use only water, mild soap, and a soft cloth when you clean these parts.
- Using gasoline, thinners, etc. can cause discoloration, cracking, or deformation of the part being cleaned.

Safety rules

Before you weld, cut, or drill holes on any part of this machine, make sure the part is not cast ductile iron. See your dealer if you do not know if a part is cast ductile iron. The following are cast ductile iron parts:

- two wheel drive steering link
- dump links
- front axle
- stabilizers
- extendable dipper
- swing tower
- bucket linkage

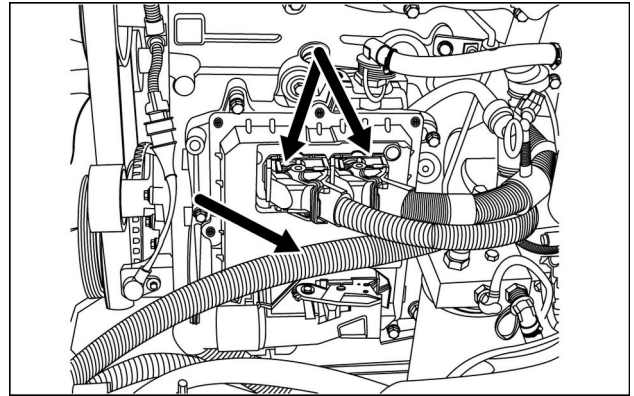
Unauthorized modifications to cast ductile iron parts can cause injury or death. Welding, cutting, or drilling can cause cast ductile iron to break. Do not weld, cut, or drill to repair or to attach items to cast ductile iron parts on this machine.

Safety rules

Before welding on the machine you must do the following. If you have any questions about welding on the machine contact your dealer.

- Disconnect the batteries.
- Disconnect the alternator terminal wires.
- Disconnect the instrument cluster.
 - One connector for mechanical fuel injection engines.
 - Two connectors for HPCR (high pressure common rail) engines.
- Disconnect the engine control unit (ECU), if equipped (three connectors).

NOTE: The third connector is behind the hose in the illustration.



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- Disconnect the controller for backhoe pilot controls, if equipped (one connector).
- Disconnect the transmission controller, if equipped (one connector, located under the front steering cowling).
- Disconnect the controller for the loader 4 in 1 bucket or auxiliary hydraulics, if equipped (one connector, located under the loader valve at the rear, left underside of the machine).

Safety rules

Unless otherwise instructed, always perform these steps before you service the machine:

1. Park the machine on a flat, level surface.
2. Place the backhoe in the transport position with the swing lock pin installed for transport.
3. Place the loader bucket on the ground, with the bottom of the loader bucket parallel to the surface.
4. Place the direction control lever and the transmission in neutral.
5. If you need to open the hood to perform service, raise the loader arms and install the support strut.
6. Shut down the engine.
7. Place a 'Do Not Operate' tag on the key switch so that it is visible to other workers or remove the key.

Battery - Basic instructions

⚠ WARNING

Explosive gas!

Batteries emit explosive hydrogen gas and other fumes while charging. Ventilate the charging area. Keep the battery away from sparks, open flames, and other ignition sources. Never charge a frozen battery.

Failure to comply could result in death or serious injury.

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⚠ WARNING

Hazardous chemicals!

Battery electrolyte contains sulfuric acid. Contact with skin and eyes could result in severe irritation and burns. Always wear splash-proof goggles and protective clothing (gloves and aprons). Wash hands after handling.

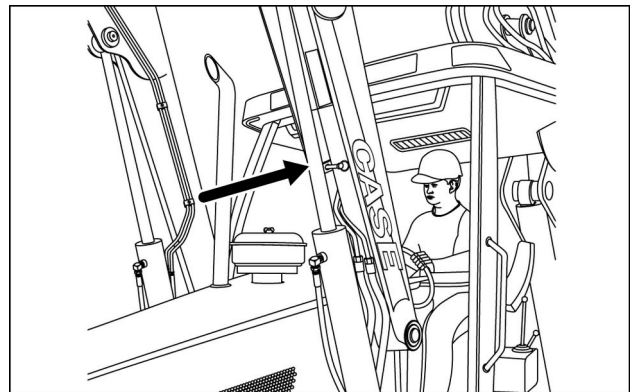
Failure to comply could result in death or serious injury.

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- Do not run the engine with the alternator wires disconnected.
- Before using an electric welder, disconnect the alternator wires, instrument cluster and batteries. Disconnect the ECU connectors.
- Do not use a steam cleaner or a cleaning solvent to clean the alternator.
- Keep the battery vents clean. Ensure the battery vents are not restricted.

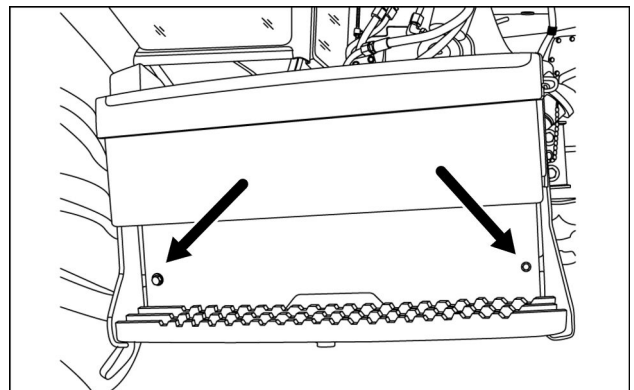
Disconnect Battery

1. Park the machine on a level surface. Raise the loader and lock the support strut to hold the loader in the upright position. .



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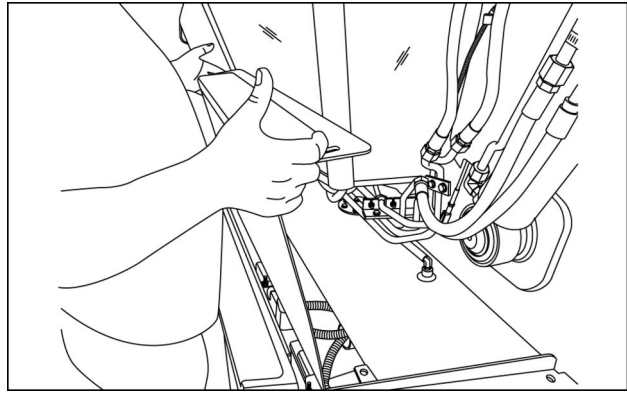
2. Remove the battery cover hardware.



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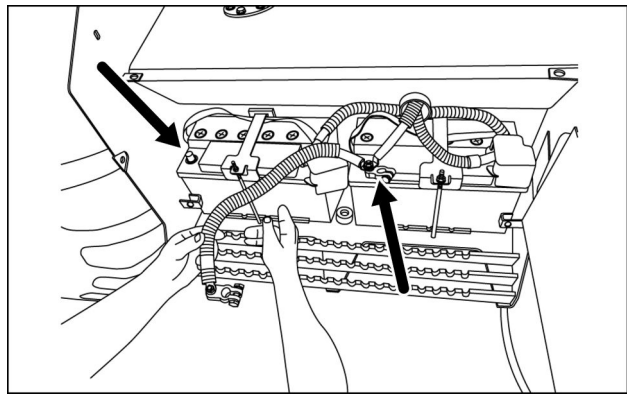
INTRODUCTION

3. Remove the battery cover.



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4. Disconnect the negative battery cable from the negative battery terminal.

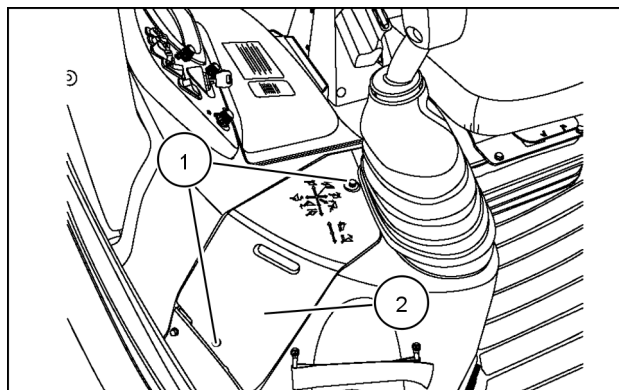


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ELECTRONIC SYSTEM - Basic instructions

The diagnostic/service tool port is located in the fuse box at the side console. Connect the Electronic Service Tool (EST) or DATAR to this port to update software and/or perform service and diagnostic tests.

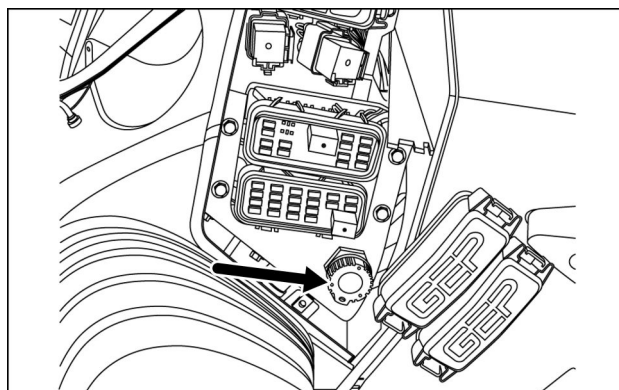
1. Turn the thumb screws (1) to loosen the panel cover (2) for the fuse box. Remove the panel cover.



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2. Unscrew the cap for the diagnostic/service tool port.

NOTE: You do not have to remove the fuse box covers.

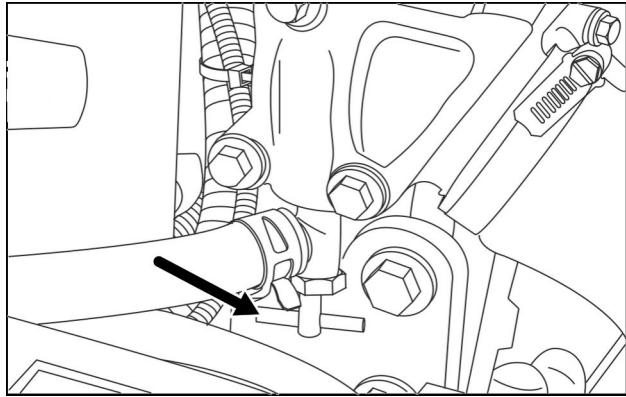


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Heater - Basic instructions

The heater coolant shutoff valve controls the flow of hot coolant to the heater.

- In warm ambient temperatures, turn the shutoff valve clockwise to stop hot coolant flow to the heater.
- In cold ambient temperatures, turn the shutoff valve counter-clockwise to allow hot coolant to flow to the heater.



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Basic instructions

⚠ WARNING

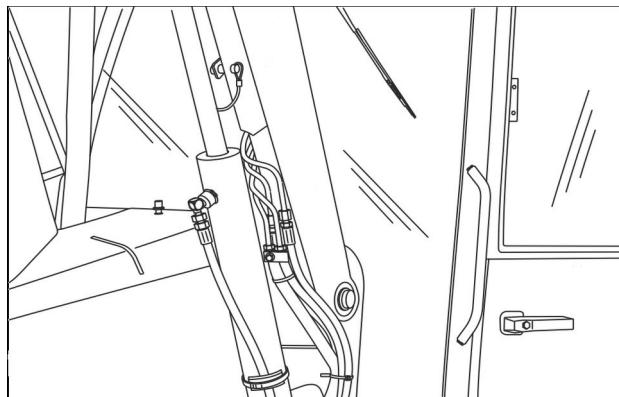
Crushing hazard!

If you service the machine with the loader lift arms raised, always use the support strut. Remove the retaining pin and place the support strut onto the cylinder rod. Install the retaining pin into the support strut. Lower the lift arms onto the support strut. Failure to comply could result in death or serious injury.

W0230A

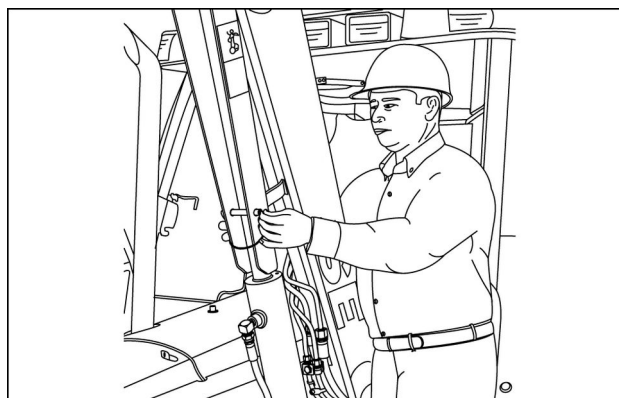
Raise and support loader lift arms:

1. Empty the loader bucket.
2. Raise the loader lift arms to the maximum height.
3. Shut down the engine.



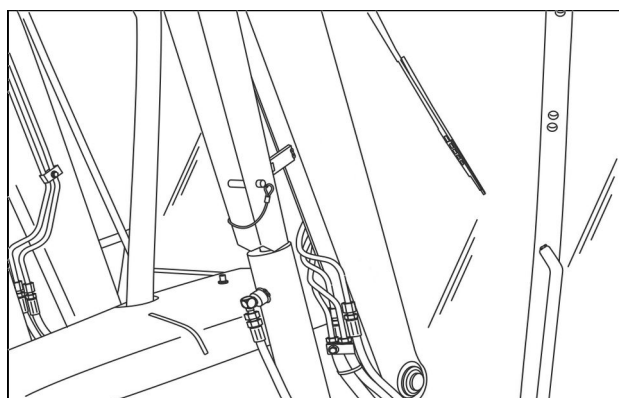
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4. Remove the retaining pin.
5. Lower the support strut onto the cylinder rod.
6. Install the retaining pin.



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7. Start the engine.
8. Slowly lower the lift arms so that the end of the support strut rests on the cylinder.

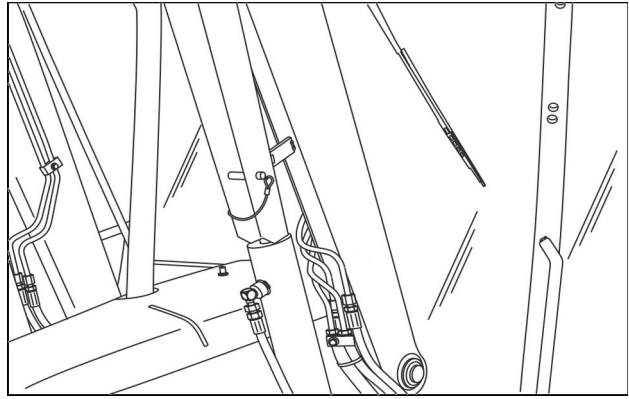


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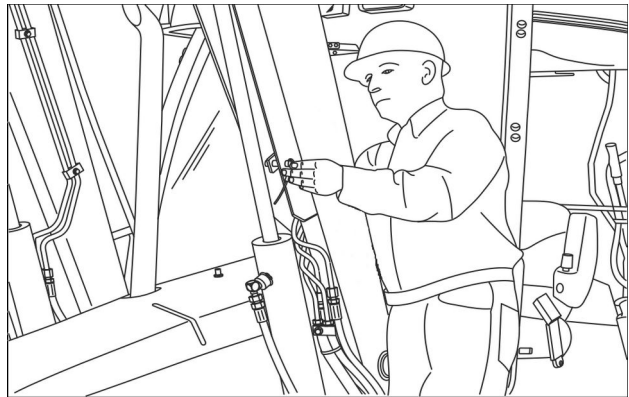
Lower supported loader lift arms:

1. Raise the lift arms so that the end of the support strut no longer rests on the cylinder.
2. Shut down the engine.



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3. Remove the retaining pin from the support strut.
4. Raise the support strut up to the storage position and secure with the retaining pin, as shown.



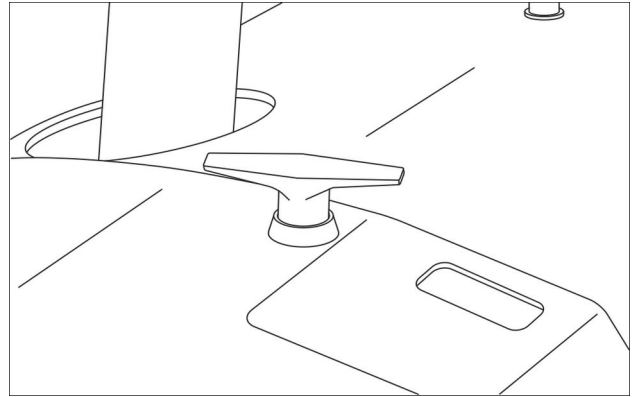
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5. Start the engine.
6. Lower the loader to the ground.

Basic instructions

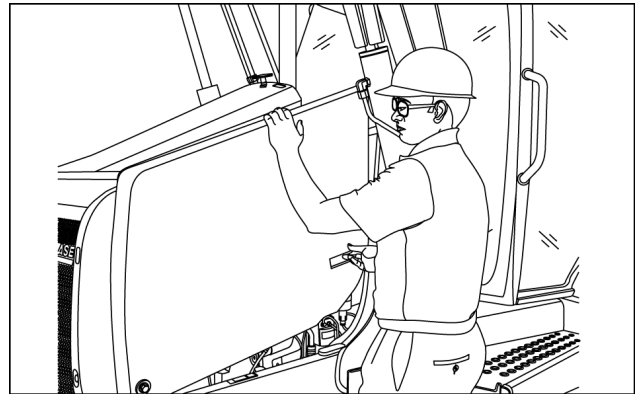
Open the hood:

1. Shut down the engine.
2. Turn the handle counter-clockwise to release the hood latch.



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3. Lift the hood and rotate forward.

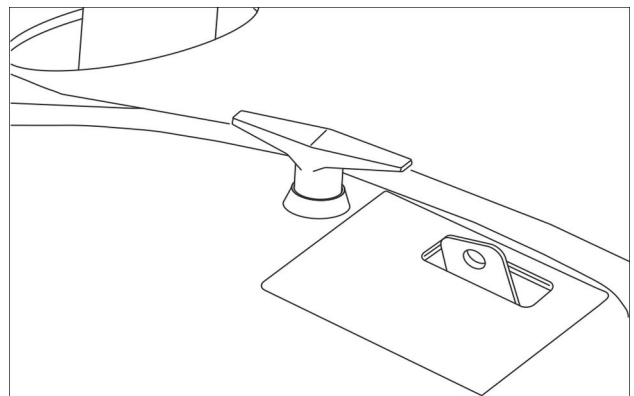


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NOTICE: To avoid damage to the hood parts, always close the hood before moving the loader.

Close the hood:

1. Lower the hood.
2. Turn the handle clockwise to lock the hood latch.



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Torque




Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers dry, or when lubricated with engine oil. Not applicable if special graphite lubricants, Molydisulfide greases, or other extreme pressure lubricants are used.

Decimal hardware

Grade 5 bolts, nuts, and studs

Size	Nm	lb in/lb ft
1/4 in	12 - 15 Nm	108 - 132 lb in
5/16 in	23 - 28 Nm	204 - 252 lb in
3/8 in	48 - 57 Nm	420 - 504 lb in
7/16 in	73 - 87 Nm	54 - 64 lb ft
1/2 in	109 - 130 Nm	80 - 96 lb ft
9/16 in	149 - 179 Nm	110 - 132 lb ft
5/8 in	203 - 244 Nm	150 - 180 lb ft
3/4 in	366 - 439 Nm	270 - 324 lb ft
7/8 in	542 - 651 Nm	400 - 480 lb ft
1 in	787 - 944 Nm	580 - 696 lb ft
1-1/8 in	1085 - 1193 Nm	800 - 880 lb ft
1-1/4 in	1519 - 1681 Nm	1120 - 1240 lb ft
1-3/8 in	1980 - 2278 Nm	1460 - 1680 lb ft
1-1/2 in	2631 - 2983 Nm	1940 - 2200 lb ft




Markings for Grade 5 hardware

Grade 8 bolts, nuts, and studs

Size	Nm	lb in/lb ft
1/4 in	16 - 20 Nm	144 - 180 lb in
5/16 in	33 - 39 Nm	288 - 348 lb in
3/8 in	61 - 73 Nm	540 - 648 lb in
7/16 in	95 - 114 Nm	70 - 84 lb ft
1/2 in	149 - 179 Nm	110 - 132 lb ft
9/16 in	217 - 260 Nm	160 - 192 lb ft
5/8 in	298 - 358 Nm	220 - 264 lb ft
3/4 in	515 - 618 Nm	380 - 456 lb ft
7/8 in	814 - 976 Nm	600 - 720 lb ft
1 in	1220 - 1465 Nm	900 - 1080 lb ft
1-1/8 in	1736 - 1953 Nm	1280 - 1440 lb ft
1-1/4 in	2468 - 2712 Nm	1820 - 2000 lb ft
1-3/8 in	3227 - 3688 Nm	2380 - 2720 lb ft
1-1/2 in	4285 - 4827 Nm	3160 - 3560 lb ft

Markings for Grade 8 hardware

NOTE: Use thick nuts with Grade 8 bolts.

Metric hardware

Grade 8.8 bolts, nuts, and studs

Size	Nm	lb in/lb ft
4 mm	3 - 4 Nm	24 - 36 lb in
5 mm	7 - 8 Nm	60 - 72 lb in
6 mm	11 - 12 Nm	96 - 108 lb in
8 mm	26 - 31 Nm	228 - 276 lb in
10 mm	52 - 61 Nm	456 - 540 lb in
12 mm	90 - 107 Nm	66 - 79 lb ft
14 mm	144 - 172 Nm	106 - 127 lb ft
16 mm	217 - 271 Nm	160 - 200 lb ft
20 mm	434 - 515 Nm	320 - 380 lb ft
24 mm	675 - 815 Nm	500 - 600 lb ft
30 mm	1250 - 1500 Nm	920 - 1100 lb ft
36 mm	2175 - 2600 Nm	1600 - 1950 lb ft

Markings for Grade 8.8 hardware



Grade 10.9 bolts, nuts and studs

Size	Nm	lb in/lb ft
4 mm	4 - 5 Nm	36 - 48 lb in
5 mm	9 - 11 Nm	84 - 96 lb in
6 mm	15 - 18 Nm	132 - 156 lb in
8 mm	37 - 43 Nm	324 - 384 lb in
10 mm	73 - 87 Nm	54 - 64 lb ft
12 mm	125 - 150 Nm	93 - 112 lb ft
14 mm	200 - 245 Nm	149 - 179 lb ft
16 mm	310 - 380 Nm	230 - 280 lb ft
20 mm	610 - 730 Nm	450 - 540 lb ft
24 mm	1050 - 1275 Nm	780 - 940 lb ft
30 mm	2000 - 2400 Nm	1470 - 1770 lb ft
36 mm	3500 - 4200 Nm	2580 - 3090 lb ft

Markings for Grade 10.9 hardware



Grade 12.9 bolts, nuts, and studs

Size	Nm	lb in/lb ft
Typically the torque values specified for grade 10.9 hardware can be used satisfactorily on grade 12.9 hardware.		

Markings for Grade 12.9 hardware



Steel hydraulic fittings**37° flare fitting**

Tube outside diameter/Hose inside diameter		Thread size	Nm	lb in/lb ft
mm	inch			
6.4 mm	1/4 in	7/16-20 in	8 - 16 Nm	72 - 144 lb in
7.9 mm	5/16 in	1/2-20 in	11 - 22 Nm	96 - 192 lb in
9.5 mm	3/8 in	9/16-18 in	14 - 34 Nm	120 - 300 lb in
12.7 mm	1/2 in	3/4-16 in	20 - 57 Nm	180 - 504 lb in
15.9 mm	5/6 in	7/8-14 in	34 - 79 Nm	300 - 696 lb in
19.0 mm	3/4 in	1-1/16-12 in	54 - 108 Nm	40 - 80 lb ft
22.2 mm	7/8 in	1-3/16-12 in	81 - 135 Nm	60 - 100 lb ft
25.4 mm	1 in	1-5/16-12 in	102 - 158 Nm	75 - 117 lb ft
31.8 mm	1-1/4 in	1-5/8-12 in	169 - 223 Nm	125 - 165 lb ft
38.1 mm	1-1/2 in	1-7/8-12 in	285 - 338 Nm	210 - 250 lb ft

Straight threads with O-ring

Tube outside diameter/Hose inside diameter		Thread size	Nm	lb in/lb ft
mm	inch			
6.4 mm	1/4 in	7/16-20 in	16 - 26 Nm	144 - 228 lb in
7.9 mm	5/16 in	1/2-20 in	22 - 34 Nm	192 - 300 lb in
9.5 mm	3/8 in	9/16-18 in	34 - 54 Nm	300 - 480 lb in
12.7 mm	1/2 in	3/4-16 in	57 - 91 Nm	540 - 804 lb in
15.9 mm	5/6 in	7/8-14 in	79 - 124 Nm	58 - 92 lb ft
19.0 mm	3/4 in	1-1/16-12 in	108 - 174 Nm	80 - 128 lb ft
22.2 mm	7/8 in	1-3/16-12 in	136 - 216 Nm	100 - 160 lb ft
25.4 mm	1 in	1-5/16-12 in	159 - 253 Nm	117 - 187 lb ft
31.8 mm	1-1/4 in	1-5/8-12 in	224 - 357 Nm	165 - 264 lb ft
38.1 mm	1-1/2 in	1-7/8-12 in	339 - 542 Nm	250 - 400 lb ft

Split flange mounting bolts

Size	Nm	lb in/lb ft
5/16-18 in	20 - 27 Nm	180 - 240 lb in
3/8-16 in	27 - 34 Nm	240 - 300 lb in
7/16-14 in	47 - 61 Nm	420 - 540 lb in
1/2-13 in	74 - 88 Nm	55 - 65 lb ft
5/8-11 in	190 - 203 Nm	140 - 150 lb ft

O-ring face seal end

Nominal SAE dash size	Tube outside diameter		Thread size	Nm	lb in/lb ft
	mm	in			
-4	6.4 mm	1/4 in	9/16-18 in	14 - 16 Nm	120 - 144 lb in
-6	9.5 mm	3/8 in	11/16-16 in	24 - 27 Nm	216 - 240 lb in
-8	12.7 mm	1/2 in	13/16-16 in	43 - 54 Nm	384 - 480 lb in
-10	15.9 mm	5/8 in	1-14 in	62 - 76 Nm	552 - 672 lb in
-12	19.0 mm	3/4 in	1-3/16-12 in	90 - 110 Nm	65 - 80 lb ft
-14	22.2 mm	7/8 in	1-3/16-12 in	90 - 110 Nm	65 - 80 lb ft
-16	25.41 mm	1.0 in	1-7/16-12 in	125 - 140 Nm	92 - 105 lb ft
-20	31.8 mm	1-1/4 in	1-11/16-12 in	170 - 190 Nm	125 - 140 lb ft
-24	38.1 mm	1-1/2 in	2-12 in	200 - 254 Nm	150 - 180 lb ft