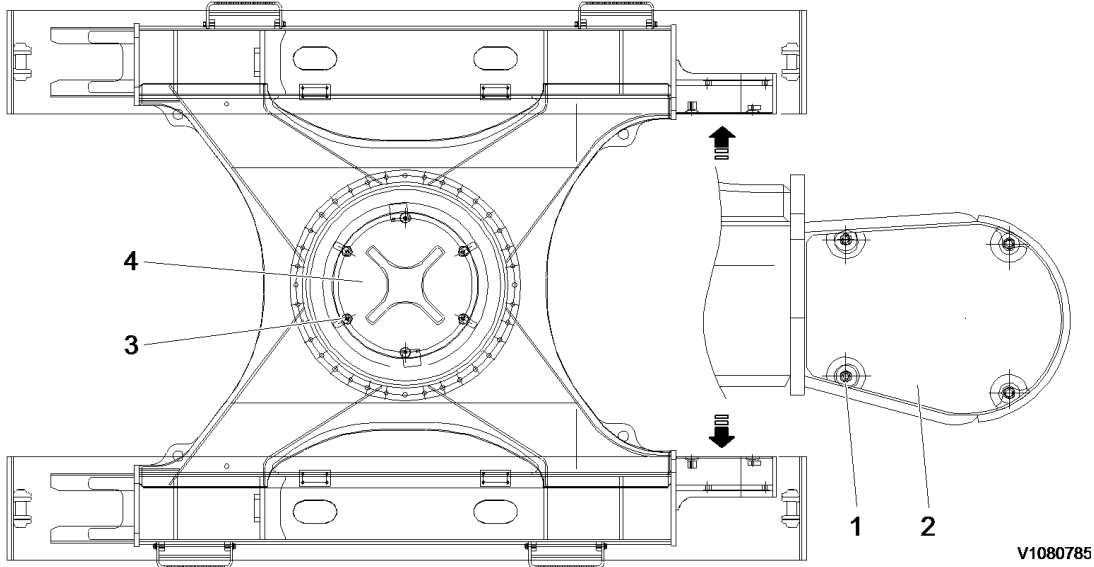


Document Title: <b>Tightening specifications</b>	torque, <b>715</b>	Function Group: <b>715</b>	Information Type: <b>Service Information</b>	Date: <b>2014/6/10</b>
Profile: <b>EXC, EC200B [GB]</b>				

## Tightening torque, specifications

### Protecting plate



V1080785

**Figure 1**  
**Machine view, protecting plate**

**Tightening torque: Nm (kgf m) (lbf ft)**

No.	Items	Weight: kg (lbs)	Tightening torque
1	Mounting screws	–	265 ±29 (27 ±3) (195 ±22)
2	Track motor protection cover (LH, RH)	6.5 (14)	–
3	Mounting screws	–	262 ±26 (26.7 ±2.7) (193 ±19)
4	Under cover HDF (MUD) thick: 20	91 (201)	–

**NOTE!**

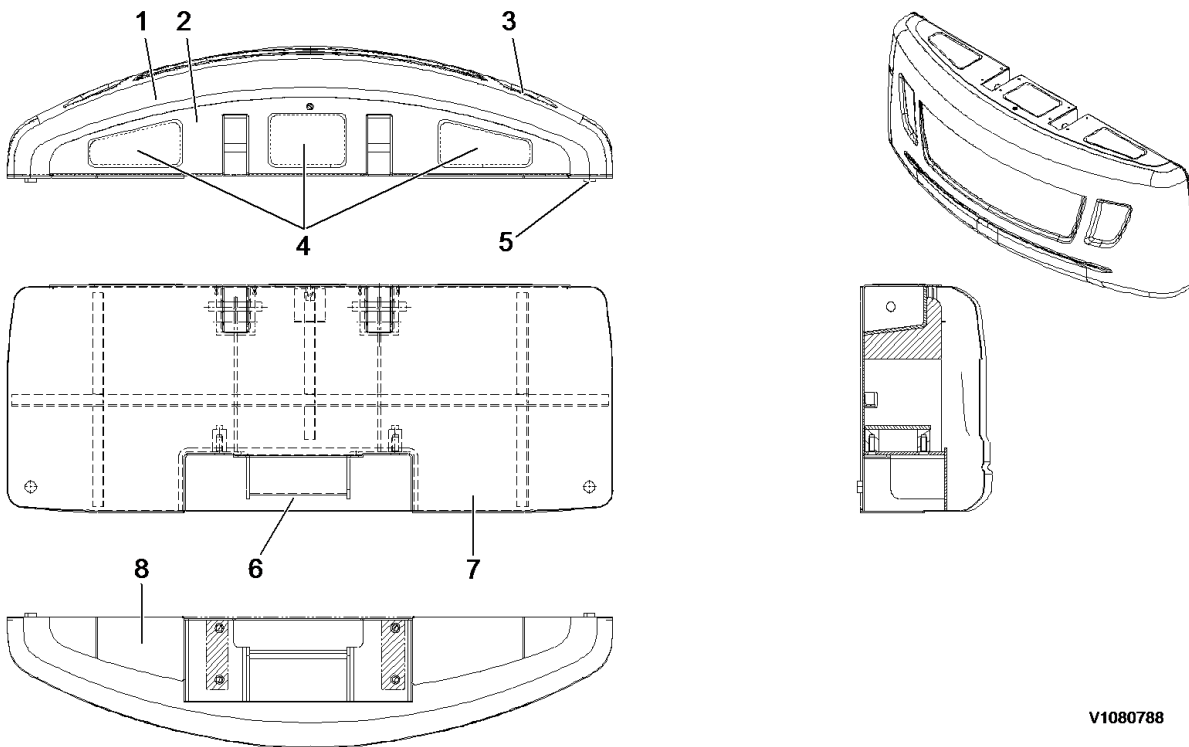
Apply loctite #277 or 609 on screws.

Document Title: <b>Counterweight, description</b>	Function Group: <b>716</b>	Information Type: <b>Service Information</b>	Date: <b>2014/6/10</b>
Profile: <b>EXC, EC200B [GB]</b>			

## Counterweight, description

### Fabrication type

The counterweight is a counterbalancing weight that is located at the rear of the machine. The counterweight is designed in order to give the machine extra weight in the back end in order to counter the weight that is located at the front of the machine, in particular the boom and dipper arm.



V1080788

**Figure 1**  
**Counterweight, structure**

1	Body	2	Plate	3	Reflector
4	Cover	5	Stopper	6	Base
7	Side plate	8	Under cover		

Document Title: <b>Counterweight, removing</b>	Function Group: <b>716</b>	Information Type: <b>Service Information</b>	Date: <b>2014/6/10</b>
Profile: <b>EXC, EC200B [GB]</b>			

## Counterweight, removing

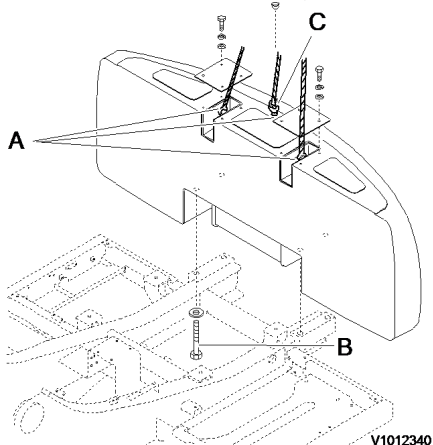
### Fabrication type



The counterweight is heavy. Take care in performing removal. To lift the counterweight, use certified wire ropes in good condition, of adequate load rating and length.

Op nbr 00000

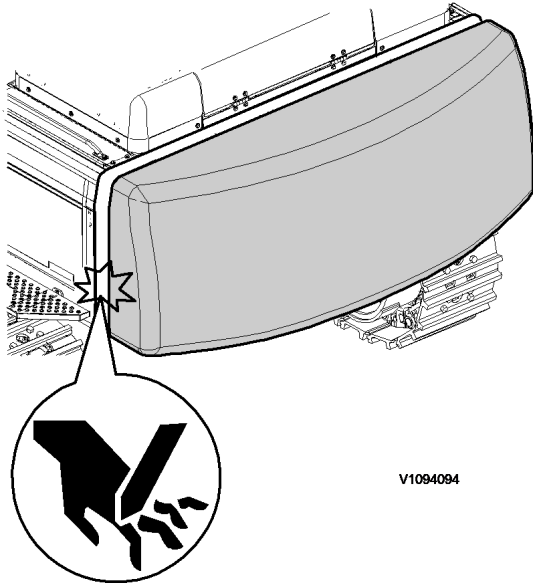
1. Position the machine on flat, firm and level ground, free from any obstructions or interference.



**Figure 1**  
**Counterweight**

- A. Lifting point
- B. Screws
- C. Eye bolt

2. Position the boom and arm with the bucket on the ground.
3. Pull the safety locking lever securely.
4. Remove two covers and a plug from the top of counterweight.
5. As shown in the illustration, connect the lifting cables or slings after fastening eye bolt with sufficient strength for the counterweight at the lifting point correctly.
6. Disassemble four screws.
7. Lift the counterweight enough so that there is no load on the retaining pin.
8. Place the counterweight onto suitable support.



V1094094

**Figure 2**  
**Be careful of you finger**

Document Title: <b>Counterweight, fitting</b>	Function Group: <b>716</b>	Information Type: <b>Service Information</b>	Date: <b>2014/6/10</b>
Profile: <b>EXC, EC200B [GB]</b>			

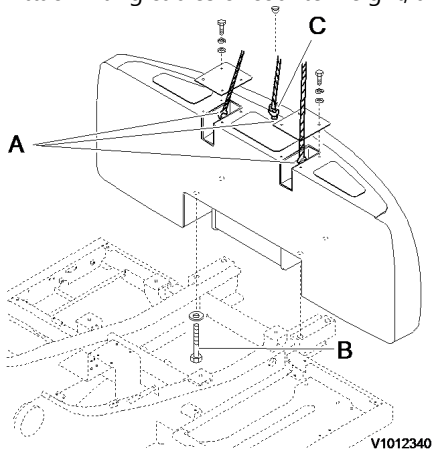
## Counterweight, fitting

Op nbr 716-002



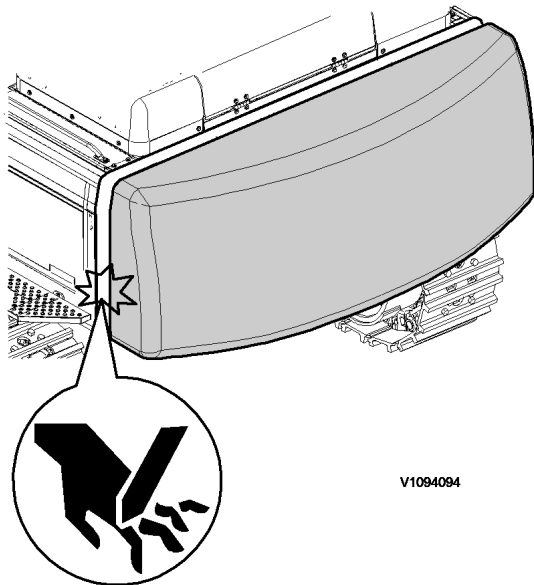
**Lift the counterweight just a little, and after confirming safety and horizontal position, proceed to install it.**

1. Position the machine on flat, firm and level ground, free from any obstructions or interference.  
Position the boom and arm with the bucket on the ground.
2. Engage the control lockout lever securely.
3. Attach lifting cables of counterweight, and lift to the desired position.



**Figure 1**  
**Installation, counterweight**

- A. Lifting point
- B. Screws
- C. Eye bolt



V1094094

**Figure 2**  
**V1094094**

4. Slowly lower the counterweight to the mounting face of the rear superstructure. Match the screw hole. Insert the lock plate and the spacer, and tighten screws. See tightening torque, [716 Counterweight, tightening torques](#).
  - Lower the counterweight to the mounting face at the rear of the superstructure.

**NOTE!**

Apply loctite # 277 onto the threads of screws.

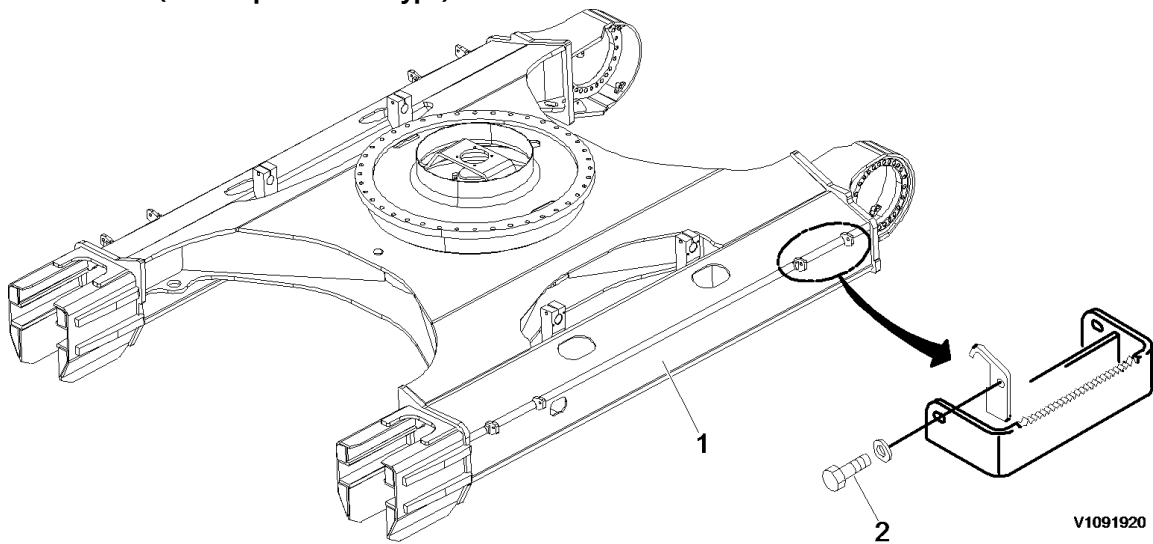
**NOTE!**

$10 \pm 3$  mm ( $0.4 \pm 0.12$  inch) keep clearance A (left and right) equal.

Document Title: <b>Undercarriage, description</b>	Function Group:	Information Type: <b>Service Information</b>	Date: <b>2014/6/10</b>
Profile: <b>EXC, EC200B [GB]</b>			

## Undercarriage, description

Lower frame (foot steps: foldable type)



**Figure 1**

1	Weight: 2154 kg (4749 lbs)
2	Foot step mounting screws: 265 ±29 Nm (27 ±3 kgf m) (195 ±22 lbf ft)

### **NOTE!**

When tightening the bolts, use the dedicated tool as an optional equipment.

Track retracting and extending see Operation manual.

Document Title: <b>Selection of track shoes</b>	Function Group: <b>775</b>	Information Type: <b>Service Information</b>	Date: <b>2014/6/10</b>
Profile: <b>EXC, EC200B [GB]</b>			

## Selection of track shoes

Choose suitable track shoes to match the ground conditions.

### Method of selecting shoes

Confirm the category from the list of uses in the "Category" table then use the "Selection" table to select the shoe.

Categories "B" and "C" are wide shoe, so there are restrictions on their use. Therefore, before using, check the restrictions and consider carefully the conditions of use before selecting a suitable shoe width. If necessary, give the customer guidance in their use. When selecting the shoe width, select the narrowest possible within the range that will give no problem with flotation and ground pressure. If a wider shoe than necessary is used, there will be a large load on the shoe, and this may lead to bending of the shoe, cracking of the links, breakage of the pins, loosening of the shoe screws, or other problems.

### Category, track shoes

Category	Use	Precautions when using
A	Rocky ground, normal soil	Travel in low speed when traveling on rough ground with obstacles such as large boulders and fallen trees.
B	Soft ground	Travel in high speed only on flat ground. When it is impossible to avoid traveling over obstacles, lower the travel speed to approximate half of low speed. <b>NOTE!</b> Cannot be used on rough ground where there are large obstacles such as boulders and fallen trees.
C	Extremely soft ground (swamp ground)	Use only for ground where "A" and "B" are impossible to use. Travel in high speed only on flat ground. When it is impossible to avoid traveling over obstacles, lower the travel speed to approximate half of low speed. <b>NOTE!</b> Cannot be used on rough ground where there are large obstacles such as boulders and fallen trees.

### Selection, track shoes

Specifications	Category
600 mm (23.6 inch) triple grouser	A
800 mm (31.5 inch) triple grouser	B
600 mm (23.6 inch) triple grouser heavy duty	A

**NOTE!**

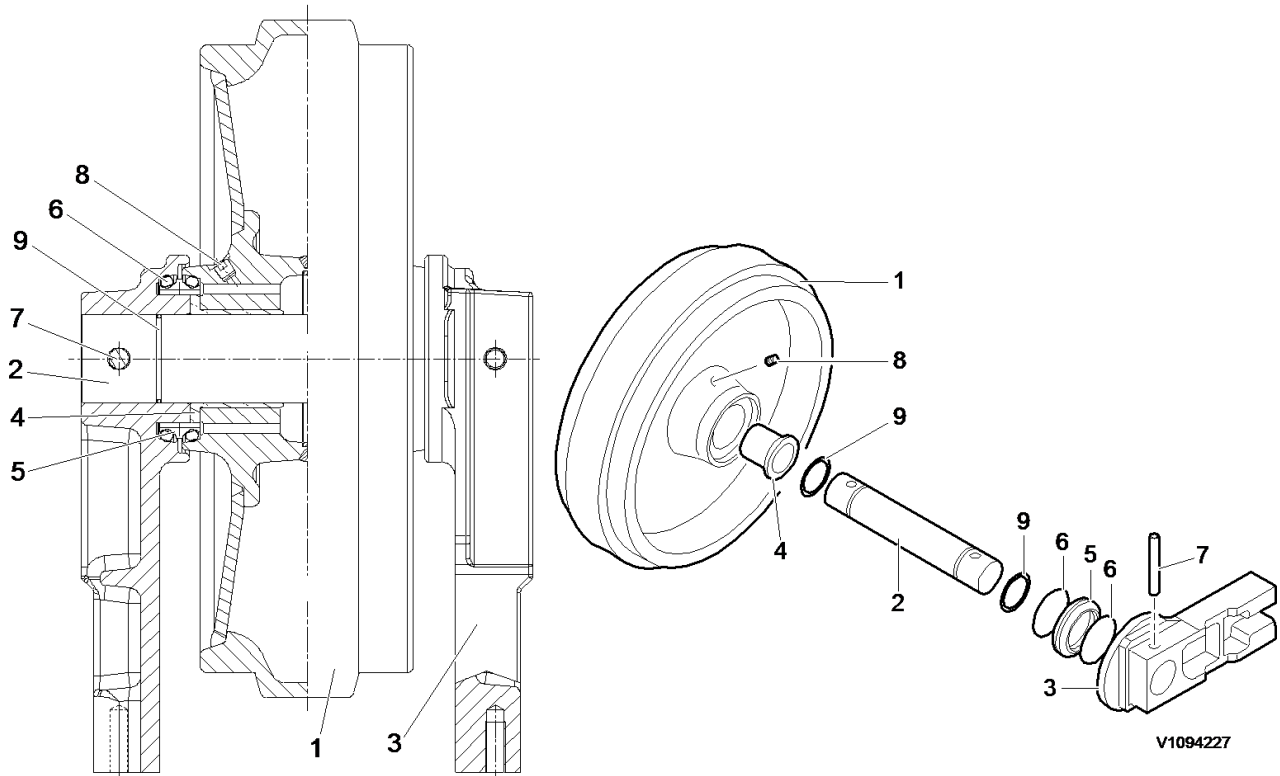
See [7753 Track adjusting track sag](#).

For ground contact pressure. See the operator's manual. [Specifications, Ground pressure, Ground pressure](#).



Document Title: <b>Idler, description</b>	Function Group:	Information Type: <b>Service Information</b>	Date: <b>2014/6/10</b>
Profile: <b>EXC, EC200B [GB]</b>			

**Idler, description**



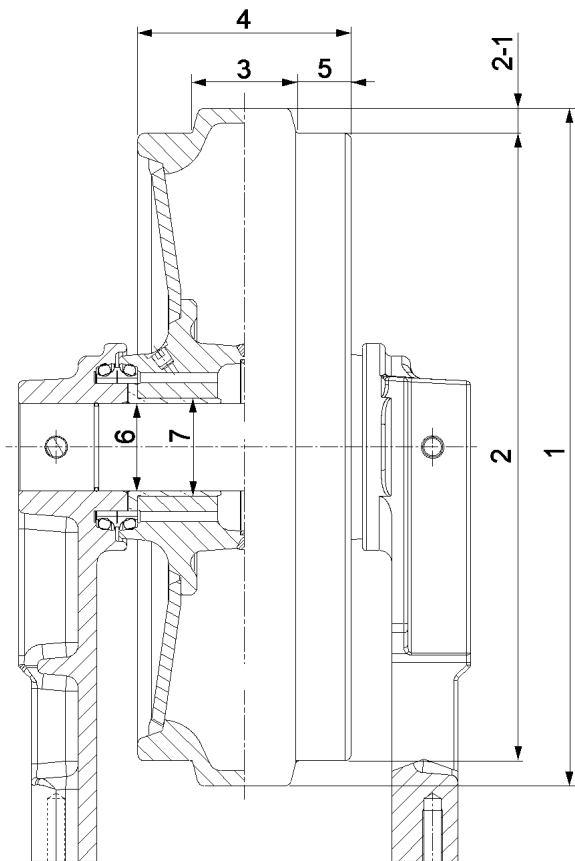
V1094227

**Figure 1**  
**Idler, welding type**

1	Idler wheel	6	O-ring
2	Shaft	7	Pin
3	Support	8	Plug
4	Bushing	9	O-ring (shaft)
5	Seal ring		

Document Title: <b>Idler, measurement of wear</b>	Function Group:	Information Type: <b>Service Information</b>	Date: <b>2014/6/10</b>
Profile: <b>EXC, EC200B [GB]</b>			

**Idler, measurement of wear**



V1094229

**Figure 1**  
**Idler, welding type**

**Wear limit, unit: mm (inch)**

No.	Check item	Standard size	Allowable limits	Remedy
1	Outside diameter of flange	540 (21.3)	-	Rewelding or replacing
2	Outside diameter tread	500 (19.7)	488 (19.2)	
2-1	Depth of tread	20 (0.79)	25 (0.98)	
3	Width of flange	83 (3.3)	75 (3.0)	
4	Total width of tread	170 (6.7)	-	
5	Width of tread	43.5 (1.7)	50 (2.0)	

**Wear limit, unit: mm (inch)**

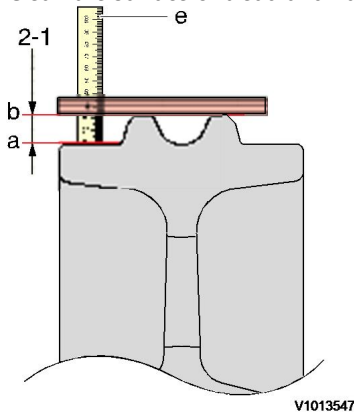
No.	Check item	Tolerance limits		Allowable limits,		Remedy
		Shaft	Hole	Standard	Limits	
6	Clearance between	-0.03 ~ -0.09	+0.35 ~ +0.30	+0.33 ~ +0.44	1.5	-

	shaft and bushing Standard size: 70 (2.76)	(-0.0012 ~ -0.0035)	(+0.0138 ~ +0.0118)	(+0.013 ~ +0.0173)	(0.059)	
7	Clearance between idler and bushing Standard size: 78 (3.07)	+0.15 ~ +0.12 (+0.0059 ~ +0.0047)	+0.03 ~ 0 (+0.0012 ~ 0)	-0.09 ~ -0.15 (-0.0035 ~ -0.0059)	0 (0)	-

## Measuring of tread and flange wear

### Tread

1. Clean the surface of tread and flange of the idler.



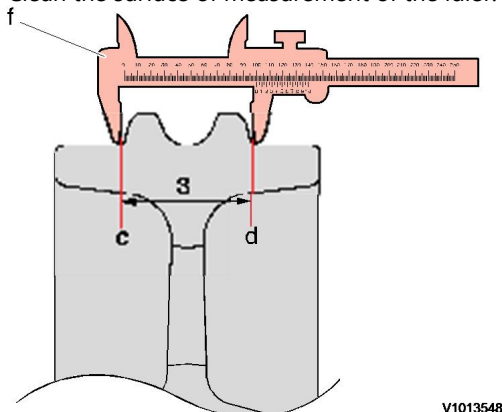
**Figure 2**  
**Measurement, tread wear**

a: Tread  
b: Flange  
2-1: Depth  
e: Depth gauge

2. Set a scale on the surface of flange horizontally.  
Measure the depth between surface of flange and surface of tread using depth gauge.
3. Measure 3 places to take average value.
4. Measure right and left alternately. Repair or replace if necessary.

### Flange

1. Clean the surface of measurement of the idler.



**Figure 3**  
**Measurement, flange wear**

1: Vernier calipers

2. Measure the width of the flange between (c) and (d) using vernier calipers.
3. Measure 3 places to take average value.
4. Measure right and left alternately. Repair or replace if necessary.

Document Title: <b>Idler, disassembly</b>	Function Group:	Information Type: <b>Service Information</b>	Date: <b>2014/6/10</b>
Profile: <b>EXC, EC200B [GB]</b>			

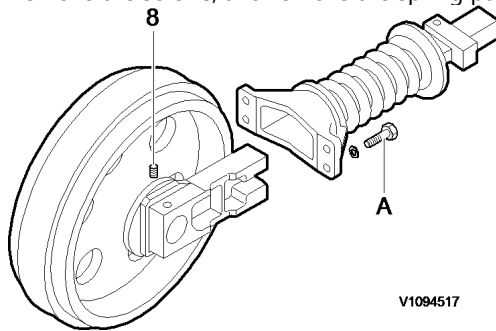
## Idler, disassembly

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**NOTE!**

The numbers in parentheses following each part name in the text correspond to those in figure.

1. Remove the screws, and remove the spring package.



**Figure 1**  
**Spring package, removal**

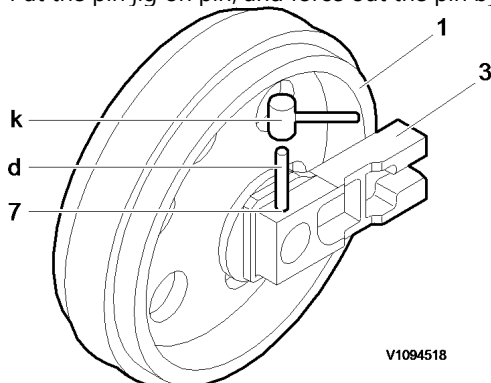
8	Plug
A	Screws

2. Remove the plug to drain oil.

**NOTE!**

Drain the oil to a container (p).

3. Put the pin jig on pin, and force out the pin by lightly tapping the jig with a hammer.

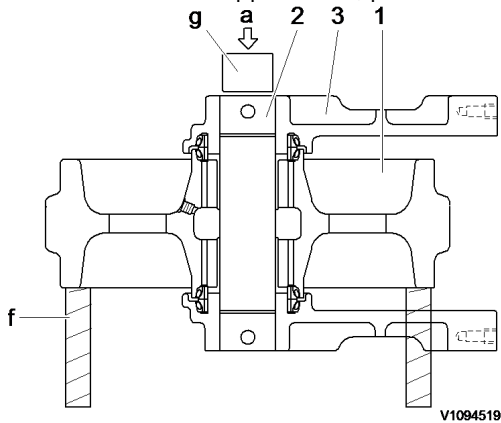


**Figure 2**  
**Pin, removal**

1	Plug	d	Jig
---	------	---	-----

3	Support	k	Hammer
7	Pin		

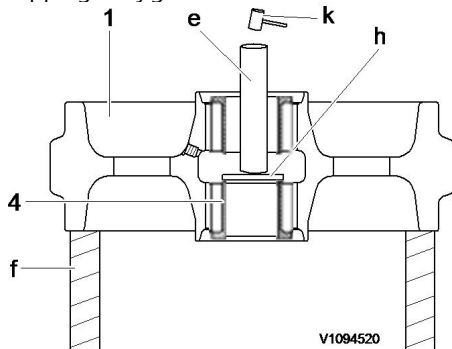
4. Place idler on idler support block, put the shaft removal jig on shaft and force out the shaft using press.



**Figure 3**  
**Push with a press**

1	Idler	f	Support block
2	Shaft	g	Jig
3	Support	a	Press

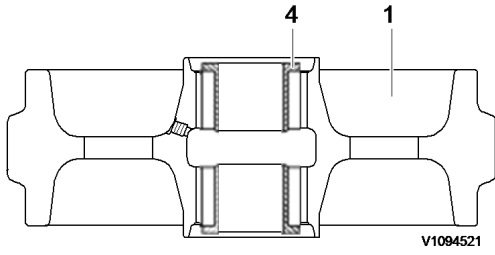
5. Place idler on idler support jig, put bushing removal jig with on bushing, and drive out the bushing by lightly tapping the jig.



**Figure 4**  
**Bushing, removal**

1	Idler	f	Support jig
4	Bushing	k	Hammer
e	Jig		

6. Remove the seal ring and O-ring from idler wheel and support, respectively.
7. Remove the O-ring from shaft.
8. Confirm that there is no damage or rust on the sealing face of seal.
9. Confirm that any wear of idler is within the allowable range.



**Figure 5**  
**Location to be inspected**

1	Idler	4	Bushing
---	-------	---	---------

10. Confirm that any wear of shaft or bushing is within the allowable range.

Document Title: <b>Idler, assembly</b>	Function Group:	Information Type: <b>Service Information</b>	Date: <b>2014/6/10</b>
Profile: <b>EXC, EC200B [GB]</b>			

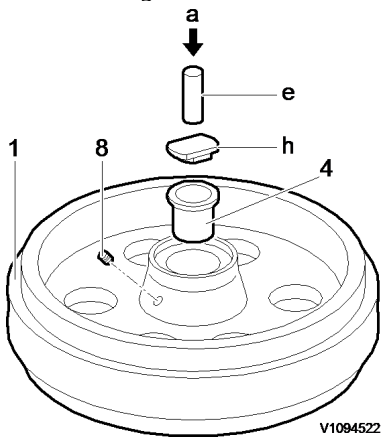
## Idler, assembly

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**NOTE!**

Assemble in the reverse order of disassembly.

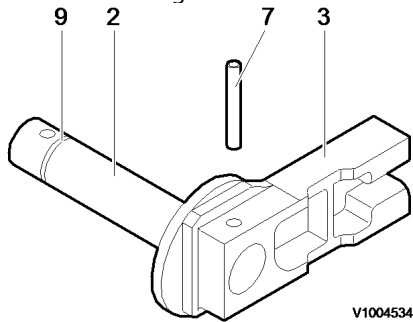
1. Place bushing on idler wheel, and using jig and (h), force fit with press.



**Figure 1**  
**Bushing, assembly**

1	Idler	a	Press
4	Support	e	Jig
8	Bushing		

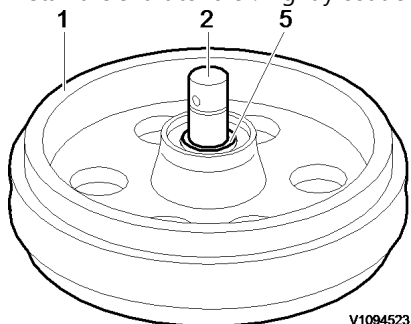
2. Install the O-ring on shaft.



**Figure 2**  
**O-ring, assembly**

2	Shaft	7	Pin
3	Idler	9	O-ring

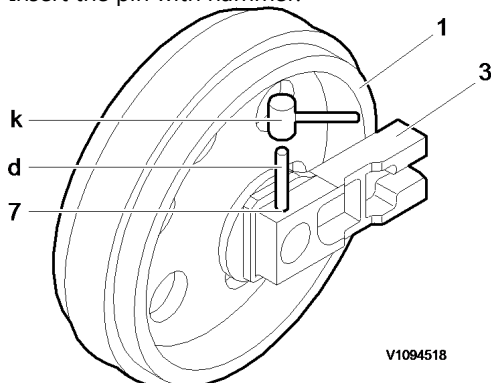
3. Apply a thin coat of grease to inner side of support, install the shaft, and insert spring pin. In this case, take care not to damage O-ring.
4. Insert the seal ring and O-ring to the support and idler wheel, respectively.
5. Install the shaft to idler. Lightly coat engine oil on seal ring contact face.



**Figure 3**  
**Assembly, shaft**

1	Idler	5	Seal
2	Shaft		

6. Install the support with seal ring and O-ring.
7. Insert the pin with hammer.



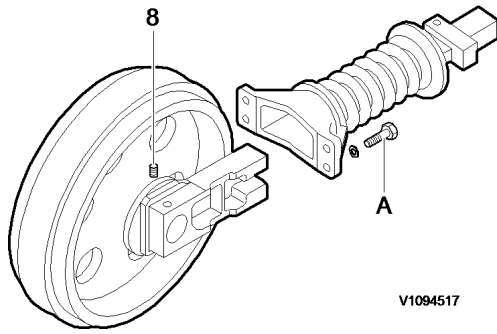
**Figure 4**  
**Assembly, spring pin**

1	Plug	d	Jig
3	Support	k	Hammer
7	Pin		

8. Prior to filling with oil perform a pressure leak test.
  - Attach a pressure regulated air line to the oil fill port, then completely immerse the assembly in water.
  - Under a pressure of 2 ~ 3 kgf/cm<sup>2</sup> (28 ~ 43 psi), air bubbles must not form for 15 seconds.
9. Fill with engine oil.
 

**NOTE!**  
Oil amount: 365 cc (22.3 cu.in)
10. Install the plug with teflon tape, and tighten securely.
11. Confirm that there are no oil leaks around seals and plug.
12. Assemble the idler assembly and track spring. After assembling, manually confirm that idler rotates to the extent you can rotate it despite the resistance. (More than 10 times).





V1094517

**Figure 5**  
**Assembly, idler and track spring**

8	Plug	A	Screws
---	------	---	--------

- Apply loctite #277 to screw A
- Tightening torque:  $264.8 \pm 29.4$  Nm ( $27 \pm 3$  kgf m) ( $195 \pm 22$  lbf ft)

13. End play must be within 0.1 to 0.85 mm (0.004 ~ 0.033 inch)

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