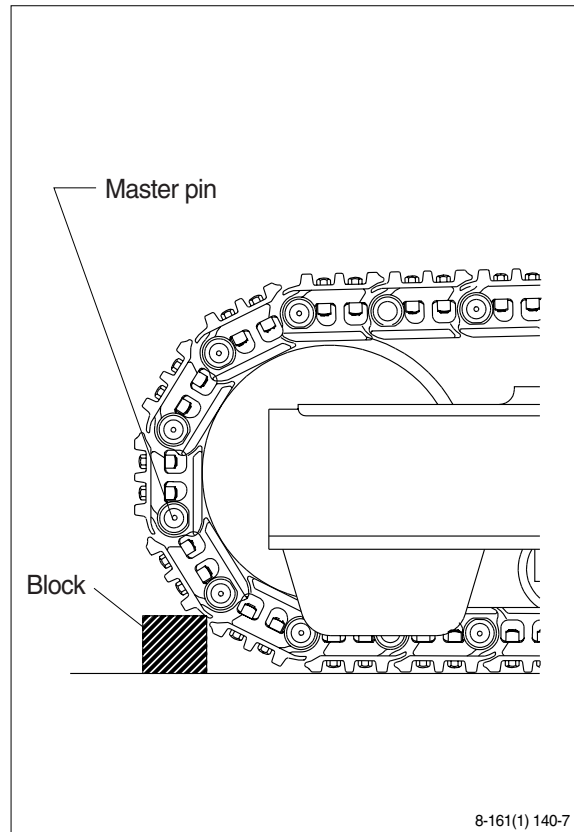


GROUP 10 UNDERCARRIAGE

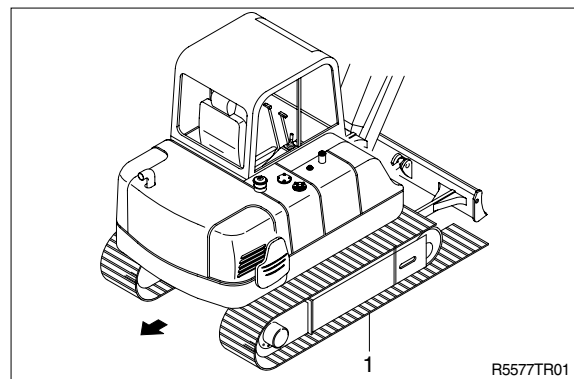
1. TRACK LINK

1) REMOVAL

- (1) Move track link until master pin is over front idler in the position put wooden block as shown.
- (2) Loosen tension of the track link.
 - ※ If track tension is not relieved when the grease valve is loosened, move the machine backwards and forwards.
- (3) Push out master pin by using a suitable tool.

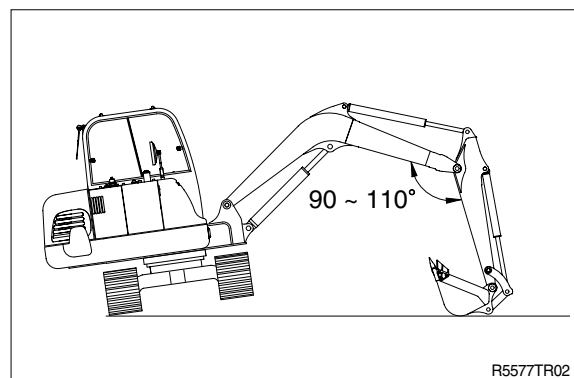


- (4) Move the machine slowly in reverse, and lay out track link assembly (1).
- ※ Jack up the machine and put wooden block under the machine.
- ※ Don't get close to the sprocket side as the track shoe plate may fall down on your feet.



2) INSTALL

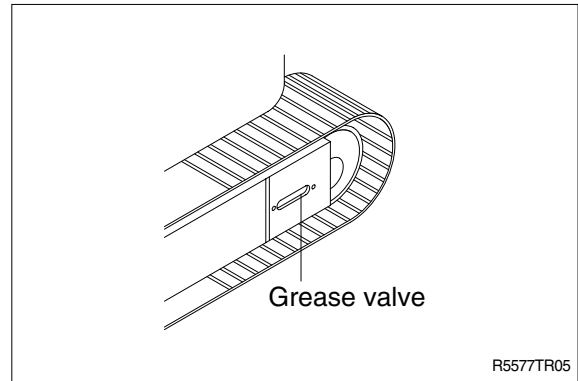
- (1) Carry out installation in the reverse order to removal.
- ※ Adjust the tension of the track link.



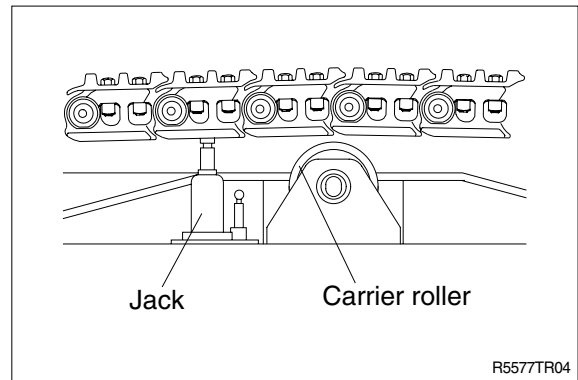
2. CARRIER ROLLER

1) REMOVAL

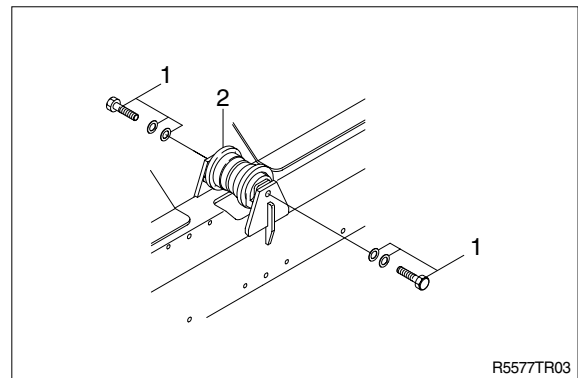
- (1) Loosen tension of the track link.



- (2) Jack up the track link height enough to permit carrier roller removal.



- (3) Remove bolt(1) at both side.
- (4) Remove carrier roller(2).
 - Weight : 10kg(20lb)



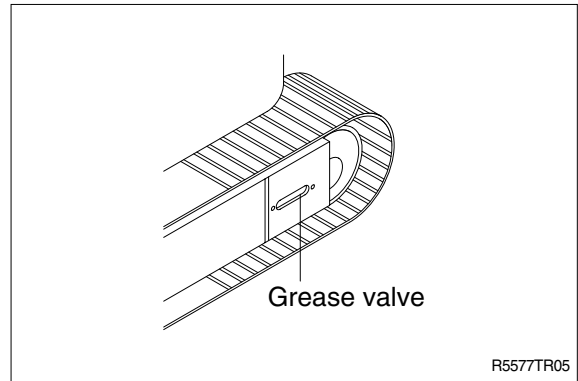
2) INSTALL

- (1) Carry out installation in the reverse order to removal.

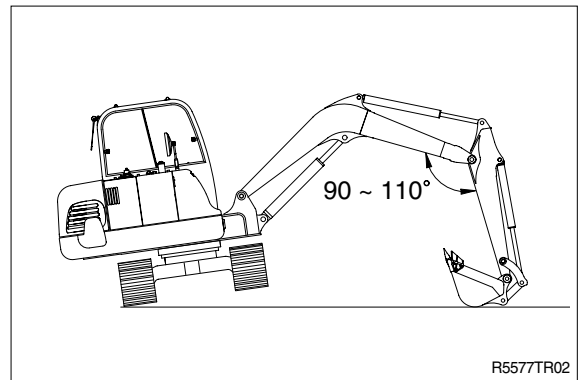
3. TRACK ROLLER

1) REMOVAL

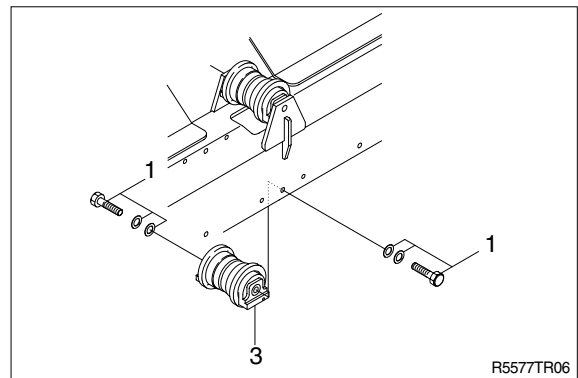
- (1) Loosen tension of the track link.



- (2) Using the work equipment, push up track frame on side which is to be removed.
※ After jack up the machine, set a block under the unit.



- (3) Remove the mounting bolt(1) and draw out the track roller(3).
• Weight : 10kg(20lb)



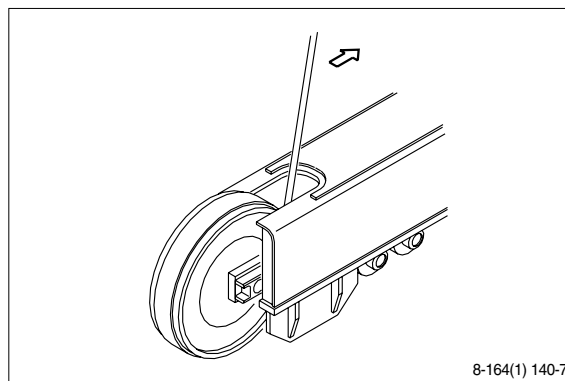
2) INSTALL

- (1) Carry out installation in the reverse order to removal.

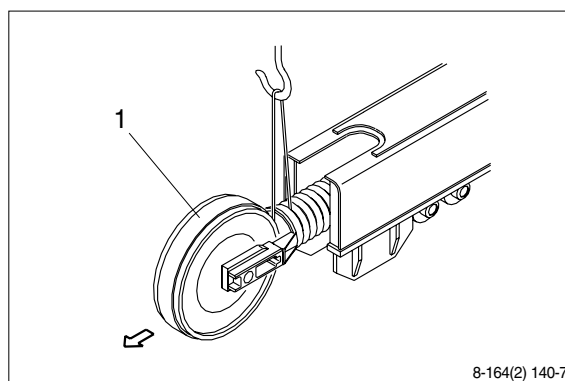
4. IDLER AND RECOIL SPRING

1) REMOVAL

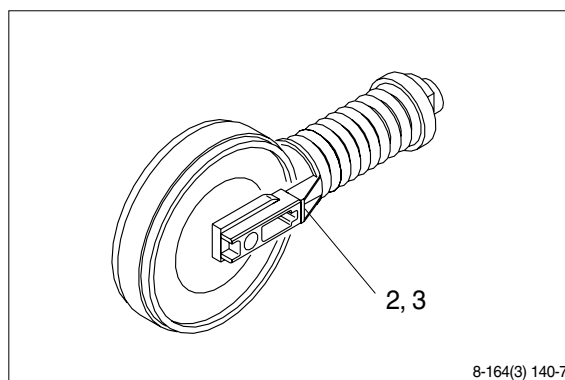
- (1) Remove the track link.
For detail, see **removal of track link**.



- (2) Sling the recoil spring(1) and pull out idler and recoil spring assembly from track frame, using a pry.
· Weight : 100kg(220lb)

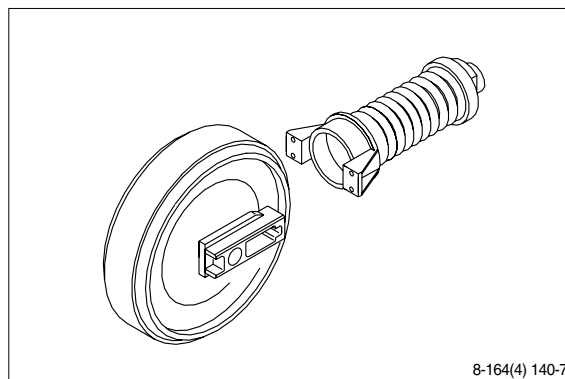


- (3) Remove the bolts(2), washers(3) and separate idler from recoil spring.



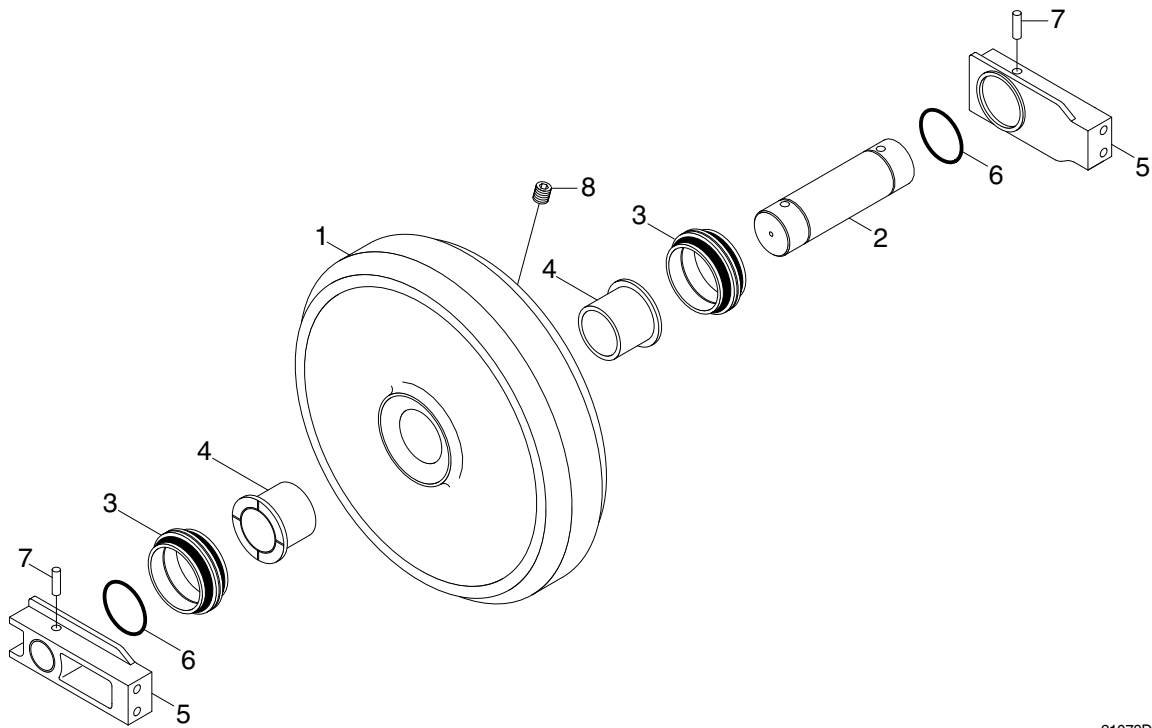
2) INSTALL

- (1) Carry out installation in the reverse order to removal.
※ Make sure that the boss on the end face of the recoil cylinder rod is in the hole of the track frame.



3) DISASSEMBLY AND ASSEMBLY OF IDLER

(1) Structure



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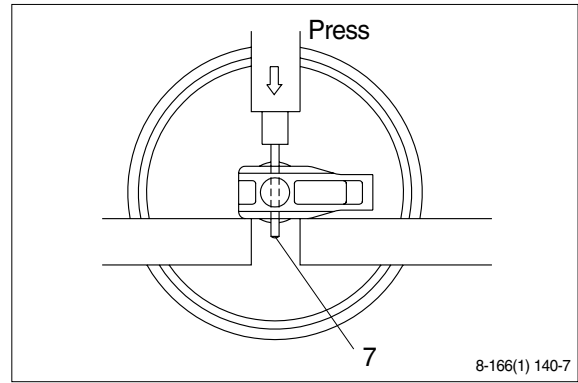
- 1 Shell
- 2 Shaft
- 3 Seal assembly

- 4 Bushing
- 5 Bracket
- 6 O-ring

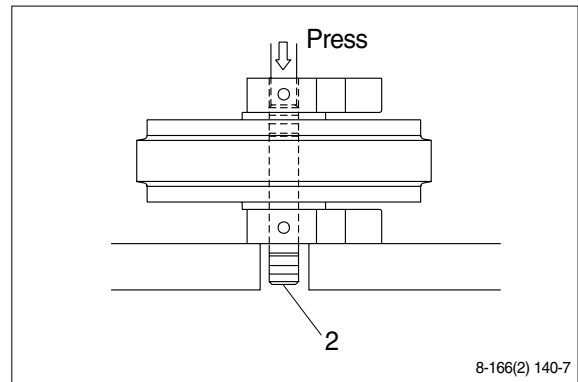
- 7 Spring pin
- 8 Plug

(2) Disassembly

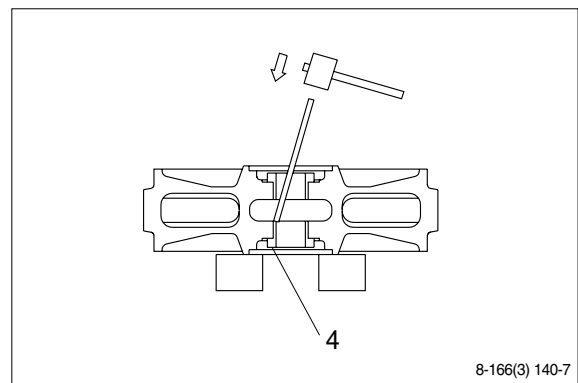
- ① Remove plug and drain oil.
- ② Draw out the spring pin(7), using a press.



- ③ Pull out the shaft(2) with a press.
- ④ Remove seal(3) from idler(1) and bracket (5).
- ⑤ Remove O-ring(6) from shaft.



- ⑥ Remove the bushing(4) from idler, using a special tool.
- ※ Only remove bushing if replacement is necessity.

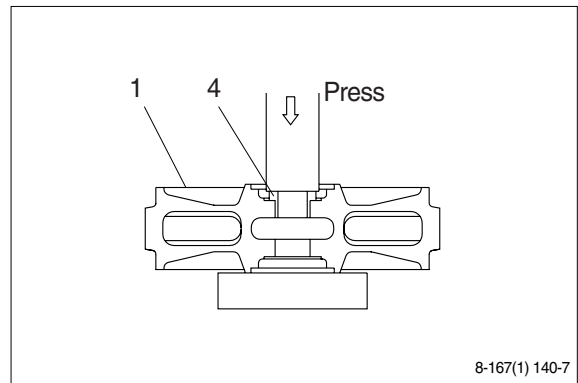


(3) Assembly

- ※ Before assembly, clean the parts.
- ※ Coat the sliding surfaces of all parts with oil.

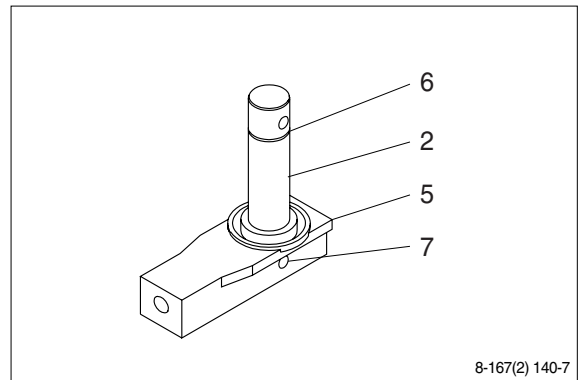
- ① Cool up bushing(4) fully by some dry ice and press it into shell(1).

Do not press it at the normal temperature, or not knock in with a hammer even after the cooling.

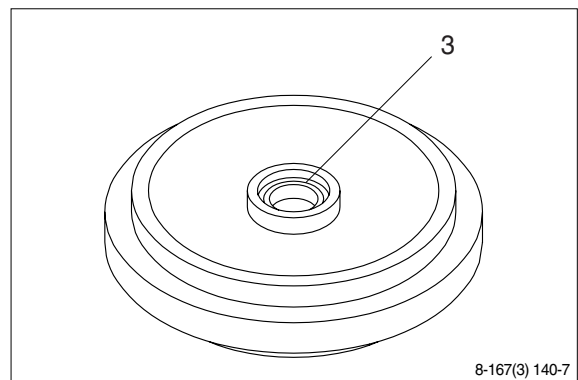


- ② Coat O-ring(6) with grease thinly, and install it to shaft(2).

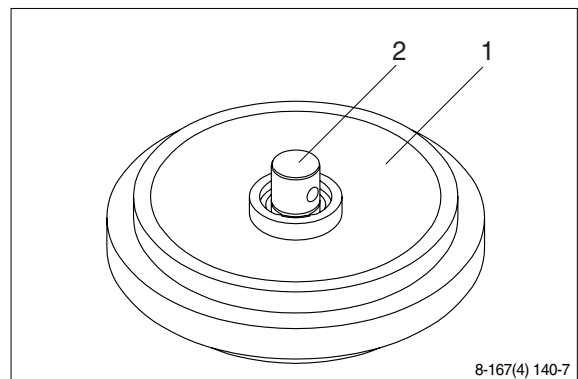
- ③ Insert shaft(2) into bracket(5) and drive in the spring pin(7).



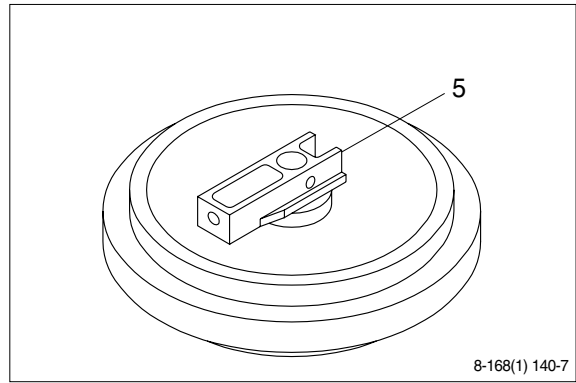
- ④ Install seal(3) to shell(1) and bracket(5).



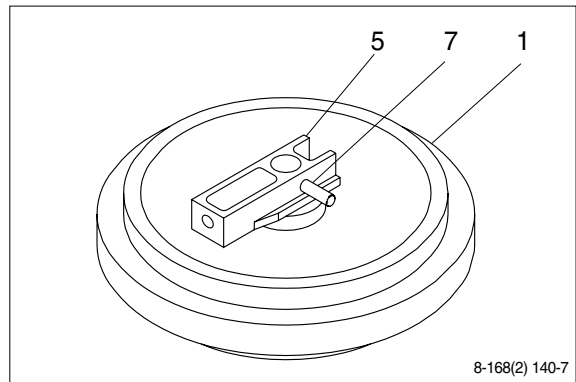
- ⑤ Install shaft(2) to shell(1).



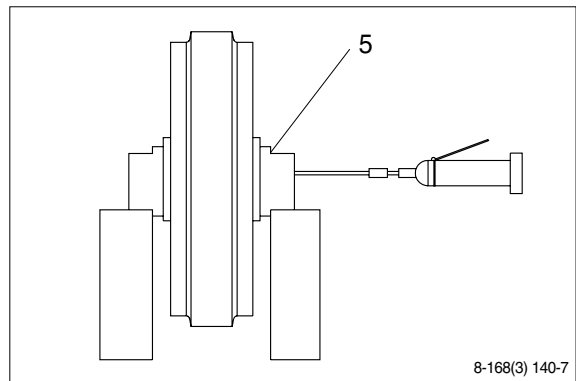
- ⑥ Install bracket(5) attached with seal(3).



- ⑦ Knock in the spring pin(7) with a hammer.

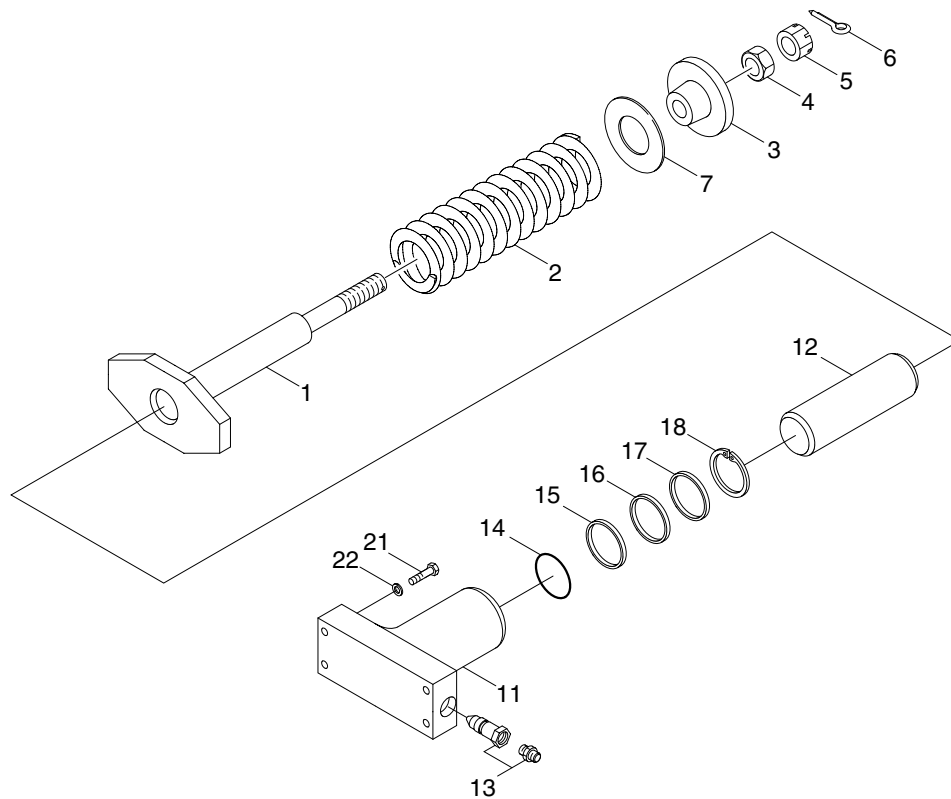


- ⑧ Lay bracket(5) on its side.
Supply engine oil to the specified level,
and tighten plug.



4) DISASSEMBLY AND ASSEMBLY OF RECOIL SPRING

(1) Structure



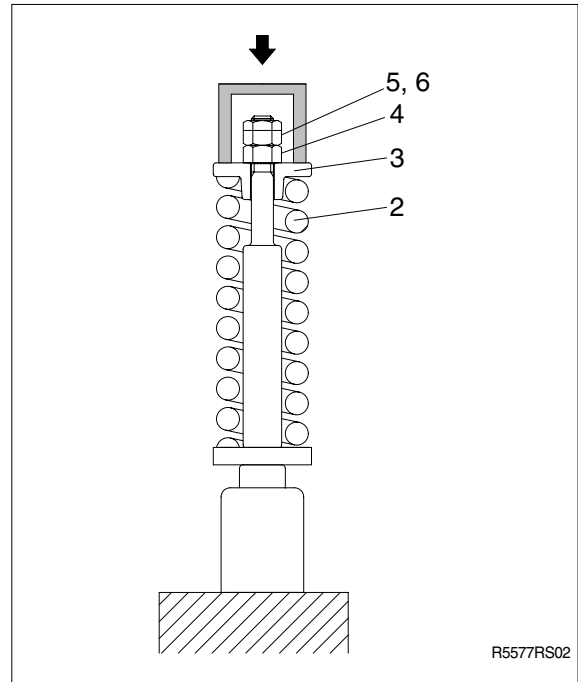
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- | | | |
|-------------------|-----------------|-------------------|
| 1 Rod | 7 Spacer | 16 Dust-seal |
| 2 Spring | 11 Bracket | 17 Spacer |
| 3 Lock washer | 12 Piston | 18 Retaining ring |
| 4 Hex-nut | 13 Grease valve | 21 Bolt |
| 5 Slotted hex-nut | 14 O-ring | 22 Washer |
| 6 Split pin | 15 Back-up ring | |

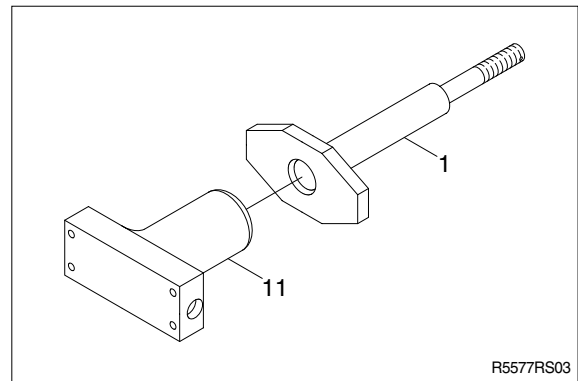
(2) Disassembly

- ① Apply pressure on spring(3) with a press.
 - ※ The spring is under a large installed load.
This is dangerous, so be sure to set properly.
 - ・ Spring set load : 3900kg(8600lb)
- ② Remove split pin(6) and nut(5).
- ③ Remove lock nut(4).

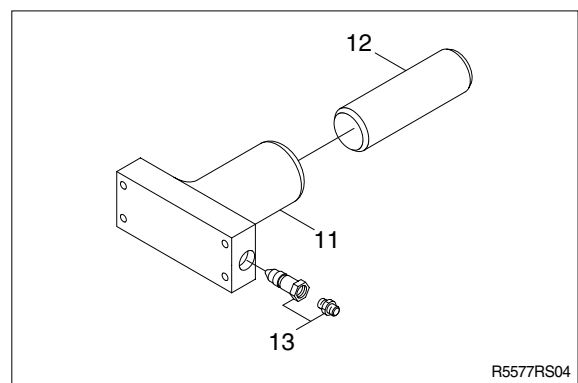
Take enough notice so that the press which pushes down the spring, should not be slipped out in its operation.
- ④ Lighten the press load slowly and remove lock washer(3) and spring(2).



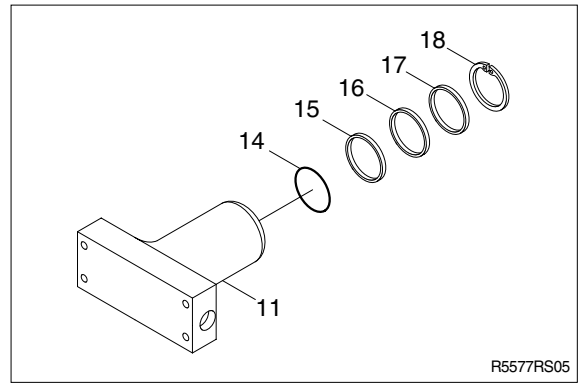
- ⑤ Remove rod(1) from bracket(11).



- ⑥ Remove grease valve(13) from bracket(11).
- ⑦ Remove piston(12) from bracket(11).



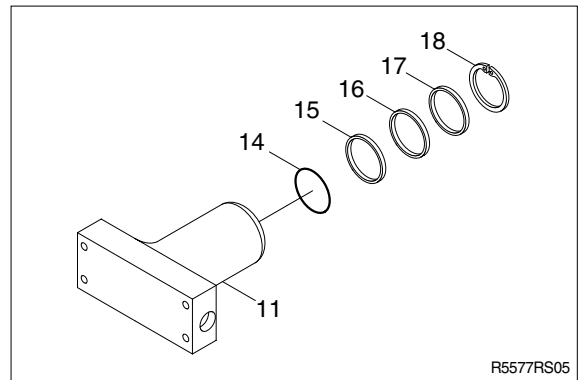
- ⑧ Remove retaining ring(18), spacer(17), dust seal(16), back-up ring(15) and O-ring(14).



(3) Assembly

- ① Install O-ring(14), back-up ring(15), dust seal(16), spacer(17) and retaining ring(18) to bracket(11).

※ When installing dust seal(16) take full care so as not to damage the lip.

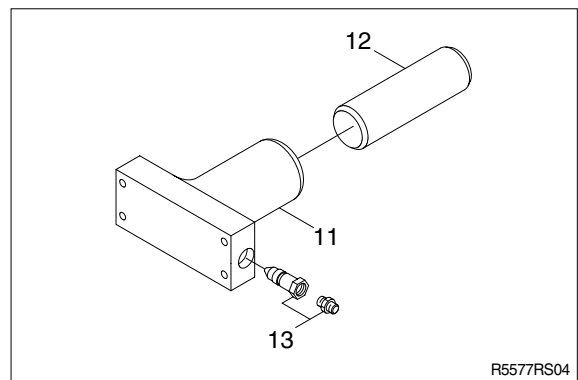


- ② Pour grease into bracket(11), then push in piston(12) by hand.
After take grease out of grease valve mounting hole, let air out.

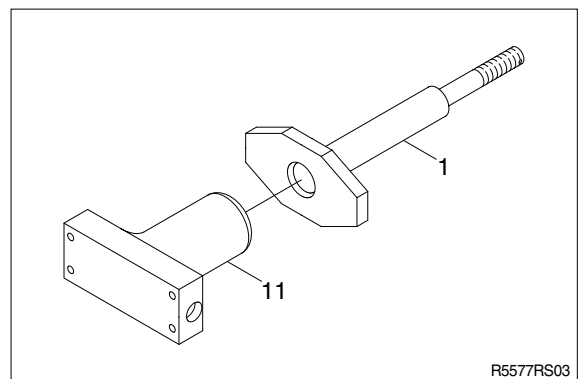
※ If air letting is not sufficient, it may be difficult to adjust the tension of crawler.

- ③ Fit grease valve(13) to bracket(11).

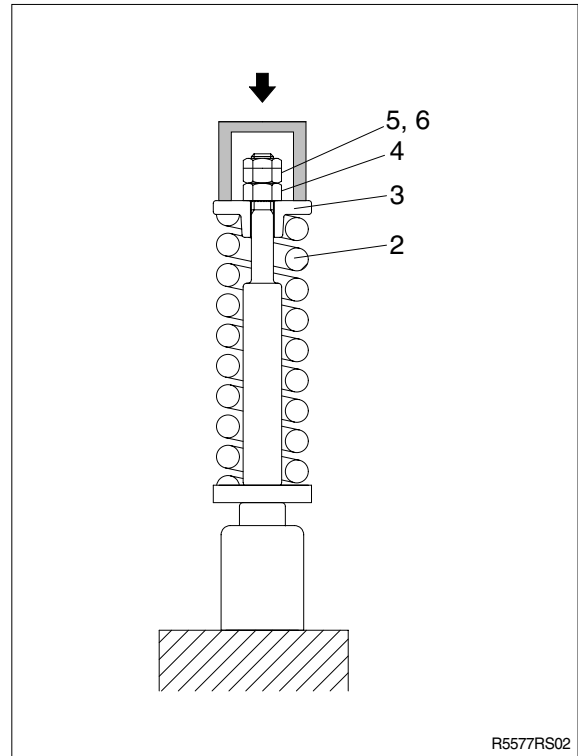
· Tightening torque : $10 \pm 0.5 \text{ kg} \cdot \text{m}$
($72.4 \pm 3.6 \text{ lb} \cdot \text{ft}$)



- ④ Install rod(1) to bracket(11).



- ⑤ Install spring(3) and bracket(4) to body (1).
- ⑥ Apply pressure to spring(3) with a press
 ※ and tighten nut(4).
 ※ Apply sealant before assembling.
 During the operation, pay attention specially to prevent the press from slipping out.
 ・ Tightening torque : $30 \pm 3 \text{ kgf} \cdot \text{m}$
 $(217 \pm 21 \text{ lbf} \cdot \text{ft})$
- ⑦ Tighten nut(5) and insert split pin(6).



- ⑧ Lighten the press load and confirm the set length of spring(2).

