

TECHNICAL INFORMATION



New Tool

Models No. ▶ HR4000C

Description ▶ 40mm Rotary Hammer

CONCEPTION AND MAIN APPLICATIONS

Model HR4000C accept SDS-max shank bit and overcomes competitors' models.

Its brief benefits are;

*Less operator's fatigue than HILTI TE55

less vibration and reaction toward hands

better feeling at drilling and hammering

More efficiency than HILTI TE55

Drilling :10% up

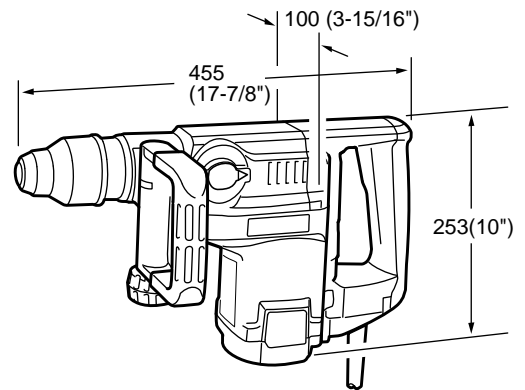
Hammering:20% up

*Electronical speed control features

·Variable speed control

·Soft start

·Steady speed



▶ SPECIFICATIONS

Voltage(V)	Current(A)	Cycle(Hz)	Continuous Rating(W)		Max.Output(W)
			Input	Output	
100	11.0	50/60	1050	330	850
120	9.6	50/60	1050	330	850
220	5.0	50/60	1050	330	850
230	4.8	50/60	1050	330	850
240	4.6	50/60	1050	330	850

No load speed	Revolutions per minute	230 ~450rpm
	Blows per minute	1250 ~2500bpm
Bit-type	SDS-max shank bit	
	Diameter of shank : 18.0 mm(11/16")	
Drilling capacities	Tungsten-carbitde tipped bit	T.C.T. bit:40mm(1-9/16")
	Core bit	105 mm(4-1/8")
Net weight		6.2Kg(13.6lbs)
Cord length		5m(16.4ft)

▶ STANDARD EQUIPMENT

Depth Gauge-----1pc.

Grease Vessel(Bit Grease)-----1pc.

Plastic Carrying Case -----1pc.

Grip 36 Ass'y-----1pc.

Side Handle Ass'y-----1pc.

▶ OPTINAL ACCESSORIES

Tungsten-carbitde tipped bit

Bit diameter : 10mm(3/8"),10.5mm(7/16"),11mm(7/16"),12mm(1/2"),12.5mm(1/2"),12.7mm(1/2"),
13.5mm(1/2"),14.3mm(9/16"),14.5mm(9/16"),16mm(5/8"),17mm(11/16"),17.5mm(11/16"),
18mm(11/16"),19mm(3/4"),20mm(13/16"),21.5mm(7/8"),22mm(7/8"),25mm(1"),
28mm(1-1/8"),32mm(1-1/4"),35mm(1-3/8"),38mm(1-1/2")

Bull Point, Cold Chisel, Tile Chisel

Scaling Chisel, Clay Spade

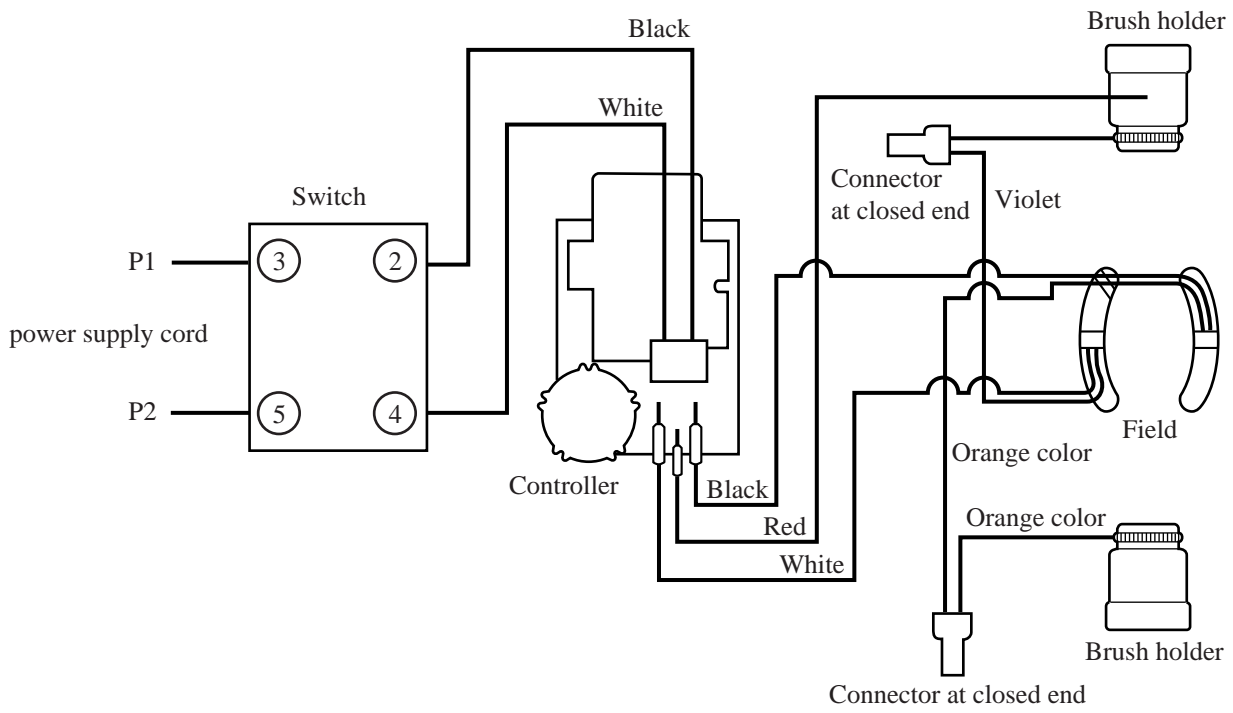
Core Bit adapter, Grase Vessel(Hammer greese)

The standard equipment for the tools shown may differ from country to country.

► Torque of fastening screw
crank cap----crank housing

60-100kgf.cm
(4.3-7.2ft.lbs)

► Circuit diagram



3)How to replace the armature

- a. Lower the chuck cover and remove the tool holder cap.(See the figure 4.)
- b. Remove the pan head screw, and then remove the crank housing cover and gear housing cover.(See the figure 4.)

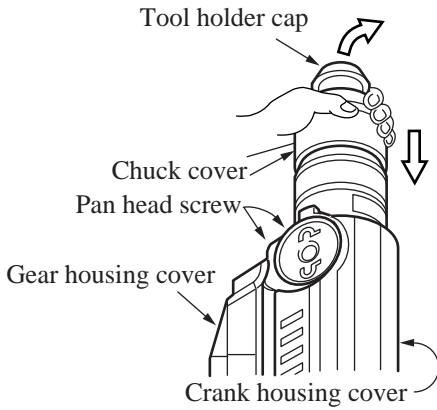


Figure 4

- c. Remove the hexagon-holed bolt and then remove the handle.(See the figure 5.)
- d. Remove the connector white and black. (See the figure 5.)

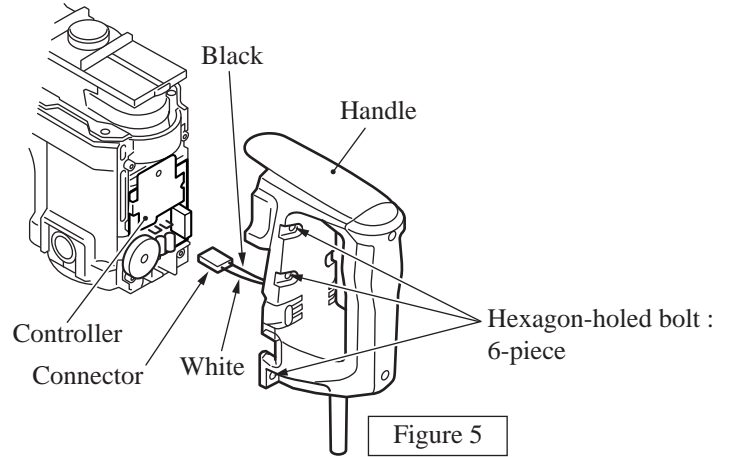


Figure 5

- e. Remove the screws for holding the fix rod, and then pull out the fix rod and the pick up coil.
Note) Pulling out the lead wire of the pick up coil without removing the fix rod may cause the short-circuit. (See the figure 7.)

- f. Pull out the 3 pieces of terminals (white, black and red).(See the figure 6.)
- g. Remove the rear cover and loosen the nut while holding the fan.(See the figure 7.)
- h. Remove the fan and disconnect the 4 pieces of hexagon-holed bolts for holding the crank housing. (See the figure 7.)
- i. Strike the rear of armature shaft to disconnect the gear housing and armature from the motor housing.

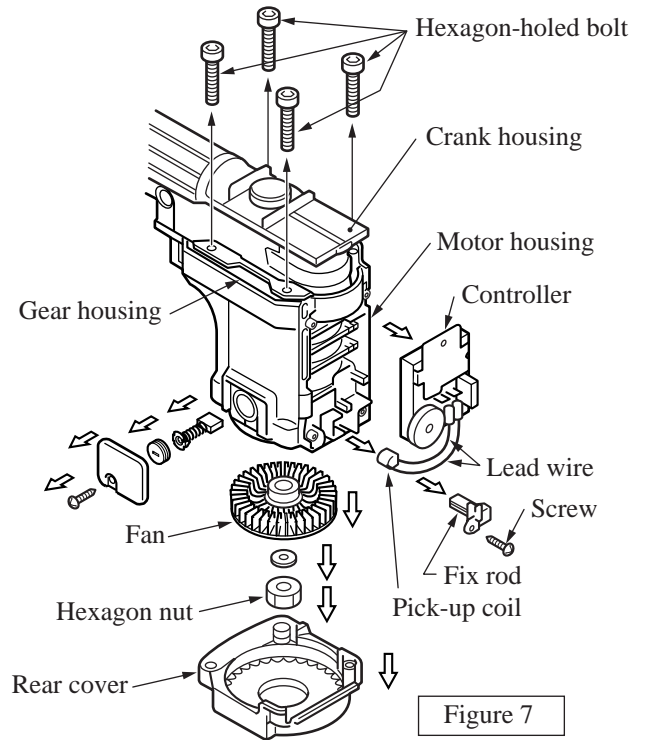


Figure 7

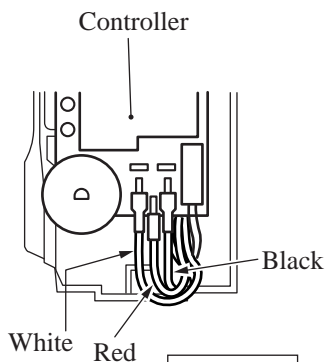


Figure 6

- j. To assemble the armature, insert it after the ball bearing 6201 and the oil seal 14 are pressed into the gear housing. (See the figure 9.)

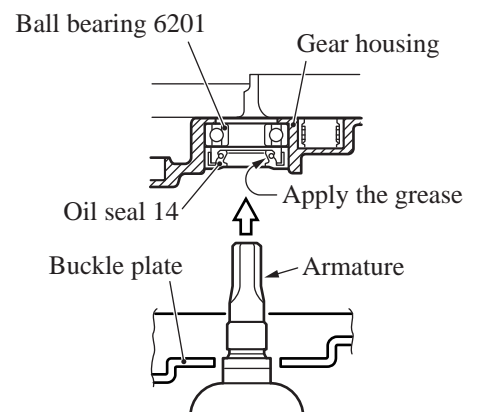
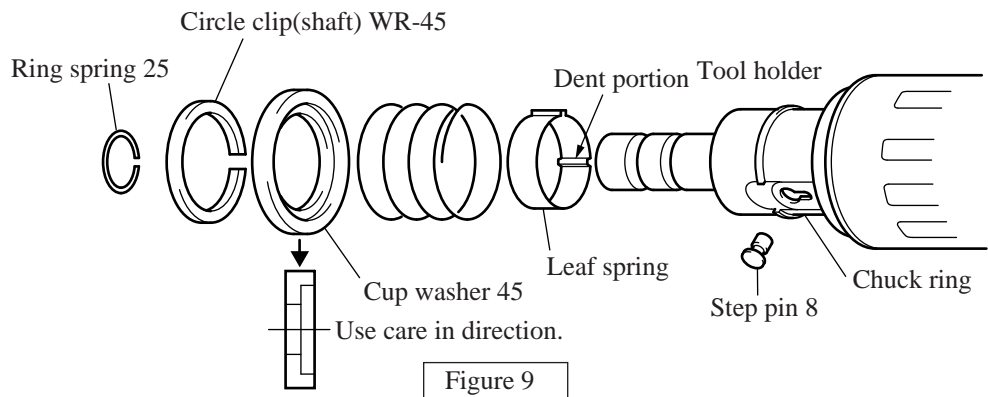


Figure 8

4)Disassembling the chuck(See the figure 9.)

- a. As mentioned in 3)-a How to replace the armature, remove the tool holder cap, the chuck cover and the crank housing cover.
- b. Remove the ring spring 25.
- c. Remove the reaf spring 25 for the step pin 8 .
- d. Remove the step pin 8 from the tool hplder and chuck ring .

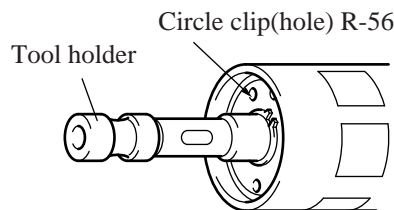
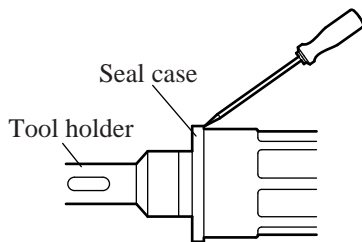


5) Assembling the chuck

Set up the leaf spring and step pin 8 cerfimly.(See the figure 9.)

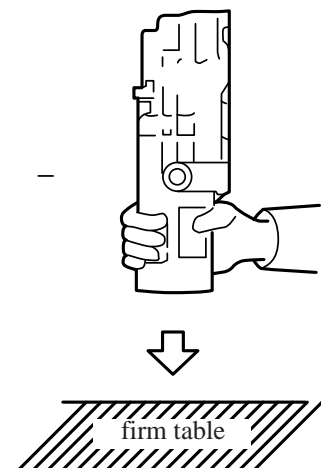
6)Disassembling the tool holder and crank housing

- a. Insert the minus driver into the dent portion on the external place of the seal case and slightly strike it to remove the seal case.(See the figure 10.)
- b. Disconnect the circle clip(hole) R-56 and then pull out the tool holder.



7)How to take out the cylinder 28.5

- a. The cylinder 28.5 is slightly pressed into the crank housing. To disconnect the cylinder 28.5, slightly hit the crank housing against the firm table several times in a straight line to disconnect it. (See the figure 12.)



8)Assembling the piston rod and crank shaft(See the figure 13.)

- a. Set the 2 pieces of O ring 30 on the cylinder 28.5, and insert them into the crank housing.
- b. Insert the piston until the rod hole is placed inside the crank room.
- c. Insert the crank shaft while approaching the crank shaft to the rod hole.

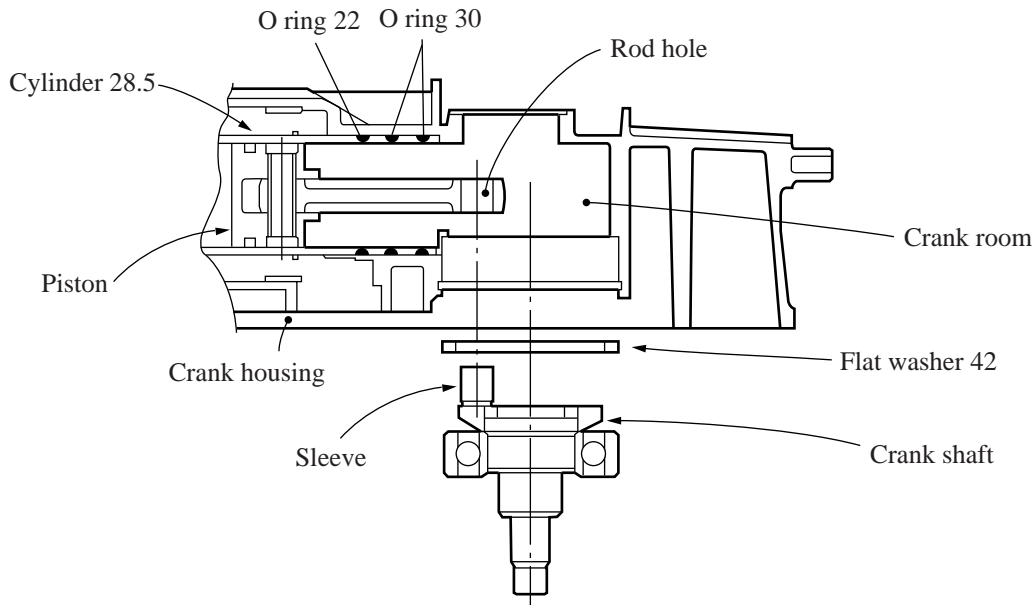


Figure 13

9)Assembling the fluorocarbon ring 25 on the impact bolt

- a. If the fluorocarbon resin ring is assembled on the impact bolt, the fluorocarbon resin ring will be extended and protruded over the groove.
- b. Keep about 10 sec. after inserting the repairing tool (Taper sleeve), and then modify it.
- c. When inserting the impact bolt into the tool holder , use care not to tear off the fluorocarbon resin ring.

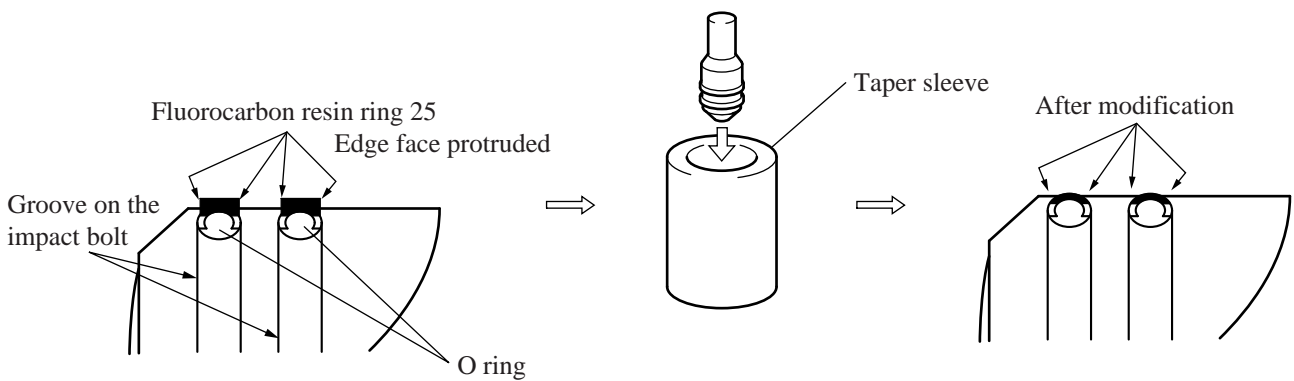


Figure 14

10) Assembling the tool holder

- a. Set the parts described below into the crank housing. (See the figure 15.)
- b. To set the straight bevel gear 33, use the tool holder for smooth setting. (See the figure 16.)

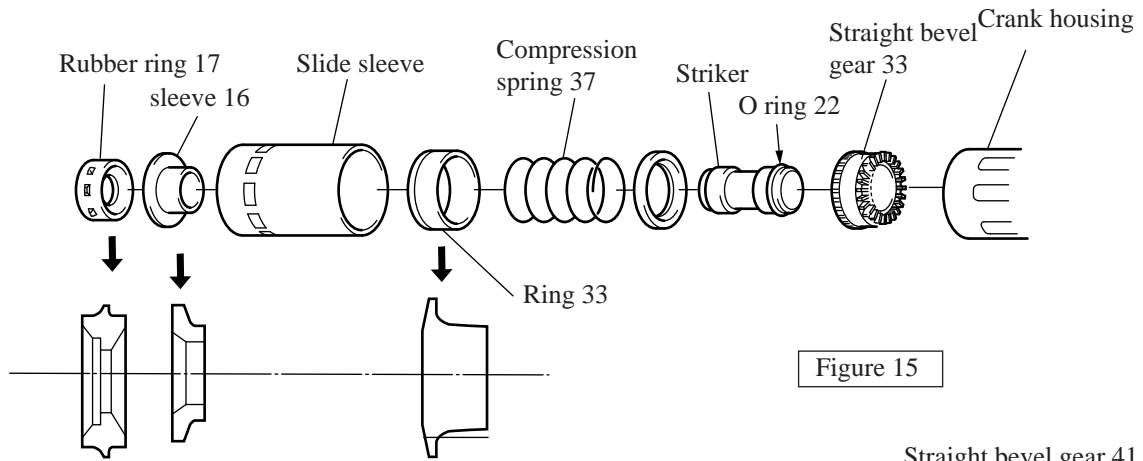


Figure 15

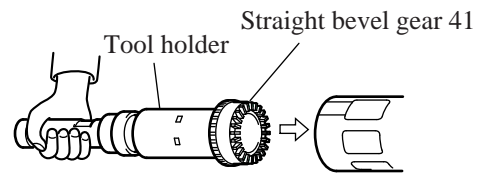


Figure 16

- c. Push the tool holder after ball bearing 6907 pushing into bearing holder. (See the figure 17.)

d. Inserting the tool holder

Assemble so that the cam at tool holder may properly engage with the cam at straight bevel gear 33. (See the figure 19.)

Turn the straight bevel gear 33 so that the 12 dent portions on the cam may be fit with 6 grooves on the crank housing. (See the figure 18.)

Fit the cam (on the lock sleeve B) to the cam (on the tool holder). (See the figure 19.)

Fit the plain portion of the lock sleeve A to the mounting side of the change lever, fit the 6 protruded portions on lock sleeve B to the 6 grooves on the crank housing, and then insert the tool holder into the crank housing. (See the figure 18, 19.)

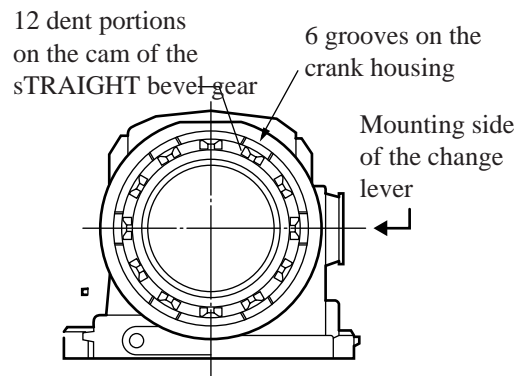


Figure 18

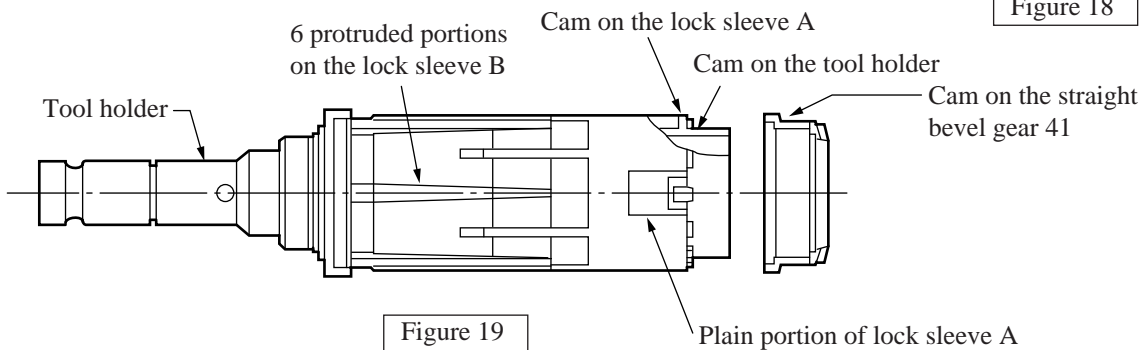


Figure 19

11)Assembling the torque limiter

- a. Assemble the ball bearing 1207, flat washer 12(Outer dia. 24 mm) and torque limiter complete into the spiral bevel gear 10. (See the figure 20.)

Note) Use care not to miss the pin 4 for preventing the round nut from turning.

- b. Insert the flat washer 12(Outer dia. 24 mm) and the circle clip(shaft) S-12 while setting the two pieces of change keys into the key groove of the straight bevel gear 12, and then insert the flat washer 12(Outer dia. 28 mm) into the groove of the change key.(See the figure 20.)

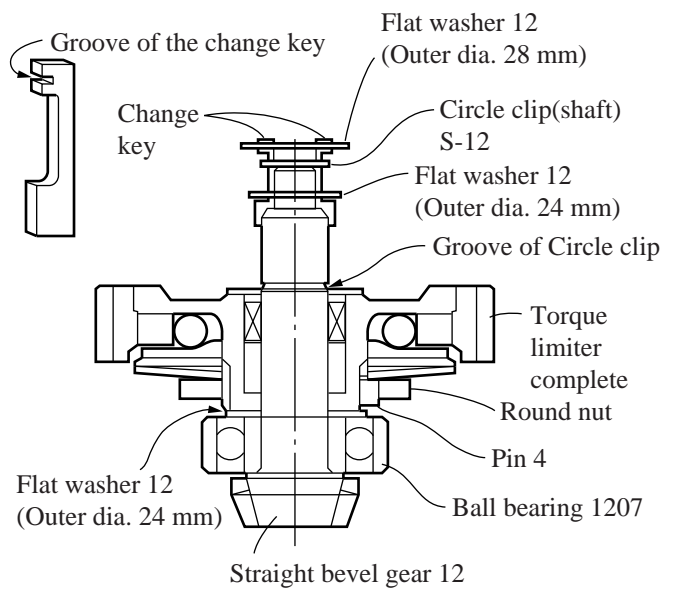


Figure 20

- c. Slide downward the two pieces of change keys and then insert the circle clip(shaft) S-12 into the groove of the circle clip. (See the figures 20 and 21.) Make sure that the circle clip has been securely inserted in the groove.

Note) Use care not to over-widen the circle clip(shaft) S-12.

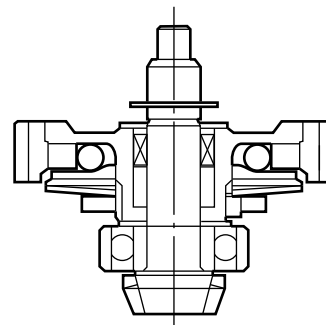


Figure 21

- d. Assemble the slide plate, compression spring 3 and guide pin 2 into the change link.(See the figure 22.)
- e. Insert the flat washer 12(Outer dia. 28 mm) into the groove of the change link and then assemble them on the ball bearing 608.(See the figure 22.)

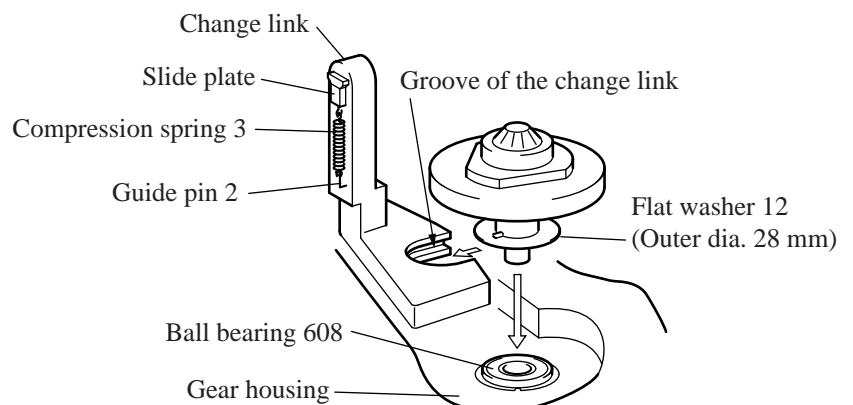
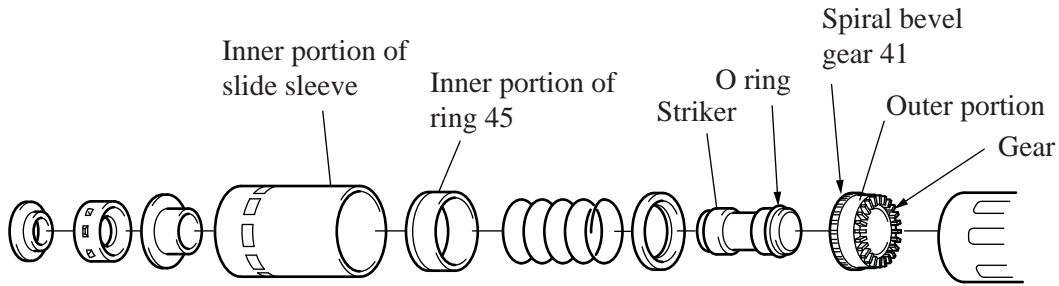


Figure 22

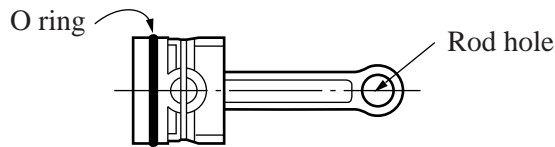
15)Applying positions for grease

To prevent abrasion and overheating at earlier stage, please apply the MAKITA grease R No.00 at the positions shown below.

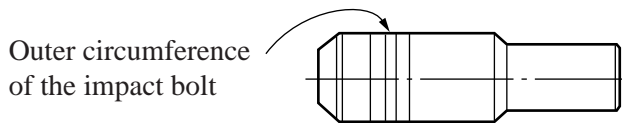
- a. O ring of striker
- b. Inner portion of ring 45
- c. Inner portion of slide sleeve
- d. Outer portion and gear of spiral bevel gear



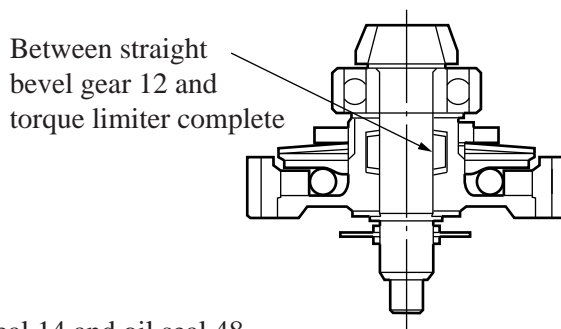
- e. O ring of piston and rod hole



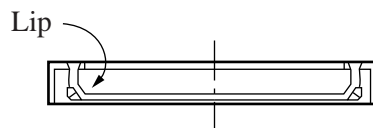
- f. Outer circumference of the impact bolt



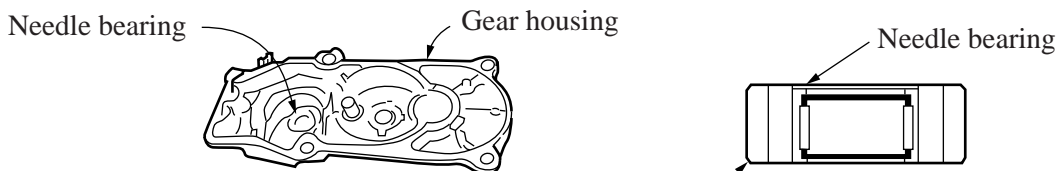
- g. Between the spiral bevel gear 12 and the torque limiter complete



- h. Lip at Oil seal 14 and oil seal 48



- i. Needle bearing(Gear housing, Helical gear 20 complete)



- j. Each gear teeth