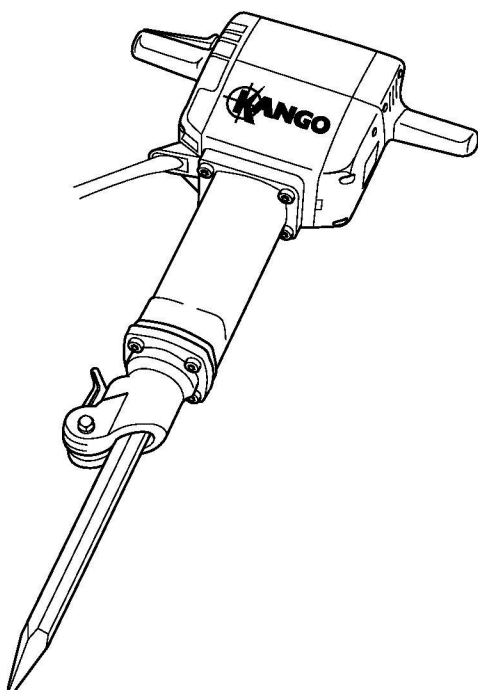
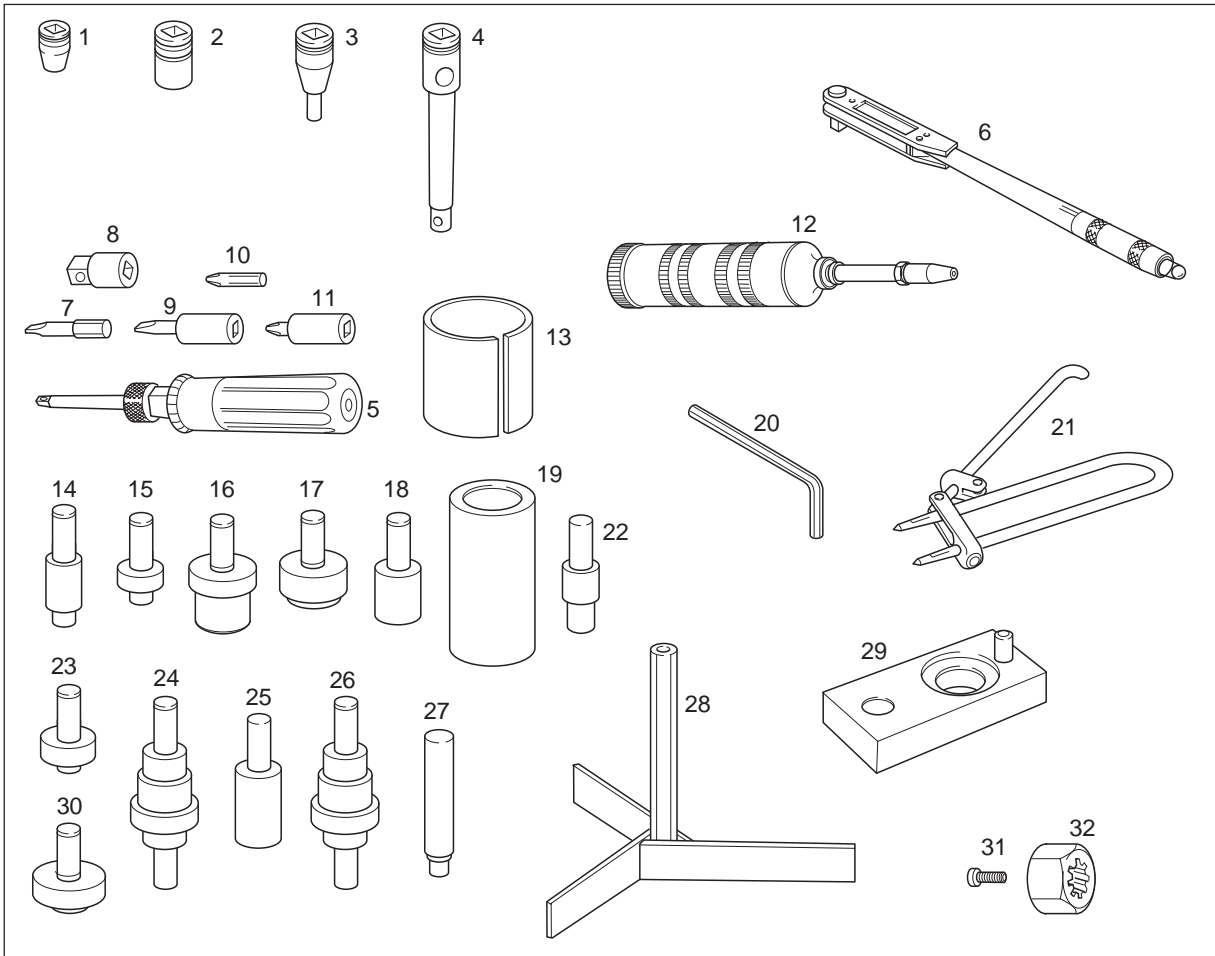


**Service and
Repair Manual**



2500

Опубликовано на сайте www.rem-5.ru



ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	9170 0739 60	10mm HEX. SOCKET, 3/8" SQ. DRIVE.	16	9170 0737 10	ASSEMBLY CRANKSHAFT NEEDLE BEARING
2	9170 0731 90	7/8" BSF HEX. SOCKET	17	9170 0230 30	ASSEMBLY ARMATURE SEAL ASSY
	9170 0735 50	24mm HEX. SOCK ET, 1/2" SQ. DRIVE.	18	9170 0738 00	ASSEMBLY CRANKSHAFT INNER BEARING
	9170 0738 90	17mm HEX. SOCKET, 1/2" SQ. DRIVE.	19	9170 0738 10	ASSEMBLY PRESS TOOL(C/SHAFT SUPPORT)
3	9170 0739 40	IN-HEX BIT, 6mm AF, 1/2" SQ. DRIVE	20	9170 0733 30	STANDARD ALLEN KEY, 6mm AF
	9170 0739 50	IN-HEX BIT, 10mm AF, 1/2" SQ. DRIVE		9170 0733 40	STANDARD ALLEN KEY, 10mm AF
4	9170 0230 60	EXTENSION BAR, 10" LONG, 1/2" SQ. DRIVE		9170 0733 50	STANDARD ALLEN KEY, 5mm AF
	9170 0732 50	EXTENSION BAR, 5" LONG, 1/2" SQ. DRIVE	21	9170 0236 90	CIRCLIP PLIERS
5	9170 0732 80	TORQUE WRENCH 1/4" DRIVE	22	9170 0738 20	ASSEMBLY C/SHAFT BEARING INNER RING
6	9170 0235 50	TORQUE WRENCH 25-135Nm (1/2" SQ. DRIVE)	23	9170 0736 70	ASSEMBLY BEARING HOLDER BEARING
7	9170 0732 30	SCREWDRIVER BIT	24	9170 0738 30	ASSEMBLY/DISMANTLING CONNECTING ROD
8	9170 0734 70	CONVERTER, 1/4" SQ. SKT. TO 3/8" SQ. PLUG	25	9170 0738 40	ASSEMBLY PRESS TOOL (LAYSHAFT)
9	9170 0732 40	SCREWDRIVER BIT ASSEMBLY	26	9170 0738 50	MANDREL
10	9170 0737 70	POZIDRIVE NO.2 REPLACEMENT BIT	27	9170 0737 00	ASSEMBLY/DISMANTLING TENSION ROD
11	9170 0737 80	POZIDRIVE NO.3 REPLACEMENT BIT	28	9170 0734 40	SERVICE STAND (FOR 32mm AF NOSEPIECE)
11	9170 0732 90	SCREWDRIVER BIT POZIDRIVE NO.2		9170 0739 10	SERVICE STAND (FOR 28mm AF NOSEPIECE)
11	9170 0732 00	SCREWDRIVER BIT POZIDRIVE NO.3	29	9170 0738 60	ASSEMBLY/DISMANTLING (LAYSHAFT)
12	9170 0236 80	GREASE GUN	30	9170 0736 80	ASSEMBLY C/SHAFT LARGE BEARING
13	9170 0731 30	SPLIT SLEEVE (ARMATURE)	31	9170 0197 60	M4 X 16mm POZI-PAN SCREW (PK20)
14	9170 3329 90	DISMANTLING LAYSHAFT BEARINGS	32	9170 0739 00	PINION NUT
15	9170 3329 80	ASSEMBLY LAYSHAFT BEARINGS			

TORQUE SETTINGS

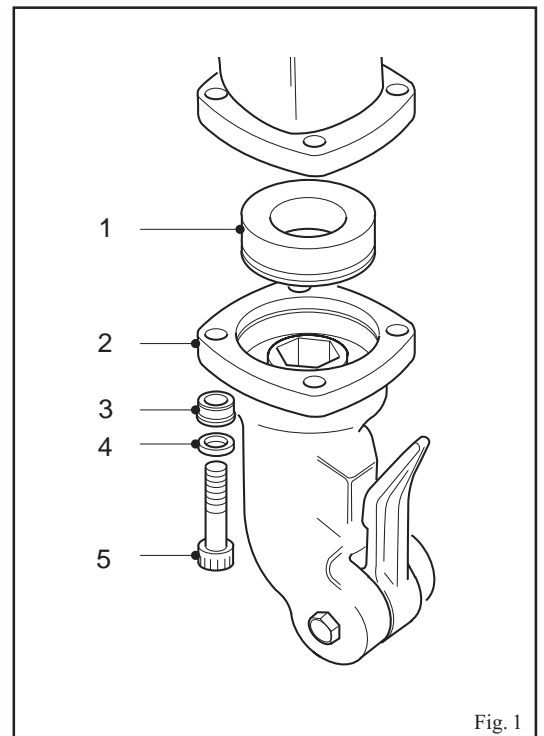
ITEM NO.	PART NO.	Nm	lb.ft	ITEM NO.	PART NO.	Nm	lb.ft
101	9170 0510 60	40	30	309	9170 0510 50	35	25
105	9170 0510 70	4.5	3.5	324	9170 0697 10	70	50
110	9170 0510 50	25	20	327	9170 0510 60	25	20
113	9170 0691 70	3	2.25	401	9170 0503 70	40	30
121	9170 1975 00	1.25	1.0	414	9170 0511 00	130	100
124	9170 2797 50	1.25	1.0	510	9170 3207 50	130	100
205	9170 0198 70	1.25	1.0				
212	9170 6908 00	3	2.25				
214	9170 0519 20	1.75	1.25				
216	9170 0502 40	40	30				
218	9170 3305 60	6.0	4.5				
219	9170 0511 70	40	30				

Important! Before carrying out any repairs the hammer should be checked for electrical safety and for mechanical performance. For electrical safety the hammer should be placed on a non-conductive surface which is either of a wooden construction (with the mains supply disconnected) which contains no metal parts or a bench which is insulated by a rubber mat. The hammer should then be checked by high voltage flash testing. On completion of dismantling procedure all electrical components should then be checked for electrical safety. The hammer should **ONLY** be checked for hammer performance if the unit passes the electrical safety test.

DISMANTLING

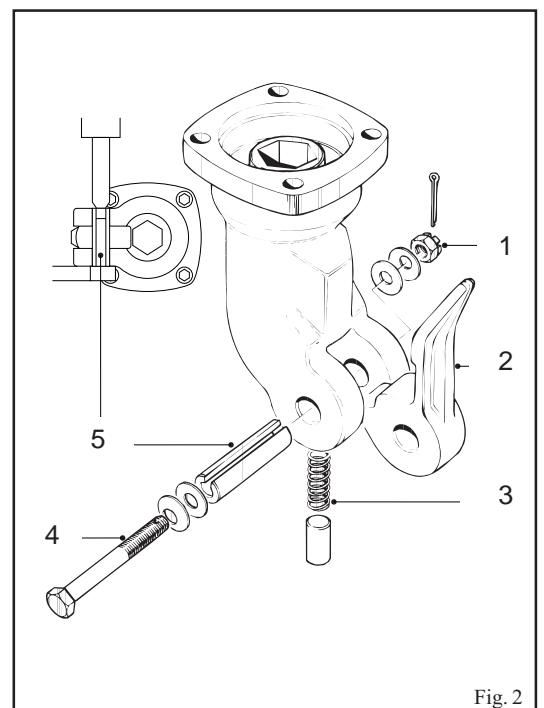
Removing the nosepiece

1. Remove the four cap screws (5) washers (4) and cups (3). Lift off nosepiece (2).
2. Remove buffer (1) it may be necessary to lever the buffer with a screwdriver to aid removal.



Dismantling the nosepiece

1. Remove the split pin and remove the castellated nut (1) remove the dished and flat washer.
2. Remove bolt (4) together with the dished and flat washer.
3. Press out the tension pin (5), see service tool list.
4. Remove the latch (2) plunger and spring (3).



Dismantling the barrel 1. Remove the buffer housing (2) from the barrel and push out the anvil (4).

2. Remove the recoil buffer (3) with a screwdriver.
3. With a screwdriver remove the anvil seal (5).
4. Remove the capscrews (7) and retaining rings and lift off the barrel (1).
5. Pull the striker (8) off the piston (6).

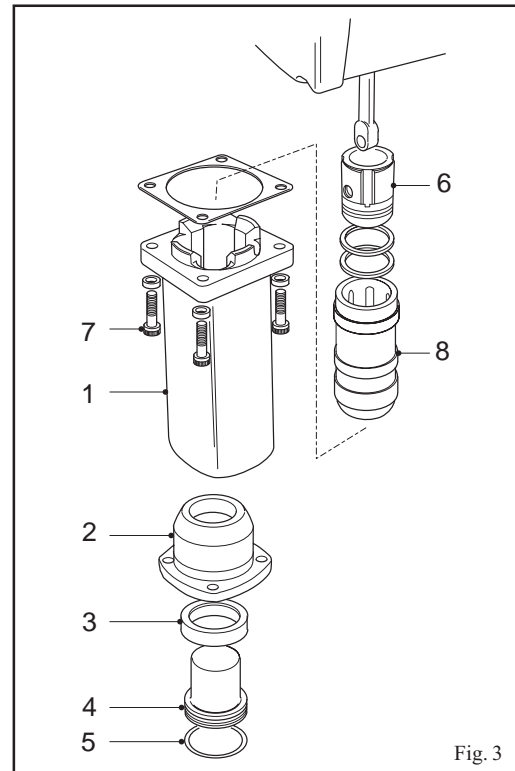


Fig. 3

Removing the piston 1. Remove the O-rings (1) from piston (3) and push out the gudgeon pin (2).

2. With a screwdriver remove the piston seals (4).

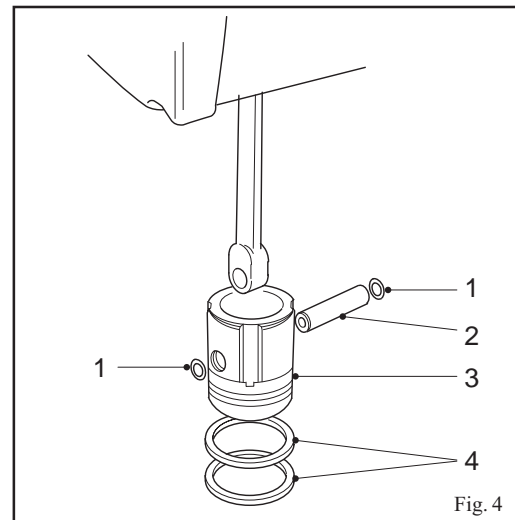


Fig. 4

Removing the handles and top cover 1. Remove the four cap screws (6) from the handle (1) and remove the handle.

2. Remove the six capscrews (7) from the gear case (4) and remove the cover.
3. Remove the four capscrews (8) from the switch cover (5) and remove the cover.
4. Remove the four capscrews (9) from the switch handle (3) and remove the switch handle (the springs on the switch actuator will need to be disconnected).
5. Remove the four pozi-screws (10) from the top cover (2) and remove the top cover.

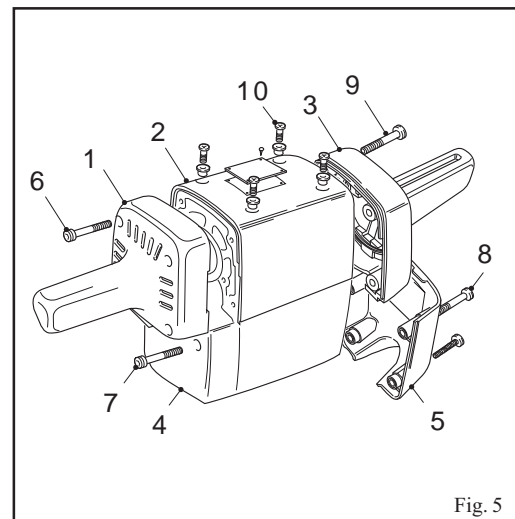


Fig. 5

- Removing the switch**
1. Remove the four pozi-screws from the switch cover (7) and remove the cover.
 2. Remove the switch seal (6) from the switch.
 3. Pull the switch (5) from its location. Disconnect the two motor leads and the two power leads. Remove the two pozi-screws from the cord grip and remove the power lead.
 4. Remove the switch sleeve (8), switch box (4) and remove the O-ring seal.

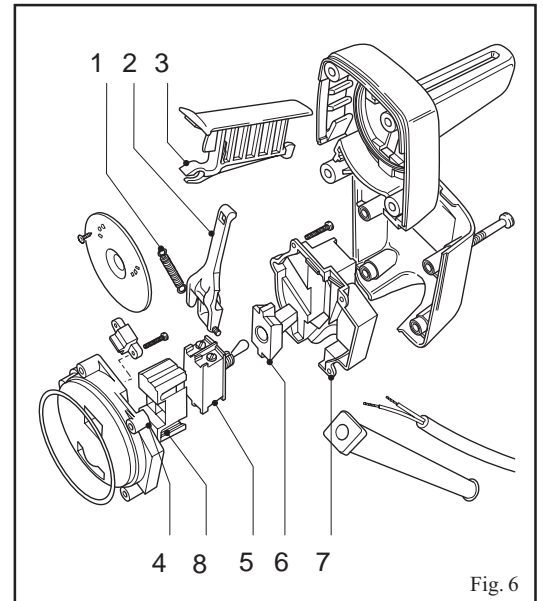


Fig. 6

- Removing the brushes**
1. Remove the slot head screw (4) and brush cover (3).
 2. Remove the pozi-screw (2) and dished washer (5) from the brush holder gently pull out the brush (1).
 3. Repeat the procedure for the brush on the opposite side.

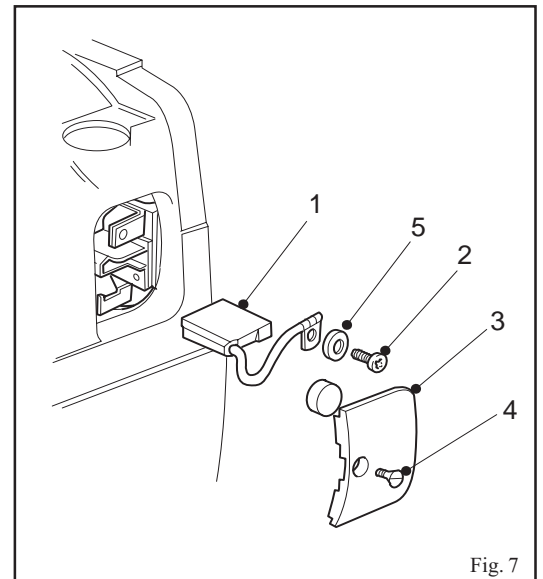


Fig. 7

Dismantling the gear assembly

1. Pull off the layshaft gear (1), remove the thrust bearing assembly (3) and thrust washer (14).
2. Press out the needle roller bearings (2) from the layshaft gear. (see service tool list).
3. Secure crankshaft (10) to prevent rotation, remove the lock nut (5) disc spring washer (6) and lever off the crankshaft gear (7) from square key (9), remove square key (9).
4. Remove the three capscrews (11) from the crankshaft housing (8) and lever the housing off the crankshaft, (it may be necessary to gently tap the threaded portion of the crankshaft with a nylon hammer to loosen the assembly). Remove crankshaft (10) and connecting rod assembly from main casting.
5. Remove three capscrews (12) and remove the layshaft carrier (4).

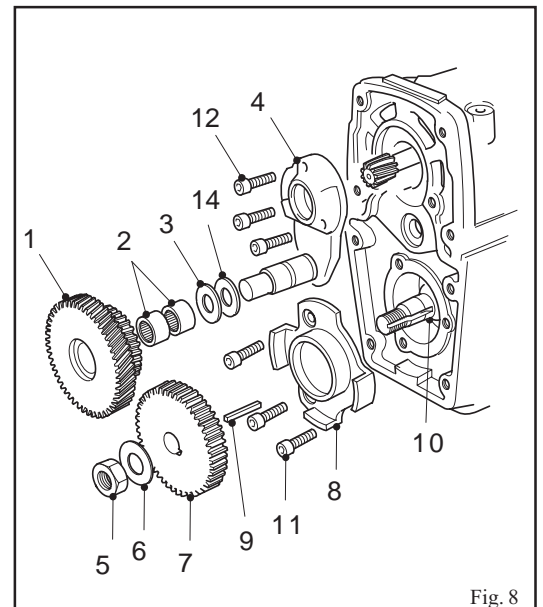
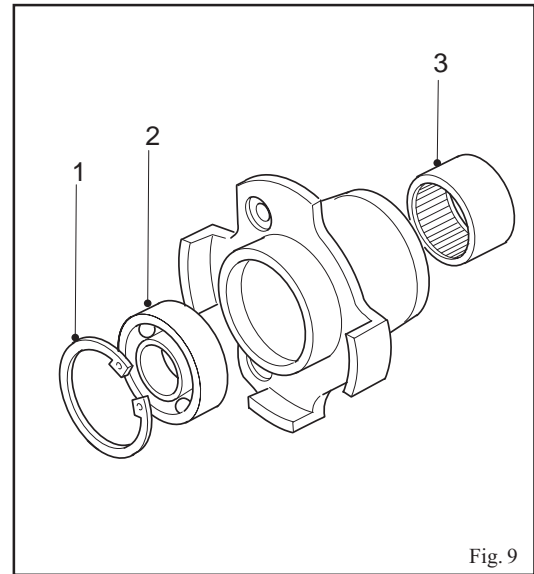


Fig. 8

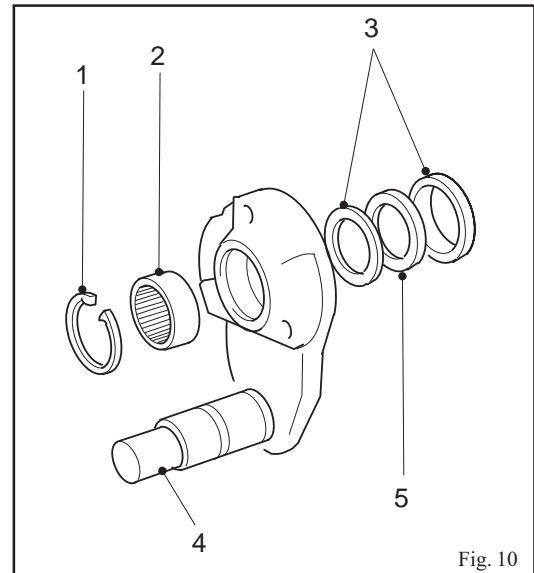
Removing the bearings from the crankshaft

1. Remove the circlip (1) from the crankshaft housing and press out the bearing (2), see service tool list.
2. Turn housing over and press out needle roller bearing (3), see service tool list.



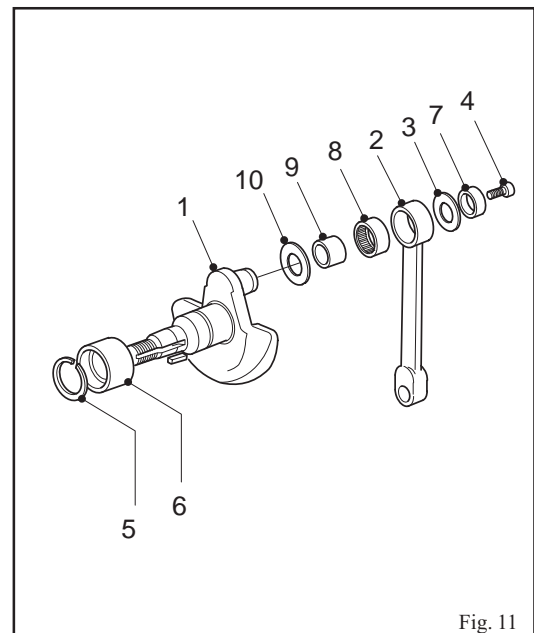
Dismantling the layshaft carrier

1. Lever out the seal assembly (3) and seal (5) with a screwdriver.
2. Remove the circlip (1).
3. Press out the needle roller bearing (2), see service tool list.



Dismantling the crankshaft

1. Clamp the crankshaft (1) in a vice with the big end journal uppermost, unscrew the capscrew (4), remove the bearing retainer (7) and thrust washer (3), slide off the connecting rod (2), press out the big end needle roller bearing (8) from the connecting rod, remove the big end journal inner bearing (9), (this may be done by carefully grinding a flat across the bearing surface to weaken it, and is only necessary if signs of wear are seen), and remove second thrust washer (10).
2. Remove the circlip (5) and with a pin punch through the two holes provided drive off the needle roller bearing inner (6).



- Removing the armature**
1. Remove the three screws (1) and washers (2) from the bearing holder (4).
 2. Remove the armature (3) and bearing holder assembly from the motor housing.
 3. Remove the spring anchor (5) and springs (6).

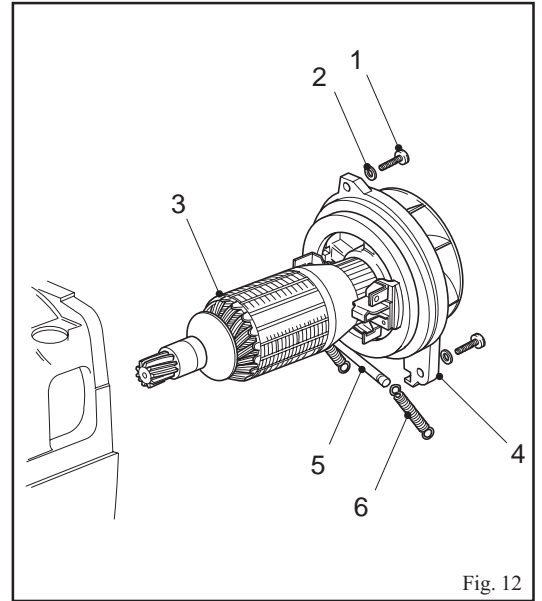


Fig. 12

- Dismantling the armature**
1. Unscrew the fan locking nut (1), flat washer (7) and remove the fan (6), and spacer washer (8).
 2. Pull the bearing housing (3) off the armature (9), remove brush spring (10).
 3. Remove the circlip (5) from bearing housing (3) and press out the bearing (4).
 4. Hold the armature firmly in the jaws of a vice, precautions should be taken not to damage the core of the armature, with the service tool, remove the pinion (2) and spacer (11), see service tool list. The service tool is held in position with a screw provided. (Unscrew the pinion anti-clockwise).

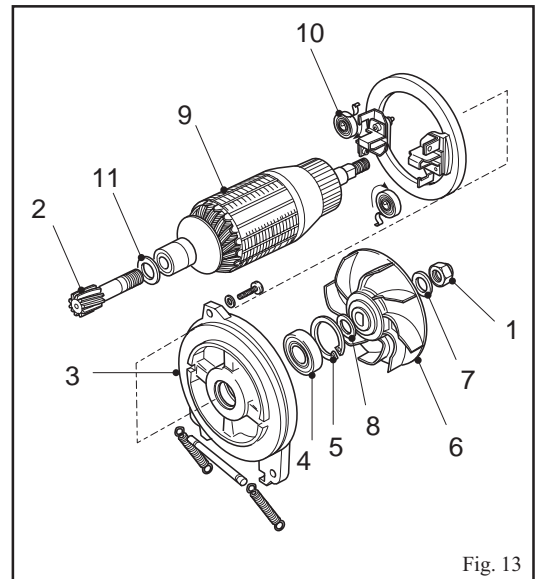


Fig. 13

- Removing the field assembly**
1. Pull the field assembly (1) and brush holder housing (2) from the top housing, (if the assembly is tight holding and knocking the top housing lightly on a firm surface will assist in its removal).
 2. Release screws (3) from the retaining lock nuts (4) to separate field coil (1) from the brush holder housing (2).

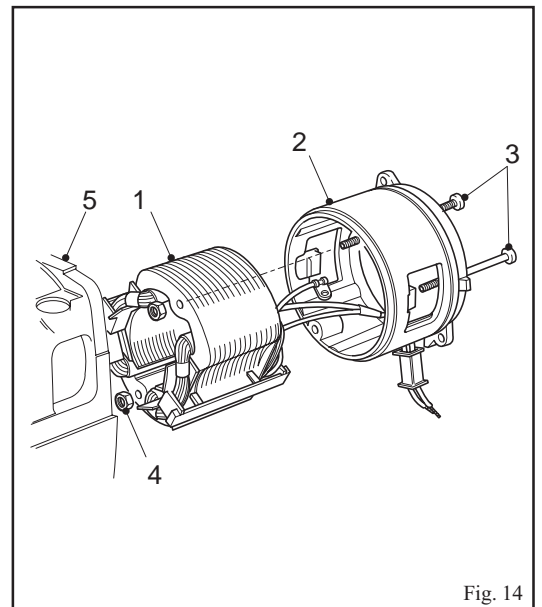


Fig. 14

General

Hammers must be serviced at regular intervals, any indication that the equipment is not functioning as specified, should be investigated to prevent any adverse damage occurring.

ALL SEALS, GASKETS, GREASE OR OTHER PARTS DEEMED NECESSARY FOR MAINTENANCE ARE IN THE SERVICE KIT.

ALL NEEDLE ROLLER BEARINGS SHOULD BE PRESSED WITH THE ROUNDED EDGE ENTERING THE BORE FIRST, AND THE INSERTION TOOL PRESSING AGAINST THE FLAT SURFACE OF THE BEARING.

Cleaning

All mechanical parts with the exception of any sealed bearings should be cleaned in a suitable cleaning fluid. Electrical parts should be cleaned by the use of compressed air.

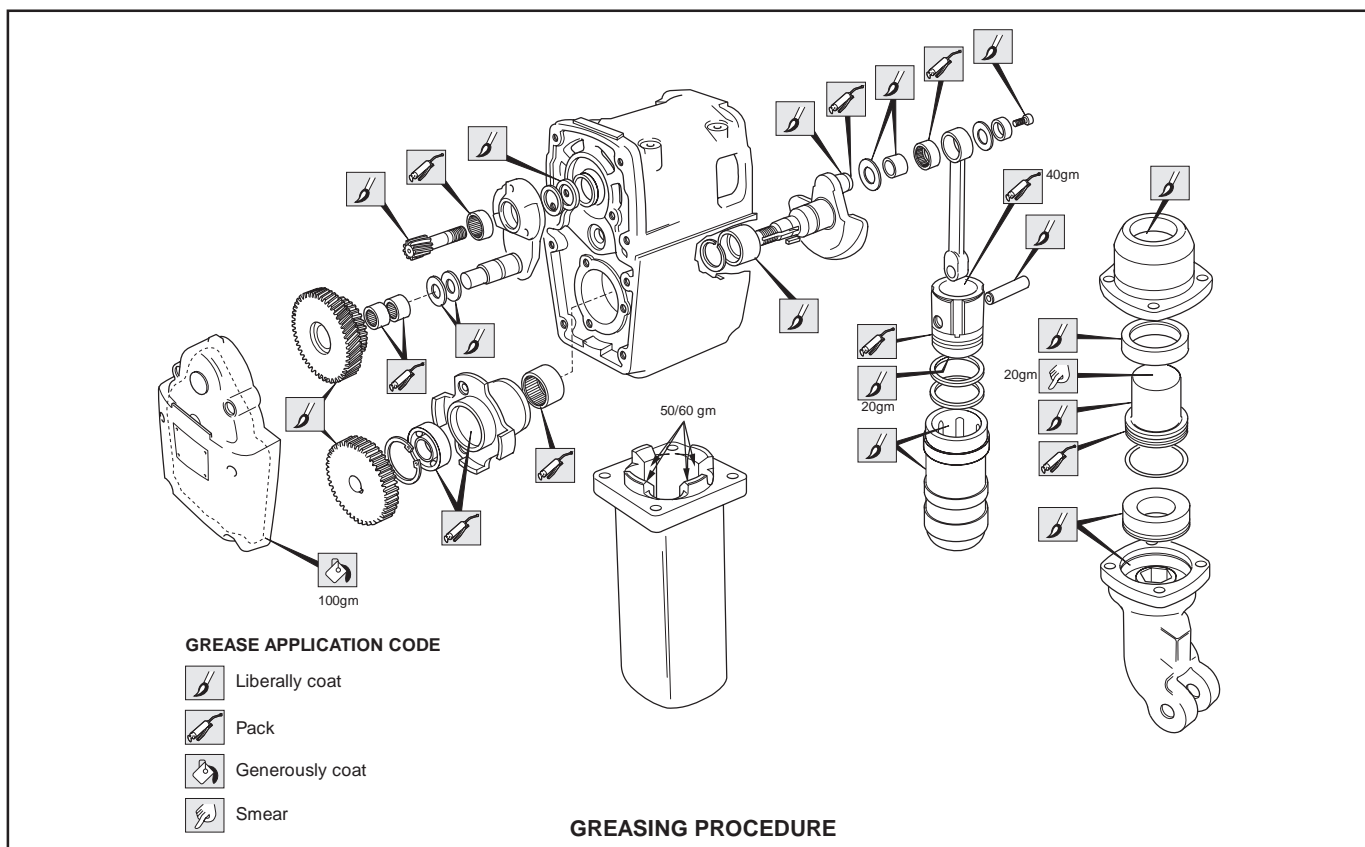
PRECAUTIONS MUST BE TAKEN FOR PERSONAL SAFETY THE USE OF EYE PROTECTION AND GLOVES IS RECOMMENDED.

Inspection

All mechanical and electrical parts should be inspected for wear and replaced as required.

Lubrication

At service and repair intervals the lubrication should be carried out as shown in the diagram below. All parts in the service kit should be fitted. The total amount of grease for the 2500 is 320 grms. Lubrication of the hammer is as shown below on the grease chart.



ALL SCREWS SHOULD BE REFITTED WITH LOCTITE® 222 OR SIMILAR

ELECTRICAL TESTING

Electrical test Before assembly all electrical parts **MUST** be checked for safety, and that they conform to specification.

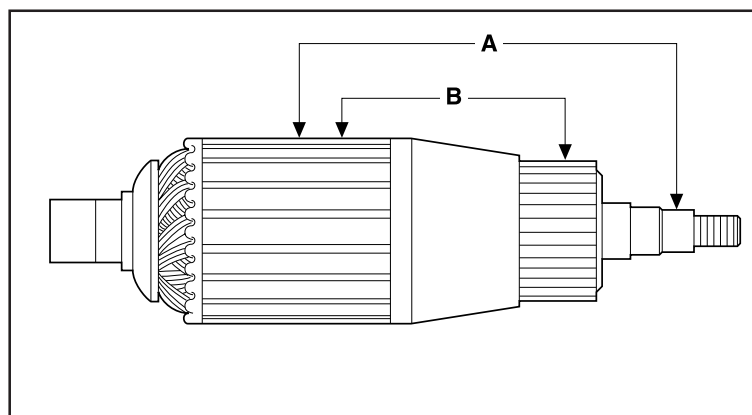
Testing the Armature

Supplementary Insulation

Apply 1250 volts rising to 2500 volts between laminations and spindle (A). See diagram.

Basic Insulation

Apply 750 volts rising to 1500 volts between commutator segments and laminations (B). See diagram.



ELECTRICAL PERFORMANCE TEST READINGS

ARMATURES				
MODEL	110V	120V	220V	240V
2500V	0.156Ω	0.156Ω	0.482Ω	0.482Ω
FIELD COILS				
	110V	120V	220V	240V
2500V	0.121Ω	0.121Ω	0.429Ω	0.499Ω
PERFORMANCE				
	110V	120V	220V	240V
2500V	17 amps	16 amps	10 amps	9 amps

ASSEMBLY

Assembling the field

1. Fit field coil (1) and brush holder housing (2) together and secure with capscrews (3) and lock nuts (5).
2. Refit the field assembly (1 & 2) into the top housing (4).

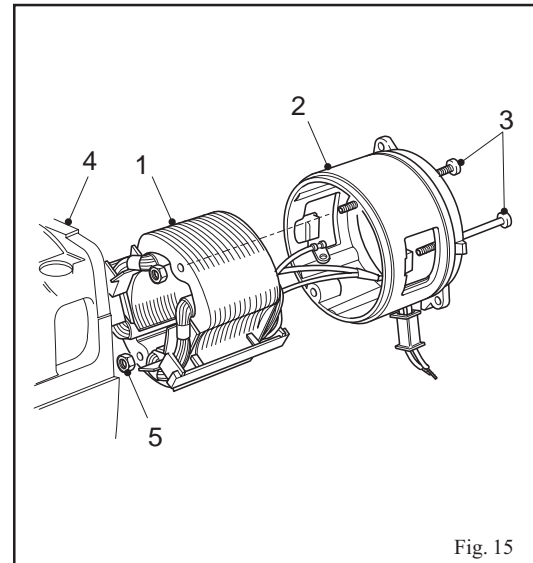


Fig. 15

Assembling the armature

1. With service tool (see service tool list) refit the pinion (2) with pinion spacer (7) (tighten clockwise to specified torque and remove service tool).
2. Press bearing (4) into bearing holder (3) and refit circlip (5), fit brush springs (11) to brush holder (12).
3. Fit spacer washer (8), fan (6), flat washer (9) and lock nut (10) and tighten to recommended torque.

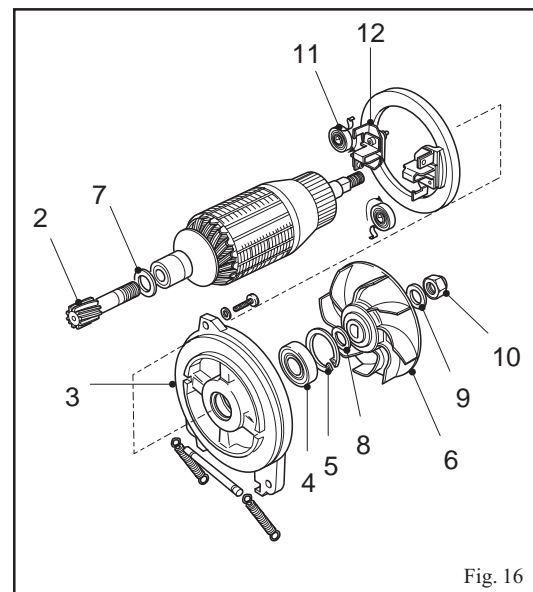


Fig. 16

Refitting the armature assembly

1. Fit spring anchor (4) and springs (2) into the bearing housing (3) insert the armature assembly into the top housing (5) and secure with three screws (6) and washers (7), **tighten to 6.0 Nm.**

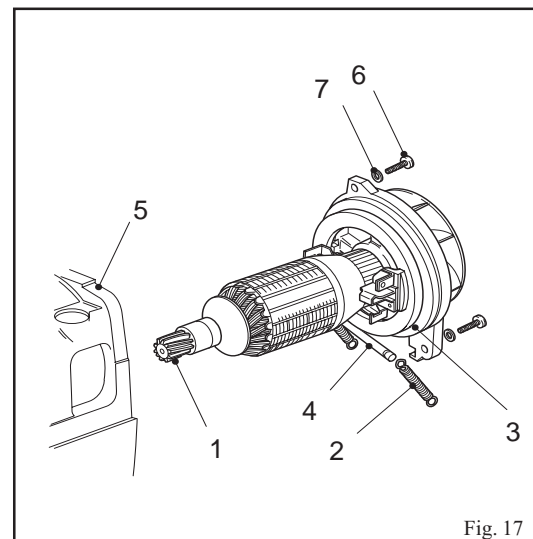


Fig. 17

Assembling the crankshaft housing

1. Press the needle roller bearing (3) into the crankshaft housing (4).
2. Turn over the crankshaft housing, and press in the roller bearing (2).
3. Refit the circlip (1).

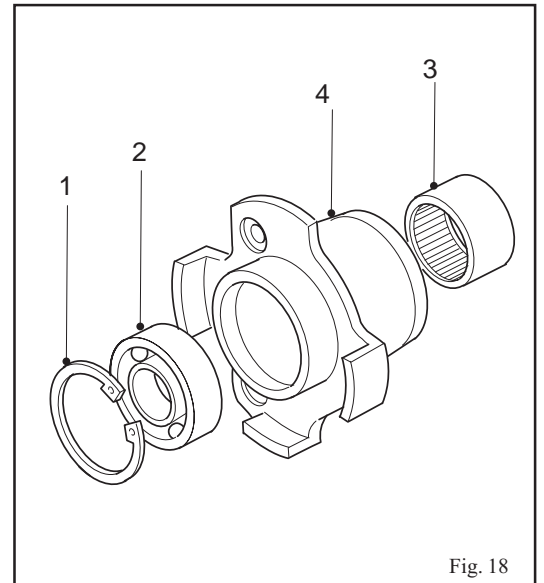


Fig. 18

Assembling the crankshaft

1. Press needle bearing inner (6) on to the crankshaft (1) and fit circlip (5).
2. Press big end needle roller bearing (7) into the connecting rod (2), refit the thrust washer (8) to the crankshaft, press the bearing inner ring (9) onto the crankshaft (1), fit the connecting rod assembly to the crankshaft, refit the thrust washer (3), bearing retainer (10) and cap screw (4) and tighten to the specific torque.
3. Insert the crankshaft assembly into the top housing through the barrel aperture.

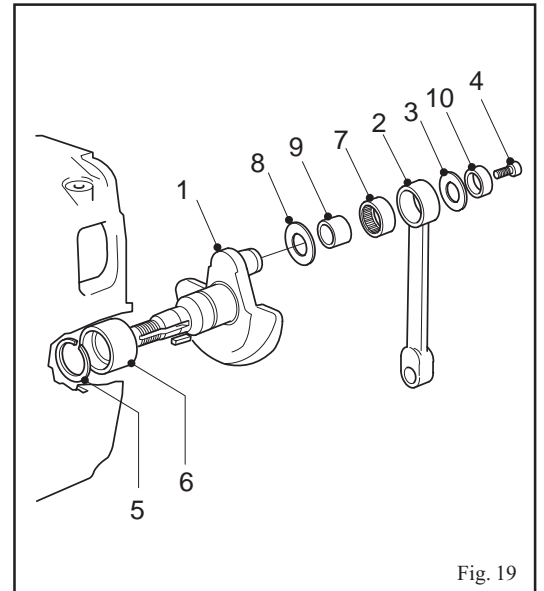


Fig. 19

Assembling the layshaft housing

1. Press the needle roller bearing (2) into the layshaft housing assembly.
2. Refit the circlip (1).
3. Refit the seal (5) and seal assembly (3).

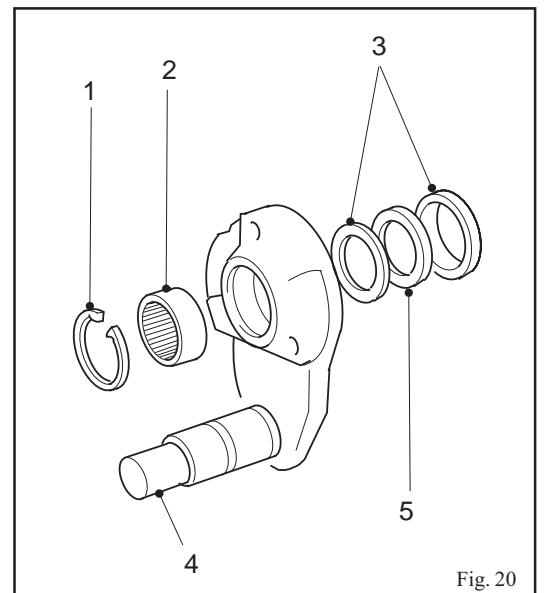


Fig. 20

Assembling the gearbox

1. Refit the layshaft housing assembly (4) and secure with three capscrews (11). (**Torque to 35 Nm**).
2. Refit the crankshaft housing (8) feeding the crankshaft (10) through the bearings in the crankshaft housing (it may be necessary to lightly tap the crank into its final position after securing the crankshaft housing) and secure with three capscrews (12). (**Torque to 35 Nm**).
3. Fit the square key (9) to the slot in the crankshaft (10).
4. Fit the crankshaft gear (7) onto the crankshaft ensuring that the key stays in its slot.
5. Fit the dish spring washer (6), lock nut (5), the dish spring washer is fitted with the outer edge of the washer touching the gear and the centre of the dish making contact with the lock nut, and **tighten the lock nut to 70 Nm**.
6. Press needle roller bearings (2) into the layshaft gear (1) (when pressing in the bearings these should be fitted from both sides and not pressed from one side).
7. Fit the thrust washer (14) and thrust bearing (3) over the layshaft (13). Slide layshaft gear (1) onto layshaft (13).

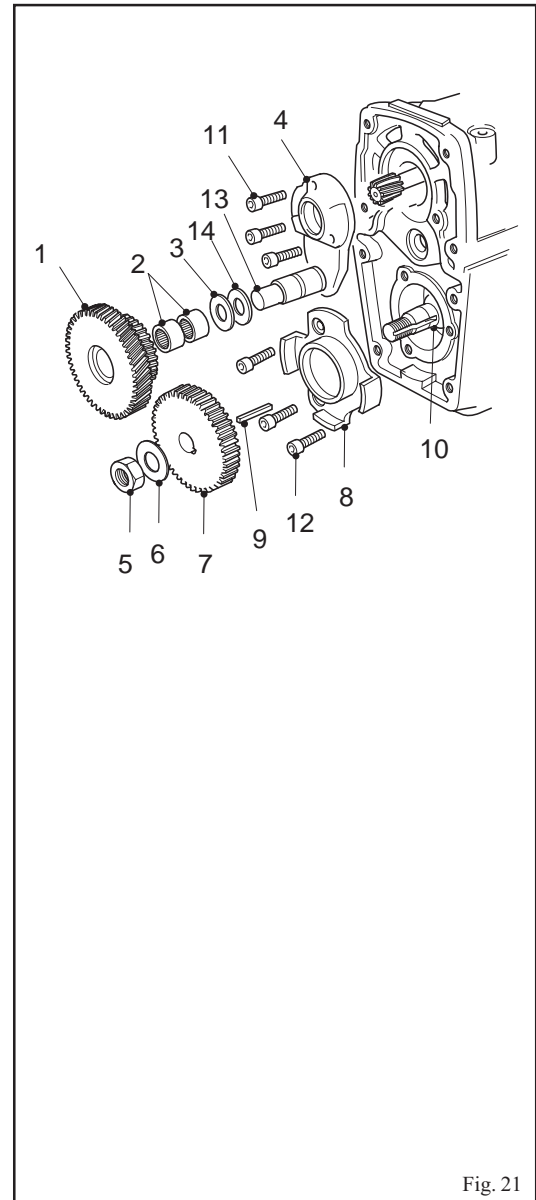


Fig. 21

Fitting the carbon brushes

1. With pliers or suitable hook pull back the brush spring (2) insert the carbon brush (3) (ensure that the angle on the brush matches the spring to maintain even pressure) release the spring to make contact with the brush.
2. Fit the brush screw (4) and washer (5) and **torque to (3Nm)**.
3. Fit the brush cover (1) and secure with the screw (6).
4. Repeat operation on opposite brush assembly.

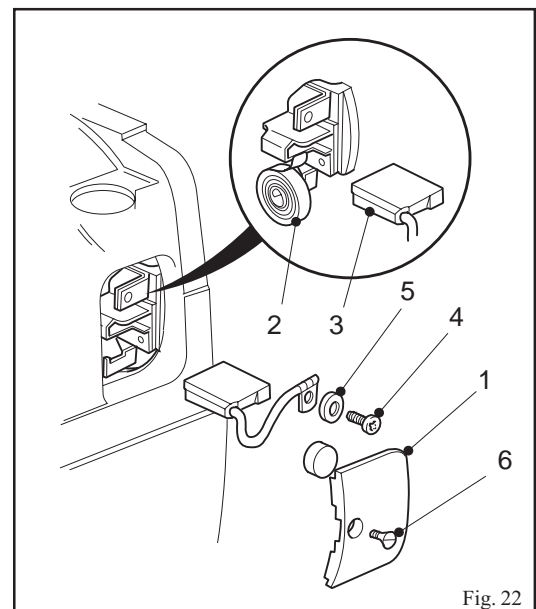


Fig. 22

Assembling the switch

1. Locate the switch box (4) with the O-ring fitted into the top housing aperture, fit the power leads (10) to one end of the switch (5) and the field leads (9) to the opposite end of the switch. Locate the switch into the switch sleeve (11), and then locate the switch sleeve into the switch box (4). Fit cord grip.

Note: The switch should be in the “OFF” position, and the slot in the switch mounting thread should be to the top when fitting, i.e. towards the fan.

2. Fit the switch seal (6) to the switch (5).
3. Fit the switch box cover (7) and secure with four pozi-screws.
4. Locate the switch actuator (2) through the switch handle (8) into the trigger (3) fit the handle assembly to the top housing whilst locating the actuator (2) over the switch, and secure with four capscrews.
5. Fit the springs (1) onto the switch actuator (2) and check switch operation.

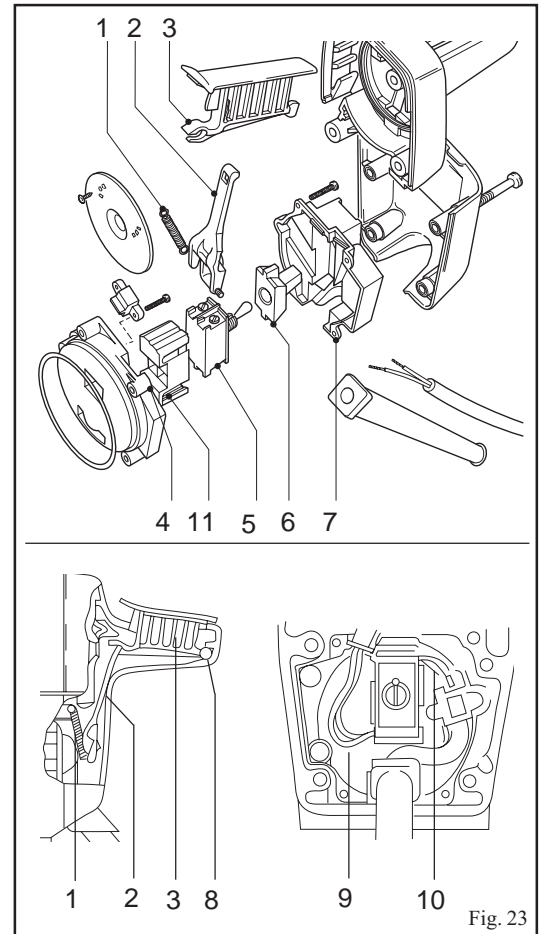


Fig. 23

Fitting handle, top cover and gear case cover

1. Fit the top cover (2) and secure with top cover inserts (5) and four pozi-screws (6).
2. Fit the gear case cover gasket, and gear case (3) and secure with six capscrews (7).
3. Fit handle (1) and secure with four capscrews (8).
4. Fit switch case cover (4) and secure with four cap screws (10).

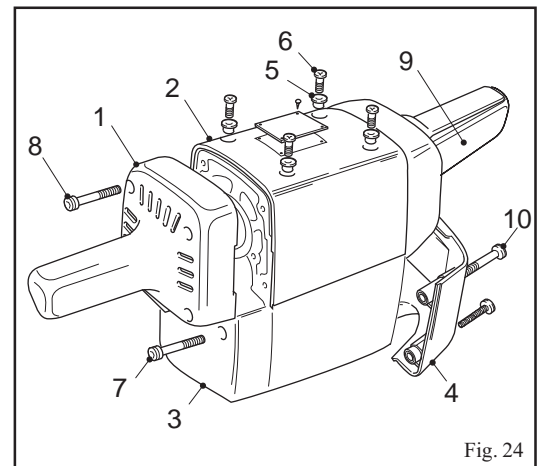


Fig. 24

Assembling the piston

1. Fit the seals (5) to the piston (4).

Note: When fitting run a screwdriver around the piston between the seal and piston to ensure correct seating.

2. Fit the piston to the connecting rod (1) and push the gudgeon pin (3) through, fit the two O-rings (2) to the piston.

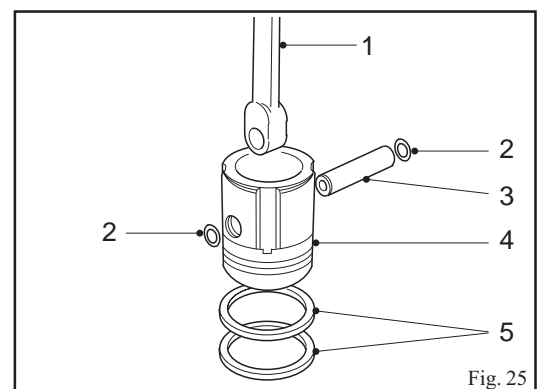


Fig. 25

Assembling the barrel

1. Fit the striker (11) over the piston (9), push on with a twisting motion.
2. Place the top barrel gasket (1) onto the top housing.
3. Fit the barrel (3) over the striker (11) and align holes in barrel with the holes in the top housing. Place the retaining rings (2) in the holes and secure with the four capscrews (12) (torque to 130Nm).

Note: When the bolts reach their torque the plastic should be visible around the head of the capscrew.

4. Fit recoil buffer (6) into buffer housing (5)
5. Fit anvil seal (8) onto anvil (7) and assemble into buffer housing (5).
6. Fit buffer housing assembly into barrel (3).

Note: Smear Loctite 574 joint compound between the barrel and anvil housing before fitting together. DO NOT USE SILICONE SEALANT.

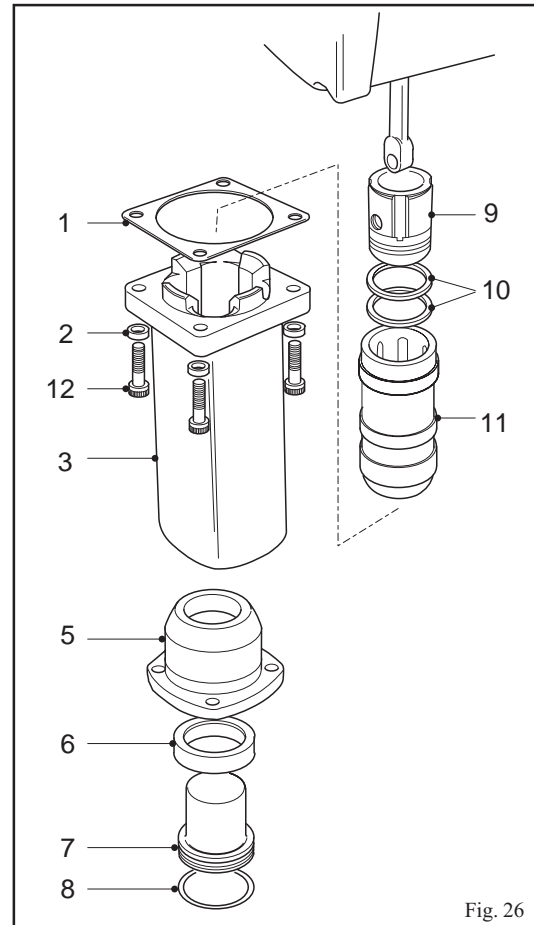


Fig. 26

Assembling the nosepiece

1. Insert the plunger and latch spring (5).
2. Fit the latch (4) and press down to overcome the spring tension, push the service tool (1) through the latch to allow the tension pin (7) to be fitted to it, press or knock the tension pin through until flush, expelling the service tool (see diagram).
3. Fit the lock washer and flat washer to the latch retaining bolt (6) and pass this through the tension pin.
4. Fit the flat washer, and lock washer to the threaded end of the latch retaining bolt, and fit the castellated nut (3).
5. Tighten the castellated nut and secure with the split pin.

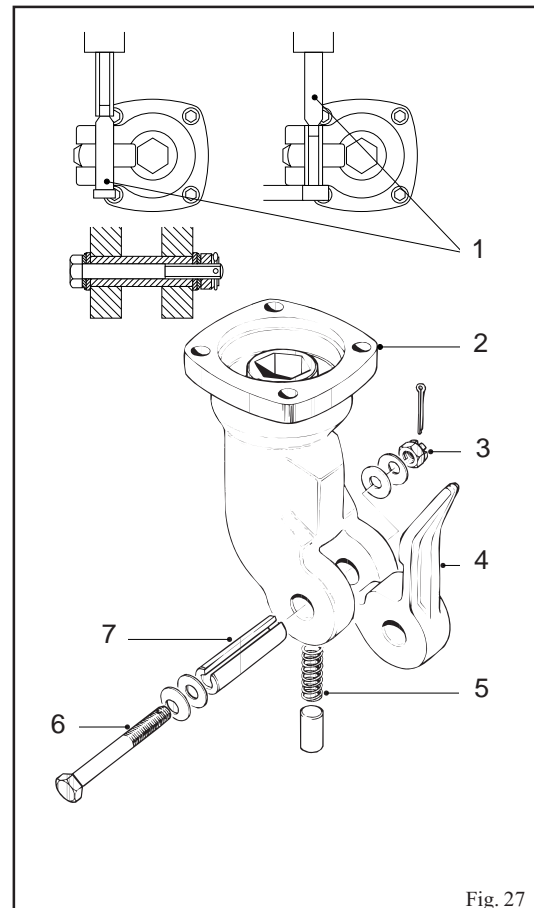


Fig. 27

Assembling the nosepiece

1. Place the recoil buffer (1) into the nosepiece (2)
fit the assembly to the barrel, latch the same side
as the mains lead.

Note: Smear Loctite 574 joint compound between the barrel and nosepiece before fitting. **DO NOT USE A SILICONE SEALANT.**

2. Place the washer cup (3) and washer (4) into the nosepiece (2) fit capscrews (5) and **tighten (torque to 130Nm).**

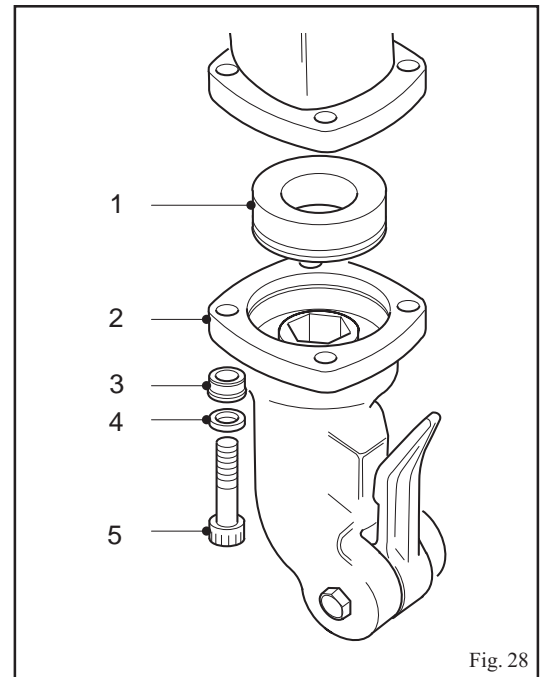


Fig. 28

WARNING LETHAL VOLTAGES PRESENT!!

Important On completion of the assembly, the unit must be flash tested at 4000 volts.

- Flash Test**
1. With the breaker completely assembled and with the switch "ON" apply 2000 volts initially and increase rapidly to 4000 volts between the main casting and one of the pins of the plug on the power supply cord. Apply test to both live and neutral pins.
 2. The full voltage of 4000 volts should be maintained without breakdown or flashover for a few seconds.
 3. If the armature has been tested, remove the carbon brushes before carrying out the test, (thus avoiding over-stressing the armature insulation system.)
 4. The test voltage must be applied between the main casting and each live pin of the plug in succession.

Running Test

1. Ensure the unit is switched ON before testing. Operate the unit for approx. 10 minutes at **half** voltage for initial 'bedding in' of the carbon brushes followed by full operational voltage. Compare readings with Performance Data.

FAULT FINDING

With the aid of the Fault Finding chart (below) the source of any malfunction may be quickly identified and repaired.

