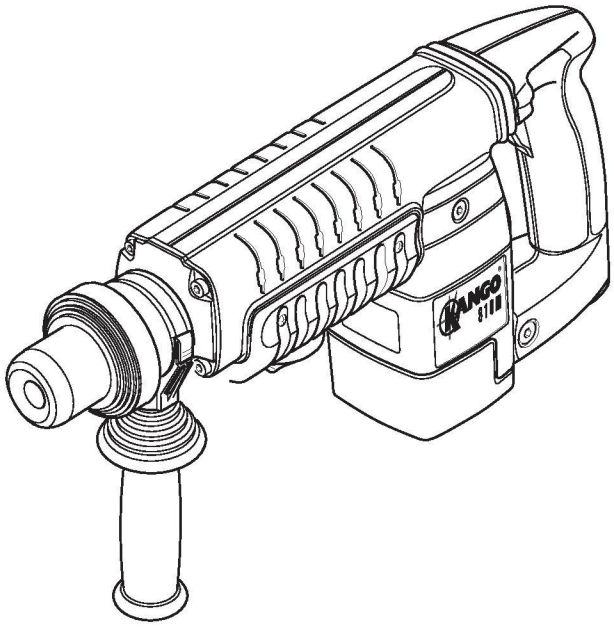
KANGO®

GB **Service and Repair Manual**



810

810MV

1998-01

4939 5942 01

SERVICE TOOLS

All repairs may be completed with standard workshop tools and equipment.

TORQUE SETTINGS

MODEL 810

ITEM NO.	PART NO.	IN/LBS.	NM
102	9170 3250 10	28	3
111	9170 3251 00	33	4
120	9170 3251 90	23	2.5
126/128	9170 3252 50	18	2
126/127	9170 3252 50	8	1
130	9170 3252 90	23	2.5
132	9170 3253 10	23	2.5
140	9170 3253 90	33	4
203	9170 3254 60	23	2.5
204	9170 3254 70	28	3
216	9170 3261 90	23	2.5
247	9170 3258 90	130	16
272	9170 3254 70	33	4

Important! Before carrying out any repairs, the saw should be checked for electrical safety and for mechanical performance. For electrical safety the saw 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 saw 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 saw should **ONLY** be functionally checked if the unit passes the electrical safety test.

DISMANTLING

Removing the belly shroud

1. Remove four screws (102) and the belly shroud (101)
   (tap off using small screwdriver).
2. Remove O-ring (109) and circlip (108).
3. Remove following items:
   - rotostop knob assembly (103)
   - two balls (105)
   - two compression springs (104)
4. Remove following items:
   - shift disk assembly (107)
   - torsion spring (106)

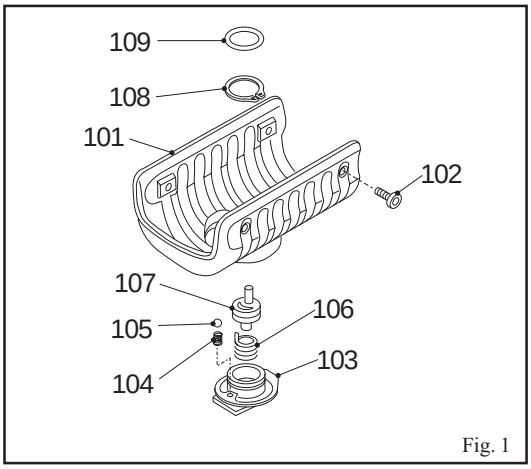


Fig. 1

Removing the armature

1. Remove four screws (111) and the motor cover (110).
2. Disconnect two wires, release retaining clip and remove brush carrier assembly (121).
3. Remove armature assembly (114).

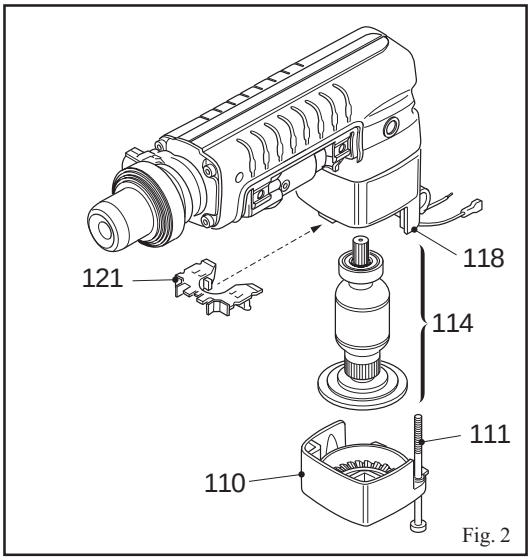


Fig. 2

Dismantling the armature assembly

1. Remove bearing cup (112) and bearing (113).
2. Remove fan (115).
3. Remove bearing (117) and retaining ring (116).

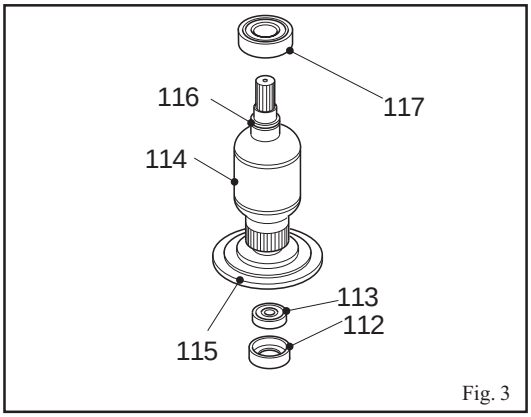


Fig. 3

Dismantling the brush carrier assembly

1. Remove two carbon brushes (123).
2. Remove two springs (122).

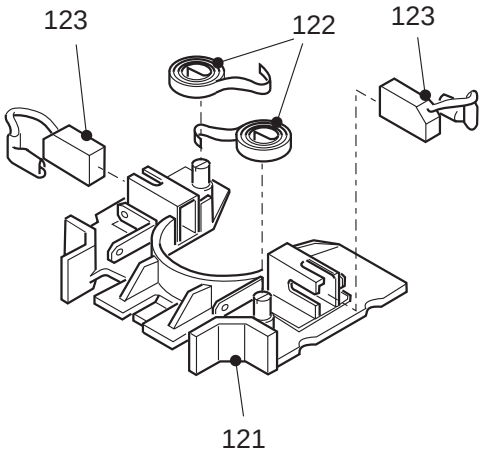


Fig. 4

Removing the handle assembly

1. Remove screw (126) and handle cushion (127).
2. Remove pivot bolt (130) and pivot nut (132).
3. Remove handle halves (128), (129) and two pivot isolators (131).
4. Remove switch wires from handle half (129).
5. Remove lower cord clamp (135), upper cord clamp (136) and foam slug (134).

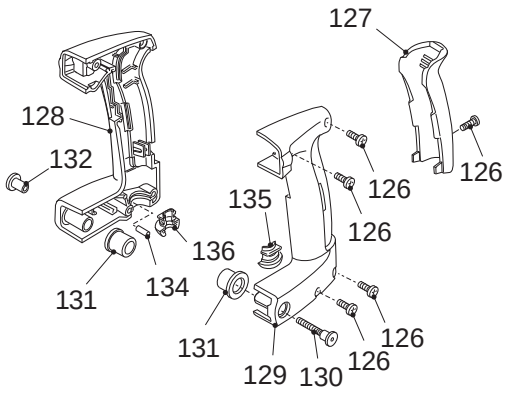


Fig. 5

Removing the speed control switch

1. Remove cord (138) and cord protector (139).
2. Remove speed control (133) and switch (137).

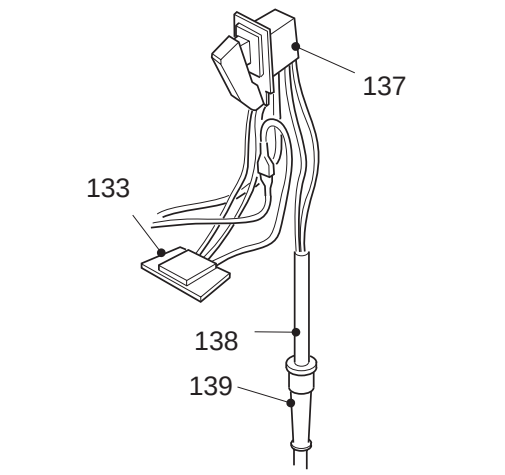


Fig. 6

Removing the field assembly

1. Remove field coil leads from switch (137).
2. Remove two screws (120) and field (119) from the motor housing (118).

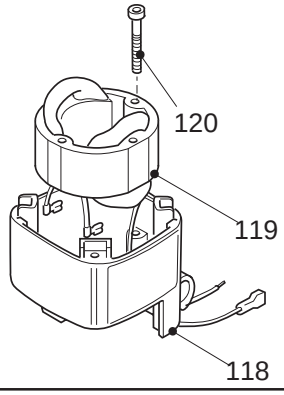


Fig. 7

Removing the side shrouds

1. Remove two screws (126).
2. Remove side shrouds (124) and (125).

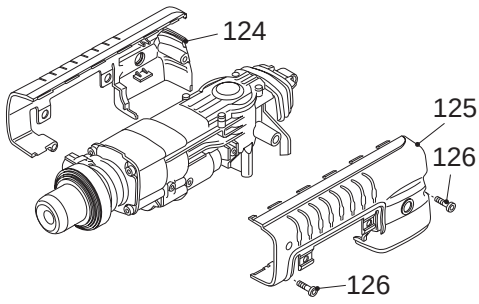


Fig. 8

Removing the isolation module assembly

1. Remove two bolts (140) and two washers (141).
2. Remove upper handle mount (142), isolations bellows (143) and isolation module (144).

WARNING: Do not disassemble isolation module (144).

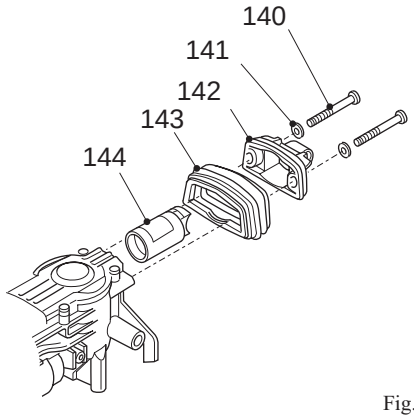


Fig. 9

Removing the chuck collar

1. Push back chuck collar (243), push back retaining ring (242) and remove dust seal (241).
2. Remove chuck collar (243), spacer (244) and collar (245) and retaining ring (242).

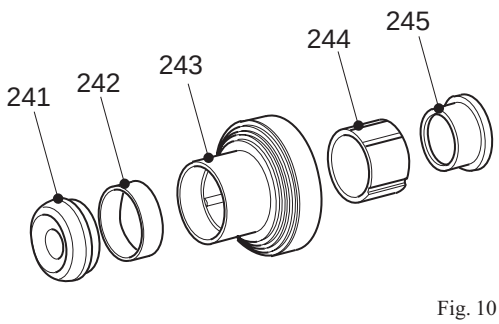


Fig. 10

Removing the side handle assembly

1. Remove depth gauge (234) and mount (233) (if fitted).
2. Remove handle (235), circlip (236) and washer (237).
3. Remove housing (238).
4. Remove pin (239), retainer (240) and handle band (246).

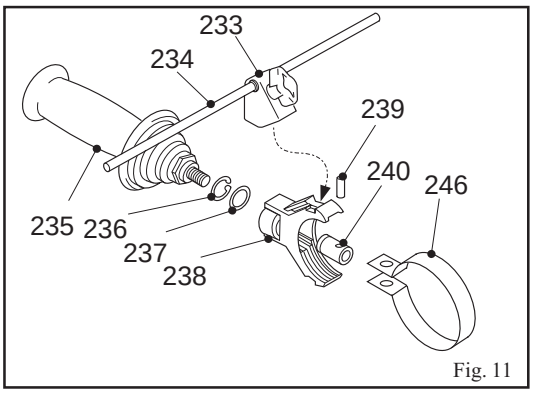


Fig. 11

Removing the crank-case top cover

1. Remove cap (202), screw (203), four screws (204), cover (201) and seal (207).
2. Remove clip (205) and bearing (206).

Note: To remove the screw (203) it will be necessary to lock the crank gear (213).

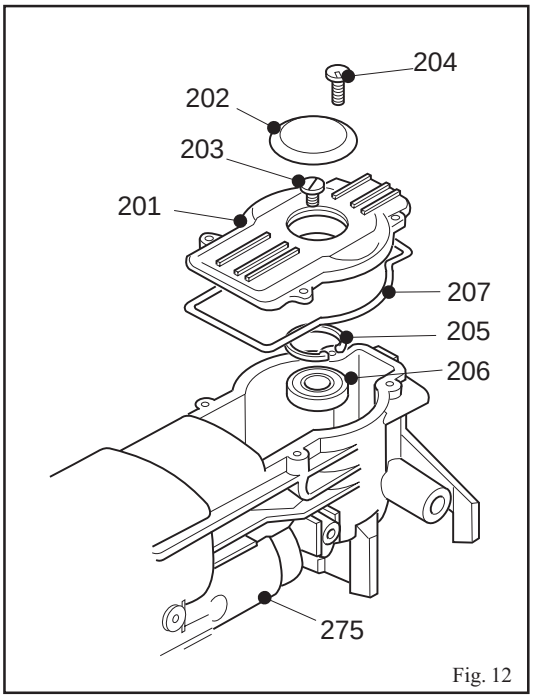


Fig. 12

Removing the intermediate housing

1. Remove four bolts (247) and nose flange (257).
2. Push back retainer (250) and remove two keys (249).
3. Remove the following items:
   - retainer (250)
   - spring (251)
   - circlip (252)
   - spring flange (253)
   - felt seal (254)
4. Remove intermediate housing assembly (257), remove spindle assembly from intermediate housing (257) and gasket (274).

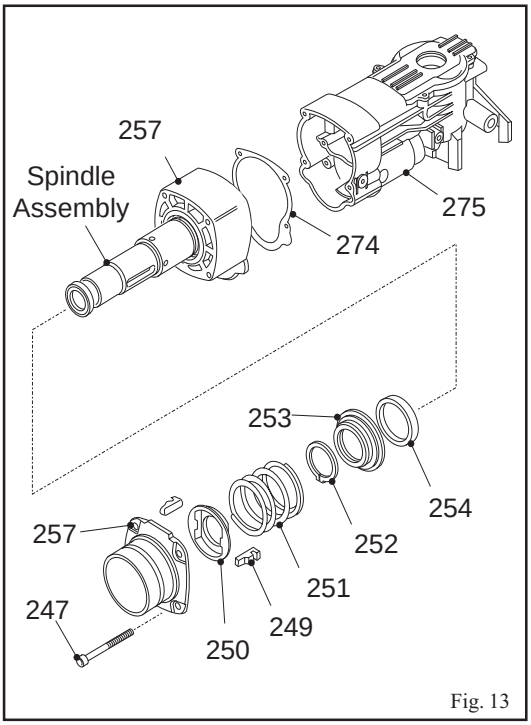


Fig. 13

Dismantling the spindle assembly

1. Remove oilseal (254) from intermediate housing (257).
2. Remove circlip (256).
3. Press out the following items:
   - bearing (258)
   - thrust washer (259)
   - four belleville springs (260)
   - thrust washer (259)
   - bearing (261)
4. Remove four drive pins (264).
5. Remove the following items:
   - spindle extension (262)
   - O-ring (263)
   - O-ring (266)
   - striker (267)
   - cushion washer (268)
   - damping washer (269)
   - thrust washer (270)

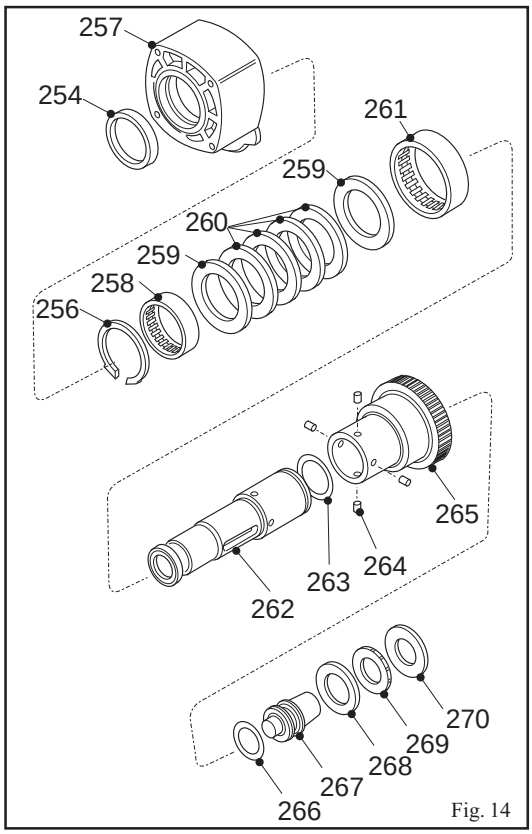


Fig. 14

Dismantling the barrel assembly

1. Remove two screws (272) and barrel (273).
2. Remove the following items:
   - ram (271)
   - O-ring (266)

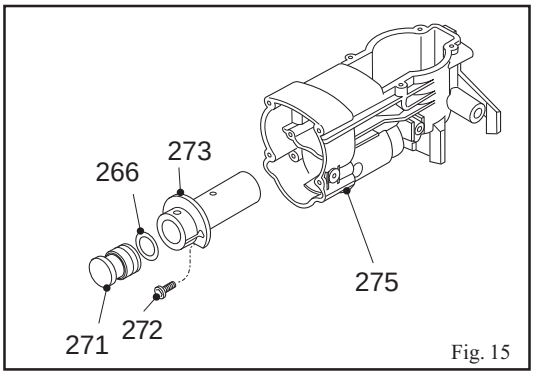


Fig. 15

Dismantling the clutch assembly

1. Remove two screws (216), bearing retainer (217) and clutch tube (218).

Note: Note the position of selector hole in clutch tube (218).

2. Remove retaining clip (232), remove hollow clutch shaft assembly (229) and press off bearing (230) and bevel gear (231), remove bearings (228) from hollow clutch shaft (229).
3. Remove spring flange (227), spring (226), splined clutch plate (225), fixed clutch plate (224), 12 steel balls (223) and shift ring (222).
4. Press off bearing (220) and clutch pinion (219).

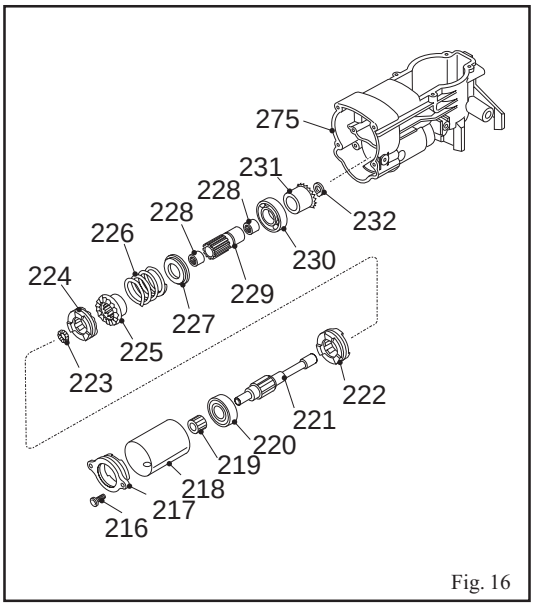


Fig. 16

Dismantling the crank assembly

1. Remove screw (203), circlip (205) and bearing (206).
2. Remove connecting rod assembly (208).
3. Remove crankshaft assembly (213) and needle bearing assembly (214).

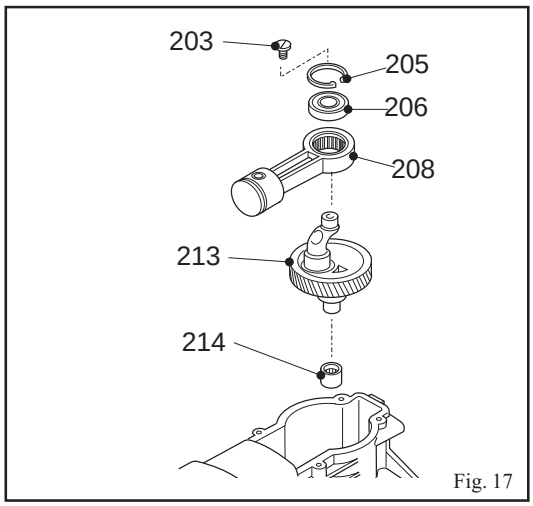


Fig. 17

Dismantling the connecting rod assembly

1. Press out bearing (209).
2. Remove gudgon pin (210), piston (211) and O-ring (212).

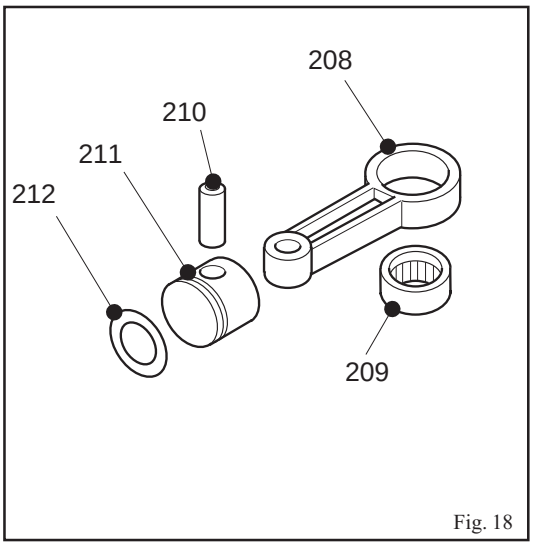


Fig. 18

General

For best performance hammers should be serviced at regular intervals, any indication that the hammer is not performing as specified should be investigated to prevent any adverse damage occurring.

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

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

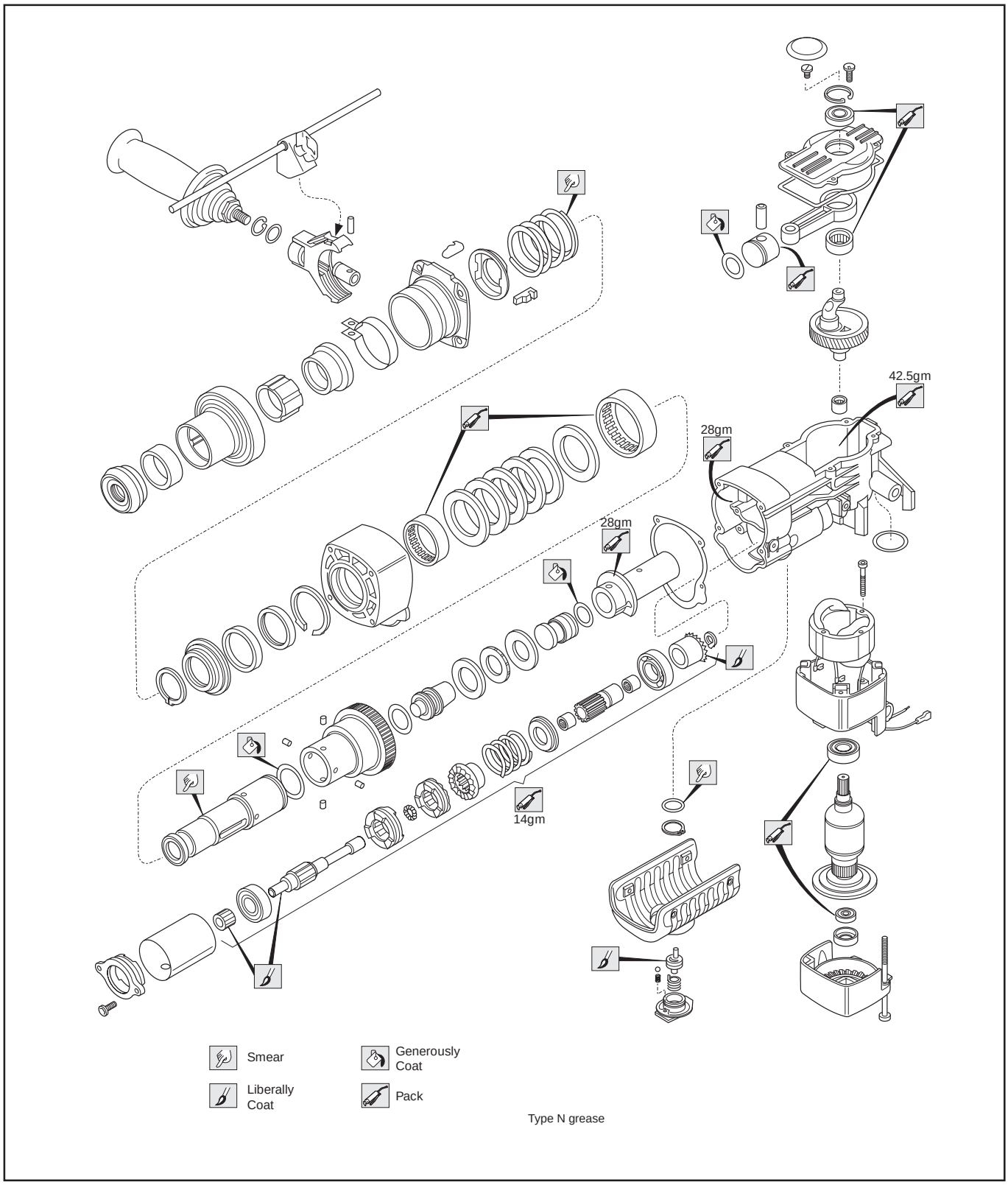
Cleaning

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 810V is 5oz (125gm). Lubrication of the hammer is as shown on the grease chart.

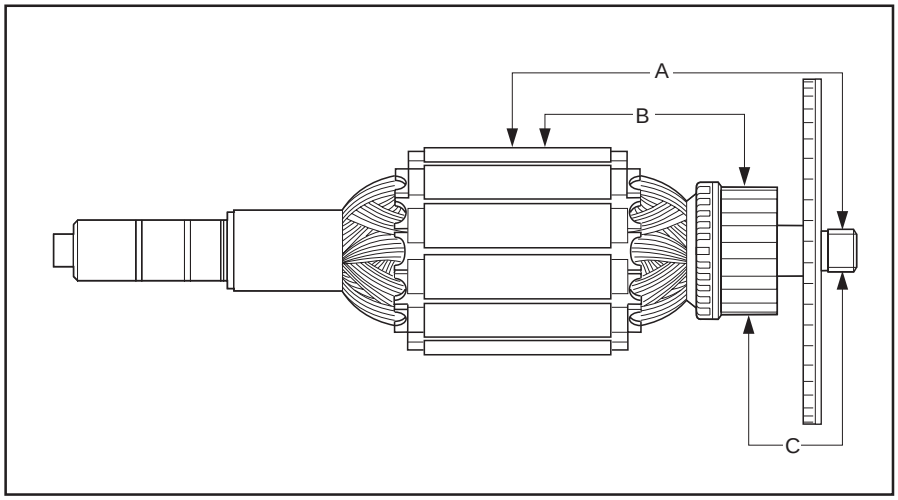


ALL SCREWS SHOULD BE REFITTED WITH LOCKTITE 271 OR SIMILAR

ELECTRICAL TESTING

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

Testing the Armature (Flash Testing)	**A**	Armature shaft to lamination pack	1500 Volts (min)
	B	Lamination pack to commutator	1200 Volts (min)
	C	Armature shaft to commutator	3000 Volts (min)



ELECTRICAL PERFORMANCE TEST READINGS

ARMATURES				
MODEL	**110V**	**120V**	**220V**	**240V**
810V	.697/723Ω	.697/723Ω	2.87/2.89Ω	2.87/2.89Ω
FIELD COILS				
	110V	**120V**	**220V**	**240V**
810V	.96Ω	.96Ω	3.705Ω	3.705Ω
PERFORMANCE				
Full Load Hammer Test				
	110V	**120V**	**220V**	**240V**
810V	875W	1020W	1020W	1020W

CLUTCH SLIP

Measured on disassembly/assembly 30/38ft lbs 40/51Nm. (Non Electical Test)

Note:- On all test readings + or - 5% of figures shown is acceptable.

ASSEMBLY

Assembling the connecting rod assembly

1. Press bearing (209) into connecting rod (208).
2. Position piston (211) and fit gudgon pin (210).
3. Refit O-ring (212).

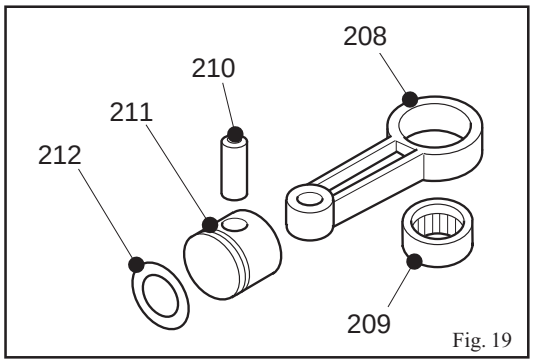


Fig. 19

Assembling the crank assembly

1. Place crankcase (275) into vice, press needle bearing assembly (214) into crankcase (275), refit the crankshaft assembly (213).
2. Refit the connecting rod assembly (208), bearing (206) and secure using screw (203) **tighten to 23 in/lbs (2.5Nm) torque** and circlip (205).

   Caution: Use alloy jaw plates in the vice to prevent damage to the crankcase (275).

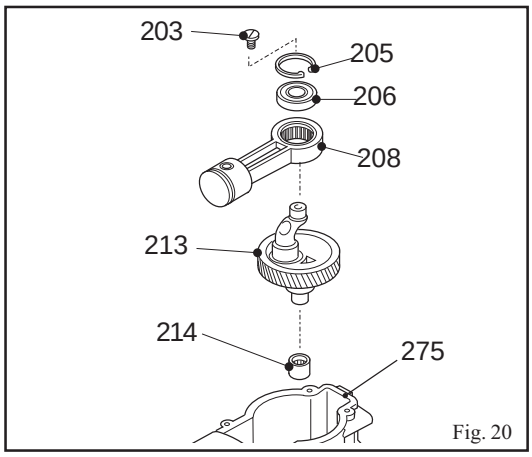


Fig. 20

Assembling the clutch assembly

1. Refit the following items onto clutch shaft (221):-
   - bearing (220)
   - clutch pinion (219)
   - shift ring (222)
   - twelve steel bearings (223)
   - fixed clutch plate (224)
   - splined clutch plate (225)
   - spring (226)
   - spring flange (227)
2. Press needle bearing (228) in hollow clutch shaft (229).
   Caution: The two needle bearings (228) must be fitted flush in hollow clutch shaft (229).
3. Press bearing (230) and bevel gear (231) onto hollow clutch shaft (221).
4. Compress items assembled in step 1,2,3 and secure using retaining ring (232).
5. Refit clutch tube (218) and refit clutch assembly into the crankcase (275).
6. Refit bearing retainer (217) and secure using two screws (216).

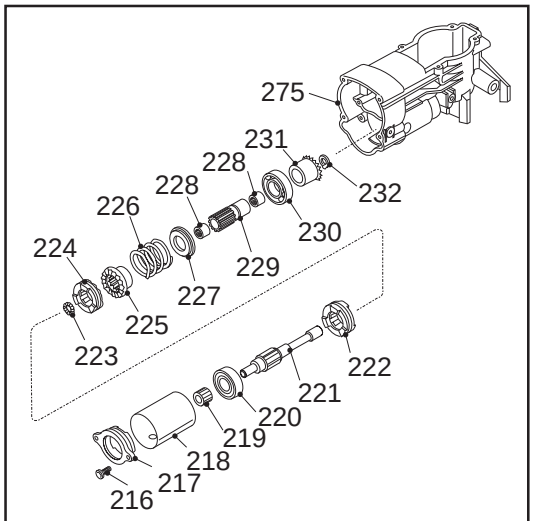


Fig. 21

Assembling the spindle assmbly

1. Refit O-ring (263) and fit spindle extension (262) onto spindle (265), secure using four drive pins (264).

2. Refit the following items onto intermediate housing (257):
   - bearing (261)
   - thrust washer (259)
   - four belleville springs (260)
   - thrust washer (259)
   - bearing (258)
   - circlip (256)
   - seal (254)

3. Fit the following items into spindle assembly (265):
   - O-ring (266)
   - ram (271)
   - thrust washer (270)
   - damping washer (269)
   - cushion washer (268)

4. Fit spindle assembly into intermediate housing (254) and fit the following items:
   - stiker (267)
   - O-ring (266)

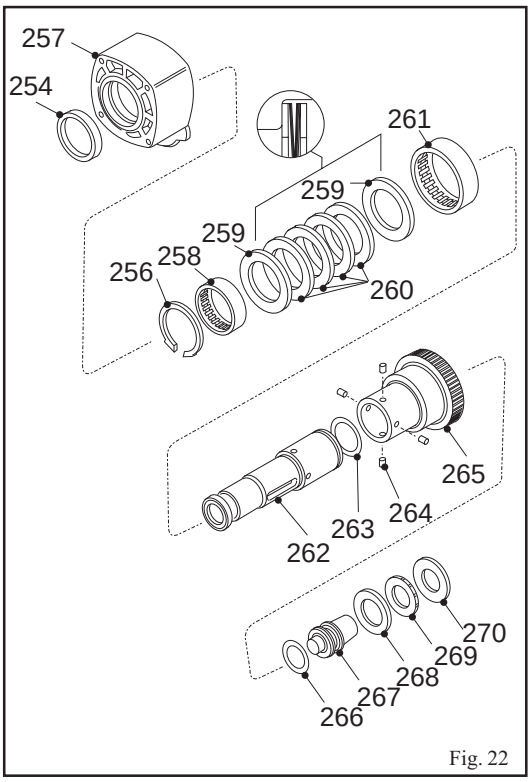


Fig. 22

Assembling the barrel assembly

1. Fit the barrel assembly into the crankcase (275) and secure using two screws (272).

2. Fit O-ring (266) onto striker (271) and assemble into barrel (273).

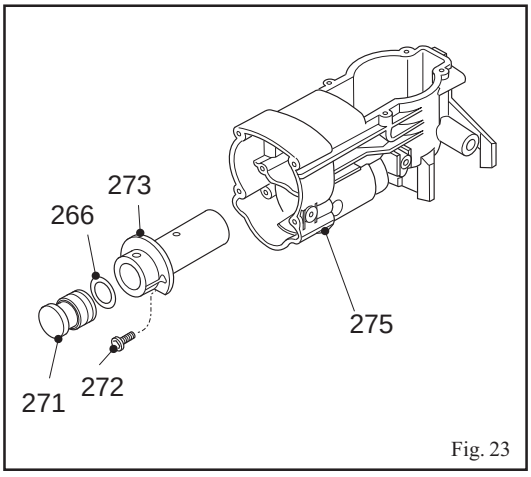


Fig. 23

Refitting the crankcase top cover

1. Fit bearing (205) in cap (206), fit circlip (205).

2. Fit seal (207), cover (201) and secure using four screws (204) and screw (203).

3. Fit cap (202).

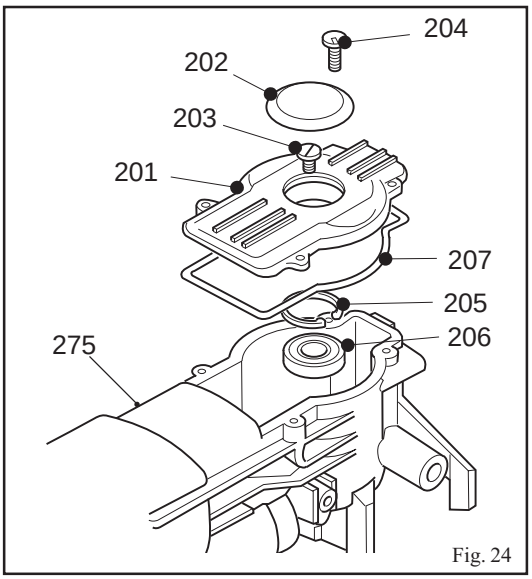


Fig. 24

Refitting the intermediate housing

1. Refit the spindle assembly, gasket (274) and intermediate housing (257) to the crank case (275).
2. Refit the following items:
   - felt seal (254)
   - spring flange (253)
   and secure using circlip (252).
3. Refit spring (251) and retainer (250), secure using two keys (249).
4. Refit nose flange (257) secure using four bolts (247) **tighten to 130 in/lbs (16Nm) torque**.

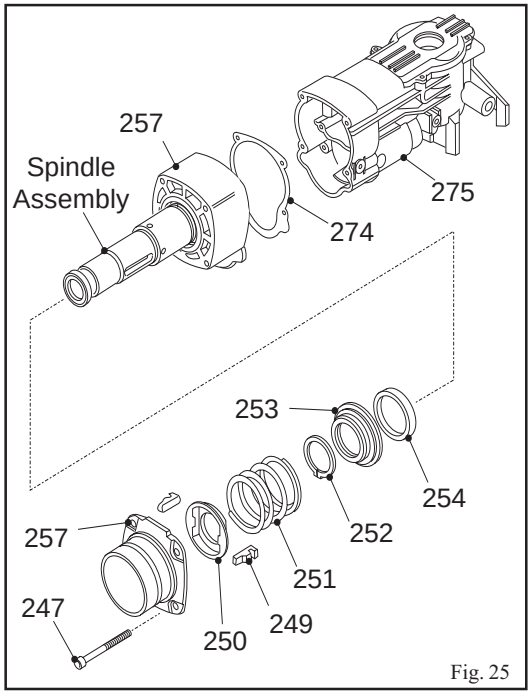


Fig. 25

Refitting the side handle assembly

1. Fit handle band (246), retainer (240) and secure using pin (239).
2. Fit housing (238), washer (237) secure using circlip (236).
3. Fit handle (235).
4. Fit mount (233) and depth gauge (234).

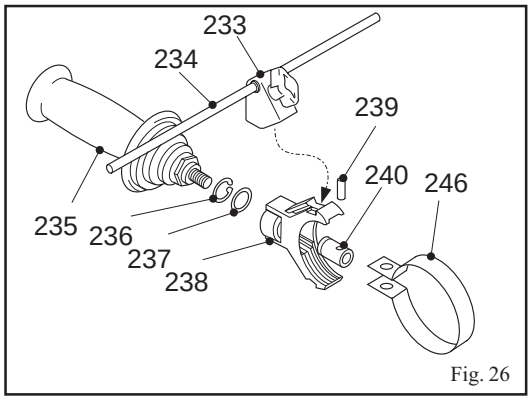


Fig. 26

Assembling the chuck collar

1. Fit collar (245), spacer (244) and chuck collar (243) and secure using retaining ring (242).
2. Fit dust seal (241).

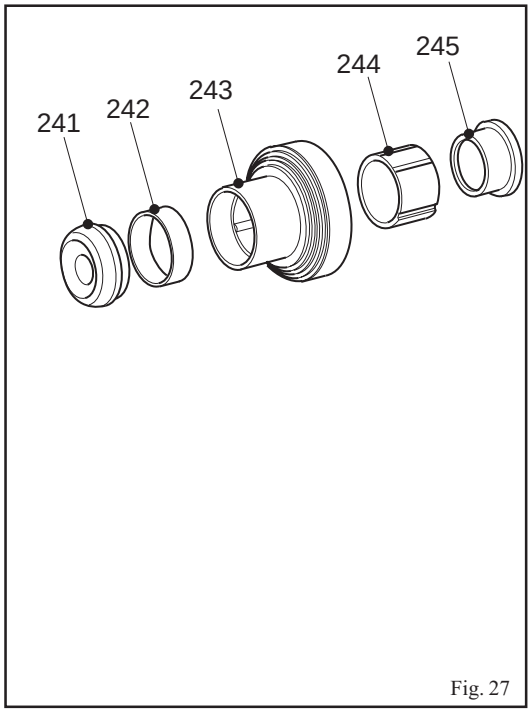


Fig. 27

Refitting the isolation module assembly

1. Fit the isolation module (144), isolation bellows (143) and upper handle mount (142), secure using two washers (141) and two bolts (140), **tighten to 33 in/lbs torque (4Nm)**.

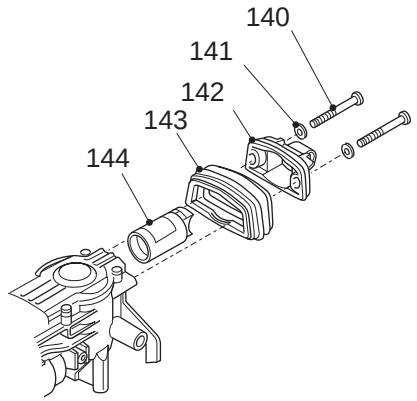


Fig. 28

Refitting the side shrouds

1. Fit the two side shrouds (124), (125) and secure using two screws (126).

   Note: ensure correct location over the isolation bellows (143).

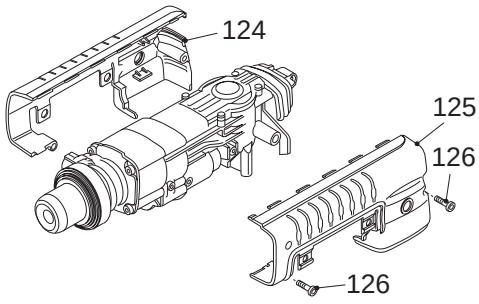


Fig. 29

Assembling the field assembly

1. Fit field (119) into motor housing (118) and secure using two screws (120), **tighten to 23 in/lbs (2.5Nm) torque**.

2. Fit the motor housing to crank case (275).

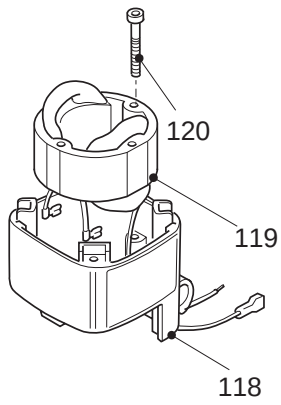


Fig. 30

Refitting the speed control switch

1. Fit the speed controller (133) and switch (137) into the handle half (129).

2. Connect the cord (138) and fit cord protector (139).

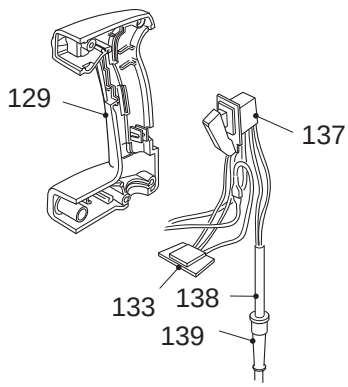


Fig. 31

Assembling the handle assembly

1. Fit cord clamps (135) and (136).
2. Correctly route the wires and secure using foam slug (134).
3. Fit two pivot isolators (131) to the field housing assembly (118).
4. Assemble two handle halves (128), (129) and secure to isolation module assembly and motor housing (118) using four screws (126), **tighten to 18 in/lbs (2Nm) torque,** pivot bolt (130) and pivot nut (132), **tighten to 23 in/lbs (2.5Nm) torque**.
5. Fit handle cushion (127) and secure using screw (126).

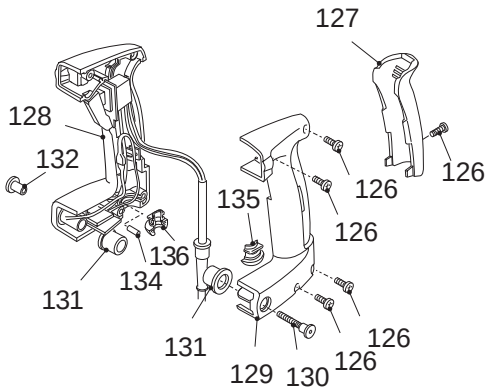


Fig. 32

Assembling the brush carrier

1. Fit two springs (122) and carbon brushes (123). Connect brush leads.

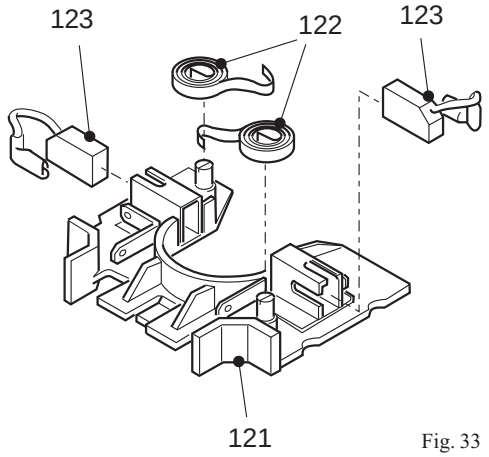


Fig. 33

Assembling the armature assemmbly

1. Fit retaining ring (116) and bearing (117).
2. Fit fan (115), bearing (113) and bearing cap (112).

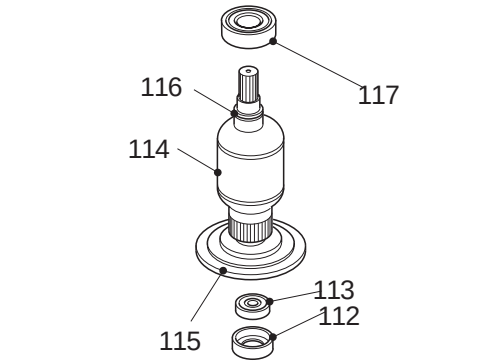


Fig. 34

Fitting the armature assembly

1. Fit armature assembly (114).
2. Fit brush carrier (121) and connect two wires.
3. Fit motor cover (110) and secure using four screws (111), **tighten to 33 in/lbs (4Nm) torque**.

   Note: Ensure the brush carrier (121) is fitted the correct way (brushes (123) facing down, towards the motor cover (110)).

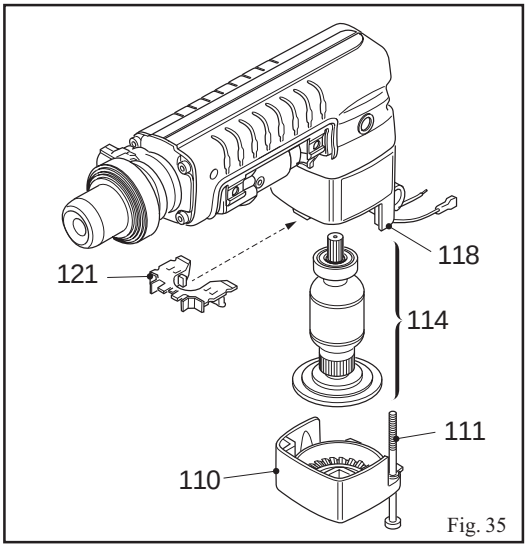


Fig. 35

Assembling the belly shroud

1. Fit the following items onto the belly shroud (101):
   - shift disk assembly (107)
   - torsion spring (106)
   - two compression springs (104)
   - two balls (105)
2. Fit rotostop knob assembly (103).
3. Fit O-ring (109) and secure rotostop knob assembly (103) using circlip (108).
4. Fit belly shroud (101) to the tool and secure using four screws (102), **tighten to 28 in/lbs (3Nm) torque**.

   Note: Roto stop assembly (103) must be in the centre position to locate into crankcase (275).

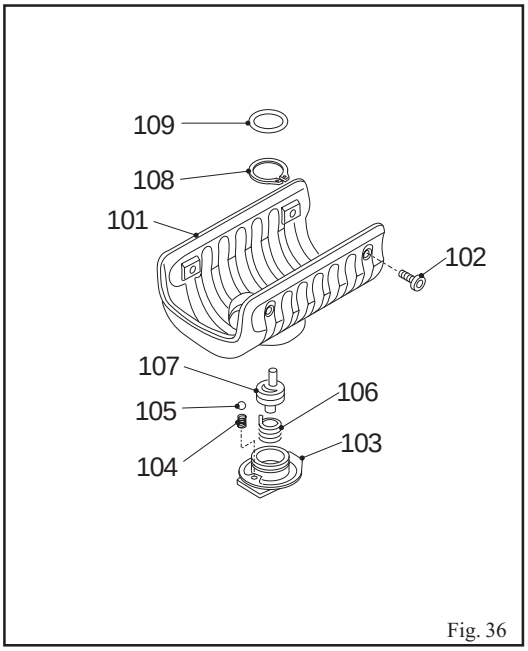


Fig. 36

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.