



ALLSAW AS200X

SERVICE MANUAL

ALL.FG.200240.00
ALL.FG.200240.40
ALL.FG.200240.60
ALL.FG.200110.20
ALL.FG.200110.40

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*Double Insulation used throughout,
no provision for earthing.*

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1 INTRODUCTION

This manual details the common procedures for maintenance and repair work for the Arbortech AS200X. These procedures may be required following tool wear or failure from use. The most common maintenance items are drive belt and motor brush replacement, which will occur from extended use. If the tool is damaged beyond these items, replacement of internal bearings, mechanism components, castings, head shells or motor components may be necessary.

At all times when performing maintenance or repair tasks, the following safety guidelines must be observed:

- Only properly trained and qualified technicians should complete repairs involving potential hazards
- Use appropriate PPE including, but not limited to, suitable eye and ear protection
- Never attempt any service or repair work with the tool connected to any power source
- Handle electrical components with care and take all necessary precautions to avoid electrical hazards
- Beware of mechanical hazards, such as pinch points between moving parts, and components which may be hot

Procedures are described with accompanying images. Tools are listed (in brackets), for example, the size of hex key required. Refer to the owner's manual for operation procedures and general specifications.

2 SERVICING INFORMATION

2.1 Diagnosis and Troubleshooting

The most common symptoms of a mechanical or electrical failure are listed below, with the appropriate steps to diagnose and remedy the fault.

Symptom	Cause	Check/Remedy	Section
Blades frequently jam and stop during cutting	Insufficient belt tension	Check belt tension	3.2.1
	Excessive belt wear	Replace belt if required	3.2.2
Motor runs but blades do not move	Belt failure	Check tension, replace belt	3.2.2
	Gearbox failure	If no pulleys move, inspect gearbox	3.4.3
Motor does not run when switch is activated	Brush failure	Inspect/replace brushes	3.3.1
	Motor failure	Replace motor	3.3.3
Conrod pitching freely	Top spring failure	Replace top spring	3.4.1
Blade does not attach or stay attached	Incorrectly attaching blades	Refer user manual for correct method	
	Conrod blade mount damaged	Replace conrod assembly	3.4.4
Motor overheating and/or running slowly	Blades jammed with debris	Clear any debris	
	Cooling vents blocked	Clear cooling vents	
	Brushes worn	Inspect brushes, replace	3.3.1
	Motor casing loose	Check motor mount screws	3.3.2
	Mechanism failure or jam	Inspect mechanism	
	Bearing or gearbox failure	Inspect bearings and/or gearbox	3.4.2 - 3.4.4
	Motor failure	Replace motor	3.3.3
Excessive gearbox or bearing noise	Bearing failure	Inspect bearings	3.4.2, 3.4.4
	Crown wheel/pinion damage	Inspect gearbox	3.4.3

2.2 Service Time Estimates

Process	Time (mins)
Belt inspection and replacement, brush inspection and replacement, handle washers replacement	10
Crown wheel and pinion inspection or replacement, motor change	20
Camshaft assembly replacement, full bearing inspection and replacement	30

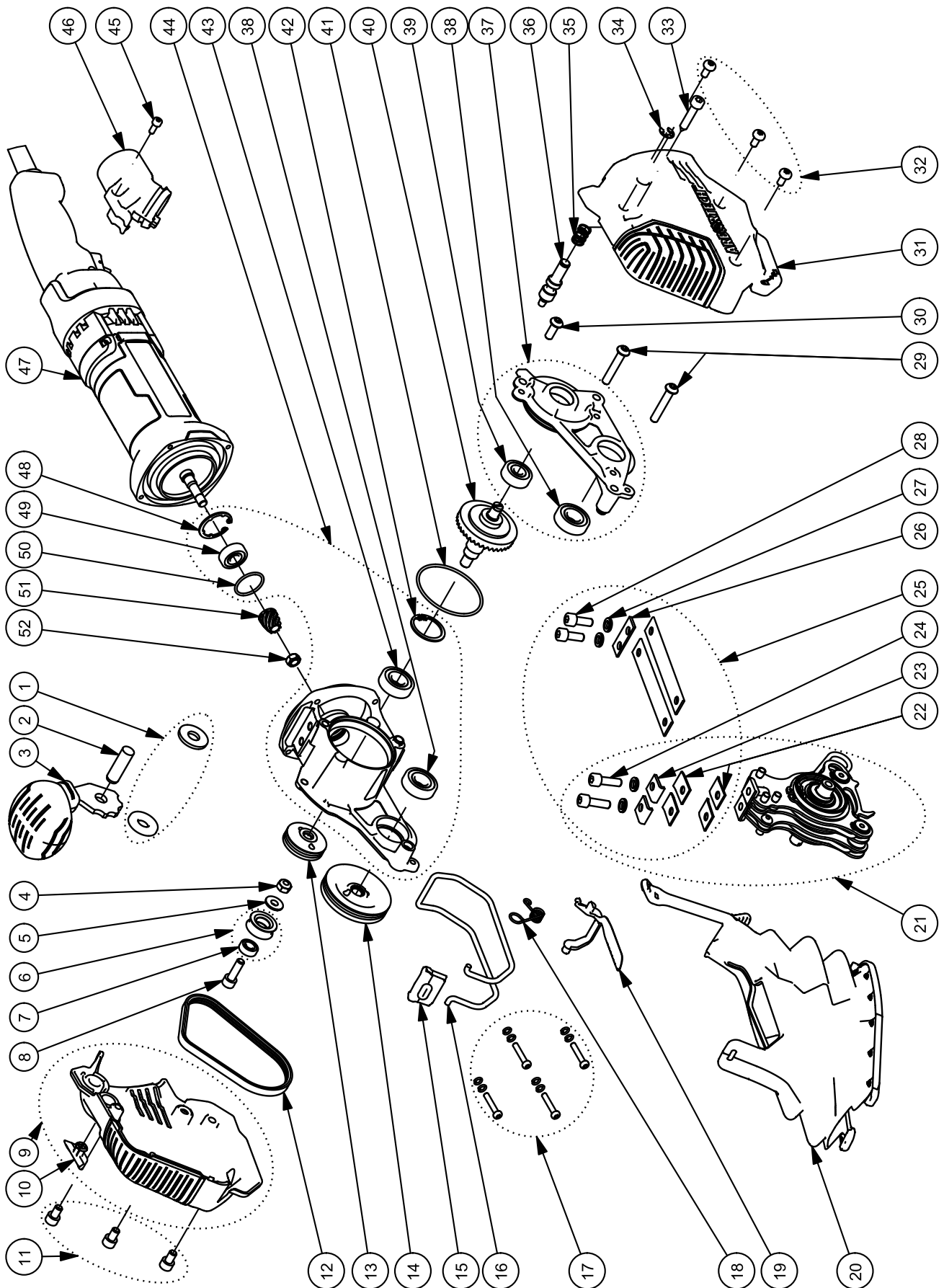
2.3 Torque Settings and Driver Types

Fastener	Torque (Nm)	Driver Type
Motor mount screws	1.5 - 2	Torx T20
Idler screw	8	5 mm hex
Casting screws	10	4 mm hex
Top spring screws (conrods and casting)	18	5 mm hex
Left head shell screws	6	Torx T25
Right head shell screws	6	5 mm hex
Bridging screw	8	5 mm hex
Dust extraction bracket screw	2	3 mm hex

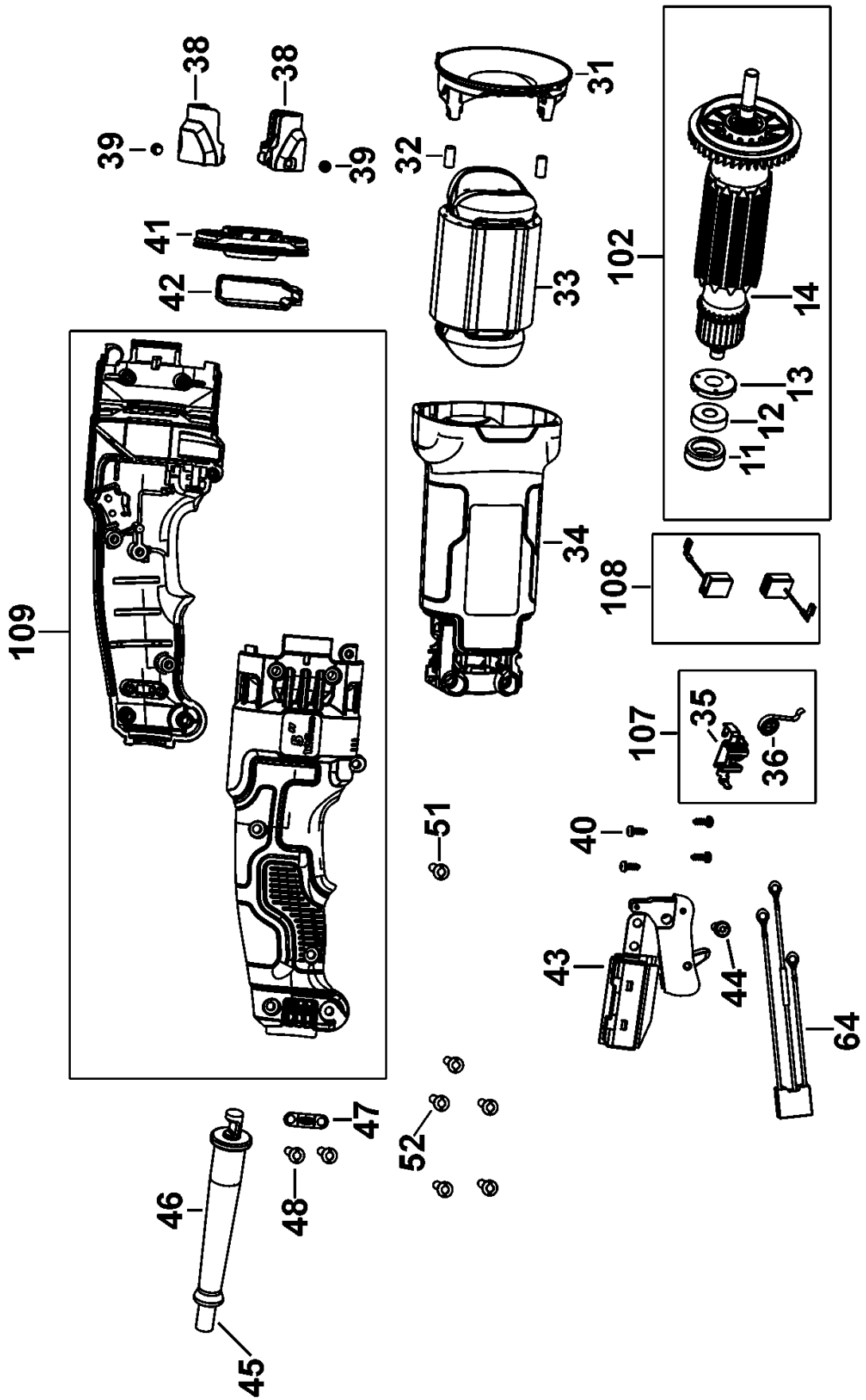
2.4 Exploded Diagram and Parts List

2.4.1 Mechanism and Ancillaries

This diagram provides an overview of the AS200X components. Detailed diagrams of assembly positions and alignments are shown in the Service Procedures section.



	Description	Part No.	Details	Model	Qty.	
1	Handle washer	ALL.FG.WASH030		200	2	
2	Handle Pin	ALL.FG.PIN005	10 x 35 mm dowel	200	1	
3	Top handle	ALL.FG.HANDLE003		200	1	
4	Idler nut	ALL.FG.NUT006	M6 Nyloc	170/175/200	1	
5	Idler washer	ALL.FG.WASH024		170/175/200	1	
6	Tension idler	ALL.FG.TENSION002	Includes ALL.FG.BEARING003	175/200	1	
7	Tension idler bearing	ALL.FG.BEARING003		170/175/200	1	
8	Idler screw	ALL.FG.SCREW013A	M6 x 20 grade 12.9	200	1	
9	Right hand head shell	ALL.FG.HEADSHELLRH	Includes button ALL.FG.BUTTON001	200	1	
10	Handle locking button	ALL.FG.BUTTON001		200	1	
11	Right head shell screw	ALL.FG.SCREW025	M6 x 10 grade 12.9	200	3	
12	Drive belt	ALL.FG.BELT003	OPTIBELT 3PJ280	175/200	1	
13	Power pulley	ALL.FG.PULLEY008		175/200	1	
14	Driven pulley	ALL.FG.PULLEY007		175/200	1	
15	Nose hook	ALL.FG.HOOK001		200	1	
16	Wire guard	ALL.FG.GUARD005		200	1	
17	Motor screw	ALL.FG.SCREW028	Includes spring washers	200	4	
18	Retractor homing spring	ALL.FG.SPRING005		200	1	
19	Retractor	ALL.FG.RETRACTOR001		200	1	
20	Dust Boot	ALL.FG.BOOT003		200	1	
21	Conrods assembly	ALL.FG.CONROD004		200	1	
22	Top spring washer	ALL.FG.WASH027		170/175/200	4	
23	Conrod clamp washer	ALL.FG.WASH022		170/175/200	2	
24	Top spring conrod screw	ALL.FG.SCREW013	M6 x 20 grade 12.9	170/175/200	2	
25	Top springs kit	ALL.FG.SPRINGASS003		200	1	
26	Double clamping washer	ALL.FG.WASH025		170/175/200	1	
27	Nord-lock washer	ALL.FG.WASH019	M6	170/175/200	4	
28	Top spring casting screw	ALL.FG.SCREW026	M6 x 16 grade 12.9	200	2	
29	Casting screw, long	ALL.FG.SCREW023	M6 x 35 grade 12.9	200	2	
30	Casting screw, short	ALL.FG.SCREW022	M6 x 16 grade 12.9	200	1	
31	Left hand head shell	ALL.FG.HEADSHELLLH		200	1	
32	Left head shell screw	ALL.FG.SCREW018	M5 x 10 self-tapping	200	3	
33	Bridging screw	ALL.FG.SCREW019	M6 x 30 plastic tapping	200	1	
34	Handle locking pin e-clip	ALL.FG.CLIP006	6 mm	200	1	
35	Handle button spring	ALL.FG.SPRING007		200	1	
36	Handle locking pin	ALL.FG.PIN003		200	1	
37	Left hand casting	ALL.FG.HOUSE200LH	Includes bearings	200	1	
38	Camshaft bearing	ALL.FG.BEARING002		170/175/200	2	
39	LH crown shaft bearing	ALL.FG.BEARING011		200	1	
40	Crown shaft assembly	ALL.FG.CROWN200		200	1	
41	Gearbox O-ring	ALL.FG.SEAL003	54 x 2 mm	200	1	
42	RH crown bearing circlip	ALL.FG.CLIP008		200	1	
43	RH crown shaft bearing	ALL.FG.BEARING002A		200	1	
44	Right hand casting	ALL.FG.HOUSE200RH	Includes bearings, circlips, o-ring	200	1	
45	Dust extraction bracket screw	ALL.FG.SCREW024	M4 x 10 grade 12.9	200	1	
46	Dust extraction bracket	ALL.FG.BRACKET005		200	1	
47	Motor	Australia	ALL.FG.MOTOR175.00	230V	175/200	1
		UK	ALL.FG.MOTOR175.40	230V	175/200	
		UK Industrial	ALL.FG.MOTOR175.41	120V	175/200	
		Europe	ALL.FG.MOTOR175.60	230V	175/200	
		USA	ALL.FG.MOTOR175.20	120V	175/200	
48	Armature circlip	ALL.FG.CLIP005	22 x 1.2 increased abutment	175/200	1	
49	Armature bearing	ALL.FG.BEARING007		175/200	1	
50	Spindle O-ring	ALL.FG.SEAL175	BS020	175/200	1	
51	Pinion gear	ALL.FG.PINION002		175/200	1	
52	Pinion nut	ALL.FG.NUT002		175/200	1	



	Description		Part No.	Qty.
11	Bearing Cup		See item 102	
12	Rear armature bearing		See item 102	
13	Magnet		See item 102	
14	Armature		See item 102	
31	Baffle fan		N399419	1
32	Plug, rubber		949638-02	2
33	Field	230V	N474622	1
		120V	N474963	
34	Field case		N548995	1
35	Brush box		See item 107	
36	Spring		See item 107	
38	Brush cap		N462741	2
39	Brush cap screw, M3		648777-00	2
40	Brush box screw, M3 x 8		593478-00	4
41	Separator		N458066	1
42	Insert		N451017	1
43	Switch		N451612	1
44	Switch screw, M4 x 6		330065-07	1
45	Cord	Australia	562226-85	1
		UK	562226-86	
		UK Industrial	562226-87	
		Europe	562226-84	
		USA/CAN	330081-18	
46	Protector		N542553	1
47	Cord clamp		N174601	1
48	Cord clamp screw, M3.5 x 16		30019-03	2
51	Field case screw, M4 x 40		N389438	2
52	End handle screw, M4 x 18		330065-08	5
64	Capacitor		N482574	1
	<i>Omitted in USA/CAN region</i>			
102	Armature assembly	230V	N490496	1
		UK Industrial	N474960	
		USA/CAN	N490499	
107	Brush box		N413349	1
108	Brush (pair)	230V	N489059	2
		UK Industrial	N421361	
		USA/CAN	N257540	
109	End handle assembly		N548991	1

3 SERVICE PROCEDURES

3.1 Head Shells and Ancillaries

3.1.1 Right Hand Head Shell

To disassemble:

1. Unscrew the bridging screw (5 mm hex)
2. Unscrew the three right hand head shell screws (5 mm hex)
3. Remove the shell. Most resistance will be around the base of the top handle.

Assembly is the reverse procedure, taking care to align the handle pivot pin, handle locking pin and retractor pivot into their corresponding holes. Torque the right head shell screws to 6 Nm and the bridging screw to 8 Nm.

3.1.2 Handle Locking Button

Warning: detaching the button from the right hand head shell permanently damages the button. It should only be removed if it requires replacement.

1. Remove the right hand head shell as per 3.1.1. From the inside of the shell, use a sharp probe to bend or snap the button retaining hooks until the button can be removed. Take care not to damage the surrounding hole surface.
2. Align the new button with the head shell hole and press firmly to engage the hooks through the hole.

3.1.3 Left Hand Head Shell

To disassemble:

1. Remove the right hand head shell as per 3.1.1
2. Unscrew the three left head shell screws (Torx T25)
3. Rotate the head shell around the retractor as shown until the shell is inverted then unhook the retractor from the conrods and the wire guard. Rotating either forwards or rearwards may be easier depending on the conrods position.

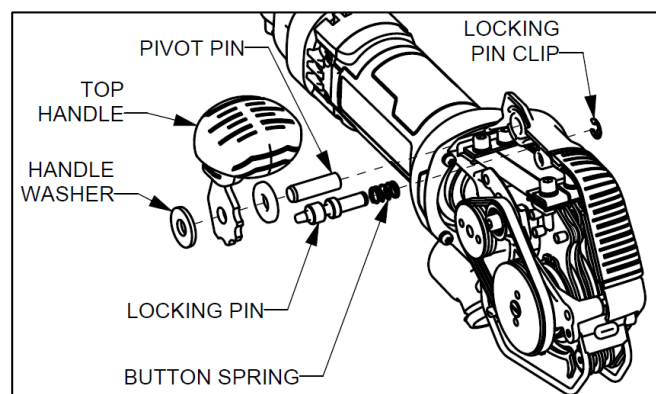
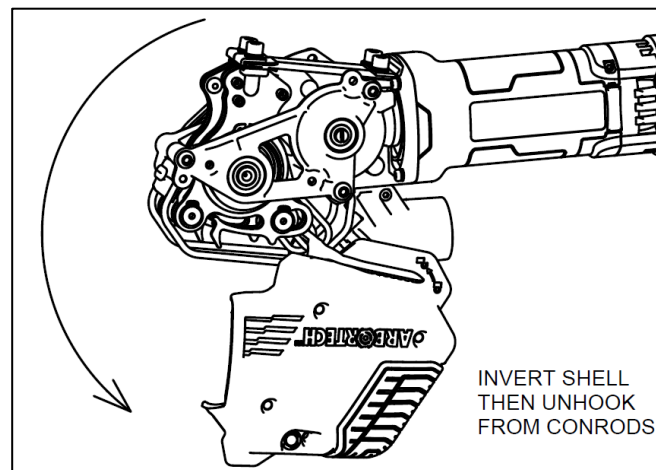
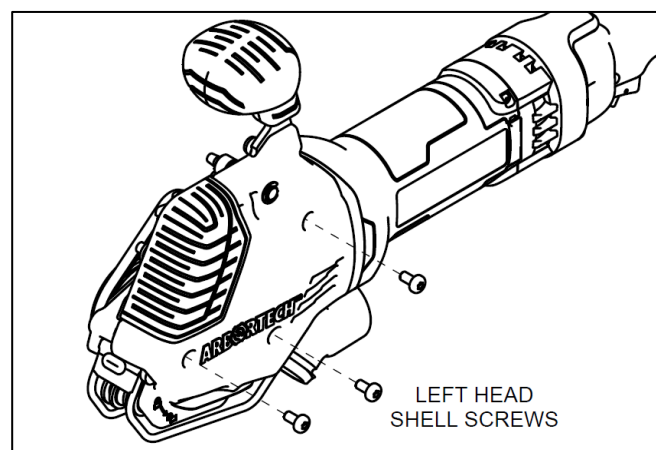
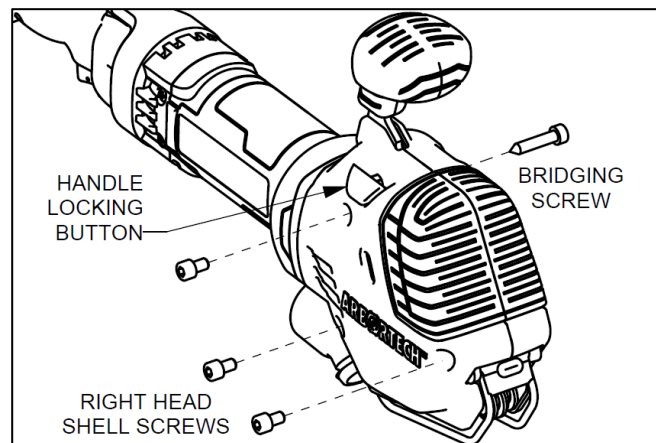
Assembly is the reverse process, taking care to correctly hook the retractor through the conrods and the wire guard. When starting the three screws take care to correctly find the hole threads since they are easily damaged. Torque the left head shell screws to 6 Nm.

3.1.4 Top Handle

To service the top handle and handle adjustment mechanism, first remove the right hand head shell as per 3.1.1.

The top handle, handle washers and pivot pin can then be inspected and replaced if necessary. A small amount of movement between the handle and the pivot pin is acceptable and is part of the vibration isolation system. When installing a new top handle ensure it is facing forwards with one handle washer on each side.

To remove the handle locking pin, pry off the e-clip with a small flat blade screwdriver. The pin will be partly ejected by the spring. When assembling the locking pin do not apply oil or grease to the mechanism as they may attract dust.



3.1.5 Dust Extraction Bracket

To remove the bracket, unscrew the dust extraction bracket screw (3 mm hex). The bracket can then be pivoted downwards and unhooked from the right hand casting. Note the wire guard may spring out of place by several mm.

When assembling the dust extraction bracket, hook it into the casting then pivot upwards to trap the wire guard. Ensure the bracket is seated squarely then tighten the screw carefully to the required torque (2 Nm).

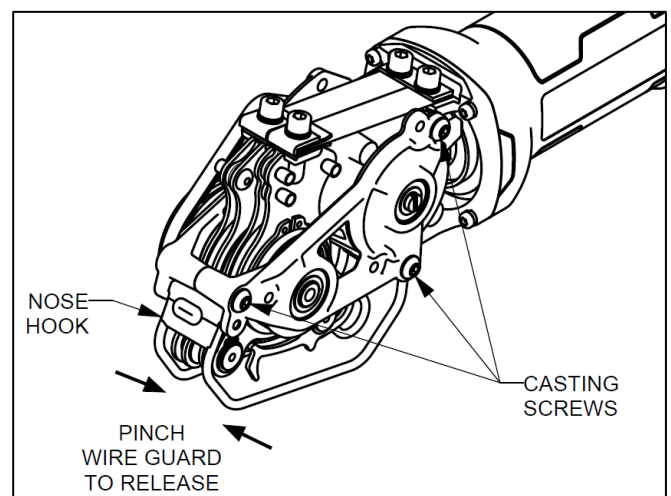
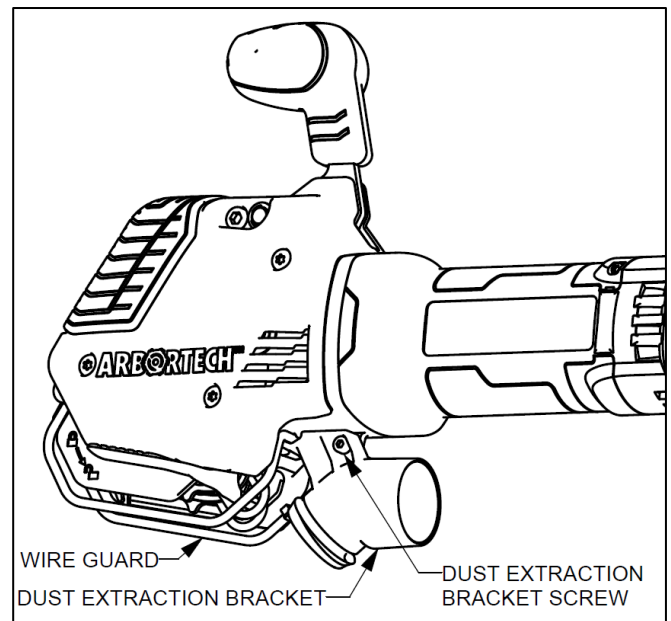
3.1.6 Wire Guard and Nose Hook

To disassemble:

1. Remove the head shells as per 3.1.1 & 3.1.3 and the dust extraction bracket as per 3.1.5
2. Unwind the three casting screws by 4 turns each (4 mm hex)
3. Using a soft-face hammer, separate the left hand casting from the right hand casting until it reaches the limit of the casting screws or the nose hook is released.
4. Remove the nose hook
5. To also remove the wire guard, pinch together the front ends until they are released from the castings.

Assembly is the reverse procedure, with the following notes:

- Use a soft-face hammer to tap the left hand casting back to its original position. Do not use the casting screws to pull the castings together.
- As the left hand casting is assembled check the gearbox o-ring is still correctly seated inside the gearbox.
- Once the left hand casting is assembled, tighten the three casting screws to hand tight, then torque to 10 Nm.

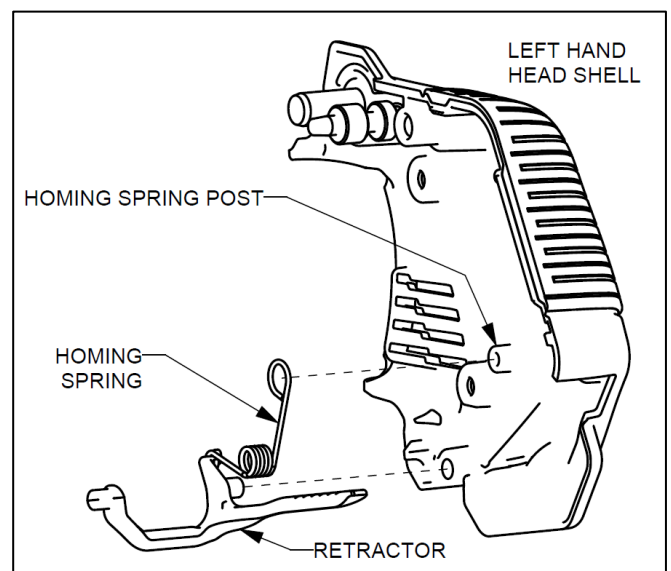


3.1.7 Retractor

Shallow marking or grooving of the retractor can occur as part of normal operation. Severe grooving may indicate a malfunction in one or both conrods. If the retractor is damaged or no longer allows blades to be installed or removed, it must be replaced. If the retractor does not return to the home position after use, the retractor homing spring should be inspected and may need replacing.

To disassemble:

1. Remove the head shells as per 3.1.1 & 3.1.3. The retractor should rotate smoothly in the left hand head shell and the homing spring should force the retractor to its home position.
2. Unhook the retractor homing spring from the left hand head shell post.
3. Slide the retractor out of the head shell hole.
4. If replacing the homing spring, unhook it from the retractor.



Assembly is the reverse process, taking care to ensure the homing spring is oriented correctly and is hooked onto the left hand head shell post.

3.2 Belt and Pulleys

3.2.1 Belt Tensioning

To tension the belt without disassembly:

1. Loosen the idler screw (5 mm hex) until the screw can be moved along the slot (approximately 1 turn). Do not loosen further.
2. Using the hex key, push the screw upwards towards the handle to tension the belt. While the screw is being pushed, tighten it to hand tight.
3. Torque the idler screw to 8 Nm.
4. Check belt tension is sufficient to prevent slipping during use.

If belt tension cannot be achieved remove the right hand head shell as per 3.1.1 and inspect the belt as per 3.2.2

3.2.2 Belt Inspection and Replacement

Remove the right hand head shell as per 3.1.1.

The belt can be tensioned as per 3.2.1 if required.

If sufficient tension to prevent slipping during use cannot be achieved within the travel of the idler, the belt is worn and should be replaced:

1. Loosen the idler screw (5 mm hex) until the idler can be moved along the slot (approximately 1 turn). Do not loosen further.
2. Move the idler down the slot away from the handle.
3. Remove the belt.
4. Install the new belt. Avoid rolling the belt during installation. Check to ensure it is correctly seated on all three pulleys.
5. Tension as per 3.2.1

3.2.3 Pulleys

Before servicing the pulleys, both head shells must be removed as per 3.1.1 and 3.1.3 and the belt must be removed as per 3.2.2.

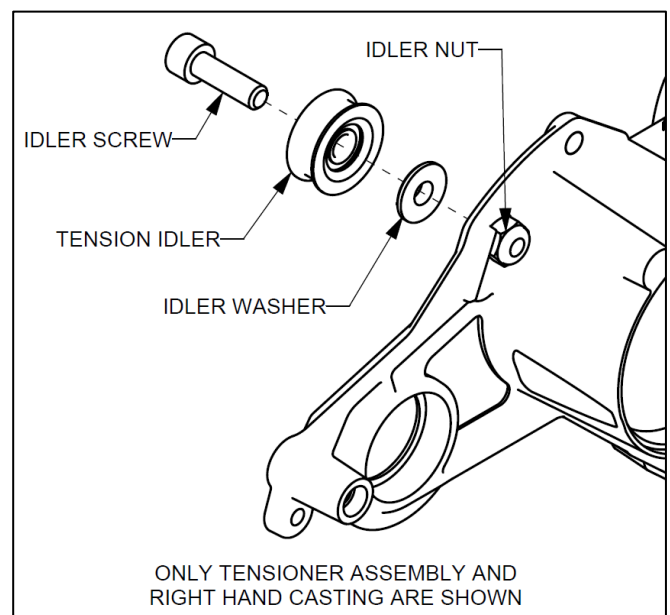
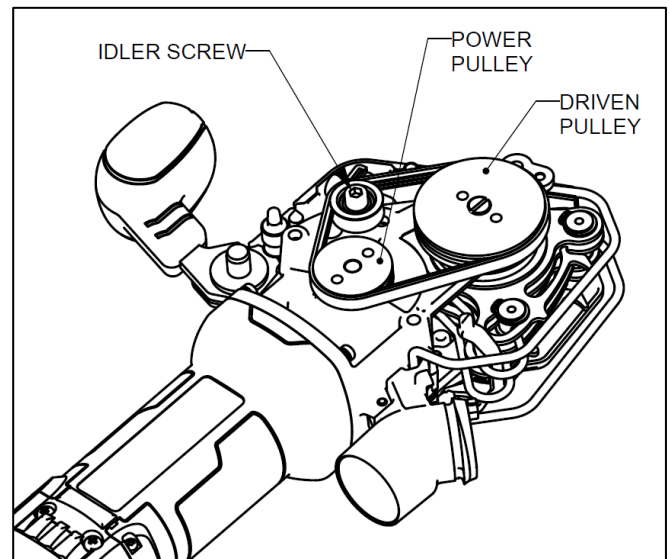
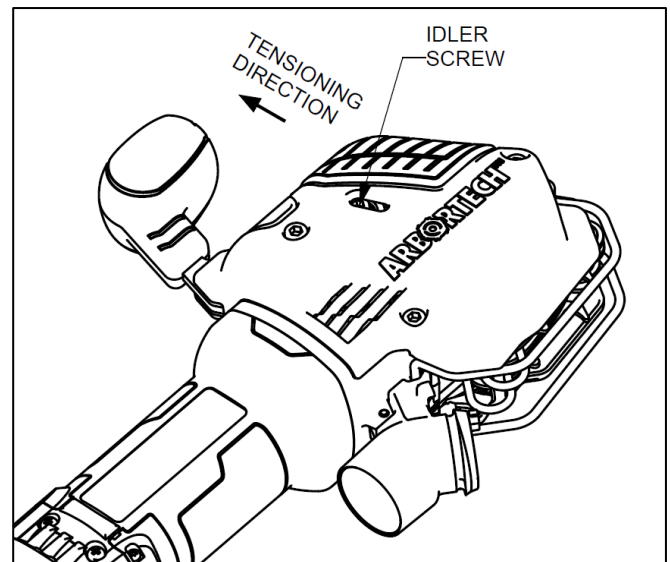
Remove the power pulley by locking the opposite end of the shaft with a flat blade screwdriver and unwinding the pulley with a pin spanner. Note it is a left-hand (reversed) thread. Warning: never activate the motor when the power pulley is disassembled. Doing so may cause permanent damage to the gears.

Remove the driven pulley by locking the near end of the shaft with a flat blade screwdriver and unwinding the pulley with a pin spanner. It uses a right-hand (standard) thread. When installing the driven pulley apply a drop of Loctite 243 to the camshaft thread. Tighten both pulleys thoroughly.

Before removing the tension idler, move it to its highest position and hold the idler nut in place so it does not fall into the mechanism. Fully unwind the screw to remove the pulley. During assembly ensure:

- The idler washer's largest face is towards the casting
- The tension idler's open side is away from the casting

Reassemble the belt and tension as per 3.2.2.



3.3 Motor

3.3.1 Brushes Inspection & Replacement

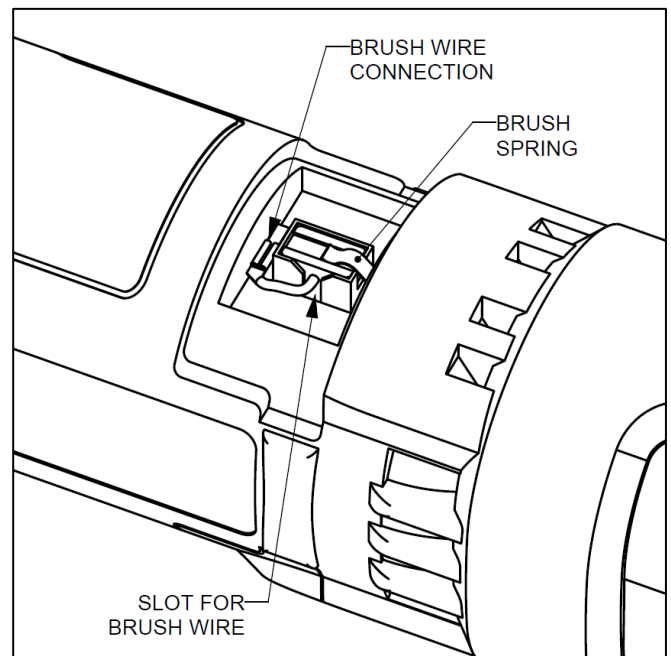
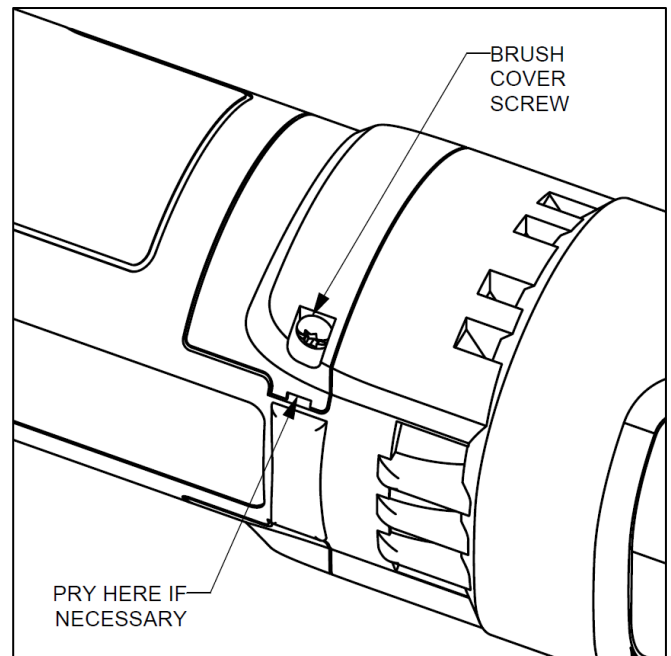
The AS200 motor uses two brushes (top and bottom), one of which is fitted with an auto cut-off system. If the brush fitted with the system has reached the auto cut-off, or if either brush has worn to limit, replace both.

To disassemble:

1. Unscrew the two screws retaining the brush covers (flat blade screwdriver or Torx T10)
2. Remove both brush covers (see diagram for pry point)
3. Lift both brush springs to the side
4. The brushes can be lifted from their holders for inspection without disconnecting
5. If replacing the brushes, disconnect the connector at the end of the brush wire and remove the old brush

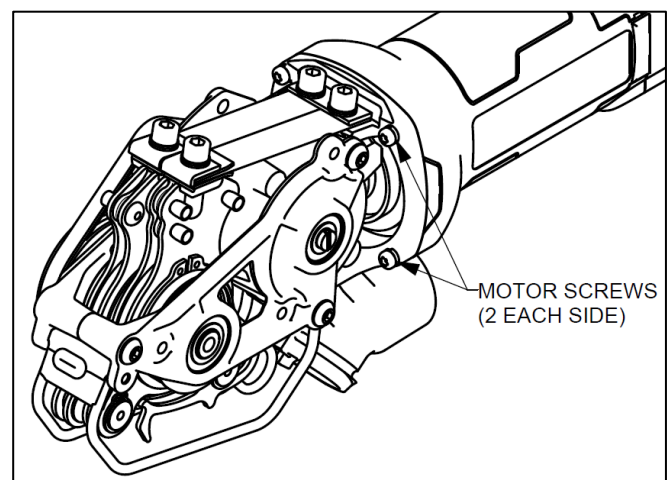
Assembly is the reverse process, taking care to:

- fit the brush wire into the slot in the brush holder
 - seat the brush spring in the slot in the brush holder and in the groove on top of the brush.
- Warning: confirm the brush springs have been seated. Failure to do so can cause rapid damage to brushes and commutator.



3.3.2 Mounting Screws Inspection

The motor is attached to the right hand casting with four dedicated plastic tapping screws with spring washers. If the motor is loose on the casting, remove the head shells as per 3.1.1 & 3.1.3 and tighten the screws (Torx T20) to 2 Nm. If they cannot be tightened to the specified torque, the plastic motor housing has stripped and should be replaced as per 3.3.3. Do not substitute alternate screws. Take care when removing and installing screws to avoid stripping the thread.



3.3.3 Motor Separation

If the armature requires replacement, the LH casting and crown shaft should be disassembled first as per 3.4.2 and 3.4.3 before separating the motor. Most other tasks requiring motor separation (such as replacing the field, replacing the field case, or inspecting the armature) can be performed with the LH casting in place.

To disassemble:

1. Remove the head shells as per 3.1.1 & 3.1.3
2. Lift the brushes as per 3.3.1
3. Unscrew the four motor mount screws (Torx T20)
4. Pull the motor away from the casting. There should be a slight resistance as the armature separates from the motor. Pull straight without bending or twisting. Take care not to damage the armature, which will remain attached to the right hand casting.

If the left hand casting and crown shaft have already been disassembled, the armature can be separated from the right hand casting:

5. Hold the armature using a soft-jaw vice at the location indicated
6. Undo the pinion nut (10 mm)
7. Pull the armature out of the armature bearing
8. If the bearing requires replacement, remove the circlip, bearing and o-ring.

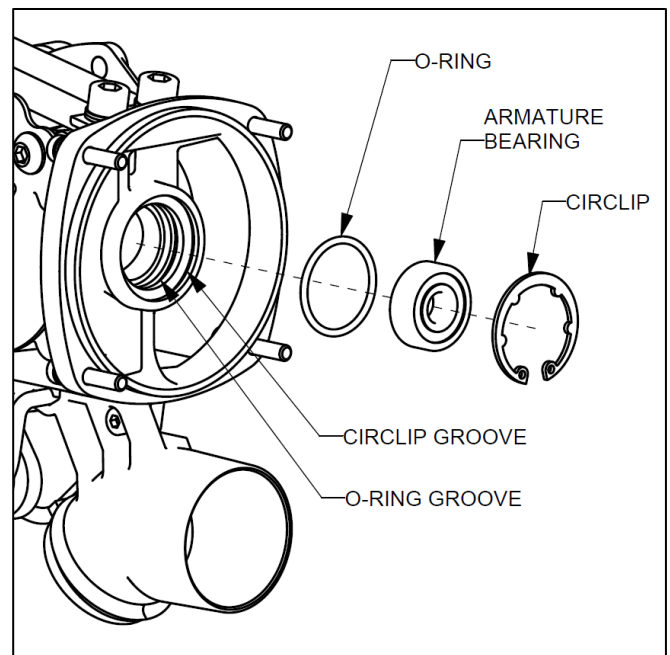
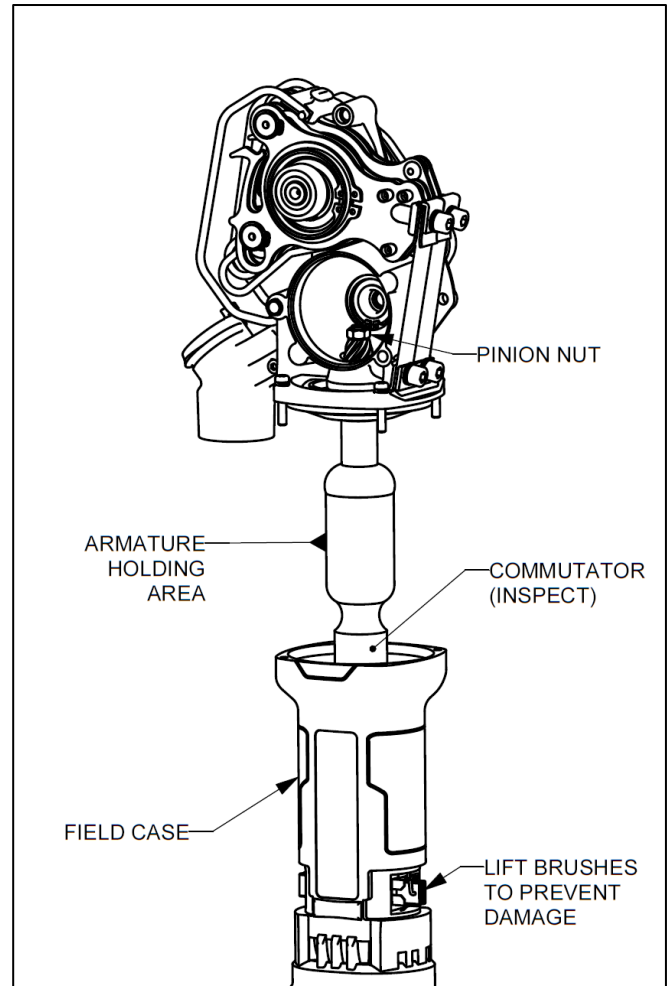
Inspection points:

Check the motor commutator, armature and field for visible damage or significant wear.

Check the armature bearing (in right hand casting). Replace if it does not rotate smoothly or is visibly damaged. Replace the o-ring if it is damaged.

To assemble

1. Fit the replacement o-ring and bearing if required, and fit the circlip with rounded face away from the bearing (tabs pressing towards the bearing)
2. Check the armature spindle is clean then align and push the spindle into the bearing
3. Fit the pinion onto the armature spindle inside the gearbox
4. Apply a small drop of Loctite 243 to the thread for the pinion nut then thread the nut on with the small serrations towards the pinion.
5. Hold the armature and tighten the pinion nut to firm hand tight
6. Check the brushes are outside the motor body then carefully feed the armature into the motor.
7. Once the motor seats against the casting, check the motor and casting are oriented correctly (trigger opposite to top springs).
8. Carefully thread in the four motor screws, locating the existing threads if possible. Tighten the screws to 2 Nm, taking care not to strip the threads.
9. Re-fit the brushes as per 3.3.1



3.4 Castings and Mechanism

The aluminium castings (left hand and right hand) form the gearbox and provide mounting points for the mechanism, head shells and ancillaries. The left hand casting must be disassembled to access the gearbox, remove the armature or to remove the mechanism. The left hand casting must be assembled when removing or installing the top springs.

3.4.1 Top Springs

If a top spring has failed, both springs should be replaced using the top springs kit. Warning: a top spring failure can damage other components such as the head shells, which should be inspected thoroughly. Replace all existing washers and screws with the new washers and screws supplied in the kit. Note: the conrods assembly kit and top springs kit include several duplicate washers and screws.

To disassemble:

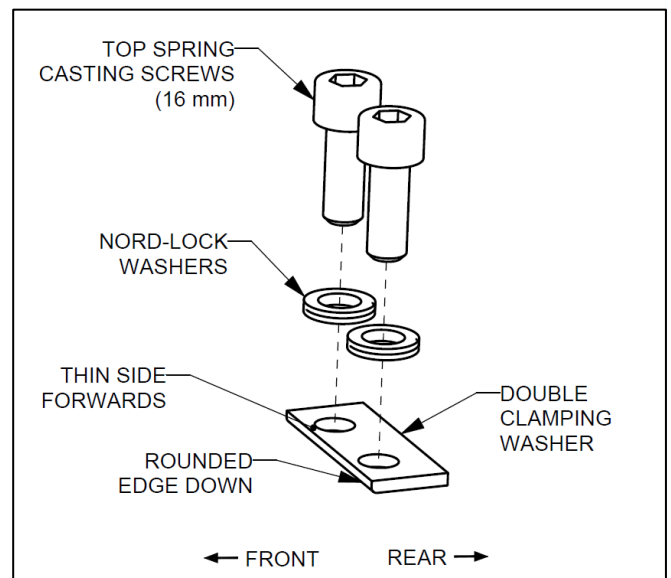
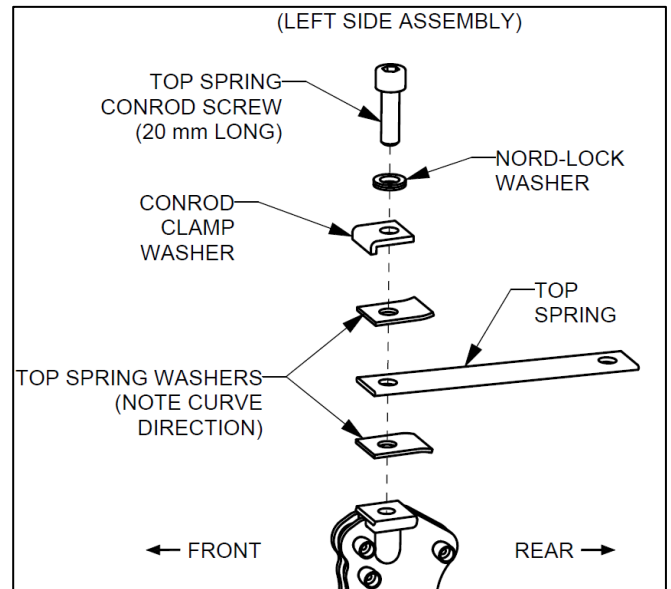
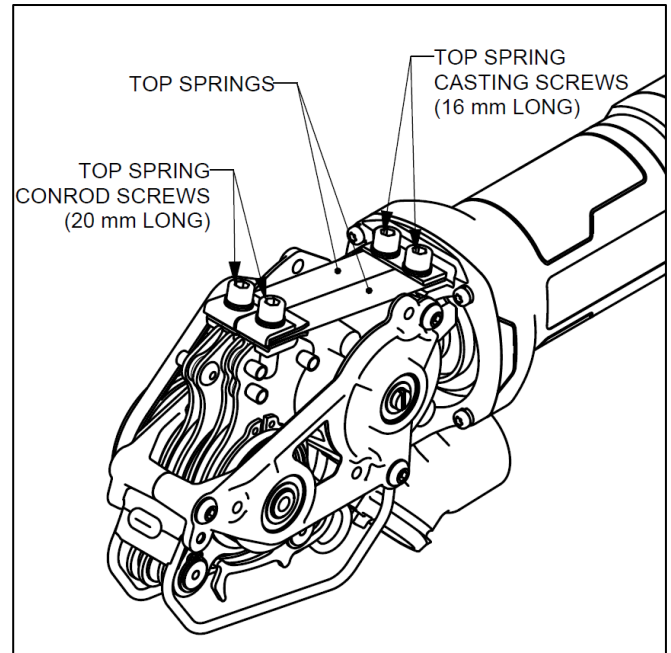
1. Remove the head shells as per 3.1.1 & 3.1.3
2. Unscrew the four top spring screws (5 mm hex) (two at the casting and two at the conrods).

Inspect the casting spring seat and the tops of the conrods for any damage caused by a broken spring. If any damage is visible, replacement is required.

Note the left hand casting must be in place before assembling new top springs.

To assemble:

1. Check the spring seat, the tops of the conrods, the threaded holes in the casting, the springs and all washers are clean.
2. Do not scrape or abrade the springs to remove residue or debris. If a spring is scratched it must be replaced.
3. Assemble the screws and washers as shown, taking care to orient each washer correctly (top/bottom and front/back).
4. Include a small drop of Loctite 243 on the last thread of each screw and wind them into the casting and conrods. Note the shorter (16 mm) screws fasten into the casting and the longer (20 mm) screws fasten into the conrods. Do not tighten any screws until all four are in place.
5. Gradually tighten the four screws, ensuring the washers at the conrods remain square to the top springs. Tighten all four screws to 18 Nm. Pay special attention to the conrod screws which may give a false tight feeling while the screws and washers settle (approx 1 turn before fully tightening).
Do not allow the tool to sit for more than 10 mins with Loctite applied before tightening fully.



3.4.2 Left Hand Casting

To disassemble:

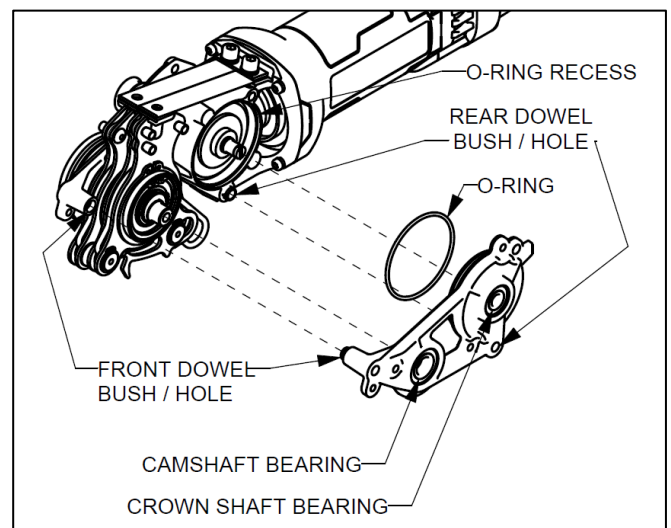
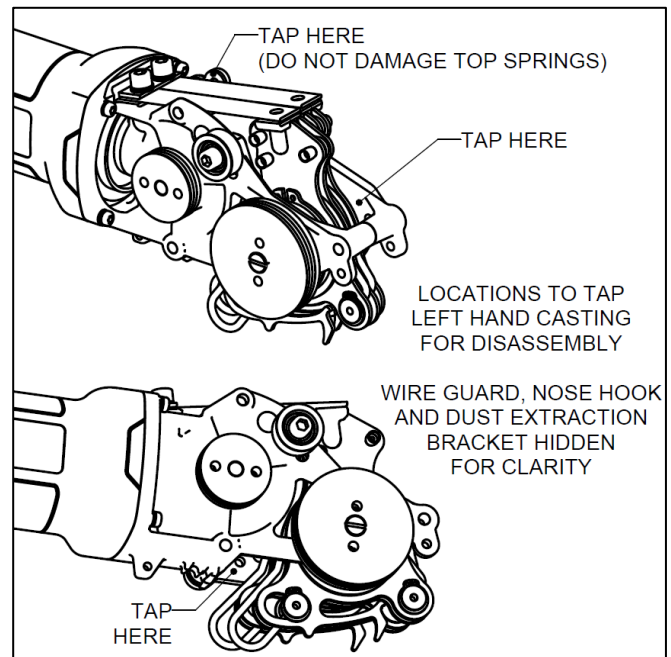
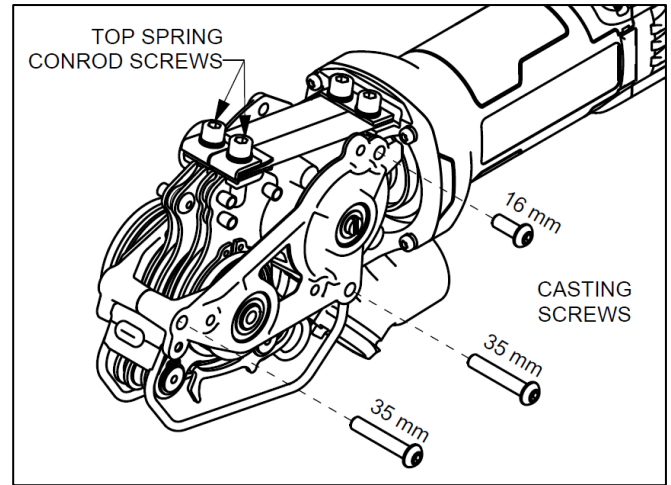
1. Remove the head shells as per 3.1.1 & 3.1.3 and the drive belt as per 3.2.2. Remove the dust extraction bracket as per 3.1.5 can improve access but is not essential.
2. Remove the top spring conrod screws (5 mm hex) and washers
3. Remove the three casting screws (4 mm hex)
4. Use a soft-face hammer to gently tap the left hand casting away from the right hand casting. A rod-type punch with a soft end (e.g. plastic) can be used with care at the locations indicated.

Inspection points:

Check both the bearings which mount in the left hand casting (they may remain attached to their shafts after disassembly). Replace if they do not rotate smoothly or are visibly damaged. Check the o-ring for cracks or tears and replace if any defects are found. If possible, replace the o-ring each time the left hand casting is disassembled.

To assemble:

1. Seat the o-ring into the right hand casting, flush with the opening face of the gearbox.
2. Align the left hand casting on the crown shaft and cam shaft, and gently tap with a soft-face hammer to begin fitting
3. Check the two dowel bushes are aligned with the corresponding holes (see diagram) and the o-ring remains seated inside the gearbox.
4. Ensure the wire guard and nose hook are fitted as per 3.1.6. They cannot be added after the casting is assembled.
5. Continue tapping the casting into position with a soft-face hammer until it is fully seated (no gaps at the contact surfaces).
6. Install the three casting screws to hand tight. Note the short screw (16 mm) fastens at the upper hole near the top springs, and the two longer screws (35 mm) fasten at the front and lower holes.
7. Torque the three casting screws to 10 Nm.
8. Reassemble the top spring conrod screws, washers and Loctite 243 as per 3.4.1. Torque to 18 Nm.



3.4.3 Gearbox inspection

To disassemble:

1. Remove the head shells as per 3.1.1 & 3.1.3, the drive belt as per 3.2.2, the power pulley as per 3.2.3 and the left hand casting as per 3.4.2.
2. Use a soft-face hammer to tap the threaded end of the crown shaft until it releases from the gearbox.

Inspection points:

Check crown wheel and pinion for worn or broken teeth, and replace the crown shaft assembly if necessary. To replace the pinion, the motor must be separated as per 3.4.2.

Check the pinion is tightly locked to the armature. If the pinion can rotate on the armature, separate the motor and tighten the pinion nut as per 3.4.2.

Check the grease condition and replace if any debris is found.

Check the right hand crown shaft bearing rotates smoothly. If not, or if it is visibly damaged, it must be replaced (first remove the retaining circlip which may be hidden by grease).

To assemble:

1. Start the crown shaft into the right hand bearing
2. Push the shaft into place, ensuring it meshes correctly with the pinion and seats against the bearing.
3. Assemble the left hand casting as per 3.4.2

3.4.4 Conrods Assembly

To disassemble:

1. Remove the head shells as per 3.1.1 & 3.1.3, the drive belt as per 3.2.2 and the driven pulley as per 3.2.3
2. Remove the top spring conrod screws (5 mm hex)
3. Disassemble the left hand casting as per 3.4.2
4. Use a soft-face hammer to tap the threaded end of the camshaft until it releases from the right hand casting (the bearing may stay attached to the camshaft). Take care not to bend the casting.

Inspection points:

Check the right hand camshaft bearing and replace if it does not rotate smoothly or is visibly damaged.

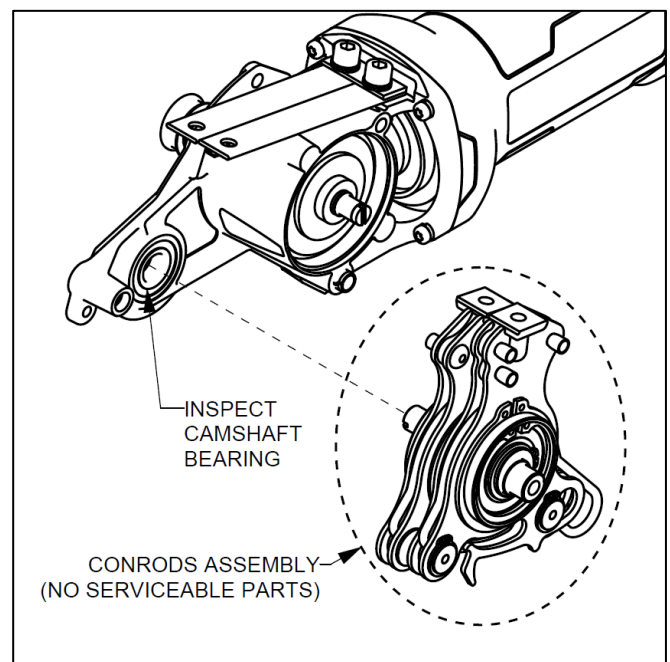
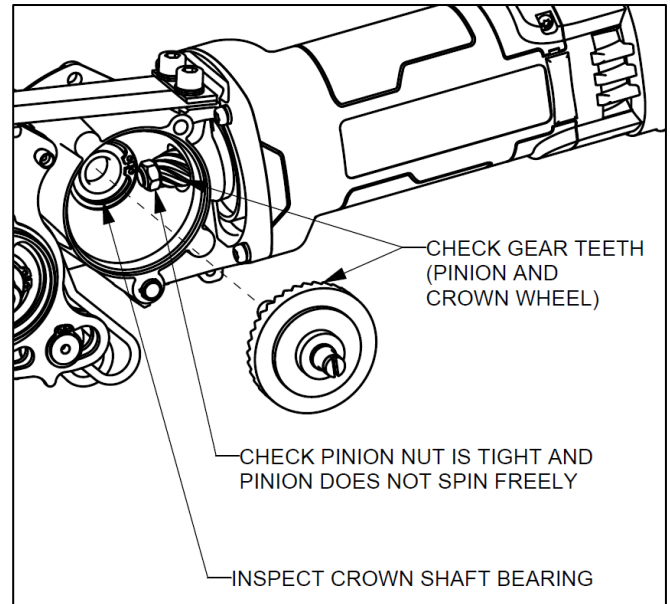
Replace the conrods assembly if the conrod bearings do not rotate freely, the conrods are cracked or the conrod blade attachment mechanisms are damaged or excessively worn.

Warning: individual conrods are not serviceable and attempts to remove them from the camshaft or disassemble the conrods can cause permanent damage. If a conrod or component requires replacement the entire conrods assembly must be replaced.

Note: the conrods assembly kit and top springs kit include several duplicate washers and screws.

To assemble:

1. Press the conrods assembly into the right hand camshaft bearing (threaded end first), ensuring the camshaft seats fully against the bearing. Avoid collision with the top springs and right hand casting.
2. Assemble the left hand casting as per 3.4.2
3. Assemble the top spring conrod screws, washers and Loctite 243 as per 3.4.1. Torque to 18 Nm.
4. Assemble the driven pulley, drive belt and head shells.



3.4.5 Right Hand Casting

If the right hand casting becomes deformed, cracked or otherwise damaged during use it must be replaced.

Replacing the right hand casting requires removal of the head shells, ancillaries, top springs, left hand casting, drivetrain, conrods assembly and motor including armature. The tension idler must also be removed as per 3.2.3.

Notes for assembly:

- Assemble the tension idler to the right hand casting first as per 3.2.3 before any other assembly steps.
- Do not tighten any top spring screws until the castings are fully assembled.



ARBORTECH PTY LTD

67 Westchester Rd, Malaga,
WA, Australia, 6090
Ph: +61 8 9249 1944
Fax: +61 8 9249 2936

ARBORTECH EUROPE GMBH

Esloher Str. 188,
57413 Finnentrop, Germany
(Germany) +49 2724 2880474

USA

30 Corporate Park Dr, Suite 210
Pembroke, MA 02359
(USA) Toll Free: (866) 517 7869

CANADA

120 Saunders Rd, Unit 4
Barrie, Ontario L4N 9A8
(CAN) Toll Free: (855) 939-8665

Email

arbortech@arbortech.com.au

Facebook

www.facebook.com/ArbortechTools