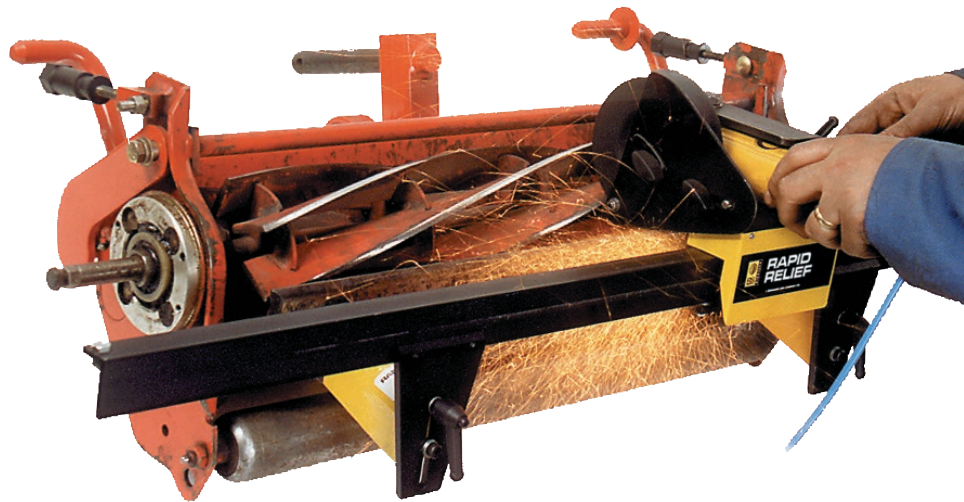




RAPID RELIEF

Reel Blade Relief Restoring Device



User's Guide & Instruction Manual

SINCE 1979
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USA Toll Free **1-888 GRIND IT** (1-888 474 6348)

Please read this manual carefully before using the Rapid Relief.

This manual should be kept in a safe place so that it can be used for future reference.



RAPID RELIEF

Reel Blade Restoring Device

Welcome to the Bernhard Rapid Relief 1000. If cared for and operated correctly this machine will give you years of good service.

This manual will enable you to obtain the best results from your Rapid Relief so please read it thoroughly before using your machine.

If you have any service or operational issues please contact your distributor or phone our technical support hotline

Technical Helpline (USA only) 1-888 474 6348

Rest of World: UK Head Office, England (+44) 1788 811600

Email: support@bernhard.co.uk

Technical FAQs can be found on our web site: **www.bernhard.co.uk**

When ordering spare parts please quote the machine type and serial number.

THE MANUFACTURERS ACCEPT NO RESPONSIBILITY FOR ANY SITUATION ARISING FROM THE FITTING AND/OR USE OF NON-ORIGINAL SPARE PARTS.

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Please quote this serial number on all correspondence:

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1. Safety

1.1 **IMPORTANT**

The air supply must NOT be connected when:

- a) attaching the Rapid Relief RT1000 to the bedknife
- b) setting up the Rapid Relief RT1000
- c) removing the Rapid Relief RT1000 from the bedknife.

WARNING: THE MAGNETS ARE VERY POWERFUL

1.2 Always support the angle grinder carriage whilst carrying the Rapid Relief RT1000.

Do NOT hold the Rapid Relief RT1000 by the magnets when attaching the machine to the bedknife.

1.3 Always wear eye protection when operating the Rapid Relief RT1000.

1.4 When operating the Rapid Relief RT1000 never:

- a) leave rags or tools on the machine
- b) wear loose clothing that could become caught in the grinding disc or chuck.
Always keep long hair tied back.

1.5 The disc causes hot sparks. Make sure no flammable materials are close.

1.6 Never use the machine for any purpose other than that for which it is designed.

1.7 Always use the correct grinding discs.

1.8 Never fit a disc while the air line is connected.

1.9 We advise the wearing of ear defenders.

1.10 Keep your fingers clear of the reel blades when operating the Rapid Relief RT1000.

1.11 The air grinder must not be removed from and used independently of the tool holder.



2. Description

- 2.1 The Rapid Relief RT1000 consists of an air driven angle grinder attached to an accurate slide rail. This is fixed to the base of a bedknife by two powerful magnets. It is used to restore the relief angle on reel blades.
- 2.2 The angle grinder carriage is attached to the slide rail supported on rollers. These are adjustable to reduce backlash to a minimum. The rollers also allow the grinding head to traverse along the rail.
- 2.3 The adjustable handle (part 15) allows the grinding disc height to be set.
- 2.4 The grinding head has horizontal adjustment into and out of the reel via a simple feed screw (part 67) and the position is locked by means of an adjustable lever (part 68).
- 2.5 The air grinder uses a grinding disc 4.5" (115mm) in diameter, running at 11,000 rpm.
- 2.6 As with other Bernhard Reel and Bedknife Grinding Machines this grinding action takes place where the grass is cut. This is the key to the excellent results produced by our equipment.

3. On-Site / Workshop Requirements

3.1 AIR SUPPLY

This should be clean, dry and dust free. It should be supplied to the air motor by a securely attached flexible hose which allows free movement of the grinding head along the slide rail.

3.2 AIR FLOW RATE

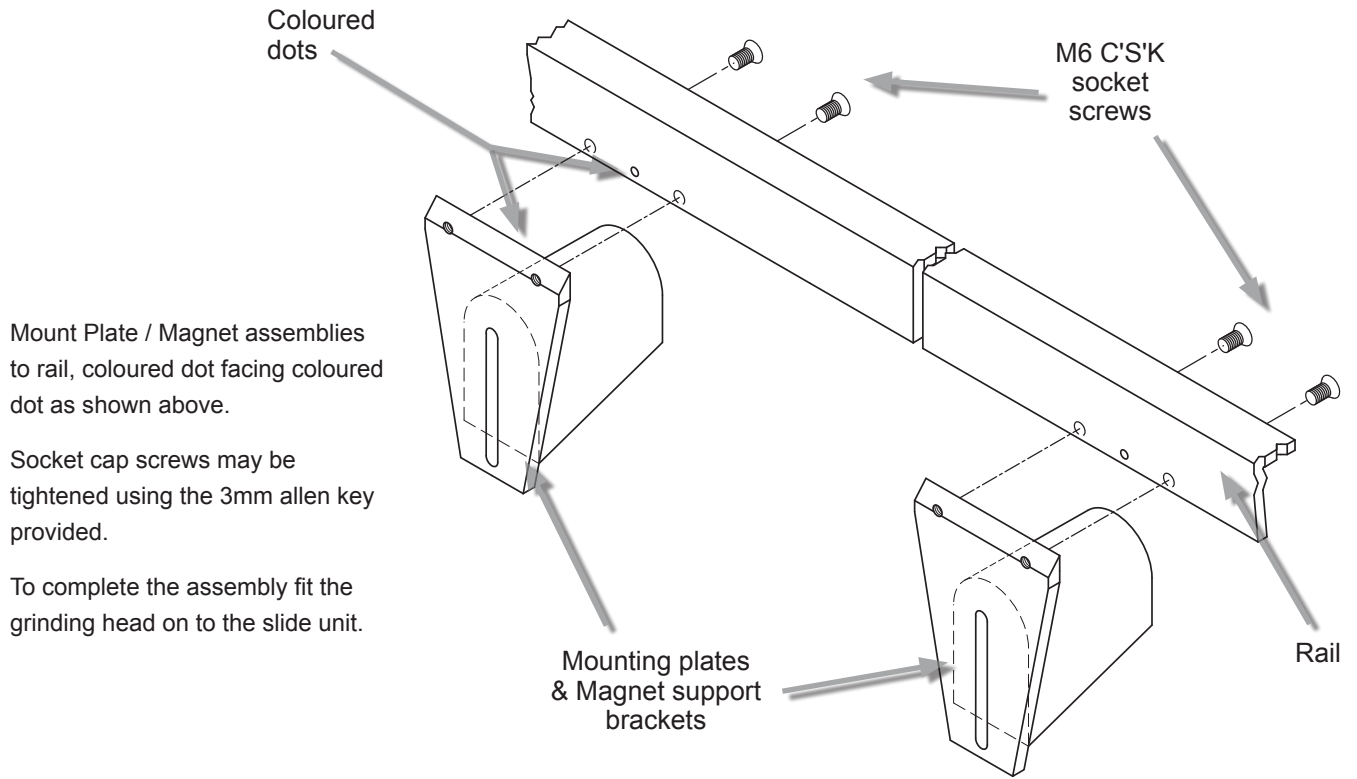
The air motor operates best on an airflow rate of 9 cubic feet/min. (0.25 cubic metres/min). The air motor is designed for a maximum air pressure of 6 bar (90 psi).

- 3.3 An isolating valve must be available to cut off the air supply to the machine. This must be sited close to the machine.
- 3.4 It is useful to have a pressure regulator and air filter in the air line.



4. Setting Up

4.1 NOTE: The Rapid Relief RT1000 as shipped will need some minimal assembly before use.



4.2 PRELIMINARY CHECKS

- 4.2.1 Ensure that the air supply is not attached to the angle grinder motor.
- 4.2.2 Ensure that the eccentric pillars (parts 23 and 24) are correctly adjusted. They are set to reduce backlash and allow free movement of the grinding head along the rail. These are preset on new machines.
- 4.2.3 Ensure that the correct grade and size of grinding disc (part 71) is fitted to the angle grinder. This is factory supplied.
- 4.2.4 Ensure that the grinding disc (part 71) is securely tightened.
- 4.2.5 Ensure that the angle grinder (part 77) is securely attached to the carriage.



SAFETY PRECAUTION

- 4.2.7 To avoid trapped fingers do **NOT** hold the RT1000 by the magnets.
Ensure that the two magnets (part 12) are securely attached to the slide rail (part 1).
 - 4.2.8 Ensure that the carriage end stops are secure.
Ensure that the carriage runs smoothly back and forth along the rail.
 - 4.2.9 Ensure that the specified air supply is available. Check that the flexible hose and push in connector are correctly assembled.
- NOTE:** The air supply should have an isolating valve near the Rapid Relief RT1000.

4.3 PREPARING THE RT1000 FOR WORK

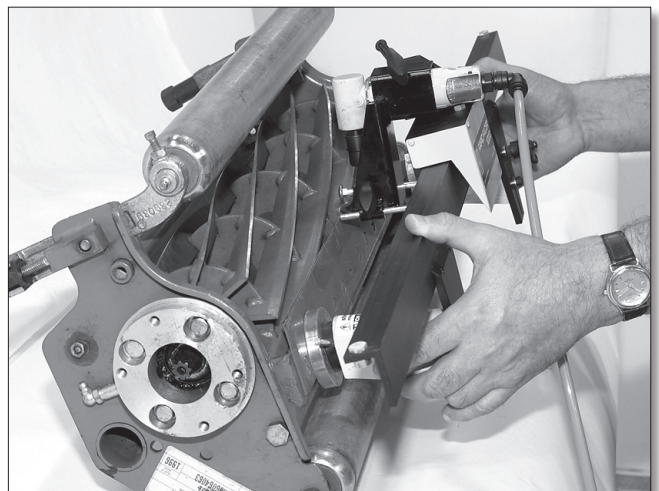
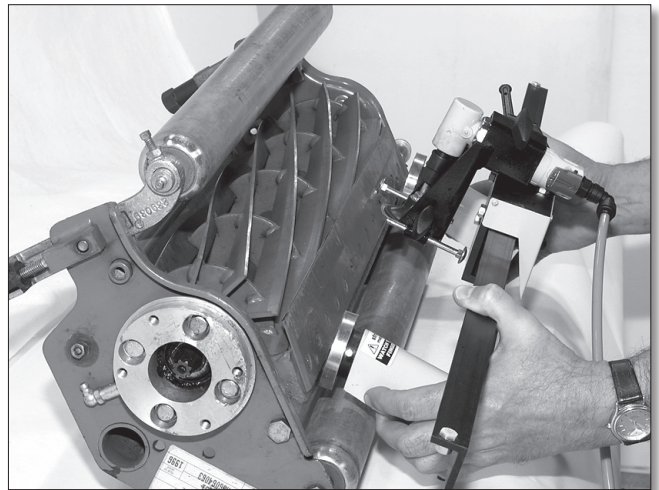
SAFETY WARNING

Ensure that the power / drive to the reel is disconnected.

To avoid pinching your fingers do **NOT** hold the Rapid Relief by the magnets.

Carefully attach the Rapid Relief to the bottom of the bedknife by the magnets. Adjust the position of each magnet in turn so that the disc is just clear of the top of the cutting edge of the bedknife at each end.

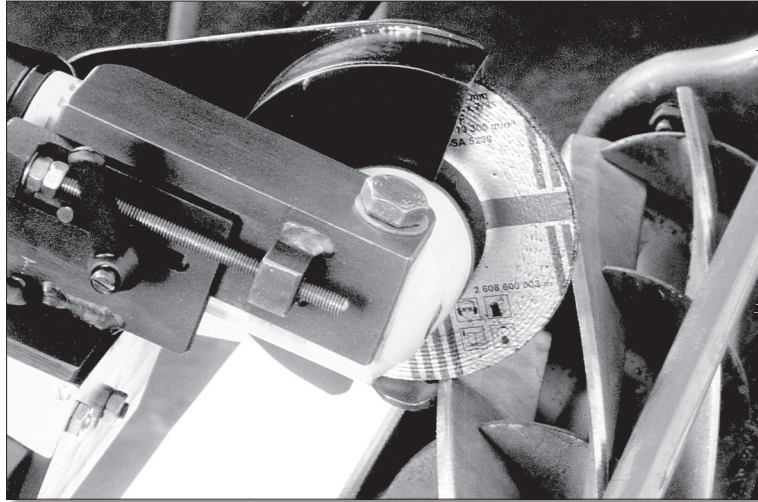
(These pictures shows a Rapid Facer unit but magnets and rail are the same for Rapid Relief unit)



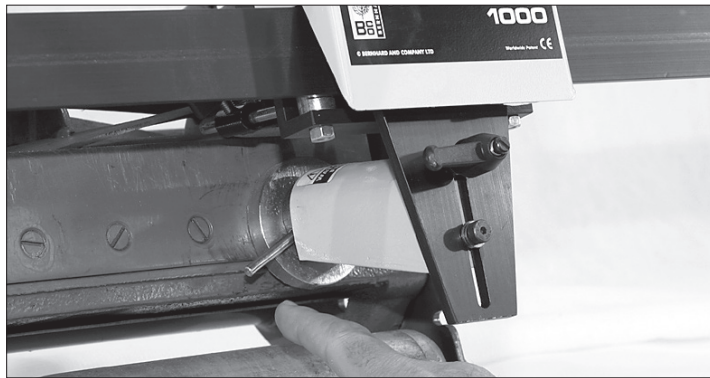
- 4.3.1 It may be necessary to turn the feed knob (part 67) counter clockwise to move the grinding head back, to be clear of the reel for initial positioning.
- 4.3.2 Carefully attach the RT1000 to the bottom of the bedknife by the magnets.



- 4.3.3 Slacken the two adjustable levers (part 15).
- 4.3.4 Position the grinding head above the right hand magnet and adjust rail height. Move grinding head in, using feed screw (part 67), so that grinding disc matches the angle of the remaining relief on a blade.



- 4.3.5 Slacken the wing knob (part 62) and adjust support finger (part 61) so that the blade is trapped between the grinding disc and the support finger. Re-tighten the wing knob (part 62).
- 4.3.6 Tighten the locking lever on this side.
- 4.3.7 Repeat for the left hand side of the rail.
- 4.3.8 Using the eccentric adjusters, position the unit so that the grinding disc has light contact evenly along the length of the reel blade.



(To account for stone wear, loosen wing knob (part 64) and adjust side guard (part 60) and finger assembly back towards the grinding disc until clearance between the disc and finger is minimal.)



5. Operation

- 5.1 Wear safety goggles.
- 5.2.1 Attach the air line and turn on the air.
- 5.2.2 Position the grinding disc at one end of the reel blade.
- 5.2.3 Start the air motor by depressing the throttle button.
- 5.2.4 Apply a cut by turning the feed knob (part 67) clockwise, then lightly tighten locking lever (part 68) and traverse back and forth along the blade.



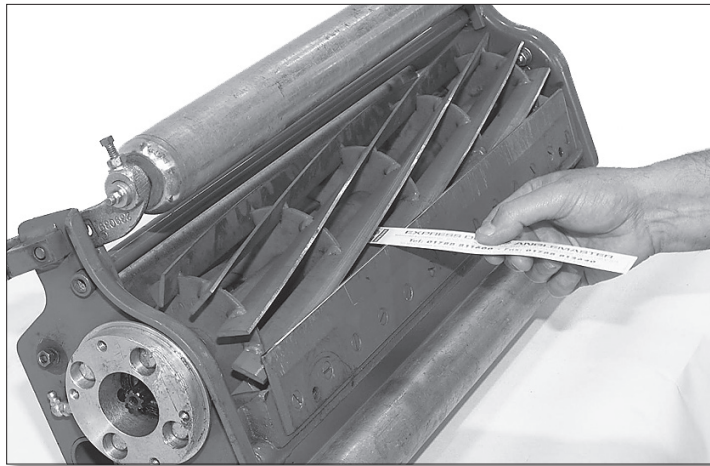
- 5.2.5 Stop the grinder. Index to the next blade and repeat the process. Increase feed using feed knob (part 67) as necessary.
- 5.2.6 NOTE: If a lot of material has to be removed to achieve the desired amount of relief, it is better to take a light cut off each blade, then repeat the process around the reel, applying a cut at the end of a complete revolution.
- 5.2.7 When the desired amount of relief is achieved, turn off the air and disconnect the air line.
- 5.2.8 Remove the RT1000 from the bedknife.



- 5.2.8 Remove the RT1000 from the bedknife.
- 5.2.9 Rotate the reel and check that the cutting clearance is correct all along the full length of each blade.

NOTE: Set the reel to cut paper at between .002" and .004" (.05mm-.1mm) clearance.

For best results trap one Bernhard Cutting Strip between reel and bedknife.





6. Maintenance

- 6.1 Cleanliness is important for correct operation and long life.
After each operation wipe all dust and abrasive materials from the slide rail and bearings. Occasionally the feed slide face will need cleaning.
- 6.2 The air motor and gear box should be oiled each day of use and prior to being stored away.
- 6.3 The machine relies on the disc holder rubber to maintain a steady pressure for the grinding cut. If it is cracked or weakened it should be replaced.

7. Repairs

- 7.1 All components are readily available from your distributor.
In case of difficulty do not hesitate to call us Toll free **1-888 GRIND IT (1-888 474 6348 in the USA) or on +44 1788 811600.**
- 7.2 A perfectly straight slide is crucial to the successful operation of this machine. A bent or damaged rail must be replaced.
- 7.3 Worn pillars and bearings are easily replaced.
- 7.4 The angle grinder is not prone to problems but if in difficulty call our technical helpline.

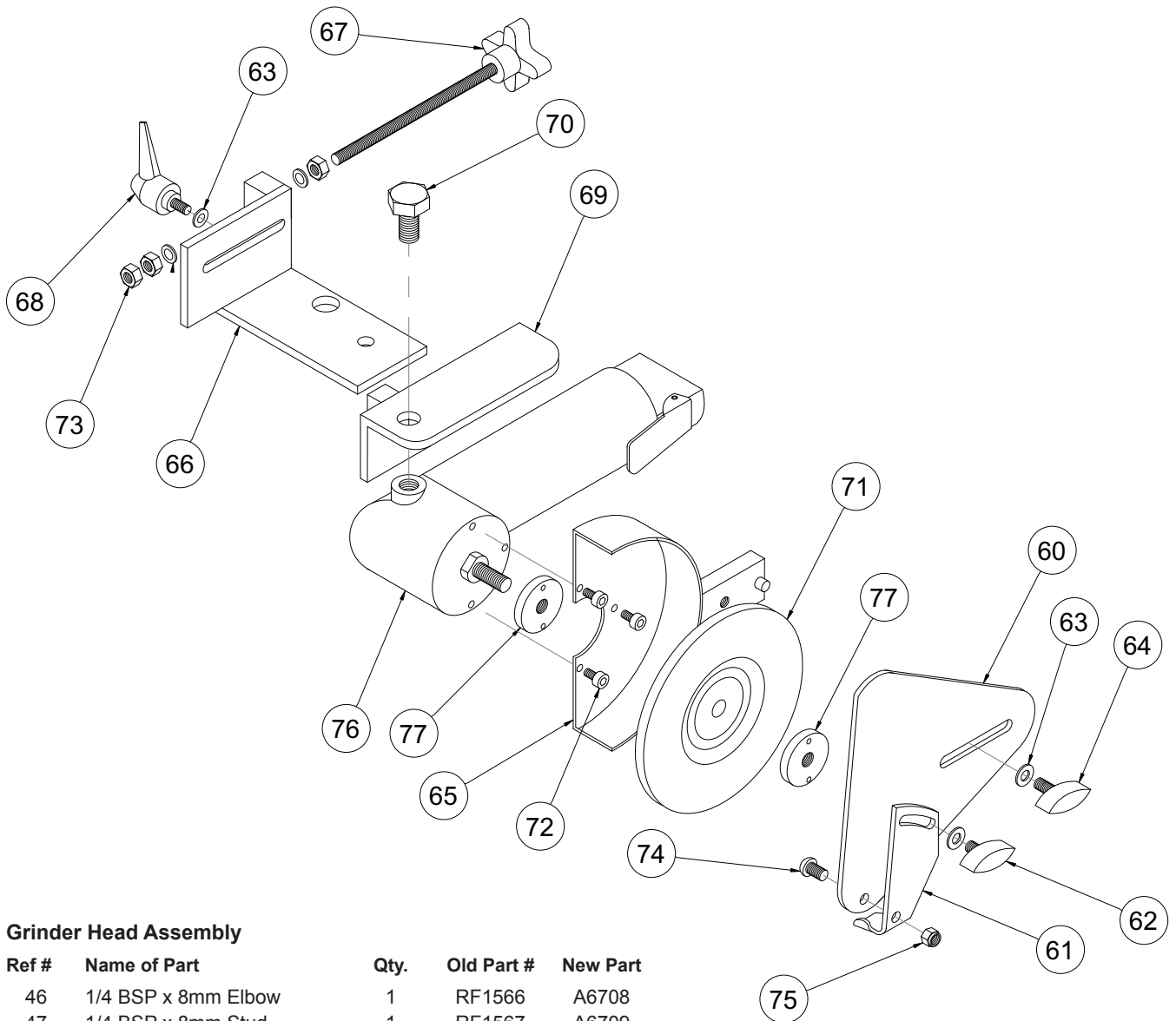


8. Parts List

| Ref # | Name of Part | Qty. | Old Part # | New Part # |
|---------------------------------|-------------------------------------|------|------------|------------|
| Rail Assembly | | | | |
| 1 | Rail..... | 1 | RF1501 | A3000 |
| 2 | Front Plate..... | 2 | RF1502 | A4057 |
| 3 | M6 x 12 Hex Hd Bolt..... | 2 | RF1503 | A5718 |
| 4 | M6 Nut..... | 2 | RF1504 | A5516 |
| 5 | M6 Washer..... | 2 | RF1505 | A5320 |
| 6 | M5 x 10 Csk Bolt..... | 4 | RF1506 | A5130 |
| Support Bracket Assembly | | | | |
| 7 | Support Brkt (casting)..... | 2 | | A4135 |
| 8 | M8 Washer..... | 2 | RF1511 | A5321 |
| 5 | M6 Washer..... | 10 | RF1505 | A5320 |
| 9 | Belleville Spring..... | 2 | RF1506 | A5307 |
| 10 | Eccentric Disc + Lever..... | 2 | RF1515 | A9033 |
| 11 | M6 x 10 x 5 Shoulder Screw..... | 2 | | A5144 |
| 12 | Magnet..... | 2 | RF1512 | A6754 |
| 13 | M6 x 40 Cap Screw..... | 2 | RF1513 | A5154 |
| 14 | M6 Nyloc Nut..... | 4 | RF1514 | A5517 |
| 15 | Adjustable Kip Lever..... | 2 | RF1519 | A6124 |
| Saddle Assembly | | | | |
| 16 | No 4 Self Tap Screw..... | 4 | RF1518 | A5418 |
| 17 | Saddle..... | 1 | RF1530 | A4118 |
| 18 | Bearing..... | 9 | RF1536 | A7708 |
| 4 | M6 Nut..... | 6 | RF1504 | A5516 |
| 5 | M6 Washer..... | 7 | RF1505 | A5320 |
| 19 | Horiz. Pillar Spacer (short)..... | 1 | RF1601 | A9022 |
| 20 | M6 x 8 C/sunk Screw..... | 1 | RF1571 | A5159 |
| 21 | Horiz. Pillar Spacer (long)..... | 2 | RF1600 | A9125 |
| 22 | Vert.Pillar..... | 2 | RF1534 | A9021 |
| 23 | Horizontal Eccentric..... | 1 | RF1533 | A9020 |
| 24 | Vertical Eccentric..... | 1 | RF1535 | A9124 |
| 25 | Hex. Head Bolt M6 x 40..... | 2 | RF1573 | A5722 |
| 26 | Hex. Head Bolt M6 x 35..... | 2 | RF1572 | A5721 |
| 27 | Hex. Head Bolt M6 x 12..... | 1 | RF1503 | A5718 |
| 28 | Horiz. Pillar..... | 2 | RF1532 | A9123 |
| 29 | Saddle Guard..... | 1 | RF1537 | A6610 |
| 30 | Button H'd Skt Screw M8 x 20..... | 2 | | A5163 |
| Grinder Head Assembly | | | | |
| 46 | 1/4 BSP x 8mm Elbow..... | 1 | RF1566 | A6708 |
| 47 | 1/4 BSP x 8mm Stud..... | 1 | RF1567 | A6709 |
| 48 | 8mm Poly-Nylon Hose..... | 1 | RF1568 | A6703 |
| 60 | Adj.Blade Finger Support Plate..... | 1 | RT1701 | A2713 |
| 61 | Blade Finger..... | 1 | RT1702 | A4020 |
| 62 | Wing Knob M6 x 10..... | 1 | RT1703 | A6126 |
| 63 | M6 Washer..... | 5 | RF1505 | A5320 |
| 64 | Wing Knob M6 x 15..... | 1 | RT1705 | A6142 |
| 65 | Grinding Stone Guard..... | 1 | RT1706 | A6331 |
| 66 | Mounting Bracket Fabrication..... | 1 | RT1707 | A4086 |
| 67 | Feed Screw..... | 1 | RT1708 | A9038 |
| 68 | Adjustable Kip Lever..... | 1 | RF1519 | A6124 |
| 69 | Air Grinder Bracket..... | 1 | RT1710 | A4017 |
| 70 | Air Grinder Fixing Bolt..... | 1 | RT1711 | |
| 71 | Grinder Disc..... | 1 | RT1712 | A6501 |
| 72 | M5 x 10 Cap Head Screw..... | 3 | | A5131 |
| 73 | M6 Nut..... | 3 | RF1504 | A5516 |
| 74 | M6 x 12 Button Head Screw..... | | | A5145 |
| 75 | M6 Nyloc Nut..... | | RF1514 | A5517 |
| 76 | Air Grinder..... | | RT1713 | A6723 |
| 77 | Pin Lock Nut..... | 2 | | |



Reference Diagram • **Rapid Relief Grinder Head Assembly**

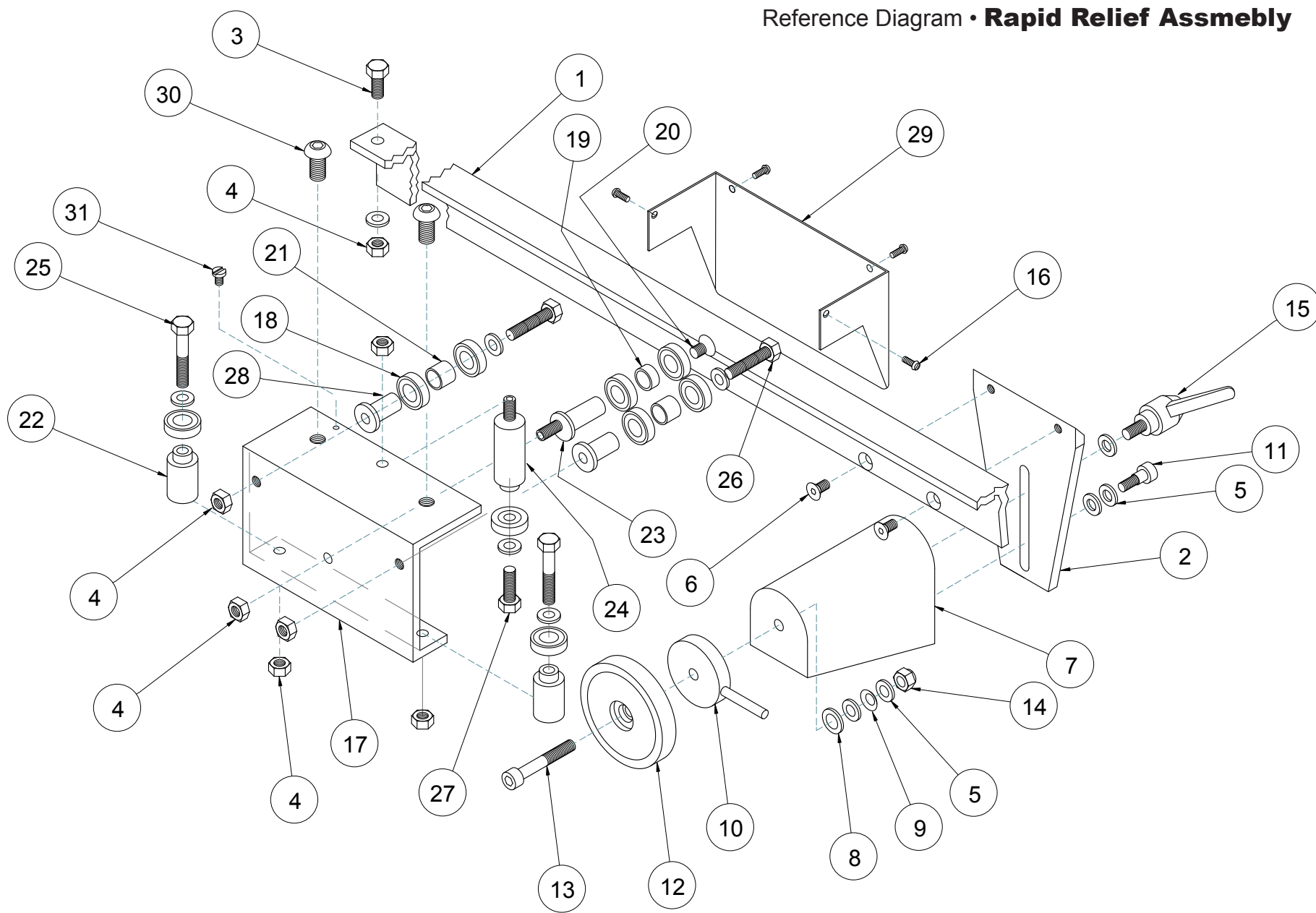


Grinder Head Assembly

| Ref # | Name of Part | Qty. | Old Part # | New Part |
|-------|--------------------------------|------|------------|----------|
| 46 | 1/4 BSP x 8mm Elbow | 1 | RF1566 | A6708 |
| 47 | 1/4 BSP x 8mm Stud | 1 | RF1567 | A6709 |
| 48 | 8mm Poly-Nylon Hose | 1 | RF1568 | A6703 |
| 60 | Adj.Blade Finger Support Plate | 1 | RT1701 | A2713 |
| 61 | Blade Finger | 1 | RT1702 | A4020 |
| 62 | Wing Knob M6 x 10 | 1 | RT1703 | A6126 |
| 63 | M6 Washer | 5 | RF1505 | A5320 |
| 64 | Wing Knob M6 x 15 | 1 | RT1705 | A6142 |
| 65 | Grinding Stone Guard | 1 | RT1706 | A6331 |
| 66 | Mounting Bracket Fabrication | 1 | RT1707 | A4086 |
| 67 | Feed Screw | 1 | RT1708 | A9038 |
| 68 | Adjustable Kip Lever | 1 | RF1519 | A6124 |
| 69 | Air Grinder Bracket | 1 | RT1710 | A4017 |
| 70 | Air Grinder Fixing Bolt | 1 | RT1711 | |
| 71 | Grinder Disc | 1 | RT1712 | A6501 |
| 72 | M5 x 10 Cap Head Screw | 3 | | A5131 |
| 73 | M6 Nut | 3 | RF1504 | A5516 |
| 74 | M6 x 12 Button Head Screw | | | A5145 |
| 75 | M6 Nyloc Nut | | RF1514 | A5517 |
| 76 | Air Grinder | | RT1713 | A6723 |
| 77 | Pin Lock Nut | 2 | | |



Reference Diagram • **Rapid Relief Assmebly**





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