



RAPID RELIEF

Reel Blade Relief Restoring Device



User Guide & Instruction Manual

Please read this manual carefully before using the Rapid Relief.
This manual should be kept in a safe place 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:

Serial #:

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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
- c) removing the Rapid Relief from the bedknife.

WARNING: THE MAGNETS ARE VERY POWERFUL

- 1.2 Always support the angle grinder carriage whilst carrying the Rapid Relief.
Do NOT hold the Rapid Relief by the magnets when attaching the machine to the bedknife.
- 1.3 Always wear eye protection when operating the Rapid Relief.
- 1.4 When operating the Rapid Relief 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.
- 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

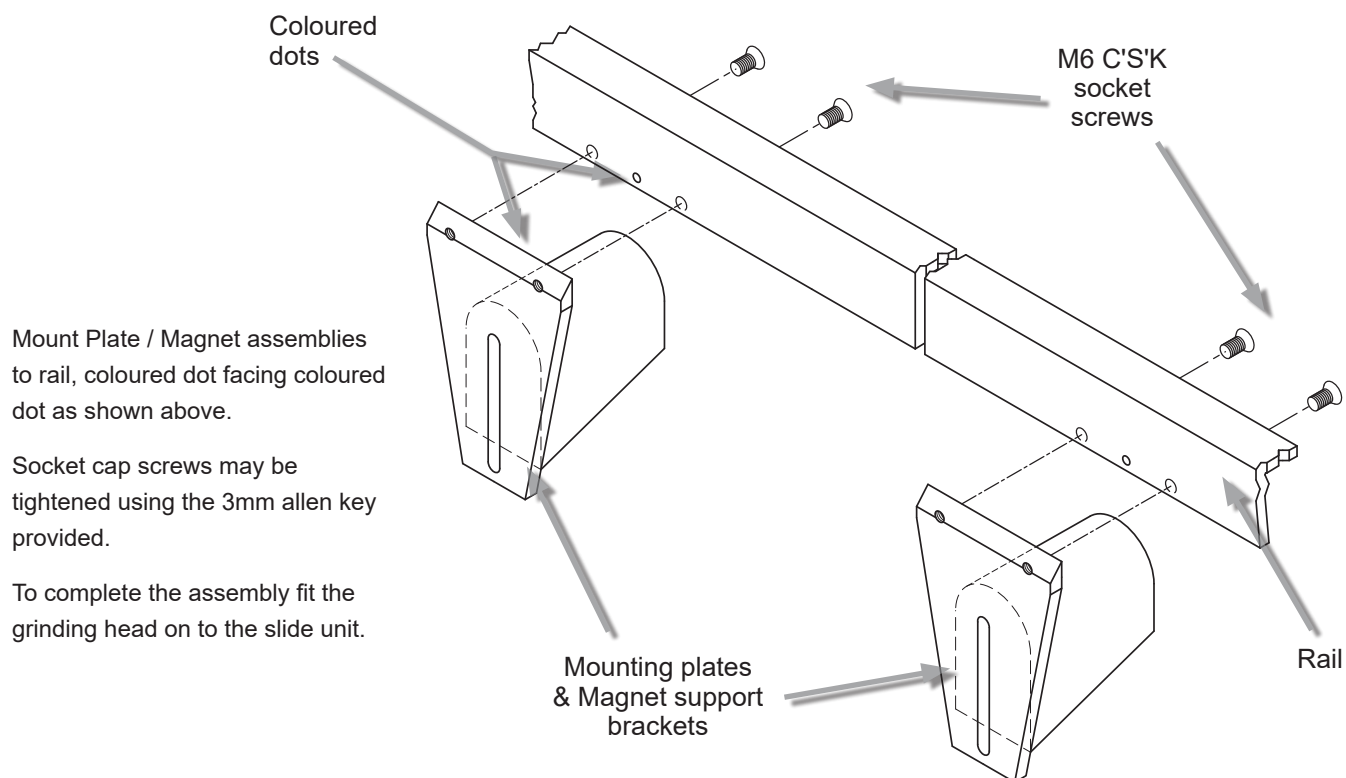
The air motor operates best on an airflow rate of 9 cubic feet/min. (0.25 cubic metres/min). The air motor is designed for a maximum air pressure of 6 bar (90 psi).

- 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 pre-set 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 Rapid Relief 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.

4.3 PREPARING THE RT1000 FOR WORK

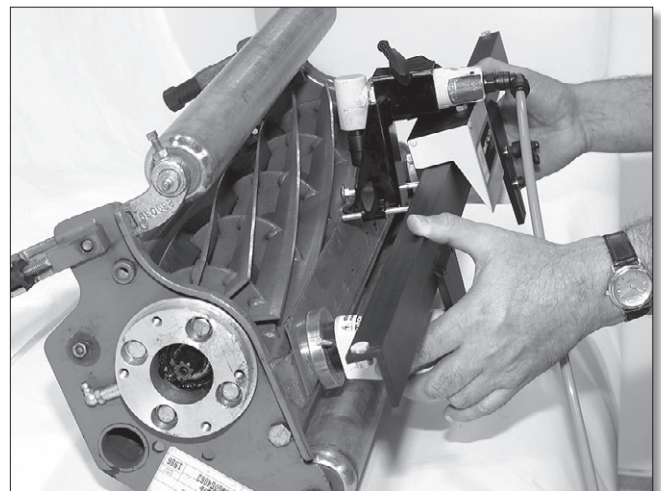
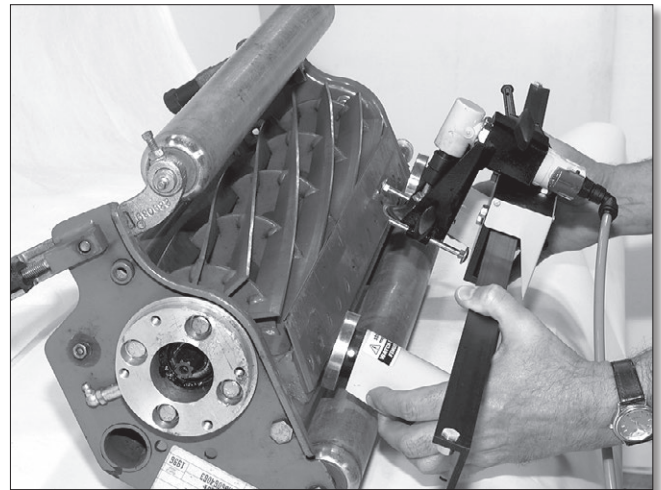
SAFETY WARNING

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)

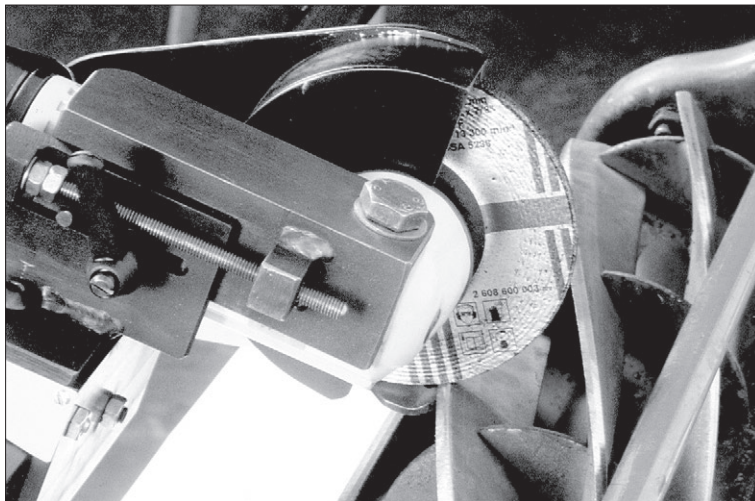


4.3.1 It may be necessary to turn the feed knob (part 67) counter clockwise to move the grinding head back, to be clear of the reel for initial positioning.

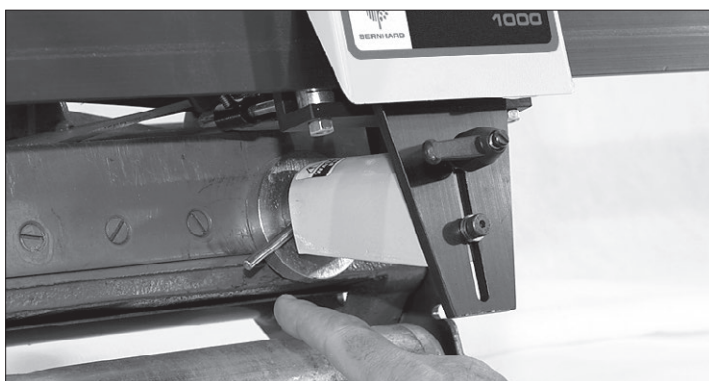
4.3.2 Carefully attach the Rapid Relief to the bottom of the bedknife by the magnets.



- 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.



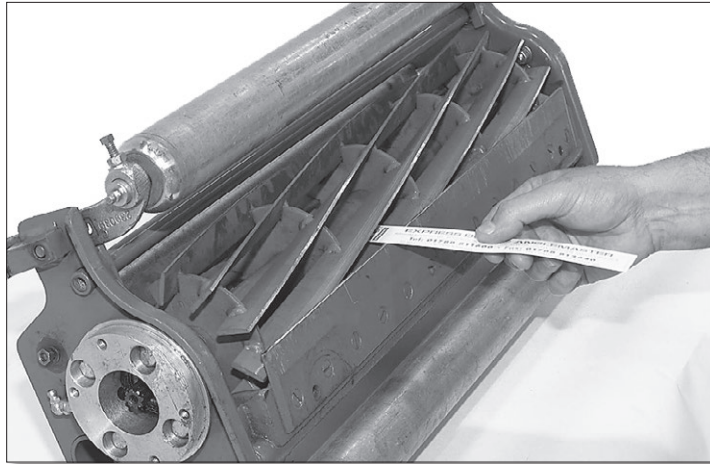
- 5.2.5 Stop the grinder. Index to the next blade and repeat the process. Increase feed using feed knob (part 67) as necessary.
- 5.2.6 NOTE: If a lot of material has to be removed to achieve the desired amount of relief, it is better to take a light cut off each blade, then repeat the process around 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 Rapid Relief 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.

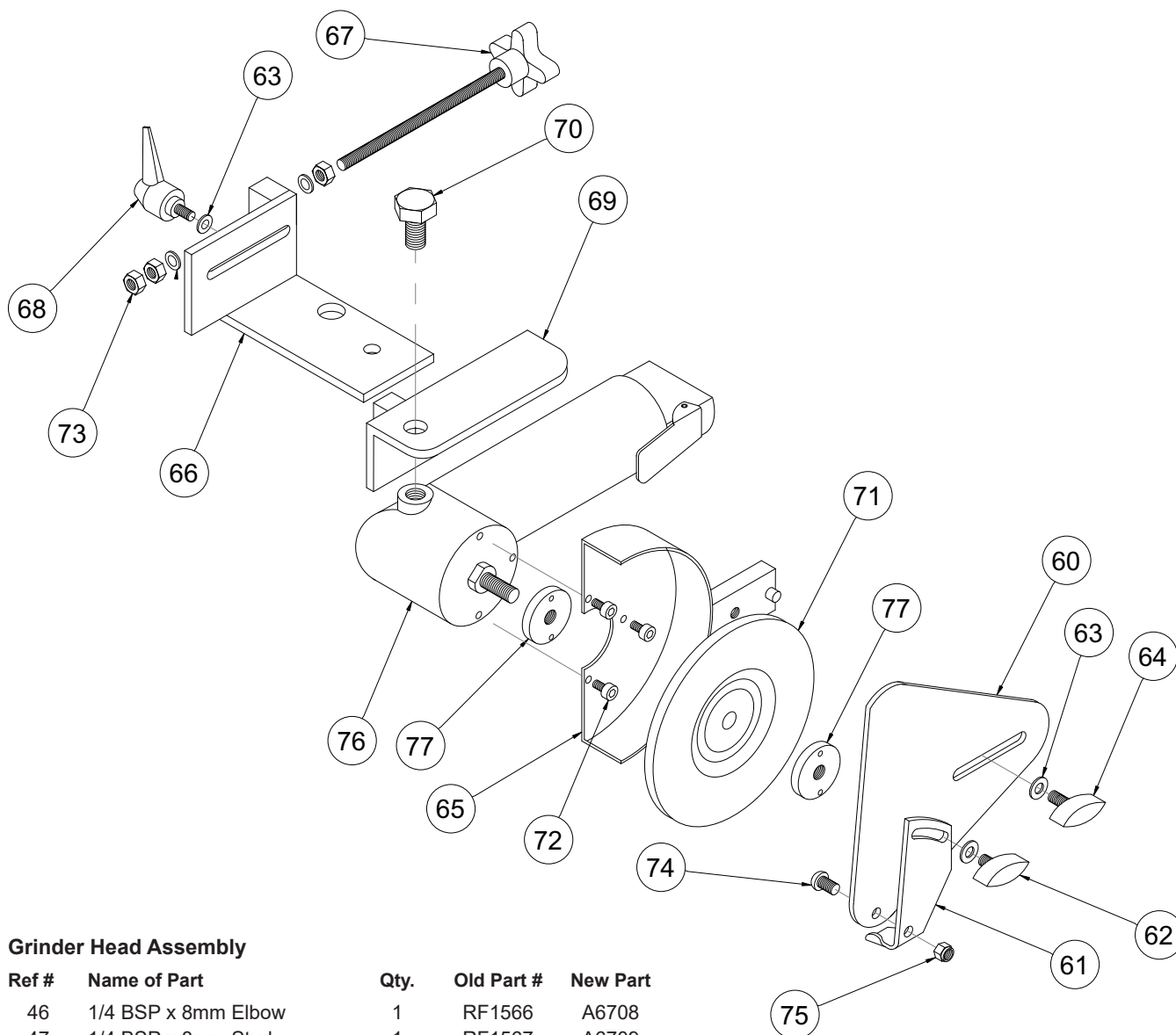
7. Repairs

- 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

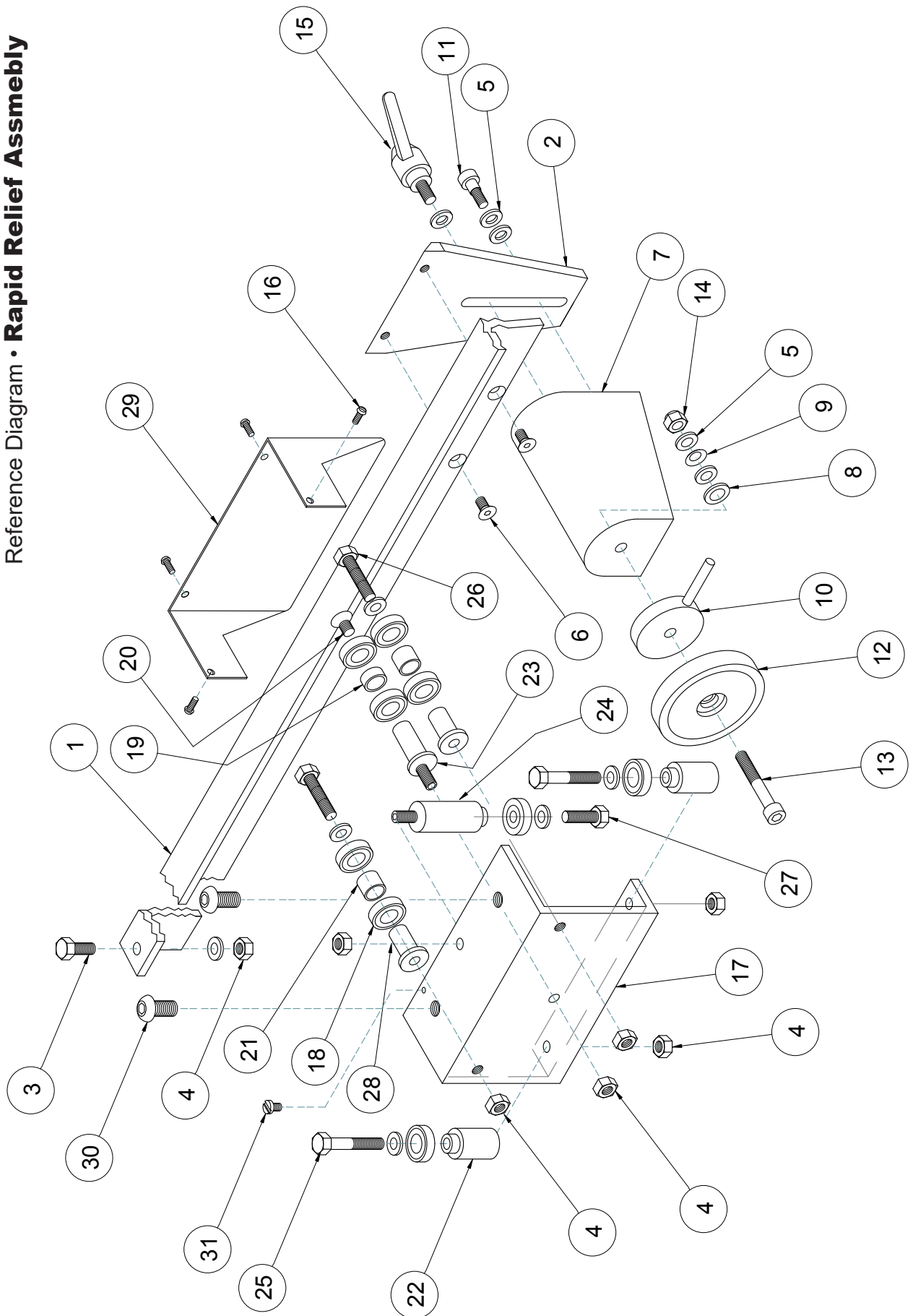
Ref #	Name of Part	Qty.	Old Part #	New Part #
Rail Assembly				
1	Rail.....	1	RF1501	A3000
2	Front Plate.....	2	RF1502	A4057
3	M6 x 12 Hex Hd Bolt.....	2	RF1503	A5718
4	M6 Nut.....	2	RF1504	A5516
5	M6 Washer.....	2	RF1505	A5320
6	M5 x 10 Csk Bolt.....	4	RF1506	A5130
Support Bracket Assembly				
7	Support 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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