

RotabroachTM

PNEUMATIC MAGNETIC DRILLING MACHINE MODEL



II 2G T4 II C D110°C

MODEL NO. RD130C

This machine (Serial No _____) is CE approved.

RotabroachTM Ltd

Imperial Works, Sheffield Road

Sheffield, South Yorkshire

United Kingdom

S9 2YL

Tel: +44 (0) 114 2212 510 Fax: +44 (0) 114 2212 563

Email: sales@rotabroach.co.uk Web site: www.rotabroach.co.uk

**Thank you for purchasing our Eagle pneumatic magnetic drill.
We would really like your feedback on the machine.**

Other Products by Rotabroach™:



Thank you for your purchase of our product.

For more information please visit our website at www.rotabroach.co.uk

Or contact our sales department on +44 (0) 114 2212 510

CONTENTS OF THE MANUAL

[1]	Specification	5
[2]	Safety procedure	6
[3]	Operating instructions	7
[4]	Mounting of cutters	8
[5]	Remedies for hole making problems	8
[6]	Parts list	10
[7]	Exploded view	11
[8]	Atlas-Copco Motor	12
[9]	Optional Extras	14
[10]	Maintenance	15
[11]	Pipe Adaptor Kit	17
[12]	Warranty	19

	LIST OF CONTENTS WITH DRILL UNIT	CHECK LIST
RD4329	Safety strap	YES/NO
RD4088	4mm A/F Tee handled hex key	YES/NO
RD4367	Pipe Adaptor Fixing Strap	YES/NO

Rotabroach™



EC DECLARATION OF CONFORMITY

ROTABROACH
IMPERIAL WORKS
SHEFFIELD ROAD
TINSLEY
SHEFFIELD
S9 2YL

**THE: MAGNETIC DRILLING MACHINE
MODEL RD130C
YEAR OF PRODUCTION 2006**

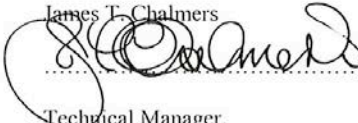
MEETS THE RELEVANT ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF
EEC DIRECTIVE 94/9/EC

FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES

THE SAFETY AND HEALTH REQUIREMENTS OF EN 1127-1 (1997) AND
EN 13463 (2001) ARE COMPLIED WITH

CLASSIFICATION AND MARKING – II 2GD cI 10°C

Responsible Person:

Name: James T. Chalmers
Signed: 
Position: Technical Manager.
Date: 28 April 2006

Technical File sent to Notified Body:
SIRA Test and Certification Ltd
South Hill
Chiselhurst
Kent
BR7 5EH

Registered office: Rotabroach, Imperial Works, Sheffield Road, Tinsley, Sheffield. S9 2YL Tel ++44 (0) 114 221 2510
Fax ++44 (0)114 221 2563 Jim Chalmers direct dial ++44 (0)114 221 2526
e-mail – james.chalmers@rotabroach.co.uk web site - www.rotabroach.co.uk
Registered Number 4333830 in England

[1] SPECIFICATION

ROTABROACH™ PNEUMATIC/MAGNETIC DRILLING MACHINE

MODEL NO. RD130C - **MICRO-AIR**



II 2G T4 II C D110°C

Maximum hole cutting capacity in .2/.3C steel 52mm dia., 52mm deep.

Arbor bore 19.05mm dia. (3/4" dia.)

Motor Unit:	ATLAS COPCO	Speed 160 rpm
Magnet:	Manually operated Tractive force at 20°C (25mm minimum plate thickness)	700kgs
Overall dimensions:	Height (max. extended) Width (inc. capstan arms) Overall length (inc. guard and magnet handle)	540mm 175mm 370mm
Nett weight:		20.6.00kgs
Air supply required:	Pressure Minimum volume:	5.5 Bar (80 psi) min. 6.9 Bar (100 psi) max. 13 litres/sec 28 cu/ft/min 0.8 cu.m/min
Sound pressure level (Ear protectors must be worn).		78 dB(A)

3/8" B.S.P. Male Connection Point

Note: This machine contains aluminium, and should not be used in any environment where the use of aluminium is prohibited, or may constitute a hazard, without the specific approval of an authorised person.

An in-line filter and lubricator must be used prior to the drilling unit and at a distance not greater than 5m. To achieve optimum service life and performance, lubrication should be applied at a rate of 50 cubic mm. of oil for each cubic metre of air consumed.

Depending upon the type of supply fittings used, it may be necessary to vent the supply to be able to disconnect the drill unit from the supply.

The motor should be purged with light lubricating oil after use.

NB: ANY MODIFICATIONS TO THIS MACHINE WILL INVALIDATE THE GUARANTEE

[2] SAFETY PROCEDURES

READ BEFORE USING THE MACHINE

Always secure the machine with the safety strap RD4329 before starting to operate - for the user's protection in case the magnetic base breaks loose whilst in use. Failure to do so may result in personal injury.

Always wear approved eye and ear protection when the equipment is in operation. Failure to do so may result in personal injury.

Disconnect from pneumatic supply source when changing cutters or working on the machine. Ensure that the Air supply is connected after positioning the machine.

Never pick the machine up by the cutter as this is sharp and may injure you.

Always ensure cutter retaining screws are secure.

Regularly clear the work area and machine of swarf and dirt, paying particular attention to the underside of the magnet base.

With a gloved hand, and after switching off the machine, remove any swarf which might have gathered around the cutter and arbor before proceeding with the next hole.

Before operating the machine remove your tie, rings, watches and any loose adornments, which might entangle with the rotating machinery.

Ensure that the magnet is fully activated before attempting to cut a hole.

Should the cutter become 'fast' in the work piece, switch off the motor immediately to prevent personal injury. Disconnect from the pneumatic supply and turn arbor to and fro. **Do not attempt to free the cutter by switching the motor on and off.**

If the machine is accidentally dropped, always thoroughly examine the machine for signs of damage and check that it functions correctly before trying to drill a hole.

Regularly inspect the machine and check that all nuts and screws are tight.

Cutting tools may shatter therefore **always** extend the guard over the cutter during the drilling operation. Failure to do so may result in personal injury. When moving the machine ensure the guard is over the cutter failure to do so may cause injury.

On completion of the cut, a slug will be ejected. DO NOT operate the machine if the slug has not been ejected as this may cause injury.

Ensure an adequate supply of coolant is supplied to the cutter during the cutting cycle.

Manual handling

When moving the machine always ensure that you use the carry handle on the machine failure to do so may cause damage to the machine. Never pick the machine up by the cutter as this may cause injury.

Caution this machine is heavy and may require help manoeuvring especially when working overhead.

[3] OPERATING INSTRUCTIONS

Before connecting the pneumatic supply ensure the motor switch is in the **OFF** position.

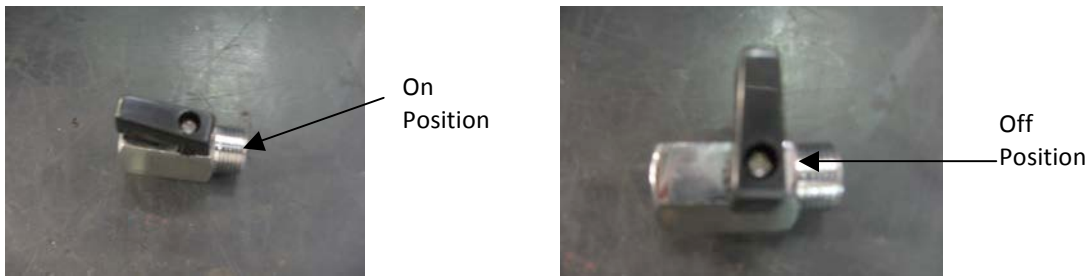
Locate the machine in the required position for cutting the hole and activate the magnet by means of the ratchet handle (clockwise viewed from rear). Ensure that magnet rod is fully screwed home.

Keep the inside of the cutter clear of swarf - it restricts the operating depth of the cutter.

Apply the cutting fluid to the reservoir via the inducement slots in the arbor. It is then «metered» out by the pilot and is applied directly to the cutting edge. (Alternatively, fluid can be applied directly on to the work piece making certain that it floods into the groove formed by the cutter.)

Depress the pilot to ensure cutting fluid is being correctly metered.

Start the motor by turning the rotary valve to **ON** position see below

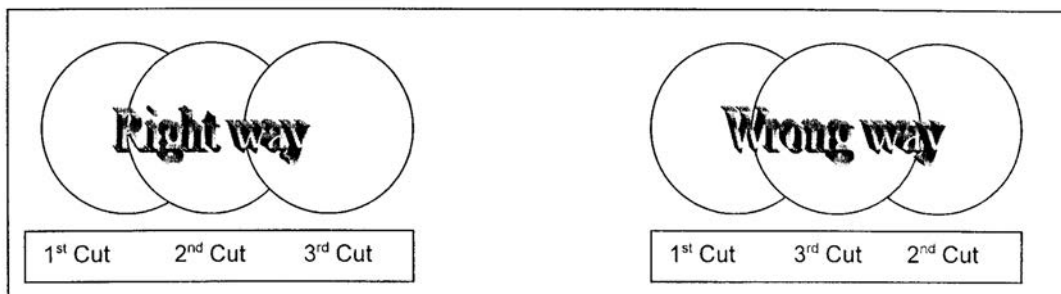


Apply light pressure when commencing to cut a hole until the cutter is introduced into the work surface. Pressure can then be increased sufficiently to load the motor. Excessive pressure is undesirable when using the *Rotabroach™ Micro-Air* machine, it does not increase the speed of penetration and may cause the motor to stall. The motor will restart when the excessive pressure is released.

Always ensure that the slug has been ejected from the previous hole before commencing to cut the next.

If the slug sticks in the cutter, move the machine to a flat surface, switch on the magnet and gently bring the cutter down to make contact with the surface. This will usually straighten a cocked slug and allow it to eject normally.

Apply a small amount of light oil lubricant regularly to slide and arbor support bearing. Cutter breakage is usually caused by insecure anchorage, a loosely fitting slide or a worn bearing in the arbor support.



If the slug sticks in the cutter, move the machine to a flat surface, switch on the magnet and gently bring the cutter down to make contact with the surface. This will usually straighten a cocked slug and allow it to eject normally.

Apply a small amount of light oil lubricant regularly to slide and arbor support bearing. Cutter breakage is usually caused by insecure anchorage, a loosely fitting slide or a worn bearing in the arbor support. (Refer to routine maintenance instructions.)

[4] MOUNTING OF CUTTERS

The following procedure is to be used when mounting cutters.

ALWAYS DISCONNECT MACHINE FROM PNEUMATIC SUPPLY

Lay the machine on its side with feed handles uppermost, ensuring arbor is wound down to its lowest point to enable access to socket screws RD4066. Take the appropriate pilot and place through hole in shank of cutter. Insert shank of cutter into arbor ensuring alignment of two drive flats with socket screws RD4066. Tighten both screws securely using hexagon key RD4088.

[5] REMEDIES FOR HOLE MAKING PROBLEMS

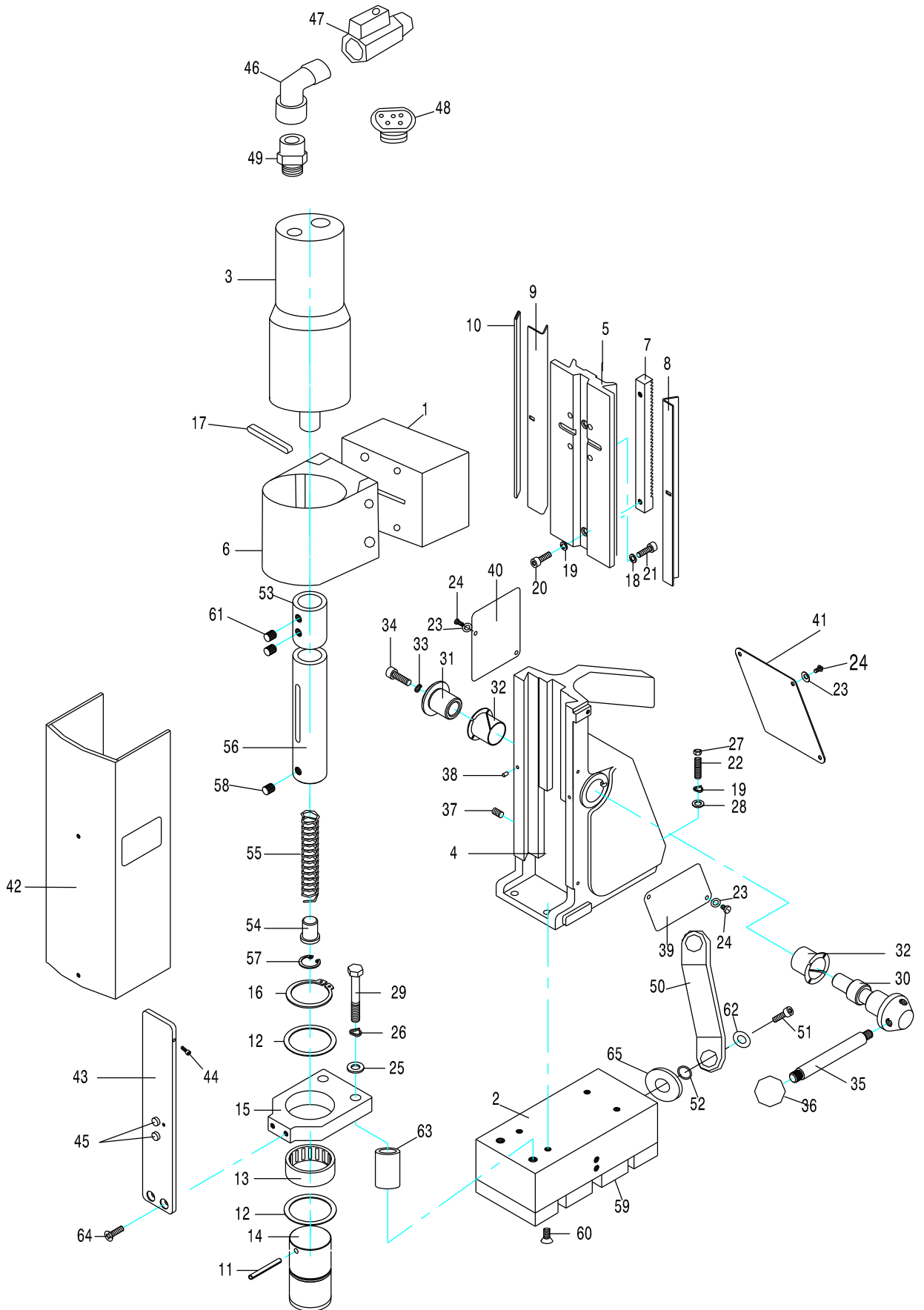
Problem	Cause	Remedy
Magnetic base won't hold effectively	Material being cut may be too thin for efficient holding	Attach an additional piece of metal under work piece where magnet will be located, or mechanically clamp magnetic base to work piece
	Swarf or dirt under magnet	Clean magnet
	Irregularity on contact between magnet and work piece	Use extreme care, file only imperfections flush on to surface
Hole not cut at intended centre of cut	Magnetic base is not holding effectively	See causes and remedies above
	Worn arbor bushing and/or ejector collar	Replace! Only a few thousandths wear permissible. New arbor bushing is needed
	Too much feed pressure at start of cut	Light pressure until a groove is cut. The groove then serves as a stabilizer
	Cutter is dull, worn, chipped or incorrectly sharpened	Replace or re-sharpen. Sharpening service is available
	Worn or bent pilot, worn pilot hole	Replace part or parts
	Loose bolts on motor bushing support bracket, main casting or loose gib adjusting set screws	Adjust where necessary

Poor hole quality, cutter not cutting, motor stops	<p>Incorrectly re-sharpened, worn or chipped cutter</p> <p>Coming down on swarf lying on surface of work piece</p> <p>Insufficient air pressure/volume</p> <p>Gibs out of adjustment or lack of lubrication</p> <p>Swarf accumulated (packed) inside cutter</p>	<p>Re-sharpen or replace</p> <p>Take care not to start a cut on swarf</p> <p>Check air supply</p> <p>Adjust set screws</p> <p>Clear cutter</p>
Excessive cutter breakage	<p>Steel swarf or dirt under cutter</p> <p>Incorrectly re-sharpened or worn cutter</p> <p>Cutter skipping</p> <p>Slideway needs adjustment</p> <p>Cutter not attached tightly to arbor</p> <p>Insufficient use of cutting oil or unsuitable type of oil</p>	<p>Remove cutter, clean part thoroughly and replace</p> <p>Always have a new cutter on hand to refer to for correct tooth geometry, along with instruction sheet</p> <p>See cause and remedy above</p> <p>Adjust gibs</p> <p>Retighten</p> <p>Inject oil of light viscosity into the slot in the arbor and confirm oil is being metered into cutter when pilot is depressed. Check pilot groove and arbor internally for dirt or apply oil externally.</p>
Excessive cutter wear	<p>See cause and remedy above</p> <p>Incorrectly re-sharpened cutter</p> <p>Insufficient or spasmodic cutting pressure</p>	<p>Refer to instructions and a new cutter for proper tooth geometry</p> <p>Use sufficient steady pressure to slow the drill down. This will result in optimum cutting speed and chip load</p>
Motor will not start	Insufficient air pressure/volume	Check air supply, spindle free to rotate

[6] PARTS LIST - RD130C

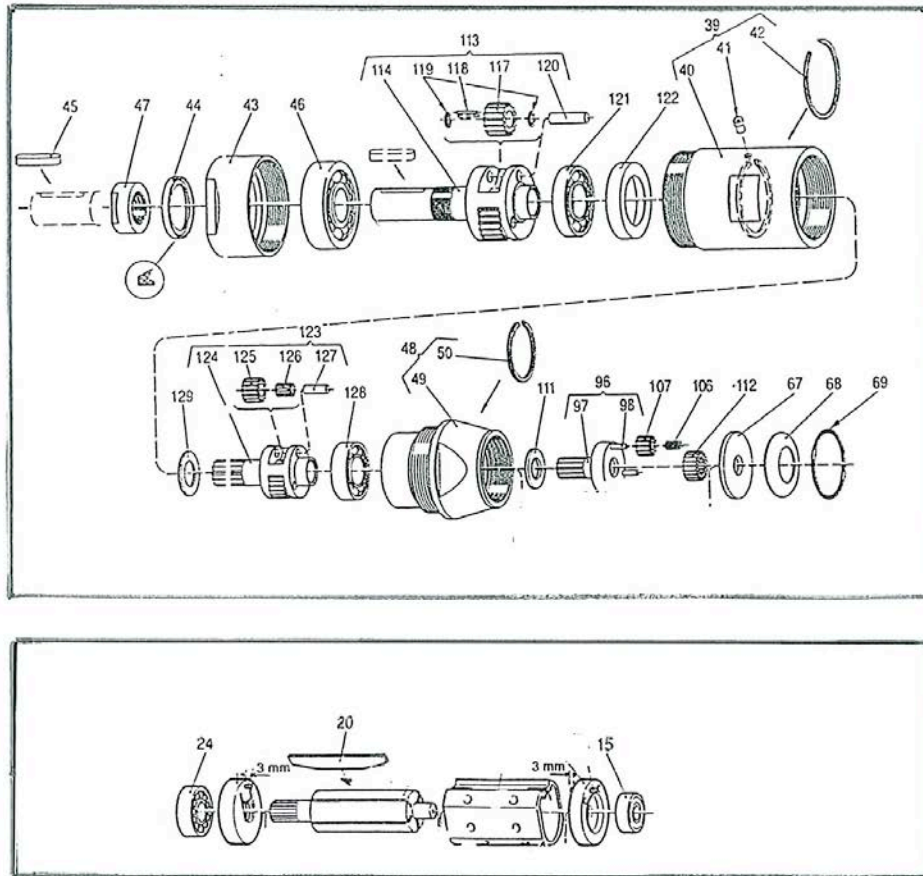
<i>Item</i>	<i>Component</i>	<i>Part No</i>	<i>QTY</i>		<i>Item</i>	<i>Component</i>	<i>Part No</i>	<i>QTY</i>
1	Motor Packing	RD3388	1		33	M6 Spring Washer	RD4207	1
2	Magnet	RD43100	1		34	M6 Socket Head Screw	RD4098	1
3	Motor	RD43105	1		35	Capstan Arm	RD33089	3
4	Housing	RD3380	1		36	Plastic Knob	RD43091	3
5	Slide	RD3381	1		37	M6 Socket Screw	RD4312	4
6	Motor Bracket	RD3357	1		38	Tension Pin	RD4102	2
7	Rack	RD3350	1		39	Name Plate	RD33142	1
8	Fixed Gib Strip	RD33103	1		40	Information Plate	RD4362	1
9	Adjustable Gib Strip	RD33104	1		41	Identity Plate	RD33135	1
10	Gib Support Strip	RD33105	1		42	Guard	RD3397	1
11	Spirol Pin	RA353	1		43	Guard Bracket	RD33000	1
12	Thrust Washer	RA401	2		44	M3 Socket Head Screw	RD4103	2
13	Nylon Bearing	RD350	1		45	Spring Plunger	RD4346	2
14	Arbor Sleeve	RD3396	1		46	3/8" BSP M & F Elbow	RD43020	1
15	Bearing Bracket	RD3389	1		47	3/8" BSP Ball Valve	RD43021	1
16	External Circlip	RD4320	1		48	Silencer	RD4355	1
17	Key	RD3355	2		49	Hex Adaptor	RD4389	1
18	M5 Shakeproof Washer	RD4092	2		50	Ratchet Handle *	RD43104	
19	M6 Shakeproof Washer	RD4096	8		51	M6 Socket Head Cap Screw	RD4156	
20	M5 Socket Head Screw	RD4325	2		52	M6 Washer	RD33030	
21	M6 x 55 Socket Head Screw	RD4394	4		53	Adaptor	RD33025	1
22	M6 Stud	RD4340	4		54	Button	RA354	1
23	M4 Shakeproof Washer	RD4069	8		55	Spring	RA355	1
24	M4 Panhead Screw	RD4077	8		56	Arbor	RD33021	1
25	M8 Washer	RD4078	2		57	Circlip	RD4056	1
26	M8 Shakeproof Washer	RD4079	2		58	M8 Socket Screw	RD4066	2
27	M6 Nut	RD4087	4		59	Pole Piece Set	RD43047	
28	M6 Washer	RD4095	4		60	M5 x 15 Countersink Socket Screw	RD4347	
29	M8 Socket Head Set Screw	RD4402	2		61	M8 Dog point	RD43135	2
30	Capstan Pinion Shaft	RD33088	1		62	Washer	RD43136	1
31	Pinion Shaft Sleeve	RD33090	1		63	Bearing Bracket Spacer	RD3248	1
32	Nyliner Bearing	RD4313	2		64	M5 countersink	RD4347	2
					65	Magnet Washer	RD33030	

[7] EXPLODED VIEW – RD130C



[8] ATLAS-COPCO MOTOR

Three-stage gear unit - for A0030



Item	Component	Part No
15	Bearing	RD43026
20	Vane Set	RD43028
24	Bearing	RD43027

Ref No.	Part No	Qty	Description
39 (40-42)	4430 0563 80	1	Gear rim complete
40	-	1	Gear rim (z = 47)
41	4090 0704 00	1	Lubricating nipple
42	0335 3508 01	1	Circlip (SB45)
43	4430 0559 00	1	Front part
44	0666 8003 05	1	Seal ring (G30 x 37 x 4)
45	0337 2622 00	1	Key (R6 x 6 x 30)
46	0502 3304 00	1	Ball bearing (6304-Z)
47	4430 0562 00	1	Nut
48 (49-50)	4430 0492 80	1	Gear rim complete
49	-	1	Gear rim (z = 45)
50	4090 0588 00	1	Circlip (BR35)
67	4430 0554 00	1	Washer
68	4170 0505 00	1	Cup spring
69	0663 9026 00	1	O Ring (40 x 1.78)
113(114-120)	4430 0547 80	1	Planetary gear complete (i = 4.62)
114	-	1	Planet shaft (Ø19mm)
117	4210 2214 00	1	Gear wheel (z = 15)
118	0517 0100 05	48	Bearing needle (1.5 x 13.8)
119	4210 2213 00	6	Washer (6.3/9.1 x 0.5)
120	4210 2215 00	3	Axle pin (6.22h6 x 23.5)
121	0502 1504 00	1	Ball bearing (16004)
122	4210 2220 00	1	Bushing
123 (124-127)	4430 0549 80	1	Planetary gear complete (i = 4.46)
124	-	1	Planet shaft (z = 13)
125	4430 0467 00	3	Gear wheel (z = 15)
126	0515 1103 01	3	Needle bearing (K5 x 8 x 10 TN)
127	0517 0100 11	3	Bearing roller (NRB 5.0 x 19.8)
128	0502 1103 00	1	Ball bearing (6003)
129	4430 0557 00	1	Washer
96 (97-98)	4430 0484 80	1	Planet shaft complete (i = 3.25)
97	-	1	Planet shaft (z = 13)
98	0517 0100 13	3	Bearing roller (NRB 3.0 x 17.8)
106	0515 0100 13	3	Needle bearing (K3 x 5 x 9 TN)
107	4430 0475 00	3	Gear wheel (z = 12)
111	4430 0556 00	1	Washer
112	4430 0474 00	1	Gear wheel (z = 11/20)

[9] OPTIONAL EXTRAS

ROTABROACH™ CUTTING FLUID

ROTABROACH™ CUTTING FLUID has been formulated to give maximum life to your ROTABROACH™ CUTTERS

Available in:

RD208 1 litre

RD229 5 litres

TWIST DRILL OPTIONS

RD440 5/8 UNF -16MM CHUCK (WITH KEY)

RD324 CHUCK SPACER

This chuck can only be fitted to drill units having a 5/8"-16 UNS output spindle nose. Remove the bearing bracket, sleeve and arbor or any other fittings. Place spacer RD324 onto the spindle, screw the chuck tightly against the spacer and lock into position. When refitting the arbor assembly, care must be taken to ensure correct alignment to the vertical axis and that it is running concentric.

[10] MAINTENANCE

In order to ‘get the best life’ out of your Rotabroach™ machine always keep in good working order.

A number of items must always be checked on Rotabroach™ machines.

Always before starting any job make sure the machine is in good working order and that there are no damaged or loose parts. Any loose parts must be tightened.

Before proceeding with any maintenance work be certain that the Pneumatic supply is disconnected

Description	Every operation	1 week	1 Month
Visual check of machine for damage	X		
Operation of machine	X		
Check magnetic base	X		
Check alignment of the machine			X

Visually check the machine for damage.

Machine must be checked before operation for any signs of damage that will affect the operation of the machine. Particular notice must be taken of the mains cable, if the machine appears to be damaged it should not be used failure to do so may cause injury or death.

Check operation of the machine.

The machines operation must be checked to ensure that all components are working correctly.

Magnetic base – before every operation the magnetic base should be checked to make sure that the base is flat and there is no damage present. An uneven magnet base will cause the magnet not to hold as efficiently and may cause injury to the operator.

ADJUSTMENT OF SLIDE AND BEARING BRACKET ALIGNMENT.

An essential requirement of the machine is that the slide can move in a smooth and controlled manner, free of lateral movement and vibration.

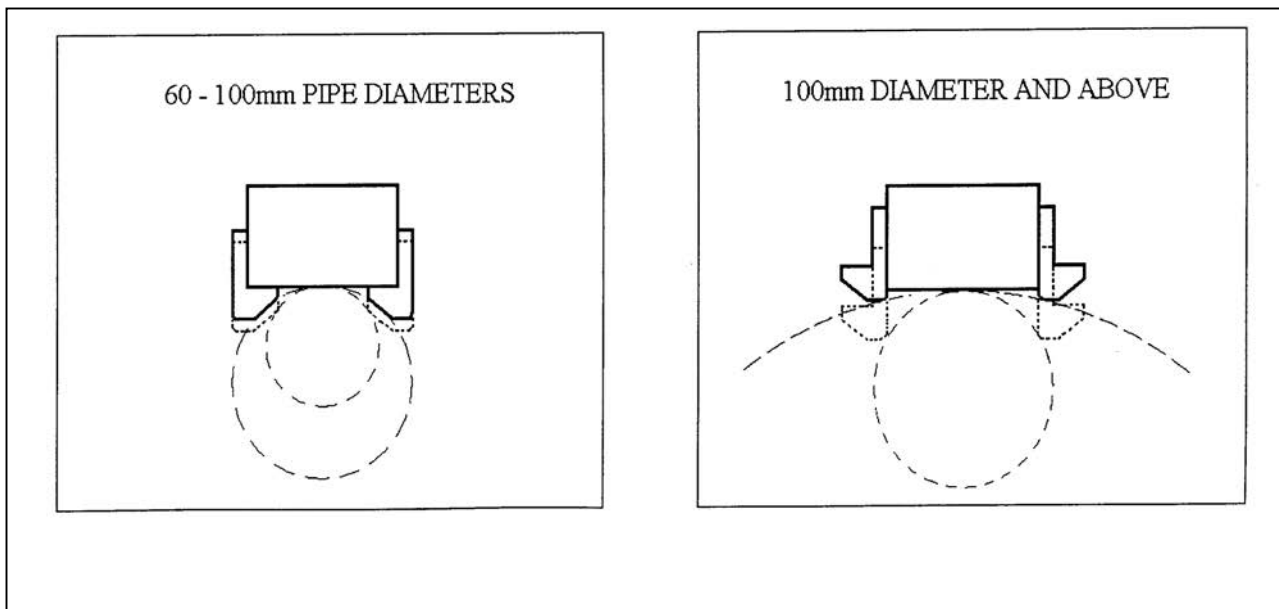
This situation can be maintained by periodic adjustment of the slide and is accomplished in the following manner:

1. Place the machine in an upright position and, by means of the capstan, raise the slide to its highest position. Clean the brass gib strips and apply a small amount of light machine oil to the wear surfaces.
2. Now lower the slide back to its lowest position. Bring the slide into the centre of the dovetail slide housing and loosen screws thus allowing free movement of the arbor support bracket.
3. Commencing with the middle screws, gently feed in all the screws until slight resistance is encountered.
4. Operate the slide up and down a few times to test the movement and make any further necessary adjustments. Try to ensure that all the screws are exerting a uniform pressure on the slide from top to bottom. A perfectly adjusted slide will operate freely up and down without any sideways movement.
5. Now raise the slide to its highest position. Slightly undo the arbor bearing bracket and, using fingers only, tighten the screws.
6. Place the machine on a steel plate, connect to supply and switch on magnet. Start up the motor. If the arbor is incorrectly aligned, the arbor support bracket will be seen to oscillate. Make any necessary further adjustments to the bracket to ensure correct alignment of the spindle and finally tighten the screws using a spanner. Lastly tighten the arbor bearing bracket.

[11] PIPE ADAPTOR KIT RD2311

FITTING INSTRUCTIONS

- Dependent upon the size of the pipe to be cut (see illustrations) attach adjustable angle plates RD3328 with cap screws RD4325 and washers RD4205 (4 off each) to the magnet sides. Do not tighten.
- Locate the machine on the centreline pipe taking care that the magnet is in line with the longitudinal axis of the pipe.
- Switch on the magnet and move the sliding plates down to the outside diameter of the pipe. Tighten the screws on both sides by hand then check once again that the full length of the moving plates is touching the pipe at the front and back, fasten the plate securely. Feed the safety strap through the lugs at the front of the housing, around the pipe and pull tight.
- When cutting the hole DO NOT use excessive pressure but rather let the cutter ease into the cutting surface.



NOTES:



WARRANTY STATEMENT

Rotabroach™ warrants its machines to be free from faulty materials, or workmanship under normal use for a period of 12 months from initial date of purchase and 90 days for all other parts (excluding cutters), provided that the warranty registration card (or online registration) has been completed and returned to Rotabroach™, or its designated distributor within a period of (30) days from the purchase date, failure to do so will void the warranty. If the stated is adhered to Rotabroach™ will repair or replace (at its option) without charge any faulty items returned.

This Warranty does not cover:

- 1.Components that are subject to natural wear and tear caused by the use in accordance with the operators instructions
- 2.Defects in the tool caused by non-compliance with the operating instructions, improper use, abnormal environment conditions, inappropriate operating conditions overload or insufficient servicing or maintenance.
- 3.Defects caused by using accessories, components or spare parts other than original Rotabroach™ parts.
- 4.Tools to which changes or additions have been made.
- 5.Electrical components are subject to manufacturer's warranty.

Your online registration can be submitted on www.rotabroach.co.uk

The warranty claim must be lodged within the warranty period. This requires the submission or sending of the **complete** tool in question with the original sales receipt which must indicate the purchase date of the product. A complaint form must also be submitted prior to the return. This can be found online at www.rotabroach.co.uk Failure to complete this form will result in the delay of your claim.

All goods returned defective must be returned pre-paid to Rotabroach™, in no event shall Rotabroach™ be liable for subsequent direct, or indirect loss or damage.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, (EXPRESSED OR IMPLIED) INCLUDING ANY WARRANTY OF MECHANICALITY OR FITNESS FOR A PARTICULAR PURPOSE. ROTABROACH™ RESERVE THE RIGHT TO MAKE IMPROVEMENTS AND MODIFICATIONS TO DESIGN WITHOUT PRIOR NOTICE

Known and Trusted Worldwide for Quality, Performance and Reliability

