

RotabroachTM

Rhino Petrol Driven Rail Drilling Machine



Model No. RD074

Approved in accordance with GM/RT1310 (Issue 2) CEF Number 12280

Network rail approved certificate number PA05/04140

This machine (Serial No _____) is CE approved.

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We would really like your feedback on this machine.**

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Other Products by Rotabroach:



Thank you for your purchase

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List of contents with drill unit		Check list
RD4088	4mm A/F Tee handled hex key	YES/NO
RY2307	Coolant Feed Dispenser	YES/NO
RD40038	8mm Hex key	YES/NO
RD439	3/16 Long Hex key	YES/NO

[1] GENERAL SAFETY RULES

WARNING! When using Petrol tools basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following.

Read all these instructions before attempting to operate this product

Ensure machine is off before carrying out any adjustment, serving or maintenance.

1. Keep work area clear cluttered areas and benches invite injuries.
2. Consider work area environment
 - Keep work area well lit.
 - Do not use tools in the presence of flammable liquid or gases.
3. Keep other persons away do not let persons, especially children, not involved in the work touch the tool and keep them away from the work area.
4. Store idle tools when not in use, tools should be stored in a dry locked-up place, out of reach of children.
5. Do not force the tool it will do the job better and safer at the rate for which it was intended.
6. Use the right tool
 - Do not force small tools to do the job of a heavy duty tool.
 - Do not use tools for purposes not intended: for example do not use circular saws to cut tree limbs or logs.
7. Dress properly
 - Do not wear loose clothing or jewellery; they can be caught in moving parts.
 - Non-skid footwear is recommended when working outdoors.
 - Wear protective hair covering to containing long hair.
8. Use protective equipment when using this machine
 - Use safety glasses.
 - Use ear defenders.
 - Use face or dust mask if cutting operations create dust.
 - Use protective gloves
9. Connect dust extraction equipment if device are provided for the connection of dust extraction and collecting equipment, ensure these are connected and properly used.
12. Secure work where possible use clamps or a vice to hold the work. It is safer than using your hand.
10. Do not overreach keep proper footing and balance at all times.
11. Maintain tools with care
 - Keep cutting tools sharp and clean for better and safer performance.
 - Follow instruction for lubricating and changing accessories.
 - Keep handle dry, clean and free oil and grease.
12. Remove adjusting keys and wrenches form the habit of checking to see that keys and adjusting wrenches are removed from the tool before turning it on.
13. Avoid unintentional starting ensure switch is in "off" position.
14. Stay alert watch what you are doing, use common sense and do not operate the tool when you are tired.
15. Check for damaged parts before further use of tool; it should be carefully checked to determine that it will operate property and its intended function.
16. Warning! The use of any accessory or attachment other than one recommended in this instruction manual may present a risk of personal injury.
17. Have your tool repaired by a qualified person
This tool complies with the relevant safety rules. Qualified persons using original spare parts should only carry out repairs; otherwise this may result in considerable danger to the user.

[2] ROTABROACH RAIL DRILLING MACHINE MODEL RD074

Maximum hole cutting capacity 36mm dia.

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

Engine	Engine Speed	
HONDA GXV57 57.3cm ³ displacement On load torque 3.2Nm @ 4000rpm Fuel tank capacity 0,3 litres	No load (engine)	4,800rpm
	No load (arbor/spindle)	320rpm
	Normal full load (arbor/spindle)	300rpm
Compression Ratio 15:1		
Overall dimensions over clamp	Length	540mm
	Width	420mm
	Height	420mm
Net Weight	21Kg	
Maximum hand/arm vibration magnitude (measured at handle during operation in accordance with ISO5349)	3.8 m/s ²	
Estimate of likely daily vibration exposure – Operation on 2 rails (24 holes @ 1 minute/hole)	0.85 m/s ² A(8)	
Average noise level during cutting at operator's ear position.	81 dB(A)	

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Must only be used in a **Green Zone**.

Must **NOT** be used on live conductor rail.

**EYE & EAR DEFENDERS MUST BE WORN WITHIN 3 METRES
WHEN THE MOTOR IS RUNNING.**

***ANY UNAUTHORISED MODIFICATIONS TO THIS MACHINE WILL INVALIDATE THE
GUARANTEE***

[3] OPERATIONAL SAFETY PROCEDURES

READ BEFORE USING THE MACHINE

- **ALWAYS WEAR SAFETY GOGGLES AND EAR DEFENDERS WHEN OPERATING THE MACHINE.**
- Ensure motor is switched off when changing cutters, working on the machine, or removing swarf. Failure to do so may result in personal injury.
- Always ensure the cutter is securely fastened.
- Remove tie, rings, watches and loose adornments, which might entangle with the rotating machinery. Failure to do so may result in personal injury.
- Should the cutter become *fast* in the work piece, switch off the motor immediately to prevent personal injury. **Do not attempt to free the cutter by starting and stopping the motor.** Failure to do so may result in personal injury.
- If the machine is dropped, always thoroughly examine the machine for signs of damage and check that it functions correctly before trying to cut a hole.
- Regularly inspect the machine and check that nuts and screws are tight.
- Before fuelling the tank, read section 5 (fuelling)
- Observe local and national Health & Safety requirements before operating the machine.
- Never leave the machine lying on its side. The motor sump oil may be lost at an inclination greater than 20° from the vertical. If this may have happened, check the sump oil level before starting the engine.
- **Always wear approved eye and ear protection when the equipment is in operation.** Failure to do so may result in personal injury.
- *On completion of the cut, a slug will be ejected. DO NOT* operate the machine if the ejected slug may cause injury.

[4] ROTABROACH CUTTING FLUID

- Rotabroach cutting fluid has been specifically formulated to significantly enhance the performance and life of the cutting tool, and improve the quality and surface finish of the hole.
- Available in

litre (RD208)	1
litre (RD229)	5
litre (RD220)	25

[5] COOLANT INDUCEMENT

- Coolant is induced into the system via a pressurised coolant bottle. Connect the coolant bottle to the machine via the connector and then pressurise the bottle by pumping the coolant bottle's pump several times. Regulate the flow using the stop tap a quarter turn is usually sufficient.
- Constituent items:
Coolant bottle and hose assembly RY2307

[6] FUELLING

Warning

Petrol is an extremely flammable fuel.

Use extreme caution when handling petrol or fuel mix.

Do not smoke or bring any fire or flame near the fuel.

Ensure the fuel mix does not spill on to hot engine.

FUELLING INSTRUCTIONS

- Fuel your machine in a well-ventilated area, outdoors only.
- Avoid direct contact with the skin and avoid inhaling fuel vapour
- Always shut off the engine and allow it to cool before refuelling.
- Before fuelling, clean the filler cap and the area around it to ensure that no dirt falls into the tank.
- Petrol vapour pressure may build up inside the gas tank. In order to reduce the risk of burns or other personal injury from escaping gas vapour and fumes, remove the gas cap carefully so as to allow any pressure build-up in the tank to release slowly. Never remove the fuel filler cap whilst the engine is running,

FUEL

- It is recommended that you always use unleaded petrol with a minimum octane number of 90 ROZ(USA)/Canada: pump octane min. 87.
- Inferior quality petrol may damage the engine, sealing rings, fuel lines or fuel tank.

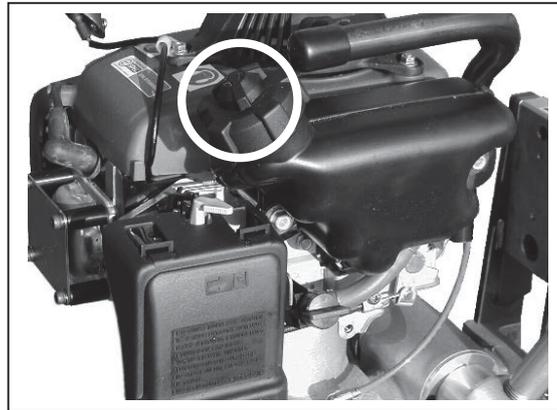
[7] MOTOR OPERATING INSTRUCTIONS

STARTING

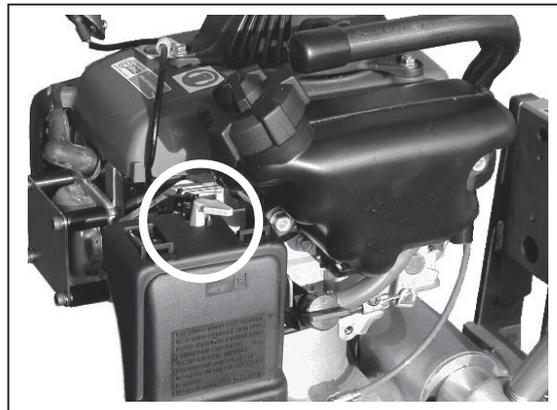
- Observe safety precautions (see Section 2 – Safety Procedures)
- Ensure that the sump oil level is to the correct level.
- Ensure the machine is clamped firmly in position on the rail.
- Ensure on/off switch (RD4748) is set to 1.



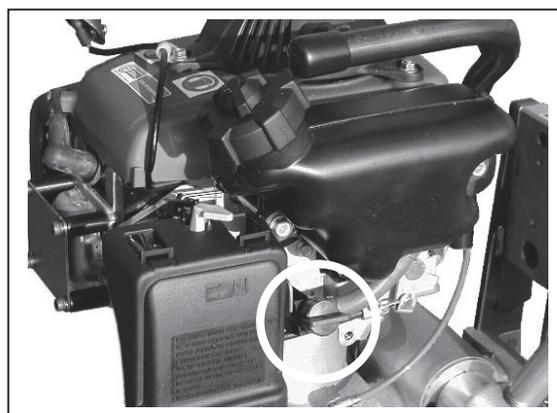
- Unscrew petrol tank vent screw.



- If the motor is cold, position cold start indicator to 1 o 1.



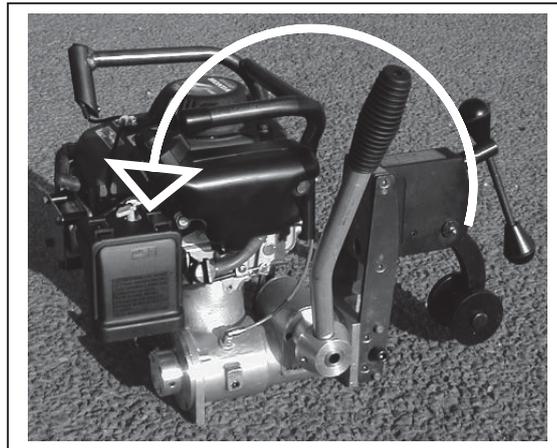
- Rotate the fuel cut off valve to the horizontal position.



- Position the cutter feed handle to the forward position.

Repeatedly pull the engine start cord with a quick, progressive movement until the engine starts, then release the cord handle.

- When the engine has reached it's operating temperature, the cold start lever can be moved from the cold start position.
- Moving the cutter feed handle anti-clockwise will increase the engine speed and feed the cutter into the rail.



[8] MACHINE OPERATING INSTRUCTIONS

- Keep the inside of the cutter clear of swarf. It restricts the operating depth of the cutter.
- Pressurise the coolant dispenser by pumping the handle until the relief valve extends and then give a further 5 to 10 pumps of the handle.
- With the pressurised cutting fluid dispenser connected to the coolant feed tube, coolant is "metered" out by the pilot and is applied directly to the cutting edge.
- To ensure cutting fluid is being correctly metered, depress the pilot by slowly moving the cutter to touch the rail. Regulate the flow by adjusting the needle valve RD4217.
- As the cutter approaches the rail, the automatic throttle will increase the engine speed to ensure maximum speed before cutting the hole. Once drilling is complete immediately fully retract the cutter, this will return the machine to idle speed. **DO NOT ALLOW THE MACHINE TO RUN AT FULL SPEED IF NOT DRILLING.**
- When commencing to cut a hole apply light pressure until the cutter is introduced into the work surface. Pressure can then be increased slightly whilst cutting the hole. **Excessive pressure** is undesirable when using the Rotabroach system, it does not necessarily increase the speed of penetration and it may damage the cutter, greatly reducing its life.
- Cutter breakage is usually caused by insecure clamping.

[9] ROTABROACH CUTTERS FOR RAIL DRILLING MACHINES

All cutters have a 3/4" dia. shank.

ALWAYS ENSURE THAT THE MACHINE IS SWITCHED OFF

Take the chosen cutter and insert into its shank the appropriate pilot. Place the assembly, correctly aligning the drive flats, into the arbor bore and securely fasten the socket screws with the hexagon key.

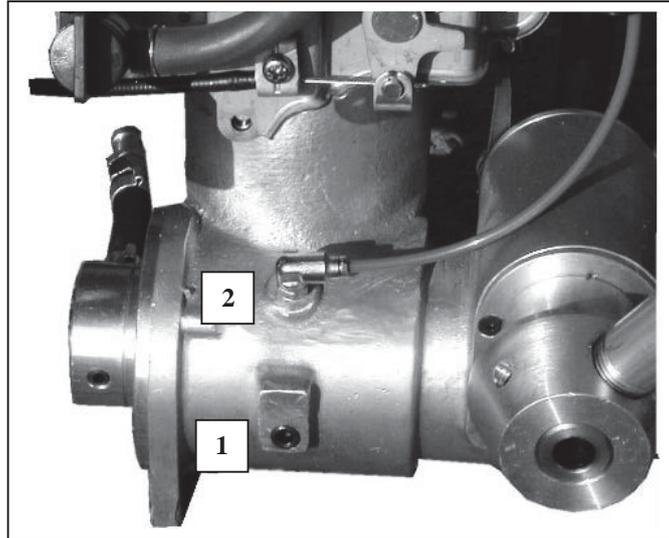
<i>Dia. mm</i>	SRCV SERIES (High wear)		SCRWC SERIES (Carbide Tipped)	
	<i>Part No</i>	<i>Pilot No</i>	<i>Part No</i>	<i>Pilot No</i>
18	SRCV180	SRA25	SCRWC18	SRA25
19	SRCV190	SRA25	SCRWC19	SRA25
20	SRCV200	SRA25	SCRWC20	SRA25
21	SRCV210	SRA25	SCRWC21	SRA25
22	SRCV220	SRA25	SCRWC22	SRA25
23	SRCV230	SRA25	SCRWC23	SRA25
24	SRCV240	SRA25	SCRWC24	SRA25
25	SRCV250	SRA25	SCRWC25	SRA25
26	SRCV260	SRA25	SCRWC26	SRA25
27	SRCV270	SRA25	SCRWC27	SRA25
28	SRCV280	SRA25	SCRWC28	SRA25
29	SRCV290	SRA25	SCRWC29	SRA25
30	SRCV300	SRA25	SCRWC30	SRA25
31	SRCV310	SRA25	SCRWC31	SRA25
32	SRCV320	SRA25	SCRWC32	SRA25
33	SRCV330	SRA25	SCRWC33	SRA25
34	SRCV340	SRA25	SCRWC34	SRA25
35	SRCV350	SRA25	SCRWC35	SRA25
36	SRCV360	SRA25	SCRWC36	SRA25

WHEN ORDERING CUTTERS AND PILOTS ALWAYS QUOTE SERIES TYPE AND PART NUMBER

[10] MAINTENANCE (General)**TO BE CONDUCTED ONLY BY AUTHORISED PERSONNEL**

In order to ensure that the unit is used to its full efficiency there are a few basic maintenance needs to observe. A regular check-out of the machine will also ensure a prolonged life for the cutters and easier operation.

Before proceeding with any maintenance work, be certain that the motor control switch is in the OFF position

**Weekly:**

Check the gearbox oil level. Remove the oil level plug (1) and check that the oil level is up to the level of the bottom of the threaded hole. If not, remove the vent pipe plug (2) and fill with Renogear V220EP (or equivalent) . The open end of the vent pipe is located within the lifting handle and should always be replaced in this position after filling. Replace both plugs before use.

THROTTLE ADJUSTMENT.

The machine is supplied pre-set to provide optimum/cutter speed, but may require adjustment after prolonged use.

The throttle is connected by a wire cable to a dedicated cam and lever arrangement and activated by the feed handle.

The screw adjuster on the throttle cable should be set with the cutter feed handle fully forward (cutter fully back) to give maximum engine revolutions without engaging the clutch and rotating the spindle. This will ensure maximum revolutions for hole cutting.

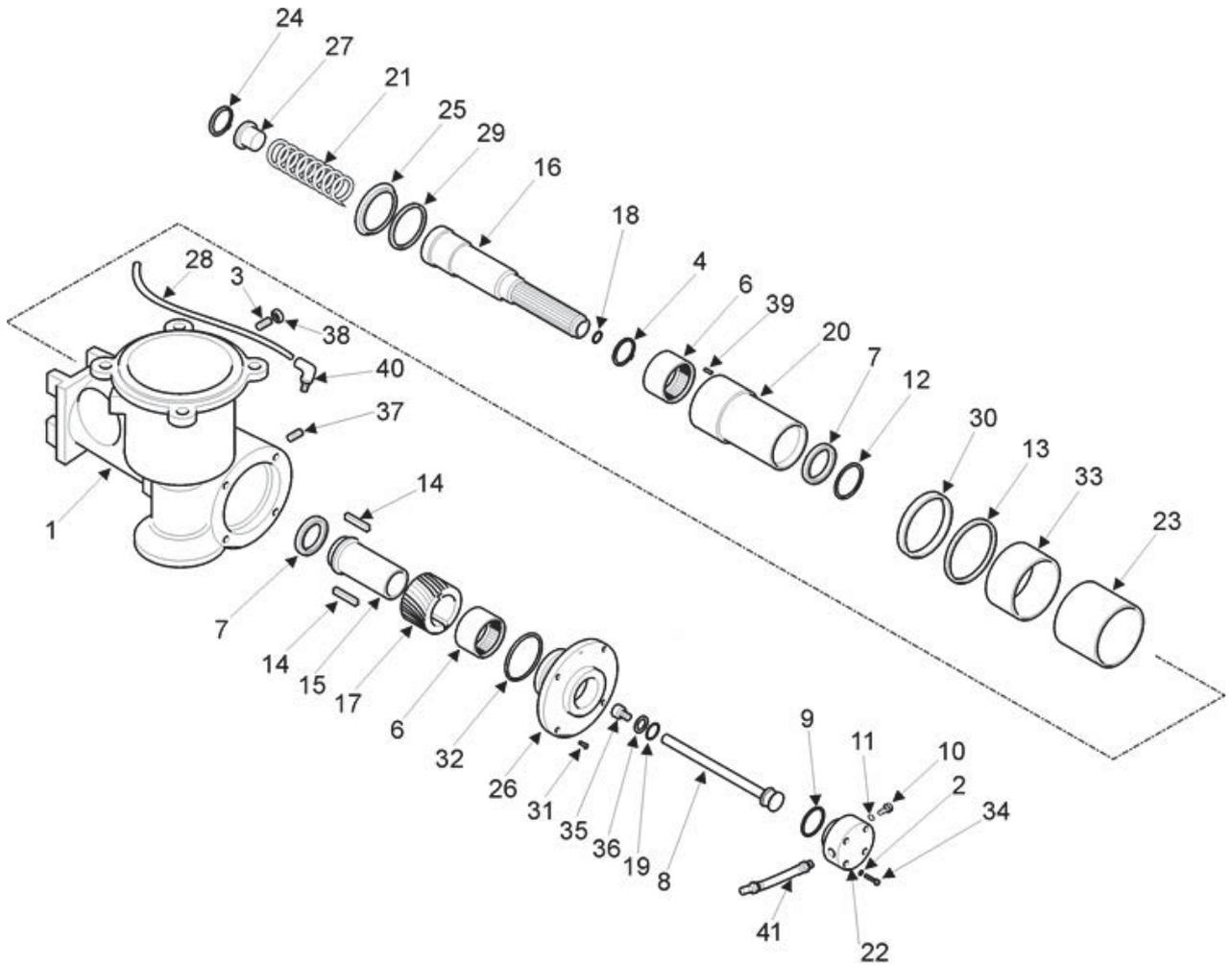
REGULAR SERVICE PERIOD. Perform at indicated month or hour interval, whichever comes first.		Before starting work	First month or 10 hours.	Every 3 months or 25 hours	Ever 6 months or 50 hours	Every 100 hours	Every 2 years or 300 hours
Engine oil	Check	X		X			
	Change		X		X		
Air cleaner	Check	X					
	Clean			X			
Spark plug	Clean/adjust					X	
	Replace						X
Fuel tank filter	Clean					X	
Idle speed	Check/adjust					X	
Valve clearance	Check/adjust						X
Combustion chamber.	Clean						X
Fuel tubes	Check						X

Technical specifications

Valve clearance	Inlet 0,06-0,1mm	It is advisable that this service is conducted by an authorised Honda agent, or local specialist distributor.
	Exhaust 0,09-0,31	
Idle speed	2500-2700 rpm	Should be maximum speed possible without cutter spindle rotating.
Spark plug type	NGK C5HSB	Gap 0,6-0,7 (.024"- .028")
Oil type	SAE 10W-30	

[11] EXPLODED VIEW OF ARBOR SPINDLE ASSEMBLY

from serial number 65820 onwards

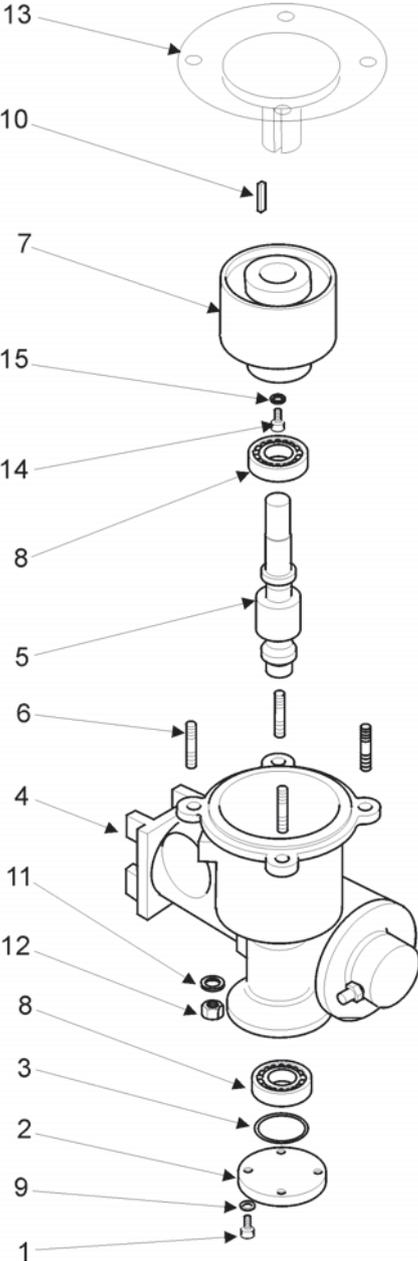


[11] PARTS LIST FOR ARBOR SPINDLE ASSEMBLY from serial number 65820 onwards

Item	Description	Part No	Quantity	Item	Description	Part No	Quantity
1*	MAIN HOUSING	RD3747	1	22	COOLANT FEED HOUSING	RD3792	1
2	M4 SHAKEPROOF WASHER	RD4069	4	23*	REAR BRONZE BEARING	RD3719	1
3	M8 DOG POINT SOCKET SCREW	RD4719	1	24	CIRCLIP	RD4056	1
4	CIRCLIP	RM22876	1	25	FEED TUBE WEAR CAP	RD3714	1
6	COMBINED NEEDLE THRUST RACE	RD4700	2	26	HOUSING REAR ENDCAP	RD3745	1
7	BEARING	RD4701	2	27	BUTTON	RA354	1
8	COOLANT FEED TUBE	RD3793	1	28	VENT PIPE	RD3770	1
9	'O' RING	RD4702	1	29	OILSEAL	RD4704	1
10	COOLANT TUBE CLAMP SCREW	RD3713	1	30*	OILSEAL PROTECTION RING	RD3718	1
11	'O' RING	RD4703	1	31	M4 C/SUNK SKT HD SCREW	RD4721	4
12	CIRCLIP	RD4713	1	32	'O' RING	RD4736	1
13	OIL SEAL	RD4712	1	33*	FRONT BRONZE BEARING	RD4711	1
14	FINAL DRIVE KEY	RD4705	2	34	M4 SCKT HEAD CAP SCREW	RD4728	4
15	FINAL DRIVE SPINDLE	RD3707	1	35	M8 x 15 CAPSCREW	RD4184	1
16	ARBOR/SPINDLE	RD3704	1	36	M8 WASHER	RD4078	1
17	GEAR SET	RD4742	1	37	1/8" BSPT PLUG	RD4745	1
18	'O' RING	RD4706	1	38	M8 HEX NUT	RD4192	1
19	'O' RING	RD47174	1	39	ROLL PIN	RD4740	1
20	FEED TUBE	RD3701	1	40	1/8" BSP ELBOW	RD4754	1
21	SPRING	RA355	1	41	FLEXIBLE HOSE ASSEMBLY	RD2709	1

* SUPPLIED AS ASSEMBLY RD2708

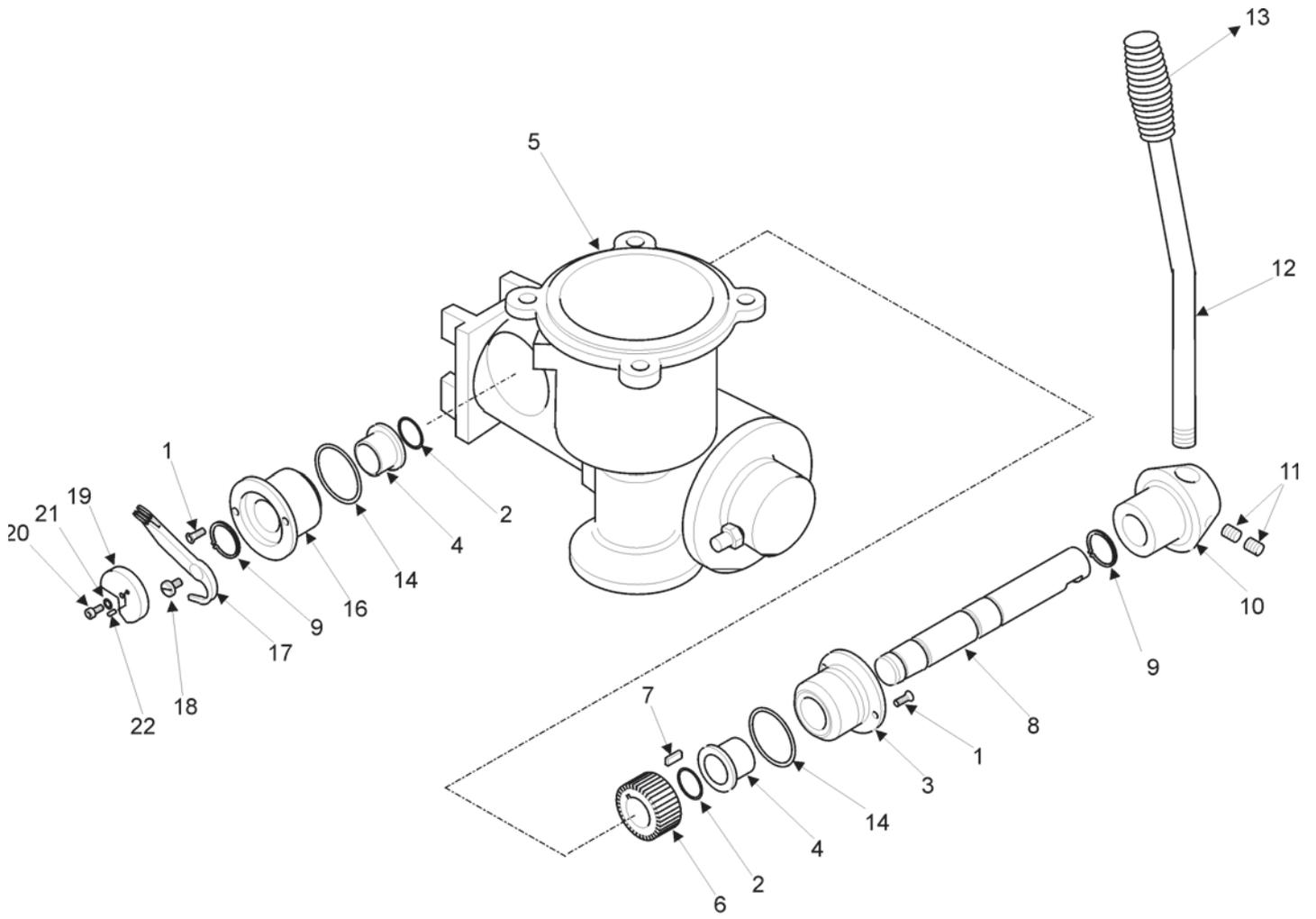
[12]EXPLODED VIEW OF ARBOR/SPINDLE DRIVE



[12] PARTS LIST FOR ARBOR/SPINDLE DRIVE

Item	Description	Part No	Quantity
1	M4 SHCS	RD4414	4
2	SHAFT COVER	RD3746	1
3	O’RING	RD4737	1
4	MAIN HOUSING	RD3747	1
5	GEAR SET	RD4742	1
6	M6 STUD	RD4340	4
7	CLUTCH ASSEMBLY	RD4779	1
8	BEARING	RD4082	2
9	M4 SHAKEPROOF WASHER	RD4069	4
10	KEY	RD3771	1
11	M6 WASHER	RD4207	4
12	M6 NYLOC NUT	RD4223	4
13	HONDA PETROL MOTOR	RD4778	1
14	M6 SHCS	RD4156	1
15	M6 WASHER	RD4095	1

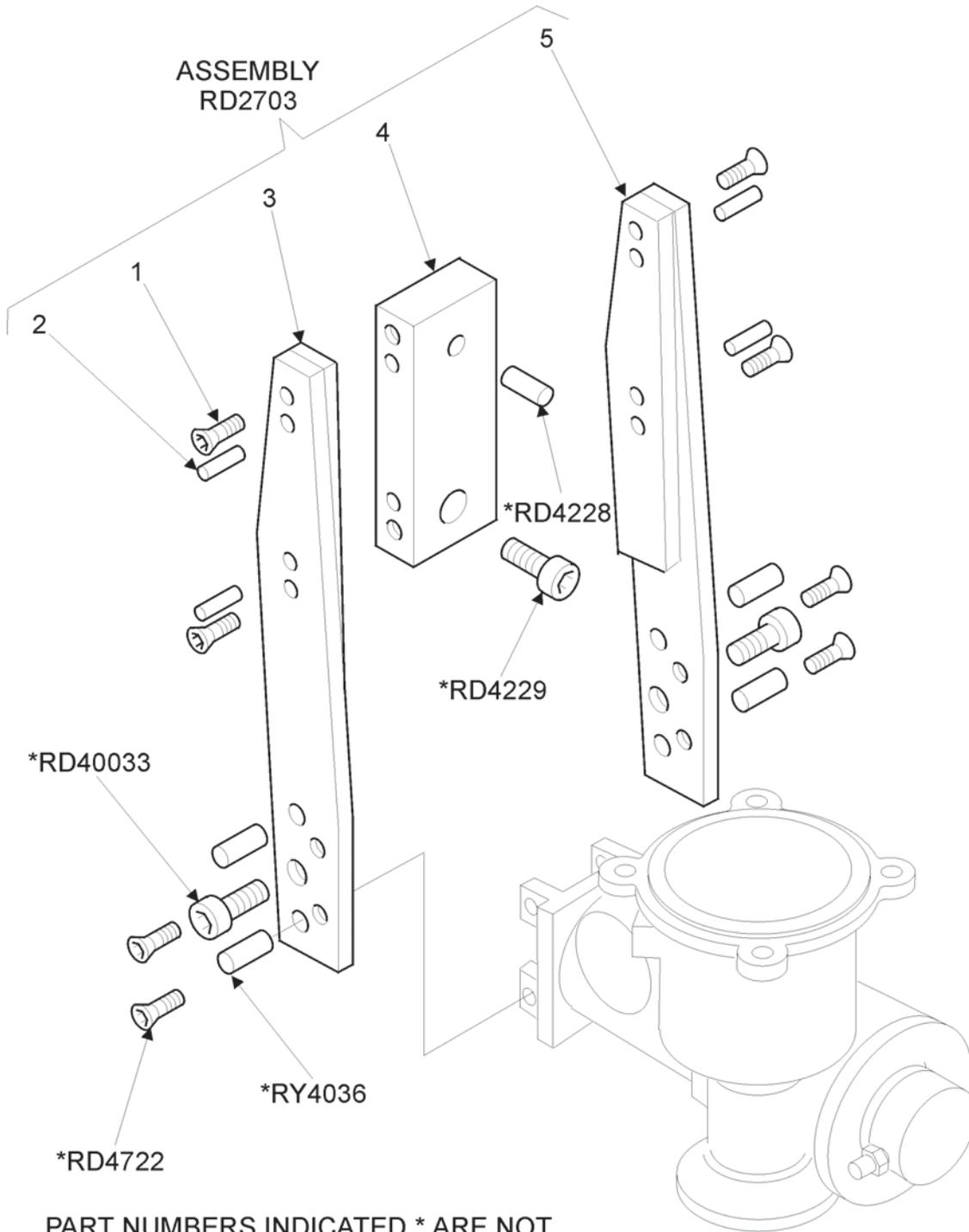
[13] EXPLODED VIEW OF ARBOR SPINDLE FEED



[13] PARTS LIST FOR ARBOR/SPINDLE FEED

Item	Description	Part No	Quantity
1	M4 CSINK SET SCREW	RD4721	3
2	O' RING	RD4726	2
3	CAPSTAN SPINDLE HOUSING	RD3712	1
4	FLANGED OILITE BUSH	RD4724	2
5	MAIN HOUSING	RD3747	1
6	FEED GEAR	RD3705	1
7	FEED GEAR KEY	RD4708	1
8	CAPSTAN SPINDLE	RD3758	1
9	CIRCLIP	RD4730	2
10	CAPSTAN HUB	RD3725	1
11	M8 SOCKET SCREW	RD4066	2
12	CAPSTAN ARM	RD3759	1
13	HAND GRIP	RD4752	1
14	O' RING	RD4727	2
16	CAPSTAN SPINDLE HOUSING	RD3757	1
17	THROTTLE LINK	RD3755	1
18	THROTTLE LINK PIVOT	RD3756	1
19	THROTTLE CAM	RD3754	1
21	SHCS M5	RD4325	1
22	3 DIA ROLL PIN	RD4744	1

[14] EXPLODE VIEW OF BASE PLATE ASSEMBLY

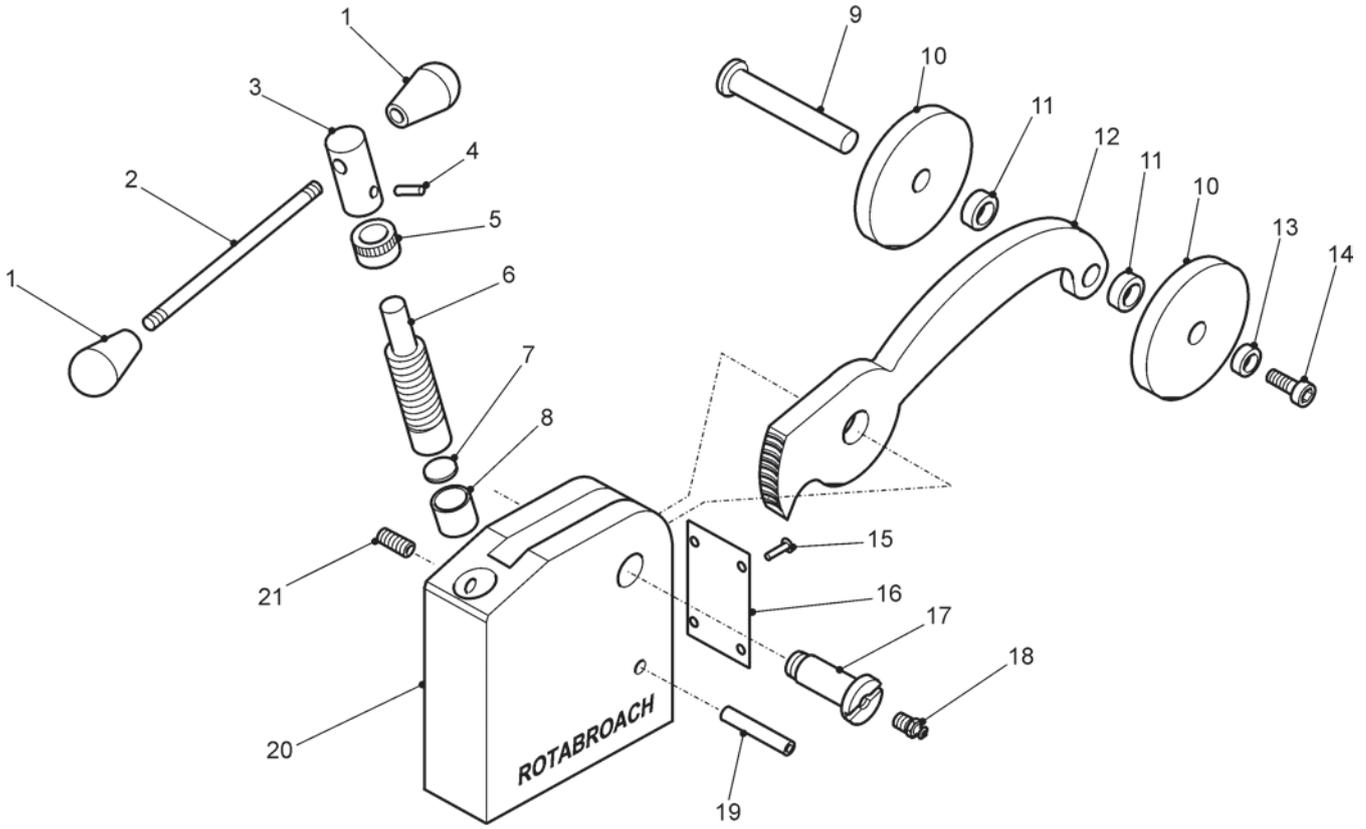


PART NUMBERS INDICATED * ARE NOT
SUPPLIED WITH ASSEMBLY RD2703

[14] PARTS LIST FOR BASE PLATE ASSEMBLY

Item	Description	Part No	Quantity
1	M6 C/SNK SET SCREW	RD4722	4
2	6MM DOWEL	RD4242	4
3	SIDE PLATE (LH)	RD3731	1
4	CLAMP BLOCK	RD3715	1
5	SIDE PLATE (RH)	RD3732	1

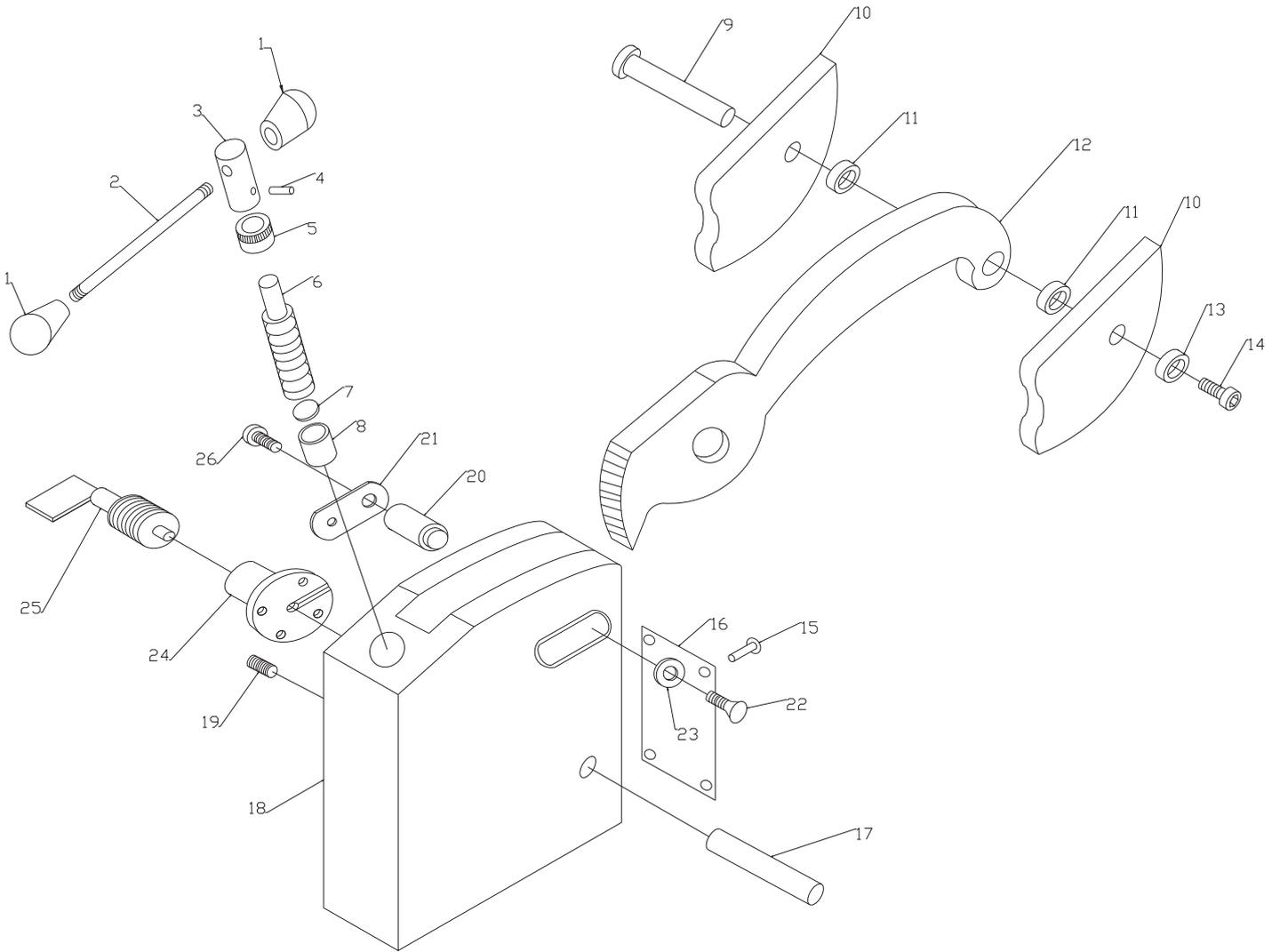
[15] EXPLODED VIEW OF RAIL CLAMP ASSEMBLY



[15] PARTS LIST FOR RAIL CLAMP ASSEMBLY

Item No	Description	Part No	Quantity
1	CAPSTAN KNOB	RY4060	2
2	CAPSTAN SPINDLE	RY4061	1
3	CAPSTAN	RY4062	1
4	PIN	RY4063	1
5	COLLAR	RY4064	1
6	WORM	RY4065	1
7	THRUST WASHER	RY4066	1
8	BEARING BUSH	RY4067	1
9	ROLLER PIN	RY4068	1
10	ROLLER	RY4069	2
11	DISTANCE PIECE	RY4070	2
12	CLAMP ARM	RY4071	1
13	COLLAR	RY4072	1
14	SCREW	RY4325	1
15	RIVET	RY4074	4
16	GUARD PLATE	RY4075	1
17	PIVOT PIN	RY4076	1
18	LUBRICATION NIPPLE	RY4077	1
19	ROLL PIN	RY4078	1
20	CLAMP BODY	RY4079	1
21	LOCK SCREW	RY4368	1

[16] EXPLODED VIEW OF QUICK RELEASE RAIL CLAMP ASSEMBLY



[16] PARTS LIST FOR QUICK RELEASE RAIL CLAMP ASSEMBLY

Item No	Description	Part No	Quantity
1	CAPSTAN KNOB	RY4060	2
2	CAPSTAN SPINDLE	RY4061	1
3	CAPSTAN	RY4062	1
4	PIN	RY4063	1
5	COLLAR	RY4064	1
6	WORM	RY4065	1
7	THRUST WASHER	RY4066	1
8	BEARING BUSH	RY4067	1
9	ROLLER PIN	RY4068	1
10	ROLLER	RY3749	2
11	DISTANCE PIECE	RY4070	2
12	CLAMP ARM	RY4071	1
13	COLLAR	RY4072	1
14	SCREW	RY4325	1
15	RIVET	RY4074	4
16	GUARD PLATE	RY4075	1
17	ROLL PIN	RY4078	1
18	CLAMP BODY	RY33125	1
19	LOCK SCREW	RY4368	1
20	CONNECTING ROD	RY33126	1
21	SLIDE BAR	RY33127	1
22	COUNTERSUNK M5	RD4347	1
23	WASHER	RY33138	1
24	CLAMP CONNECTOR	RY33128	1
25	BALL PLUNGER	RY4095	1
26	M5 X 16 SOCKETHEAD	RD4325	1

Notes:

Notes:

Notes:



[13] 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 MECHANABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ROTABROACH® RESERVE THE RIGHT TO MAKE IMPROVEMENTS AND MODIFICATIONS TO DESIGN WITHOUT PRIOR NOTICE