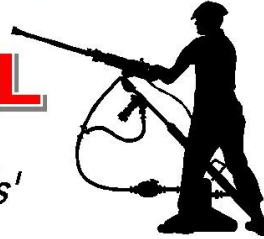


UNDERGROUND ROCK DRILL

'Narrow Vein Rock Tools'



SERVICE INSTRUCTIONS AND SPARE PARTS LIST

MODELS:

SIG.au PLB 241 DI

SIG.au PLB 241 K





The safety precautions listed in the manual are intended to alert operator and helpers to the possible physical dangers inherent in the various stages of operating and/or maintaining equipment of this kind. All personnel involved in operating and/or maintaining this equipment must read and thoroughly understand the operating instructions before attempting to operate, or perform maintenance on the drill machine. Non-authorized, or untrained personnel must not under any circumstances attempt to operate or maintain the machine.

SAFETY FIRST must always be the primary consideration of all personnel whilst operating or maintaining the machine, under normal, and especially, in unusual conditions.

Since these safety Precautions cannot cover ever possible situation, all users are expected to exercise good judgement, fore site and common sense, when operating or working with, on, or near the machine.

The signs CAUTION and PLEASE NOTE are to be defined as follows:

CAUTION:

This word is used to point out that inadequate or non-compliance with operating manuals, working instructions, operational sequences etc., could substantially damage property, or cause severe personal injury which could be fatal.

PLEASE NOTE:

This word is used to make people aware of installations, and gives hints for operation and maintenance which are important, but not hazard related. It generally indicates an **OPERATIONAL AID**.

Other signs highlighting the use of safety equipment are as follows:



Hearing Protection



Eye Protection



Hand Protection



Foot Protection

REMEMBER:

You are the one who is responsible for your own safety!

The Manual is only a general guide.

It does not relieve you of your responsibility to exercise caution and common sense and to comply with safety at work procedures and instructions at all times!

PLEASE NOTE:

This manual is a general description of the SIG PLB 241 Pneumatic Rockdrill.

Pictures and descriptions may therefore not match your unit in every way.

CONTENTS

- GENERAL INFORMATION

- Warnings
- Safety Precautions
- Technical Specifications
- Control Elements

- CARE AND MAINTENANCE

- Maintenance Intervals
- Maintenance Details
- Servicing Tools

- DISASSEMBLY AND ASSEMBLY INSTRUCTIONS

- Backhead
- Valve Assembly
- Piston
- Cylinder
- Rotation Mechanism

- PARTS LIST

- MACHINE BREAK DOWN

WARNINGS

- Power tools are not generally insulated for coming into contact with electric power sources.
- Power tools must not be used in explosive atmospheres unless specifically designed for that purpose.
- Working with a percussive tool can generate dust which, depending on the material being worked on, could be harmful to the operator.
- The inserted tool on heavy types of percussive non rotative power tools, eg breakers, is exposed to heavy strain and can, after a long period of use, break due to fatigue.
- Unexpected tool movement or breakage of inserted tool may cause injuries to the lower limbs, the feet in particular.
- Unsuitable postures may not allow counteracting of normal or unexpected movement of the power tool.
- Use caution when working around hoses as there is a danger of whipping under pressure.
- Use only original spare parts.

SAFETY PRECAUTIONS

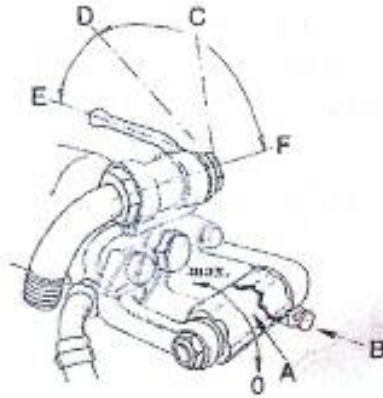
- During operation of the drill, safety shoes, safety glasses, ear protection and safety helmet are to be worn.
- Exposure to excessive noise can lead to hearing deficiency. Appropriate hearing protection must always be worn.
- Distraction increases the danger of accidents.
- Only on actual operation of the drill should the operating handle be touched.
- When working with the drill, sure and firm footing is necessary.
- The drill should not be brought near the face, placed on your feet or pointed at co-workers of yourself.
- The drill should never be put into operation if it is lying on the ground or if it is not held securely in working position.
- Compressed air is dangerous. Never point a connected compressed air hose at co-workers or yourself. Avoid the habit of blowing your clothes free of dust with compressed air.
- Be sure that all hose connections are tight and sealed. A loose hose not only causes loss of air but also presents the danger of whipping if the hose comes completely off the drill. Hoses must be secured with safety cables or ropes.
- Never disconnect a pressurized air hose, first shut off air at the compressor port, then bleed the line and tool.
- The drill should only be operated with a specially suited inserted drill rod. Operate with sufficient pressure, avoid recoils. When the machine is under pressure, oilers may not be filled up and tools may not be exchanged.
- The drill should always be held with both hands during operation
- The operator must have a firm footing. If possible, the operator's feet should be placed so as to ensure that they are out of falling range of the drill, but without danger of losing balance. In the case of breakage of the drill rod, there is a danger of sudden falling of the drill with one leg over the handle. In the case of the breakage of the drill rod, there is danger of sudden falling of the drill with protruding and broken drill rod part.
- Never operate a drill astride i.e. with one leg over the handle. In the case of the breakage of the inserted drill rod, serious injuries can result.
- Ensure that no cables, pipes and the like are in the area of drill operation (electric, gas water, telephone).
- In the event of the drill coming in contact with unknown objects during operation, switch off the drill immediately. Identification of the object should be carried out by carefully uncovering this with a shovel, NEVER with the drill.
- Where a cleaning solvent is used to clean the drill parts, it is important that the solvent used meets with current health and safety regulations and that is used in a well-ventilated area. In addition to this, the current regulations of disposal are to be respected.
- No part of the drill shall be used for anything other than the designated duty for which it was designed.

TECHNICAL SPECIFICATION

Before using the Rockdrill, carefully memorise the present operation and maintenance instructions.

TYPE		PLB 241 DI / K
DIMENSIONS:		
	WEIGHT	26Kg (57.3 lbs)
	LENGHT	650mm (25.6 inches)
	PISTON DIAMETER	80mm (3.15 inches)
	PISTON STROKE	60mm (2.4 inches)
DRIVE		
	PRESSURE RANGE	4-6 bar (59-88 p.s.i.)
	OPTIMAL AIR PRESSURE	5 bar (73.5 p.s.i.)
	AIR CONSUMPTION AT 6 BAR	4,0 m ³ /min (141 cfm)
FLUSHING WATER		
	WATER PRESSURE	Always at least 0.5 bar (7 p.s.i.) less than actual air pressure
	MINIMUM FLOW WITH DRILL RODS OR 2,4M (7' 10') LENGTH	8.8 l/min (1.9 imp.gal./min)
CHARACTERISTICS		
	ROTATION	Left Hand
	EXHAUST SILENCING	Integrated in Rockdrill housing
	SHANK	22 x 108mm hex. (7/8" x 4 1/4")
HOSES		
	AIR HOSE	25mm (1")
	WATER HOSE	13mm (1/2")

OPERATION



Controls:

- A Twist grip for air leg thrust
- B Push button for leg retraction
- C,D,E,& F Functional positions of operating lever

- Position C Water and air supply shut off
- Position D Water flushing is on, thereafter collaring
- Position E Water and full air pressure supply
- Position F Cleaning the bore by blowing

1. Requirements for compressed air and flushing water

- Compressed air to be dry and clean.
- Inner diameter of air hoses to be at least 25mm (1”).
- Air hoses to be blown out before being connected to the Rockdrill.
- Inner diameter of water hoses to be at least 13mm (1/2”).
- Water hoses to be flushed out before being connected to the Rockdrill.
- Water pressure must always be 0.5 bar (7 p.s.i) less than air pressure.

2. Lubrication Requirements

- AN automatic lubricator (e.g PLO 10) or a central lubricator must always be fitted to compress air hose when drilling. (the closer the device is to the rockdrill, the better it works).
- Check that oil is emerging at the shank: The tool collar must be coated with oil. The necessary oil quantity must be set on the adjusting screw in the lubricator. A common approach to adjust proper oil amount is to turn screw fully to stop end and then 3 turns left hand to set it. Check it, it may be different for you application.

Important

Environmental regulations should always be followed.

The lubricator shuts off the air supply to the Rockdrill when:

- The lubricator is empty (no oil);
- The compressed air hose between the lubricator and the Rockdrill has burst.

The following oils are recommended:

Manufacturer	Type	Temperature Range:		
		Below 10°C	10 C – 35° C	Above 35° C
Texaco	RDL	32	100	-
Shell	Torcula	32	100	-
Mobil	Almo	525	527	529

3. Drill Steel Requirements

Drill steels used must be in accordance with ISO standards.

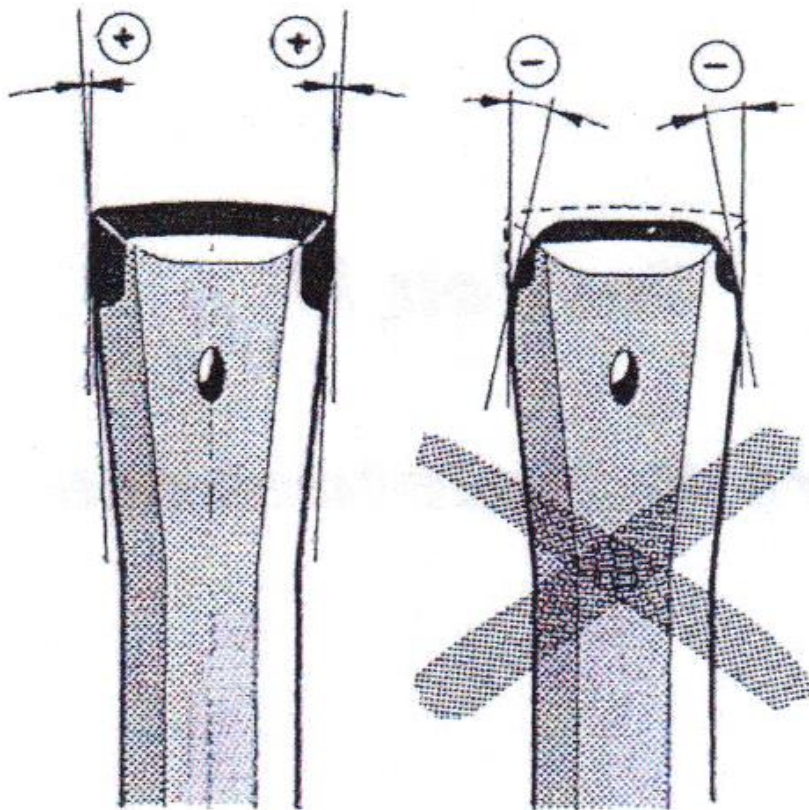
Shanks:

- Shanks must be intact and clean.
- The contact surface must be smooth and in the correct angle to the drill rod axis.
- Flushing holes must be clogged.

Bits:

- Must be correctly shaped (no inward taper).
- Flushing holes must not be clogged and have to be at the right place and of the correct size.

Also please comply with any specific instructions given by the drill steel manufacturer.



Maintenance Intervals

The Rockdrill is to be disassembled and cleaned periodically. At this time wear parts are to be checked according to the information on pages 10-15 "Component parts, maintenance data."

Maintenance Details

- The reference numbers coincide with the numbering shown in the exploded view.
- Part numbers for special tooling are specified on page 8.

Dismantling the Rockdrill

- Unscrew side rod nuts 39 using spanner 5.
- Knock out side rods 36.

This is sufficient for normal service work. For further dismantling instructions please refer to the section titled "Component parts, maintenance data".

Cleaning the Rockdrill

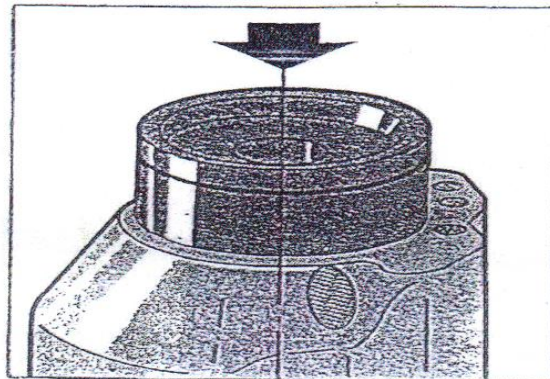
- Wash all parts thoroughly using kerosene.
- Blow all parts with compressed air and dry with a clean cloth.
- After cleaning, coat all parts with resin and acid free grease with the exception of valve plate (15), intermediate disc (14) and valve chest (13), which should only be oiled.

Reassembling the Rockdrill

- Take care that the valve assembly (13), (14) and (15) enter the housing (35) in an absolute vertical manner. Be aware of the danger of jamming.

Caution:

- Ensure that the side rod nuts (39) are sequentially and evenly tightened with spanner (5). Check sliding of valve piston (6) while tightening rod nuts. Torque: approximately 300 Nm (222 ft lbs)



Disassembly and Assembly Instructions

1. Handle Disassembly

Blow all parts with compressed air and dry with a clean cloth.

- Disassemble side rods 36
- Remove operating arm
- Unscrew nut 34
- Remove left arm 26

Valve piston 6 in operating arm

The valve piston may not be movable. Dirt or unequal tightening of nuts on side rods may be the reason.
Disassembly

- Unscrew valve screw 4 with 22mm spanner.
- Check o’ring 5 and replace when necessary.
- Remove valve piston 6 and clean it.
- Check o’ring 602 and replace when necessary.

Assembly

- Lubricate valve piston 6 and spring 7 with light, resin free oil before assembly
- Important: Ensure that the side rods 39 are equally tightened.
- After assembly, check for trouble free operation of rock drill.

2. Backhead 51

Check for damaged rubber seals 10 and 11. If not O.K. they have to be replaced, otherwise flushing water is entering internal area of rock drill creating high wear costs.

Throttle Valve 59:

- To replace, disassemble air goose neck swivel 62, air connection nipple 61 and hex nut 56.
- Switch operating lever 55 in position ‘E’ (see page 7) In this position pull out throttle valve 59 towards air supply end.
- Check o-ring 60.

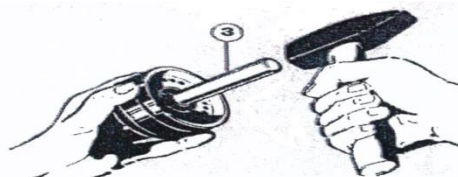
3. Controls

Pre-dismantling

- Loosen nuts 39 from side rods 36.
- Separate housing 35 from backhead 51.
- Press out valve (assembled) from housing 35.

Dismantling the valve:

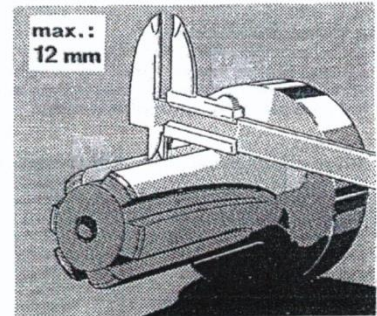
- Guide punch 3 with small diameter into intermediate disc 14 and knock out with a hammer.
- Check valve plate for fissures or indentations (max 0.3mm). When assembling the valve, care should be taken that the valve plate moves when the control unit is shaken.



4. Piston 17

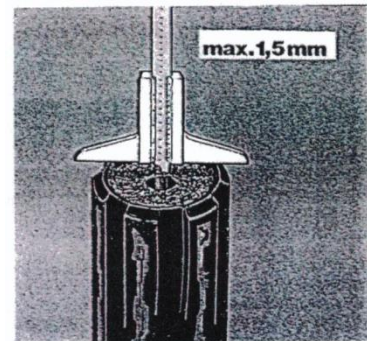
Check guide and twist grooves for wear.

Max groove width: 12mm. If worn, replace the piston.



Check the percussion surface of piston for wear.

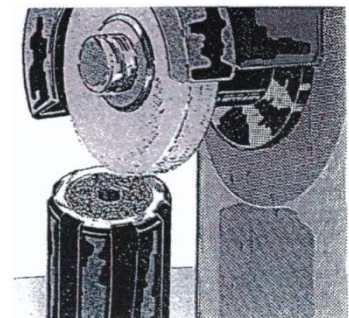
Max depth: 1.5mm. The piston may be refaced by grinding.



Caution:

In doing so, grind down the protruding edge only.

Under no circumstances should the surface be ground.

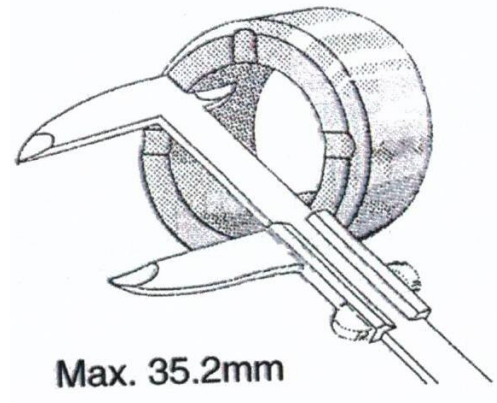


5. Cylinder Washer Bush 18

Check inside diameter for wear: Maximum inside diameter: 35.2mm. If larger, remove bush using punch 40mm diameter (can be made on site) and vice or press. Insert new bush using an old percussion piston.

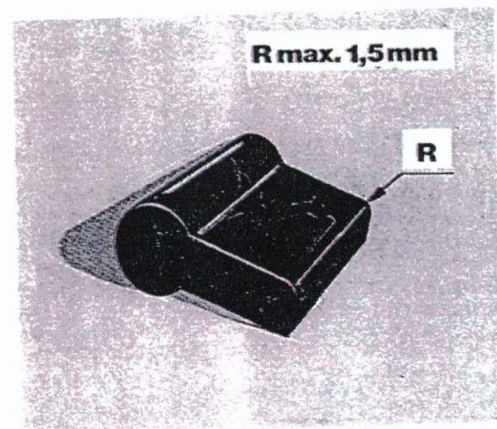
Important:

Radius on inside diameter must match with piston radius.



6. Rotation Mechanism Pawls 44:

Check trip edges for wear. Maximum radius of wear: 1.5mm. If larger, make use of opposite edge. Replace Pawls only when both trip edges are worn.



Pawl Springs 43:

Check from time to time that the springs are still in working order. Fatigued or defective pawl springs can lead to insufficient drill rod rotation. Never try to change shape of spring by bending it.

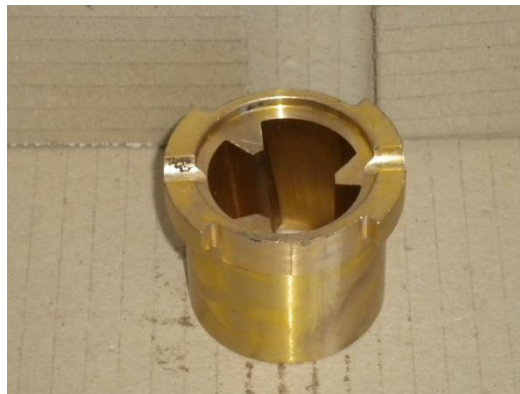
Two Piece Ratchet Ring 20.1:

Maximum wear on edge: Radius 1.5mm. After this limit, replace the ratchet ring.



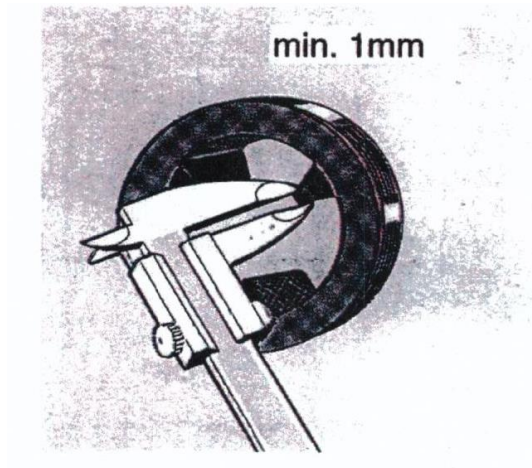
Ratchet Bush 20.2:

Wear on splines: Minimum Spline width 1mm. If less than 1mm, replace ratchet bush.



Guide Bush 21:

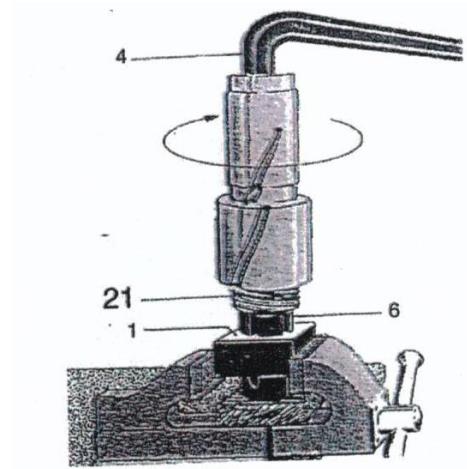
Wear on splines: minimum spline width 1mm. If less than 1 mm, replace guide bush.



Dismantling the guide bush 21:

- Secure chuck 22 using a special spanner 1 and punch 6 in vice.
- Unscrew chuck 22 from guide bush 21 using bent drill rod 4.

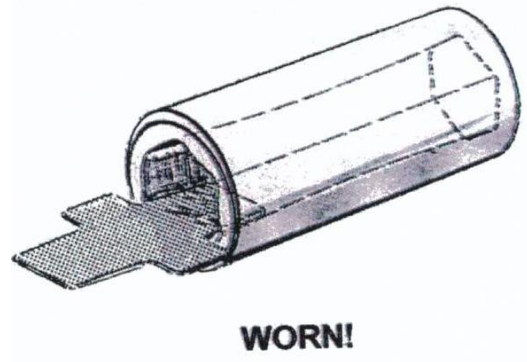
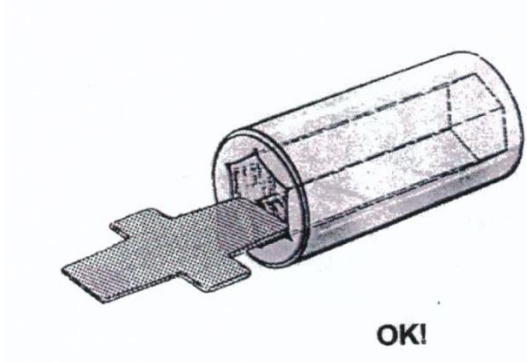
Caution: LEFTHAND THREAD



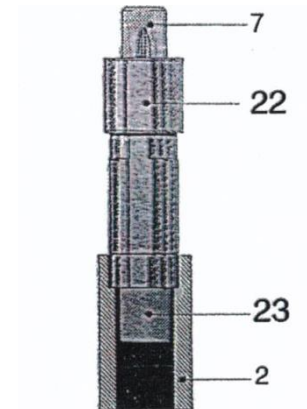
Chuck Insert 23:

Check the condition of the hexagon from time to time. Excessively worn chuck bushings lead to fractures of shank and piston.

Using a hexagon gauge (available from drillsteel manufacturer), check area where wear is heaviest. If the gauge runs in up to the stop, replace the chuck insert 23.

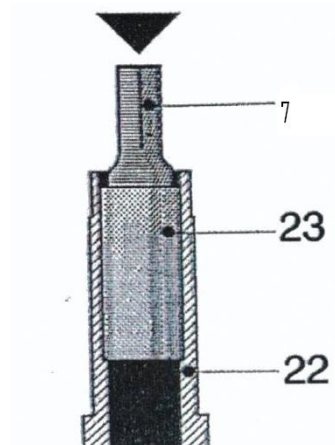
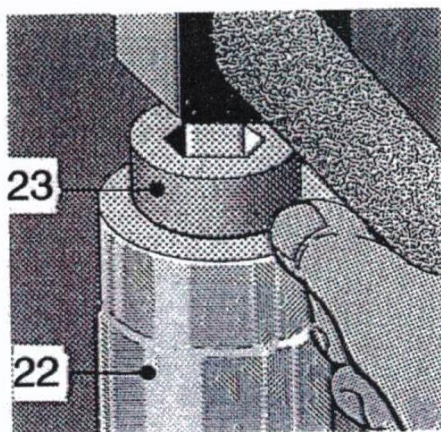


- Place bush 22 in disassembly sleeve 2.
- Using punch 6 remove worn chuck insert 23.
- Without using excessive force, set in new chuck insert vertically.



- Then knock in chuck insert as far as possible against an anvil or iron block.

Using shank 7 cut to size; drive in chuck insert as far as stop.



SIG.au PLB 241 DI- 64 264 010 02

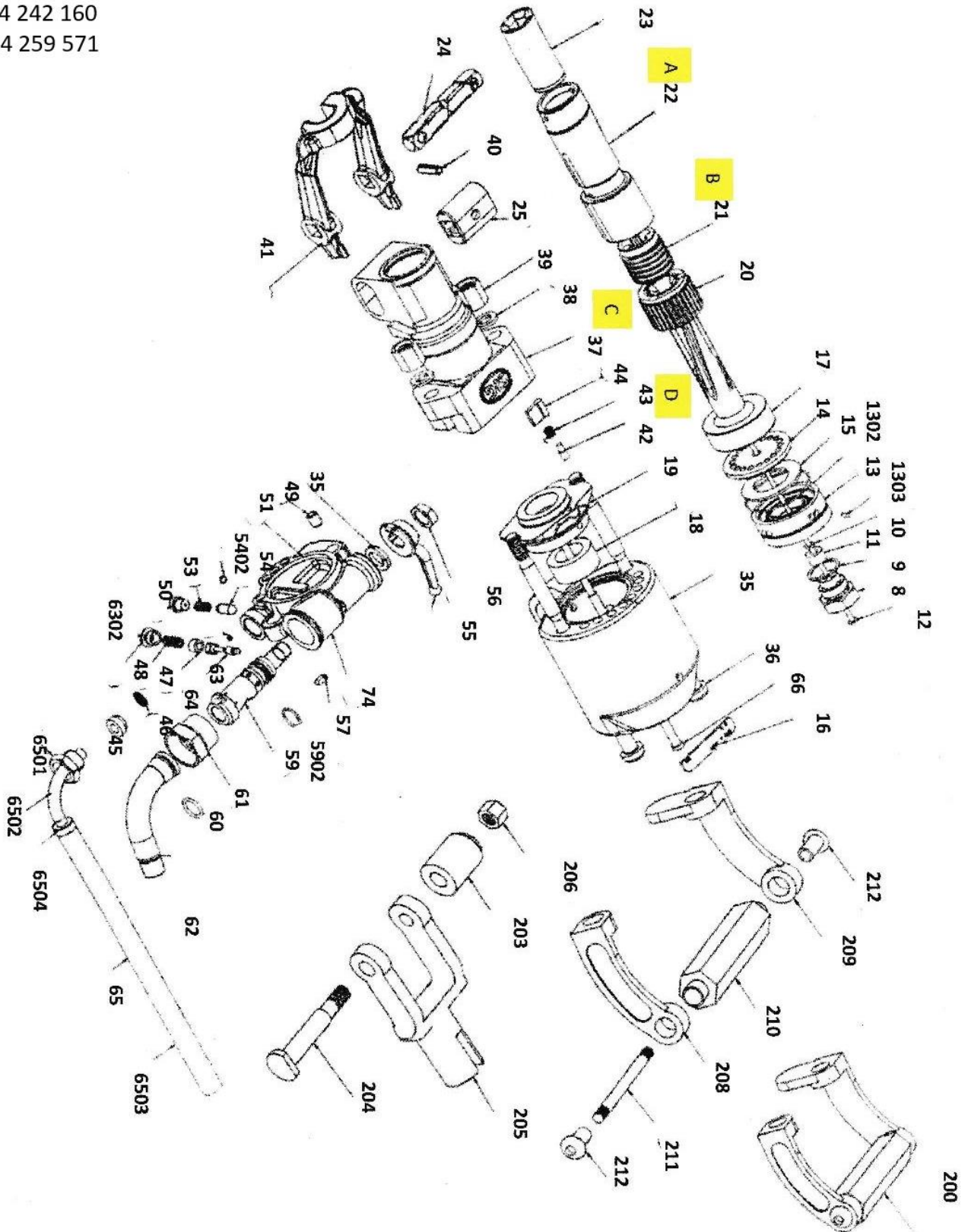
ITEM	PART NO.	QTY	DESCRIPTION	DIRECTION
8	64 258 080	1	Plug	
9	64 258 090	1	Copper Gasket	
10	64 255 170	1	Rubber Seal	
11	64 262 410	1	Rubber Seal	
12	64 242 420	1	Flushing tube, water	
13	64 243 071	1	Valve Chest	
1302	49 6680 580	1	O-Ring	80/2
1303	64 995 180	1	Cylindrical Pin	
14	64 243 081	1	Intermediate Disc	
15	64 243 090	1	Valve Plate	
17	64 258 202	1	Piston	
18	64 258 420	1	Cylinder Washer Bush	
19	64 242 050	1	Cylinder Washer - Flange	
20	64 258 232-2	1	Ratchet Ring Complete	
20.1	64 258 231	1	Ratchet Ring	
20.2	64 242 070	1	Ratchet Bush	
21	64 242 750	1	Guide Bushing	
22	64 242 740	1	Chuck	
23	64 258 990	1	Chuck Insert	
24	64 261 090	1	Steel Retainer Bolt	
25	64 262 220	1	Rubber Mounting	
35	64 259 655	1	Housing	
36	64 258 282	2	Side Rod	
37	64 242 760	1	Front Head	
38	64 255 460	2	Spring Washer	
39	64 255 451	2	Side Rod Nut	
40	64 995 770	2	Dowel Pin	10 x 40
41	64 261 100	1	Steel Retainer	
42	64 258 352	4	Pawl Plunger	
43	64 258 344	4	Pawl Spring	
44	64 257 111	4	Pawl	
45	64 255 130	1	Rubber Ring	
46	64 259 730	1	Strainer	
47	64 244 180	1	Compression Spring	
48	64 244 170	1	Water Valve Screw	
49	64 256 741	6	Rubber Seal	
50	64 244 130	1	Screw Plug	
51	64 242 720	1	Backhead Bare	
53	49 6210 046	1	Compression Spring	2 x 10.7 x 29.5

54	64 244 120	1	Latch (SB)	
5402	41 6581 112	1	O-Ring	8/1.5
55	64 244 100	1	Operating Lever	
56	64 992 070	1	Hex Nut	M20
57	64 257 040	1	Key	6 x 6 x 15
59	64 242 731	1	Throttle Valve	
5902	41 6581 174	1	O-Ring	25/2.5
60	41 6581 212	1	O-Ring	26/3.5
61	64 258 060	1	Air Connection Nipple	
62	64 262 210	1	Air Goose Neck Swivel	
63	64 244 160	1	Water Valve Pin	
6302	41 6581 109	2	O-Ring	5/1.5
64	64 244 150	1	Gasket	
65	64 258 401	1	Water Hose Complete	
6501	64 255 110	1	Water Nipple	
6502	64 255 120	1	Water Gooseneck	
6503	64 255 610	1	Air Hose	13/5
6504	64 951 723	1	Hose Clamp	
66	64 217 255	1	CE-Sticker	
68	64 258 171	1	Water Tube Sleeve	
74	64 242 720C	1	Backhead Complete	
200	64 000 152	1	D-Handle	
203	64 000 140	1	Bush	
204	64 000 111	1	Mounting Bracket Bolt	
205	64 000 103	1	Mounting Bracket Assembly (inc 204 & 206)	
206	64 000 120	1	Nut	
208	64 000 210	1	LH side of D Handle Assembly	
209	64 000 220	1	RH side of D Handle Assembly	
210	64 000 230	1	Hand Grip	
211	64 000 010	1	Connecting stud	
212	64 000 030	2	Nut	
	RIGHT HAND OPTIONS			
22A	64 242 321	1	R/H CHUCK	
21B	64 259 610	1	R/H Chuck Nut	
37C	64 242 160	1	Front Head	
43D	64 259 571	4	R/H Pawl Spring	

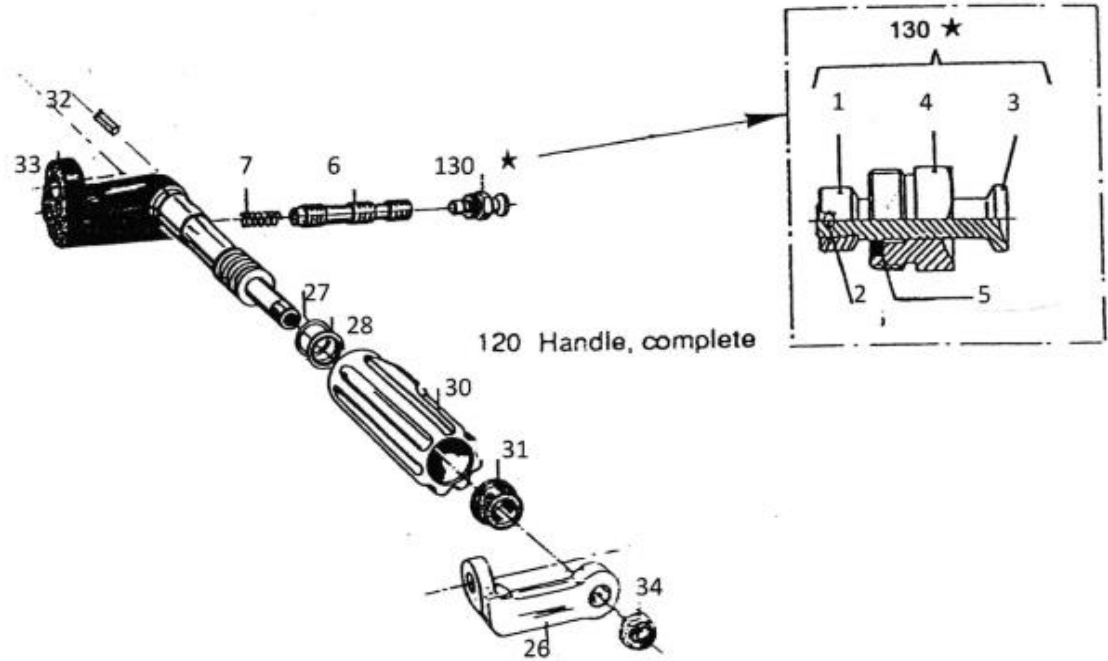
SIG.au PLB 24 DI ROCKDRILL

Right Hand Options

- A 64 242 321
- B 64 259 610
- C 64 242 160
- D 64 259 571



SIG.au 64 264 010-01 PLB 241 K HANDLE ROCKDRILL



- | | | |
|------|-----------------------|---------------|
| 1. | 64 244 350 | Button |
| 2. | 00 5661 0405 000 1920 | Dowel |
| 3. | 64 244 340 | Valve Pin |
| 4. | 64 256 671 | Valve Screw |
| 5. | 64 256 690 | O'Ring |
| 6. | 64 244 260 | Spool |
| 7. | 64 244 270 | Spring |
| | | |
| 26. | 64 262 080 | Arm Outer |
| 27. | 41 6581 142 | O'Ring |
| 28. | 64 996 450 | KSD Seal |
| 30. | 64 244 250 | Twist Grip |
| 31. | 64 242 510 | Support Disc |
| 32. | 34 514 791 | Pin |
| 33. | 64 242 501 | Operating Arm |
| 34. | 64 992 400 | Nut |
| 120. | 64 244 280 | Handle Comp. |
| 130. | 64 244 360 | Valve Comp. |