

SINCLAIR

equipment company

Model PG-21 Pneumatic Grommet Machine *Operating Manual*



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INTRODUCTION

PNEUMATIC MACHINE MODEL PG-21 FOR PLACING APPLICATIONS BY HAND

The function of this machine is the placement of applications or to punch holes (maximum interior diameter of tube grommet 14mm) in materials that need these applications.

Specially recommended for placing grommets and washers in: awnings, curtains, advertising signs, etc.

WARNINGS!

We hope you will take notice of these warnings and we would like to thank you for the purchase of this machine.

User unawareness of the machine leads on many occasions to elementary doubts about its operation.

Please read this instruction manual carefully for your guidance, in order to make the most of your machine.

SINCLAIR EQUIPMENT DECLINES ALL RESPONSABILITY ON THE INCORRECT USE OF THIS INSTRUCTION MANUAL.

IDENTIFICATION OF THE MACHINE:

The machine has an aluminium plate indicating the following:

Name of manufacturer

Year of manufacture

Model and serial number

Power in kw

Maximum pressure in bars (pneumatics system)

EC Brand

Weight in kg

Keep a record of this information for future support.

Serial Number:_____

Date of Purchase:_____

1. DESCRIPTION OF THE MACHINE AND ITS OPERATION.

(See figure below)

The machine consists of the head, air hoses and pneumatic foot pedal. The moving parts in the machine are located inside the head (pneumatic cylinder, manometer, axles, dies, etc.).

After placing the machine in its permanent location, without fitting the air hosepipe into the mouth of the compressor, verify that it has not suffered any blow or breakage while being transported and that it has not any loose parts.

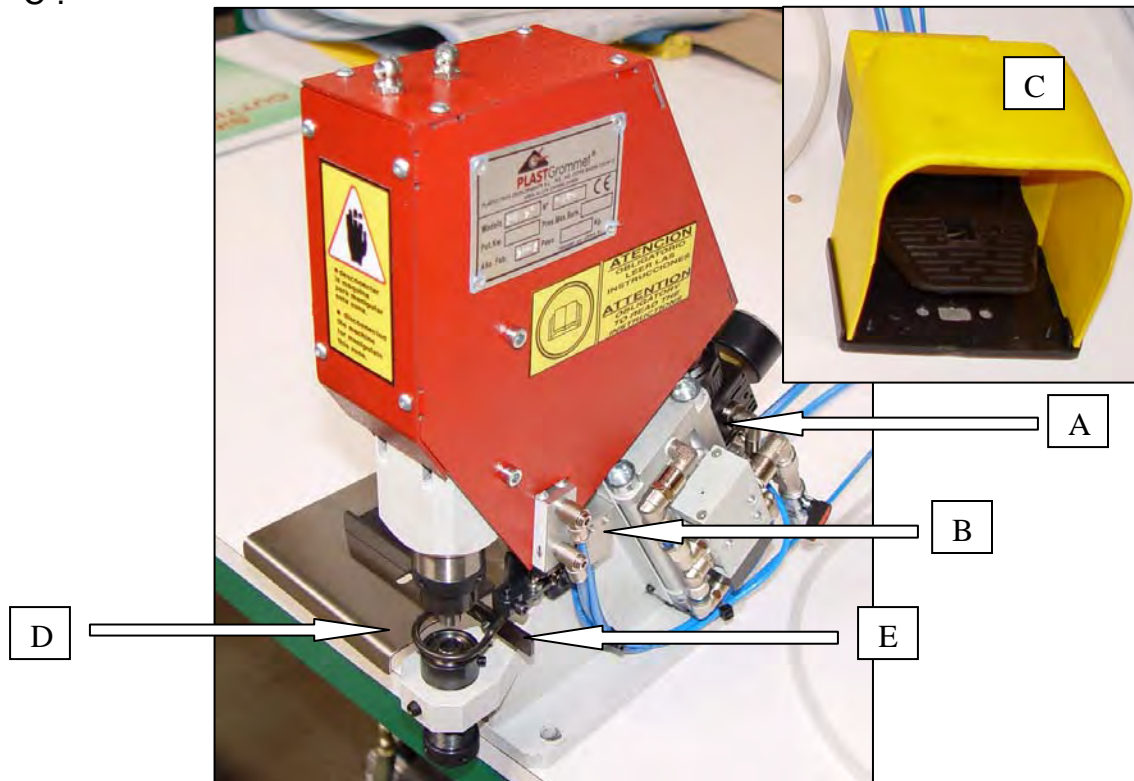
The operation of the machine is very simple:

When pressing the pedal “C” a pneumatic safety cylinder “B” is activated. The safety cylinder causes the ring guard “E” to descend right to the point where it can check that there are not any fingers or hands in the grommets area “D” and activates the micro end of race which sets the pneumatic cylinder “A” in motion.

The pneumatic cylinder “A” causes the vertical axles to descend. Attached to the lower part of the vertical axles are the top set spindle and the top die that does the grommets.

The aim of the downward movement of the axles is to cause the top-set spindle to punch out a hole in the material and to set the grommet situated in the grommets area “D”, by means of the pressure that the top-die puts on the bottom die.

After this cycle the machine returns to its starting position ready for a new application as soon as you place the grommet and the washer and press the pedal “C”.



Technical Data:

HEAD MEASUREMENTS:

DEPTH: 30 cm

WIDTH: 11'5 cm

HEIGHT: 38 cm

WEIGHT (with pneumatic pedal): 14 Kg

Installation:

The operator can work in a seated or a standing position, depending on the height of the machine.

The minimum space recommended must be sufficient to keep the safety space in all directions for the operator to work properly. The buyer of the machine usually places the machine on a table.

The machine model PG-21 needs at least 6 atmospheres of pressure from the air compressor.

WARNING: FOR BETTER OPERATION THE COMPRESSOR HOSE PIPE SHOULD NOT BE COMPLETELY STRETCHED.

Machine Handling:

The transportation of this machine requires a series of operations. Some of these operations may imply dangerous situations so please follow the following advise:

- Never stand beneath the cargo.
- Always lift the cargo gently.
- Avoid balancing the cargo.
- No brisk movements.
- Do not place yourself in the cargo moving trajectory.
- Use the correct equipment to move cargos.
- Check this equipment periodically.

REMEMBER: THE MACHINE MUST NOT BE OVERTURNED.

BEFORE STARTING THE MACHINE, READ THESE WARNINGS CAREFULLY.

The following are a series of instructions and warnings which must be taken into account with regard to the model PG-21.

- Before connecting the machine to the compressor, it should be placed in its permanent location. Do not connect any electrical devices to the machine before it has been placed in its permanent location.
- Cleaning, manipulation and replacement of parts of the machine must always be carried out with the machine disconnected from the mains power supply.
- Do not remove from the machine any parts which protect the user from possible accidents, or adhesive labels or signs indicating electrical or hazardous components.
- The machine has an air inlet handle which is used to let the air into the machine. When the machine is not in use, it should be shut in order to avoid any accidents in case of manipulation by third persons. We also recommend you disconnect the air hosepipe from the compressor for safety reasons.



Machine Description

Maximum interior diameter of grommet and washer is 12mm.

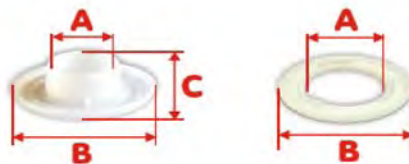
The machine perforates and sets the grommet with the washer at the same time.

Each set of dies sets only one grommet and washer model; the grommet models may differ in: the head size “B”, the length “C”, the interior diameter of tube “A”, the thickness, etc; and the washer models may differ in: the exterior diameter “B”, the length, the interior diameter of washer hole “A”, the washer shape, etc.

SINCLAIR EQUIPMENT RECOMMENDS YOU TO USE ALWAYS THE SAME TYPE OF GROMMET AND WASHER FOR WHICH THE MACHINE WAS DESIGNED. In order for the machine to set different grommet and washer models, certain parts need to be changed.

Sinclair Equipment will accept no responsibility arising from the use of this machine in any way different from that which is described in this instruction manual.

Grommet	Grommet Measurements	Washer Measurements
8mm Plastic Grommet	A: 8mm B: 15mm C: 8mm	No washer is used for 8mm grommet.
12mm Plastic Grommet	A: 12mm B: 26mm C: 8.3mm	A: 15mm B: 24mm



SETTING UP THE MACHINE FOR ITS OPERATION

Before starting the machine for the first time, and each time the location of the machine is changed, or any changes are made in parts or any adjustments are done to it, we recommend the following steps:

After placing and making the machine level in its permanent location “STILL WITHOUT PLUGGING IT IN”, lubricate it with SAE 40 type oil in the grease cups and red marks. Let the oil have enough time to cover the parts and then clean the excess oil that might remain or drip.

To verify the machine is not blocked or might have suffered a blow or breakage:

- 1- Remove the top cover,
- 2- Verify the machine is not blocked or that it has any loose parts.
- 3- Put the cover back and fasten the 4 allen screws.
- 4- Lubricate the parts as indicated.

ADJUSTMENTS

DISCONNECT THE MACHINE TO CHANGE THE DIES, ADJUST THE PRESSURE, ETC

For an optimal operation, the machine has to be adjusted for each type of material and grommet, keeping the parts that do the grommeting (dies and spindle) in good condition.

The bottom and top dies #219 and #217, and the top set spindle #218 are the parts that need to be replaced regularly due to the normal use of the machine. You will realize that they have to be replaced when the machine does not cut cleanly and / or the grommeting is defective. We recommend you always have spare dies.

If you have to remove any part meant for the safety of the operator in order to do these adjustments (for example: acrylic cover, ring guard), remember to put them back where they belong.

For the following procedures, refer to the diagram on page 11

CHANGE OF DIES FOR THE SAME GROMMET AND / OR WASHER SIZE

Changing the bottom die #19:

With the machine disconnected from the compressor (and from the power source if it has any electrical devices).

- Shut the air inlet part #260,
- Turn the ring guard # 306 by loosening the allen screw #278 that holds it,
- Get the puncher into the side hole of the die #219, and then turn it counterclockwise in order to unscrew the die,
- Fit in the new bottom die #219 and secure,
- Put back the ring guard #306 and secure it through allen screw #278,
- Adjust the cutting and grommeting pressure, SEE CHAPTER ?. PRESSURE ADJUSTMENTS, page ?,
- Check the ring guard adjustments, SEE CHAPTER ?. RING GUARD ADJUSTMENTS, page?.

Changing the top-set spindle #218 and the top die #217:

With the machine disconnected from the compressor (and from the power source if it has any electrical devices).

- Shut the air inlet part #260,
- Turn the ring guard #306 by loosening the allen screw #278 that holds it,
- Turn the nut #238 slightly counterclockwise,
- In order to remove the top die #217 together with the top-set spindle #218, you will have to fit the puncher into the side hole of the top die #217, and turn it counterclockwise,
- Fit in the new spindle #218 and the new top die #217,
- in order to screw in the top die #217 together with the top set spindle #218 you will have to get the puncher into the side hole of the top die #217 and turn it clockwise,
- Turn the nut #238 slightly clockwise in order to fix the parts,
- Screw up the ring guard (through allen screw #278),
- Adjust the cutting and grommeting pressure.
- Check the ring guard adjustments.

The machine model PG-21 can be adjusted for placing grommets with washers in different types of material and in different thicknesses.

Machine model PG-21 has two vertical axles:

- # 121 the driving stem that adjusts the cutting pressure (to punch a hole in the material), and
- # 122 the top set spindle that adjusts the pressure of the grommeting.

CAUTION: For adjusting the pressure of the machine, it will be necessary to connect the air hosepipe to the compressor and open the air inlet handle #260. Please be very careful while doing these adjustments, always making sure that your hands and fingers are out of the grommeting area and that nobody can press the foot pedal, which would cause the top set to come down and catch a hand or finger.

For adjusting the cutting pressure (the cutting pressure punches a hole in the material), you have to turn the bottom die # 219 to the right or to the left, so that when you start the machine and press the foot pedal, the top set spindle # 218 barely touches the bottom die # 219.

With the machine disconnected from the compressor (and from the power source if it has any electrical devices).

- Unscrew the threaded pin # 194 that holds the bottom die holder # 230,
- You must remember that the top set spindle # 218 always reaches the same point on its way down and might hit the top of the bottom die # 219. Get a puncher in the side hole of the die # 219, turn it to the right or to the left until the bottom die is in the right position.

If you want to know if the cutting pressure is correct, there is a simple way of checking it out: you get a puncher in the side hole of the bottom die # 219 and by means of the puncher turn the bottom die # 219 clockwise so it may come down a little bit, then get a piece of paper (hold the piece of paper carefully, keeping your hands and fingers off the grommeting area) in between the bottom die # 219 and the top set spindle # 218, then (with the machine connected to the compressor and the air inlet # 260 in the open position) press the pneumatic pedal while turning the bottom die # 219 counterclockwise until you manage to punch a hole in the piece of paper.

- Disconnect the machine from the compressor and shut the air inlet #260,
- Screw up the threaded pin #194 so that it holds the bottom die holder # 230 and the bottom die # 219.
- Check the ring guard adjustments, SEE PAGE 10.

If you wish to adjust the tightness of setting, you must turn the top die #217 to the right or to the left. The top die is the die that does the grommeting.

With the machine disconnected from the compressor (and from the power source if it has any electrical devices).

- Unscrew the nut n° 238 slightly counterclockwise,
- Get the puncher into the side hole of the die # 217, turn it to the right or left by causing the top die # 217 to move downwards or upwards until it reaches an optimum position. The higher the top die # 217, the lesser the pressure of the grommeting.

In order to achieve the correct pressure (with the machine connected to the compressor the air inlet # 260 in the open position, and with your fingers and hands out the grommeting area), press down the pedal and then adjust the dies so that the distance at its lowest point between the top die # 217 and the bottom die # 219 should be the thickness of the material that you wish to use.

- Disconnect the machine from the compressor and shut the air inlet n° 260,
- Screw back in the nut n° 238,
- Verify the ring guard adjustments.

After all the pressures and parts have been adjusted, you must verify that all the screws and nuts are tight.

RING GUARD ADJUSTMENTS

Whenever the machine is adjusted or modified or some parts are changed it is necessary to adjust the safety device again (pneumatic safety cylinder # 265, end of race # 267, ring guard # 306, etc) so that it may work properly.

- Connect the machine to the compressor and open the air inlet # 260,
- The safety manometer # 8 must indicate 1 kg by means of the safety control # 7,
- Shut the air inlet # 260 and disconnect the machine from the air compressor.

Loosen the screw for holding ring # 278 with the 3 mm allen wrench,

- Place the ring guard # 306 at about 6 mm from the bottom die # 219.

This adjustment can be done (with the air inlet # 260 in the shut position and the machine disconnected from the compressor) by putting one side of the 4 mm allen wrench (it is supplied together with the machine) on top of the bottom die # 219, you lower the ring guard # 306 until it touches the side of the 4 mm allen wrench.

- Tighten the screw for holding ring # 278 with the 3 mm allen wrench (it is supplied together with the machine).

Before connecting the machine to the compressor, verify that all the parts are tightened up.

CHANGE OF DIES FOR ANOTHER GROMMET AND/OR WASHER SIZE

The machine model PG-21 can place two different sizes of grommets and washers. 8mm and 12mm.

If you wish to set a new grommet and washer size, you will have to replace some parts of the machine.

- The new set of dies for the new size,
- Adaptors for the new size. These adaptors are not always the same and vary according to the grommet and washer sizes.

In order to avoid any problems, Sinclair Equipment recommends that whenever you ask for a new set of dies for a new grommet and washer size, please show us the following references:

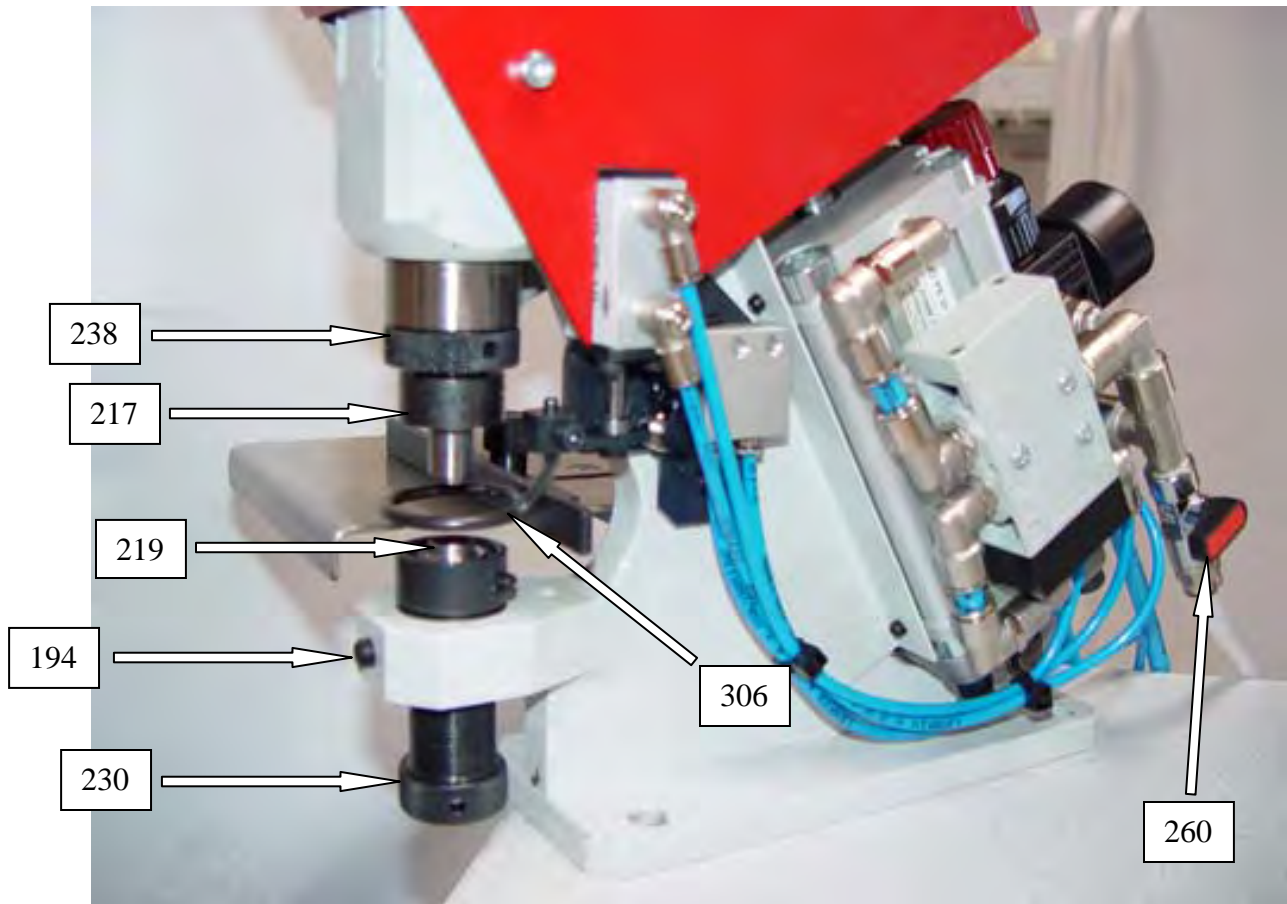
- The reference of the machine,
- The reference of the grommet and washer models that the machine is setting,
- The reference of the new grommet with washer model that you want to place.

With this information, we can show you the parts you must replace.

The ring guard # 306 varies in size according to the grommets and washers size.

The changes of dies and parts, the pressure adjustments, the possible breakdowns, etc, are the same that are shown in this manual.

REMEMBER THAT AFTER CHANGING DIES, YOU MUST ALWAYS ADJUST THE CUTTING AND THE GROMMETING PRESSURE AND ALSO THE RING GUARD.



Recommended pressure is 87-90 psi. Input regulator must be used with the PG-21.

MAINTENANCE

MECHANICAL PART OF THE MACHINE

For an optimal operation of the machine, it is recommended that you keep some parts clean and always lubricated. The cleaning should ALWAYS be done with the machine disconnected from the electrical power source and the compressor.

The pedal we press to operate the machine, should always be clean and clear of any debris that could prevent it's normal operation.

The exterior of the machine should be cleaned with a rag that will not leave threads, so that the threads can not be stuck to the machine.

The head of the machine has two exterior grease fittings #62. You must use a manual pressure oil can to inject oil (the oil type to be used should be "SAE 40") into the grease cups two or three times a week. We recommend to do this at the end of the job, and clean up the possible excess oil the next day.

During the first month of operation it must be done twice per week. After the first month it only needs to be done once a week.

If the machine is going to go for a long period of time without use, it will be necessary to do a general cleaning, and greasing in the indicated spots, disconnecting it from the compressor or from the power source (if it has any electrical devices), and then cover it so that it is protected from the dust and/or humidity.

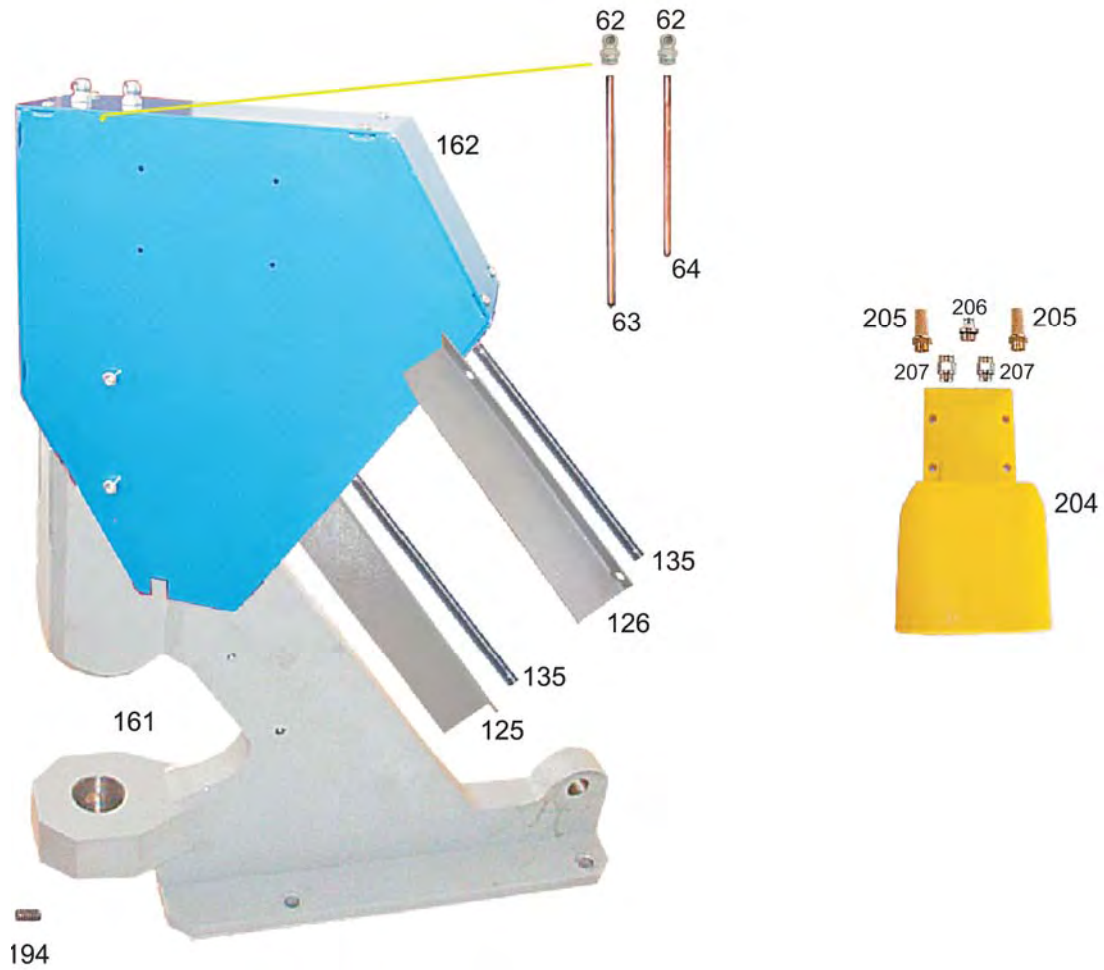
PNEUMATIC PART OF THE MACHINE

The pneumatic part of the machine does not need any type of maintenance.

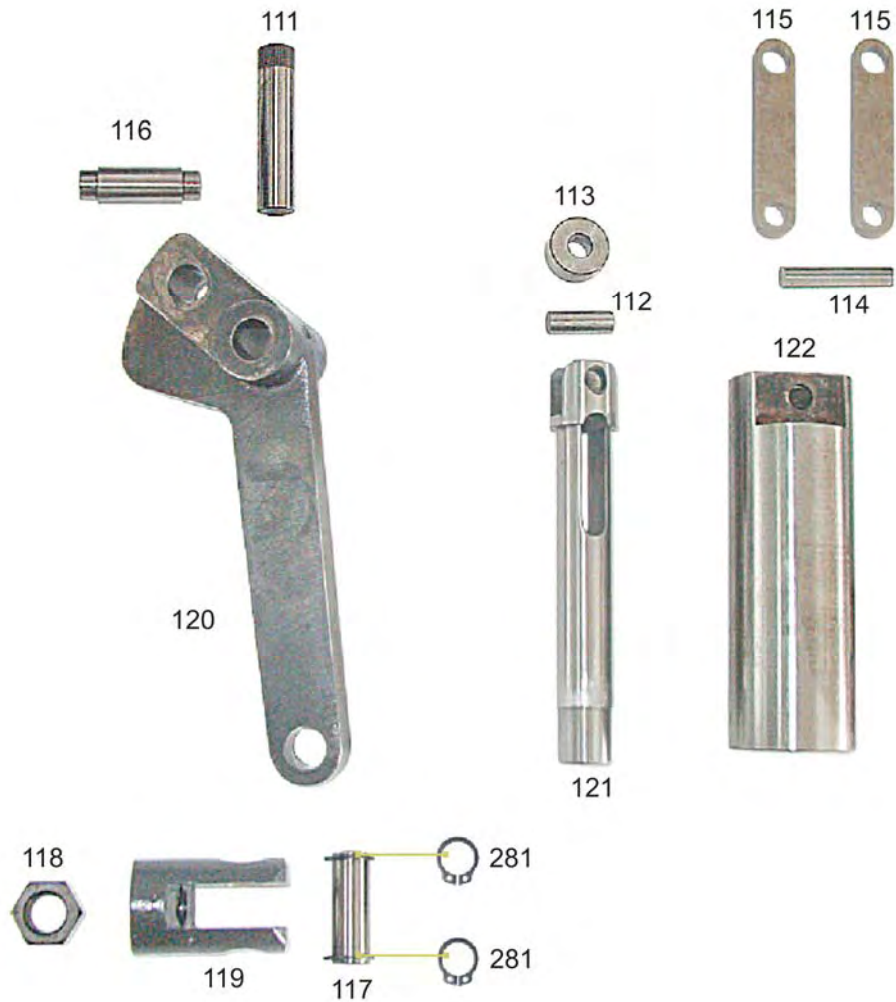
The machine must be connected to a compressor provided with an oil strainer, an air filter, and a manometre for adjusting the pressure.

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
THE MACHINE DOES NOT OPERATE WHEN PRESSING THE FOOT PEDAL.	Make sure the air inlet is connected to the compressor. Make sure the air inlet is in the open position. Make sure the correct air pressure is supplied	Connect It Open The Handle Make sure the compressor is supplying the correct air pressure.
DEFECTIVE GROMMETING.	The bottom die is worn out or broken. Incorrect tightness of setting. Incorrect adjustment of pneumatic pressure.	Replace. See adjustments section of manual. The manometer must indicate a minimum pressure of 6 kg.
IT WILL NOT CUT OR LEAVE MATERIAL RESIDUALS.	The bottom die or the top set spindle are worn or broken. Incorrect tightness of setting.	Replace it with a new one. See adjustments section of manual.
THE RING GUARD COMES DOWN, BUT THE DIE DOES NOT.	The height of the ring guard is not adjusted properly.	See the ring guard adjustment section of manual.

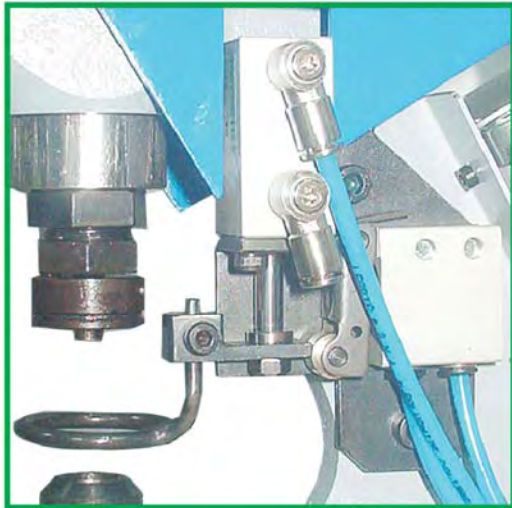


Schematic #	Part#	Description
62	PGR21062	Grease cups (Set of 2)
63	PGR21063	Long lubrication tube
64	PGR21064	Short lubrication tube
125	PGR21125	Left cylinder guard
126	PGR21126	Right cylinder guard
135	PGR21135	Hold guard
161	PGR21161	Head
162	PGR21162	Top Cover
194	PGR21194	Threaded pin for bottom die cover
204	PGR21204	Pneumatic foot pedal
205	PGR21205	Silecer
206	PGR21206	Connector ¼ tube 4
207	PGR21207	Connector ¼ tube 8

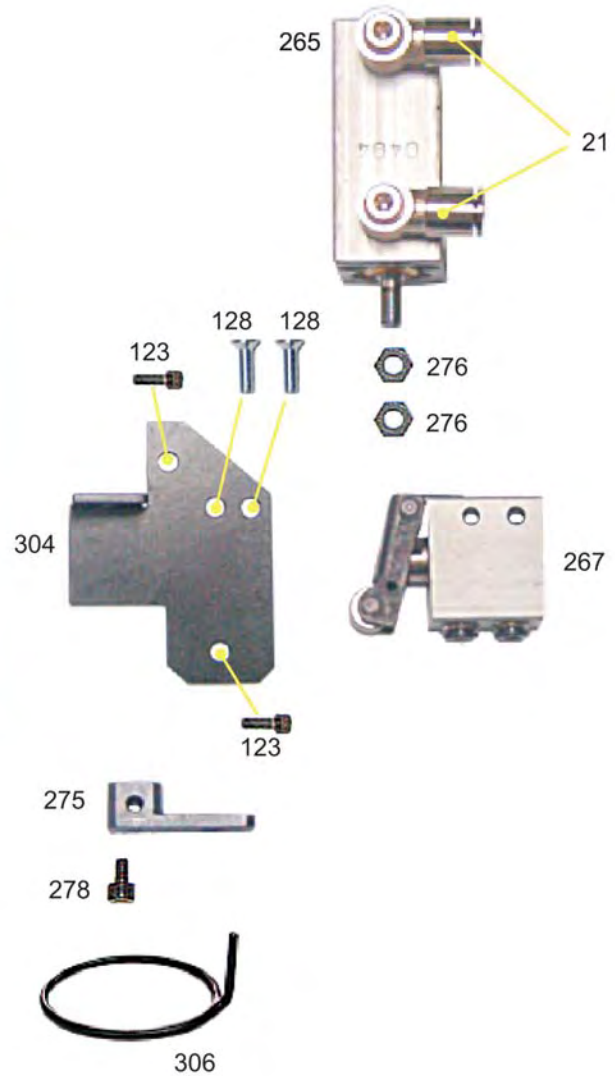


Schematic #	Part#	Description
111	PGR21111	Lever pin
112	PGR21112	Guide wheel pin
113	PGR21113	Driving stem guide wheel
114	PGR21114	Pin for die spindle
115	PGR21115	Connecting rod
116	PGR21116	Pin for connecting rod
117	PGR21117	Bolt for yoke
118	PGR21118	Nut for yoke
119	PGR21119	Yoke
120	PGR21120	Lever

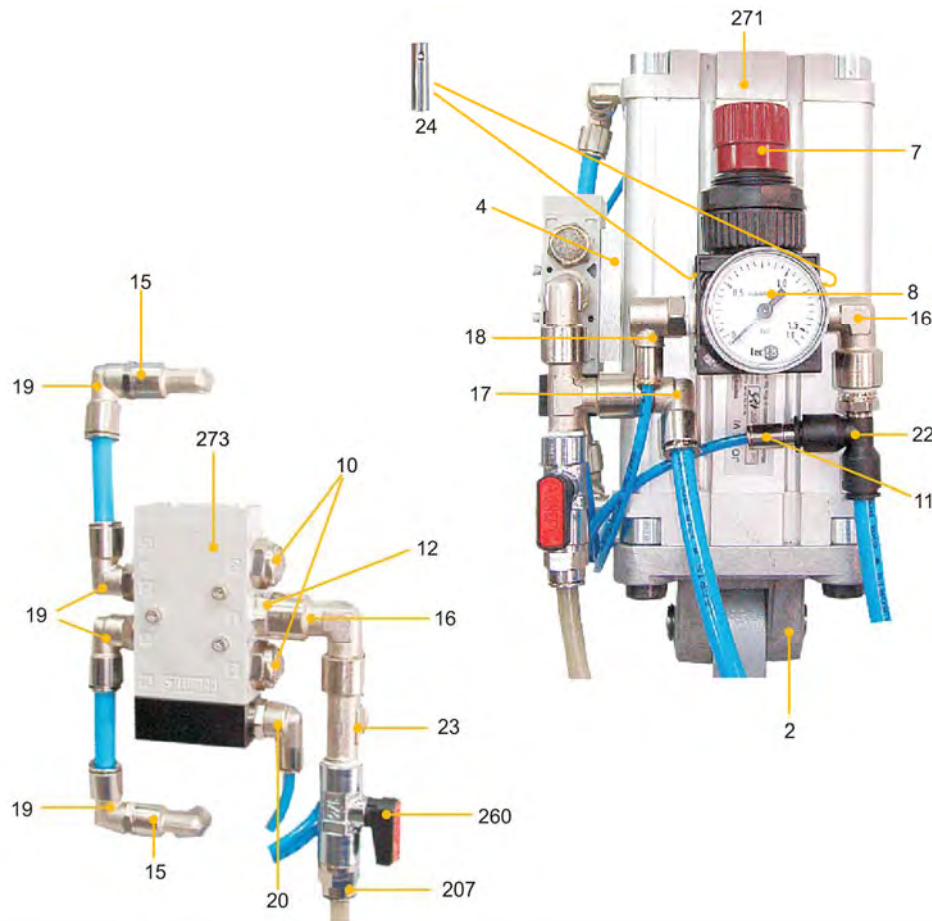
121	PGR21121	Driving Stem
122	PGR21122	Top set spindle
281	PGR21281	Ring for 12 connecting rod pin



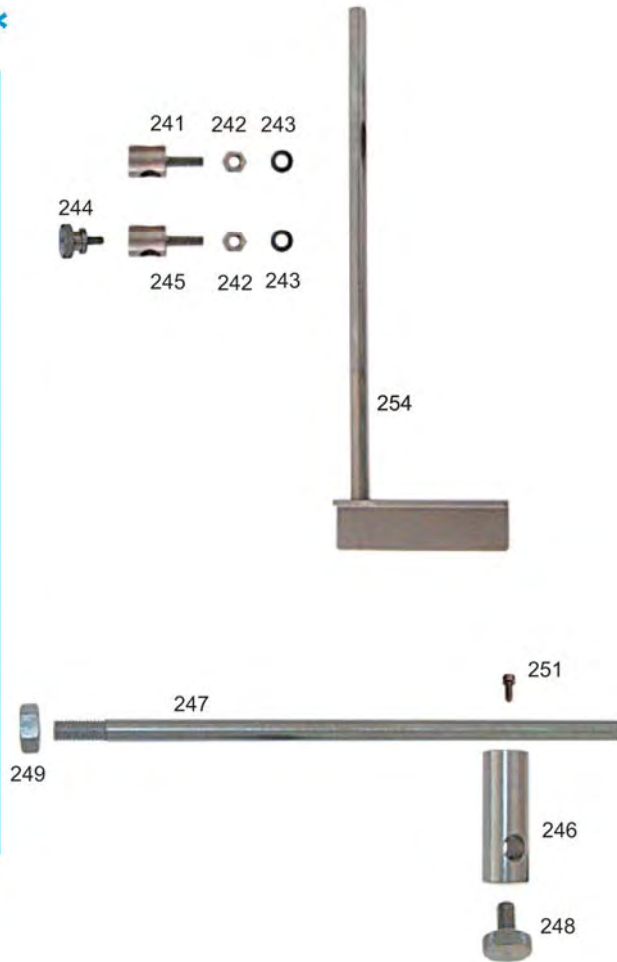
SAFETY PNEUMATIC



Schematic #	Part#	Description
21	PGR21021	M5 elbow tube
123	PGR21123	Screw for part #304
128	PGR21128	Screw for holding part #267
265	PGR21265	Pneumatic safety cylinder
267	PGR21267	End of race
275	PGR21275	Part for holding ring guard
276	PGR21276	Nut for holding part
278	PGR21278	Screw attaching ring guard
304	PGR21304	Part for holding cylinder
306	PGR21306	Ring guard



Schematic #	Part#	Description
2	PGR21002	Hinge for cylinder #271
4	PGR21004	Support for valve
7	PGR21007	Safety control 0-2 kg
8	PGR21008	Safety manometer
10	PGR21010	Silencer 1/8
11	PGR21011	Reduction
12	PGR21012	Buttress 1/8
15	PGR21015	Elbow 1/8
16	PGR21016	Elbow 1/4 (2)
17	PGR21017	Elbow 1/4 tube 8
18	PGR21018	Elbow 1/4 tube 4
19	PGR21019	Elbow 1/8 tube 8 (4)
20	PGR21020	Elbow 1/8 tube 4
22	PGR21022	Side T 1/4 tube 8
23	PGR21023	Male side T 1/4
24	PGR21024	Halfmoon (2)
207	PGR21207	Connector 1/4 tube 8 (3)
260	PGR21260	Air handle 1/4
271	PGR21271	Part #271 cylinder 63x90
273	PGR21273	Part #273 valve 1/8

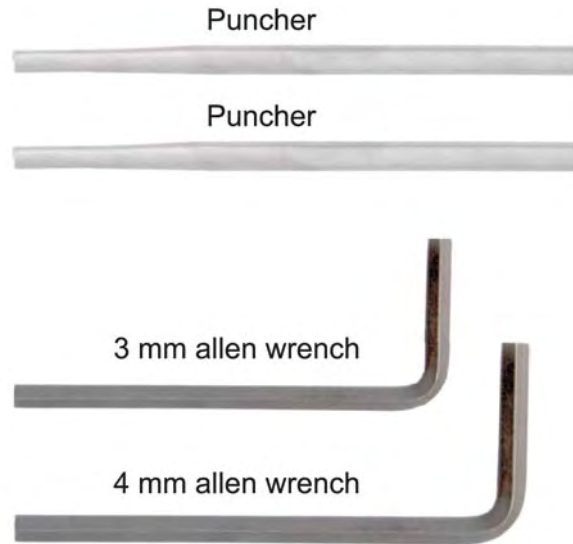


Schematic #	Part#	Description
21	PGR21021	J set of dies (Specify size)
217	PGR21217	Top die grommet & washer *
218	PGR21218	Top set spindle grommet & washer *
219	PGR21219	Bottom die grommet & washer *
229	PGR21229	Spring for top set spindle *
230	PGR21230	Bottom die holder *
238	PGR21238	Nut for adjusting the top die #217 *
241	PGR21241	Support front guide #240
242	PGR21242	Nuts (2)
243	PGR21243	Washers (2)
244	PGR21244	Part for holding front guide #240
245	PGR21245	Support front guide #240 with hole
246	PGR21246	Part for holding separator #250
247	PGR21247	Side axle
248	PGR21248	Part for holding the side guide #247
249	PGR21249	Nut for side axle #247
251	PGR21251	Nut for part #250
254	PGR21254	Front guide
306	PGR21306	Part #306 ring guard *

Tools And Parts

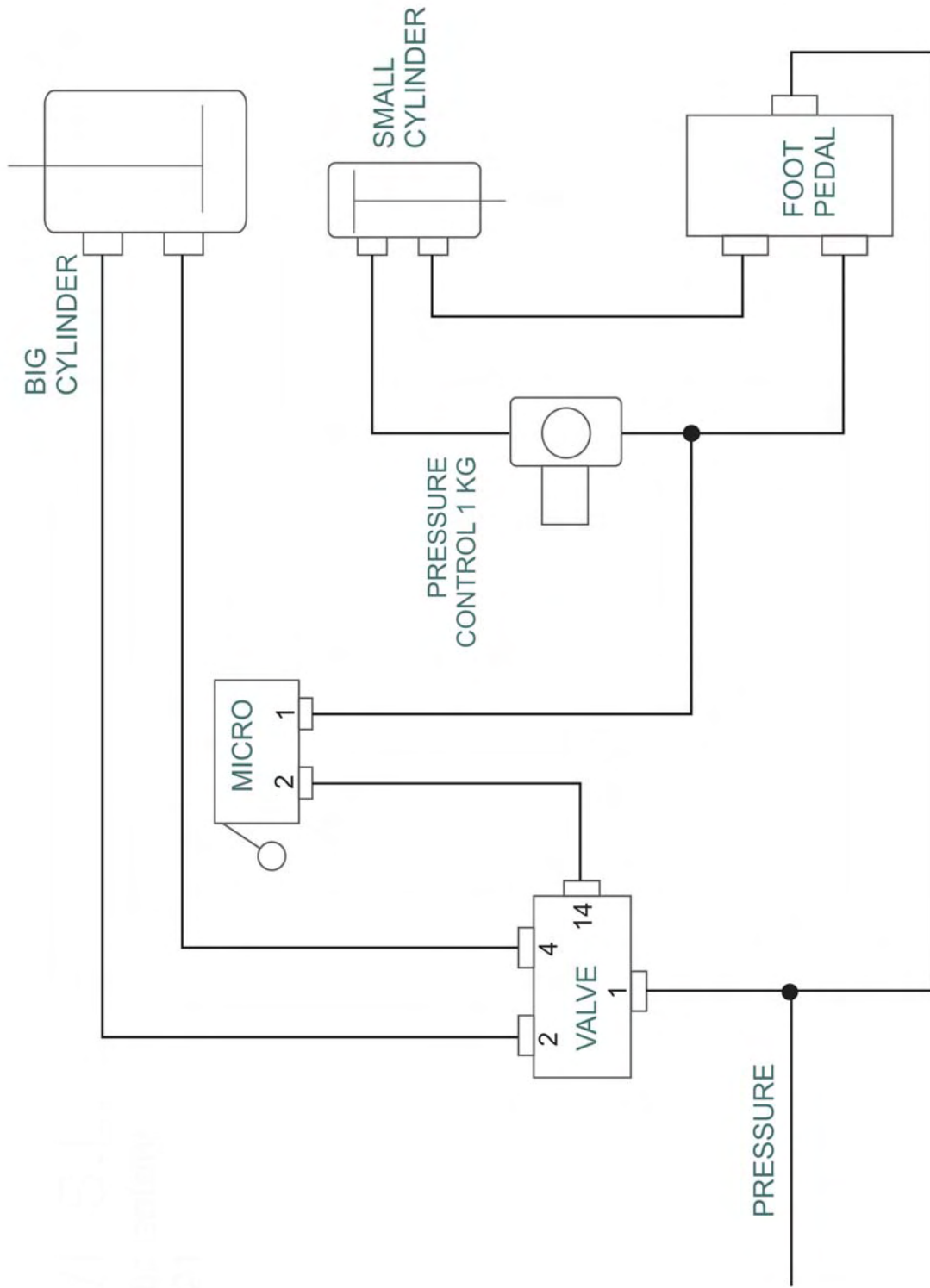
Tools:

Along with your machine, you will find all the necessary tools for adjustments and maintenance.



Parts

Although the PG-21 doesn't come with any parts, Sinclair Equipment recommends having an extra bottom die, or set of dies for spares.



EXP 3.1
 MEDICAL SYSTEMS
 1/21

NOTES