# **Polymak**®

### **ANGLE GRINDER**

### 100mm

**INSTRUCTION MANUAL** 



Read and follow all safety precautions in instruction manual.

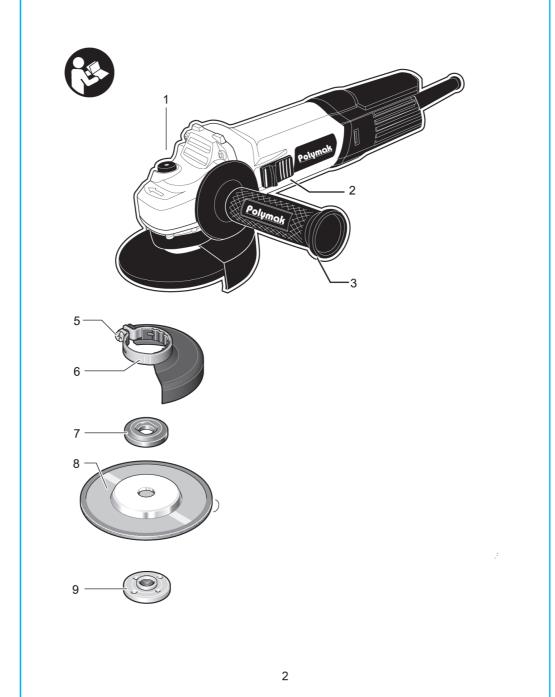
### PMAG4-670S SPARE PARTS LIST

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Т			I MAGT 0700 OF AILE FAILED LIGH							
	Parts Name	Pcs	Part No	INR		No	Parts Name	Pcs	Part No	
	Outer Flange	1				38	Switch rod	1		
	Grinding wheel	0				39	Pushing block	1		
3	Inner Flange	1				40	Screw	2		
4	Wheel cover	1				41	Wire plate	1		
5	Output shaft	1				42	Cord guard	1		
6	Dust cover	1				43	Back cover	1		
7	Screw M4*14	4				44	Power cord	1		
8	Bearing holder	1				45	Screw	1		
9	bearing 6201RS Z3	1				46	Wrench	1		
10	spring ring 32	1								
11	Big gear	1								
12	HK0808 Needle bearin	g 1								
13	Self-locking pin	1								
14	Pinion	1								
15	M6 Nut	1								
16	Screw	4			7 [					
17	Self-locking spring	1			7 [					
18	Self-locking cap	1			7 [					
19	Gear cover	1			7 [					
20	O-ring Ø21.5*1.8	1			7 [					
21	608 Bearing	1			7 [					
22	spring ring 22	1			7 [					
23	Dust cover	1			7 [					
24	Armature	1			7 [					
25	Ring	1			1 [					
26	Washer φ7×φ14×0.3	1			7 [					
27	Bearing	1			7					
28	Bearing sleeve	1			1 [					
29	Fad Guid	1			7					
30	Screw	2			7					
31	Stator	1			1					
32	Screw	4			1					
33	Carbon brush	2			1					
34	Carbon brush holder	2			1					
35	Coil spring	2			1					
36	Switch	1			1					
37	Motor housing	1			7 F					



General Power Tool Safety Warnings

and instructions may result in elec tric shock, fire and/or seri-Save all warnings and instructions for future reference.

Remove any adjusting key or wrench before turning The term power tool in the warnings refers to your mains-ope-

Work area safety ► Keep work area clean and well lit.Cluttered or dark areas unexpected situations.

invite accidents. such as in the presence of flammable liquids, gases or

power tool. Distractions can cause you to lose control.

▶ Power tool plugs must match the outlet. Never modify Power tool use and care matching outlets will reduce risk of electric shock.

▶ Avoid body contact with eart hed or grounded surfaces, ▶ Do not use the power tool if the switch does not turn it such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is earthed or grounded.

▶ Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric

▶ Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges and moving parts Damaged do not allow persons unfamiliar with the power tool or

▶ When operating a power tool outdoors, use an extensifor outdoor use reduces the risk of electric shock. ▶ If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected

Personal safety ▶ Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal inju-

▶ Use personal protective equipment. Always wear eye protection.Protective equipment such as dust mask, Service

non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries ▶ Prevent unintentional starting. Ensure the switch is in AWARNING

Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in elec tric shock. fire and/or serienergising power tools that have the switch on invites acci-

the power tool on. A wrench or a key left attached to a rorated (corded) power tool or battery-operated (cordless) potating part of the power tool may result in personal injury. ▶ Do not overreach. Keep proper footing and balance at all times. This enables better control of the power tool in

▶ Dress properly. Do not wear loose clothing or jewelle-▶ Do not operate power tools in explosive atmospheres, ry. Keep your hair, clothing and gloves away from moving partsLoose clothes, jewellery or long hair can be dust. Power tools create sparks which may ignite the dust caught in moving parts. or fumes.

If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of dust collection can re-

duce dust-related hazards.

the plug in any way. Do not use any adapter plugs with ▶ Do not force the power tool. Use the correct power tool earthed (grounded) power toolsUnmodified plugs and for your applicationThe correct power tool will do the job better and safer at the rate for which it was designed. on and offAny power tool that cannot be controlled with the switch is dangerous and must be repaired.

> ▶ Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools Such preventive safety measures reduce the risk of starting the power tool accidentally.

these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users. on cord suitable for outdoor use. Use of a cord suitable 

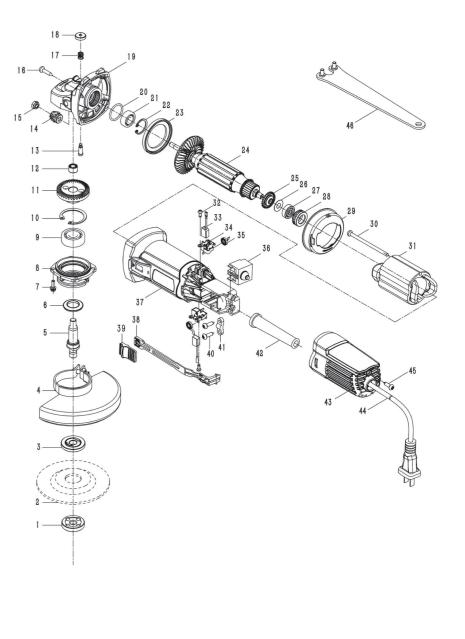
Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.Many accidents are caused by poorly maintained power tools. supply.Use of an RCD reduces the risk of electric shock. ▶ Keep cutting tools sharp and clean. Properly maintained

> cutting tools with sharp cutting edges are less likely to bind and are easier to control. · Use the power tool, accessoriesand tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation.

▶ Have your power tool serviced by a qualified repair person using only identical replacement parts. This will en-

sure that the safety of the power tool is maintained.

ANGLE GRINDER EXPLODED VIEW



### Operation

**Starting Operation** 230 V can also be operated with 220 V.

are formed. ► Hold power tool by insulated gripping surfaces 20 and Flap Disc wire may make exposed metal parts of the power tool "live" and shock the operator.

When operating the machine with power from mobile generading sheets. tors that do not have sufficient reserve capacity or are not equipped with suitable voltage control with starting current Cutting Metal

Switching On and Off To save energy, only switch the power tool on when using it. plying sideward pressure. To start the power tools, push the switch 2 left to"0".

To switch off the power tool, push the switch 2 right to "I" ▶ Check grinding tools before using. The grinding tool must be mounted properly and be able to move freely. Carry out a test run for at least one minute with no load. Do not use damaged, out-of-centre or vibrating grinding tools Damaged grinding tools can burst and cause in-

### Working Advice

- ► Exercise caution when cutting slots in structural walls; see Section "Information on Structures"
- due to its own weight. ▶ Do not strain the machine so heavily that it comes to a
- it at no-load for several minutes to cool down the acces-
- ▶ Do not touch grinding and cutting discs before they have cooled down. The discs can become very hot while working.
- ▶ Do not use the power tool with a cut-off stand. ► Hold power tool by insulated gripping surfaces and auxiliary handle only. The accessory may contact hidden wiring or its own cord. Accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and shock the operator.

Rough Grinding Never use a cutting disc for roughing. Starting Operation

The best roughing results are achieved when setting the machine at an angle of 30° to 40°. Move the machine back and er source must agree with the voltage specified on the forth with moderate pressure. In this manner, the workpiece nameplate of the machine. Power tools marked with will not become too hot, does not discolour and no grooves

auxiliary handle 3 only. The accessory may contact hidden wiring or its own cord. Accessory contacting a "live" with the flap disc (accessory), curved surfaces and profiles can be worked. Flap discs have a considerably higher service life, lower noise levels and lower sanding temperatures than conventional san-

amplification, loss of performance or untypical behavior can For cutting with bonded abrasives, always use the protection guard for cutting .

Please observe the suitability of the power generator being When cutting, work with moderate feed, adapted to the mateused, particularly with regard to the mains voltage and freor oscillate the machine. Do not reduce the speed of running down cutting discs by ap-

The machine must always work in an up-grinding motion. Otherwise the danger exists of it rolled out of the cut.

▶ Clamp the workpiece if it does not remain stationary When cutting profiles and square bar, it is best to start at the

smallest cross section

If the replacement of the supply cord is necessary, this has to ▶ After heavily straining the power tool, continue to run be done by service agent in order to avoid a safety hazard.

### Safety Warnings for Angle Grinder

- Safety Warnings common for Grinding, Sanding, Wire Brushing or Abrasive Cutting Off Operations ▶ This power tool is intended to function as a grinder, sander, wire brush or cut-off tool. Read all safety warnings, instructions, illustrations and specifications provided with this power toolFailure to follow all inst-
- ructions listed below may result in electric shock, fire ▶ Operations such as polishing are not recommended to be performed with this power tool. Operations for which the power tool was not designed may create a hazard and
- cause personal injury. ▶ Do not use accessories which are not specifically designed and recommended by the tool manufacturer. Just because the accessory can be attached to your power tool, it does not assure safe operation.
- to the maximum speed marked on the power tool. Accessories running faster than their rated speed can break
- tool. Incorrectly sized accessories cannot be adequately 

  Do not use accessories that require liquid coolants. guarded or controlled ▶ Threaded mounting of accessories must match the grinder spindle thread. For accessories mounted by Kickback and related warnings locating diameter of the flange. Accessories that do not
- ▶ Do not use a damaged access ory. Before each use insand cracks, backing pad for cracks, tear or excess e power tool at maximum no-load speed for one minu-
- te. Damaged accessories will normally break apart during Kickback is the result of power tool misuse and/or incorthis test time. ▶ Wear personal protective equipment. Depending on ded by taking proper precautions as given below. small abrasive or workpiece fragments. The eye protec- control over kickback or torque reaction during capable of filtrating particles generated by your operation. 

  Never place your hand near the rotating accessory. Ac-Prolonged exposure to high intensity noise may cause heacessory may kickback over your hand.
- protective equipmentFragments of workpiece or of a point of snagging.

- broken accessory may fly away and cause injury beyond immediate area of operation.
- ▶ Hold the power tool by insulated gripping surfaces only, when performing an operation where the cutting accessory may contact hidden wiring or its own cord. Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and could give the ope-
- Position the cord clear of the spinning accessory.If you lose control, the cord may be cut or snagged and your hand or arm may be pulled into the spinning wheel. ▶ Never lay the power tool down until the accessory has come to a complete stop. The spinning wheel may grab
- the surface and pull the power tool out of your control.  $\blacktriangleright$  Do not run the power tool while carrying it at your side. Accidental contact with the spinning accessory could snag your clothing, pulling the accessory into your body. ► The rated speed of the accessory must be at least equal fan will draw the dust inside the housing and excessive ac-
- cumulation of powdered metal may cause electrical ha-▶ The outside diameter and the thickness of your accessory must be within the capacity rating of your power als. Sparks could ignite these materials.

cution or shock.

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Using water or other liquid coolants may result in electro-

- flanges, the arbour hole of the accessory must fit the Kickback is a sudden reaction to a pinched or snagged rotating wheel, backing pad, brush or any other accessory. match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of contool to be forced in the direction opposite of the accessory's rotation at the point of the binding.
- For example, if an abrasive wheel is snagged or pinched by the workpiece, the edge of the wheel that is entering into wear, wire brush for loose or cracked wires. If power the pinch point can dig into the surface of the material tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and ineither jump toward or away from the operator, depending stalling an accessory, position yourself and bystanders on direction of the wheel's movement at the point of away from the plane of the rotating accessory and run pinching. Abrasive wheels may also break under these
- rect operating procedures or conditions and can be avoiapplication, use face shield, safety goggles or safety Maintain a firm grip on the power tool and position your glasses. As appropriate, we ar dust mask, hearing protectors, gloves and shop apron capable of stopping ways use auxiliary handle, if provided, for maximum tion must be capable of stopping flying debris generated by various operations. The dust mask or respirator must be start-up. The operator can control torque reactions or kickback forces, if proper precautions are taken.
- ring loss.

  ▶ Keep bystanders a safe distance away from work area.

  Anyone entering the work area must wear personal anyone entering the work area.

## rotating accessory and cause loss of control or kickback. wer tool is restarted in the workpiece.

and loss of control. Safety warnings specific for Grinding and Abrasive Cut-Use only wheel types that are recommended for your

lected wheel. Wheels for which the power tool was not designed cannot be adequately guarded and are unsafe. ► The grinding surface of the centre depressed wheels must be mounted below the plane of the guard lipAn of the guard lip cannot be adequately protected.

► The guard must be securely attached to the power tool and positioned for maximum safety, so the least amount of wheel is exposed towards the operator. The guard helps to protect operator from broken wheel fragments, accidental contact with wheel and sparks that could ignite clothing. ▶ Wheels must be used only for recommended applica-

tions. For example: do not grind with the side of the cut-off wheel Abrasive cut-off wheels are intended for peripheral grinding; side forces applied to these wheels may cause them to shatter. ▶ Always use undamaged wheel flanges that are of correct size and shape for your selected wheel.Proper

different from grinding wheel flanges. ▶ Do not use worn down reinforced wheels from larger ower toolsWheels intended for larger power tools are

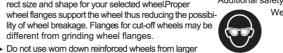
Additional safety warnings epific for abrasive cutting off operations ▶ Do not "jam" the cut-off wheel or apply excessive pressure. Do not attempt to make an excessive depth of cut.

possibility of kickback or wheel breakage. ▶ Do not position your body in line with and behind the rotating wheel. When the wheel, at the point of operation, is moving away from your body, the possible kickback may propel the spinning wheel and the power tool directly at the working. propel the spinning wheel and the power tool directly at

▶ When wheel is binding or when interrupting a cut for stop. Never attempt to remove the cut-off wheel from may occur.Investigate and take corrective action to eliminate the cause of wheel binding.

- ▶ Use special care when work ing corners, sharp edges, ▶ Do not restart the cutting operation in the workpiece. etc. Avoid bouncing and snagging the accessory.Cor- Let the wheel reach full speed and carefully re-enter ners, sharp edges or bouncing have a tendency to snag the the cut. The wheel may bind, walk up or kickback if the po-
- ▶ Do not attach a saw chain woodcarving blade or too- ▶ Support panels or any oversized workpiece to minimize thed saw blade. Such blades create frequent kickback the risk of wheel pinching and kickback. Large workpieces tend to sag under their own weight. Supports must be placed under the workpiece near the line of cut and nea the edge of the workpiece on both sides of the wheel ▶ Use extra caution when making a "pocket cut" into existing walls or other blind areas. The protruding wheel power tool and the specific guard designed for the semay cut gas or water pipes, electrical wiring or objects that
- Safety warnings specific for sanding operations ▶ Do not use excessively oversized sanding disc paper. improperly mounted wheel that projects through the plane Follow manufacturers recommendations, when selecting sanding papeLarger sanding paper extending beyond the sanding pad presents a laceration hazard and may
  - cause snagging, tearing of the disc, or kickback. Safety warnings specific for wire brushing operations ▶ Be aware that wire bristles are thrown by the brush even during ordinary operation. Do not overstress the wires by applying excess ive load to the brush. The wire bristles can easily penetrate light clothing and/or skin.
  - ▶ If the use of a guard is recommended for wire brushing, do not allow any interference of the wire wheel or brush with the guard. Wire wheel or brush may expand in diameter due to work load and centrifugal forces. Additional safety warnings

Wear safety goggles.



- not suitable for the higher speed of a smaller tool and may ▶ Use suitable detectors to determine if utility lines are hidden in the work area or call the local utility company for assistanceContact with electric lines can lead to fire and electric shock. Damaging a gas line can lead to explosion. Penetrating a water line causes property damage or
- Overstressing the wheel increa ses the loading and suscep tibility to twisting or binding of the wheel in the cut and the when the power supply is interrupted, e.g., in case of a power failure or when the mains plug is pulled. This prevents uncontrolled restarting.
- ▶ Secure the workpiece. A workpiece clamped with clamping devices or in a vice is held more secure than by hand. any reason, switch off the power tool and hold the power tool motionless until the wheel comes to a complete cut off and an appropriate plug fitted in its place by an authorised customer service agent. The replacement plug should the cut while the wheel is in motion otherwise kickback have the same fuse rating as the original plug.

The severed plug must be disposed of to avoid a possible shock hazard and should never be inserted into a mains so-Products sold in AUS and NZ only: Use a residual current de

Product Description and Specifica-Read all safety warnings and all instruc-

vice (RCD) with a rated residual current of 30 mA or less.



Intended Use The machine is intended for cutting, roughing and brushing of metal and stone materials without the use of water. For cutting with bonded abrasives, a special cutting guard When cutting in stone, provide for sufficient dust extraction. With approved sanding tools, the machine can be used for

sanding with sanding discs. **Product Features** The numbering of the product features refers to the illustration of the machine on the graphics page.

1 Spindle lock button 2 On/Off switch

3 Auxiliary handle (insulated gripping surface)\* 5 Locking screw for protection guard

6 Protection guard for grinding 7 Mounting flange 8 Grinding wheel\*

\*Accessories shown or described are not part of the standard delivery scope of the product. A complete overview of accessories can be found in our accessories program.

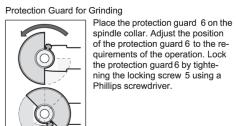
9 Clamping nut

\* measured without protection guard and auxiliary handle The values given are valid for a nominal voltage [U] of 230 V. For different voltages and models for specific countries, these values can vary.

### Assembly

Mounting the Protective Devices

▶ Before any work on the machine itself, pull the mains tions. Failure to follow the warnings and instructions may result in electric shock, fire damage to the holding fixtureson the protection guard/power tool, the machine must promptly be sent to an after-sales service agent for maintenance.



▶ Adjust the protection guard 6 in such a manner that sparking is prevented in the direction of the operator. Note: The encoding keys on the protection guard 6 ensure that only a protection guard that fits the machine type can be

**Technical Data** 

PMAG4-670S 710W Rated Input Power: 220V~ Rated Voltage Rated Frequency: 50Hz No-load Speed: 11000r/min Disc Diameter: 100mm