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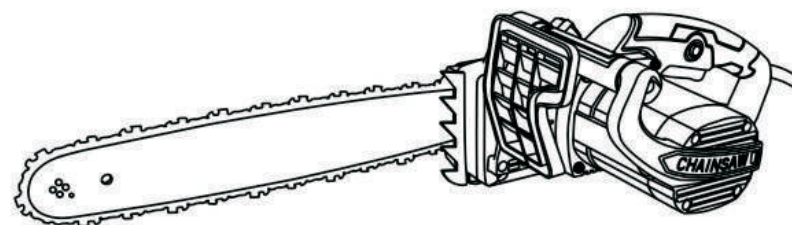
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# **Polymak**<sup>®</sup>

## **ELECTRIC CHAIN SAW**

### **PM16ECS**

#### **INSTRUCTION MANUAL**



**Read and follow all safety precautions in instruction manual.**

## Page 1

### Safety mark annotation



Please read the manual carefully before using!



Don't expose the tools in the rain



If the power supply is damaged or cut off, be sure to unplug the power plug immediately.

### Safety precautions

Warning! Please read the instructions carefully before use. Basic safety precautions must be taken to reduce the risk of electric shock, fire or serious injury.

#### 1) Work area

- a) Chaos and darkness can cause accidents.
- b) Spark generated electric chain saws may ignite dust or gas.
- c) Lack of concentration can make people lose control on it.

#### 2) Electrical safety

- a) Plug and socket without modification will reduce the risk of electric shock
- b) Body grounding will increase the risk of electric shock.
- c) The risk of electric shock is increased when water enters the power tool.
- d) Damage to the power cord or winding will increase the risk of electric shock.
- e) The use of an outdoor cable / wire can reduce the risk of electric shock.

#### 3) Personal safety

- a) When operating a power tool, an inattentive will cause serious personal injury.
- b) Use of a mask, non slip safety shoes, hard hats, or hearing protection devices on appropriate occasions can reduce personal injury.
- c) When taking power tools, If the finger is placed on the switch or the power tool is plugged into the power supply, it may cause the switch to turn on to cause an accident.
- d) A wrench or key left on the rotating part of the power tool may cause personal injury.
- e) This is conducive to better control of electric tools in unexpected situations.
- f) Loose clothing, jewelry, or long hair may be caught by moving parts.
- g) The use of these devices can reduce harmful dust.

4) Keep all parts of the body away from the chain saw when operating the chain saw. Make sure the chain saw does not touch other objects before starting the chain saw. The imprudence in operating may wrap your clothes or body into the chain saw.

## Page 2

5) Always hold the handle of the chain saw with the right hand, the left hand shall hold the front handle. Hold the chain saw backhand will increase the risk of personal injury, which should be absolutely prohibited.

Notes: For chain saw on the left side of the guide plate design, the "left" and "right" positions should be reversed.

6) Wear safety goggles and ear protector. Protective equipment for head, hands, feet and feet are recommended to provide, the adequate protection can reduce the damage caused by flying debris or accidental contact with saw chain.

7) Don't stand on the tree to operate the chain. For such operation will cause personal injury.

8) Always maintain a good foothold, and only when standing on a solid, safe and flat ground, can the chain saws be operated. For slippery or unstable ground, such as a ladder, it will lead to loss of balance or chain saws out of control.

9) Watch out for a rebound when the sawing a taut branch. When wood fiber tension once released, crotch elastic may strike to the operator or cause the chain out of control.

10) Special care should be taken when cutting shrubs and saplings. Strips may be clamped to the operator or cause unbalance.

11) Turn off the saw chain with the front handle and keep the chain away from your body. Guide guard shall be installed when transporting or storing chain saws, and the possibility of accidental encounter with the chain saw can be reduced by properly setting the chain.

12) Follow the instructions to lubricate, tighten the chain and replace the attachment. Improper tensioning and lubrication of the saw chain may break the chain and cause the possibility of rebound.

13) Keep handle dry, clean and away from oil and grease. For the greasy handle may cause slippage and out of control.

The saw can only be used for sawing timber but cannot be used for other purposes, for example, cutting plastic, stone and non wood building materials. Unintended operations with chain can cause danger.

Causes of rebound and operator protection:

When the front or top of the guide plate touches the objects, or clamping the chain saw, it may rebound.

In some cases, a sudden reaction caused by top contact will throw the guide up or backward to the operator.

Clipping chain saw along the top of the guide plate will quickly push the guide to the operators.

Each of these reactions will lead to the loss of chain saws to cause serious bodily harm. Do not rely solely on the built-in safety device. As chainsaw users, steps should be taken to ensure that the chain does not have an accident or injury.

Misuse and / or incorrect operation procedures or conditions are reasons to cause rebound, the following preventive measures are given to avoid.

Keep a firm grip, hold the chain saw handle with your thumb and other fingers, position your body and arm with the two hands holding the chain saw to make sure you are able to withstand the bounce. If proper precautions are taken, the rebound force can be controlled by the operator. Don't allow chain saws to run.

## Page 3

14) Do not stretch your hands too long and do not use it above the shoulders. This helps prevent accidental contact with the top and is better able to control the chain under unexpected circumstances.

15) Use the manufacturer's replacement guide and chain only. Incorrect guide plate and chain may cause broken chain or / rebound. Follow manufacturer's instructions on the blade and maintenance of chain saws. And reduce the height which may lead to an increase in rebound.

### Installation and dis-assembly

Note: before installing or removing electric chain saws and chain saws, make sure that the switch is turned off and the power plug has been removed.

1. First unscrew the hexagon flange nut in the right cover, then use auxiliary wrench to rotate the hexagon flange nut in anticlockwise, to remove the right side cover.

2. Then hang one end of the saw chain on the chain wheel, and the other end is placed at the end of the guide plate. Note that the direction of the knife shall be the same direction of the right side arrow, and the whole saw chain is completely inserted into the groove of the guide plate.

3. Cover the right side cover, use hexagon flange nuts to fix, be careful not to tighten, to adjust the appropriate tension of the chain, for the proper sawing chain tension has a great influence on the chain operation and the service life of the saw chain. It is advisable to adjust the following method to obtain the appropriate chain tension. The slotted end of the auxiliary wrench shall be used to regulate the screw, adjust to increase tension force in clockwise direction, on the contrary, reduce the chain tension..

After adjusting the tension, use 2KG force to grab the saw chain on the guide plate, when the gap between the chain and the guide plate is between 3 and 4 mm, the saw chain tension is the most appropriate. (as shown in Figure 3).

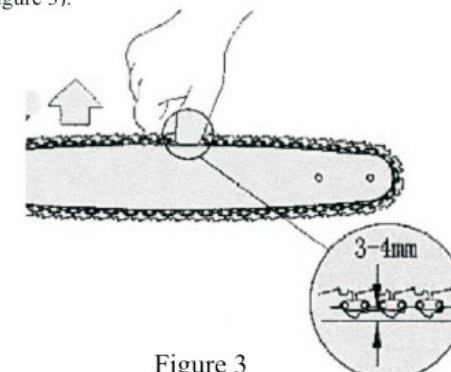


Figure 3

4. Finally, tighten the nut of the hexagon flange nuts with a wrench

Note: When the new saw chain is installed on the guide plate during the running period, it needs to adjust the tension frequently, for chain has a tendency to extend. Loose saw chain may damage the chain saw machine and human body to cause serious accident during operation.



## Page 4

### Switch operation

In order to avoid the user accidentally pull the trigger, this tool uses the anti lock switch, when you start your tools, press the switch anti lock button and pull the trigger at the same time. The shutdown is to loose the trigger.

Note: before plug, check whether the switch is flexible, and pull then release the trigger to check whether the switch is able to bounce in situ (off).

### Lubrication

Saw chain performance and life will be under great pressure if saw chain has high-speed taxiing on the guide plate.

The machine has an automatic oil pump system, it can start pumping oil when in the operation of the machine.

Before starting electric chain saw, it needs to confirm whether the chain saw is filled with enough oil, the gear box is provided with an oil window, which can observe the oil level, when the oil level is too low, please add. When filling, just open the oil cap, oil can be filled with the oilcan. Special or high viscosity oil is not required, just for the purpose for lubrication of chain saws and guides. Recommended #68 turbine oil or engine oil. When adding oil, please don't let the dust and impurities into the sawdust machine oil pot, cover oil tank lid, otherwise it will plug the oil channel. Put the machine on the flat until you see the saw chain dump oil, it is indicated that the oil pump is working normally, and the cutting operation can be carried out.

### Use operation

#### 1. Start

Use your thumb and other fingers to hold tightly the front and rear handles. When the motor rotates, be sure to stand firm and hold the chain saw with both hands. The anti-skid teeth below the electric chain saw can be used as a fulcrum to put the tool to saw the wood, and gently press it, do not force the guide plate to avoid overheating due to overload..

If you find the plate is hot, immediately stop sawing work to make the plate cooling, check the tension of the chain at this time, as well as whether oil pump is working normally.

#### 2.Tree sawing

Two or more people carry out cross cutting and hew down operations, the cutting operations should be separated from hew down operations, and at least two times the distance between the trees. The felled tree shall not endanger any person, knock down a road line or cause any damage to the property. If the felled tree contacts a utility wire, the company should be notified immediately.

Chain saw operator should stand on the high side, because felled tree is easy to roll or slide down the slope.

#### 3.Escape and cutting trough

Before cutting, the escape route should be planned and cleaned as required, and the escape route should be followed by a slash on the expected line.

Before you start to saw, you should consider the natural inclination of the tree, the location and

## Page 5

direction of the tree branches to determine the direction of the tree will fall. Remove the earth, rocks, loose bark, nails, and wire from the trees to be felled. Open a tree with a diameter of 3/1 deep notch to be vertical to the fall direction. First open the low level notch, this will help avoid clamping the chain or guide bar when opening the second notch, as shown in figure 4.

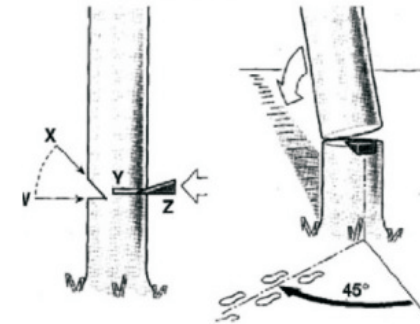


Figure 4

#### 4.Open rear notch

When conducting back felling cutting, at least 50.8 mm above the horizontal slot. To make the back felling cutting parallel to the horizontal notch. To fully make back felling cutting, the remaining part will play a hinge action, the hinge part keeps the tree not swinging and not backward. Do not cut off the hinge.

When the cutting is close to the hinge part, the tree will begin to fall. If it is possible that the tree does not fall back to the intended direction, or maybe backward shake and clamp the chain, to stop cutting back, and use wood, plastic or aluminum material for wedge splitting incision, so as to let the tree fall down in the predetermined direction. When the tree begins to fall, the chain shall be removed from the incision, the motor shall be closed and the chain saw shall be laid down. Then use a planned retreat. Be sure to keep your head from the tree falling off, and watch your step. As shown i figure 5.

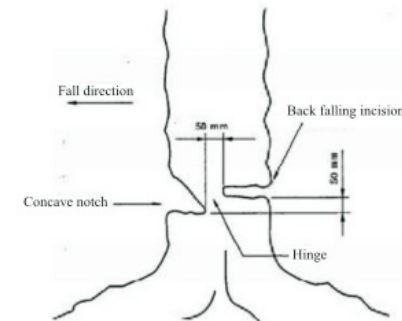


Figure 5

Fall direction  
Concave notch  
Back falling incision  
Hinge

## Page 6

### 5.Lopping

Remove branches from the felled tree. When cutting down the branches, the beneath bough shall be left to support and keep the tree trunk to a certain distance from the ground. And remove small branches after cutting. When cutting taut branches, cut them off from the root to avoid clamping the saw chain. As shown in figure 6.

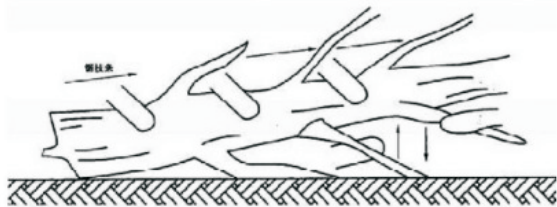


Figure 6

### 6.Bucking

It refers to cut logs into sections. To stand firm, and average weight on two feet. If possible, try to use branches, logs, or skids to support logs. According to the above simple instructions, it can be easily cut.

To cut ( top cutting) from top to bottom, and avoid sawing to the ground.



Figure 7

To cut ( top cutting) from top to bottom, and avoid sawing to the ground.

When the whole length of the log is on the supporting surface, it must be cut from the bottom (lower cut). As shown in Figure 7 .

When supporting one end of the log, it must be cut from the bottom (lower cut) to the diameter of the 1/3, and then carry out the upper cutting to connect the lower cutting to complete the cutting operation. As shown in Figure 8.

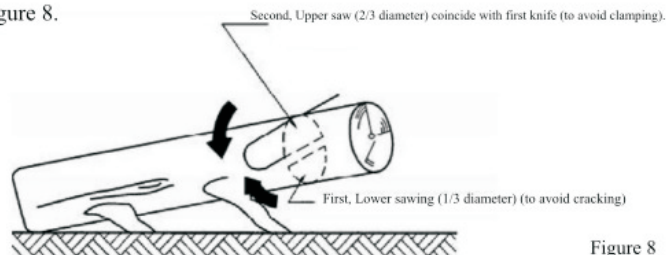


Figure 8

## Page 7

First, Lower sawing (1/3 diameter) (to avoid cracking)

Second, Upper saw (2/3 diameter) coincide with first knife (to avoid clamping).

When the log is supported at both ends, be sure to cut from the top at the diameter of 1/3. And then carry out lower cut to the diameter of 2/3, to meet with the up cutting, so as to complete the cutting operation. As shown in Figure 9.

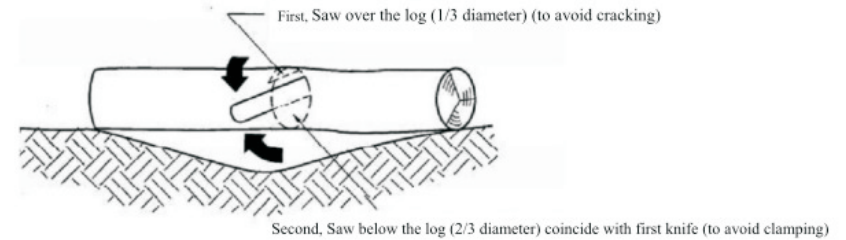
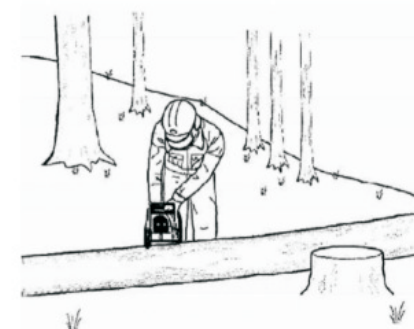


Figure 9

First, Saw over the log (1/3 diameter) (to avoid cracking)

Second, Saw below the log (2/3 diameter) coincide with first knife (to avoid clamping)

When cutting logs on the slope, we must stand in the side slope of log, as shown in the figure. When in the cutting operation, in order to maintain full control, at the end of cutting, to reduce cutting pressure, instead of reducing the power of holding the handle of the chain saw. Don't let the chainsaw touch the ground. When finished cutting operation, the chain saw can not be removed until it stops. Be sure to turn off the motor before moving from one tree to another. As shown in figure 10.



Stand on the top of the slope, because logs will roll when sawing

Figure 10



## Page 8

### Tool carrying

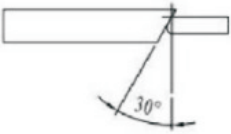
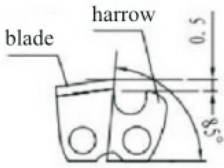
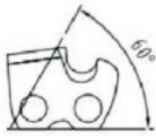
Hold the tool with the front handle, and at the same time, turn off the tool, keep the finger away from the switch, and place guide the guide plate backward, and use guide sleeve to hitch the guide and saw chain.

### Maintenance

Note: making regular inspection, before maintenance work, be sure to turn off the switch and unplug the power head.

#### 1.Chain saw grinding

In order to keep your tool cutting work always in the best condition, be sure to keep the sharp teeth, and carry out grinding according to the following figure.

	Flank angle	Upper lapping angle
		
The upper angle of 30 degrees at the most ideal position	blade harrow Side teeth down to 85 degrees	If correctly reaming the upper and lateral teeth, the upper grinding angle should automatically become 60 degrees.

When in grinding, when pushing grater according to the arrow direction, do not to touch the blade file.

When saw chain is ground two or three times, the teeth may also need to be slightly lower. This is because the tooth target plays a role in measuring the depth of the blade. When grinding, because of the special curve shape of the cutter, the cutter will lose certain height.. Therefore, the cutter will become lower than the depth gauge, and finally lead to failed cutting. To compensate for this, use a flat file to grind the tooth top target to make it lower than the tooth tip 0.5 mm. Note do not rasping the tooth target, otherwise, the cutter will be sawed at one time, causing the tool to be stuck when cutting.

#### 2.Clear stack sawdust

After sawing wood, stack sawdust in the guide slot and the lubricating oil hole shall be removed for repair oil passage. At this point, we should remove the guide plate for maintenance.

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### 3. Replacement of carbon brush

Replace and check the carbon brush regularly, when it is worn to the limit wear line, it needs to be replaced. Please use only carbon brush provided by professional manufacturers.

Use a screwdriver to remove the cover of the carbon brush. Remove the worn carbon brush, insert the new carbon brush, and tighten the carbon brush cover. In order to ensure the safety and reliability of the product, the tools should be handed over to the professional electric tool maintenance center personnel for repair, carbon brush inspection or replacement, including any other maintenance or adjustment. Please specify the use of the original accessories.

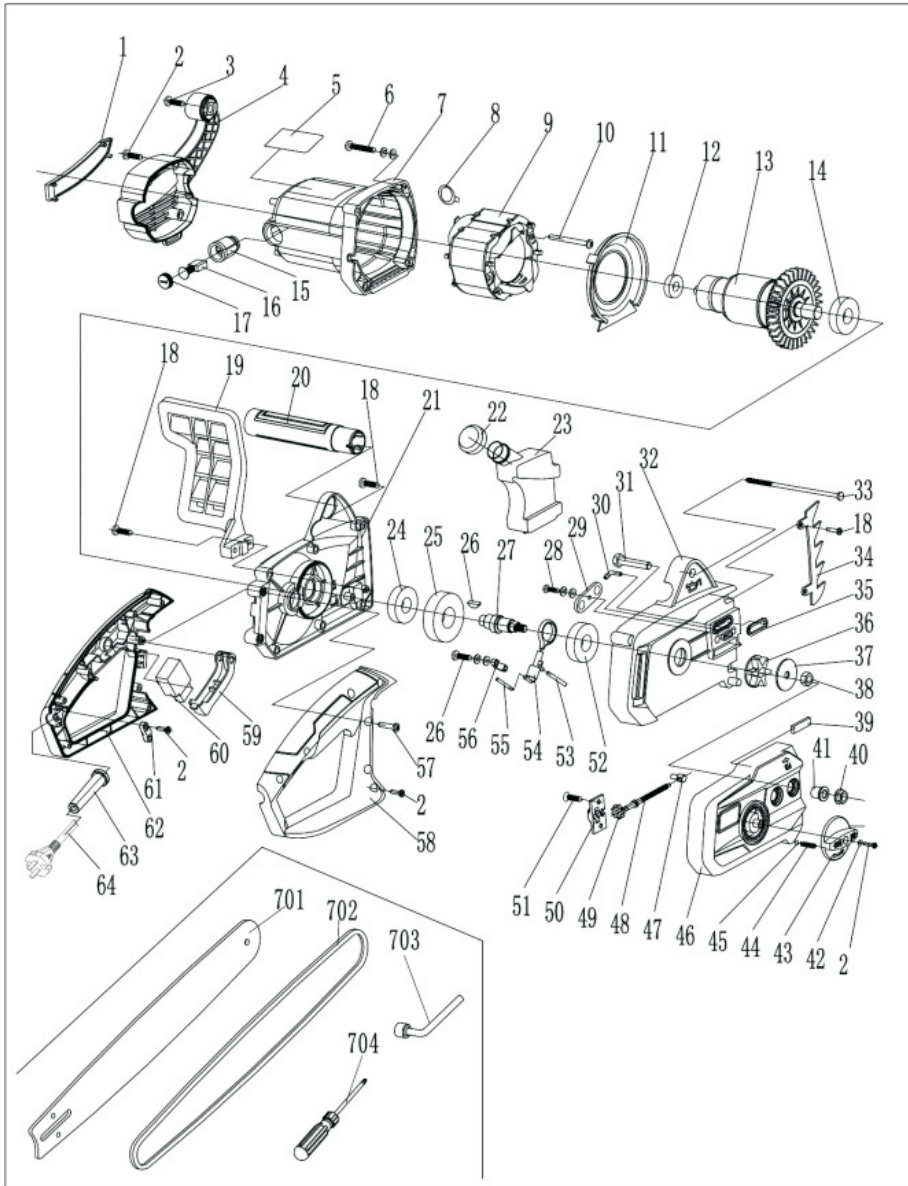
## Specifications

Modle	PM16ECS
Voltage	220V~
Frequency	50Hz
Rated power	2100W
Chainsaw speed	870m/min
Lead panel length	405mm

## Accessories

Chain	1	Guide plate	1	Oil pot	1	Protective baffle	1
Cross screwdriver	1	Socket wrench	1	Antiskid teeth	1		
Knife cover	1						

## Exploded



## Partlist

No.	Name	Quantity	No.	Name	Quantity
1	Decorative cover	1	40	Hexagon flange nut m8	2
2	Screw ST4×14	13	41	Cylindrical sleeve	2
3	Screw ST5×14	1	42	Flat pad 8X4X0.5	1
4	Rear cover	1	43	Adjusting knob	1
5	Nameplate	1	44	Spring	1
6	Screw M5×50(Three combinations)	4	45	Steel ball C3.5	1
7	Casing	1	46	Guide plate cover	1
8	Drag spring	2	47	Adjusting nut	1
9	Stator	1	48	Screw	1
10	Screw ST5×55	2	49	pinion	1
11	Windshield	1	50	Pressure plate	1
12	Bearing 6200	1	51	Screw ST4*10	2
13	Rotor	1	52	Bearing 6202	1
14	Bearing 6002	1	53	Oil outlet pipe	1
15	Brush holder	2	54	Oil pump	1
16	Brush	2	55	Oil inlet pipe	1
17	Brush holder cover	2	56	Pressure plate of oil pump	1
18	Screw M5×14	6	57	Screw ST5×25	2
19	Protective baffle	1	58	Rear handle (upper)	1
20	Front handle	1	59	Switch trigger	1
21	Middle cover	1	60	switch	1
22	Oil pot lid	1	61	Cable clamp	1
23	Oil pot	1	62	Rear handle (lower)	1
24	Bearing 6001	1	63	Sheath	1
25	Big gear wheel	1	64	Cable line	1
26	Semicircular bond 5X12	1	701	Guide plate	1
27	Output shaft	1	702	Chain	1
28	Screw M4×16(Three combinations)	3	703	Socket wrench	1
29	Guide plate screw block	1	704	Cross screwdriver	1
30	Outlet nozzle	1			
31	Hexagon boltM8X40	2			
32	Skull	1			
33	Screw ST5×135	1			
34	Antiskid teeth	1			
35	"Return" type rubber pad	1			
36	Sprocket	1			
37	Flat pad 30X8X2	1			
38	Hexagon nutm8 Left	1			
39	Rubber pad	1			

