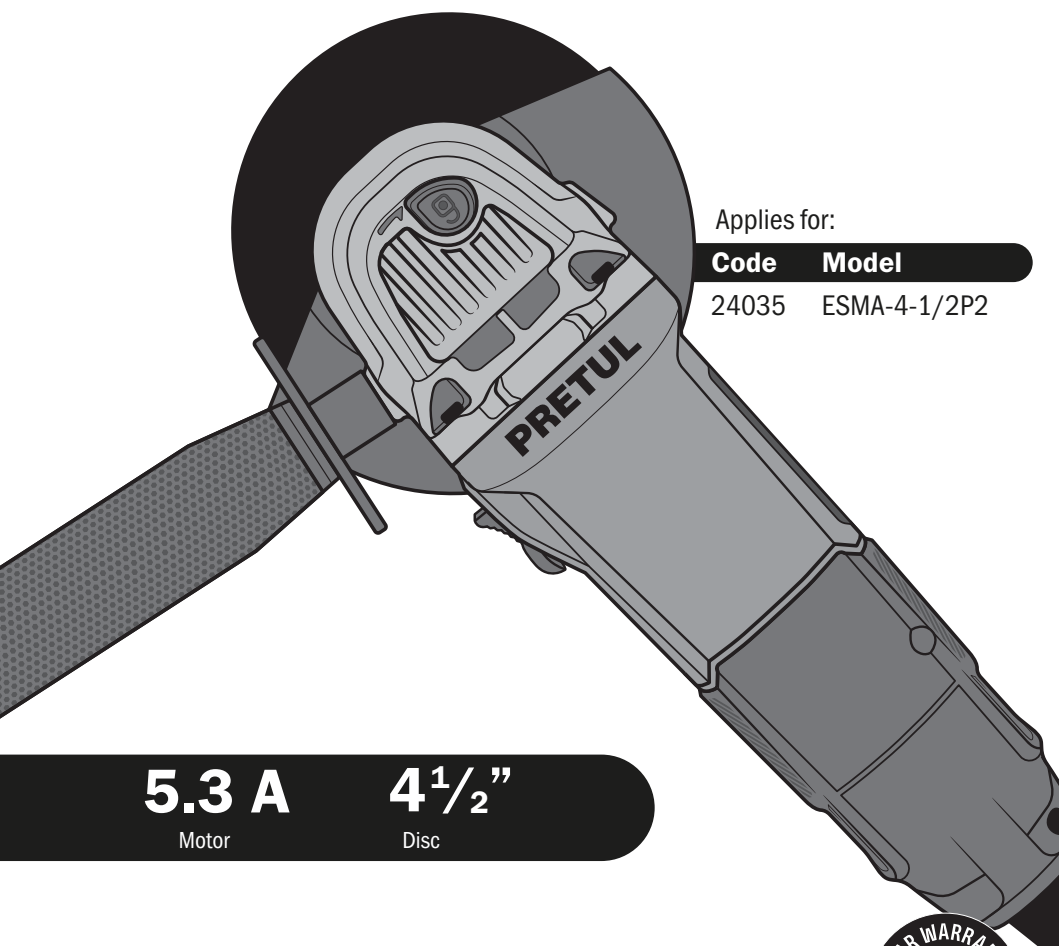


Manual

# Angle grinder ESMA-4-1/2P2



Applies for:

| Code  | Model        |
|-------|--------------|
| 24035 | ESMA-4-1/2P2 |

**5.3 A**

Motor



**4 1/2"**

Disc



Read this manual thoroughly  
before using the tool.



|   |           |
|---|-----------|
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## **CAUTION**

**To gain the best performance of the tool, prolong the duty life, make the Warranty valid if necessary, and to avoid hazards of fatal injuries please read and understand this Manual before using the tool.**

Keep this manual for future references.

The illustrations in this manual are for reference only. They might be different from the real tool.

## Use and care recommendations



### **RESPECT THE WORK CYCLES**

20 min of work per 10 min of rest. Maximum 1 hour 30 min daily



**AVOID** using the cord to move, lift or disconnect the tool



**DO NOT** press the lock button while the disc is in motion



To **EXTEND** the life of your tool, use compressed air (blow) to clean it after each use



Keep the tool's ventilation slots **CLEAN**



Perform regular **MAINTENANCE** on your machine (page 9)

## ESMA-4-1/2P2

|             |   |   |
|-------------|---|---|
| Code        | • | 24035   |
| Description | • | Angle grinder   |
| Discs       | • | 4 1/2"  |
| Voltage     | • | 127 V~  |
| Frequency   | • | 60 Hz   |
| Current     | • | 5.3 A   |
| Power       | • | 700 W   |
| Speed       | • | 11 000 RPM  |
|             |   | <b>Screwed thread size</b> • 5/8-11-UNC-1A                        |
| Duty cycle  | • | 20 min of work per 10 min of rest.<br>Maximum 1 hour 30 min daily |
| Conductors  | • | 18 AWG x 2C with insulating temperature of 221 °F                 |
| Insulation  | • | Class II  |
|             |   | <b>IP Grade:</b> • IP20   |

Power cord grips used in this product: Type "Y".

Build quality: Reinforced Insulation

Thermal insulation on motor winding: Class F

**⚠ WARNING** Avoid the risk of electric shock or severe injury. When the power cable gets damaged it should only be replaced by the manufacturer or at a TRUPER Authorized Service Center. The build quality of the electric insulation is altered if spills or liquid gets into the tool while in use. Do not expose to rain, liquids and/or dampness.

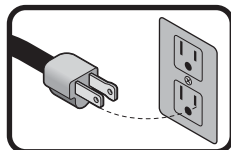


**⚠ WARNING** Before gaining access to the terminals all power sources should be disconnected.

## Power Requirements



**⚠ WARNING** Tools with double insulation and reinforced insulation are equipped with a polarized plug (one prong is wider than the other). This plug will only fit in the right way into a polarized outlet. If the plug cannot be introduced into the outlet, reverse the plug. If it still doesn't fit, call a qualified electrician to install for you a polarized outlet. Do not alter the plug in any way. Both insulation types eliminate the need of both a grounded third power cord with three prongs or a grounded power connection.



**⚠ WARNING** When using an extension cable, verify the gauge is enough for the power that your product needs. A lower gauge cable will cause voltage drop in the line, resulting in power loss and overheating. The following table shows the right size to use depending on cable's length and the ampere capability shown in the tool's nameplate. When in doubt use the next higher gauge.

| Ampere Capacity          | Number of Conductors | Extension gauge    |                   |
|--------------------------|----------------------|--------------------|-------------------|
|                          |                      | from 5.9' to 49.2' | higher than 49.2' |
| from 0 A and up to 10 A  | 3 (one grounded)     | 18 AWG(*)          | 16 AWG            |
| from 10 A and up to 13 A |                      | 16 AWG             | 14 AWG            |
| from 13 A and up to 15 A |                      | 14 AWG             | 12 AWG            |
| from 15 A and up to 20 A |                      | 8 AWG              | 6 AWG             |

\* It is safe to use only if the extensions have a built-in artifact for over current protection.

AWG = American Wire Gauge. Reference: NMX-J-195-ANCE

**⚠ WARNING** When operating power tools outdoors, use a VOLTECK grounded extension cable labeled "For Outdoors Use". These extensions are specially designed for operating outdoors and reduce the risk of electric shock.



**⚠ WARNING! Read carefully all safety warnings and instructions listed below.** Failure to comply with any of these warnings may result in electric shock, fire and / or severe damage. **Save all warnings and instructions for future references.**

### Work area

#### Keep your work area clean, and well lit.

Cluttered and dark areas may cause accidents.



#### Never use the tool in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.

Sparks generated by power tools may ignite the flammable material.



#### Keep children and bystanders at a safe distance while operating the tool.

Distractions may cause losing control.



### Electrical Safety

#### The tool plug must match the power outlet. Never modify the plug in any way. Do not use any adapter plugs with grounded power tools.

Modified plugs and different power outlets increase the risk of electric shock.



#### Avoid body contact with grounded surfaces, such as pipes, radiators, electric ranges and refrigerators.

The risk of electric shock increases if your body is grounded.

#### Do not expose the tool to rain or wet conditions.

Water entering into the tool increases the risk of electric shock.

#### Do not force the cord. Never use the cord to carry, lift or unplug the tool. Keep the cord away from heat, oil, sharp edges or moving parts.

Damaged or entangled cords increase the risk of electric shock.

#### When operating a tool outdoors, use an extension cord suitable for outdoor use.

Using an adequate outdoor extension cord reduces the risk of electric shock.

#### If operating the tool in a damp location cannot be avoided, use a ground fault circuit interrupter (GFCI) protected supply.

Using a GFCI reduces the risk of electric shock.

### Personal safety

#### Stay alert, watch what you are doing and use common sense when operating a tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.

A moment of distraction while operating the tool may result in personal injury.

#### Use personal protective equipment. Always wear eye protection.

Protective equipment such as safety glasses, anti-dust mask, non-skid shoes, hard hats and hearing protection used in the right conditions significantly reduce personal injury.



#### Prevent unintentional starting up. Ensure the switch is in the "OFF" position before connecting into the power source and / or battery as well as when carrying the tool.

Transporting power tools with the finger on the switch or connecting power tools with the switch in the "ON" position may cause accidents.

#### Remove any wrench or vice before turning the power tool on.

Wrenches or vices left attached to rotating parts of the tool may result in personal injury.

#### Do not overreach. Keep proper footing and balance at all times.

This enables a better control on the tool during unexpected situations.

#### Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothes and gloves away from the moving parts.

Loose clothes, jewelry or long hair may get caught in moving parts.



#### If you have dust extraction and recollection devices connected onto the tool, inspect their connections and use them correctly.

Using these devices reduce dust-related risks.

### Power Tools Use and Care

#### Do not force the tool. Use the adequate tool for your application.

The correct tool delivers a better and safer job at the rate for which it was designed.



#### Do not use the tool if the switch is not working properly.

Any power tool that cannot be turned ON or OFF is dangerous and should be repaired before operating.

#### Disconnect the tool from the power source and / or battery before making any adjustments, changing accessories or storing.

These measures reduce the risk of accidentally starting the tool.

#### Store tools out of the reach of children. Do not allow persons that are not familiar with the tool or its instructions to operate the tool.

Power tools are dangerous in the hands of untrained users.



#### Service the tool. Check the mobile parts are not misaligned or stuck. There should not be broken parts or other conditions that may affect its operation. Repair any damage before using the tool.

Most accidents are caused due to poor maintenance to the tools.



#### Keep the cutting accessories sharp and clean.

Cutting accessories in good working conditions are less likely to bind and are easier to control.

#### Use the tool, components and accessories in accordance with these instructions and the projected way to use it for the type of tool when in adequate working conditions.

Using the tool for applications different from those it was designed for, could result in a hazardous situation.

### Service

#### Repair the tool in a TRUPER Authorized Service Center using only identical spare parts.

This will ensure that the safety of the power tool is maintained.



This tool is in compliance with the Official Mexican Standard (NOM - Norma Oficial Mexicana).

# Safety warnings for angle grinders

This power tool is intended to function as a cutting tool. Read all safety warnings, instructions and specifications provided. Failure to follow the instructions outlined below may result in electric shock, fire and/or serious injury:

# PRETUL

## Select the right disc

**⚠ CAUTION** • Never use discs with bigger diameter than the size required in the tool.

**⚠ WARNING** • Use only discs or accessories than 11 000 RPM speeds.

The rated speed of the accessory must be at least equal to the maximum speed marked on the tool. Accessories running faster than their rated speed may break and become detached.

**⚠ CAUTION** • Use only discs or accessories with an orifice that fits perfectly in the tool spindle.

**⚠ CAUTION** • Use only discs or accessories specifically designed for the chosen material.

Keep present people at a safe distance from the work area. Anyone entering the work area should wear personal protective equipment.

## Before operating the grinder

• Set apart some time and assess the job you are about to do. Pay attention to all the necessary cautions before starting to grind.

**⚠ DANGER** • Remove all the fastening wrenches from the tool. Otherwise they can shoot away causing sever injuries to the user.

**⚠ WARNING** • Double-check the guard. It should be perfectly fastened and in good working condition. Do not use the tool without a guard. Fragments of workpieces or a broken accessory can break off and cause damage beyond the immediate area of operation.

**⚠ CAUTION** • Double-check the disc. It should not be broken or cracked. Tap the disc gently with a wooden hammer and listen for a strange sound to learn if is cracked.

**⚠ DANGER** • Before plugging the tool, see if is in the OFF position. Otherwise the tool could start unexpectedly causing severe injuries.

**⚠ CAUTION** • Run the tool 30 seconds before using, to detect important vibration or any type of unusual movement. If detected, unplug the tool and take it to a TRUPER Authorized Service Center.

**⚠ CAUTION** • See if the disc rotates freely.

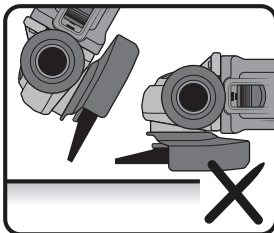
• Do not tighten the disc. It could brake.

**⚠ WARNING** • To work with small work pieces fasten with wrenches. Never use your hands to hold the piece.

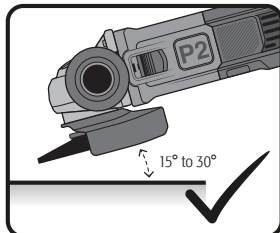
**⚠ DANGER** Do not place saw discs for wood or a serrated blade. Such blades create frequent kickbacks and loss of control.

Operations for which this power tool is not designed may result in an accident and cause personal injury. It is not recommended to use this power tool in operations such as sanding, brushing or polishing

Do not use accessories that are not specifically designed and recommended by the manufacturer.



Wrong way to operate the grinder



Right way to operate the grinder

## While operating the grinder

**⚠ CAUTION** • Do not start the tool when the disc is touching the work piece.

**⚠ WARNING** • Wear safety glasses, gloves and an apron when using the tool.

**⚠ WARNING** • Keep the power cable or extension in the back of the tool. Avoid accidentally damaging the cables with the disc.

• If control of the power tool is lost, the cable may be cut or tangled and the operator's arm or hand may be pulled toward the rotary attachment.

**⚠ WARNING** • Never hold the tool by the power cable. Hold by the housing or auxiliary handle.

**⚠ CAUTION** • Hold the tool by the isolated parts. The cutting tool could come into contact with hidden wiring or its own cable. Making contact with a "live" wire causes the metal parts to electrify and give an electric shock to the user.

• Never let go of the power tool until the attachment comes to a complete stop.

• Never hit the work surface with the disc.

**⚠ CAUTION** • To get the best result with the grinding process, the inclination of the disc and the working surface should have an angle measuring 15° to 30°

**⚠ DANGER** • When the disc is rotating never use the spindle lock to stop it. It is very dangerous and may cause injuries to the user.

**⚠ CAUTION** • Do not touch the disc or the working piece after grinding. Wait for them to cool down. Never try to cool them down using water or oil.

**⚠ WARNING** • Before checking, adjusting or changing discs, double-check the tool is not plugged in.

• Do not use the power tool near flammable materials.

• Do not operate the tool while it is being transported to your side.

**⚠ DANGER** • Sparks caused when grinding may be dangerous. Use caution. Make sure sparks do not get into contact with skin or flammable substances.

• Gradually clean the tool's vents. The motor fan directs dust into the housing and excessive accumulation of metal dust can cause an electrical hazard.

• Do not use accessories that require liquid refrigerants. The use of water or other liquid refrigerants can result in an electric shock.

The outer diameter and thickness of the accessories must be within the assigned capacity. Incorrectly sized accessories cannot be properly protected or controlled. For best results use 4 1/2" (115 mm) cutting discs with 1 mm - 6.4 mm thickness

### ⚠ DANGER KICKBACK (Sharp Recoil)

Kickback (sharp recoil) is a sudden reaction when a rotating wheel, backrest, brush, or other accessory gets stuck or snagged. Stalling or snagging causes rapid stalling of the rotary attachment which in turn causes the power tool to be forced uncontrollably in the direction opposite to the rotation of the attachment at the working point.

An abrasive disc jams into the workpiece, the edge of the contacting disc can be pinched into the surface of the material causing the disc to stop, creating a kickback (sudden recoil). The disc may break and the fragments may jump in the direction of or away from the operator, depending on the direction of disc movement at the point of jamming.

Kickback can occur as a result of misuse of power tools and/or improper operating procedures or conditions and can be avoided by taking the precautions listed below:

**a) Keep a firm grip on the power tool. Maintain your body and arm so that they can resist the forces of kickback.**

Always use the auxiliary handle, if provided, for maximum control over kickback or the reaction of the torsional movement of the engine during starting.

The operator can control the torsional movement and the kickback forces if the appropriate precautions are taken;

**b) Never place your hand near the rotating attachment.**

The accessories may kick back in your hand;

**c) Do not place your body in the area where the power tool can move if kickback (sudden recoil) occurs.**

This will propel the power tool in the opposite direction of disc movement at the point of engagement or binding;

**d) Take special care when working on corners, sharp edges, among others. Avoid bouncing and jamming of the attachment. When working corners, sharp edges, or bouncing, can cause the attachment to jam and result in loss of control of the power tool or kickback (sudden recoil) of the power tool.**

**⚠ WARNING** Specific safety for grinding and cutting operations with abrasives

**a) Use only disc types that are recommended for the specific power tool and the specific tool holder that is designed for the selected disc.**

Discs that are not designed for the power tool cannot be properly protected and are unsafe;

**b) The grinding surface of discs with a sunken center must be installed below the plane of the guard.**

An improperly installed disc may project burrs outside the plane of the guard and cannot be properly protected;

**c) The guard must be securely fastened to the power tool and positioned to provide maximum safety, so that the least amount of the blade is exposed to the operator.**

**Do not use damaged accessories. Before each use inspect the accessories.** \* Check abrasive discs for damage.

\* Check backing pads for cracks, tears or excessive wear

After inspecting and installing the accessory, operate the tool at maximum speed without charge for one minute. Damaged accessories usually break during this period of time.

Do not use accessories that are not specifically designed and recommended by the manufacturer. The fact that the accessory may be installed on the power tool does not ensure safe operation.

**d) Discs should be used only for their recommended applications. For example: do not grind with the side of a cut-off wheel. Abrasive discs are used for perfect grinding. If lateral forces are applied, they can break;**

**e) Always use flanges in perfect condition, of the correct size according to the shape of the selected disk.**

A flange with the correct characteristics supports the disc, which reduces the possibility of disc rupture. The flanges for cut-off wheels can be different from the flanges for grinding wheels;

**f) Do not use worn out disks from larger or higher capacity tools**

Disks that are designed for larger or higher capacity tools are not suitable for the increased speed that occurs in the operation of a smaller size or capacity tool and may defragment.

**⚠ WARNING** Additional safety warnings for abrasive cutting operations

**a) Avoid locking or applying excessive pressure to the abrasive cut-off wheel. Do not attempt to make an excessively deep cut.**

Applying excessive force to the disc increases the load on the power tool and the susceptibility to deformation in the cutting area and increases the possibility of kickback (sudden recoil) or blade breakage;

**b) Do not place your body in line and behind the rotating disc. When the disc, at the point of operation, is aligned with your body, the possibility of a kickback (sudden recoil) can propel the spinning disc and the power tool directly against you;**

**c) When disc operation is interrupted or cutting stops for any reason, turn off the power tool and keep it stationary until the disc comes to a complete stop. Do not attempt to remove the blade while it is in motion, as this may cause kickback (sudden recoil) or similar effect.**

Investigate and complete corrective actions to eliminate the cause of the spin interruption;

**d) Do not restart the cutting operation on the workpiece. Allow the blade to reach maximum speed off the workpiece and carefully restart cutting.**

The abrasive cut-off disc can jam, move upwards or produce a kickback if cutting is restarted on the workpiece;

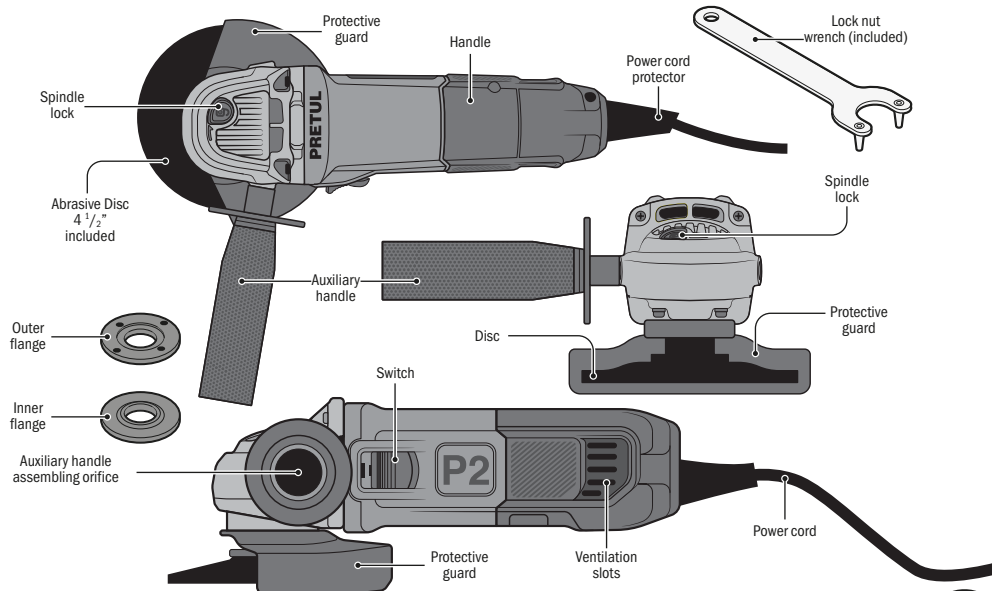
**e) Support large workpieces on presses or clamping brackets to reduce the risk of the abrasive cut-off disc becoming trapped or of kickback (sudden recoil).**

Large pieces tend to sink under their own weight. Brackets should be placed under the workpiece near the cutting line and near the edge of the workpiece on both sides of the abrasive cut-off wheel;

**f) Be careful when making a "very small cut" in walls or other blind areas or where there is no visibility of internal components. The protruding abrasive cutting disc can cut through gas or water pipes, electrical wiring, or objects that may cause kickback (sudden recoil).**

# Parts

# PRETUL



## Assembly

### Protective guard assembly

- Disconnect the grinder and set it facing up.
- Set the protective guard in the grinder cutter head as shown. Then set the pressure washer (A) onto the shaft.
- Tighten the four washer screws (B) to secure the guard.
- If using wire brushes instead of abrasive discs remove the guard reversing the previous steps.

### Disc assembly

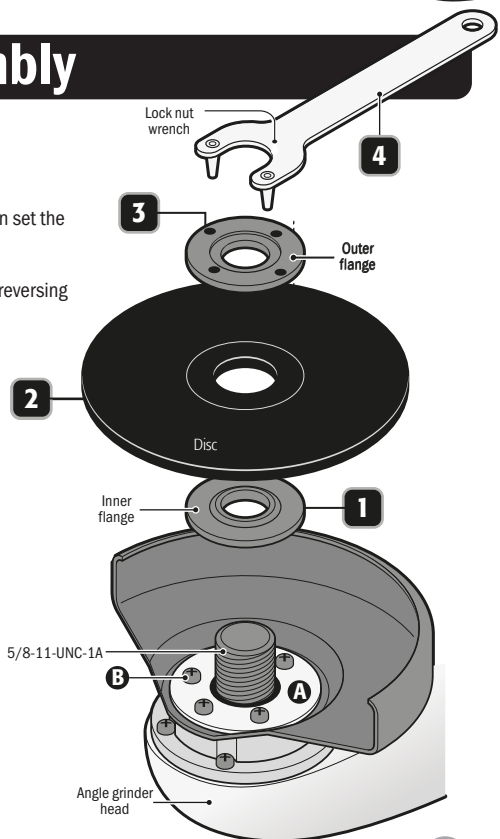
- 1 Fix the inner flange in the axis.
- 2 Set the disc in the inner flange.
- 3 Set the outer flange in the axis.
- 4 Press the axis lock in the grinder head.
- 4 Using the lock nut wrench, screw the outer flange until it is fixed.

**⚠ DANGER** The spindle lock can only be used to replace discs. Never to stop the disc while it rotates.

The threaded mounting of the accessories must match the spindle thread. Accessories that do not match the installation fixtures on the tool will cause unbalance, excessive vibration and or may cause loss of control.

### Wire brushes assembly

- Flanges are not needed to fix this type of accessory. Just screw the brush (not included) directly into the grinder shaft.

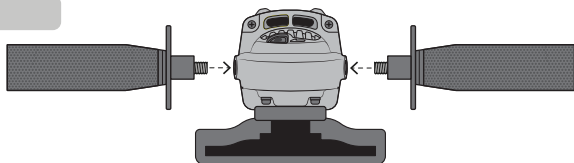


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## Auxiliary handle assembly

- For a safe operation use the auxiliary handle. Fit the auxiliary handle onto one of the two mounting orifices to make the job easier.

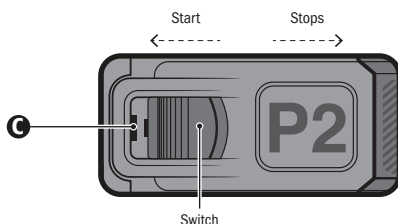


## Start Up

The angle grinder is a manual power tool. It is used to grind and cut steel, pipes, angled iron, bricks, tiles stone and/or ceramic pieces. To remove burr from metal surfaces, to level and to smooth down solder.

## Turning On

- Connect the plug to the power outlet.
- Press the switch rear side and push it forwards to start the grinder.
- For continuous operation push the switch until it stops in the tool's housing notch (C).
- To stop using it, press the rear side of the switch. It will get released and turn back to the off position stopping the tool motor.



## How to adequately hold the tool

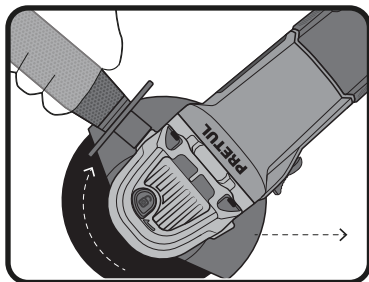
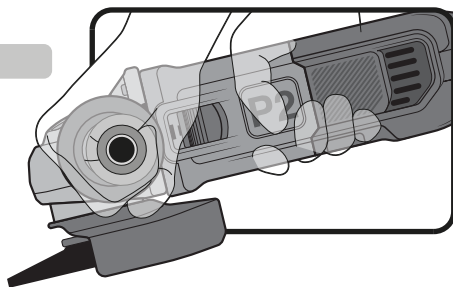
Always hold the tool with both hands. One hand holds the handle and the other hand holds the auxiliary handle. Use care not to obstruct the vent slots.

### Grinding:

To get better results hold the tool  $15^\circ$  to  $30^\circ$  regarding the work piece. Make forward-backward movement applying a slight pressure with a steady rhythm. The work piece will not get too hot and will not have any discoloration. Also no rough edged will be produced.

### Cutting:

Do not press, tilt or oscillate the tool. Work with steady speed. The disc shall turn always in a counter wise direction regarding the cutting movement. Never in a different direction, otherwise the tool will shoot out uncontrolled. To cut hard stones is advisable using a diamond-cutting disc.



## Useful Tips

- Work with the disc in the right position to prevent damaging it.
- Press on the work piece using less pressure than the tool weight to prevent overload damaging the motor or the disc.
- After installing a new disc allow it to turn idle at least one minute.

If the disc vibrates, replace immediately.

**CAUTION** • Avoid working with soft wood or metal such as lead. These materials saturate the disc very quickly and damage it.



- Disconnect the plug from the power outlet before cleaning.
- Never use water or other type of liquids. Use only a brush.
- Clean after each use with compressed air or a brush. Pay special attention to the ventilation slots.
- Double-check the entire tool's components are properly fixed.
- The housing shall not be cracked or damaged.
- Double-check the power cable is not cut or peeled.
- After a prolonged use the grease from the head of the tool must be changed at an Authorized Service Center TRUPER.

## Repairs

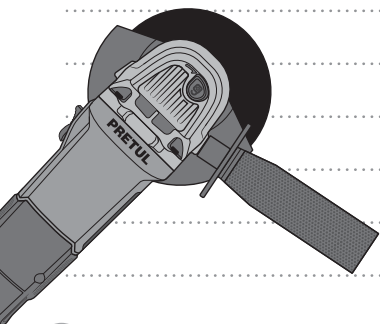
Use only spare parts and accessories recommended by the manufacturer. In the event the tool is not working repairs should be carried in a TRUPER Authorized Service Center.

## Carbon brush replacement

- Carbon Brushes should be periodically checked and when worn, replaced always in a TRUPER Authorized Service Center.
  - After replacing the carbon brushes request to inspect if the new carbon brushes can move freely in the carbon housing. Also request to run the tool 5 minutes to make even the contact with the carbon brushes and the commutator.
  - Use only original TRUPER spare carbons specifically designed with the hardness and resistance adequate for each type of motor. Carbons that are out of specification could damage the motor.
  - Both carbons should be changed simultaneously.
- For better results, it is recommended to use grinding and/or cutting disc to 4-1/2" TRUPER.

## Storage

Store the tool neatly in a dry place. Protect against dust and water.



In the event of any problem contacting a TRUPER Authorized Service Center, please see our webpage [WWW.TRUPER.COM](http://WWW.TRUPER.COM) to get an updated list, or call our toll-free numbers 800 690-6990 or 800 018-7873 to get information about the nearest Service Center.

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