CTIONS FOR

rinder

No.5220PRO
5221PRO
5222PRO

IMPO E THE SAFE AND

5222PRO shown.

DRAPER®

Read all these instructi
This manual has been
should be kept with it fo

h it is enclosed and

This manual describes the
to ensure its correct and sa
any kind of adjustment to th

ecessary information
before performing
eral safety instructions

contained in this manual, it will ensure both product and operator safety, together with longer life of the product itself.

All photographs and drawings in this manual are supplied by Draper Tools to help illustrate the operation of the product.

Whilst every effort has been made to ensure accuracy of information contained in this manual, the Draper Tools policy of continuous improvement determines the right to make modifications without prior warning.

CONTENTS

GUARANTEE

Draper air tools have been carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship for 6 months from the date of purchase except where tools are hired out when the guarantee period is ninety days from the date of purchase.

Should the machine develop any fault, please return the complete tool to your nearest authorised warranty repair agent or contact Draper Tools Limited, Chandler's Ford, Eastleigh, Hampshire, SO53 1YF. England. Telephone (023) 8049 4344.

A proof of purchase must be provided with the tool.

If, upon inspection it is found that the fault occurring is due to defective materials or workmanship, repairs will be carried out free of charge. This guarantee does not apply to normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accident, or repairs attempted or made by any persons other than the authorised Draper warranty repair agent.

Note: If the tool is found not to be within the terms of warranty, repairs and carriage charges will be quoted and made accordingly.
This guarantee applies in lieu of any other guarantee expressed or implied and variation of its terms are not authorised.

Your Draper guarantee is not effective unless you can produce upon request a dated receipt or invoice to verify your proof of purchase within the guarantee period.

Please note that this guarantee is an additional benefit and does not affect your statutory rights.

SPECIFICATION

The Draper Tools policy of continuous improvement determines the right to change specification without notice.

Stock no.	47564	47565	47566
Part no.	5220PRO	5221PRO	5222PRO
Collet size	6mm	6mm	6mm
Offset	115°	0°	0°
Revolution per minute (no load)	20,000r/min	25,000r/min	20,000r/min
Max. operating air pressure	90psi (6.2BAR)	90psi (6.2BAR)	90psi (6.2BAR)
Average air consumption	4cfm (113L/min)	4cfm (113L/min)	4cfm (113L/min)
Min. air line size (inner Ø)	3/8" (10mm)	3/8" (10mm)	3/8" (10mm)
Air inlet	1/4"BSP	1/4"BSP	1/4"BSP
Sound pressure level†	80.0dB(A)	80.0dB(A)	80.0dB(A)
Sound power level††	87.0dB(A)	87.0dB(A)	87.0dB(A)
Vibration level	2.6m/s^2	2.6m/s^2	2.6m/s^2
Weight	0.64kg	0.57kg	0.70kg

WARNING: WEAR APPROVED SAFETY GLASSES AND EAR DEFENDERS

† Continuous A-Weighted Sound Pressure Level at the workstation in accordance to prEN ISO 15744:1999 and declared according to EN ISO 4871.

†† A-Weighted Sound Power Level in accordance to prEN ISO 15744:1999 and declared according to EN ISO 4871.

FAILURE TO FOLLOW THESE INSTRUCTIONS WILL LEAD TO PREMATURE MALFUNCTION OF THE EQUIPMENT WHICH IS NOT COVERED BY THE GUARANTEE.

- **HYDRAULIC FLUID SPECIFICATION:**

Hydraulic fluid viscosity refers to it's properties to flow and how it reacts with heat. A low viscosity is thinner than a high viscosity.

Hydraulic fluid becomes thinner as it heats so choosing the right viscosity is essential. If the viscosity is too low it may provide insufficient lubrication when heated. Equally if it is too high the fluid may provide excessive resistance to move through the lines when cold.

The ISO (International Standards Organisation) viscosity grading system measures the kinematic viscosity in centistokes (cSt) at 40° which is todays accepted standard. The SAE (Society of Automotive Engineers) viscosity grade value is based on a scale.

This equipment is suited to an ISO grade 22-32 (SAE grade 5W-15W) hydraulic fluid or monograde oil.

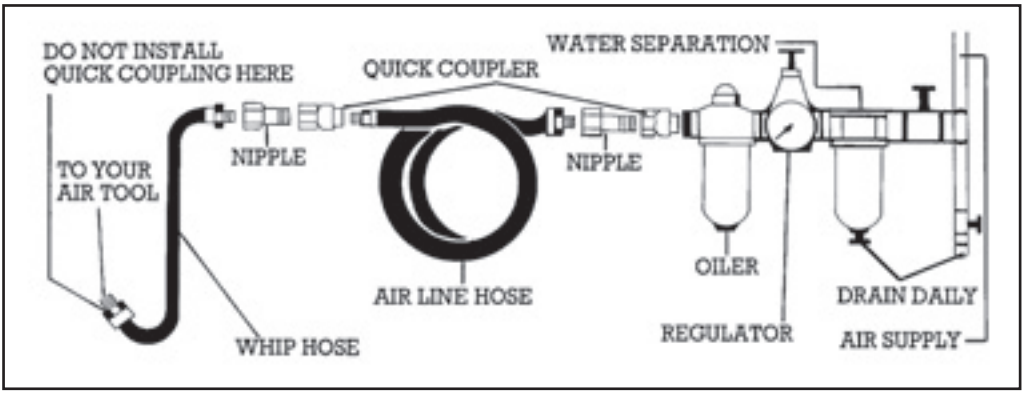
The fluid must be constantly supplied to the equipment during use to ensure complete lubrication and optimum performance is achieved. It also acts as a rust inhibitor when the equipment is not in use. Most of the major brand petroleum companies produce a suitable lubricant to the above specifications.

This air tool operates at a maximum pressure of 90psi and must be controlled via a combination pressure regulator, in-line lubricator and moisture filter such as the Draper range (see your local Draper stockist) which with proper maintenance will ensure a constant supply of dry air and lubricating oil at all times (see illustration below). Always check machine operating pressure before use.

WATER IN THE COMPRESSOR TANK WILL CAUSE SERIOUS CORROSION TO YOUR AIR TOOLS AND SHOULD BE DRAINED DAILY TO AVOID EXCESSIVE WATER IN YOUR AIR SUPPLY. DIRTY WET AIR RAPIDLY SHORTENS THE LIFE OF YOUR AIR TOOL.

If you are using an air tool on a hose over 25ft. long it is advisable to increase the bore of the hose to the next larger size available ie. ¼" increases ⅜". This will ensure adequate pressure and volume of air to power the machine.

RECOMMENDED AIR SUPPLY SET UP



After each use and before prolonged storage lubricate the equipment with approximately 1.5ml of oil directly down the air inlet.

GENERAL SAFETY INSTRUCTIONS

IMPORTANT:
Draper Tools Limited recommends that this machine should not be modified or used for any application other than that for which it was designed. If you are unsure of its relative applications do not hesitate to contact us in writing and we will advise you.

- Power tools shall not be used in potentially explosive atmospheres unless specifically designed for that purpose.
- Power tools shall be isolated from the energy source before changing or adjusting the inserted tool.

- **WARNING:**
  - There is a risk of loose clothing, hair, etc. being caught in the rotating spindle of the power assembly tool.
  - There is a risk of being injured by whipping air hoses.
- Unexpected direction of inserted tool movement can cause a hazardous situation.
- Release the start and stop device in the case of an interruption of the energy supply;
- Only lubricants recommended by the manufacturer shall be used;
- Release pressure when not in use. Disconnect from air line;
- Do not modify this air tool in any way.
- Do not carry or move the tool by the air line.
- In the event of hydraulic fluid/monograde oil contact or spillage refer to the manufacturer's datasheet. As a general guide refer below.

HYDRAULIC FLUID DATA SHEET:

Always wear gloves and goggles when dealing with hydraulic fluid.

Hydraulic fluid composition is achieved when highly refining mineral oil by means of a solvent.

As a substance is not considered to be hazardous to health under normal conditions of use.

First Aid recommendations

- In case of ingestion:
  Wash out mouth with clean water and seek medical advice.
  Do not induce vomiting.
- In case of contact with eyes:
  Thoroughly flush eyes with clean water for 5 to 10 minutes and seek medical advice.
- In case of contact with skin:
  Wash area with soap and water. Remove effected clothing and wash. If irritation persists, seek medical advice.
- Other:
  Seek medical advice immediately.

Hydraulic fluid is a combustible and in the event of fire should be extinguished using a foam or dry powder fire extinguisher. Do not use water.

In the event of accidental release into the environment measures to prevent spread must be adhered. Do not contaminate rivers, water ways or drains. Spillage should be contained with sand, grit or other appropriate barriers.

Warn bystanders as spillage may present a slip hazard.

Hydraulic fluid is not considered biodegradable and may in fact bioaccumulate.

IMPORTANT NOTE:
Residual Risk. Although the safety instructions and operating manuals for our tools contain extensive instructions on safe working with power tools, every power tool involves a certain residual risk which can not be completely excluded by safety mechanisms. Power tools must therefore always be operated with caution!

ADDITIONAL SAFETY INSTRUCTIONS

- **WARNING:**
  - Only permitted insert tools of the correct shaft diameter shall be used.
  - Cutting off wheels and routing cutter wheels shall not be used.
  - The allowed speed of the insert tool must be higher than the speed of the die grinder.
  - The allowed speed of the mounted point must be lowered due to the increase of the length of the shaft between the end of the collet and the mounting point (overhang). Make sure that the minimum gripping length of 10mm is observed.
  - Working in certain materials creates emission of dust and fumes, causing a potentially explosive environment.
  - Beware of mismatching the insert tool shaft to the collet size. The shaft should be a snug fit before tightening the collet and should never require pressure to insert. Excessively loose shafts may result in the bit being thrown during use.
  - Beware of excessive vibration levels due to improper mounting or damaged insert tool. Stop immediately and rectify the cause.
  - Attention shall be paid to ensure the maximum permissable pressure is not exceeded. The use of an inline water seperator, lubricator and pressure regulator should be used to control the pressure of the air being supplied to the power tool.
  - The insert tool and output shaft will run on after the trigger has been released.
  - Wear close fitting apparel, remove jewellery and tie long hair back to prevent the risk of being drawn in.
  - Ensure any sparks generated pose no threat of ignition to stored gas or fluid.
  - In the event of an air line failing the whipping compressed air hose poses a risk of injury or damage to property. Isolate the air hose from the supply quickly and safely.
  - Personal protective safety glasses shall be worn. Gloves and protective clothing are recommended.
  - Assess the need for personal protection and the provision for dust collection appropriate for the material to be worked on.
  - Die grinders are not insulated for coming into contact with electric power sources.
  - Die grinders shall not be used in explosive atmospheres unless specially designed for that purpose. This product is not designed for that type of atmosphere.

SAFETY RECOMMENDATIONS FOR THE CORRECT USE OF ABRASIVE PRODUCTS

a. **General.** Bonded abrasive products are breakable and shall therefore be handled with utmost care. The use of damaged or improperly mounted or used abrasive products is dangerous and can cause serious injuries.

b. **Delivery, handling and storage.** Abrasive products shall be handled and transported with care. Abrasive products shall be stored in such a manner that they are not subjected to mechanical damaged and harmful environmental influences.

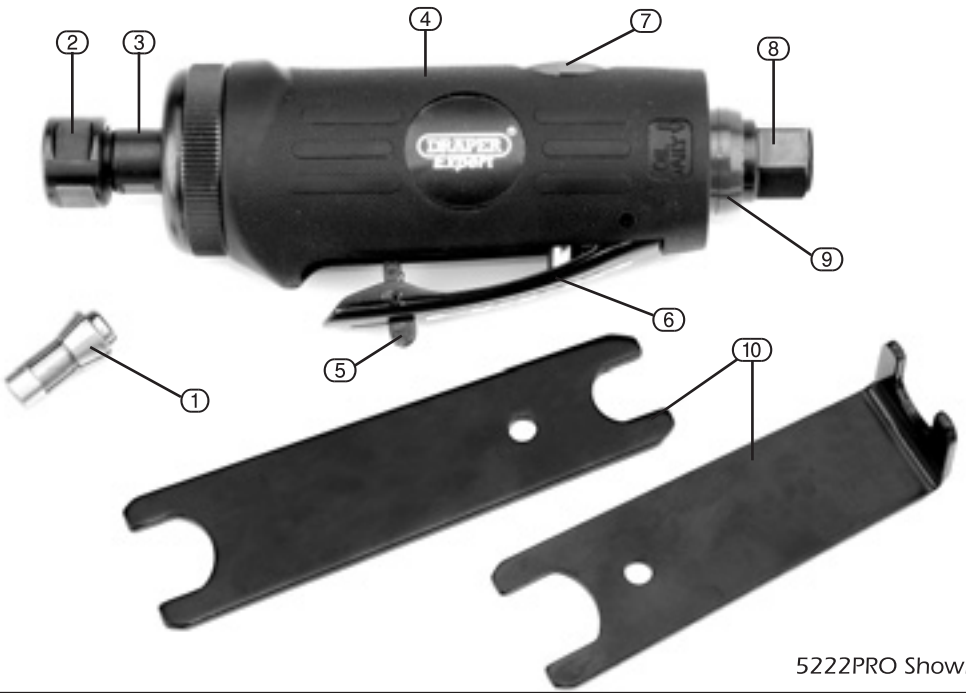
c. **Selection of the abrasive product.** Information on the label or the abrasive product as well as restrictions of use, safety indications or any other instructions shall be followed. In case of doubt concerning the selection of abrasive products, the user shall request information from the manufacturer or supplier.

d. **Visual inspection and ring test.** Abrasive products shall be subjected to a visual inspection as received before mounting. In addition, a ring test shall be executed for vitrified wheels with D>80mm. Damaged abrasive products shall be destroyed.

e. **Mounting before starting and information for grinding.** The mounting of abrasive products shall be carried out according to the instructions provided by both the wheel and the machine manufacturer. Mounting of abrasive products shall be carried out by a qualified trained person. Each time after mounting, the wheel shall be test run for a reasonable time - the specified maximum operating speed of the wheel shall not be exceeded.

f. **Further information.** The following instructions shall be observed, supplementary to the information contained in the instruction for use of the grinding machine:
   - Observance of the user's information from the grinding machine manufacturer.
   - Safety devices shall be mounting to the machine and shall be secured.
   - No grinding operations without protection by safety devices.
   - Use of personal protective equipment according to the type of machine and type of application, e.g. eye and face protection, ear protection, respiratory protective devices, protective footwear, protective gloves and other protective clothing.
   - Only grinding operations for which the abrasive product is suitable shall be carried out (taking into account restrictions of use, safety indications or other information).
   - Jamming of the hand-held grinding machine shall be prevented. In the case of cutting-off with hand-held grinding machines, the abrasive product shall be placed in the cutting gap in a straight position.
   - Before placing the hand-held grinding machine on the workbench or on the floor it shall be turned off and it shall be ensured that the abrasive product has stopped.

GETTING TO KNOW YOUR DIE GRINDER



5222PRO Shown

1. 6mm collet.
2. Collet nut.
3. Output shaft.
4. Composite body.
5. Trigger release lever.
6. Trigger.
7. Air flow (speed) selector.
8. ¼" BSP (female air inlet).
9. Exhaust.
10. Spanners.
    5220PRO - 11x17mm (x2)
    5221PRO - 11x17mm (x2)
    5222PRO - 14x19mm (x2)

- **SCOPE:** A die grinder is a rotary power tool fitted with a collet chuck to accept inserted tools† intended for chamfering, deburring and light cleaning operations. Any other use is orbidden.

  † The allowed speed of the insert tool must be higher than the speed of the grinder.

- **UNPACKING:** After removing the packing material, make sure the product is in perfect condition and that there are no visible damaged parts. If in doubt, do not use the product and contact the dealer from whom it was purchased.

  The packaging materials (plastic bags, polystyrene, etc.), must be disposed of in an appropriate refuse collection container. These materials must not be left within the reach of children as they are potential sources of danger.

ASSEMBLY

- **WHIP HOSE (Fig.1):**
  To connect the die grinder to an air line a 1/4" BSP male thread whip hose† will be required. Wind a length of PTFE tape†† around the thread before securing the hose in place. The connection must be firm for an air tight union.
  † Draper Stock No.54438
  † Draper Stock No.63389
- **NOTE:** Due to the rotating air inlet feature a spanner will be required to hold the inlet while securing the whip hose.


FIG.1

OPERATION AND USE

- **NOTE:** Disconnect from the air supply before carrying out adjustment, servicing or maintenance.
- **INSERT TOOL (Fig.2):**
- **WARNING:**
  Select the grinding point appropriate for the application, speed rated to the die grinder and with the correct shaft diameter for the collet.
  Inspect the grinding point before use. Do not use chipped, cracked or otherwise defective products.
  With the output shaft (A) held, loosen the collet nut (B) with the other spanner. Insert the grinding point shaft observing the minimum gripping length of 10mm.
  Secure the grinding point by tightening the collet nut fully.
- **NOTE:** Never tighten the collet nut without an insert tool in the collet as damage will occur. Before storage remove insert tool to prevent distortion of the collet.
  NOTE: Always wear safety goggles.
- **WARNING:**
  Never attempt to install cutting off wheels or router bits.

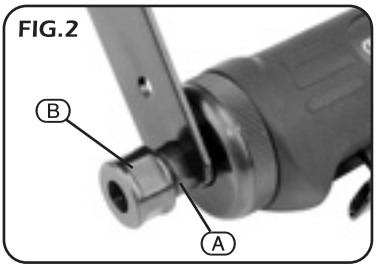


FIG.2

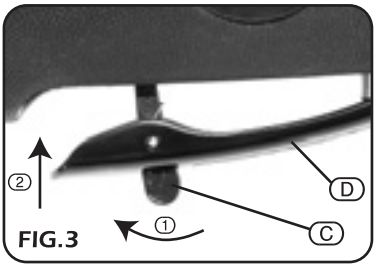


FIG.3

- **TRIGGER (Fig.3):**
  Due to the risk of unintentional starting the die grinder requires two seperate and dissimilar actions to power the tool.
  Pivot the trigger release lever (C) forward. This allows the trigger (D) to be pulled in toward the body of the grinder.

- **AIR FLOW (SPEED) SELECTOR (Fig.4):**
  Rotate selector (E) to regulate the speed most appropriate for the application.
  Rotate clockwise to decrease the air flow/speed.

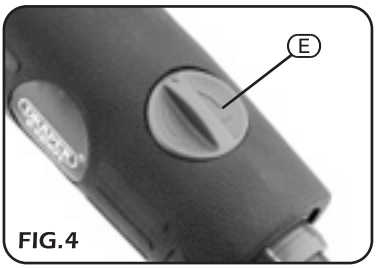


FIG.4

MAINTENANCE

- **Every Day:**
  Before connection to the air supply;
  - Drain the compressor reservoir of condensate.
  - Drain the air lines of condensate.
  - Drain the combined separator filter, regulator, water trap.
  - Fill up the combined separator filter, regulator, lubricant reservoir.
  - Check the line pressure is correct for the tool.
- **After Daily use:**
  - Repeat the above procedures.
  - Lubricate the tool with approximately 1.5ml of oil directly down the air inlet.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REQUIRED ACTION
▪ Tool will not operate. Air flows slightly from exhaust. Spindle turns freely.	▪ Motor or throttle seized with dirt.	▪ Check for dirt in air inlet. ▪ Pour air tool lubricating oil into air inlet. ▪ Operate trigger in short bursts. ▪ Disconnect air line supply, then turn spindle by hand. Reconnect air supply. ▪ If motor fails to turn return to service centre.
▪ Tool runs slowly. Air flows freely from exhaust.	▪ Rotor vane seized.	▪ Pour air tool lubricating oil into air inlet. ▪ Operate tool in short bursts. ▪ Tap motor housing gently with plastic mallet. ▪ If still not functional, return to service centre.
▪ Spindle seized.	▪ Motor vane broken.	▪ Return to service centre.
▪ Tool will not shut off.	▪ 'O' rings throttle valve dislodged from seat inlet valve.	▪ Replace 'O' ring or return to service centre.

DISPOSAL

During decommissioning of the equipment certain hazards should be understood and avoided:

- Dealing with hydraulic fluid - refer to the data sheet section for details.
- Only with the line pressure released shall the equipment be disassembled. Goggles should be worn.

EXPLANATION OF SYMBOLS/PICTOGRAMS

The operator's instruction must be read before work starts.

Direction of rotation.

Wear safety glasses.

Wear ear defenders.

NOTES

CONTACTS

- **DRAPER TOOLS LIMITED,**
  Hursley Road, Chandler's Ford,
  Eastleigh, Hampshire. SO53 1YF. U.K.

- **Helpline:** (023) 8049 4344
- **Sales Desk:** (023) 8049 4333
- **Internet:** www.draper.co.uk
- **E-mail:** sales@drapertools.com
- **Sales Fax:** (023) 8049 4209
- **General Enquiries:** (023) 8026 6355

- **Service/Warranty Repair Agent**
  For aftersales servicing or warranty repairs, please contact the Draper Tools Helpline for details of an agent in your local area.

YOUR DRAPER STOCKIST

OADH060808