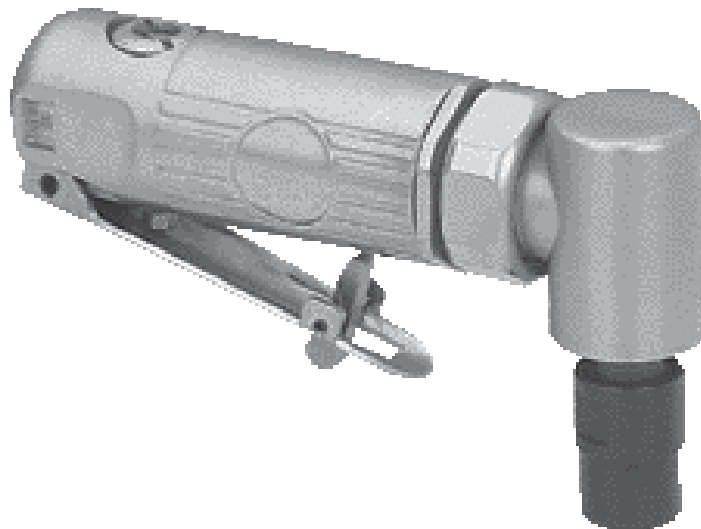


CENTRAL PNEUMATIC®
Professional

MINI AIR ANGLE DIE GRINDER

Model 33171

ASSEMBLY AND OPERATING INSTRUCTIONS



Due to continuing improvements, actual product may differ slightly from the product described herein.



3491 Mission Oaks Blvd., Camarillo, CA 93011
Visit our Web site at: <http://www.harborfreight.com>

**TO PREVENT SERIOUS INJURY,
READ AND UNDERSTAND ALL WARNINGS
AND INSTRUCTIONS BEFORE USE.**

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For technical questions, please call 1-800-444-3353.

PRODUCT SPECIFICATIONS

Item	Description
Collet Size	1/4"
Air Inlet	1/4" NPT
Maximum Air Pressure	90 PSI
Air Consumption	4 CFM @ 90 PSI
Maximum RPM	21,000
Length	about 5"
Accessories	Collet Wrench (Qty. 2)

UNPACKING

When unpacking, check to make sure all the parts shown on the **Parts List on page 9** are included. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

SAVE THIS MANUAL

You will need this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures, parts list and assembly diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep this manual and invoice in a safe and dry place for future reference.

GENERAL SAFETY RULES

 **WARNING!**

READ AND UNDERSTAND ALL INSTRUCTIONS
Failure to follow all instructions listed in the following
pages may result in fire, and/or serious injury.

SAVE THESE INSTRUCTIONS

WORK AREA

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate pneumatic tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Pneumatic tools create sparks which may ignite flammables.
3. **Keep bystanders, children, and visitors away while operating a pneumatic tool.** Distractions can cause you to lose control. Protect others in the work area from debris such as chips and sparks. Provide barriers or shields as needed.

PERSONAL SAFETY

1. **Stay alert. Watch what you are doing, and use common sense when operating a pneumatic tool. Do not use a pneumatic tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating pneumatic tools may result in serious personal injury.
2. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
3. **Avoid accidental starting. Be sure the Trigger (4) is off before connecting to the air supply.** Carrying pneumatic tools with your finger on the Trigger, or connecting pneumatic tools to the air supply with the Trigger on, invites accidents.
4. **Remove both Spanners before turning on the tool.** A Spanner (27) that is left attached to a rotating part of the tool may result in personal injury.
5. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.
6. **Use safety equipment. Always wear ANSI approved safety goggles underneath a full face shield, a dust mask or respirator, and hearing protection.**

TOOL USE AND CARE

1. **Use clamps or other practical ways to secure and support the workpiece to a stable platform.** Holding the work by hand is unstable and may lead to loss of control. Only work on a workpiece that is properly secured.
2. **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
3. **Do not use the power tool if the Trigger (4) does not turn it on or off.** Any tool that cannot be controlled with its Trigger is dangerous and must be replaced.

4. **Disconnect the air hose from the tool before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
5. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
6. **Maintain tools with care.** Do not use a damaged tool. Tag damaged tools “Do not use” until repaired.
7. **Check for misalignment or binding of moving parts, breakage of parts, loose parts, and any other condition that may affect the tool’s operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
8. **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.

SERVICE

1. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
2. **When servicing a tool, use only identical replacement parts. Follow instructions in the “*Inspection, Maintenance, And Cleaning*” section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of injury.

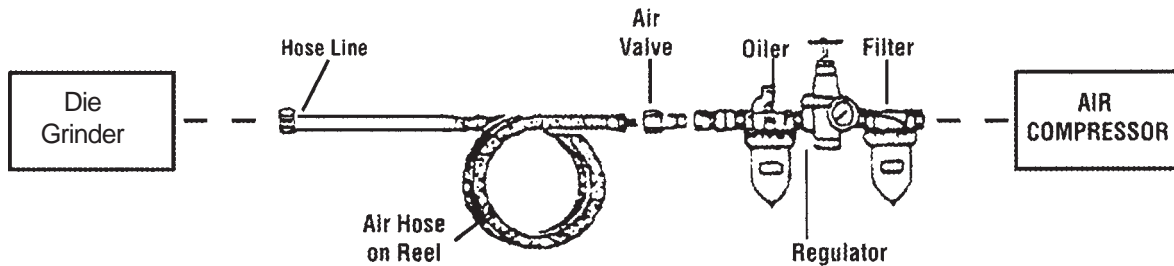
SPECIFIC SAFETY RULES

1. **Maintain labels and nameplates on the Grinder.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
2. **Always grip the Grinder firmly when operating the tool.**
3. **Always use accessories that have an RPM rating of at least 21,000 and a 1/4" diameter shank.** Using accessories not rated to meet the RPM capacity of this tool or with an improperly sized shank can result in damaged accessories, personal injury, and/or property damage.
4. **Use clean, dry, regulated, compressed air at 90 PSI.** Do not exceed the recommended 90 PSI. Never use oxygen, carbon dioxide, combustible gases, or any other bottled gas as a power source for this tool.
5. **Always disconnect the Grinder from its compressed air supply source, and squeeze the Trigger (4) to verify that the tool cannot operate before performing any maintenance or services.**
6. **Before using the Grinder, make sure that any accessories are properly attached to the tool.** Make sure to wrench tighten the collet before use.
7. **Check accessories for any signs of excessive wear or damage before use. DO NOT USE DAMAGED ACCESSORIES.**
8. **Accessories may become hot while grinding.** Allow accessories to completely stop and cool before touching.
9. **Allow the accessory to move at full speed before feeding them into the workpiece.** Do not force the accessory into the workpiece when grinding. Apply moderate pressure, allowing it to grind without being forced. When turning off the Grinder, allow the accessory to stop on its own; do not press against it to stop it.
10. **Industrial applications must follow OSHA requirements.**
11. **WARNING!** The brass components of this product contain lead, a chemical known to the State of California to cause birth defects (or other reproductive harm). (California Health & Safety code § 25249.5, *et seq.*)
12. **WARNING!** The warnings, precautions, and instructions discussed in this manual cannot cover all possible conditions and situations that may occur. The operator must understand that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

AIR LINE CONNECTION

NOTE:

For additional references to the parts listed in the following pages, refer to the **Assembly Diagram** at the end of this manual.



Recommended Air Line Components

For best service you should incorporate an oiler, regulator, and inline filter, as shown in the diagram above. Hoses, couplers, oilers, regulators, and filters are all available at Harbor Freight Tools.

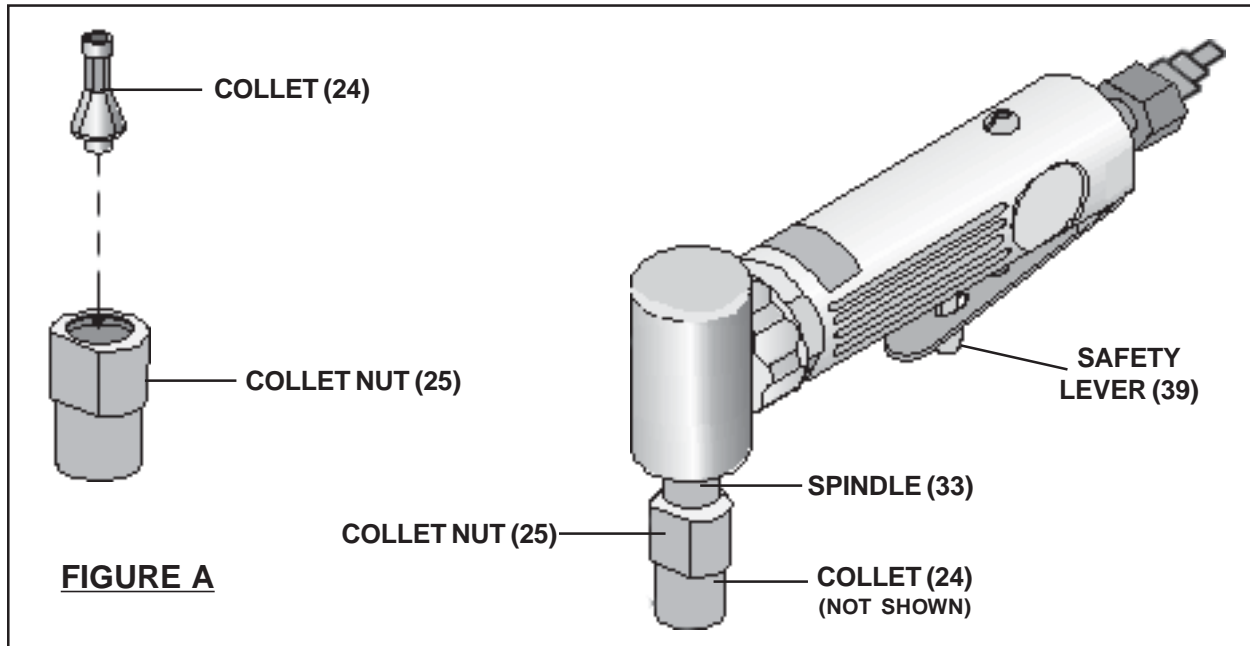
1. You will need to prepare a $\frac{1}{4}$ " air connector (not included) to connect to the Inlet (10) on the Die Grinder. First, wrap the $\frac{1}{4}$ " air connector with pipe thread seal tape before threading it into the Inlet (10). Connect the $\frac{3}{8}$ " ID Air Source Hose to a quick connect coupler (not included), and then to the Die Grinder.

Note: If you are not using an automatic oiler system, before operation, add a few drops of Pneumatic Tool Oil to the airline connection. Add a few drops more after each hour of continual use.

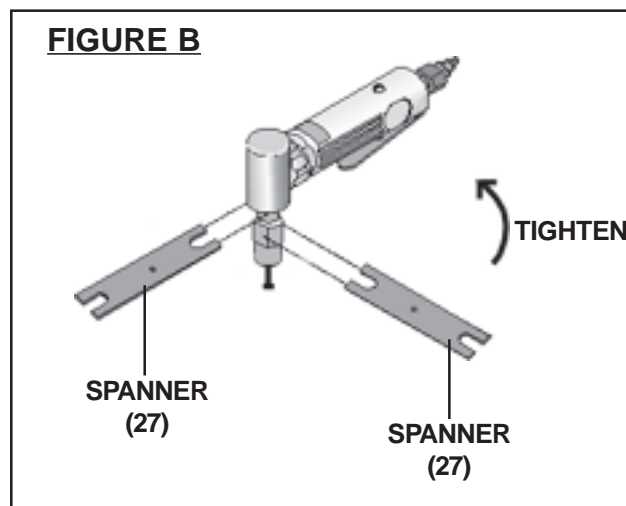
2. Set the air pressure on the regulator to 90 PSI. **Do not exceed the maximum air pressure of 90 PSI.**
3. Check the air connection for leaks. Disconnect from the air source.

ACCESSORY INSTALLATION


1. **Make sure the air supply is disconnected first.** Insert the Collet (24) into the Collet Nut (25). Then, thread the Collet Nut onto the Spindle (33) a few turns. (See Figure A.)





2. Insert the shank of the accessory upward into the flared end of the Collet (24).
3. Place the small end of the Spanner (27) on the flats of the Spindle (33). Place the large end of the other Spanner (27) on the flats of the Collet Nut (25). Then, tighten the Collet Nut to secure the accessory in place. (See Figure B.)



GRINDER OPERATION

1.  **WARNING!** Always wear ANSI approved safety goggles underneath a full face shield, a dust mask or respirator, and hearing protection when operating the Grinder.
2. Place the material you will be working on into a vise, or otherwise clamp the material so that it will not move around when you use the Grinder.
3. Grip the Grinder firmly. To begin, press the Safety Lever (39) forward and squeeze the Trigger (4). **(See Figure A, previous page.)** Make sure to squeeze the Trigger and allow the grinder to spin at full speed before you touch the accessory to the material you will be working on.
4. The Grinder's speed is variable. To adjust the speed of the Grinder, vary the pressure on the Trigger (4).
5. Allow the accessory to do the work. Do not use excessive force to press the accessory into the surface you are working on. If the Grinder stalls, immediately release the Trigger (4) and pull the accessory off the surface.
6. When finished grinding, release pressure on the Trigger (4). Turn off the compressor. Squeeze the Trigger to release any compressed air in the air line and tool. Then, disconnect the Grinder from the air hose.
7. Make sure to store the Grinder in a safe, clean, dry location out of reach of children and other unauthorized people.

INSPECTION, MAINTENANCE, AND CLEANING

1.  **WARNING!** Always make sure the Safety Lever (39) is in its locked position, and disconnect the Grinder from its compressed air supply before performing any inspection, adjustments, maintenance, or cleaning.
2. **Before each use**, inspect the general condition of the Grinder. Check for loose screws, misalignment or binding of moving parts, cracked or broken parts, damaged air hoses, loose, cracked, or bent accessories, and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, have the problem corrected before further use. **Do not use damaged equipment.**
3. **To oil the Grinder**, refer to **page 6** of this manual for complete instructions.
4. **Daily:** With a soft brush, cloth, or vacuum, remove all dust and debris from the Grinder.
5.  **WARNING!** All maintenance, service, or repairs not listed in this manual should only be performed by a qualified service technician.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

PARTS LIST

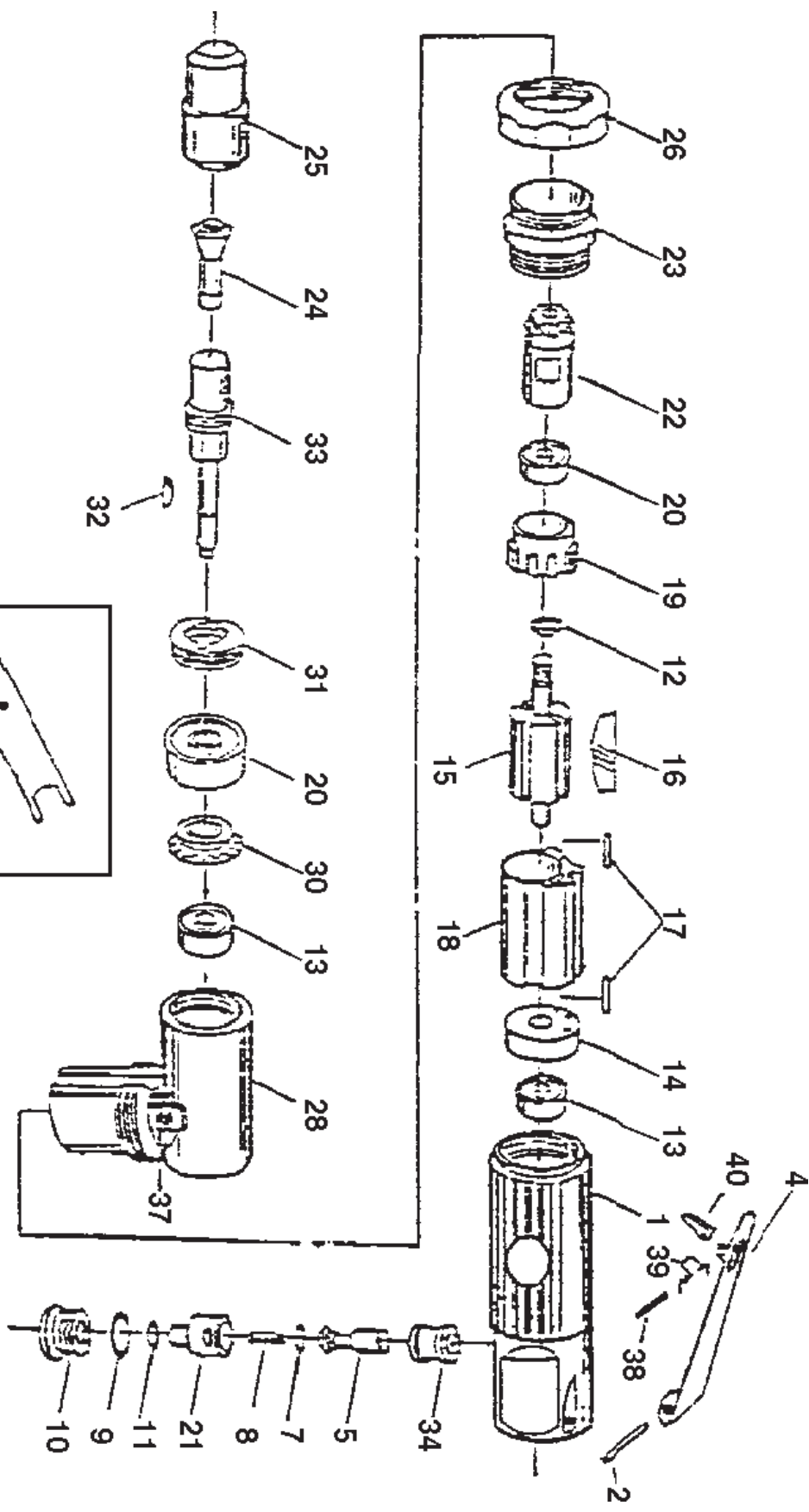
Part	Description	Q'ty
1	Housing	1
2	Pin	1
4	Trigger	1
5	Throttle Valve	1
7	O-ring	1
8	Valve Spring	1
9	O-ring	1
10	Inlet	1
11	O-ring	1
12	Rotor Brush	1
13	Ball Bearing	2
14	Rear End Plate	1
15	Rotor	1
16	Rotor Blade	4
17	Pin	2
18	Cylinder	1
19	Front End Plate	1
20	Ball Bearing	2

Part	Description	Q'ty
21	Air Regulator	1
22	Pinion Gear	1
23	Retainer	1
24	Collet (1/4")	1
25	Collet Nut	1
26	Housing Lock Ring	1
27	Spanner	2
28	Angle Head Housing	1
30	Spindle Gear	1
31	Clamp Nut	1
32	Key	1
33	Spindle	1
34	Bushing	1
37	Oil Cap	1
38	Spring	1
39	Safety Lever	1
40	Roll Pin	1

NOTE:

Some parts are listed and shown for illustration purposes only,
and are not available individually as replacement parts.

ASSEMBLY DIAGRAM



NOTE:
Some parts are listed and shown for illustration purposes only,
and are not available individually as replacement parts.

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