

# HENRY AIRTOOLS

AMERICAN MADE INDUSTRIAL  
TOOLS

## MODELS 12RA Series

### General Safety and Maintenance Manual



#### 0.3 H.P. RIGHT ANGLE GRINDER SERIES



#### CAPACITY

1/4" or 1/8" collet insert (1/4" is standard)

A Pneumatic right angle die grinder providing an excellent solution in tight spaces. It is an ideal choice for grinding, edge-breaking, deburring, porting and polishing applications.

#### 12 RA Series Angle Grinders

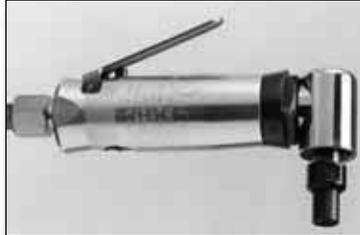
Model Number	Throttle Type	Exhaust Direction	Speed	Weight	Length	Diameter	Air Consumption
12 RA	Standard Lever	Front	18,000 or 20,000 R.P.M.	.94 lbs .42kg	5.600" 143mm	1.500" 38.1mm	19 cfm (4.7 L/S)
12 RAK	Lockout Lever						

**THE HENRY TOOL CO., MANUFACTURED BY HENRY TOOLS**

498 SO. BELVOIR BLVD., SOUTH EUCLID, OH 44121 U.S.A.

PH: (216) 291-1011 OR (800) 826-5257 • FAX: (216) 291-5949 OR (800) 303-2800

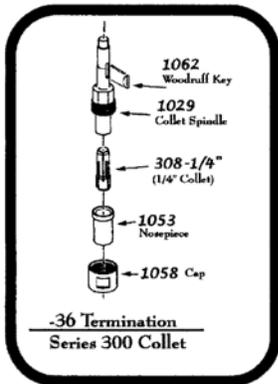
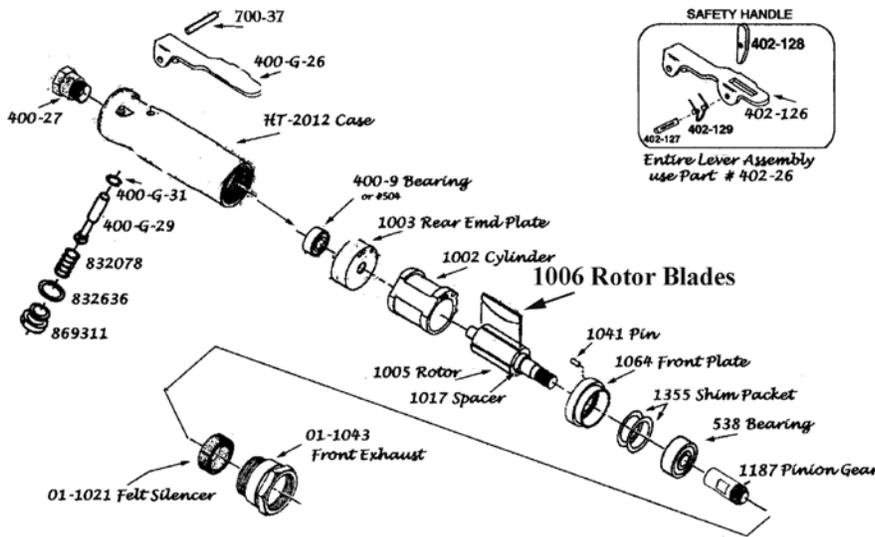
EMAIL: [DAVIIDH@MSN.COM](mailto:DAVIIDH@MSN.COM) • WEBSITE: [WWW.HENRYTOOLS.COM](http://WWW.HENRYTOOLS.COM)



Model 12 RA

# MODELS 12RA Series

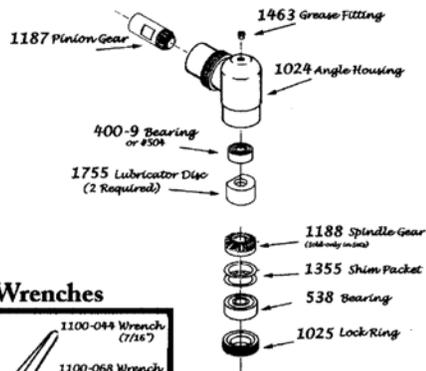
## MODEL 12 RA RIGHT ANGLE GRINDER SERIES



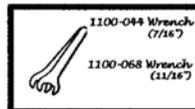
-36 Termination  
Series 300 Collet

COLLET INSERTS	
PART NO.	SIZE
308-1/4"	1/4"
308-1/8"	1/8"

### HEAD ASSEMBLY



### Wrenches



PART NO.	DESCRIPTION
538	Bearing
1002	Cylinder
1003	Rear end plate
1005	Rotor
1006	Rotor Blade
1017	Spacer
1024	Angle Housing
1025	Lock Ring
1029	Collet Spindle
1041	Pin
1053	Nose piece
1058	Cap
1062	Woodruff Key
1064	Front Plate
1187	Pinion Gear Set
1188	Spindle Gear
1355	Shim Packet
1463	Grease Fitting
1755	Lubricator Disc
832078	Spring
832636	Gasket
869311	Valve cap
01-1021	Felt Silencer
01-1043	Front Exhaust
1100-044	Wrench 7/16"
1100-068	Wrench 11/16"
308-1/4	1/4" Collet
308-1/8	1/8" Insert
400-27	screened bushing
400-9	Bearing
400-G-26	Lever
400-G-29	Valve Includes (O-Ring)
400-G-31	O-ring
700-37	pin
HT-2012	Case

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## General Operators Instructions and Service Manual



Model 12 RA

## MODELS 12RA Series

### ALWAYS COMPLY WITH:

General Industry Safety & Health Regulations, Part 1910, OSHA 2206, available from: Sup't of Documents; Government Printing Office; Washington DC 20402

Safety Code for Portable Air Tools, ANSI B186.1 available from: American National Standards Institute, inc.; 1430 Broadway; NewYork, NY 10018

State and Local regulations.

Portions of the above codes and regulations are listed below for quick reference.

**THESE EXCERPTS ARE NOT INTENDED TO BE ALL INCLUSIVE - STUDY AND COMPLY WITH ALL REGULATIONS!**

1. **TOOL INTENT** - Tools shall be used only for purposes intended in their design (refer to product catalog).
2. **AIR SUPPLY** - Test and operate tools at 90 PSIG maximum unless tool is marked otherwise. Use recommended airline filters-regulators-lubricators.
3. **UNUSUAL SOUND or VIBRATION** - If tool vibrates or produces an unusual sound, repair immediately for correction.
4. **OPERATOR PROTECTIVE EQUIPMENT** - Wear goggles or face shield at all times tool is in operation. Other protective clothing shall be worn, if necessary. SEE REGULATIONS.
5. **SAFETY MAINTENANCE PROGRAM** - Employ a safetype program to provide inspection and maintenance of all phases of tool operation and air supply equipment in accordance with "Safety Code for Portable Air Tools."

**WARNING:** The signal word "Warning" identifies all notes on safe work practices in this operating instruction, alerting to hazards for life and health of people. Observe these notes and proceed with special care in the cases described. Pass all safety instructions on to other operators. In addition to the safety instructions in this operating instruction, the general local safety and accident prevention rules must be observed.

### Important Notes

**CAUTION** The signal word "caution!" Identifies all portions of this operating instruction meriting special attention to ensure that guidelines, rules, hints and the correct work procedures are observed; and, to prevent damage to and destruction of the machine and/or parts. A recommended spare part (or set) for every five (5) tools. Small, low cost or easily lost parts should be stocked as 3-4 per 10 tools.

**WARNING:** Disconnect the air supply hose before servicing the tool.

### INSTALLATION

For most efficient operation, 90 psig (620 kPa) of clean dry air is required at the tool with the tool running, with-out extreme fluctuation. Minimum recommended hose size is 3/8" I. D. When the length of the hose is eight feet or less. An air line filter and lubricator, should be used. Hose should be blown out before attaching to the tool.

### Loss of Power

A loss of power may not be related to the tool. First, check the air line pressure. It should be 90 psi at the tool while operating.

### LUBRICATION

Lubricate the motor with an air line lubricator, using a light air motor oil. Adjust the lubricator to dispense one drop per cycle or three drops per minute.

**CAUTION:** Do not use substitutes for oil and grease. This could result in damage to the tool.

### MAINTENANCE

1. Proper and continuous lubrication.
2. Blow out air hose to assure a clean air supply.
3. Be sure the air filter and line lubricator are clean.
4. Fill the line lubricator before operation.

5. Place a few drops of oil into the air inlet of the tool before attaching the air line.
6. Use moisture separators to remove water from the air line.
7. **CAUTION:** Do not use solvent on bearings or on any parts made of a synthetic material.
8. Do not remove bearings unless replacement is necessary; bearings are a press fit.

### DISASSEMBLY INSTRUCTIONS

Grasp the housing (HT-2012) on the flats vertically in a vise. Loosen and unscrew the angle head assembly from the tool. To remove the motor, loosen and unscrew the lock ring (01-1043) and pull the motor out. To disassemble the motor, remove the Rear Plate (part #1003) and bearing by pressing on the rear of the rotor with an arbor press.

Unthread the Pinion (part #1066 or #1187) by holding the rotor in soft, smooth vise jaws. The Front Plate (part #1064) with ball bearing can now be pressed off. Be careful not to lose the spacer on the rotor.

### Disassembly of angle head:

Remove the Lock Ring (part #1025) and pull out the spindle assembly. Disassemble the spindle assembly by removing the top Ball Bearing (part #400-9) and Lubricator Disc (part #1755).

Press off the Spindle Gear (part #1188). After the Woodruff Key (part #1062) is removed, the lower Ball bearing (part #538) can be pressed off. NOTE: The gear and key must be removed before the ball bearing can be removed.

### ASSEMBLY INSTRUCTIONS MOTOR

Make sure all parts are clean. Press Pins (part #1041) -(if necessary) - into the motor end plates. To correct for bearing tolerances, it is necessary to use shims to maintain correct clearances between the ends of the rotor and the bearing plates. Shim Packet (part #1355) contains a 0.001" shim and two 0.002" shims. Insert a 0.002" Shim in the Front Bearing Plate's pocket and install #538 Ball Bearing into the Front Plate. Slip Spacer, part #1017, onto the threaded end of the Rotor. Support the rotor on the rear end and assemble the front plate assembly onto the rotor by pressing on the bearing's inner race.

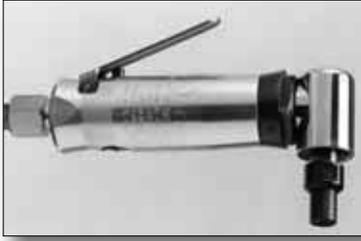
Thread the Pinion Gear (part #1187) onto the rotor tightly by holding the rotor in a soft jawed vise.

Now, hold the rotor in the left hand and the front end plate by the right hand. Apply an outward (pulling) pressure and observe the spacing between the end of the rotor and the bearing plate. This should be from flush, not rubbing, to 0.002" maximum. If the rotor rubs the bearing plate, reduce the spacing between the bearing and bearing plate by removing the 0.002" shim entirely, or by substituting the 0.001" shim for the 0.002" shim. However, if there was more than 0.002" spacing between the end of the rotor and the bearing plate, then add a 0.001" shim between the bearing and bearing plate.

Replace Cylinder, part #1002. NOTE: be sure that the cylinder is not on backwards!

The air inlet in the cylinder must line up with the air inlet in the rear plate when the plate's pin is engaged in the mating slot in the cylinder. Insert the rotor blades into the rotor. Support this assembly on the face of the pinion. Assemble Rear Ball Bearing (part #400-9) into Rear Bearing Plate (part #1003) by pressing only on Bearing's outer race. Then, press the Rear Bearing Plate/Bearing Assembly onto the

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**Model 12 RA**

## **MODELS 12RA Series**

### **Assembly (continued)**

rotor by pressing on bearing's inner race only. Press just enough to bring the bearing plate against the cylinder. There should be a slight drag between the bearing plate and the cylinder when these are moved with the fingers. Position the cylinder until the motor turns finger-free. Insert motor into housing and screw in the Lock Ring until tight. Check the assembly by spinning the pinion; it must be free.

#### **ANGLE HEAD**

When assembling Spindle, slip Lock Ring (part #1025) onto spindle as far as possible, spanner slots towards threads. With the lock ring in position, press Bearing (part #538) against spindle's shoulder. Be sure to press only on inner race of bearing. Insert Key (part #1062) in slot of shaft. Align keyway of gear with key and press gear onto shaft until it seats on inner race of bearing only. Place Lubricator Disc (part #1755) onto spindle. Check orientation of Lube Disc: be sure flat side is facing towards pinion when assembled in angle housing. Complete the assembly by threading in Lock Ring (part #1025) until tight.

#### **Shimming of Angle Head Gearing:**

There should be a "backlash" of 0.002" to 0.003" between the two angle head gears.

After the angle head and motor have been assembled and before any lubricant has been applied to the gears, slowly rotate the angle head spindle back-and-forth a few degrees with the fingers checking for backlash.

If the gears are in mesh but no backlash is felt, remove angle head from the motor assembly. Remove angle head's spindle assembly and place a 0.002" shim against the bearing shoulder in the housing and reassemble, taking care to keep the shim flat on shoulder of housing.

Reassemble and again follow above procedure. If there is still not sufficient backlash, add another shim.

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