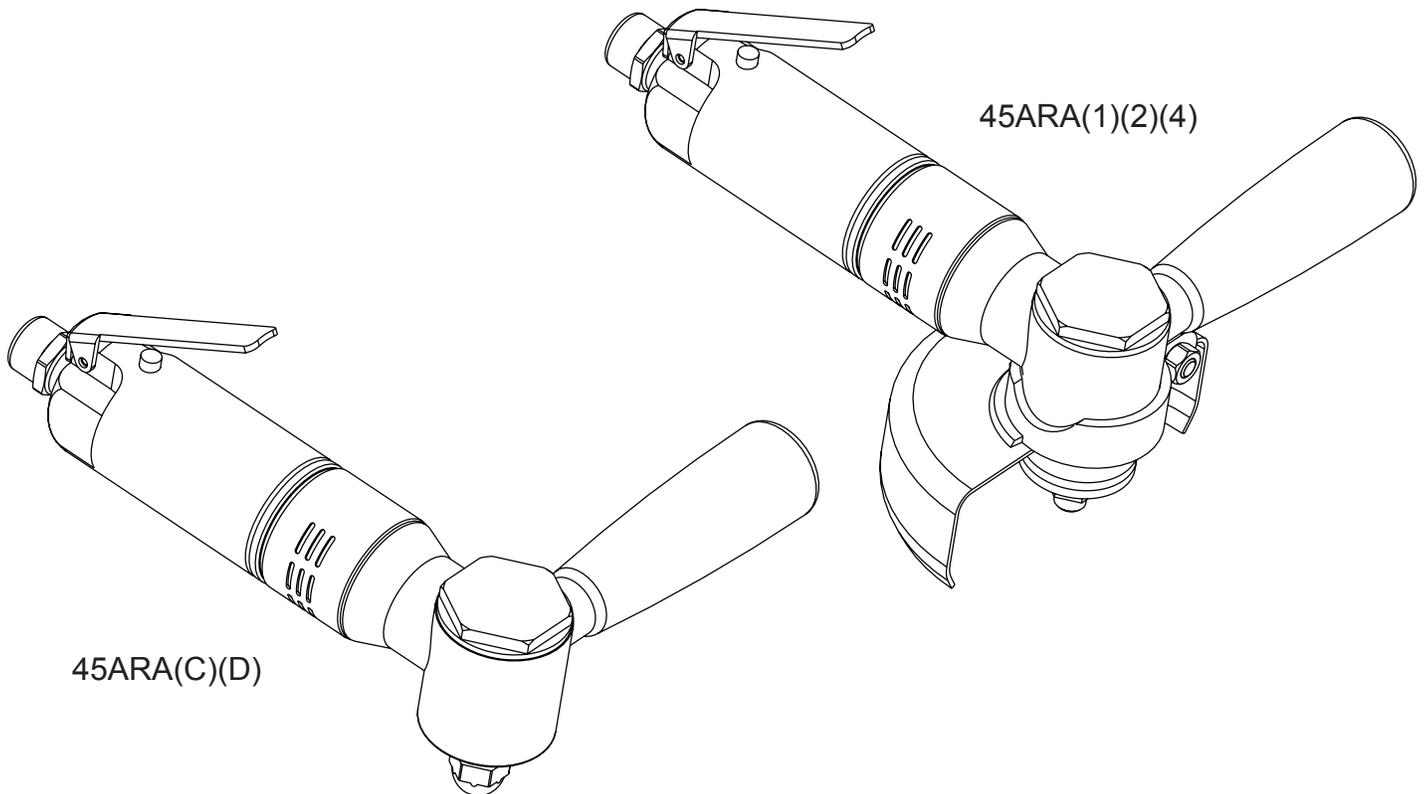
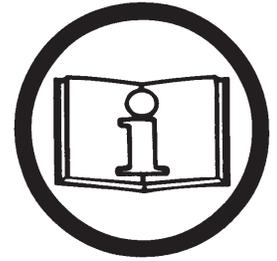




General Operators Instructions and Maintenance Manual



Read Safety Recommendations Before Operating Tool

45ARA Series Right Angle Grinders												
Model Number	Exhaust Direction	Throttle Type	Rated Speed	Power Output	Case Material	Weight		Overall Length	Housing Diameter	Working Air Consumption	Spindle Thread & Length/Output	Wheel Capacity
						Aluminum	Steel					
45ARA1	Front or Side	(L) Lever or (K) Safety Lever	12000 to 14000 R.P.M.	0.9 H.P. (675 W)	Steel or Aluminum	2.8 Lbs (1.3 Kg)	3.5 Lbs (1.6 Kg)	7.4 Inches (188 mm)	1.6 Inches (41 mm)	25 CFM (11.8 L/S)	3/8-24 x 0.58 Inch (15mm)	2 Inch (50mm), 3 Inch (75mm), 4 inch (100mm), 4 1/2 inch (114mm), 5 inch (125mm) or 6 Inch (150mm) Type 1 or Type 27 Wheels
45ARA2								5/8-11 x 0.98 Inch (25mm)				
45ARA4						3/8-24 x 0.98 Inch (25mm)						
45ARAC						1/4 Inch Built-In Collet	1/4 Inch Burrs/Mounted Points					
45ARAD	Changeable Insert Collet	Burrs/M.P. of Size Matching the Insert										

Operators Instructions and Safety Precautions

This is meant to highlight sections of safety standards published by the American National Standards Institute and the Occupational Safety and Health Administration. This is not meant to replace those standards but only highlight certain areas.

When care is taken to ensure that the right tool is operated properly, and safety and maintenance procedures are followed, accidents can be avoided. Read and follow all instructions and directions. Comply with all rules governing the use of power tools, personal protective equipment and equipment guards.

Remember - machines, attachments and accessories must be used only for the purpose for which they were designed. Safety reasons and product liability prohibit any modifications to tools. Any attachments or accessories must be agreed to in advance with an authorized technical representative of T.C. Service Co.



The grinding equipment must be approved for the rated speed of the machine. The rated speed, marked on the machine, should not be exceeded. Be sure to learn the proper handling and storage of abrasive wheels and inserted tooling.

Inspect the wheel guard for any signs of wear and that it is properly mounted to the tool. Any guard showing signs of wear such as bends, chips, nicks, or cracks should be replaced.



Check hose size and air pressure. The air pressure at the tool shall not exceed 90 psi (6.2 bar). All hoses should be inspected regularly and kept away from heat, oil and sharp edges. Be sure the tool is secured to the air hose.

Measure the speed of grinders every 20 hours of actual use or once per week, whichever comes first.

Measure speed of all types of grinders after maintenance or repair, whenever a grinder is issued from the tool crib and at each wheel change. Several readings should be taken.

This form of inspection should be made with the grinding wheel removed.



Always wear eye and hearing protection, and when necessary, other personal protective equipment such as gloves, an apron, and helmet.



Airborne particulate resulting from the grinding process can cause hazards. Wear appropriate protective equipment.



Proper mounting of grinding wheels and inserted tooling is crucial to safe operation and efficient working conditions. Ensure the exhaust air is directed away from bystanders.



Disconnect the tool from the air supply before doing any service. This prevents accidental start-ups. Do not disassemble or adjust the governor. The governor is guaranteed for the life of the tool, if not abused.

Safety in Operation

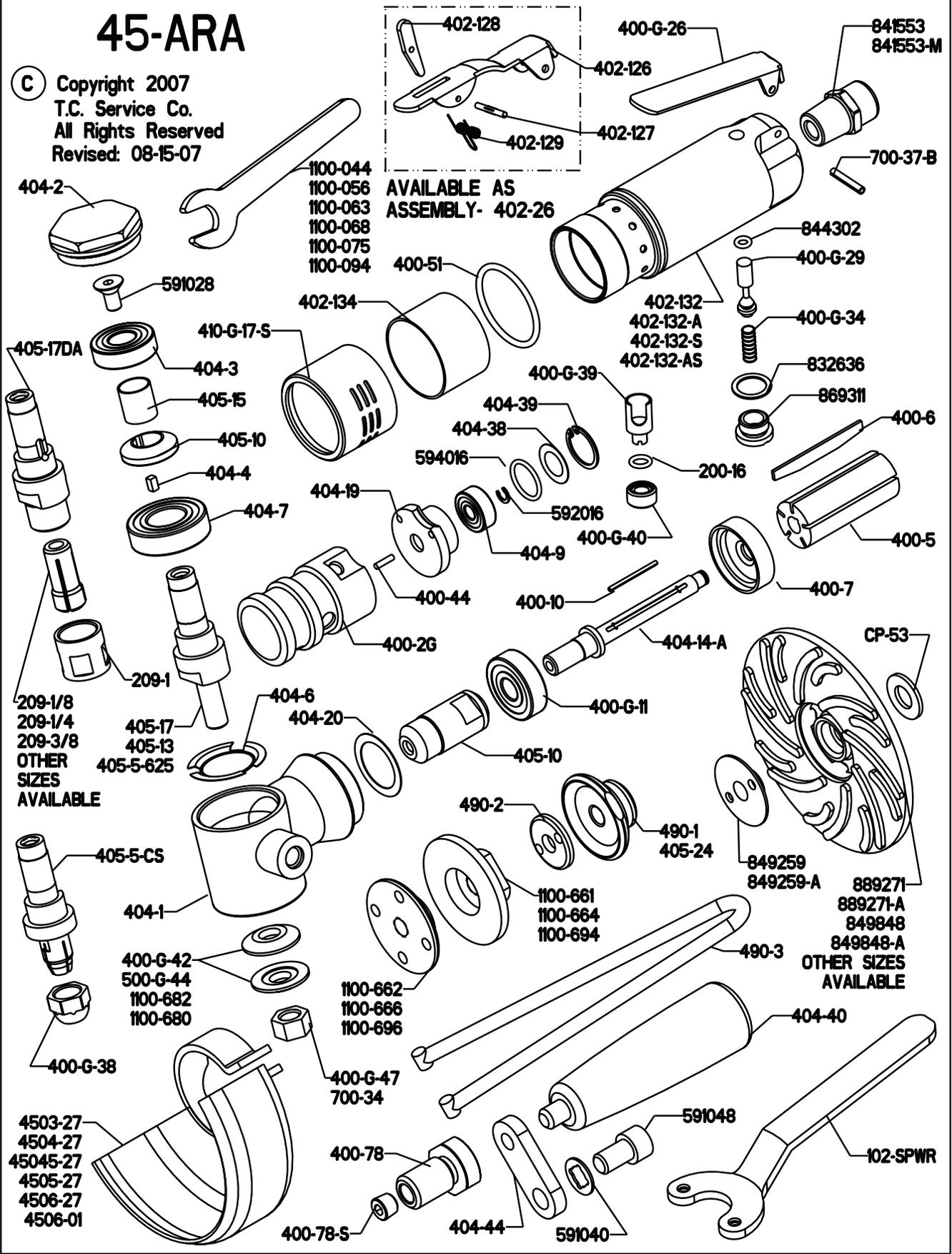
The safety procedures for operating air tools are everyone's responsibility. The following lists several aspects of air tool safety that should be considered during operation. Please be aware of these aspects and report any unsafe practice you see to a supervisor or safety officer immediately.

- 1) Start any new wheel under a bench and away from bystanders. (Run for a minimum of one minute.)
- 2) When starting a cold/new wheel, apply to the work slowly, allowing the wheel to warm gradually.
- 3) Support the work piece properly.
- 4) When cutting off, support the work piece so that a jamming of the wheel does not occur. (A Slot shall remain constant or become wider during operation.)
- 5) If a jamming of the wheel does occur during a cutting off operation, shut the air supply off to the tool and ease the wheel free. (Inspect the wheel for damage before continuing operation.)
- 6) Ensure that sparks from the process do not create a hazard to the eyes or will ignite the environment.
- 7) Grinders shall not be used in potentially explosive atmospheres.
- 8) Pneumatically driven tools are not generally insulated from coming in contact with electrical sources. Be sure to avoid contact with wires or other possible current carrying sources.
- 9) The operator must check that no bystanders are in the vicinity.
- 10) Remember that there is a running on after the throttle has been released.
- 11) If a grinder fitted with an abrasive wheel is dropped, the wheel must be thoroughly examined before re-use.
- 12) Disconnect the tool from the air source before servicing and changing wheels.
- 13) Release the control device in case of interruption of air supply.
- 14) Always keep the tool in a clean, dry place when not in use.
- 15) Beware of loose hair and clothing so as not to become tangled or trapped during operation.
- 16) The inserted tool on heavy types of percussive non-rotary tools is exposed to heavy strains and can after long periods of use break due to fatigue.
- 17) Unexpected tool movement or breakage of inserted tooling may cause injuries to lower limbs.
- 18) Unsuitable postures may not allow counteracting of normal or unexpected movement of a power tool. (A working position shall be adopted which remains stable in the event of a break up of inserted tooling.)
- 19) Do not hold the tool near the body when operating.
- 20) Keep a firm grip on the tool body during operation.

Maintenance

45-ARA

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AVAILABLE AS
ASSEMBLY- 402-26

209-1/8
209-1/4
209-3/8
OTHER
SIZES
AVAILABLE

889271
889271-A
849848
849848-A
OTHER SIZES
AVAILABLE

Disassemble

1. Disconnect the tool from air supply and remove all wheels and accessories.
2. Secure the tool in vise vertically with the angle head (404-1) toward downward direction. Clamp lightly onto dead handle boss on the side of angle head.
3. Use a wrench on the flats of the motor housing (402-132[A][S][AS]) to unscrew from the right angle head. Lift motor from angle head or lift out from case. (This depends upon how it came apart.) Remove from vise.
4. Lift off exhaust deflector (410-G-17S), o-ring (400-51) and exhaust screen (402-134) from motor housing.
5. Remove shim (404-20).

The Motor Assembly

6. Remove snap ring (404-39) from rear of assembly with use of snap ring pliers.
7. Lift out bearing cover (404-38) and o-ring (594016).
8. Slide snap ring (592016) out of groove in spindle (404-14A) with snap ring pliers.
9. Install brass jaws on vise. Secure motor assembly in vise vertically with pinion gear (404-10) in downward direction. Clamp onto the outside diameter of cylinder (400-2G) and end plate (404-19) firmly.
10. Using a 3/16" punch, tap spindle out of rear bearing (404-9). (Take care not to drop the motor assembly when it becomes free.) Remove from vise.
11. Push the rear bearing out of the rear end plate with use of a small screwdriver.
12. Slide the rotor (400-5) and blades (400-6) from the front motor assembly.
13. Clamp spindle holder (1100-638) in vise vertically. With the key (400-10) still in spindle, slide the motor assembly in holder with pinion gear toward upward direction.
14. Unscrew and remove pinion gear. Remove from vise.
15. Remove key and front endplate (400-7) from spindle.
16. Support spindle assembly vertically on a suitable drill block. Press bearing (400-G-11) off of spindle.

The Angle Head

17. Secure angle head in vise with angle head cap (404-2) toward upward direction. Clamp lightly onto the dead handle boss.
18. Unscrew angle head cap with use of a wrench.
19. Push the spindle assembly out of the angle head. Lift out the spring (404-6). Remove from vise.
20. Secure spindle assembly into vise vertically with output toward downward direction. Clamp onto the flats of the right angle spindle (405-17).
21. Unscrew and remove screw (591028) from end of spindle. Remove from vise.
22. Support the spindle assembly vertically on a suitable drill block supporting under the rear bearing (404-3).
23. Press spindle out of rear bearing.
24. Slide the gear spacer (405-15) off rear of spindle.
25. Support the spindle assembly vertically on a suitable drill block. Press spindle through ring gear (405-10). Grasp key (404-4) and remove from key slot.
26. Support the spindle assembly vertically on a suitable drill block. Press spindle through front bearing (404-7).

To check the throttle valve, secure the motor housing horizontally in a vise. Clamp lightly onto the flats of the housing. Unscrew and remove the throttle valve cap (869311). Lift out throttle valve spring (400-G-34) and throttle valve (400-G-29). Replace o-ring (844302) if worn or torn.

Assembly

1. Be sure the all parts are clean and free of any abrasive.

The Motor Assembly

2. Support front bearing (400-G-11) on a suitable drill block. Press the motor spindle (404-14A) through bearing until it bottoms on the shoulder.
3. Slide front endplate (400-7) over spindle and onto front bearing.
4. Place key (400-10) in keyway of spindle.
5. Clamp spindle holder (1100-638) in vise vertically. Slip spindle assembly into holder with threaded end toward upward direction.
6. Thread pinion gear (405-10) on spindle and tighten with a wrench. Remove assembly from vise and holder.
7. Support spindle assembly vertically with pinion gear in downward direction.
8. Slide rotor (400-5) over spindle.
9. Place 5 blades (400-6) into slots of rotor.
10. Slip cylinder (400-2G) over rotor. The locating pin should point away from pinion gear.
11. Install rear endplate (404-19) onto top of cylinder. Locate cylinder pin into smaller hole of rear endplate.
12. Place bearing (404-9) in rear endplate and tap in place with bearing driver (1100-806).
13. Install snap ring (592016) in spindle groove with use of a small screwdriver.
14. Place o-ring (594016) and bearing cover (404-38) into rear endplate.
15. Install snap ring (404-39) into groove of rear endplate with use of snap ring pliers.

The Angle Head

16. Support the bearing (404-7) on a suitable drill block.
17. Press the spindle (405-17) through bearing until it bottoms on shoulder.
18. Install the key (404-4) into the key slot of the spindle.
19. Place the ring gear (405-10) over the spindle and key. Align the key with the keyway of ring gear.
20. Support the spindle assembly vertically on a suitable drill block with output toward downward direction.
21. Press the ring gear over the key and up to front bearing. (Take care not to damage the teeth of the gear.)

22. Slide spacer (405-15) onto spindle.
23. Support the spindle assembly vertically on a suitable drill block with output toward downward direction.
24. Press the rear bearing (404-3) onto end of spindle.
25. Secure spindle assembly into vise vertically with output toward downward direction. Clamp onto the flats of the right angle spindle (405-17).
26. Screw in and tighten screw (591028) into end of spindle. Remove from vise.
27. Grease gear teeth.
28. Install spring washers (404-6) in angle head (404-1).
29. Slide the spindle assembly into angle head.
30. Secure angle head in vise with output toward downward direction. Clamp lightly onto the dead handle boss.
31. Screw on and tighten angle head cap (404-2) with use of a wrench.

Final Assembly

33. Secure angle head assembly in vise with motor opening toward upward direction. Clamp lightly onto the dead handle boss.
34. Replace shim (404-20) into seat.
35. Install motor assembly onto angle head. Jiggle assembly until gears align. Turning the output spindle will aid gear mesh.
36. Tap lightly on rear of motor to insure that it is fully seated.
37. Install o-ring (400-51), exhaust screen (402-134) and exhaust deflector (410-G-17S) onto motor housing (402-132[A][S][AS]).
38. Slide motor housing over motor assembly and tighten onto threads of right angle head.
39. Tighten with use of wrench on the flats of the motor housing. Remove from vise.
40. Replace guard on tool.

Check RPM with a reliable tachometer. Tool must run at or below speed stamped on tool.

Tool Parts Listing

<u>PART</u>	<u>DESCRIPTION</u>	<u>PART</u>	<u>DESCRIPTION</u>
200-16	O-RING	402-132-AS	ADJUSTABLE STEEL CASE (SPECIFY SPEED)
209-1	COLLET NUT	402-132-FT	ALUMINUM FLOW THRU CASE (SPECIFY SPEED)
209-1/8	1/8" INSERT	402-132-S	STEEL CASE (SPECIFY SPEED)
209-3/16	3/16" INSERT	402-132-S-FT	STEEL FLOW THRU CASE (SPECIFY SPEED)
209-1/4	1/4" INSERT	402-134	MUFFLER
209-5/16	5/16" INSERT	404-1	ANGLE HEAD
209-3/8	3/8" INSERT	404-2	BEARING CAP
209-3MM	3MM INSERT	404-3	UPPER OUTPUT SPINDLE BEARING
209-6MM	6MM INSERT	404-4	KEY
209-8MM	8MM INSERT	404-6	FINGER WASHER
400-G-11	FRONT BEARING	404-7	LOWER OUTPUT SPINDLE BEARING
400-G-11A	SEALED FRONT BEARING	404-9	REAR MOTOR BEARING
400-G-26	THROTTLE LEVER	404-9A	SEALED REAR BEARING
400-G-29	THROTTLE VALVE-INCLUDES 844302	404-14A	SPINDLE
400-G-34	SPRING	404-19	REAR ENDPLATE
400-G-38	COLLET NUT	404-20	MOTOR SPACER
400-G-39	REGULATOR	404-38	BEARING COVER
400-G-40	REGULATOR LOCK	404-39	SNAP RING
400-G-42	3/8-24 FLANGE (2"-3" WHEELS)	404-40	DEAD HANDLE
400-G-47	3/8-24 JAM NUT	404-44	DEAD HANDLE OFFSET
400-2G	CYLINDER	405-5-625	5/8-11 X .980 OUTPUT SPINDLE
400-2GC	CHROME CYLINDER	405-10	GEAR SET
400-5	ROTOR	405-13	3/8-24 X .580 OUTPUT SPINDLE
400-6	BLADE (5 REQ.)	405-15	GEAR SPACER SLEEVE
400-7	FRONT ENDPLATE	405-17	3/8-24 X .980 OUTPUT SPINDLE
400-10	KEY	405-17-CS	COLLET OUTPUT SPINDLE
400-44	ROLL PIN	405-17-DA	ERICKSON COLLET SPINDLE
400-51	O-RING	410-G-17F-S	STEEL FRONT EXHAUST SLEEVE
402-126	SAFETY LEVER	410-G-17-S	STEEL SIDE EXHAUST SLEEVE
402-127	SAFETY LEVER PIN	500-G-44	3/8 ID FLANGE (4"-5" WHEELS)
402-128	LOCKOUT LEVER	700-34	5/8-11 JAM NUT
402-129	SAFETY LEVER SPRING		
402-132	ALUMINUM CASE (SPECIFY SPEED)		
402-132-A	ADJUSTABLE ALUMINUM CASE (SPECIFY SPEED)		

<u>PART</u>	<u>DESCRIPTION</u>
700-37B	THROTTLE LEVER PIN
1100-680	5/8 I.D. FLANGE (6" OR SMALLER WHEELS)
1100-682	3/8 I.D. FLANGE (6" OR SMALLER WHEELS)
591028	SCREW
591040	WASHER
591048	SCREW
592016	SNAP RING
594016	O-RING
832636	GASKET
841552	3/8 NPT TO 3/8 NPT BUSHING
841553	3/8 NPT TO 1/4 NPT BUSHING
841553-M	3/8 NPT TO 3/8 BSP BUSHING
844302	O-RING
869311	THROTTLE VALVE CAP
GUARDS	
<u>PART</u>	<u>DESCRIPTION</u>
4503-27	3" TYPE 27 GUARD
4504-27	4" TYPE 27 GUARD
45045-27	4-1/2" TYPE 27 GUARD
4505-27	5" TYPE 27 GUARD
4506-41	6" TYPE 41 GUARD
4506-CF	6" CLOSED FACE GUARD
TOOLS	
<u>PART</u>	<u>DESCRIPTION</u>
490-3	PIN SPANNER
102-SPWR	WRENCH FOR SANDING PAD NUT
1100-044	7/16" WRENCH
1100-050	1/2" WRENCH
1100-056	9/16" WRENCH
1100-063	5/8" WRENCH
1100-068	11/16" WRENCH
1100-075	3/4" WRENCH
1100-094	15/16" WRENCH
1100-638	SPINDLE HOLDER
1100-806	404-9 BEARING DRIVER
1100-814	400-G-11 BEARING DRIVER
541134	REGULATOR LOCK WRENCH

ASSEMBLIES

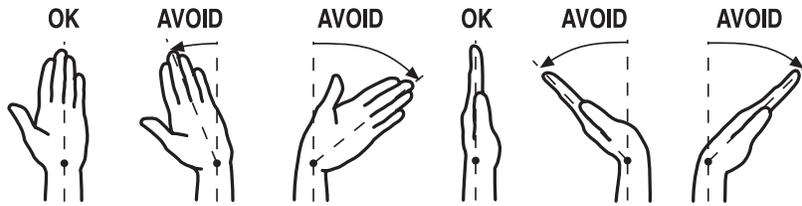
<u>PART</u>	<u>DESCRIPTION</u>
510076	REPAIR KIT
402-26	SAFETY LEVER ASSY.
AA-402-132	ALUMINUM CASE ASSY.
AA-402-132-A	ADJUSTABLE ALUMINUM CASE ASSY.
AA-402-132-AK	ADJ. ALUMINUM SAFETY CASE ASSY.
AA-402-132-AS	ADJUSTABLE STEEL CASE ASSY.
AA-402-132-ASK	ADJ. STEEL SAFETY CASE ASSY.
AA-402-132-K	ALUMINUM SAFETY CASE ASSY.
AA-402-132-S	STEEL CASE ASSY.
AA-402-132-SK	STEEL SAFETY CASE ASSY.
	SPECIFY SPEED FOR CASE ASSY.

ACCESSORIES

<u>PART</u>	<u>DESCRIPTION</u>
CP-53	WASHER
300-16	1/8" COLLET ADAPTER
300-16-3/32	1/4" TO 3/32" COLLET ADAPTER
400-78	3/8-24 TO 5/8-11 ADAPTER
400-78-S	3/8-24 x 1/4 SET SCREW
405-24	BACKING PLATE FOR 490-KR
490-K	3/8-24 X .980 TYPE 27 ADAPTER ASSY.
490-KR	3/8-24 X .580 TYPE 27 ADAPTER ASSY.
490-1	BACKING PLATE FOR 490-K
490-2	NUT FOR 490-K & 490-KR
1100-660	3/8-24 TO 5/8 I.D. TYPE 27 ADAPTER ASSY.
1100-661	3/8-24 TO 5/8 I.D. BACKING PLATE
1100-662	3/8-24 TO 5/8 I.D. ADAPTER NUT
1100-664	3/8-24 TO 7/8 I.D. BACKING PLATE
1100-666	3/8-24 TO 7/8 I.D. ADAPTER NUT
1100-668	3/8-24 TO 7/8 I.D. TYPE 27 ADAPTER ASSY.
1100-692	5/8-11 TO 7/8 I.D. TYPE 27 ADAPTER ASSY.
1100-694	5/8-11 TO 7/8 I.D. BACKING PLATE
1100-696	5/8-11 TO 7/8 I.D. ADAPTER NUT
849259	5/8-11 SANDING PAD NUT
849259-A	3/8-24 SANDING PAD NUT
889271	5/8-11 4" SANDING PAD (MAX 12000 RPM)
889271-A	3/8-24 4" SANDING PAD (MAX 12000 RPM)
849848	5/8-11 5" SANDING PAD (MAX 10000 RPM)
849848-A	3/8-24 5" SANDING PAD (MAX 10000 RPM)
849848-R	5/8-11 5" RIGID SANDING PAD (MAX 10000 RPM)
849850	5/8-11 6" SANDING PAD (MAX 8500 RPM)
849913	5/8-11 7" SANDING PAD (MAX 8500 RPM)
849914	5/8-11 9" SANDING PAD (MAX 6500 RPM)
530196	1/8" ROUNDED TAPER BURR
530198	1/8" TAPER BURR
530200	1/8" FLAME BURR
530202	1/8" BALL BURR
530204	1/8" CYLINDRICAL BURR
530208	1/4" BALL BURR
530210	1/4" CYLINDRICAL BURR
530212	1/4" TREE BURR
530214	1/4" FLAME BURR

OTHER SIZE BURRS AVAILABLE

Ergonomics - Work Healthy



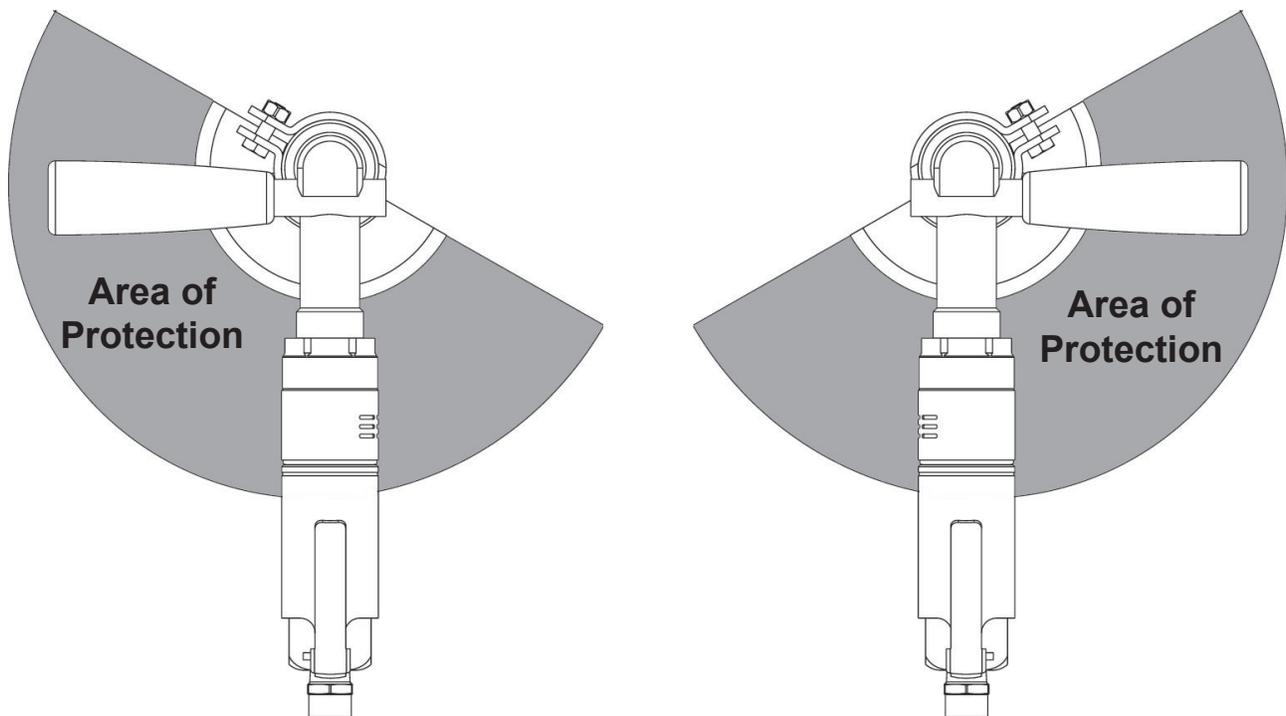
The following suggestions will help reduce or moderate the effects of repetitive work motion and/or extended vibration exposure:

- 1) Do not over-grip the machine/tool. Use only the force required to maintain control.
- 2) Keep hands and body dry and warm. (Blood flow is important - exercise hands and arms as often as necessary.)
- 3) Keep wrists as straight as possible. (Avoid hand positions that require the wrist to be flexed, hyper extended or turned side-to-side.)
- 4) Avoid anything that may inhibit blood circulation such as smoking tobacco or cold temperatures.
- 5) Do not support body-weight on the tool during operation.
- 6) Maintain a stress-free posture for the entire body.

Prolonged exposure to vibrations created by vibrating sources may cause health hazards. There are gloves, handle wraps and other forms of protective measures available to help reduce the hazard. The fit and condition of any vibration abatement measure must be monitored.

Guarding

Always make sure the wheel guard is positioned between the operator and the wheel. Flying debris from the workpiece and/or the wheel can cause a hazard. The guard should be positioned so to deflect debris from the grinding surface away from the operator. The diagram below details the proper positioning of the guard to protect any handles the operator might grip and the area where the operator stands.



Installation and Maintenance Tips

Following the guidelines will help you to ensure the pneumatic tools your company uses are operating and are maintained in the very best of condition.

Initial Inspection of a New Tool

When a new tool is delivered to your facility, it is important to inspect the tool for any signs of damage that may have occurred during shipping. Here is a list of things to inspect:

- With the tool disconnected from the air supply, depress the throttle lever or trigger. The device should move freely and not become caught.
- Inspect the guard of the tool, if so equipped. The guard should be free of any chips, nicks or dents.
- Inspect the spindle of the tool. The threads should show no signs of bends or chips. Grasp the spindle by hand and spin. The spindle should turn freely with no resistance.

Plumbing Installation

The tool must have fittings and connectors installed into the air inlet in order to connect with your company's air system. Your choice of fittings can greatly affect the performance of the tool.

Fitting Size

The size of the air inlet of the tool is the minimum size of fitting that will allow for proper airflow into the tool. Should a smaller fitting size be used such as reducers or adapters, this will constrict the airflow into the tool and reduce the overall performance.

Coupling Size and Installation

The coupling size should be equal to or larger than the inlet size of the tool. If a smaller size coupling is used then the air supply volume may be reduced which may lead to reduced performance from the tool.

The coupling should be installed near to the tool. It is important that the tool receive internal lubrication on a regular basis. Having the connection closer to the tool will promote regular lubrication, as the connection is easily accessible. Hose whips are often used between the tool and the coupling.

Use thread sealant on all pipe threads and ensure a tight fit.

Operating Speed Test

After your initial inspection and installation of the plumbing connections, it is important to test for the operating speed of the tool. This test should be performed before you install any abrasive or tooling. Each tool is stamped with a maximum operating speed. This speed determines the highest rotational speed in R.P.M.'s that the tool will turn when it is functioning properly. This speed was set from the factory and is closely related to the operating speed of the abrasive used with the tool. This relationship will be discussed in the "mounting abrasives" section.

Find the maximum operating speed stamped onto the tool. Connect the tool to an air supply that provides 90 psi and secure the tool in a vise. A lower or higher air pressure will result in a false speed test and may create a hazardous situation. Depress the throttle lever or trigger and run the tool. Use a properly calibrated tachometer to determine the actual operating speed of the tool. The actual operating speed on the tachometer should not exceed 95% of the maximum free speed stamped on the tool. If this is not the case then contact the distributor or tool manufacturer immediately. The tool must not be put into service if the actual speed is over 95% of the stamped maximum speed.

Example: Tool rated at 11000 R.P.M.

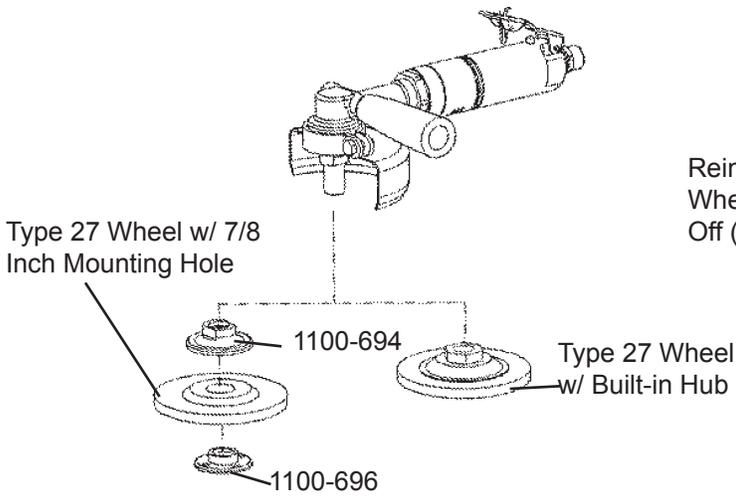
$$95\% \text{ of } 11000 \text{ (.95} \times 11000) = 10450$$

The tool should not exceed 10450 R.P.M. when tested with a tachometer.

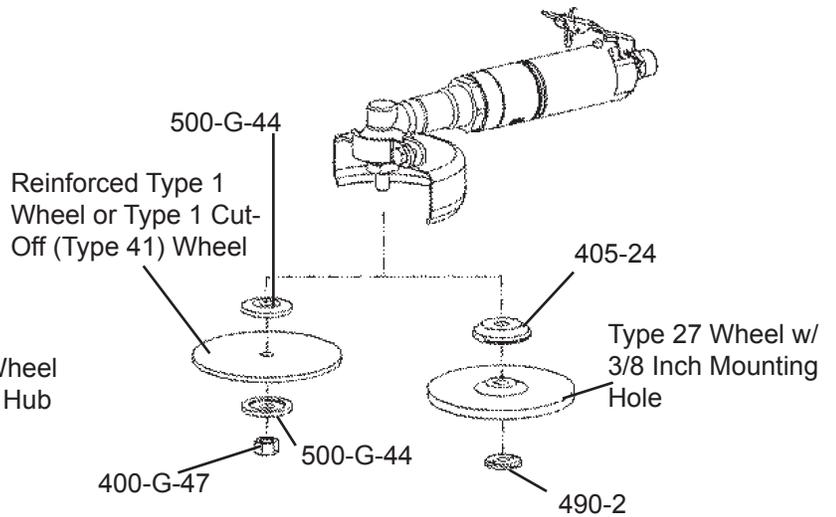
Mounting Abrasives

The mounting of the abrasive used with the tool is very important to ensure safety for the operator and proper functioning of the tool. There are strict rules for mounting wheels that are outlined in ANSI B7.1-2000. The following diagrams briefly describe the methods and equipment for mounting most abrasives.

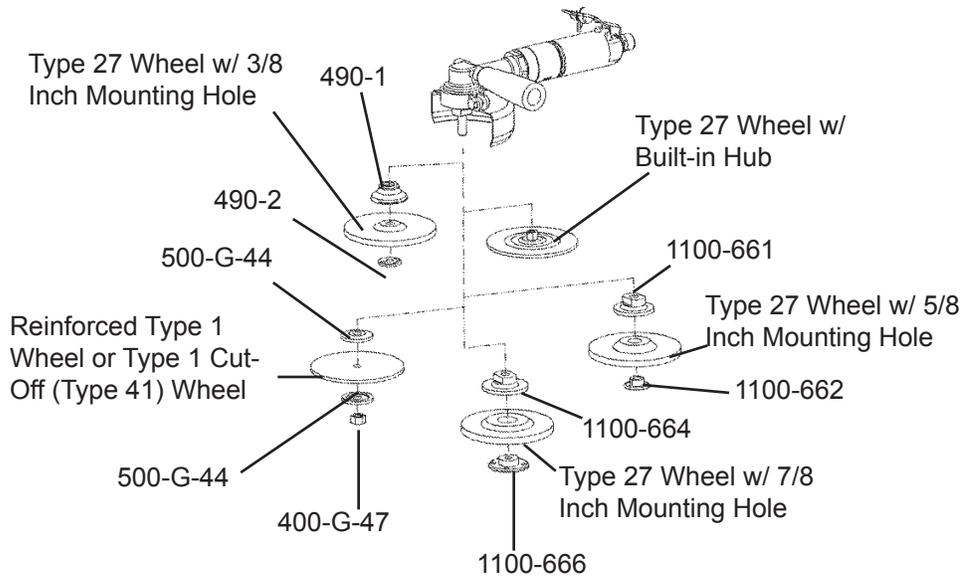
Right Angle Grinder
w/ 5/8-11 x 0.980
Output Spindle



Right Angle Grinder
w/ 3/8-24 x 0.580
Output Spindle



Right Angle Grinder
w/ 3/8-24 x 0.980
Output Spindle



Each wheel is labeled with a maximum operating speed. It is extremely important to compare this rating with the maximum operating speed of the tool. Never mount a wheel on a tool where the maximum operating speed of the tool is higher than the maximum operating speed of the wheel. This can cause an over speed situation and can result in injury.

The following list details specific items one should inspect and be aware of when mounting abrasives.

- The maximum operating speed marked on the wheel must be equal to or higher than the rated spindle speed (free speed) of the tool.
- Check the wheel dimensions so that it fits within the guard properly.
- Do not use any wheel that shows cracks, chips or evidence it has been soaked in fluids.
- Wheel flanges should have flat contact surfaces and be without cracks or burrs.

Testing and Mounted Wheel

Start any new grinder with a new wheel under a bench and away from any bystanders. Run at full speed for one minute.

Ensure Proper Pressure, Filtration & Lubrication

Properly lubricated pneumatic tools work better, last longer between maintenance intervals and are safer in general use. The maintenance costs are reduced dramatically when a little time is taken to regularly lubricate the tools. There are several ways to ensure proper lubrication.

1) Filters, Regulators & Lubricators

These devices should be installed in the air system at each grinding station and inspected regularly to ensure proper operation. Each device in this set performs a vital task that greatly affects the performance of the tool and overall longevity of the component parts.

Filters

A filter is a device used to trap/contain particulate and liquid contaminants in the compressed air system. They generally have a cartridge or screen that requires cleaning or replacement regularly. Without this maintenance, the filtering device can become clogged and reduce the flow of air to the tool. A loss in performance can result.

Regulators

A regulator adjusts the operating pressure supplied to the tool. This device generally is used with a pressure gauge that will indicate the current pressure setting. All Top Cat ® pneumatic tools are designed to operate at 90 PSI (6.2 bar) while the tool is running. The tool should never be run if the pressure should exceed 90 PSI (6.2 bar).

Lubricators

Lubricators are devices that induce a controlled amount of oil into the air supply for pneumatically driven tools. They generally contain a reservoir that one must keep filled with oil. A light grade oil such as Mobil DTE light or equivalent is recommended. There is a variable setting on the lubricator that will determine the amount of oil induced into the air supply. It is important to inspect both the setting and amount of oil in the lubricator regularly to determine proper functioning of the device. The lack of oil in the air system will greatly reduce the performance and longevity of the pneumatically driven tool.

2) Direct injection of oil into the tool

A simple and easy way to ensure proper lubrication is to inject the oil directly into the tool air inlet. This should be performed prior to storage of the tool. To perform this task one must have a small container of the proper lubricating oil.

- Disconnect the tool from the air supply at the air coupling.
- Place a few drops of oil from the container into the air inlet of the tool directly.
- Reconnect the tool to the air supply.
- Direct the exhaust of the tool away from any bystanders or cover the exhaust with a shop rag.
- Run the tool until the oil has completely passed through the unit.

The best lubrication techniques include both methods.

Geared Tools

Tools equipped with gear systems require occasional greasing in order to maintain efficiency and promote longevity of the geared components. We recommend a NLGI-2 type of grease for use with all of our geared tools.

What Conditions Indicate the Need for Maintenance?.

Pneumatic tools will exhibit several distinct signs that maintenance is required. Higher costs can be avoided if maintenance is performed when the first signs are evident. The following list details conditions that may indicate the necessity for service.

- 1) With the tool disconnected from the air supply, grasp the spindle and spin in the direction of operation. The spindle should spin freely with no resistance.
- 2) With the tool disconnected from the air supply, grasp the spindle by hand. Attempt to move the spindle from side to side and back and forth. Excess play can be a sign that service is required.
- 3) A reduction in power may indicate the necessity for maintenance.
- 4) Should the tool not maintain a uniform operating speed, servicing may be required.

For More Information

- 1) General Industry Safety & Health Regulations 29 CFR, Part 1910 and where applicable Construction Industry Safety & Health Regulations 29 CFR, Part 1926 available from Superintendent of Documents, Gov't. Printing Office, Washington, D.C. 20402.
- 2) Safety Code For Portable Air Tools, ANSI B186.1, B7.1 and Z87.1, available from American National Standards Institute, Inc. 1430 Broadway, New York, NY 10018