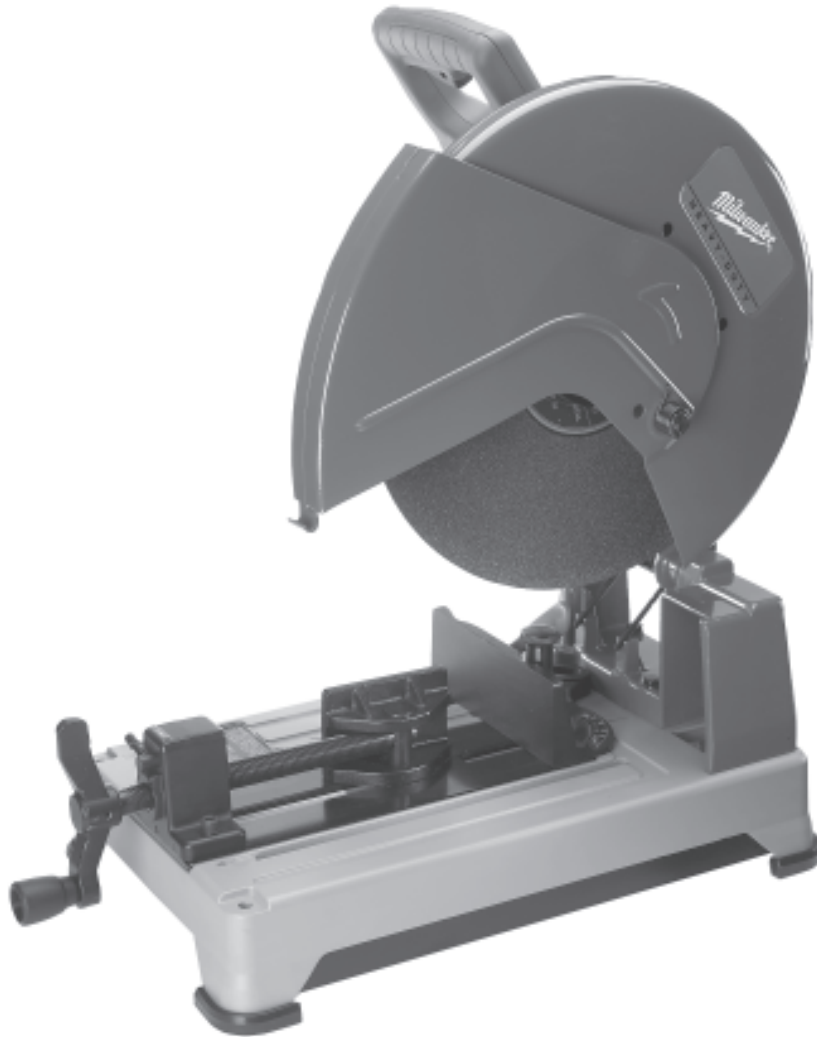




## OPERATOR'S MANUAL



Catalog No.

**6180-20**

### HEAVY-DUTY 14" ABRASIVE CUT-OFF MACHINE

*TO REDUCE THE RISK OF INJURY, USER MUST READ AND UNDERSTAND OPERATOR'S MANUAL.*

## GENERAL SAFETY RULES



### WARNING!

#### **READ AND UNDERSTAND ALL INSTRUCTIONS**


Failure to follow all instructions listed below, may result in electric shock, fire and/or serious personal injury.

#### **SAVE THESE INSTRUCTIONS**

### WORK AREA

1. **Keep work area clean and well lit.** Cluttered, dark work areas invite accidents.
2. **Avoid dangerous environments.** Do not use your power tool in rain, damp or wet locations or in the presence of explosive atmospheres (gaseous fumes, dust or flammable materials). Remove materials or debris that may be ignited by sparks.
3. **Keep bystanders away.** Children and bystanders should be kept at a safe distance from the work area to avoid distracting the operator and contacting the tool or extension cord.
4. **Protect others in the work area** from debris such as chips and sparks. Provide barriers or shields as needed.
5. **Make workshop child proof** with padlocks, master switches, or by removing starter keys.

### ELECTRICAL SAFETY

6. **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances.** Never remove the grounding prong or modify the plug in any way. Do not use any adaptor plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
7. **Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double insulation  eliminates the need for the three wire grounded power cord and grounded power supply system.
8. **Guard against electric shock.** Prevent body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators. When making blind or plunge cuts, always check the work area for hidden wires or pipes. Hold your tool by insulated nonmetal grasping surfaces. Use a Ground Fault Circuit Interrupter (GFCI) to reduce shock hazards.
9. **Do not expose to rain or use in damp locations.**
10. **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.

### PERSONAL SAFETY

11. **Know your power tool.** Read this manual carefully to learn your power tool's applications and limitations as well as potential hazards associated with this type of tool.
12. **Stay alert, watch what you are doing, and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.

13. **Dress properly.** Do not wear loose clothing or jewelry. Wear a protective hair covering to contain long hair. These may be caught in moving parts. When working outdoors, wear rubber gloves and insulated non-skid footwear. Keep hands and gloves away from moving parts.
14. **Reduce the risk of unintentional starting.** Be sure your tool is turned off before plugging it in. Do not use a tool if the power switch does not turn the tool on and off. Do not carry a plugged-in tool with your finger on the switch.
15. **Remove all adjusting keys and wrenches.** Make a habit of checking that adjusting keys, wrenches, etc. are removed from the tool before turning it on.
16. **Do not overreach. Maintain control.** Keep proper footing and balance at all times. Maintain a firm grip. Use extra care when using tool on ladders, roofs, scaffolds, etc.
17. **Use safety equipment.** Everyone in the work area should wear **safety goggles or glasses with side shields** complying with current safety standards. Everyday eyeglasses only have impact resistant lenses. They are not safety glasses. Wear hearing protection during extended use and a dust mask for dusty operations. Hard hats, face shields, safety shoes, etc. should be used when specified or necessary. Keep a fire extinguisher nearby.
18. **Keep guards in place** and in working order.
19. **Never stand on tool.** Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
20. **Keep hands away from all cutting edges and moving parts.**

### TOOL USE AND CARE

21. **Secure work.** Use a clamp, vise or other practical means to hold your work securely, freeing both hands to control the tool.
22. **Do not force tool.** Your tool will perform best at the rate for which it was designed. Excessive force only causes operator fatigue, increased wear and reduced control.
23. **Use the right tool.** Do not use a tool or attachment to do a job for which it is not recommended. For example, do not use a circular saw to cut tree limbs or logs. Do not alter a tool.
24. **Unplug tool** when it is not in use, before changing accessories or performing recommended maintenance.
25. **Store idle tools.** When not in use, store your tool in a dry, secured place. Keep out of reach of children.
26. **Never leave the tool running unattended.** Turn power off. Do not leave the tool until it comes to a complete stop.
27. **Check for damaged parts.** Inspect guards and other parts before use. Check for misalignment, binding of moving parts, improper mounting, broken parts and any other conditions that may affect operation. If abnormal noise or vibration occurs, turn the tool off immediately and have the problem corrected before further use. Do not use a damaged tool. Tag damaged tools "DO NOT USE" until repaired. A guard or other damaged part should be properly repaired or replaced by a *MILWAUKEE* service facility. For all repairs, insist on only identical replacement parts.

28. **Use proper accessories.** Consult this manual for recommended accessories. Using improper accessories may be hazardous. Be sure accessories are properly installed and maintained. Do not defeat a guard or other safety device when installing an accessory or attachment.
29. **Maintain tools carefully.** Keep handles dry, clean and free from oil and grease. Keep cutting edges sharp and clean. Follow instructions for lubricating and changing accessories. Periodically inspect tool cords and extension cords for damage. Have damaged parts repaired or replaced by a *MILWAUKEE* service facility.
30. **Maintain labels & nameplates.** These carry important information. If unreadable or missing, contact a *MILWAUKEE* service facility for a free replacement.

## SERVICE

31. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel may result in a risk of injury.
32. **When servicing a tool, use only identical replacement parts, follow instructions in the maintenance section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of shock or injury.

## SPECIFIC SAFETY INSTRUCTIONS - ABRASIVE CUT-OFF MACHINES



### WARNING!

**To reduce the risk of injury, avoid inhalation of dust generated by grinding and cutting operations. Exposure to dust may cause respiratory ailments. Use approved NIOSH or OSHA respirators, safety glasses or face shields, gloves and protective clothing. Provide adequate ventilation to eliminate dust, or to maintain dust level below the Threshold Limit Value for nuisance dust as classified by OSHA.**

**WARNING!** Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paint
- crystalline silica from bricks and cement and other masonry products, and
- arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

### Wheel Instructions

1. Use only the edge (not the sides) of the wheel for cutting. Do not allow the wheel to twist or bind.
2. Keep hands and body away from the rotating wheel. Do not wear loose clothing when using this tool.
3. Store cut-off wheels with care. Do not drop them or subject them to excessive heat, cold or humidity.
4. Make sure that all wheel flanges and other mounting hardware are in good condition and are always used properly. Defective or missing parts may cause damage to the wheel. Always use mounting flanges supplied with the tool.
5. Cutting with a damaged wheel is very hazardous. After installing a new wheel, leave the tool unplugged and rotate the wheel by hand to see if it is uneven, warped, or cracked. If so, discard the wheel and replace it with a new one. Do not use a wheel that has been dropped; impact may result in breakage.
6. Before starting a cut, step out of line of the wheel and make a trial run to confirm that the wheel is in good condition. Trial run periods are:  
When replacing a cut-off wheel — over 3 minutes.  
When starting routine work — over 1 minute.
7. Never try to remove or clamp the workpiece to the tool while the cut-off wheel is rotating.
8. Before installing a cut-off wheel, always inspect it for cracks. Visually check resinoid and rubber-bonded wheels for cracks. Replace cracked wheel immediately.
9. Always check maximum operating speed established for wheel against machine speed. Do not exceed the maximum operating speed that is marked on the wheel.

10. Do not force a wheel onto the machine or alter the size of the arbor hole. Do not use a wheel that fits the arbor too loosely. If the wheel doesn't fit the machine, get one that does.
11. Do not attempt to install toothed blades on this tool because it is not designed for this type of blade.
12. Do not overtighten FIXTEC nut. Hand tighten only.







### Machine Instructions

1. Start cutting only after the motor has reached full speed.
2. Release switch immediately if the cut-off wheel stops rotating or if the motor sounds like it is straining.
3. Keep flammable and fragile objects away from this tool. Do not allow cut-off sparks to contact the operator's hands, face or feet.
4. Place the tool securely on a flat, level surface.
5. Always use the tool with the proper voltage specified on the tool's nameplate.
6. Never touch a short cut-off piece until it cools.
7. Never attempt to cut material larger than the rated capacity listed in "Specifications".
8. Never stand in line with the wheel while cutting. Always stand to the side.
9. Always keep guards in place.
10. Always start the cut gently. Do not bump or bang a wheel to start a cut.
11. Never make any freehand cuts. Always place the workpiece between the vise and fence when making cuts.

## Cut-Off Machine Specifications

Cat. No.	Wheel Size	RPM	Volts AC/DC	Amps	Arbor Hole Size	Workpiece Configurations (Cross-Section)		
						Rectangular Stock	O.D. Pipe	Square Tubing
6180-20	14"	3900	120	15	1"	4" x 7-1/2"	5-3/8"	5" x 5"

### Symbology

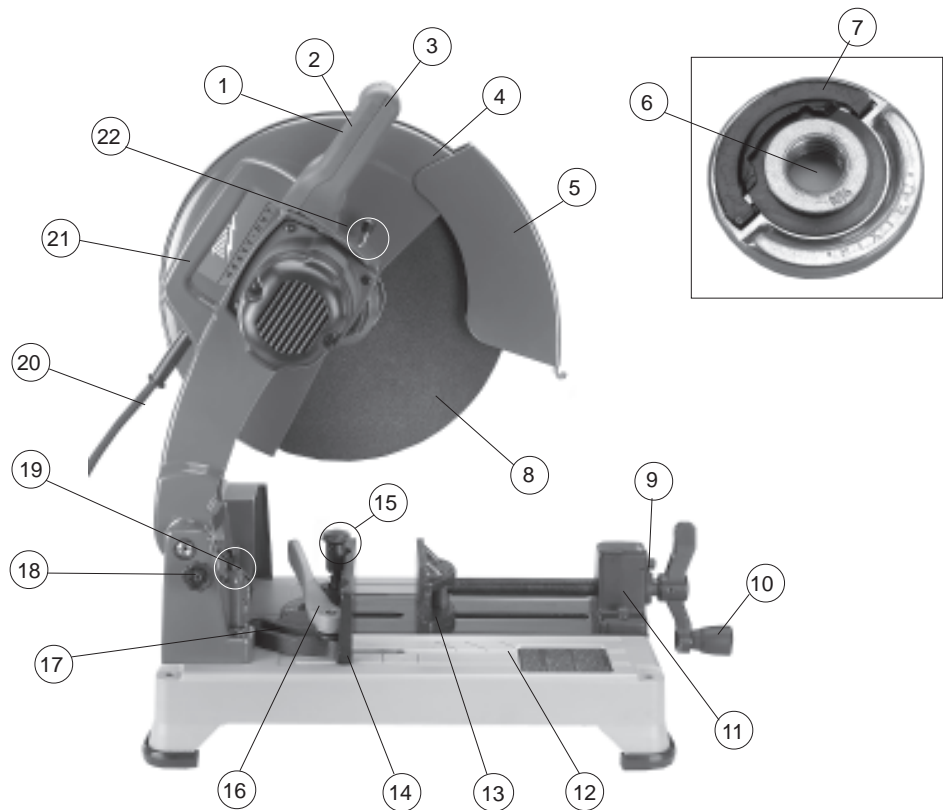
	Double Insulated
	Volts Alternating Current/ Direct Current
	Amps
	No Load Revolutions per Minute (RPM)
	Underwriters Laboratories, Inc.
	Canadian Standards Association

### Cut-Off Wheel Specifications

Wheel Size	Min. Wheel RPM Rating	Wheel Thickness	Arbor Hole Size
14"	4300	3/32"	1"

## FUNCTIONAL DESCRIPTION

1. Trigger
2. Lock-out hole (not shown)
3. Handle
4. Stationary guard
5. Moveable guard
6. FIXTEC nut
7. Hinged latch
8. Abrasive cut-off wheel
9. Quick release lever
10. Vise handle
11. Vise
12. Base
13. Vise plate
14. Quick adjust fence
15. Spring loaded fence bolt
16. Fence lock lever
17. Angle indicator
18. Transport lock
19. Depth adjustment bolt
20. Cord
21. Transport handle
22. Spindle lock lever



## GROUNDING



### WARNING!

Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the cord or plug is damaged. If damaged, have it repaired by a MILWAUKEE service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

### Grounded Tools:

#### Tools with Three Prong Plugs

Tools marked "Grounding Required" have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet (See Figure A). If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock.

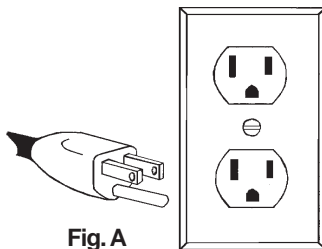


Fig. A

The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically "live" terminal.

Your tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in Figure A.

### Double Insulated Tools:

#### Tools with Two Prong Plugs

Tools marked "Double Insulated" do not require grounding. They have a special double insulation system which satisfies OSHA requirements and complies with the applicable standards of Underwriters Laboratories, Inc., the Canadian Standard Association and the National Electrical Code. Double Insulated tools may be used in either of the 120 volt outlets shown in Figures B and C.

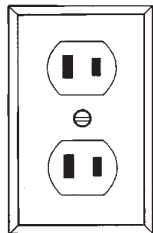


Fig. B

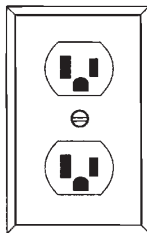


Fig. C

## EXTENSION CORDS

Grounded tools require a three wire extension cord. Double insulated tools can use either a two or three wire extension cord. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. Refer to the table shown to determine the required minimum wire size.

The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. When using more than one extension cord to make up the total length, be sure each cord contains at least the minimum wire size required. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum wire size.

### Guidelines for Using Extension Cords

- If you are using an extension cord outdoors, be sure it is marked with the suffix "W-A" ("W" in Canada) to indicate that it is acceptable for outdoor use.
- Be sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified person before using it.
- Protect your extension cords from sharp objects, excessive heat and damp or wet areas.

### Recommended Minimum Wire Gauge for Extension Cords\*

Nameplate Amperes	Extension Cord Length					
	25'	50'	75'	100'	150'	200'
0 - 5	16	16	16	14	12	12
5.1 - 8	16	16	14	12	10	--
8.1 - 12	14	14	12	10	--	--
12.1 - 15	12	12	10	10	--	--
15.1 - 20	10	10	10	--	--	--

\* Based on limiting the line voltage drop to five volts at 150% of the rated amperes.

**READ AND SAVE ALL INSTRUCTIONS FOR FUTURE USE.**

## OPERATION



### WARNING!

To reduce the risk of injury, always unplug tool before attaching or removing accessories. Use only specifically recommended accessories. Others may be hazardous.

### Using the Transport Lock

The transport lock secures the handle for transporting and storing the tool. To release the transport lock, push down the handle and pull out the transport lock. To lock the transport lock, push down the handle and push in the transport lock.



### WARNING!

To reduce the risk of injury, do not use the FIXTEC nut on any other tool. The FIXTEC nut is specifically designed for this application and may be hazardous when used on other tools.

### Using the FIXTEC Nut

The FIXTEC nut allows for wheel changes without tools. To use the FIXTEC nut, pull out the hinged latch and spin off the nut. To replace the nut, hand tighten the nut until it is secure. Do not over tighten the nut. This may damage the wheel and the flanges. When the nut is tight, snap the hinged latch back into position. Make sure the hinged latch is down before using the tool.

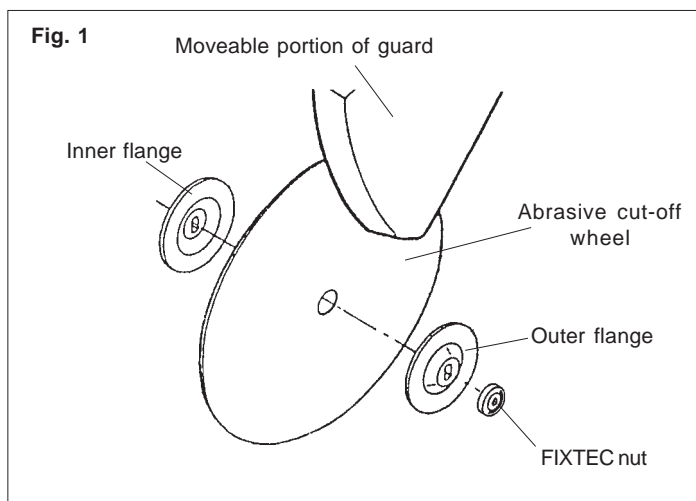


### WARNING!

To reduce the risk of injury, use only the proper TYPE 1 wheels made for this machine. DO NOT USE TOOTHED BLADES.

### Removing and Installing Cut-Off Wheels (Fig. 1)

The cut-off machine is supplied with the abrasive cut-off wheel installed. MILWAUKEE recommends using only MILWAUKEE 14" Abrasive Cut-Off Wheels, 3/32" wide with this tool. Before operating the tool, make sure the wheel is in good condition as described in the "Specific Safety Instructions - Abrasive Cut-Off Machines".



To change wheels:

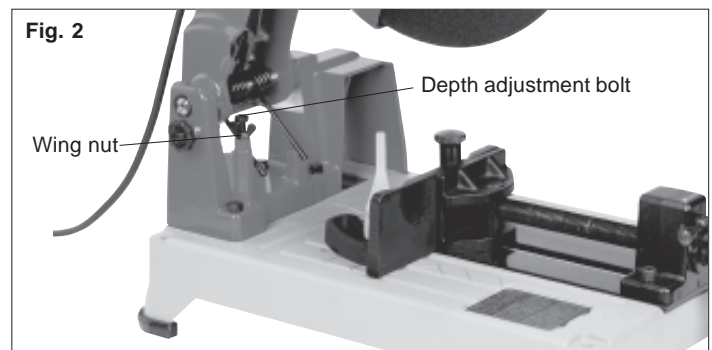
1. Unplug tool.
2. Release the transport lock.

3. Pull back the moveable portion of the guard to expose the wheel arbor and FIXTEC nut.  
Press down the spindle lock lever and loosen the FIXTEC nut (counterclockwise).
4. Remove the FIXTEC nut, outer flange and cut-off wheel.
5. Check the two (2) wheel flanges to be sure they are in good condition. Remove any nicks or burrs, which could cause uneven cutting pressure and result in wheel damage.
6. Install the cut-off wheel, outer flange and FIXTEC nut (Fig. 1).
7. Press down the spindle lock lever while tightening the FIXTEC nut (clockwise).  
**NOTE:** Hand tighten the FIXTEC nut firmly, but do not use excessive pressure. Overtightening the FIXTEC nut may damage the wheel and flanges. Do not use any tool to tighten the FIXTEC nut. Hand tighten only.
8. Check the wheel for free rotation after installation.
9. Allow the moveable portion of the guard to return to its original position.
10. Before starting a cut, step back and out of line from the tool wheel and make a trial run to confirm that the wheel is in good condition. When replacing a cut-off wheel, run the tool for over 3 minutes. When starting routine work, run the tool for over 1 minute.

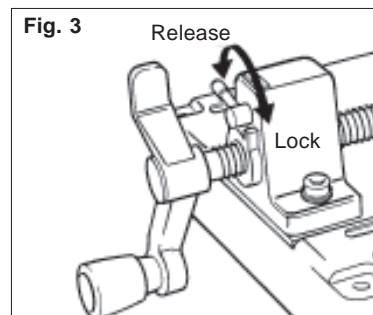
### Adjusting the Depth of Cut (Fig. 2)

Use the depth adjustment to change the depth of cut. When adjusted properly, the depth adjustment bolt prevents the cut-off wheel from contacting the surface under the base during cutting. Cut-off wheels wear down as they are used and the depth of cut may need to be increased.

1. To adjust the depth of cut, loosen the wing nut.
2. Turn the depth adjustment bolt to achieve the desired depth of cut.
3. Tighten the wing nut.



### Using the Quick Release Lever (Fig. 3)

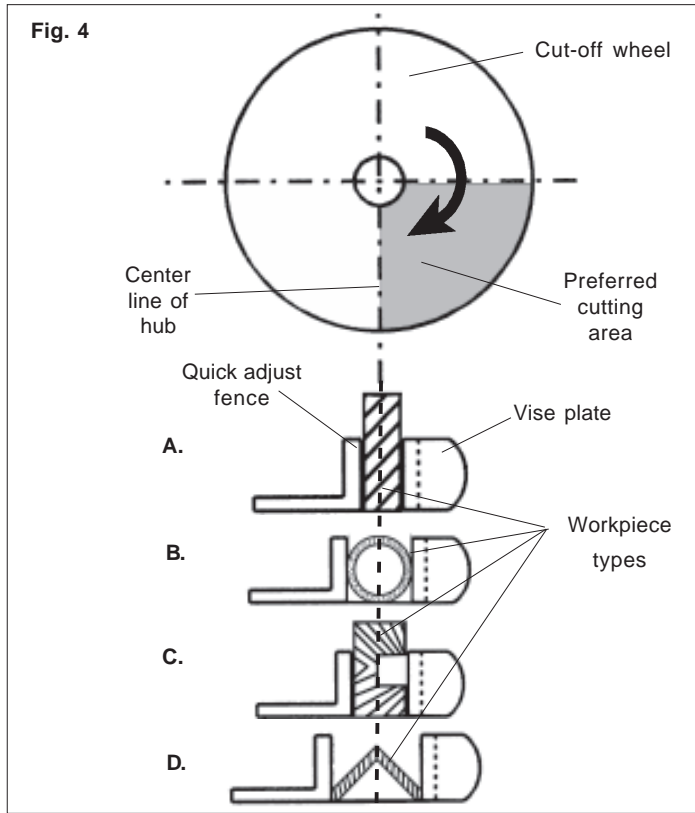


1. To release the quick release lever, rotate the lever fully to the left.
2. To lock the quick release lever, rotate the lever fully to the right.

## Supporting the Workpiece and Adjusting the Vise and Fence System (Figs. 4 & 5)

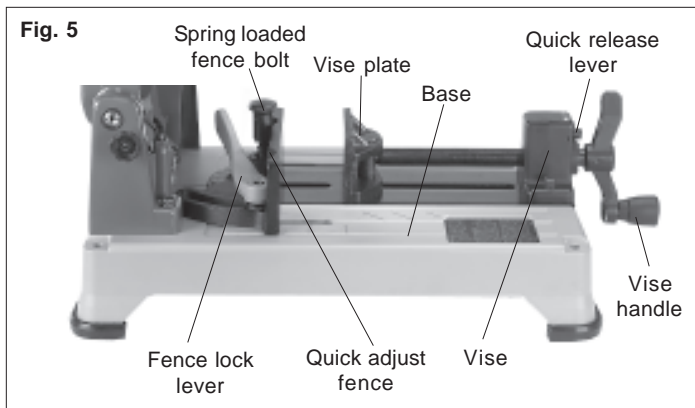
The adjustable vise and fence system holds the workpiece in the desired position. The vise plate and fence can be moved backward or forward and can be adjusted to any angle between 90° and 45°.

When adjusting the system, the vise and fence should be positioned so the centerline of the wheel hub is in line with or behind the centerline of the workpiece, toward the rear of the tool (Fig. 4). The workpiece should be resting flush with the base of the cut-off machine.



To adjust the vise and fence system for a particular workpiece:

1. Rotate the quick release lever fully to the left to the "release" position. This will disengage the vise from the threads (Fig. 5).



2. Loosen the fence lock lever that holds the fence firmly in place.
3. Push down the spring loaded fence bolt and move the quick adjust fence into one of the three positions provided.
4. Release the spring loaded fence bolt. When properly engaged, the fence should click into position. If the fence is not fully engaged into position, manually move it back and forth until it clicks into place. If the fence does not click into place, repeat step 3.
5. Adjust the fence to the desired angle and tighten the fence lock lever.

6. Adjust the vise plate by moving the vise handle in or out as needed to fit the workpiece.
7. Rotate the quick release lever to the right to the "lock" position. This will engage the threads and lock the vise. To completely lock the vise, turn the vise handle clockwise until the workpiece is properly secured.

## Selecting a Workpiece

The MILWAUKEE Abrasive Cut-Off Machine is designed to cut steel and concrete. It is not recommended for cutting wood or plastic. Do not attempt to install a toothed blade on the tool.

## Starting and Stopping the Tool

1. Plug in the tool.
2. Stand out of the line of the wheel.
3. To start the tool, pull the trigger.
4. To stop the tool, release the trigger.



**WARNING!**

To reduce the risk of injury or damage to the tool, do not use the spindle lock lever to stop the spindle while the tool is in use or is coasting after shut-off.

## Making a Cut

1. Unplug the tool.
2. Select a cutting angle and position the fence and vise assembly as needed, see "Supporting the Workpiece and Adjusting the Vise and Fence System".
3. Place the workpiece flat on top of the cut-off machine base. Position the thinnest section of the workpiece facing up. Turn the vise handle clockwise until the vise assembly holds the workpiece firmly in place.

**NOTE:** Make sure the quick release lever is fully rotated to the "lock" position.

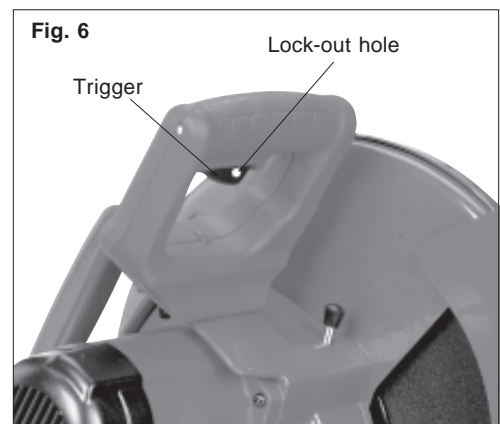
4. Plug in the tool, stand out of the line of the wheel and pull the trigger. Allow the motor to reach full speed. Slowly lower the wheel into the workpiece.

**NOTE:** Always start the cut gently; do not bang or bump a wheel when starting the cut. For the safest and most efficient cutting, make sure that the centerline of the blade hub is in line with or behind the centerline of the workpiece, toward the rear of the tool (Fig 4).

5. When the cut is complete, raise the wheel completely from the workpiece before releasing the trigger and allowing the motor to stop.

## Using the Lock-out Hole (Fig. 6)

Insert a padlock through the trigger hole to prevent the tool from starting unintentionally.



## MAINTENANCE



### WARNING!

To reduce the risk of injury, always unplug your tool before performing any maintenance. Never disassemble the tool or try to do any rewiring on the tool's electrical system. Contact a **MILWAUKEE** service facility for ALL repairs.

### Maintaining Tools

Keep your tool in good repair by adopting a regular maintenance program. Before use, examine the general condition of your tool. Inspect guards, switches, tool cord set and extension cord for damage. Check for loose screws, misalignment, binding of moving parts, improper mounting, broken parts and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, turn the tool off immediately and have the problem corrected before further use. Do not use a damaged tool. Tag damaged tools "DO NOT USE" until repaired (see "Repairs").

Under normal conditions, relubrication is not necessary until the motor brushes need to be replaced. After six months to one year, depending on use, return your tool to the nearest **MILWAUKEE** service facility for the following:

- Lubrication
- Brush inspection and replacement
- Mechanical inspection and cleaning (gears, spindles, bearings, housing, etc.)
- Electrical inspection (switch, cord, armature, etc.)
- Testing to assure proper mechanical and electrical operation



### WARNING!

To reduce the risk of injury, electric shock and damage to the tool, never immerse your tool in liquid or allow a liquid to flow inside the tool.

### Cleaning

Clean dust and debris from vents. Keep the tool handles clean, dry and free of oil or grease. Use only mild soap and a damp cloth to clean your tool since certain cleaning agents and solvents are harmful to plastics and other insulated parts. Some of these include: gasoline, turpentine, lacquer thinner, paint thinner, chlorinated cleaning solvents, ammonia and household detergents containing ammonia. Never use flammable or combustible solvents around tools.

### Repairs

If your tool is damaged, return the entire tool to the nearest service center.

## ACCESSORIES



### WARNING!

To reduce the risk of injury, always unplug the tool before attaching or removing accessories. Use only specifically recommended accessories. Others may be hazardous.

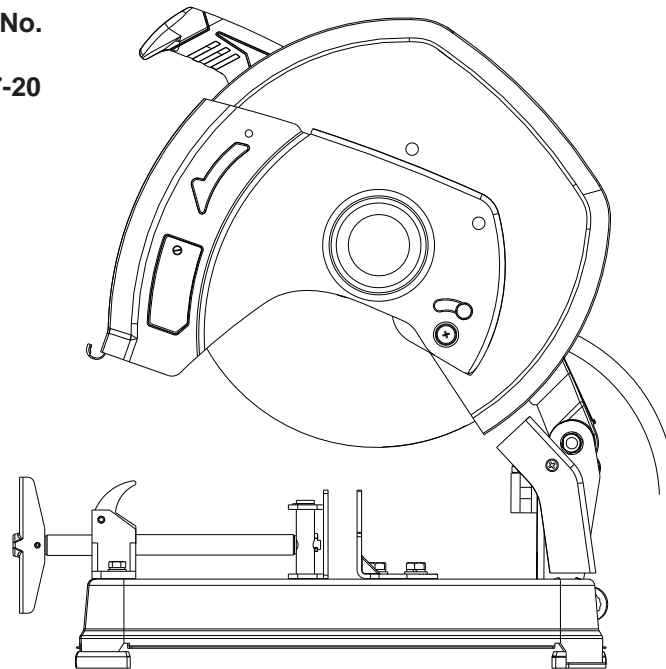




## OPERATOR'S MANUAL

Cat. No.

6177-20



### HEAVY-DUTY 14" ABRASIVE CUT-OFF MACHINE

***TO REDUCE THE RISK OF INJURY, USER MUST READ AND UNDERSTAND OPERATOR'S MANUAL.***


## GENERAL POWER TOOL SAFETY WARNINGS

**WARNING** READ ALL SAFETY WARNINGS AND ALL INSTRUCTIONS. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference.

### WORK AREA SAFETY

- **Keep work area clean and well lit.** Cluttered, dark work areas invite accidents.
- **Avoid dangerous environments.** Do not use your power tool in rain, damp or wet locations or in the presence of explosive atmospheres (gaseous fumes, dust or flammable materials). Remove materials or debris that may be ignited by sparks.
- **Keep bystanders away.** Children and bystanders should be kept at a safe distance from the work area to avoid distracting the operator and contacting the tool or extension cord.
- **Protect others in the work area** from debris such as chips and sparks. Provide barriers or shields as needed.
- **Make workshop child proof** with padlocks, master switches, or by removing starter keys.

### ELECTRICAL SAFETY

- **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances.** Never remove the grounding prong or modify the plug in any way. Do not use any adaptor plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
- **Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double insulation  eliminates the need for the three wire grounded power cord and grounded power supply system.
- **Guard against electric shock.** Prevent body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators. When making blind or plunge cuts, always check the work area for hidden wires or pipes. Hold your tool by insulated nonmetal grasping surfaces. Use a Ground Fault Circuit Interrupter (GFCI) to reduce shock hazards.
- **Do not expose to rain or use in damp locations.**
- **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.

### PERSONAL SAFETY

- **Know your power tool.** Read this manual carefully to learn your power tool's applications and limitations as well as potential hazards associated with this type of tool.

- **Stay alert, watch what you are doing, and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- **Dress properly.** Do not wear loose clothing or jewelry. Wear a protective hair covering to contain long hair. These may be caught in moving parts. When working outdoors, wear rubber gloves and insulated non-skid footwear. Keep hands and gloves away from moving parts.
- **Reduce the risk of unintentional starting.** Be sure your tool is turned off before plugging it in. Do not use a tool if the power switch does not turn the tool on and off. Do not carry a plugged-in tool with your finger on the switch.
- **Remove all adjusting keys and wrenches.** Make a habit of checking that adjusting keys, wrenches, etc. are removed from the tool before turning it on.
- **Do not overreach. Maintain control.** Keep proper footing and balance at all times. Maintain a firm grip. Use extra care when using tool on ladders, roofs, scaffolds, etc.
- **Use safety equipment.** Everyone in the work area should wear safety goggles or glasses with side shields complying with current safety standards. Everyday eyeglasses only have impact resistant lenses. They are not safety glasses. Wear hearing protection during extended use and a dust mask for dusty operations. Hard hats, face shields, safety shoes, etc. should be used when specified or necessary. Keep a fire extinguisher nearby.
- **Keep guards in place** and in working order.
- **Never stand on tool.** Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
- **Keep hands away from all cutting edges and moving parts.**

### POWER TOOL USE AND CARE

- **Secure work.** Use a clamp, vise or other practical means to hold your work securely, freeing both hands to control the tool.
- **Do not force tool.** Your tool will perform best at the rate for which it was designed. Excessive force only causes operator fatigue, increased wear and reduced control.
- **Use the right tool.** Do not use a tool or attachment to do a job for which it is not recommended. For example, do not use a circular saw to cut tree limbs or logs. Do not alter a tool.
- **Unplug tool** when it is not in use, before changing accessories or performing recommended maintenance.
- **Store idle tools.** When not in use, store your tool in a dry, secured place. Keep out of reach of children.
- **Never leave the tool running unattended.** Turn power off. Do not leave the tool until it comes to a complete stop.

- **Check for damaged parts.** Inspect guards and other parts before use. Check for misalignment, binding of moving parts, improper mounting, broken parts and any other conditions that may affect operation. If abnormal noise or vibration occurs, turn the tool off immediately and have the problem corrected before further use. Do not use a damaged tool. Tag damaged tools "DO NOT USE" until repaired. A guard or other damaged part should be properly repaired or replaced by a MILWAUKEE service facility. For all repairs, insist on only identical replacement parts.
- **Use proper accessories.** Consult this manual for recommended accessories. Using improper accessories may be hazardous. Be sure accessories are properly installed and maintained. Do not defeat a guard or other safety device when installing an accessory or attachment.
- **Maintain tools carefully.** Keep handles dry, clean and free from oil and grease. Keep cutting edges sharp and clean. Follow instructions for lubricating and changing accessories. Periodically inspect tool cords and extension cords for damage. Have damaged parts repaired or replaced by a MILWAUKEE service facility.
- **Maintain labels & nameplates.** These carry important information. If unreadable or missing, contact a MILWAUKEE service facility for a free replacement.

### SERVICE

- **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel may result in a risk of injury.
- **When servicing a tool, use only identical replacement parts, follow instructions in the maintenance section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of shock or injury.

### SPECIFIC SAFETY RULES

**WARNING** To reduce the risk of injury, avoid inhalation of dust generated by grinding and cutting operations. Exposure to dust may cause respiratory ailments. Use approved NIOSH or OSHA respirators, safety glasses or face shields, gloves and protective clothing. Provide adequate ventilation to eliminate dust, or to maintain dust level below the Threshold Limit Value for nuisance dust as classified by OSHA.

- **WARNING:** Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
  - lead from lead-based paint
  - crystalline silica from bricks and cement and other masonry products, and
  - arsenic and chromium from chemically-treated lumber.Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well

ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

### Wheel Instructions

- Use only the edge (not the sides) of the wheel for cutting. Do not allow the wheel to twist or bind.
- Keep hands and body away from the rotating wheel. Do not wear loose clothing when using this tool.
- Store cut-off wheels with care. Do not drop them or subject them to excessive heat, cold or humidity.
- Make sure that all wheel flanges and other mounting hardware are in good condition and are always used properly. Defective or missing parts may cause damage to the wheel. Always use mounting flanges supplied with the tool.
- Cutting with a damaged wheel is very hazardous. After installing a new wheel, leave the tool unplugged and rotate the wheel by hand to see if it is uneven, warped, or cracked. If so, discard the wheel and replace it with a new one. Do not use a wheel that has been dropped; impact may result in breakage.
- Before starting a cut, step back from the tool and make a trial run to confirm that the wheel is in good condition. Trial run periods are:
  - When replacing a cut-off wheel — over 3 minutes.
  - When starting routine work — over 1 minute.
- Never try to remove or clamp the workpiece to the tool while the cut-off wheel is rotating.
- Before installing a cut-off wheel, always inspect it for cracks. Visually check resinoid and rubber-bonded wheels for cracks. Replace cracked wheel immediately.
- Always check maximum operating speed established for wheel against machine speed. Do not exceed the maximum operating speed that is marked on the wheel.
- Do not force a wheel onto the machine or alter the size of the arbor hole. Don't use a wheel that fits the arbor too loosely. If the wheel doesn't fit the machine, get one that does.
- Do not attempt to install saw blades on this tool because it is not designed for this type of blade.
- Do not overtighten wheel nut.
- **Machine Instructions**
  - Start cutting only after the motor has reached full speed.
  - Release switch immediately if the cut-off wheel stops rotating or if the motor sounds like it is straining.
  - Keep flammable and fragile objects away from this tool. Do not allow cut-off sparks to contact the operator's hands, face or feet.
  - Place the tool securely on a flat, level surface.
  - Always use the tool with the proper voltage specified on the tool's nameplate.
  - Never touch a short cut-off piece until it cools.
  - Never attempt to cut material larger than the rated capacity listed in "Specifications".
  - Never stand in line with the wheel while cutting. Always stand to the side.
  - Always keep guards in place.
  - Always start the cut gently. Do not bump or bang a wheel to start a cut.
  - Never make any freehand cuts. Always place the workpiece between the vise and fence when making cuts.

## GROUNDING

**WARNING** Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the cord or plug is damaged. If damaged, have it repaired by a MILWAUKEE service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

**Grounded Tools: Tools with Three Prong Plugs**  
Tools marked "Grounding Required" have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet (See Figure A). If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock.

The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically "live" terminal.

Your tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in Figure A.

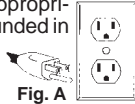


Fig. A

## Double Insulated Tools: Tools with Two Prong Plugs

Tools marked "Double Insulated" do not require grounding. They have a special double insulation system which satisfies OSHA requirements and complies with the applicable standards of Underwriters Laboratories, Inc., the Canadian Standard Association and the National Electrical Code. Double Insulated tools may be used in either of the 120 volt outlets shown in Figures B and C.

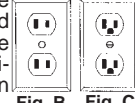


Fig. B

Fig. C

## EXTENSION CORDS

Grounded tools require a three wire extension cord. Double insulated tools can use either a two or three wire extension cord. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. Refer to the table shown to determine the required minimum wire size.

The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. When using more than one extension cord to make up the total length, be sure each cord contains at least the minimum wire size required. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum wire size.

### Guidelines for Using Extension Cords

- If you are using an extension cord outdoors, be sure it is marked with the suffix "W-A" ("W" in Canada) to indicate that it is acceptable for outdoor use.
- Be sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified person before using it.
- Protect your extension cords from sharp objects, excessive heat and damp or wet areas.

### Recommended Minimum Wire Gauge for Extension Cords\*

Nameplate Amperes	Extension Cord Length				
	25'	50'	75'	100'	150'
0 - 2.0	18	18	18	18	16
2.1 - 3.4	18	18	18	16	14
3.5 - 5.0	18	18	16	14	12
5.1 - 7.0	18	16	14	12	12
7.1 - 12.0	16	14	12	10	
12.1 - 16.0	14	12	10		
16.1 - 20.0	12	10			

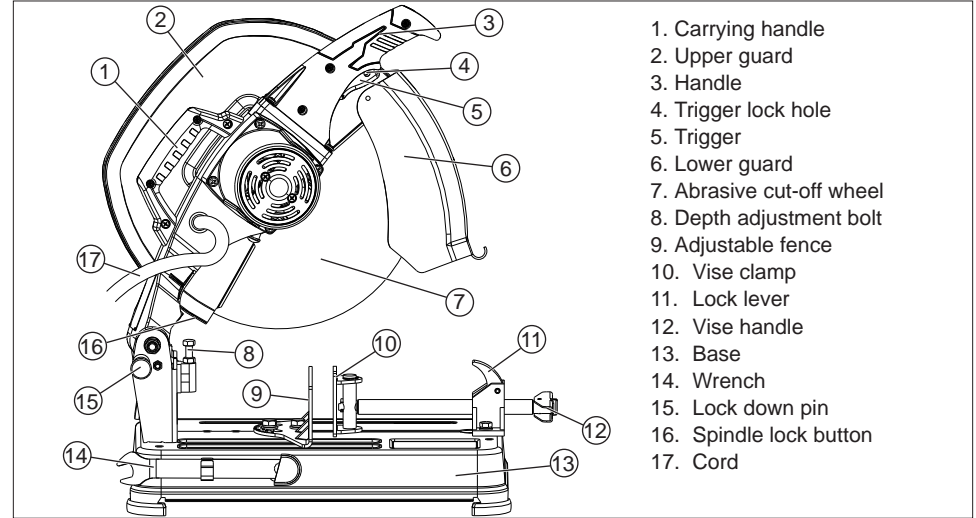
\* Based on limiting the line voltage drop to five volts at 150% of the rated amperes.

**READ AND SAVE ALL INSTRUCTIONS FOR FUTURE USE.**

## SPECIFICATIONS

Cat. No.	Tool							Max. Capacities at 90°		
	Volts AC	A	No Load RPM	Wheel Size	Min. Wheel RPM Rating	Wheel Thickness	Arbor Hole Size	O.D. Pipe	Rectangular Stock	Sq. Tubing
6177-20	120	15	3900	14"	4300	3/32"	1"	5"	2-15/16" x 9"	4-5/8" x 4-5/8"

## FUNCTIONAL DESCRIPTION



1. Carrying handle
2. Upper guard
3. Handle
4. Trigger lock hole
5. Trigger
6. Lower guard
7. Abrasive cut-off wheel
8. Depth adjustment bolt
9. Adjustable fence
10. Vise clamp
11. Lock lever
12. Vise handle
13. Base
14. Wrench
15. Lock down pin
16. Spindle lock button
17. Cord

## SYMBOLOLOGY

	Double Insulated
	Volts Alternating/Direct Current
	Amps
$n_0 \text{ xxx } \text{min.}^{-1}$	No Load Revolutions per Minute (RPM)
	Underwriters Laboratories, Inc. United States and Canada
	Do not use toothed blades.
	Do not expose to rain or use in damp locations.

## ASSEMBLY

**WARNING** To reduce the risk of injury, always unplug tool before attaching or removing accessories or making adjustments. Use only specifically recommended accessories. Others may be hazardous.

### Raising and Lowering the Head

The head must be locked down for transporting and storing the tool.

To **unlock**, press head down and pull out the lock down pin.

To **lock**, press head down and push in the lock down pin.

**WARNING** To reduce the risk of injury, use only the proper wheel for this machine. DO NOT USE ANY TYPE OF SAW BLADE.

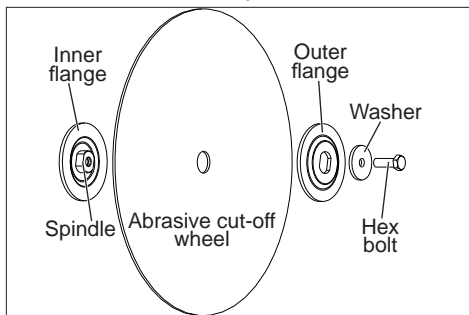
### Removing and Installing Cut-Off Wheels

Use only MILWAUKEE 14" Abrasive Cut-Off Wheels, 3/32" thick with this tool. Before operating the tool, make sure the wheel is in good condition as described in the "Specific Safety Rules".

To change wheels:

1. Unplug the tool.
2. Raise the head.

- Push up the lower guard to expose the hex bolt. Press in the spindle lock button and use the wrench provided to loosen the hex bolt (counterclockwise).
- Remove the hex bolt, washer, outer flange and cut-off wheel. Do not remove the inner flange.
- Check the inner and outer flanges to be sure they are in good condition. Remove any nicks, burrs, and debris from the mounting hardware, which could cause uneven cutting pressure and result in wheel damage.
- Install the cut-off wheel, outer flange, washer, and hex bolt onto the spindle, as shown.



#### Raising and Lowering the Head

The head must be locked down for transporting and storing the tool.

To **unlock**, press head down and pull out the lock down pin.

To **lock**, press head down and push in the lock down pin.

#### Removing and Installing Cut-Off Wheels

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- Remove the hex bolt, washer, outer flange and cut-off wheel. Do not remove the inner flange.
- Check the inner and outer flanges to be sure they are in good condition. Remove any nicks, burrs, and debris from the mounting hardware, which could cause uneven cutting pressure and result in wheel damage.
- Install the cut-off wheel, outer flange, washer, and hex bolt onto the spindle, as shown.
- Press in the spindle lock button while using the wrench provided to tighten the hex bolt (clockwise).
- Release the lower guard.
- Before starting a cut, step back from the tool and make a trial run to confirm that the wheel is in good condition. Before using a new cut-off wheel, run the tool for at least 3 minutes. Before starting work, run the tool for at least 1 minute.

#### Adjusting the Depth of Cut

The depth adjustment bolt can be adjusted to change the depth of cut. When adjusted properly, the depth adjustment bolt prevents the cut-off wheel from contacting the surface under the base during cutting. Cut-off wheels wear down as they are used and the depth of cut may need to be increased.

To adjust the depth of cut:

- Unplug the tool.
- Use the wrench provided to loosen the hex nut.
- Adjust the depth adjustment bolt to the desired height.
- Tighten the hex nut.

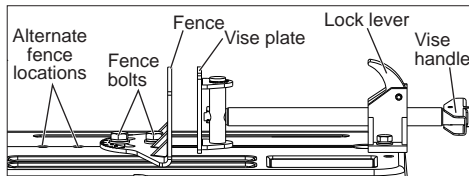
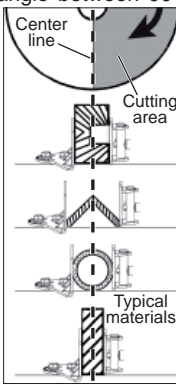
#### Supporting the Workpiece and Adjusting the Vise and Fence System

The adjustable vise and fence system holds the workpiece in the desired position. The vise plate and fence can be moved backward or forward and can be adjusted to any angle between 90° and 45°.

When adjusting the system, the vise and fence should be positioned so the centerline of the wheel hub is in line with or behind the centerline of the workpiece, toward the rear of the tool. The workpiece should be resting flush with the base of the cut-off machine.

To **adjust the fence**:

- Use the wrench provided to loosen (counterclockwise) the two fence bolts.
- Adjust the position and angle of the fence as desired.
- Securely tighten (clockwise) the two fence bolts.



To **adjust the vise**:

- Pull the lock lever back.
- Pull the vise handle out.
- Place the workpiece flat on the base and against the fence.
- Push down the lock lever.
- Slide in the vise handle to press the vise plate against the workpiece.
- Turn the vise handle clockwise to tighten the vise plate against the workpiece.

#### OPERATION

**WARNING** To reduce the risk of injury, always unplug tool before attaching or removing accessories or making adjustments. Use only specifically recommended accessories. Others may be hazardous.

**WARNING** To reduce the risk of injury, wear safety goggles or glasses with side shields.

#### Selecting a Workpiece

The **MILWAUKEE** Abrasive Cut-Off Machine is designed to cut steel and concrete. It is not recommended for cutting wood. Do not attempt to install a saw blade on the tool.

#### Starting and Stopping the Tool

- Plug in the tool.
- To **start** the tool, pull the trigger.
- To **stop** the tool, release the trigger.

#### Making a Cut

- Unplug the tool.
- Select a cutting angle and position the fence and vise to support the workpiece (see "Supporting the Workpiece and Adjusting the Vise and Fence System").
- Plug in the tool.
- Before starting a cut, step back from the tool and make a trial run to confirm that the wheel is in good condition. Before using a new cut-off wheel, run the tool for at least 3 minutes. Before starting work, run the tool for at least 1 minute.
- Allow the motor to reach full speed. Slowly lower the wheel into the workpiece.

**NOTE:** Always start the cut gently; do not bang or bump a wheel when starting the cut. For the safest and most efficient cutting, make sure that the cut-off wheel contacts the center of the workpiece.

- When the cut is complete, raise the wheel completely from the workpiece before releasing the trigger and allowing the motor to stop.

#### Trigger Hole Lock-Off

The trigger hole allows the user to insert a padlock. This prevents the tool from being started unintentionally.

#### ACCESSORIES

**WARNING** To reduce the risk of injury, always unplug the tool before attaching or removing accessories. Use only specifically recommended accessories. Others may be hazardous.

#### MAINTENANCE

**WARNING** To reduce the risk of injury, always unplug your tool before performing any maintenance. Never disassemble the tool or try to do any rewiring on the tool's electrical system. Contact a **MILWAUKEE** service facility for ALL repairs.

#### Maintaining Tools

Keep your tool in good repair by adopting a regular maintenance program. Before use, examine the general condition of your tool. Inspect guards, switches, tool cord set and extension cord for damage. Check for loose screws, misalignment, binding of moving parts, improper mounting, broken parts and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, turn the tool off immediately and have the problem corrected before further use. Do not use a damaged tool. Tag damaged tools "DO NOT USE" until repaired (see "Repairs"). Under normal conditions, relubrication is not necessary until the motor brushes need to be replaced. After six months to one year, depending on use, return your tool to the nearest **MILWAUKEE** service facility for the following:

- Lubrication
- Brush inspection and replacement
- Mechanical inspection and cleaning (gears, spindles, bearings, housing, etc.)
- Electrical inspection (switch, cord, armature, etc.)
- Testing to assure proper mechanical and electrical operation

**WARNING** To reduce the risk of injury, electric shock and damage to the tool, never immerse your tool in liquid or allow a liquid to flow inside the tool.

#### Cleaning

Clean dust and debris from vents. Keep the tool handles clean, dry and free of oil or grease. Use only mild soap and a damp cloth to clean your tool since certain cleaning agents and solvents are harmful to plastics and other insulated parts. Some of these include: gasoline, turpentine, lacquer thinner, paint thinner, chlorinated cleaning solvents, ammonia and household detergents containing ammonia. Never use flammable or combustible solvents around tools.

#### Repairs

If your tool is damaged, return the entire tool to the nearest service center.