DREMEL® Owner's Manual

ADVANTAGE™
High Speed Rotary Saw™
Model 9000

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Power Tool 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

Keep your work area clean and well lit. Cluttered benches and dark areas invite accidents.

Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Power tools create sparks which may ignite the dust or fumes.

Keep by-standers, children, and visitors away while operating a power tool. Distractions can cause you to lose control.

Electrical Safety

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. *Before plugging in the tool, be certain the outlet voltage supplied is within the voltage marked on the nameplate. Do not use "AC only" rated tools with a DC power supply.*

Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is grounded. If operating the power tool in damp locations is unavoidable, a Ground Fault Circuit Interrupter must be used to supply the power to your tool. Electrician's rubber gloves and footwear will further enhance your personal safety.

Don't expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.

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.

When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W." These cords are rated for outdoor use and reduce the risk of electric shock. Refer to "Recommended sizes of Extension Cords" in the Accessory section of this manual.

Personal Safety

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. Contain long hair. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts. Keep handles dry, clean and free from oil and grease.

Avoid accidental starting. Be sure switch is "OFF" before plugging in. Carrying tools with your finger on the switch or plugging in tools that have the switch "ON" invites accidents.

Remove adjusting keys or wrenches before turning the tool "ON". A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.

Do not overreach. Keep proper footing and balance at all times. Proper footing and balance enables better control of the tool in unexpected situations.

Use safety equipment. Always wear eye protection. Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

Tool Use and Care

Use clamps or other practical way to secure and support the workpiece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.

Do not force tool. Use the correct tool for your application. The correct tool will do the job better and safer at the rate for which it is designed.

Do not use tool if switch does not turn it "ON" or "OFF". Any tool that cannot be controlled with the switch is dangerous and must be repaired.

Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.

Store idle tools out of reach of children and other untrained persons. Tools are dangerous in the hands of untrained users.

Maintain tools with care. Keep cutting tools sharp and clean. Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control. Any alteration or modification is a misuse and may result in a dangerous condition.

Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools operation. If damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools. Develop a periodic maintenance schedule for your tool.

Use only accessories that are recommended by the manufacturer for your model. Accessories that may be suitable for one tool, may become hazardous when used on another tool.

Service

Tool service must be performed only by qualified repair personnel. Service or maintenance performed by unqualified personnel could result in a risk of injury. For example: internal wires may be misplaced or pinched, safety guard return springs may be improperly mounted.

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 electric shock or injury. Certain cleaning agents such as gasoline, carbon tetrachloride, ammonia, etc. may damage plastic parts.

Rotary Saw Safety Rules

Hold tool by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord. Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator. *If cutting into existing walls or other blind areas where electrical wiring may exist is unavoidable, disconnect all fuses or circuit breakers feeding this worksite.*

Always make sure the work surface is free from nails and other foreign objects. Cutting into a nail can cause the bit and the tool to jump and damage the bit.

Never hold the workpiece in one hand and the tool in the other hand when in use. Never place hands near or below cutting surface. Clamping the material and guiding the tool with both hands is safer.

Never lay workpiece on top of hard surfaces, like concrete, stone, etc... Protruding cutting bit may cause tool to jump.

Always wear safety goggles and dust mask. Use only in well ventilated area. Using personal safety devices and working in safe environment reduces risk of injury.

After changing the bits or making any adjustments, make sure the collet nut and any other adjustment devices are securely tightened. Loose adjustment device can unexpectedly shift, causing loss of control, loose rotating components will be violently thrown.

Never start the tool when the bit is engaged in the material. The bit cutting edge may grab the material causing loss of control of the cutter.

Always hold the tool with two hands during start-up. The reaction torque of the motor can cause the tool to twist.

The direction of feeding the bit into the material is very important and it relates to the direction of bit rotation. Most materials should be cut in a clockwise direction. An exception is when cutting around an outlet

box in drywall, which should be cut counter-clockwise. Steering the tool in the wrong direction, causes the cutting edge of the bit to climb out of the work and pull the tool in the direction of the feed.

Never use dull or damaged bits. Sharp bits must be handled with care. Damaged bits can snap during use. Dull bits require more force to push the tool, possibly causing the bit to break.

Never touch the bit during or immediately after the use. After use the bit is too hot to be touched by bare hands.

Never lay the tool down until the motor has come to a complete standstill. The spinning bit can grab the surface and pull the tool out of your control.

Never use bits that have a cutting diameter greater than the opening in the base.

Do not use the tool for drilling purposes. This tool is not intended to be used with drill bits.

⚠ 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 paints,
- 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.

Always use the tool with the depth guide securely attached and positioned flat against material being cut. The guide securely positioned on the material improves the stability and control of your tool.

Symbols

IMPORTANT: Some of the following symbols may be used on your tool. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to operate the tool better and safer.

Symbol	Name	Designation/Explanation
V	Volts	Voltage (potential)
A	Amperes	Current
Hz	Hertz	Frequency (cycles per second)
W	Watt	Power
kg	Kilograms	Weight
min	Minutes	Time
s	Seconds	Time
⌀	Diameter	Size of drill bits, grinding wheels, etc.
n_0	No load speed	Rotational speed, at no load
.../min	Revolutions or reciprocation per minute	Revolutions, strokes, surface speed, orbits etc. per minute
0	Off position	Zero speed, zero torque...
1, 2, 3, ... I, II, III,	Selector settings	Speed, torque or position settings. Higher number means greater speed
	Infinitely variable selector with off	Speed is increasing from 0 setting
→	Arrow	Action in the direction of arrow

∿	Alternating current	Type or a characteristic of current
⎓	Direct current	Type or a characteristic of current
≂	Alternating or direct current	Type or a characteristic of current
⧈	Class II construction	Designates Double Insulated Construction tools.
⏚	Earthing terminal	Grounding terminal
⚠	Warning symbol	Alerts user to warning messages
	Ni-Cad RBRC seal	Designates Ni-Cad battery recycling program

This symbol designates that this tool is listed by Underwriters Laboratories.

This symbol designates that this tool is listed to Canadian Standards by Underwriters Laboratories.

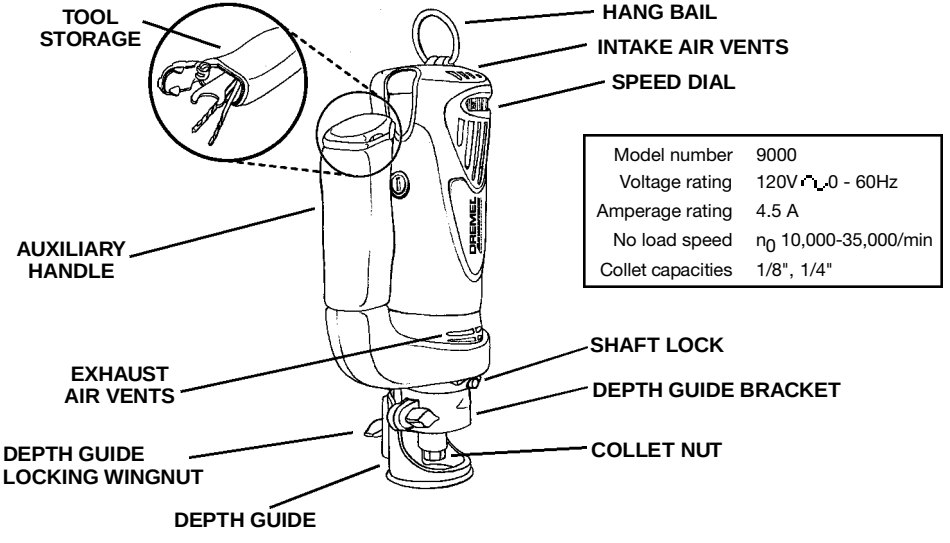
This symbol designates that this tool is listed by the Canadian Standards Association.

This symbol designates that this tool is listed by Underwriters Laboratories, and listed to Canadian Standards by Underwriters Laboratories.

This symbol designates that this tool complies to NOM Mexican Standards.

Functional Description and Specifications

⚠ WARNING Disconnect the plug from the power source before making any assembly, adjustments or changing accessories. Such preventive safety measures reduce the risk of starting the tool accidentally.



Model number	9000
Voltage rating	120V ∿ 0 - 60Hz
Amperage rating	4.5 A
No load speed	n_0 10,000-35,000/min
Collet capacities	1/8", 1/4"

Assembly

⚠ WARNING Make certain that the collet nut is securely tightened, auxiliary handle and the depth guide are installed properly before turning the tool on.

INSTALLING BITS

The bits are held by a collet system. Use either a 1/8" or 1/4" collet (not included) depending on the size of the bit shank.

(not included)

⚠ WARNING The bit flutes are sharp and should be handled with caution.

Depress and hold the shaft-lock in and rotate the collet nut and shaft until the shaft-lock engages and holds the shaft. Use the standard equipment wrench to loosen nut (counter-clockwise). Remove the old bit (if there is one) insert the new bit as far as possible, but not so far that the bit flutes engage the collet (leave approximately 1/8" of shank exposed). Re-engage the shaft-lock and tighten the nut (clockwise) by hand and then with the wrench until bit is held securely.

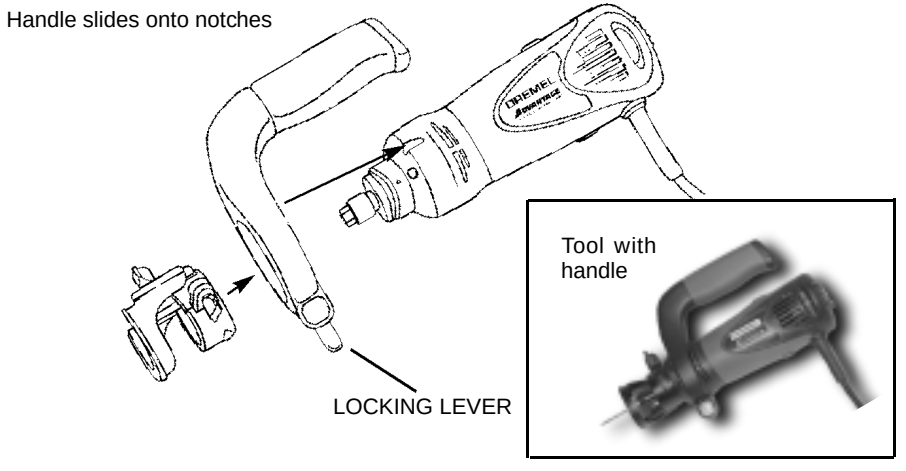
REMOVING AND INSTALLING DEPTH GUIDE ASSEMBLY

The depth guide assembly consists of the depth guide and depth guide bracket. To detach, loosen the bracket nut and twist the whole assembly 1/4 turn and pull straight of f the tool. To reattach the assembly, align the two pegs inside the bracket with the grooves on the tool collar and twist 1/4 turn, then tighten the bracket nut.

REMOVING AND INSTALLING AUXILIARY HANDLE

To remove, first detach the depth guide assembly. Then release the locking lever and pull handle off tool. To install the handle, first detach the depth guide assembly. Align the two wedges inside the handle with the two notches on the housing and slide the handle onto the housing until fully seated. Flip the lever closed.

Removing and installing the handle



Operating Instructions

SLIDE "ON/OFF" SWITCH

This tool is switched "ON" by the slide switch located on the top of the motor housing.

TO TURN THE TOOL "ON" slide the switch button up.

TO TURN THE TOOL "OFF" slide the switch button down or "0" position.

ÒONÓ ÒOFFÓ

⚠ WARNING Hold the tool with both hands while starting, since torque from the motor can cause the tool to twist.

VARIABLE SPEED CONTROL

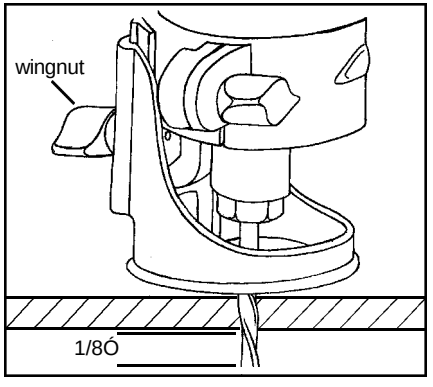
The variable speed control feature allows motor speed to be matched to cutter size and material hardness for improved finish, extended bit life, and higher performance. Speed changes are achieved by rotating Control Dial RIGHT to increase speed, LEFT to decrease as indicated on housing (Fig. 1). Speed may be changed while tool is on. The reference numbers on the dial facilitate re-setting control to desired speed.

The chart below indicates the approximate speed (RPM) of the tool at the dial settings. Use the arrow next to the dial to select the desired speed.

Speed Dial Setting	Approximate Speed (RPM)
1	10,000
2	18,000
3	23,000
4	27,000
5	31,000
6	35,000

DEPTH GUIDE ADJUSTMENT

Use the depth guide to adjust the depth of cut. Simply loosen (counter clockwise) the wingnut a little (approximately 1/8 turn) and slide the depth guide in or out to the desired depth of cut (about 1/8" greater than material thickness) and retighten the wingnut (clockwise).



MAKING DRYWALL CUT-OUTS

After assembling the bit into the tool as described earlier, it will be necessary to review the instructions provided below and make some practice cut-outs with this tool before attempting an actual job. The best method is to take some scrap pieces and nail or screw them in place over wall studs which have an electrical box or other feature in place. A few such exercises will give you the necessary practice to make clean, professional cutouts around whatever is behind the drywall you are installing.

⚠ WARNING **Do not attempt to use this tool to make cut-outs around any fixture or opening which has live electrical wires, or on any wall which may have live electrical wiring behind it, as the bit could conduct current to the tool, creating an electrocution hazard for the operator.** Shut off breakers or remove fuses to disconnect the circuit. Always hold the tool by its thermoplastic housing, and always wear eye protection when operating this device.

• **Step 1:** Be certain that the box or fixture which requires a cut-out is firmly mounted and all wires or other obstructions around the opening are pushed back out of the way. The drywall cut-out bit uses the outer edge of the box or fixture as a guide, so it is important that there is nothing in the way which can prevent it from guiding completely around the opening. For the purposes of this instruction manual, the procedure discussed will be to make a cut-out around a standard 2 1/8" x 3 3/4" electrical box.

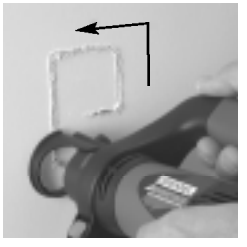
• **Step 2:** Before fastening the drywall sheet, make a mark close to the center of the opening in the box on the side of the drywall facing you. You may then begin to screw or nail the sheet to the wall, but do not install fasteners closer then about 15" to the box, or the sheet will likely bulge and crack before you cut the opening.

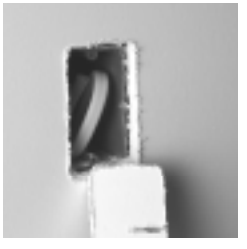
• **Step 3:** Holding the tool firmly switch the tool to the "ON" position as described earlier.

• **Step 4:** Holding the tool firmly with both hands, push the bit through the drywall at the mark you made in step 2. Guide the bit to the right until you feel it make contact with the inside edge of the box. Then retract the bit slightly, (do not pull entirely out) to allow it to penetrate through the drywall and contact the outside edge of the box by continuing to move the tool slightly to the right as you cut.

• **Step 5:** Keeping the bit in contact with the outside of the box, move the tool counter-clockwise to create the opening. When rounding a corner, keep applying light pressure towards the center of the box while moving the bit steadily and smoothly around the whole box until the entire cut has been completed. Slide the switch to the "OFF" position, and pull the bit free of the drywall. You may then remove the piece you have cut, and you will have a smooth opening. The rest of the screws or nails may now be put in place on the drywall sheet, and the task is completed.

⚠ CAUTION The motor may stall if improperly used or over-loaded. Reduce the pressure or feed rate to prevent possible damage to the tool. Do not attempt to start the tool when the bit is engaged in the workpiece. Always be sure the collet nut is tightened securely before use.





MAKING CUT-OUTS IN MATERIALS OTHER THAN DRYWALL

Your tool is capable of cutting many types of building materials in addition to drywall. There are several different bits available for use on these materials. Most materials can be cut with the "multipurpose" bit, however the "carbide" burr bits must be used for hard, abrasive materials such as ceramic wall tile (will not work on ceramic floor grade tile), cement board, plaster etc.

To make cut-outs, insert and adjust the proper bit according to previous instructions. Hold the tool firmly and turn it on. Place the depth guide at about a 45° angle against the work surface and tilt the tool to an upright position with the bit entering the scrap portion of the area being cut. Move the bit to the line you wish to follow and cut in a clockwise direction. Cutting at a slow even rate will make following a line easier and will put less stress on the bit.

NOTE: When cutting on a vertical surface, avoid ending your cut at the bottom of the hole. If possible, start and end your cut at the top so the scrap part will not drop onto the rotating bit. Turn the tool off and remove it from the cut out hole.

Maintenance Information

CLEANING

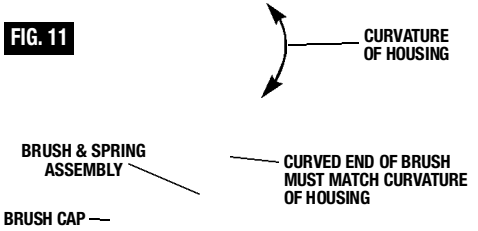
To avoid accidents always disconnect the tool from the power supply before cleaning or performing any maintenance. The tool may be cleaned most effectively with compressed dry air. **Always wear safety goggles when cleaning tools with compressed air.** Ventilation openings and switch levers must be kept clean and free of foreign matter. Do not attempt to clean by inserting pointed objects through openings.

⚠ CAUTION **Certain cleaning agents and solvents damage plastic parts.** Some of these are: gasoline, carbon tetrachloride, chlorinated cleaning solvents, ammonia and household detergents that contain ammonia.

SERVICE

Preventive maintenance performed by unauthorized personnel may result in misplacing of internal wires and components which could cause serious hazard. We recommend that all tool service be performed by a Dremel Service Facility.

FIG. 11



CARBON BRUSHES

The brushes and commutator in your tool have been engineered for many hours of dependable service. To maintain peak efficiency of the motor, we recommend every two to six months the brushes be examined. Only genuine Dremel replacement brushes specially designed for your tool should be used.

MAINTENANCE OF REPLACEABLE BRUSHES Model 9000

The brushes should be inspected frequently when tools are used continuously. If your tool runs sporadically, loses power, makes unusual noises or runs at a reduced speed, check the brushes. To continue using the tool in this condition will permanently damage your tool.

With the cord unplugged, remove the brush caps one at a time with a small screwdriver by rotating cap counter-clockwise and check each brush.

If the brush is less than 1/4" long and the end surface of the brush that contacts the commutator is rough and/or pitted, they should be replaced. Check both brushes. Usually the brushes will not wear out simultaneously. If one brush is worn out, replace both brushes. Make sure the brushes are installed as illustrated. The curved surface of the brush must match the curvature of the commutator.

After replacing brushes the tool should be run at no-load; place it on a clean surface and run it freely for 5 minutes before loading (or using) the tool. This will allow the brushes to “seat” properly and will give you more hours of life from each set of brushes. This will also extend the total life of your tool since the commutator surface will “wear” longer.

Bearings - Model 9000 is equipped with ball bearing construction. Under normal use no additional lubrication is required.

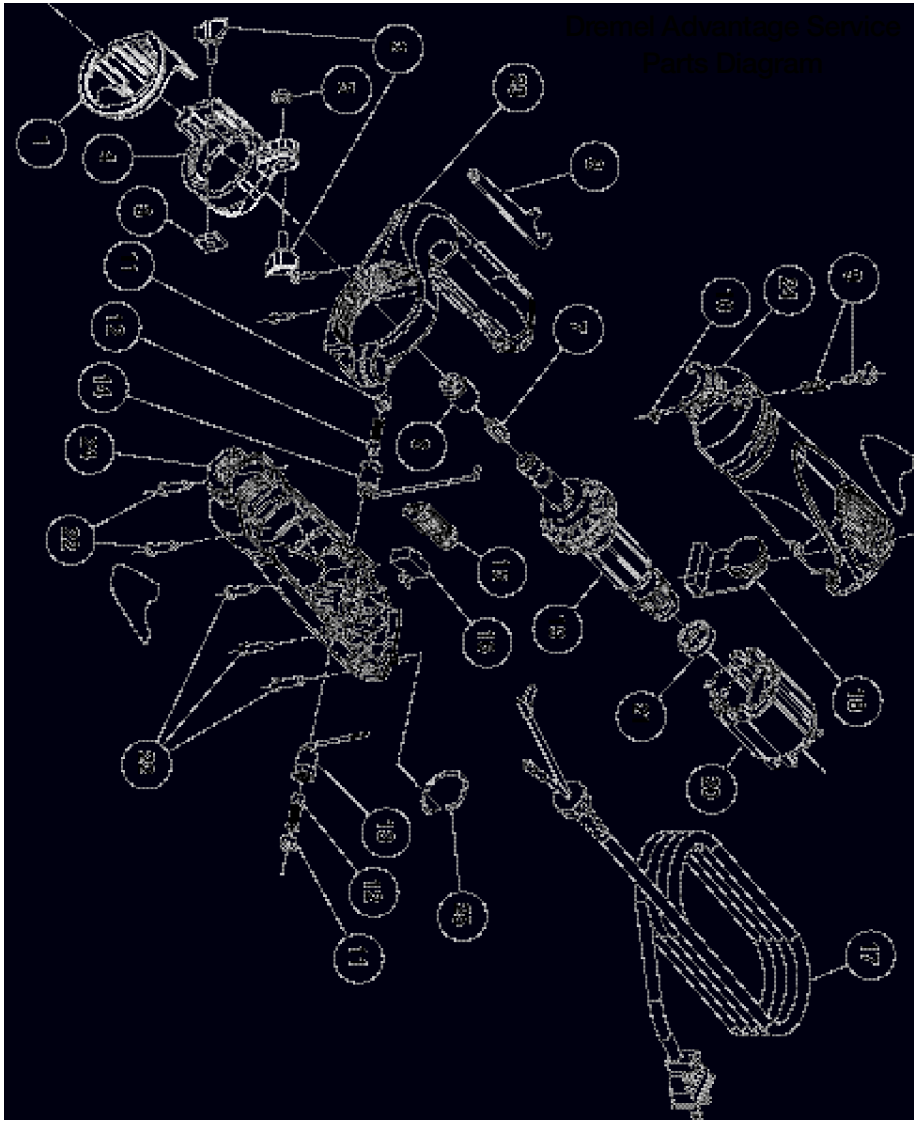
Extension Cords

If an extension cord is necessary, a cord with adequate size conductors that is capable of carrying the current necessary for your tool must be used. This will prevent excessive voltage drop, loss of power or overheating. Grounded tools must use 3-wire extension cords that have 3-prong plugs and receptacles.

NOTE: The smaller the gauge number, the heavier the cord.

RECOMMENDED SIZES OF EXTENSION CORDS 120 VOLT ALTERNATING CURRENT TOOLS

Tool's Ampere Rating	Cord Size in A.W.G.				Wire Sizes in mm^2			
	Cord Length in Feet				Cord Length in Meters			
	25	50	100	150	15	30	60	120
3-6	18	16	16	14	.75	.75	1.5	2.5
6-8	18	16	14	12	.75	1.0	2.5	4.0
8-10	18	16	14	12	.75	1.0	2.5	4.0
10-12	16	16	14	12	1.0	2.5	4.0	—
12-16	14	12	—	—	—	—	—	—



Dremel Advantage™ Service Parts List

Ref. No.	Part	Part No.
1	Depth Guide Cutting Base Plate	2610916273
2	Depth Guide Wingnut (pair)	2610914431
3	Depth Guide Nut Plate	2610913184
4	Depth Guide Retainer	2610916274
5	Retainer nut	3603301505
6	Collet nut	2610913319
7	1/8" Collet	2615295093
8	Wrench	2615295097
9	Shaft lock assembly	2610907116
10	Shaft lock retaining ring	2610909201
11	Brush caps (pair)	2610913159
12	Motor brushes and springs (pair)	2610913160
13	Motor brush holder with straight lead	2610915244
14	Motor brush holder with right angle lead	2610915245
15	Cap for on/off switch	2610913156
16	On/off switch	2610996245
17	Power cord	2610913157
18	Speed control assembly	2610913155
19	Motor assembly	2610914664
20	Field assembly	2604220677
21	Rubber isolator ring	2615297373
22	Screws (five)	2610326578
23	Handle assembly	2610913023
24	Housing set with labels	2610907339
25	Tool hanger	2610913164

Order by part number, not reference number.

Write for current price or call 1-800-4 DREMEL

Dremel Limited Warranty

Your Dremel product is warranted against defective material or workmanship for a period of two years from date of purchase. In the event of a failure of a product to conform to this written warranty, please take the following action:

1. DO NOT return your product to the place of purchase.
2. Carefully package the product by itself, with no other items, and return it, freight prepaid, along with:
   A. A copy of your dated proof of purchase (please keep a copy for yourself).
   B. A written statement about the nature of the problem.
   C. Your name, address and phone number to:

UNITED STATES
Dremel Service Center
4915 Twenty-First Street
Racine, Wisconsin 53406

OR

Dremel Service Center
4631 E. Sunny Dunes
Palm Springs, CA 92264

CANADA
Giles Tool Agency
6520 Lawrence Av. East
Scarborough, Ont.
Canada M1C 4A7

OUTSIDE CONTINENTAL UNITED STATES
See your local distributor or write to Dremel, 4915 Twenty-First St. Racine, Wisconsin 53406

We recommend that the package be insured against loss or in transit damage for which we cannot be responsible.

This warranty applies only to the original registered purchaser. DAMAGE TO THE PRODUCT RESULTING FROM TAMPERING, ACCIDENT, ABUSE, NEGLIGENCE, UNAUTHORIZED REPAIRS OR ALTERATIONS, UNAPPROVED ATTACHMENTS OR OTHER CAUSES UNRELATED TO PROBLEMS WITH MATERIAL OR WORKMANSHIP ARE NOT COVERED BY THIS WARRANTY.

No employee, agent, dealer or other person is authorized to give any warranties on behalf of Dremel. If Dremel inspection shows that the problem was caused by problems with material or workmanship within the limitations of the warranty, Dremel will repair or replace the product free of charge and return product prepaid. Repairs made necessary by normal wear or abuse, or repair for product outside the warranty period, if they can be made, will be charged at regular factory prices.

DREMEL MAKES NO OTHER WARRANTY OF ANY KIND WHATEVER, EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE ABOVE MENTIONED OBLIGATION ARE HEREBY DISCLAIMED BY DREMEL AND EXCLUDED FROM THIS LIMITED WARRANTY.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. The obligation of the warrantor is solely to repair or replace the product. The warrantor is not liable for any incidental or consequential damages due to any such alleged defect. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusion may not apply to you.

For prices and warranty fulfillment in the continental United States, contact your local Dremel distributor.