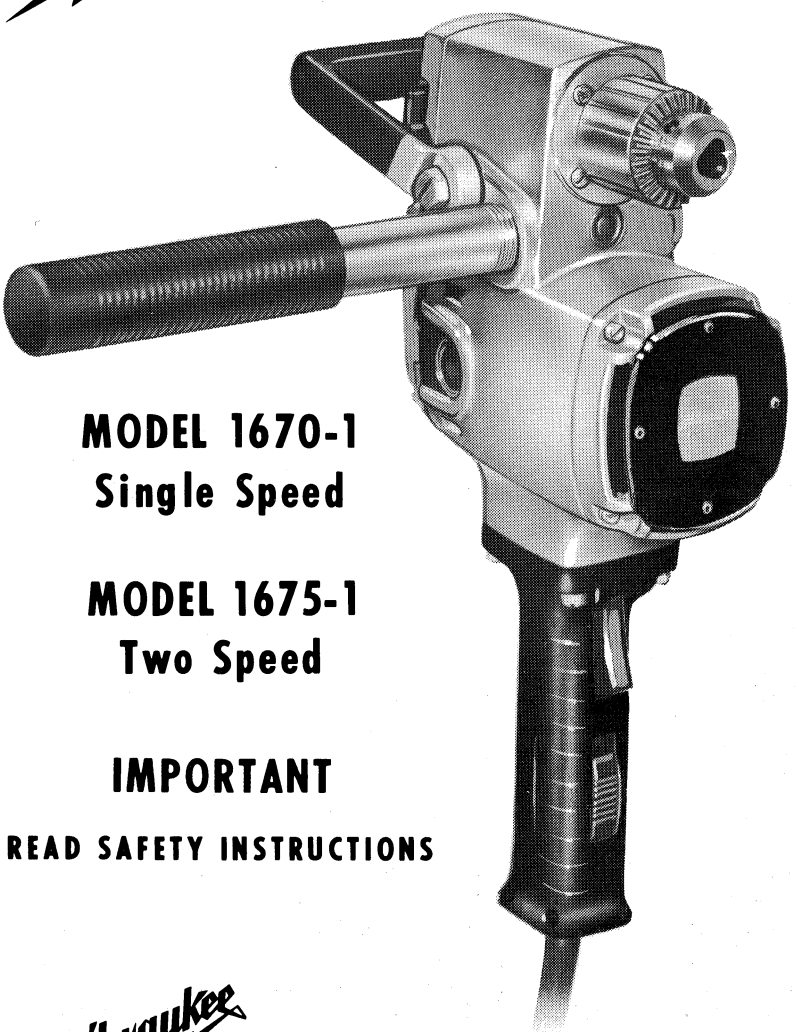
READ AND KEEP THIS FOR FUTURE REFERENCE

The Care and Operation of

YOUR NEW Milwaukee HEAVY-DUTY

HOLE HAWG



MODEL 1670-1
Single Speed

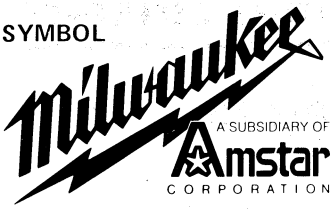
MODEL 1675-1
Two Speed

IMPORTANT

READ SAFETY INSTRUCTIONS

Milwaukee
A SUBSIDIARY OF Amstar CORPORATION
Quality Products of
MILWAUKEE ELECTRIC TOOL CORP.
13135 W. LISBON ROAD BROOKFIELD, WISCONSIN 53005

THIS SYMBOL



IS YOUR ASSURANCE –

1. That every tool manufactured by MILWAUKEE is produced in accordance with applicable Standards for Safety of Underwriters' Laboratories and American National Standards (ANSI).

2. That compliance with applicable safety standards is assured by independent inspection and testing conducted by Underwriters' Laboratories (UL).

3. That every motorized tool manufactured by MILWAUKEE is fully inspected.

4. That every tool has with it adequate instructions and a list of safety rules for the protection of the user.

SAFETY INSTRUCTIONS FOR ALL POWER TOOLS

1. **KNOW YOUR POWER TOOL.** Read owner's manual carefully. Learn its applications and limitations as well as the specific potential hazards peculiar to this tool.
2. **GROUND ALL TOOLS–UNLESS DOUBLE-INSULATED.** If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If adapter is used to accommodate two-pronged receptacle, the adapter wire must be attached to a known ground. Never remove third prong.
3. **KEEP GUARDS IN PLACE** and in working order.
4. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
5. **AVOID DANGEROUS ENVIRONMENT.** Don't expose power tools to rain or use in damp, wet, or gaseous or explosive locations. Keep work area well lit.
6. **KEEP CHILDREN AWAY.** All visitors should be kept safe distance from work area.
7. **STORE IDLE TOOLS.** When not in use, tools should be stored in dry, high or locked-up place–out of reach of children.
8. **DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was designed.
9. **USE RIGHT TOOL.** Don't force small tool or attachment to do the job of a heavy-duty tool.
10. **WEAR PROPER APPAREL.** No loose clothing or jewelry to get caught in moving parts. Rubber gloves and footwear are recommended when working outdoors.
11. **USE SAFETY GLASSES** with most tools. Also face or dust mask if cutting operation is dusty.
12. **DON'T ABUSE CORD.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil and sharp edges.
13. **SECURE WORK.** Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
14. **DON'T OVERREACH.** Keep proper footing and balance at all times.
15. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean at all times for best and safest performance. Follow instructions for lubricating and changing accessories. CAUTION: Do not use carbon tetrachloride.
16. **DISCONNECT TOOLS.** When not in use, before servicing; when changing accessories such as blades, bits, cutters, etc.

17. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
18. **AVOID ACCIDENTAL STARTING.** Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugged in.
19. **WEAR EAR PROTECTORS** when using for extended periods.
20. **ACCESSORIES.** The use of any accessories other than those listed or recommended for this particular tool may be hazardous.
21. **KEEP HANDS AWAY FROM CUTTING EDGES AND ALL MOVING PARTS.**
22. **USE INSULATED SURFACES.** A double insulated or grounded tool may be made live if the blade or bit comes in contact with live wiring in a wall, floor, ceiling, etc. Always check the work area for live wires and hold the tool by the insulated surfaces when making "blind" or plunge cuts.
23. **GRINDING WHEELS.** Use only grinding wheels with "Safe Speed" at least as high as "No Load RPM" marked on the name plate.

GROUNDING INSTRUCTIONS

This tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with an approved three-conductor cord and three-prong grounding-type plug to fit the proper grounding-type receptacle. The green conductor in the cord is the grounding wire. Never connect the green wire to a live terminal. If your unit is for use on less than 150 volts, it has a plug that looks like Fig. "A". If it is for use on 150 to 250 volts, it has a plug that looks like Fig. "C".

NOTE

The use of 3-prong adapters in Canada is prohibited by the Canadian Electrical Code.

An adapter, Fig. "B" is available for connecting Fig. "A" plugs to two-prong receptacles. The green grounding ear extending from the adapter must be connected to a permanent ground such as to properly grounded outlet box. No adapter is available for Fig. "C" plugs.

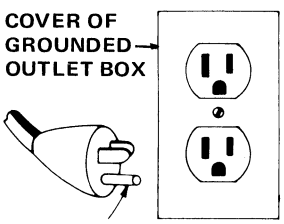


Fig. A

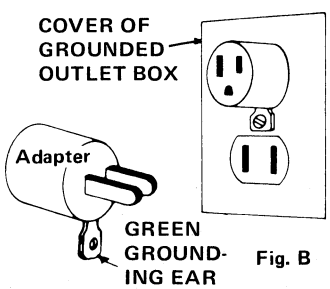


Fig. B

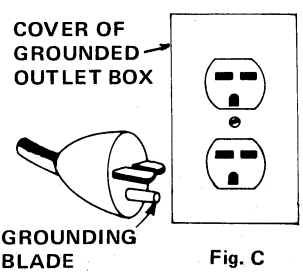


Fig. C

NOTE: RECEPTACLE MUST BE GROUNDED FOR SAFE USE OF ADAPTER; IF IN DOUBT CALL A QUALIFIED ELECTRICIAN AND HAVE THE RECEPTACLE CHECKED FOR GROUND.

EXTENSION CORDS

Use only three-wire extension cords which have three-prong grounding-type plugs and three-pole receptacles which accept the tool's plug. Replace or repair damaged cords.

EXTENSION CORD CHART

When an extension cord is used, it should also be a 3 wire cord to permit proper grounding of the tool. As the distance from the supply outlet increases, heavier gauge extensions are required. The use of extension cords of inadequate size wire causes a serious drop in voltage, loss of power and possible motor damage. This table is based on limiting line voltage drop to 5 volts at 150% of rated amperes.

Ampere rating (on Nameplate)	0-2.00	2.10-3.4	3.5-5.00	5.10-7.0	7.10-12.0	12.1-16.0	
Ext. Cable Length	Wire Size						
25 Ft.	18	18	18	18	16	14	
50 Ft.	18	18	18	16	14	12	Not normally available as flexible extension cord.
75 Ft.	18	18	16	14	12	10	
100 Ft.	18	16	14	12	10	8	
150 Ft.	16	14	12	12	8	8	
200 Ft.	16	14	12	10	8	6	
300 Ft.	14	12	10	8	6	4	
400 Ft.	12	10	8	6	4	4	
500 Ft.	12	10	8	6	4	2	
600 Ft.	10	8	6	4	2	2	
800 Ft.	10	8	6	4	2	1	
1000 Ft.	8	6	4	2	1	0	

IF USING EXTENSION CORD OUT OF DOORS, BE SURE IT IS RATED FOR OUTDOOR USE.

SPECIFICATIONS

Model No.	Shift	No Load RPM	Capacity		Volts	Amps
			In Steel	In Wood*		
1670-1	None	900	7/16"	2-9/16"	115 0 to 60 Cycles	7-1/2
1675-1	Low	300	1/2"	4-5/8"		
	High	1200	5/16"	1-3/8"		

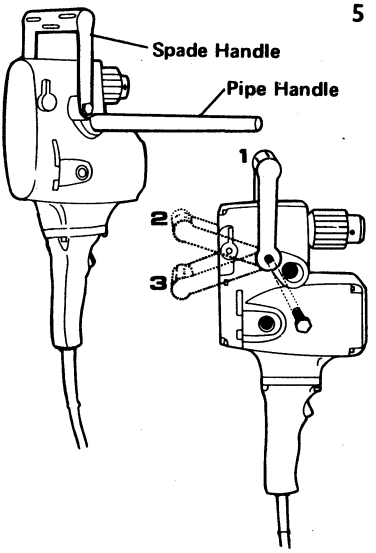
*Selfeed Bits

JACOBS CHUCK

This drill is furnished with a 1/2" Jacobs chuck. To insert bit, open jaws wide enough to allow bit to strike the bottom of chuck. Be sure shank of the bit and chuck jaws are clean. Dirt particles may cause bit to line up improperly. When using drill bits with flatted shanks, the flat surfaces of the bit shank must rest squarely on the chuck jaws to prevent slippage. Tighten chuck by hand to align bit before tightening with chuck key. Never use a wrench or means other than chuck key to tighten or loosen the chuck. Removing chuck from tool requires special tools. If the chuck must be removed, send complete tool to a Milwaukee Service Station.

Do not use bits larger than the rated capacity of drill. Gear damage or motor overload may result. For maximum drilling performance, be sure bits are properly sharpened before using.

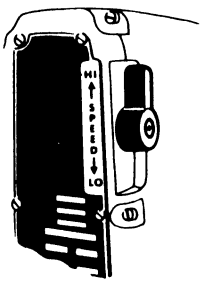
SPADE AND PIPE HANDLES



A three-position spade handle and an auxiliary pipe handle are furnished with Models 1670-1 and 1675-1 to provide safe control of tool at all times. The pipe handle may be used on either side of tool depending on application (see "Safety").

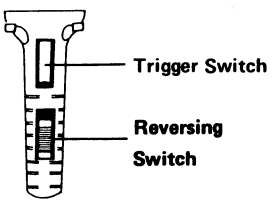
To change the spade handle to any of the three positions shown, completely remove hex head screws which secure handle and move it to the desired position. To mount handle in position number 3, it is necessary to reverse the mounting holes by turning the handle around.

SHIFTING SPEEDS (Model 1675-1)



A gear shift lever is provided on the right side of gear case to permit changing the speed from 300 rpm to 1200 rpm to suit specific drilling applications. For smooth, easy shifting, always turn off switch and shift while tool is coasting to a stop. Never shift the drill at full speed, when under load or when stopped.

REVERSING (Models 1670-1 and 1675-1)



A reversing switch is located beneath the trigger switch for fast removal of bits from holes. Permit motor to come to a complete stop before reversing. Reversing with gears in motion may cause serious damage. When backing Selfeed bits from partially drilled holes, a flick of the trigger switch will free the threaded pilot screw. When thread is loose, lift bit from hole with motor stopped. (See "Safety" for proper bracing procedure.)

CAUTION: Applications which could cause this tool to be driven at speeds more than 25% in excess of its rated speed are potentially dangerous and constitute misuse. This includes the use of voltage boosters. When coupling this tool to a potential driving source an over-riding clutch should be used to allow for disengagement. The Milwaukee Electric Tool Corporation assumes no responsibility for damage or accidents resulting from the use of this tool, its misapplication, or nonadherence to safety precautionary measures.

DRILLING PROCEDURE

Before drilling, clamp material down securely. A poorly secured piece of material may result in personal injury or inaccurate drilling. When drilling in light gauge metal or wood, back up the material with a wooden block to prevent damage to the work.

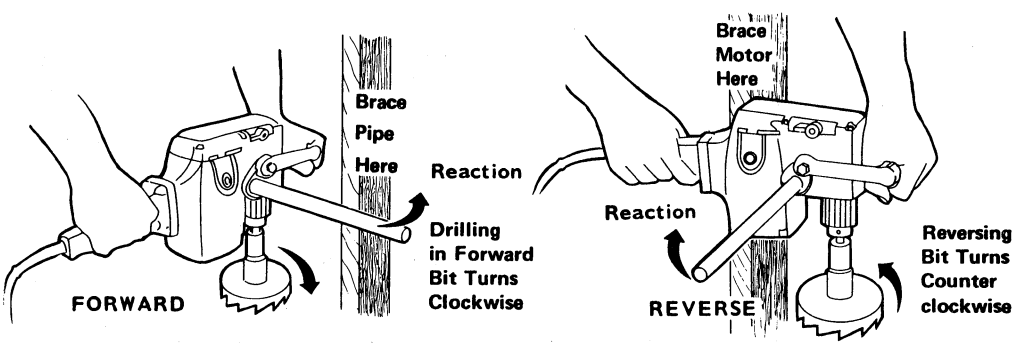
Mark the center of the hole to be drilled with a center punch to give the bit a start and to prevent it from "walking". Lubricate drill bit with cutting oil when drilling iron or steel. Use a coolant when drilling non-ferrous metals such as copper, brass or aluminum.

When using selfeed bits, auger bits or large twist bits, always brace drill as shown below. (See Safety.) To start selfeed bits, run threaded feed screw into work by flicking trigger switch, permitting the bit to coast until teeth contact work surface. Properly align bit before proceeding. This will reduce cocking and jamming when starting. To reduce jamming on breakthrough, decrease drilling pressure when feed screw point breaks thru work. Proceed with steady, even pressure.

SAFETY

CAUTION: This is a powerful tool. High torque is developed and it is important that the tool be securely held and properly braced.

The pipe handle should be used as a brace to maintain safe control of the drill. When drilling action is forward (clockwise), the drill should be braced to prevent a counterclockwise reacton if the bit should bind. When reversing, brace the drill to counterclockwise reaction if the bit should bind. When reversing, brace the drill to prevent a clockwise reaction. (See below.) Do not use trigger switch lock button in situations where the bit may bind, making it necessary to stop the drill suddenly. If a selfeed bit must be removed from a partially drilled hole, be sure drill is properly braced before reversing. (See below.)



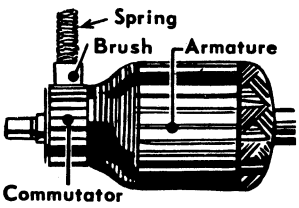
The Milwaukee Electric Tool Corporation assumes no responsibility for damage or accidents resulting from the use or misapplication of this tool, the use of improper accessories, or the failure to adhere to safety precautionary measures.

MAINTENANCE

All servicing other than recommended in this instruction manual must be done by an Authorized Milwaukee Service Station.

BRUSHES AND COMMUTATOR

Failure of the motor to start or to operate efficiently can usually be attributed to worn or damaged brushes, brushes sticking in the holders and failing to make proper contact with the commutator, or to the commutator being dirty or rough. Frequent inspection of brushes and commutator is recommended.



To inspect brushes, pull plug from power sorce and unscrew brush retainer caps located on the motor housing. Pull out brush retainer springs and brushes. Replace both brushes when either is worn down to 1/4". Always replace both brushes. When inspecting brushes, also check the commutator for wear. If worn badly, send the complete tool to a MILWAUKEE Service Station for undercutting and dressing of the commutator.

LUBRICATION

Proper and regular lubrication is the most important single factor in determining the useful life of this drill. It has been lubricated at the factory and this lubrication should be sufficient for six months to one year depending upon the amount of use. Tools used constantly on heavy-duty production jobs require lubrication more often. Tools which have not been used for extended periods of time should be relubricated before being put back in service.

To lubricate the tool, remove six screws which secure gear case cover. Be sure shift lever on 1675-1 is in LO position before loosening screws. Carefully lift cover from motor housing. Pack gear case 2/3 full with MILWAUKEE Type "C" grease. 1 lb. Can, Cat. No. 49-08-1000. Check all bearing housings to be sure bearings are in proper position before assembling.

ALL MAJOR REPAIRS SHOULD BE PERFORMED AT AN AUTHORIZED MILWAUKEE SERVICE STATION.

PARTS LIST AVAILABLE ON REQUEST
When ordering, include Catalog Number and Serial No. of Tool
Write:
SERVICE DEPARTMENT
MILWAUKEE ELECTRIC TOOL CORP.
13135 W. Lisbon Rd. Brookfield, Wis. 53005

FACTORY SERVICE

4320 North 124th St., Wauwatosa, Wis. 53225 Phone 414 781-3600

SERVICE BRANCHES

ANAHEIM
1130 N. Magnolia St.
Anaheim, Calif. 92801
Phone 714 827-3970

ATLANTA
1434 Tully Road, N.E.
Atlanta, Georgia 30329
Phone 404 636-4377

BOSTON
143 California St.
Newton, Mass. 02158
Phone 617 244-4483

CHICAGO
7315 N. Monticello Ave.
Skokie, Ill. 60076
Phone 312 539-9173

CLEVELAND
7600 Wall Street
Cleveland, Ohio 44125
Phone 216 524-8040

DALLAS
7205 Envoy Court
Dallas, Texas 75247
Phone 214 637-4820

DENVER
2620 W. 2nd Avenue
Denver, Colorado 80219
Phone 303 922-1163

DETROIT
999 Troy Court
Troy, Mich. 48084
Phone 313 585-8252

HOUSTON
4801 Katy Freeway
Houston, Texas 77007
Phone 713 861-4671

KANSAS CITY
1506 N. Topping
Kansas City, Mo. 64120
Phone 816 241-7300

LOS ANGELES
2561 W. Olympic Blvd.
Los Angeles, Calif. 90006
Phone 213 382-3000
and 213 382-2361

MIAMI
8101 N.W. 33rd St.
Miami, Florida 33122
Phone 305 592-0442

MINNEAPOLIS
2200 W. 94th Street
Bloomington, Minn. 55431
Phone 612 884-7258

NEW YORK
27-07 Brooklyn-Queens
Expressway W.
Woodside, New York 11377
Phone N. Y. 212 721-5151
N. J. 201 622-7752

PHILADELPHIA
388 Reed Road
P. O. Box 224
Broomall, Pa. 19008
Phone 215 544-5544
Phila. 215 528-6771

SAN FRANCISCO
329 Littlefield Ave.
S. San Francisco, Calif. 94080
Phone 415 583-8484
S. F. 415 761-2851

SEATTLE
503 S. Michigan St.
P. O. Box 80346
Seattle, Washington 98108
Phone 206 762-8430

AUTHORIZED SERVICE STATIONS

ALABAMA
Power Tool Services, Inc
1113 4th Avenue South
Birmingham, Alabama 35233

ALASKA
Aero Services Co
203 Post Road
P.O. Box 1554
Anchorage, Alaska 99501

The Tool Shed
22 Van Horn Road
Fairbanks, Alaska 99701

ARIZONA
Glenn's Tool Service
4036 North 13th Way E.
Phoenix, Arizona 85014

Electric Motor Company
1028 East Broadway
Tucson, Arizona 85719

ARKANSAS
Henninger, Inc.
1206 South Main Street
Little Rock, Arkansas 72202

CALIFORNIA
Blackstone Electric Motor Shop
1251 Blackstone Avenue
Fresno, California 93703

Sacramento Industrial Electric Co
6325 Elvas Avenue
Sacramento, California 95819

Precision Mechanical
260 Commercial Street
San Jose, California 95112

CONNECTICUT
Portable Power Tool Repair Co.
447 Arch Street, Rear
New Britain, Connecticut 06051

FLORIDA
Florida Electric Motor Service
1128 Atlanta Avenue
Orlando, Florida 32806

Electrical Repair Co.
1228 East Cass Street
Tampa, Florida 33602

HAWAII
Central Service & Sales, Inc.
687 Auahi Street
Honolulu, Hawaii 96813

IDAHO
K. C. Supply Co.
814 North Manville Street
Boise, Idaho 83704

INDIANA
Electric Tool & Motor Service, Inc.
1001 North Illinois
Indianapolis, Indiana 46204

IOWA
Jim's Appliance Service
901 Ninth St., S.W.
Cedar Rapids, Iowa 52404

Five Cities Tool Service, Inc.
743 Schmidt Road
Davenport, Iowa 52802

Electrical Engineering & Equip. Co.
1804 Delaware Street
Des Moines, Iowa 50317

KANSAS
Reliance Electric Company
Mears Electric Service Center
925 East Murdock
Wichita, Kansas 67214

KENTUCKY
City Electric Motor Shop
492 East High Street
Lexington, Kentucky 40508

Tool Repair Service
1700 Goss Avenue
Louisville, Kentucky 40217

LOUISIANA
Beerman Precision Machine Wks., Inc.
2021 Thalia St. - P.O. Box 53432
New Orleans, Louisiana 70150

MARYLAND
Roland Electrical Company
330 West 23rd Street
Baltimore, Maryland 21211

Turner Electric Company
201 Ethan Allen Avenue
Takoma Park, Maryland 20012

MICHIGAN
J. T. Hoeksema Co.
2499 28th Street, S.W.
Grand Rapids, Michigan 49509

MISSISSIPPI
Flannigan Electric Co. Inc
328 Oakdale Street
Jackson, Mississippi 39204

MISSOURI
P. M. Electric Company, Inc.
5280 Fyler Avenue
St. Louis, Missouri 63139

MONTANA
City Electric Company
601 West Kent Street
Missoula, Montana 59801

NEBRASKA
Flohr Electric Service, Inc.
2516 Cuming Street
Omaha, Nebraska 68131

NEVADA
Stewart's Electric Motors, Inc.
2113 Western Avenue
Las Vegas, Nevada 89102

NEW MEXICO
Electric Service, Inc
1007 Bridge Boulevard, S.W.
Albuquerque, New Mexico 87105

NEW YORK
Richter Electric Motor Repair
1559 Niagara Street
Buffalo, New York 14213

Berger Electric Corp
295 Mt. Read Boulevard
P.O. Box 1907
Rochester, New York 14603

Barlett Electric Service Inc
112 Henry Street
Schenectady, New York 12304

Ramsing Electric Service Co
125 Charles Avenue (Syracuse)
Solvay, New York 13209

NORTH CAROLINA
Portable Tool Service
724 North Brevard Street
Charlotte, North Carolina 28202

OHIO
Cincinnati Electrical Repair Co.
2023 Elm Street
Cincinnati, Ohio 45210

B. R. Shoemaker & Son
950 Oakland Park Avenue
Columbus, Ohio 43224

M & R Electric Motor Service, Inc.
1516 East Fifth Street
Dayton, Ohio 45403

OKLAHOMA
Capitol Electric Motor Repair Inc
2215 S.W. 11th
Oklahoma City, Oklahoma 73108

Hammond Electric Co.
1510 East Third Street
Tulsa, Oklahoma 74120

OREGON
Keith's Electric Motor Service
678 Olive Street
Eugene, Oregon 97401

Walker Electric Works
206 Northwest 10th Avenue
Portland, Oregon 97209

PENNSYLVANIA
Snyder Electric Company
1500 Chateau Street
Pittsburgh, Pennsylvania 15233

PUERTO RICO
Cabrera Electronic Shop
Andalucia Esq. Algeria 1001
Rio Piedras, Puerto Rico 00920

RHODE ISLAND
Babine Electric Service Inc
315 Jefferson Boulevard
Warwick, Rhode Island 02888

SOUTH CAROLINA
Mann Electric Repair Co.
2909 Main Street
Columbia, South Carolina 29201

Delta Ind. Electric Co., Inc.
1906 Meeting Street
P.O. Box 622
Charleston, South Carolina 29402

S & F Power Tool Service, Inc
100 Airport Road
Greenville, South Carolina 29606

TENNESSEE
Electric Service Company
3914 McCalla Avenue
Knoxville, Tennessee 37914

Southern Electric Co.
812 Porter Street
Memphis, Tennessee 38126

Allied Electric Motor Co., Inc
939 4th Avenue, S.
Nashville, Tennessee 37210

Dixie Industrial Service, Inc
2108 East Main Street
Chattanooga, Tennessee 37404

TEXAS
G. E. Jones Electric Co., Inc
212 North Polk
Amarillo, Texas 79107

Hamilton Electric Works Inc
3800 Airport Boulevard
Austin, Texas 78722

Electric Motor Sales and Service
1514 East Commerce Street
San Antonio, Texas 78205

UTAH
Diamond Electric Motor Service
1465 South Second West Street
Salt Lake City, Utah 84104

VIRGINIA
Bryan Electric Company
424 West 25th Street
Norfolk, Virginia 23517

Roy's Electric Motor Service, Inc
3201 Norfolk Street
Richmond, Virginia 23230

Lloyd Electric Company, Inc
521 West Salem Avenue
Roanoke, Virginia 24016

WASHINGTON
K & N Electric Motors, Inc
1311 North Washington Street
Spokane, Washington 99201

Cooper Electric Motor Service Co
205 South 4th Avenue
Yakima, Washington 98902

WISCONSIN
Power Tool Service Co
310 North Webster Avenue
Green Bay, Wisconsin 54301

MILWAUKEE ELECTRIC TOOL CORPORATION FACTORY AND HOME OFFICE
13135 W. LISBON RD. • BROOKFIELD, WI 53005 • PHONE: AREA CODE (414) 781-3600

CANADIAN SUBSIDIARY
MILWAUKEE ELECTRIC TOOL (CANADA) LTD., 383 MIDWEST RD., SCARBOROUGH, ONTARIO M1P3A6

Guarantee

Every MILWAUKEE Tool is thoroughly inspected and tested before leaving the factory. It is guaranteed against defective workmanship and materials. Should any trouble develop, return the COMPLETE tool prepaid to the Factory, Branch, or nearest Authorized MILWAUKEE Service Station. If inspection shows trouble is caused by defective workmanship or material, all repairs will be made without charge and returned, transportation prepaid. The guarantee does not apply where: Repairs or attempted repairs have been made by persons other than Factory, Branch or Authorized Service Station personnel; repairs are due to normal wear; the tool has been abused or in an accident; misuse is evident – caused by overloading the tool beyond its rated capacity, use of the tool after partial failure or use with improper accessories. No other guarantee, written or verbal, is authorized.

58-12-1780 576 Litho in U.S.A.