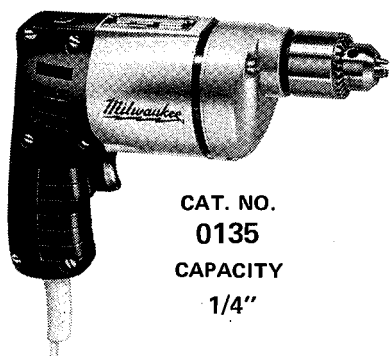
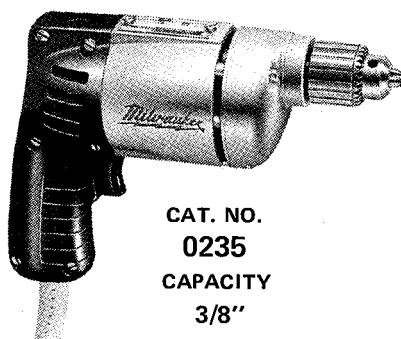


READ AND KEEP THIS FOR FUTURE REFERENCE

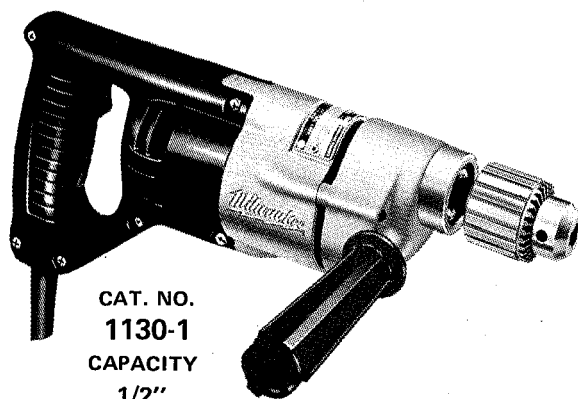
The Care and Operation of
YOUR NEW
Milwaukee
HEAVY - DUTY
12 VOLT
TOOLS



CAT. NO.
0135
CAPACITY
1/4"



CAT. NO.
0235
CAPACITY
3/8"



CAT. NO.
1130-1
CAPACITY
1/2"

IMPORTANT-Before placing tool in operation, record the following information from name plate.

Model Number _____ Serial Number _____ Date of Purchase _____



MILWAUKEE ELECTRIC TOOL CORPORATION

13135 West Lisbon Road • Brookfield, Wisconsin 53005

CASUALTY HAZARDS

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
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.

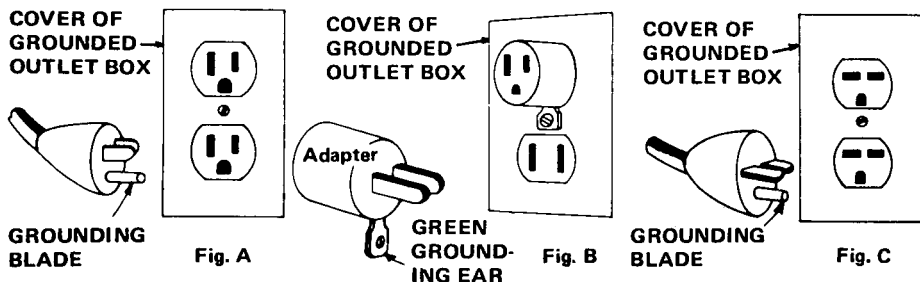
GROUNDING INSTRUCTIONS

The transformer should be grounded while in use to protect the operator from electric shock. It 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 wire 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.



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 CABLE CHART

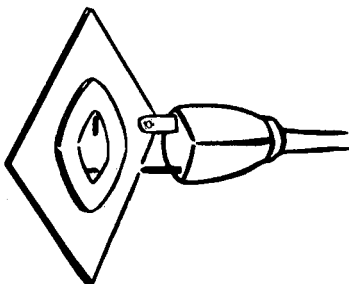
When an extension cord is used, it should always be a 3 wire cord to permit proper grounding of the transformer. As the distance from the supply outlet increases, heavier gauge extensions are required. The use of extension cords of inadequate size wire causes a serious drop in voltage, loss of power 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	Not normally available as flexible extension cord.
50 Ft.	18	18	18	16	14	12	
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.

12 VOLT TOOLS

All MILWAUKEE 12 volt tools are equipped with a two-prong "T" plug as illustrated below. This plug can be used only with the special outlet on the Battery Carrying Case No. 48-55-0040, Cadmium Belt Battery No. 48-11-0060 and extension cords 48-76-0050 and 48-76-0060. DO NOT ALTER PLUG IN ANY WAY, IT IS DESIGNED FOR 12 VOLT USE ONLY.



IMPORTANT

1. Do not use 12 volt tools on 120 or 240 volt current.
2. Keep battery at full or near full charge at all times for maximum operating efficiency.
3. Always keep battery in an upright position.
4. Keep battery terminals clean and connections tight.
5. Use extensions only when necessary. Long extensions cause power drop.

INSTALLING BATTERY NO. 48-11-0050 CARRYING CASE

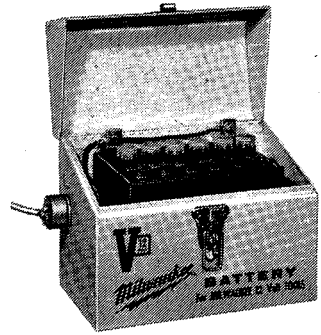
Batteries are shipped dry. Instructions for activating are packed with battery. Read and follow instructions carefully. After activator fluid has been added, charge battery before using.

The carrying case No. 48-55-0040 has a built-in receptacle to permit plugging your 12 volt tool directly into the case. After placing battery No. 48-11-0050 in case, place rubber pads provided, on both sides of battery to prevent movement. Connect red lead wire to the positive terminal (+) and black lead wire to negative terminal (-) of battery. CAUTION: Damage will result if leads are reversed.

The MILWAUKEE Electric Tool Corporation assumes no responsibility for any damage or accidents resulting from the use, misapplication, or nonadherence to safety precautionary measures.

CHARGING 12 VOLT BATTERIES

For maximum performance, battery should be kept at or near full charge at all times. After battery, has been used, charging overnight is recommended. A 16 hour charge is sufficient to restore full power. Do not overcharge. Charging battery for more than 48 hours will result in deterioration of battery cells.



To connect Battery Charger No. 48-59-0100 to battery, connect red clip to (+) terminal and green clip to (-) terminal. Connect three prong cord to a grounded 120 volt receptacle. The unit is equipped with an ammeter to show rate of charge, and is automatic allowing unit to shut off when battery is completely charged.

CADMIUM BELT BATTERY NO. 48-11-0060

For maximum portability, a 10 volt, 4 amp. hr. rated, Nickel-Cadmium Battery for use with MILWAUKEE 12 Volt Pistol Drills. Sealed unit clips to belt, weighs only 3-3/4 lbs. and is 6-1/2" high X 3" wide. Ideally suited for high ladder and pole work. Requires 12" adapter cord No. 48-76-0090. Battery can be recharged over 400 times.

CADMIUM BATTERY CHARGER NO. 48-59-0050

For use with Cadmium Battery No. 48-11-0060. Connect to battery and connect to 120 volt AC outlet.

OPERATION

Before drilling, clamp material down securely. A poorly secured piece of material may result in inaccurate drilling or personal injury if the bit should bind. When drilling holes in light gauge metal or wood, back up the material with a wooden block to prevent bending, distorting or splintering.

Mark the center of the hole to be drilled with a center punch to give the bit a start and to prevent it from "wandering". Place the drill on the center mark while in the "off" position. Holding the drill firmly at a 90° angle to the work, start motor and apply steady pressure. Do not use the trigger switch lock button in situations where the bit may bind making it necessary to stop the drill suddenly. Lubricate the drill bit with cutting oil when drilling iron or steel. Use a coolant when drilling non-ferrous metals such as copper, brass or aluminum.

TO INSERT DRILL BITS

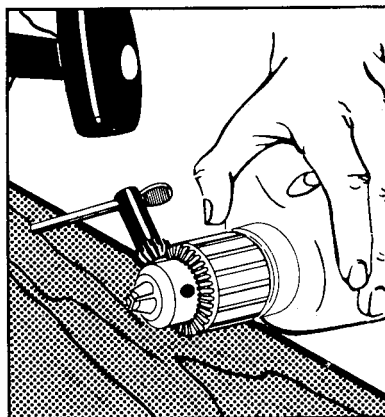
All MILWAUKEE Pistol Grip Drills are equipped with industrial, key type, geared chucks. When inserting bit, open chuck jaws wide enough to allow the bit to strike the bottom of the chuck. Be sure the shank of the bit and the chuck jaws are clean. Dirt particles may cause the bit to line up improperly. Tighten jaws by hand to align bit before tightening with chuck key. Never use a wrench or means other than the chuck key to tighten or loosen the chuck. Do not use bits which are larger than the rated capacity of the Drill. Gear damage or motor overload may result. For maximum drilling performance, be sure bits are properly sharpened before using.

AUXILIARY SIDE HANDLE

An Auxiliary Side Handle is furnished with the 1130-1 and screws into either side of the gear case. Always use Side Handle to maintain safe control.

CHUCK REMOVAL

Non-Reversing Drills To remove the chuck from MILWAUKEE Hole-Shooters with non-reversing motors, hold the tool so that **only** the chuck rests firmly and squarely on the edge of a solid bench. Insert the chuck key or a chuck remover bar in a keyhole of the chuck. Turn the chuck until the key is at about a 30° angle to the bench top and strike the key sharply with a hammer so the chuck turns in the direction the chuck turns when operated in a forward position. This should free the chuck from the threaded spindle (right hand thread) and you will be able to remove it by hand.

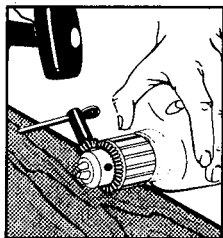


Reversing Drills To remove the chuck from MILWAUKEE Hole-Shooters, open the jaws of the chuck as far as possible and turn out the left hand thread socket head screw. This screw locks the chuck to the spindle. Once screw has been removed, the chuck may be taken off as described in the above copy for Non-Reversing Drills.

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.

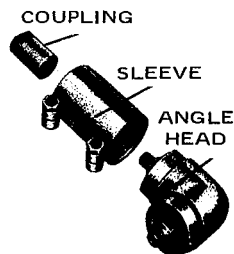
CAUTION: Applications which could cause this tool to be driven at speeds more than 25% in excess of its rated speed are potentially dangerous and constitute misuse. This includes the use of voltage boosters, power boosters and external speed control devices of any kind. When coupling this tool to a potential driving source, an overriding clutch should be used to permit disengagement.

USING RIGHT ANGEL DRIVE UNIT CAT. NO. 48-06-2871 WITH "D" HANDLE DRILL CAT. NO. 1130-1.



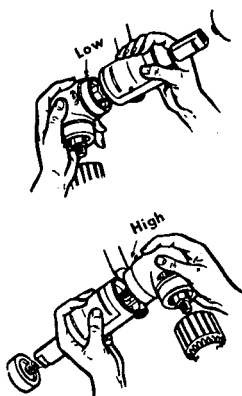
REST CHUCK ON SOLID SURFACE BEFORE REMOVING. FAILURE TO DO SO MAY RESULT IN A BENT SPINDLE.

When removing chuck from reversing drills it is necessary to first remove the (l.h.) threaded socket screw as per instructions outlined in this booklet.



ATTACHING RIGHT ANGLE DRIVE TO DRILL

After removing chuck from drill, the double hex coupling should be slipped over the hex on the drill spindle. After mounting coupling, loosen the clamping screws on the clamping sleeve and slip the sleeve on to the collar of the drill. Slide Right Angle Drill head into the other end of the sleeve and turn the drive head slightly in either direction so the hexagon hole in the coupling engages the hexagon portion of the spindle. Attaching the drill chuck to the side designated "low" reduces the speed by 1/3 and increases torque 50%. Attaching the chuck to the opposite spindle increases the speed by 50%. When assembled, turn the Right Angle head to the desired position and tighten the clamping screws to secure the unit. Thread drill chuck on Right Angle spindle. **INSTALL CHUCK LOCKING SCREW ON REVERSING MODELS.**



REMOVING CHUCK FROM "RAD" UNIT



Chuck can be removed from Right Angle Drive in the same manner it was removed from your drill; however, **ALWAYS REMOVE RIGHT ANGLE DRIVE FROM THE DRILL BEFORE ATTEMPTING TO LOOSEN CHUCK.** This will prevent damaging drills gearing. Use the open end wrench provided to hold Right Angle Drive Spindle before attempting to loosen chuck.

USE ONLY IDENTICAL REPLACEMENT PARTS

Parts List Available On Request.

When ordering, include Catalog No. and Serial No. of Tool.

Write: **MILWAUKEE ELECTRIC TOOL CORP. SERVICE DEPT.**
13135 W. Lisbon Rd. Brookfield, WI. 53005

MAINTENANCE

All servicing other than recommended must be done by an Authorized Milwaukee Service Station.

LUBRICATION

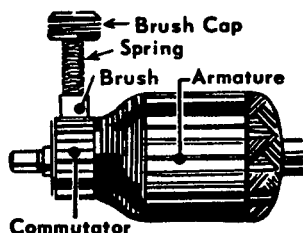
All MILWAUKEE Hole-Shooters are lubricated at the factory and require additional lubrication only at intervals of 6 months to 1 year depending upon the amount of use. When further lubrication is necessary, care should be taken to prevent the armature from coming loose when the gear case is removed. To remove gear case, remove the screws from the front of the case. Holding the tool on the diaphragm, lightly tap the gear case to loosen it. If the gear case will not completely dislodge, set the complete tool on a workbench and use two screwdrivers opposite each other to gently pry it off. If the diaphragm pulls free of the motor housing, the armature may be pulled out of the back bearing, possibly permitting the brushes to slip off the commutator. Should this occur, return the entire tool to the nearest Authorized MILWAUKEE Service Station for reassembly. Return all parts.

Repack 2/3 full with MILWAUKEE Type "A" grease. 1/2 lb. Can, Cat. No. 49-08-0500. 1 lb. Can, Cat. No. 49-08-0800.

BRUSHES AND COMMUTATOR Models 0135 and 0235

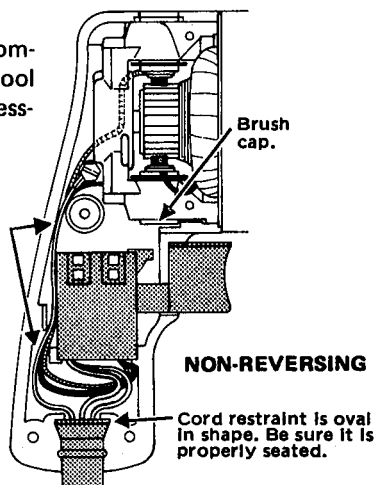
Inspect brushes regularly. Brush wear can be determined by removing the upper brush cap on top of the pistol grip. Be sure tool is unplugged before removing brush cap. When cap has been removed, pull out carbon brush assembly. If brush is worn to 3/16", both brushes should be replaced. The second brush is located inside the handle and can be exposed by removing the six screws which secure the right side of the pistol grip. Lift out trigger switch assembly just enough to allow removal of lower brush cap. **DO NOT REMOVE WIRES FROM SWITCH TERMINALS.** Remove brush cap, spring and brush. Install new brush, replace spring and cap. Position switch assembly so it fits snug into the switch bosses. Reposition wires as shown in drawing. Make sure wires are not on the edge of the case or on switch bosses. Replace the right side of the pistol grip, be sure cord restraint is positioned properly.

When checking or replacing brushes, check the commutator for wear. If worn badly, send complete tool to an Authorized Milwaukee Service Station for dressing and undercutting of commutator.



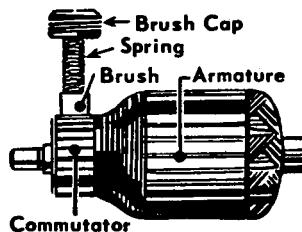
Wires must be placed as shown. Make sure they are below the surface of handle.

BEFORE REPLACING HANDLE COVER, BE SURE WIRES ARE POSITIONED AS SHOWN, TO ASSURE THAT THEY WILL NOT BE PINCHED.



BRUSHES AND COMMUTATOR Model 1130-1

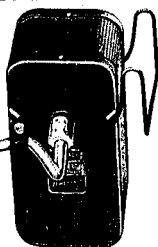
Failure of the motor to start or to operate efficiently can usually be attributed to worn or damaged brushes, brushes sticking in the holders and failing to make proper contact with the commutator, or to the commutator being dirty or rough. Frequent inspection of brushes and commutator is recommended.



To inspect the brushes, remove plug from power source. Unscrew brush retainer caps located on motor housing. Pull out brush retainer springs and brushes.

Replace brushes when worn down to 1/4". Always replace both brushes at the same time. 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.

12 VOLT BATTERY POWERED TOOL ACCESSORIES



BELT BATTERY AND CORD

BELT BATTERY AND CORD (For use with pistol drills only.)
NO. 48-11-0060 9.6 Volt Nickel-Cadmium Battery (less cord).
 4 amp hours capacity. Use adapter Cord **NO. 48-76-0090**.
NO. 48-76-0090 12" Adapter Cord furnished separately.

CADMIUM BATTERY CHARGER NO. 48-59-0050 For Belt Battery. Plug into 115 Volt AC outlet and connect to battery.

BATTERY AND CARRYING CASE The 12 Volt storage battery has a rated capacity of 32 amp. hours. Can be recharged over 400 times. Battery carrying case is wired with outlet for plug-in connection and is used with MILWAUKEE or any 12 Volt battery up to 5-1/4" wide, 7-3/4" high and 9" long.

BATTERY NO. 48-11-0050
CARRYING CASE NO. 48-55-0040

NOTE: When ordering tools without the MILWAUKEE Battery carrying case, the 6 foot cord with battery clips **NO. 48-76-0060**, is required. (See below.)

6 AMP BATTERY CHARGER NO. 48-59-0100

An economical battery charger for recharging 12 volt batteries at 6 amps. Polarity protected—built-in circuit breaker protects against short circuits and overloads. Completely automatic—charger shuts off when battery reaches charge capacity. Equipped with ammeter to show rate of charge.

6' CORD WITH BATTERY CLIPS NO. 48-76-0060

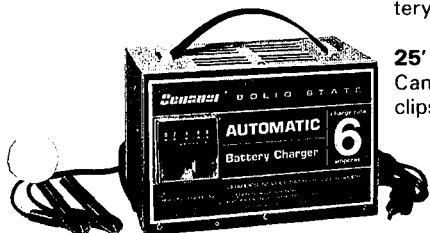
For connecting 12 Volt tools to 12 Volt batteries in motor vehicles, boats, mowers, etc., use this two wire, 10 gauge cord with 2 battery clips and female connection.

25' 12 VOLT EXTENSION CORD NO. 48-76-0050

Can be used with MILWAUKEE battery case or cord with battery clips.

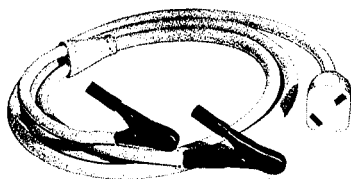


BATTERY AND CARRYING CASE



6 AMP BATTERY CHARGER

6' CORD WITH BATTERY CLIPS



HIGH SPEED STEEL JOBBER'S LENGTH TWIST DRILLS

29 PIECE SET

CATALOG NO.

48-89-0010

Sizes 1/16" to 1/2"
by 64ths.

15 PIECE SET

CATALOG NO.

48-89-0020

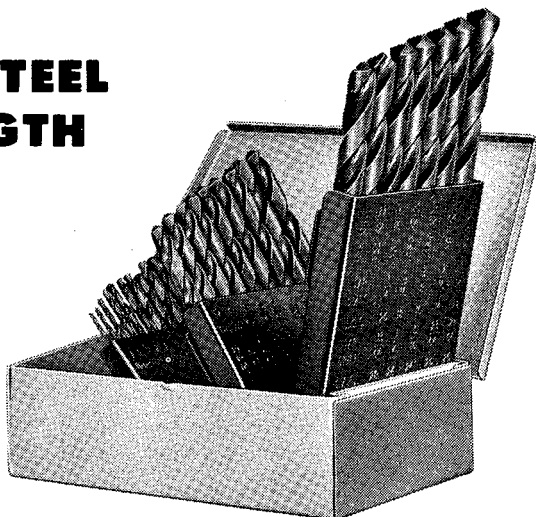
Sizes 1/16" to 1/2"
by 32nds.

13 PIECE SET

CATALOG NO.

48-89-0030

Sizes 1/16" to 1/4"
by 64ths.



**AVAILABLE IN SETS
OR INDIVIDUAL SIZES**

The ultimate in a general purpose Jobbers' Drill. Extreme accuracy on all the elements of the most important part of a Twist Drill - the point. Suitable for drilling a wide range of materials, including cast and malleable iron, steel and steel forgings.

HIGH SPEED STEEL TWIST DRILLS

CATALOG NUMBER (PACKAGE)	SIZE	QUANTITY PER PACKAGE	CATALOG NUMBER (PACKAGE)	SIZE	QUANTITY PER PACKAGE
48-89-0062	1/16	12	48-89-0281	9/32	12
48-89-0078	5/64	12	48-89-0296	19/64	12
48-89-0093	3/32	12	48-89-0312	5/16	6
48-89-0109	7/64	12	48-89-0328	21/64	6
48-89-0125	1/8	12	48-89-0343	11/32	6
48-89-0140	9/64	12	48-89-0359	23/64	6
48-89-0156	5/32	12	48-89-0375	3/8	6
48-89-0171	11/64	12	48-89-0390	25/64	6
48-89-0187	3/16	12	48-89-0406	13/32	6
48-89-0203	13/64	12	48-89-0421	27/64	6
48-89-0218	7/32	12	48-89-0437	7/16	6
48-89-0234	15/64	12	48-89-0453	29/64	6
48-89-0250	1/4	12	48-89-0468	15/32	6
48-89-0265	17/64	12	48-89-0484	31/64	6
			48-89-0500	1/2	6

LUBRICANTS

TYPE "A" GREASE

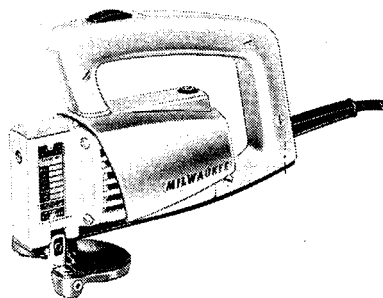
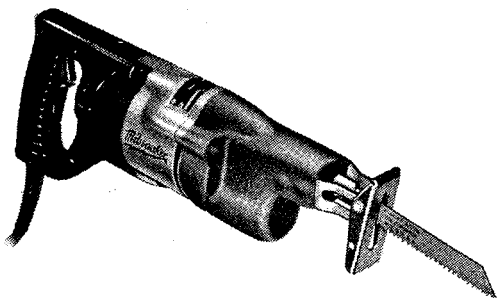
No. 49-08-0500

1/2 lb.

No. 49-08-0800

1 lb.

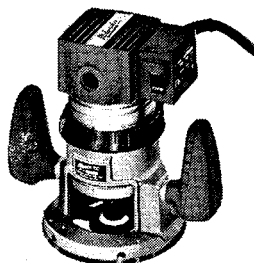
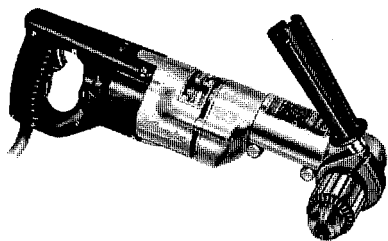
HEAVY-DUTY TOOLS FOR CONTRACTORS & INDUSTRY



LIMITED WARRANTY

Every MILWAUKEE Tool is thoroughly inspected and tested before leaving the factory. Should any trouble develop, return the complete tool prepaid to the Factory, Branch or nearest Authorized MILWAUKEE Service Station. If inspection shows the trouble is caused by defective workmanship or material, all repairs will be made without charge and the tool will be returned, transportation prepaid.

This warranty does not apply where: (1) repairs or attempted repairs have been made by persons other than Factory, Branch or Authorized Service Station personnel; (2) repairs are required because of normal wear; (3) the tool has been abused or involved in an accident; (4) misuse is evident such as caused by overloading the tool beyond its rated capacity; (5) the tool has been used after partial failure or (6) the tool has been used with an improper accessory. No other warranty written or verbal, is authorized.



MILWAUKEE ELECTRIC TOOL CORP.

13135 W. LISBON ROAD

BROOKFIELD, WISCONSIN 53005