



PORTABLE MAGNETIC DRILLS

OPERATOR'S MANUAL

HMD500



FOR USE WITH "12,000-SERIES" ROTABROACH® CUTTERS

HOUGEN®

Portable Magnetic Drill

Model HMD500

Welcome to Hougen

Congratulations on your purchase of the Hougen® Portable Magnetic Drill Model HMD500. Your model is designed to produce superior holes quickly and efficiently. Through constant innovation and development, Hougen is committed to provide you with hole-producing tools and products to help you be more productive.

Before attempting to operate your new Portable Magnetic Drill, please read all instructions first. These include the Operator's Manual and Warning Label on the unit itself. With proper use, care, and maintenance, your model will provide you with years of effective hole drilling performance. Once again, thank you for selecting our product and welcome to Hougen.



WARNING

Unplug from power when changing cutters or when servicing machine.
Keep fingers away from cutter during operation
Never place fingers in cutting area or on arbor when machine is plugged in.

Any tool can shatter. **Always wear eye protection**

Do not use machine in **damp area** or when it may become wet.

Beware of ejected slug at end of cut.

SAFETY INSTRUCTIONS

1. **Read and follow** operators manual. Check and comply with all applicable federal, state, local and company safety standards. If you cannot locate your operator's manual, call or write to Hougen Mfg. for additional **FREE** copy.
2. Magnet will not hold properly on thin (3/8" or under) steel or on rough or dirty surfaces.
3. Keep safety features working properly.
4. Keep bottom of magnet free of chips.
5. Do not use dull or broken cutters.
6. Always use safety chain.
7. Unplug from power anytime machine is not in use.

This product is covered under the following U.S. patent: 5902076

Photographs and Specifications shown are accurate in detail at time of printing. Manufacture reserves the right to make improvements and modifications without prior notice.

Hougen, Hougen-Edge, Rotabroach are proprietytrademarks of Hougen Manufacturing Inc.

Commercial / Industrial Limited Warranty

Hougen Manufacturing, Incorporated warrants its Portable Magnetic Drills for one (1) year and its Electro-hydraulic Hole Punchers and other products for ninety (90) days from date of purchase against defects due to faulty material or workmanship and will repair or replace (at its option) without charge any items returned. This warranty is void if the item has been damaged by accident or unreasonable use, neglect, improper service, or other causes not arising out of defects in material or workmanship. No other expressed warranty is given or authorized. Hougen Manufacturing, Inc. disclaims any implied warranty of MERCHANTABILITY or FITNESS for any period beyond the expressed warranty and shall not be liable for incidental or consequential damages. Some states do not allow exclusions of incidental or consequential damages or limitation on how long an implied warranty lasts and, if the law of such a state governs your purchase, the above exclusion and limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

To obtain warranty service, return the item(s), transportation prepaid, to your nearest Factory Warranty Authorized Repair Center or to Hougen Manufacturing, Inc., 3001 Hougen Drive, Swartz Creek, Michigan 48473.

Hougen Drills (Rotabroach Cutters) are warranted against manufacturing defects only. Subject to Hougen Manufacturing inspection.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

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UNPACKING YOUR NEW MAGNETIC DRILL

1. Open shipping carton and lay the drill case on it's side.
 2. Open the case lid and remove the hardware and literature packets.
 3. **Read and Follow All Instructions** before attempting to operate your new Magnetic Drill.
 4. Complete and mail the Product Registration Card now. It is important that Hougen Manufacturing, Inc. have a record of product ownership.
 5. Check contents.

01447 Feed Handles (3)
04149 7/32" Allen Wrench for cutter installation
10570 Feed Handle Knobs (3)
10730 Safety Chain
11741 Concentrated Cutting Fluid (Pint)
 6. Using the handle of Magnetic Drill, lift unit out of the shipping case.
 7. Remove all packing and securing material from the drill unit.
 8. Screw the three Knobs (10570) into the three Feed Handles (01447) and then screw Handles into the Hub.
 8. Your Magnetic Drill was factory adjusted prior to shipping. Check to make sure that all fasteners are snug and have not vibrated loose in transit.
 9. Your new Magnetic Drill comes complete with arbor mounted. The 3/4" diameter arbor bore fits all 3/4"-shank "12,000-Series" Rotabroach Cutters. A 1/2"-diameter bore Arbor Adapter (10851), for mounting 1/2"-shank "12,000-Series" Rotabroach Cutters, is optional.
- Reread Safety Warnings listed in the Operator's Manual and on the drill unit to avoid injury. Follow operating procedures.

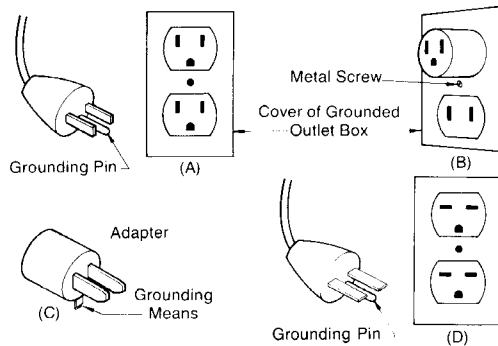
IMPORTANT SAFETY INSTRUCTIONS

WARNING: When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following:

1. Read All Instructions

2. Grounding Instructions

This tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with a 3-conductor cord and a 3-prong grounding type plug to fit the proper grounding type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal. If your unit is for use on 115V, it has a plug that looks like that shown in sketch (A). If it is for use on 230V, it has a plug that looks like that shown in sketch (D). An adapter, see sketches (B) and (C), is available for connecting sketch (A) type plugs to 2-prong receptacles. The green-colored rigid ear, lug, or the like, extending from the adapter must be connected to a permanent ground, such as a properly grounded outlet box. No adapter is available for a plug as shown in sketch (D). **Note: Use of a grounding adapter is prohibited in Canada by Part I of the Canadian Electrical Code.**



3. Extension Cords

Use only 3-wire extension cords that have 3-prong grounding type plugs and 3-pole receptacles that accept the tool's plug. Replace or repair damaged cords.

Make sure the conductor size is large enough to prevent excessive voltage drop which will cause loss of power and possible motor damage. See Table below.

Length of Cord, Feet	Recommended Wire Gauge	Recommended Wire Gauge
	115V Motor 10-12 Amps	230V Motor 5-6 Amps
Up to 25	16	18
26-50	14	18
51-100	10	16
101-200	8	14
201-300	6	12
301-500	4	10

4. Do Not Force Tool

It will do the job better and faster at the rate for which it was intended.

5. Keep Work Area Clean

Cluttered areas and benches invite injuries. Keep dirt and chips from under magnet and Rotabroach Cutter area.

6. Consider Work Area Environment

Do not expose tool to rain.
Do not use tool in damp or wet locations.
Keep work area well lit.
Do not use tool in presence of flammable liquids or gases.

7. Guard Against Electric Shock

Prevent body contact with grounded surfaces. For example: pipes, radiators, ranges, refrigerator enclosures.

8. Keep Children Away

Do not let visitors contact tool. All visitors should be kept away from work area.

9. Store Idle Tools

When not in use, tools should be stored in a dry, and high or locked-up place — out of reach of children.

10. Use Right Tool

Do not force small tool or attachment to do the job of a heavy duty tool. Do not use tool for purpose not intended — for example — do not use a circular saw for cutting tree limbs or logs.

11. Secure Work

Use clamps or a vise to hold work. It is safer than using your hand and it frees both hands to operate tool.

12. Always Wear Safety Glasses or Goggles

13. Dress Properly

Do not wear loose clothing or jewelry. They might entangle with spinning chips or get caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear sturdy leather gloves when working indoors.

Wear protective hair covering to contain long hair.

14. Do Not Abuse Cord

Never carry drill unit by its cord or yank it to disconnect from receptacle.

Keep cord away from heat, oil, and sharp edges.

IMPORTANT SAFETY INSTRUCTIONS

15. Do Not Overreach

Keep proper footing and balance at all time.

16. Maintain Tools With Care

Keep tools sharp and clean for better and safer performance.

Do not use dull or broken Rotabroach Cutters. Follow instructions for lubricating and changing accessories.

Inspect tool cords periodically and, if damaged, have repaired by authorized service facility.

Inspect extension cords periodically and, if damaged, have repaired by authorized service facility.

Keep handles dry, clean, and free from oil and grease.

17. Disconnect Tools

Disconnect when not in use, before servicing, and when changing Rotabroach Cutters or accessories.

18. Remove Adjusting Keys and Wrenches

Form a habit of checking to see that keys and wrenches are removed from tool before turning it on.

19. Check Damaged Parts

Before further use of the drill, a part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this operator manual. Do not operate tool if switch does not turn it on and off.

20. Stay Alert

Watch what you are doing.

Use common sense.

Do not operate tool when you are tired.

Have defective switches replaced by authorized service center.

21. Outdoor Use Extension Cords

When tool is used outdoors, use only extension cords intended for use outdoors and so marked.

22. Additional Safety Precautions

Spindle and cutter should never be used as a hand-hold.

Keep hands and clothing away from all moving parts.

Do not use Rotabroach Cutters where ejected slug might cause injury (slug ejected at end of cut).

Be sure that all safety devices are properly adjusted and in use. Also, adhere to all operating instructions.

Do not drill through any surface that may contain live electrical wiring. Drilling into a live wire could cause exposed metal parts of the drill to be made live.

Remove chips wrapped around Rotabroach Cutter and arbor after each hole. With motor off and power disconnected, grasp chips with leather gloved hand or pliers and pull while rotating counterclockwise.

Should the cutter become jammed in the work, stop the unit immediately to prevent personal injury. Disconnect the drill from the power supply and loosen jammed cutter by turning the arbor counterclockwise. Never attempt to free the jammed cutter by starting the motor.

Service at authorized repair center only.

23. Non-Conforming Cutting Tools

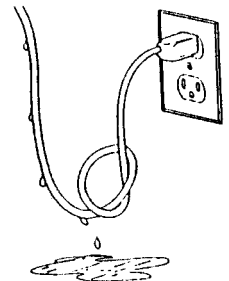
Your Magnetic Drill is designed to use Hougén Rotabroach Cutters. The use of drilling tools having different shank styles is not recommended as they may not tighten securely in the drill arbor with risk of accident or injury.

24. Operating Near Welding Equipment

When operating your Magnetic Drill near an arc welder, it is important that they are connected to the same Earth Ground. If they are not, severe damage to the unit, particularly the power cord, could occur. This could also result in personal injury to the operator.

25. Safe Electrical Connection

Wet electrical connections are shock hazards. To prevent the cutting fluid from traveling along the cord and contacting the plug or power outlet, tie a drip loop as shown at right. Also elevate extension cords or gang box connections.



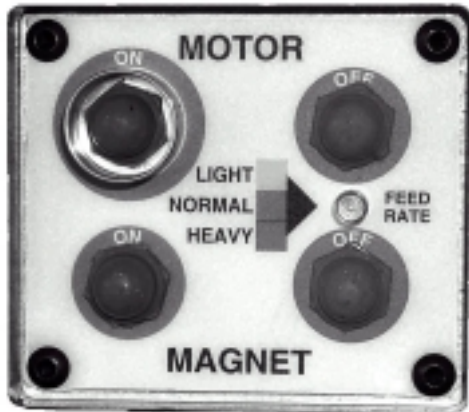
26. Save These Instructions

REVIEW OPERATION OF CONTROLS BEFORE INSTALLING A ROTABROACH CUTTER

IMPORTANT: Before turning on the machine, it is imperative that the operator understands the interrelated functions of the **SAFETY SWITCH, GLIDE POSTS, MAGNET SWITCHES, AND MOTOR SWITCHES.**

1. Place Magnetic Drill on clean, flat steel plate that is at least 3/8" thick.
2. Plug unit into proper AC power source. **DO NOT use with DC power.**
3. Locate the Magnet ON and OFF switches and the MOTOR ON and OFF switches as shown below.

MOTOR ON SWITCH — Starts the motor (will not function unless the magnetic base is energized and the safety switch is activated).



MOTOR OFF SWITCH — Deactivates motor. Magnetic base remains energized and safety switch activated.

FEED RATE L.E.D. — Indicates status of power source to the unit and cutting performance:

Unit plugged in, no load	Green Solid
Magnet On, no load	Green Solid
Motor On, no load	Amber
Ideal Operating Range	Flashing Green
Excessive load	Solid Red
Low Voltage (when plugged in)	Flashing Red

MAGNET ON SWITCH — Energizes the magnetic base and activates the safety switch. Motor can now be started by pushing the MOTOR ON switch.

MAGNET OFF SWITCH — De-energizes the magnetic base and deactivates MOTOR ON switch. (Note: MAGNET OFF switch will not function while motor is on.)

SAFETY SWITCH — Located in base of drill. Enables motor operation only when magnet is properly seated on a clean and flat work surface. Turns motor off if drill unit should lift or shift while cutting (Fig. 6).

GLIDE POSTS — Lifts magnet and breaks residual magnetic energy after magnet is turned off. It also acts as a glide point when drill is being moved from one position to another on the work surface, thus minimizing wear on magnet. It also permits easier repositioning and protects the safety switch.

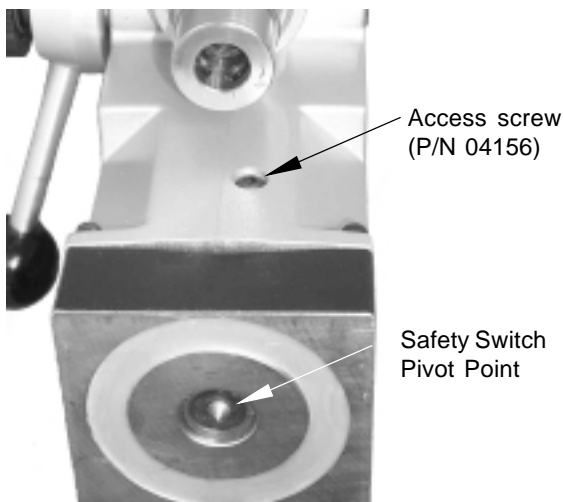
SAFETY SWITCH ADJUSTMENT

1. Unplug unit from power source and place it on a flat sheet of steel that is at least 3/8" thick. Only magnet portion should be on steel plate. Rear of magnet (containing Glide Post) should hang over the edge of the steel plate.
2. Remove Access Hole Screw (04156) from front of housing.
3. Insert 5/32" Allen Wrench into access hole and back off (counterclockwise) Microswitch Adjusting Screw (10969) about three full turns.
4. Turn adjusting screw in (clockwise) about 1/8 turn at a time (removing wrench, plugging motor to power source, and turning magnet and motor ON each time) until you find exactly where motor starts.

CAUTION — Turn switches OFF and unplug motor from power source prior to each adjustment.

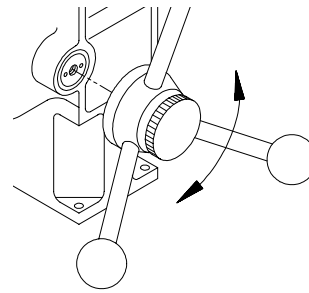
5. After determining point where motor starts, turn adjustment screw clockwise one and a half turns.
6. Plug unit to power source. Turn Magnet and Motor switches ON. Strike side of magnet at rear with rubber hammer. Motor should shut off before the magnet moves 3/4" in any direction.
7. Replace Access Hole Screw.

NOTE: Safety Switch adjustment should be checked regularly following the procedure outlined in Step 6 above.



REVERSING THE FEED HANDLE ASSEMBLY

1. Remove hub by turning mounting screw counter clock wise.
2. Remount hub by aligning locator pins with matching holes in feed gear and tightening screw.



MAINTENANCE

In order to minimize wear on moving parts and to insure smoother operation and longer life for your magnetic drill, the following maintenance should be done periodically, based on use.

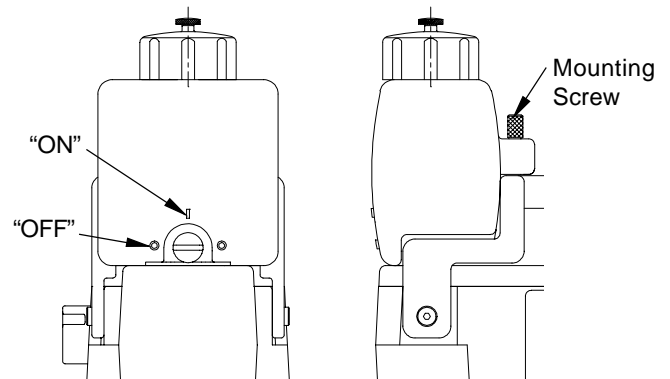
1. Regularly tighten all fasteners and replace any worn components.
2. Check motor brushes and replace if worn.
3. Check power cord and motor cord. If cracked or frayed, return to authorize repair center for replacement.

ROTABROACH CUTTER INSTALLATION

1. Disconnect from power source.
2. Lay drill on its side with feed handles up or be sure Arbor clears table if unit is in normal operating position.
3. Remove set screws from spindle.
4. Insert proper pilot in shank end of Rotabroach Cutter. Pilot #24131 is recommended for use with spring loaded ejection on cutters 3/4" diameter and larger.
5. Insert Rotabroach Cutter until flats on cutter shank are aligned with set screw holes and are exactly perpendicular to axis of set screw holes. If 1/2" diameter shank cutter is used, slip (10851) Arbor Adapter over the cutter shank with adapter hole positioned exactly over flat on cutter shank prior to inserting into Arbor bore.
6. Insert set screws and tighten. Check to be certain that cutter is secure.

INSTALLATION OF CUTTING FLUID BOTTLE

1. With Magnetic Drill in operating position, turn feed handle so that cutter and pilot are above the work surface.
2. Set coolant bottle in carrying handle yoke with valve facing toward the spindle of the drill. Press down to seat nipple into port.
3. Tighten mounting screw on back of coolant bottle.
4. To test cutting fluid flow (with the magnet ON and motor OFF), feed the arbor gently toward the work surface until the pilot is pushed up into the cutter. Open valve on coolant bottle cap. Fluid should filter down onto the work surface through the groove in the pilot.
5. To insure proper cutter lubrication, always make sure that the slot in the pilot is kept clean.



OPERATION OF CUTTING FLUID BOTTLE

1. With Magnetic Drill in operating position, turn feed handle so that cutter and pilot are above the work surface.
2. Turn cutting fluid bottle valve to "OFF" position.
3. Remove bottle cap, fill with cutting fluid and replace cap.
4. Open cap vent by turning knurled screw 2 turns.
5. Test metering capabilities (MAGNET ON - MOTOR OFF) by feeding the Arbor gently toward work surface until pilot is pushed up into Cutter, thus allowing fluid to filter down onto work surface through groove in pilot.

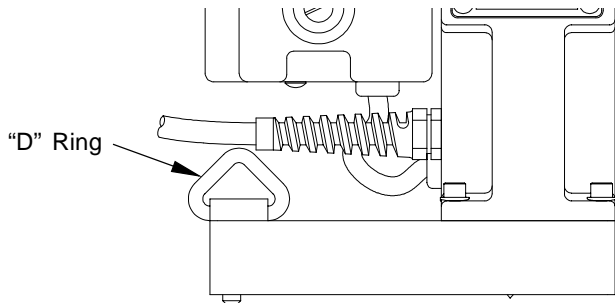
Note: As quill is fed toward material, fluid is drawn from the bottle. As quill is returned to it's starting position, fluid will return to the bottle.

Note: Valve intended for "ON-OFF" operation only. Trying to regulate coolant-flow with valve may cause valve to leak. Coolant flow has been pre-determined.

See Page 10 for optional Pressurized Coolant Bottle Assembly.

USE OF SAFETY CHAIN

The safety chain should be used to prevent the drill unit from falling in the event of a power failure or if the magnet breaks loose from the work surface. The safety chain should be attached to the drill by running it through the "D" ring located at the rear of the magnet, and tightly secured.

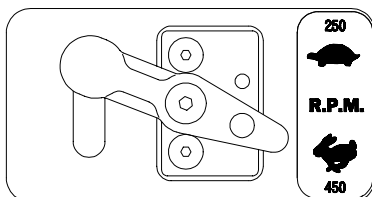


OPERATING INSTRUCTIONS

Always remember that the magnet's holding power is directly related to the workpiece thickness and surface condition. Since magnetic attraction diminishes with thinner material or rough surfaces, mechanical clamping of drill unit to the workpiece should be used when cutting thin material (3/8" or less) or material with uneven surfaces.

Note: Always form a loose knot in the power cord close to the molded plug. This prevents cutting fluid from running down the cord and into power receptacle.

1. Make sure workpiece and bottom of magnet are free of chips, oil, etc.
2. Secure unit to workpiece with safety chain.
3. Position drill by sliding it and gently feeding Arbor so that pilot point is touching center of hole to be drilled.
4. Turn magnet ON by pressing the MAGNET ON button.
5. Select the proper RPM for the cutter diameter you are using. Use the 450 setting for 7/16" thru 1-1/16" diameter and use the 250 setting for 1-1/8" thru 2-3/8" diameters.



For 1-1/8" thru 2-3/8"

For 7/16" thru 1-1/16"

8. Make certain that cutter is clear of workpiece and turn motor ON by pressing the MOTOR ON button.
9. Feed Rotabroach Cutter slowly into workpiece. Only after cutting path is established to a depth of about 1/16" can full force be applied to feed handles.
10. Ease up on feed pressure as cutter starts breaking through.
11. At conclusion of cut, turn motor OFF by pressing motor STOP button. Turn Feed Handles to raise Arbor thereby ejecting the slug if it hasn't already fallen free.
12. Close the cutting fluid bottle valve.
13. Turn magnet OFF by pressing the magnet OFF button. As the magnet de-energizes, the rear of the magnet should lift up off the work surface.
14. **Disconnect from power source.**
15. If necessary, remove chips from cutter and magnet, preferably wearing leather work gloves and/or with pliers.
16. Disconnect safety chain and you are ready to move unit to new drilling position.

Special Instructions for Horizontal or Overhead Operation

Note: The RPM settings for the diameter ranges are to be used as starting points only. Setting may vary per application.

6. Turn Feed Handle, raising the cutter until the pilot is above the work surface.

7. Open the cutting fluid bottle valve.

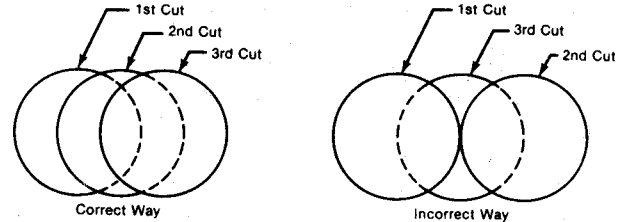
1. Always Use Safety Chain.

2. Use grease or animal-fat base solid lubricant applied liberally to cutter.
3. For horizontal use, apply cutting fluid to external parts of cutter with plastic bottle or oiling can, or use the optional pressurized coolant bottle assembly (P/N 24140).

HINTS FOR SMOOTHER OPERATION

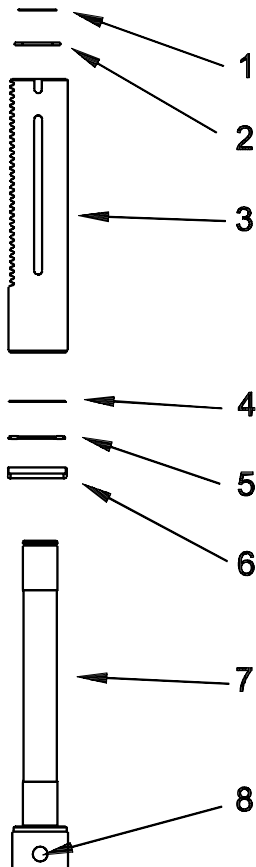
1. Keep insides of Rotabroach Cutter clear of chips. Chips will interfere with cutting to maximum depth as well as impede free oil flow from arbor to work and can cause cutter breakage.
2. Keep workpiece, machine, arbor and Rotabroach Cutter free of chips and dirt.
3. Tighten all bolts regularly.
4. We highly recommend using a light viscosity cutting fluid (preferably Hougen Cutting Fluid).
5. Occasionally check metering of cutting fluid flow. Lack of coolant may cause Rotabroach Cutter to freeze in cut, slug to stick, and may result in poor cutter life.
6. Always start cut with light feed pressure and then increase sufficiently to achieve maximum cutting rate.
7. Ease off on pressure as cutter begins to break through at end of cut.
8. Keep magnet and cutter free of chips and dirt.
9. When slug hangs up in cutter, bring cutter down on a flat surface. This will normally straighten a cocked slug, allowing it to be ejected.
10. Cut overlapping holes as illustrated, using minimum steady pressure. When cutter is removing material whose cross-section is half or less than the cutter diameter, pilot should be removed and tool should be fed with care. External lubrication should be used.

Note: When cutting in this manner, cutting fluid may escape from the cutting area. Tool should be fed with care, using external lubrication.



11. When cutting large diameter or deep holes, it may be necessary to stop in the middle of the cut to add cutting fluid to the reservoir and also remove chips from around the Arbor. When doing this, do not raise the cutter out of the hole. Doing so can allow chips to get under the teeth of the cutter and make it difficult to restart the cut.

24072 ARBOR ASSEMBLY



Item No.	Description	Qty	Part No.
1	Retaining Ring	1	24164
2	Washer	1	24165
3	Quill Assy	1	24016
4	Thrust washer	1	24091
5	Thrust Bearing	1	24094
6	Seat Thrust washer	1	24013
7	Arbor	1	24163
8	Set Screws	2	40222

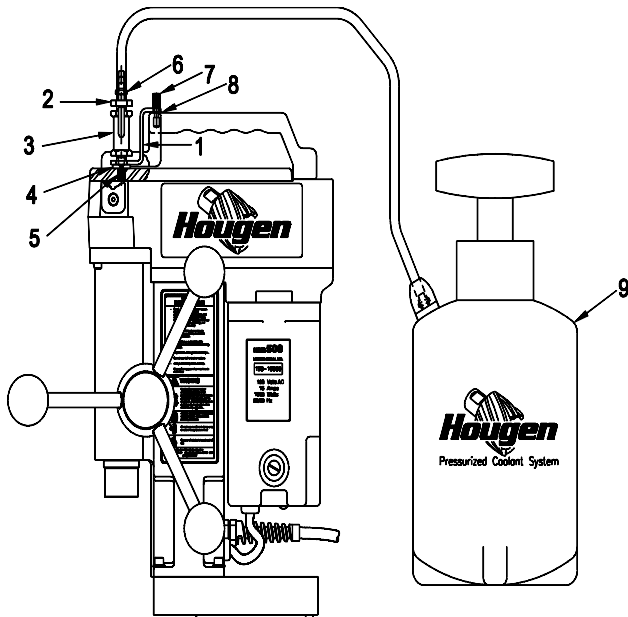
HOUGEN PORTABLE MAGNETIC DRILLS

Model No.	Description	Max. Hole Capacity, Inches		Cutters
		Dia.	Depth	
HMD100	Complete Drill* with carrying case, 450 rpm motor - 115V	1-1/16	3/4	Use "17,000-Series" Cutters
HMD500	Complete Drill* with carrying case, 250/450 rpm motor - 115V	2-3/8	3	Use "12,000-Series" Cutters
10904	Complete Drill* with 450 rpm motor - 115V	1-3/8	2	
10909	Complete Drill* with 350 rpm motor - 230V	2-1/16	3	
10909S	Complete Drill* with 350 rpm motor - 230V	2-1/16	3	
10914	Complete Drill* with 350 rpm motor - 115V	2-1/16	3	
10914S	Complete Drill* with 350 rpm motor - 115V	2-1/16	3	
10925	Power Feed Drill* with 350 rpm motor - 115V	2-1/16	3	
10926	Power Feed Drill* with 350 rpm motor - 230V	2-1/16	3	Use "42/43,000-Series" Cutters
10915	Complete Drill** with dual speeds, 115V motor	3-1/16	3	
10916	Complete Drill** with dual speeds, 230V motor	3-1/16	3	

* Complete drill includes Arbor, but does not include Cutters or Pilots.

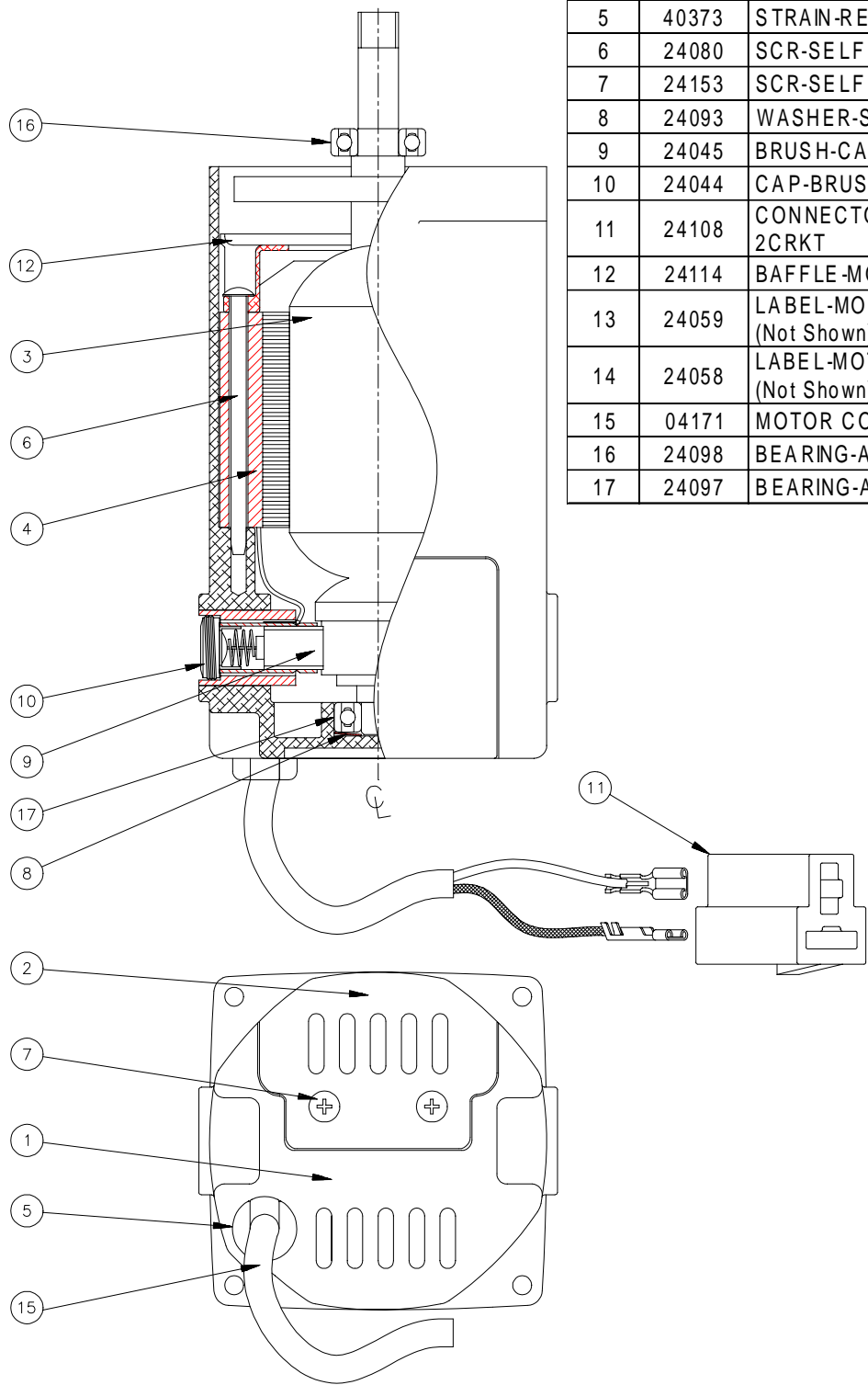
**Complete drill includes Arbor, Pilot, and No.# 40040 Arbor Adapter, but does not include Cutters. Prices for additional gear sets available on request.

OPTIONAL PRESSURIZED COOLANT BOTTLE ASSEMBLY Part Number 24140



Item No.	Description	Qty Req'd.	Part No.
1	Bracket	1	24133
2	Barbed Insert	1	24148
3	Valve	1	24128
4	Adaptor	1	24132
5	"O" Ring	1	24123
6	Clamp	1	24149
7	Captive Screw	1	24110
8	Nylon Washer	1	24168
9	Bottle, 1 gallon	1	24127

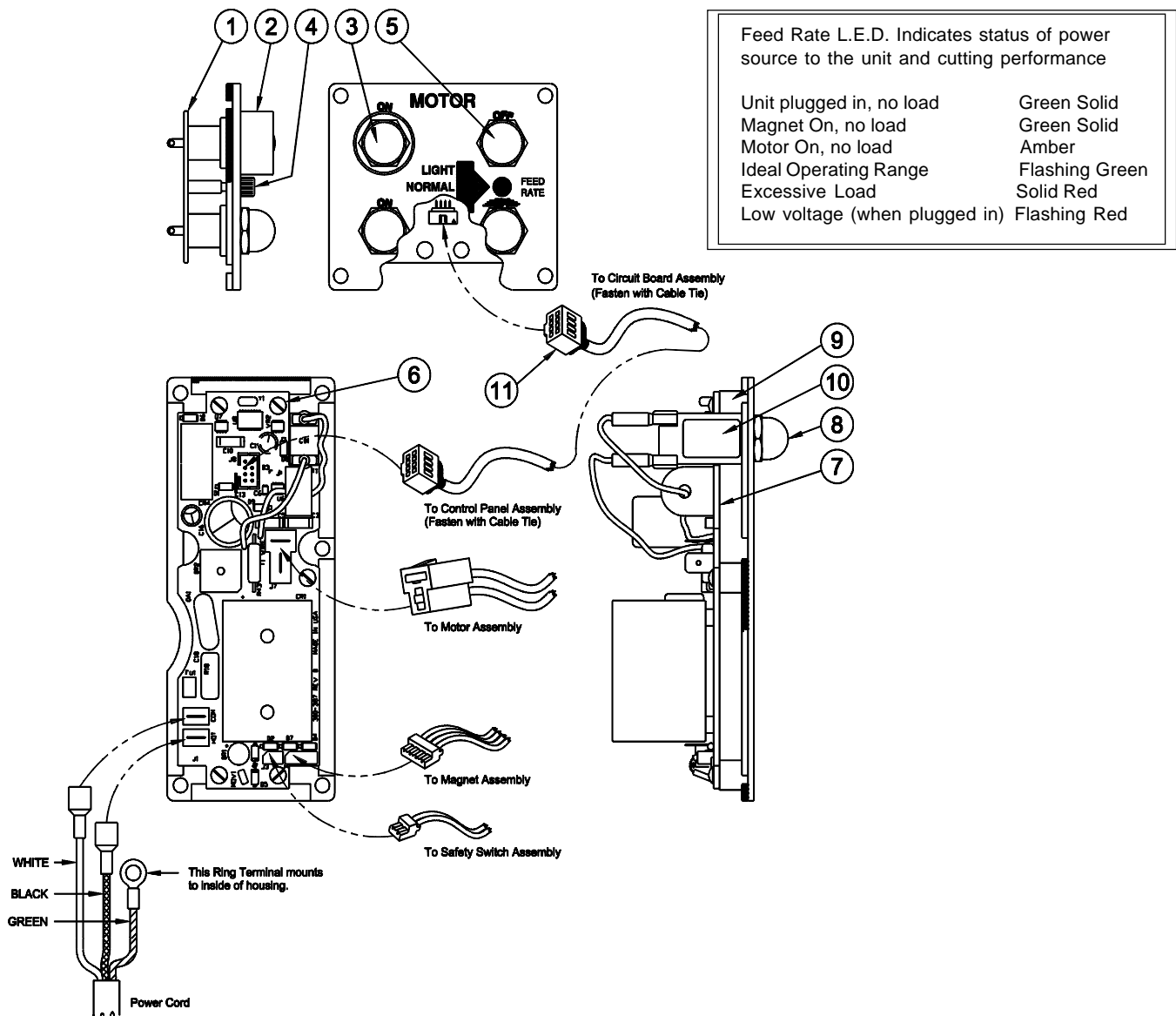
HMD500 MOTOR ASSEMBLY

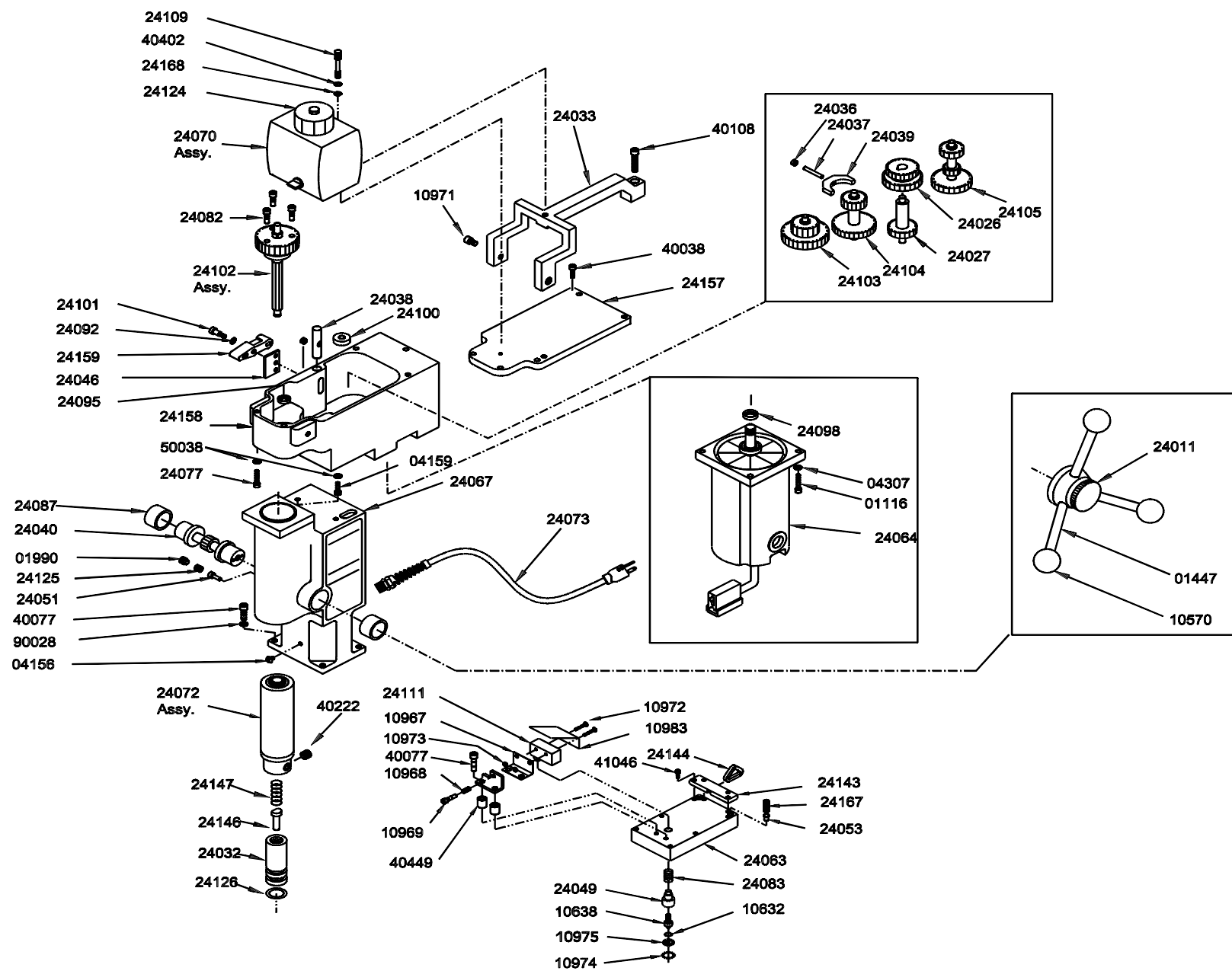


Det.	Part No.	Description	Req'd.
1	24156	HOUSING-MOTOR w/BRUSH HOLDER	1
2	24066	DOOR-ACCESS (MOTOR HOUSING	1
3	24041	ARMATURE-PQ FRAME ASSY	1
4	24042	FIELD- PQ FRAME w/MOTOR CORD	1
5	40373	STRAIN-RELIEF FOR .340 OD CORD	1
6	24080	SCR-SELF TAP #10 X 3-1/4 TYPAB	2
7	24153	SCR-SELF TAPPING #10X1/2"PN HD	2
8	24093	WASHER-SPRING 26MM OD.41MM THK	1
9	24045	BRUSH-CARBON	2
10	24044	CAP-BRUSH	2
11	24108	CONNECTOR-RECEPTACLE HSG 2CRKT	1
12	24114	BAFFLE-MOTOR (NYLON 6/6)	1
13	24059	LABEL-MOTOR ROTABROACH (Not Shown)	1
14	24058	LABEL-MOTOR SPECIFICATIONS (Not Shown)	1
15	04171	MOTOR CORD ASSEMBLY	1
16	24098	BEARING-ARMATURE -GEARBOX	1
17	24097	BEARING-ARMATURE-MOTOR HOUSING	1

HMD500 HOOK - UP DIAGRAM

Det.	Part No.	Description	Req'd.
Control Panel Assembly (P/N 24130)			
1	24117	CIRCUIT BOARD - PUSH BUTTON	1
2	01226	GUARD-PUSHBUTTON SWITCH	1
3	02409	SEAL-SWITCH 15/32-32 GREEN	2
4	24135	L.E.D.-CLEAR LENS COVER	1
5	01228	SEAL-SWITCH 15/32-32 RED	2
Circuit Board Assembly (P/N 24191)			
6	03868	SCR-PAN HD #6-32 X 3/16 ZINC	5
7	24190	CIRCUIT BOARD - POWER	1
8	24142	COVER-WATER SPLASH-CIRC. BRKR.	1
9	03995	VIBRATION MOUNT	5
10	24141	CIRCUIT BREAKER - 14 AMP	1
Wire Harness Assembly			
11	24008	WIRE HARNESS ASSEMBLY	1





HMD500 PARTS LIST

Part No.	Description	Req'd.
01116	SCR-SHC #10-32 X 1	4
01447	HANDLE-FEED; .50 DIA. X 4.94 OAL	3
04156	SCR-BHSCS 5/16-18 X 1/4" LONG	1
04158	SCR-SELF-THD #10-24 X 3/8 TYPE F	1
04159	SCR-LHSCS #10-32 X 5/8"	2
04207	SCR SOC SET 3/8-16	1
04307	WASHER FLAT #10	4
10560	WASHER-#10 EXT. TOOTH LOCK	1
10570	KNOB-FEED 1-23/32 DIA. 1/2-20 THD.	3
10632	RING-RETAINING .656 NOM. I.D.	1
10638	BEARING-ASSY SAFETY SWITCH	1
10967	CLIP-MICROSWITCH MOUNTING	1
10968	SPG. .045 X .30 O.D.	1
10969	SCR-SHC #10-32	2
10970	BRACKET	1
10971	SCR-SHC 1/4-20	2
10972	SCR-BHC #6-32	2
10973	NUT-HEX #6-32	2
10974	RING-RETAINING 1.00 NOM I.D.	1
10975	SEAL-ASSY SAFETY SWITCH	1
10983	SHIELD MICROSWITCH	1
24011	HUB ASSY- FEED	1
24017	GEAR SHIFT HANDLE	1
24026	GEAR- 32 & 39 TOOTH	1
24027	GEAR & SHAFT ASSY #2	1
24032	SPLINE SHAFT EXTENSION	1
24033	HANDLE, CARRYING-MACHINED	1
24036	WASHER GEAR SHIFT SPACER	2
24037	PIN-DOWEL 3/16 X 1-1/4	1
24038	GEAR SHIFT PIN	1
24039	GEAR SHIFT YOLK	1
24040	FEED GEAR	1
24046	GEAR SWITCH PLATE	1
24049	PLUNGER BODY-SAFETY SWITCH	1
24051	STOP-QUILL TRAVEL	1
24053	SPRING PLUNGER NOSE	2
24063	MAGNET ASSEMBLY	1
24064	MOTOR ASSEMBLY	1
24067	HOUSING ASSEMBLY	1
24070	COOLANT BOTTLE ASSEMBLY	1
24072	QUILL & ARBOR ASSY	1

Part No.	Description	Req'd.
24073	POWER CORD ASSY	1
24077	SCR-SHCS #10-32 X 7/8" LONG	4
24087	BEARING BUSHING	2
24082	SCR-SHCS #6-32	3
24083	SPRING-COMPRESSION .845 OD	1
24092	SPRING WASHER	1
24095	LIP SEAL	1
24100	BALL BEARING	9
24101	SCR-SHSLD 1/4-3/8	1
24102	SPLINE SHAFT ASSY.	1
24103	SPUR GEAR & SHAFT ASSY 15 TOOTH	1
24104	SPUR GEAR & SHAFT ASSY 14 TOOTH	1
24105	SPUR GEAR & SHAFT ASSY 15-20 TOOTH	1
24109	SCR-CAPT. THUMB 1/4-20	1
24111	MICRO-SWITCH ASSEMBLY	1
24115	CASE-CARRYING HMD500 DRILL	1
24124	CAP-COOLANT BOTTLE W/VENT	1
24125	SPRING-COMP .30 OD .38L .047 WD	1
24126	O-RING-7/16 ID 5/8 OD 3/32 W	1
24130	PUSH BUTTON ASSEMBLY	1
24143	PLATE-SPRING & CHAIN HOLDDOWN	1
24144	RING-"D" X 1" WIDE	1
24146	EXTENSION PLUNGER	1
24147	SPRING-COMP .30 OD X 1.13 LG X .03	1
24157	COVER AND BEARING ASSY.	1
24158	GEAR BOX AND BEARING ASSY.	1
24159	GEAR SWITCH AND PLUNGER ASSY.	1
24167	SPRING 1.25 X .051	2
24168	WASHER FLAT NYLON	1
24191	CIRCUIT ASSEMBLY	1
40038	SCR-SHC #10-32 X 5/8	6
40077	SCR-SHC 1/4-20 X 1	7
40108	SCR-SHC 1/4-20 X 1-1/4	1
40222	SCR- SOC SET 7/16-14	2
40402	WASHER FLAT	1
40449	SPACER	2
41044	SCR-BHC #10-32 X 3/8	9
41046	SCR-SHC #10-32 X 1/2	4
50038	WASHER HELICAL #10	4
51042	SCR-SHC 1/4-20 X 3/8	2
90028	WASHER HELICAL 1/4"	4

“12,000-Series” Rotabroach Cutters

Dia. (in/mm)	Dec. Equiv.	Part No. 1" D.O.C.	Part No. 2" D.O.C.	Part No. 3" D.O.C.
3/4" Diameter Shank Cutters Use with Pilot 10531 or 10532				
7/16	.4375	12114	12214	--
12mm	.4724	12312	12412	--
3/4" Diameter Shank Cutters Use with Pilot 10533 or 10534				
1/2	.5000	12116	12216	--
9/16	.5625	12118	12218	--
5/8	.6250	12120	12220	--
11/16	.6875	12122	12222	--
13mm	.5118	12313	12413	--
14mm	.5512	12314	12414	--
15mm	.5906	12315	12415	--
16mm	.6299	12316	12416	--
17mm	.6693	12317	12417	--
18mm	.7087	12318	12418	--
3/4" Diameter Shank Cutters Use with Pilot 10527, 10528 or 24131				
3/4	.7500	12124	12224	3-12224
13/16	.8125	12126	12226	3-12226
7/8	.8750	12128	12228	3-12228
15/16	.9375	12130	12230	3-12230
1	1.0000	12132	12232	3-12232
1-1/16	1.0625	12134	12234	3-12234
1-1/8	1.1250	12136	12236	3-12236
1-3/16	1.1875	12138	12238	3-12238
1-1/4	1.2500	12140	12240	3-12240
1-5/16	1.3125	12142	12242	3-12242
1-3/8	1.3750	12144	12244	3-12244
1-7/16	1.4375	12146	12246	3-12246
1-1/2	1.5000	12148	12248	3-12248
1-9/16	1.5625	12150	12250	3-12250
1-5/8	1.6250	12152	12252	3-12252
1-11/16	1.6875	12154	12254	3-12254
1-3/4	1.7500	12156	12256	3-12256
1-13/16	1.8125	12158	12258	3-12258
1-7/8	1.8750	12160	12260	3-12260
1-15/16	1.9375	12162	12262	3-12262
2	2.0000	12164	12264	3-12264
2-1/16	2.0625	--	12266	--
2-1/8	2.1250	--	12268	--
2-3/16	2.1875	--	12270	--
2-1/4	2.2500	--	12272	--
2-5/16	2.3125	--	12274	--
2-3/8	2.3750	--	12276	--

Dia. (in/mm)	Dec. Equiv.	Part No. 1" D.O.C.	Part No. 2" D.O.C.	Part No. 3" D.O.C.
3/4" Diameter Shank Cutters Use with Pilot 10527, 10528 OR 24131				
19mm	.7480	12319	12419	12519*
20mm	.7874	12320	12420	12520*
21mm	.8268	12321	12421	12521*
22mm	.8661	12322	12422	12522*
23mm	.9055	12323	12423	12523*
24mm	.9449	12324	12424	12524*
25mm	.9843	12325	12425	12525*
26mm	1.0237	12326	12426	12526*
27mm	1.0630	12327	12427	12527*
28mm	1.1020	12328	12428	12528*
29mm	1.1417	12329	12429	12529*
30mm	1.1812	12330	12430	12530*
31mm	1.2205	12331	12431	12531*
32mm	1.2598	12332	12432	12532*
33mm	1.2993	12333	12433	12533*
34mm	1.3386	12334	12434	12534*
35mm	1.3779	12335	12435	12535*
36mm	1.4174	12336	12436	12536*
37mm	1.4567	12337	12437	12537*
38mm	1.4961	--	12438	12538*
39mm	1.5354	--	12439	12539*
40mm	1.5748	--	12440	12540*
41mm	1.6142	--	12441	12541*
42mm	1.6535	--	12442	12542*
43mm	1.6929	--	12443	12543*
44mm	1.7323	--	12444	12544*
45mm	1.7717	--	12445	12545*
46mm	1.8110	--	12446	12546*
47mm	1.8504	--	12447	12547*
48mm	1.8898	--	12448	12548*
49mm	1.9291	--	12449	12549*
50mm	1.9685	--	12450	12550*
51mm	2.0079	--	12451	12551*

“12,000-Series” Cutter Pilots

Pilots for Cutter Dia.	Part No. 1" D.O.C.	Part No. 2" D.O.C.	Part No. 3" D.O.C.
7/16" & 12mm	10531	10532	--
1/2 -11/16" & 13 - 18mm	10533	10534	--
3/4 - 2-3/8" & 19 - 51mm	10527	10528	24131
3/4 - 2-3/8" & 19 - 51mm	24131 NEW		

Note: Part No. 24131 for use with spring-loaded ejection on Model HMD500

“12,000-Series” Tap Drills

NEW	Cutter Diameter (inches)	Thread	Dec. Equiv.	Part No. 1" D.O.C.	Part No. 2" D.O.C.
	7/16	1/2-13	.4375	12114	12214
	35/64	5/8-11	.5469	12117	12217
	21/32	3/4-10	.6563	12121	12221
	25/32	7/8-9	.7812	12125	12225

Factory Authorized Warranty Repair Centers

United States - East

A&A Industrial Supplies Inc.
251 Meacham Ave.
Elmont, NY 11003
(516) 437-0114

Awisco Repair Center
55-16 43rd Ave.
Maspeth, NY 11378
(718) 786-7788

Boyer Machinery Co.
2280 Wyandotte Road
Willow Grove, PA 19090
(215) 657-2242

Colony Hardware Supply Co.
15 Stiles Street
New Haven, CT 06512
(203) 466-5252

Hanes Supply Repair Center
10 Cairn Street
Rochester, NY 14609
(716) 826-2636

N.H. Bragg & Sons
90 Perry Road
Bangor, ME 04401
(207) 947-8611

Pennsylvania Tool Sales
and Service, Inc.
625 Bev Road
Youngstown, OH 44512
(330) 758-0845

Weld Tooling Corp.
3001 W. Carson Street
Pittsburgh, PA 15204
(412) 331-1776

West

A.C.C. Machinery Co., Inc
747 Grand Avenue
Phoenix, AZ 85007
(602) 258-7330

ATS Repair Center
2400 West Directors Row
Salt Lake City, UT 84125
(801) 972-3182

Caltool Industrial Supply
470 Hester Street
San Leandro, CA 94577
(510) 729-0600

Kenbil Service Co.
2900 Adams St., B-15
Riverside, CA 92504
(909) 689-6633

Quimby Welding Repair
1603 Northwest 14th Ave.
Portland, OR 97209
(503) 221-1100

Southeast

Gardner Southeast Repair
807 Meroney Street
Chattanooga, TN 37405
(423) 756-4722

Mid-South Welding Supply
505 51st. Avenue
Meridian, MS 39307
(601) 483-9331

South

Allied Sales & Service Co.
1508 River Oaks Rd., West
Jefferson, LA 70123
(504) 734-9566

Wilbanks Repair Center
5532 S. 94th East Ave.
Tulsa, OK 74145
(918) 627-8445

Midwest

Ceekay Repair Center
5835 Manchester Ave.
St. Louis, MO 63110
(314) 644-3500

Miller Industrial Supply Co.
1695 N. 21st
Decatur, IL 62525
(217) 428-7787

Hougen Manufacturing, Inc.
3001 Hougen Drive
Swartz Creek, MI 48473
(810) 635-7111

Westbrook Engineering
23501 Mound Road
Warren, MI 48091
(810) 759-3100

Southwest

Arcmaster Repair Center
301 Woodrow Ave
Fort Worth, TX 76105
(817) 531-8101

Rex Supply Repair Center
3715 Harrisburg
Houston, TX 77003
(713) 222-2251

Canada

OK Power Tool
14740 115 Avenue
Edmonton, Alberta
Canada T5M 3B9
(403) 454-5111

Outiltech Orleans, Inc.
5695 Rue Rideau
Quebec, Quebec
Canada G2E 5V9
(418) 877-7776

Edward H. Pope, Ltd.
10 Imperial Court
Brampton, Ontario
Canada L6T 4X4
(905) 458-4800

Power Tool Clinic
19835-56 Ave
Langley, B.C.
Canada V3A 3V1
(604) 530-3550

O.T.I. Repair Center Inc
195 Rue Henry Bessemer
Bois Des Filion
Quebec Canada J6Z 4S9
(450) 965-2224

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