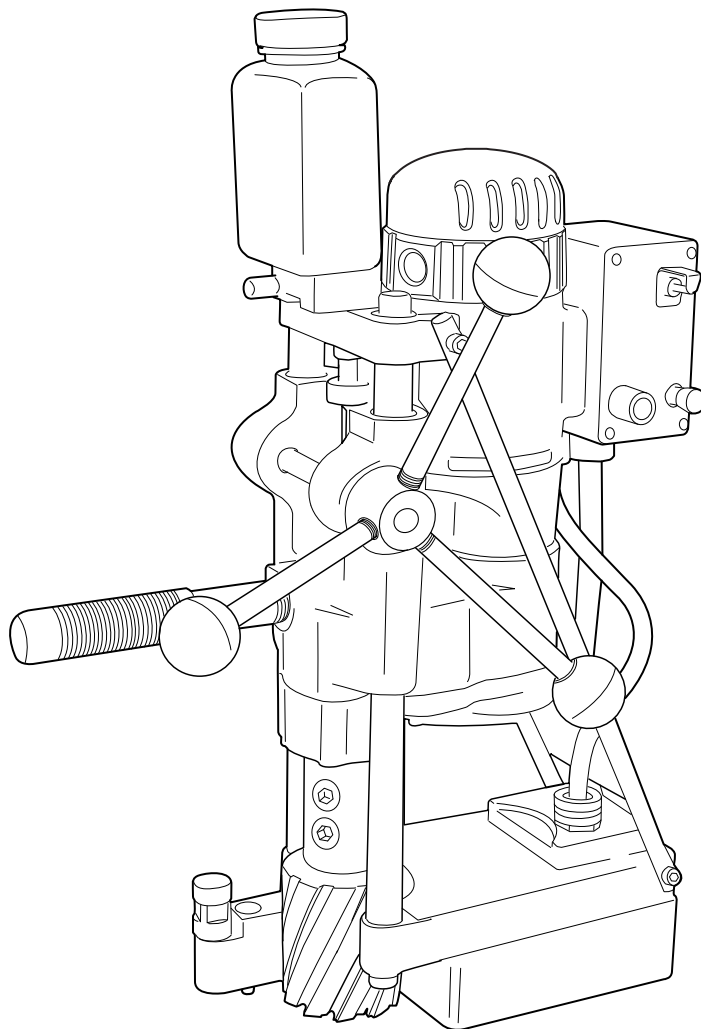




# HMD915 SERIES PORTABLE MAGNETIC DRILL

## OPERATOR'S MANUAL

COVERS DRILL PART NUMBERS 0915102, 0915202, 0915302, 0915402



**FOR USE WITH "42,000/43,000-SERIES" CUTTERS**

# HOUGEN®

## Portable Magnetic Drills

### Model HMD915

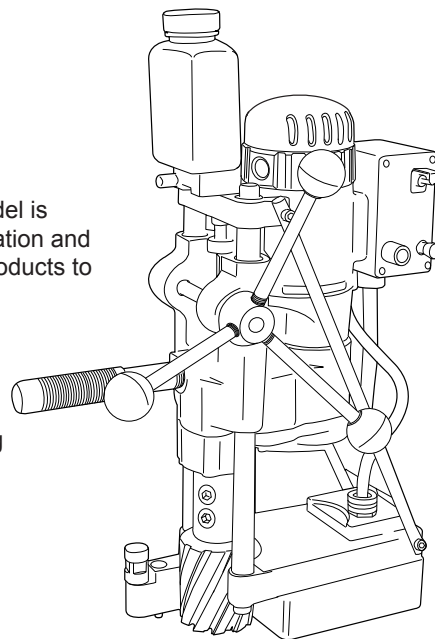
#### Welcome to Hougen

Congratulations on your purchase of the Hougen® Portable Magnetic Drill. 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.

#### Specifications

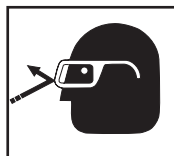
Cutter Type.....Hougen "42/43,000-Series"  
 "12,000-Series" w/adaptor  
 Hole Capacity.....3/4" - 3-1/16" (19mm - 77mm)  
 Depth of Cut.....3" (76mm)  
 Drill RPM/Motor.....120/332 RPM, 10A (120V), 5A (230V)  
 Net Weight.....69 lb (31.3kg)



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## SAFETY FIRST



Always wear eye protection while using cutting tools, or in the vicinity of cutting.



**CAUTION!** The slug is ejected at the end of the cut. Do not aim cutter or arbor so that ejected slug may hit someone around, or below you.



**CAUTION!** Cutters are sharp. Wear gloves when installing or removing cutter from arbor. Do not grab a rotating cutter.



**CAUTION!** To prevent electric shock, do not use power tools near wet areas, or where power tool may become wet.

# IMPORTANT SAFETY INSTRUCTIONS

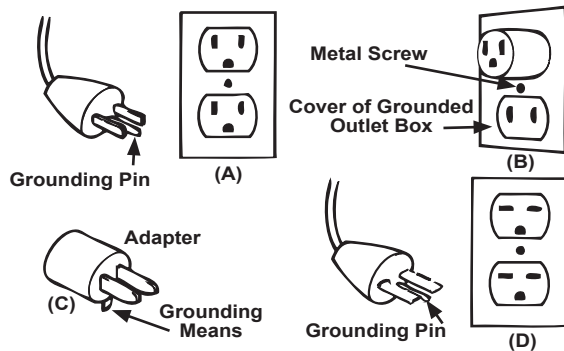


**WARNING:** When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following:

## 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 (B). An adapter, see sketch (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).



## 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 4-6 Amps
Up to 25	16	18
26-50	14	18
51-100	10	16
101-200	8	14
201-300	5	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 Hougen 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. Non-Conforming Cutting Tools

Your Magnetic Drill is designed to use Hougen 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.

## 12. 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.

## 13. Always Wear Safety Glasses or Goggles

## 14. Dress Properly

Do not wear loose clothing or jewelry. They might entangle with spinning chips or get caught in moving parts. Rubber gloves and nonskid footwear are recommended when working outdoors. Wear sturdy leather gloves when working indoors.  
Wear protective hair covering to contain long hair.

## 15. 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.

## 16. Do Not Overreach

Keep proper footing and balance at all time.

## 17. Maintain Tools With Care

Keep tools sharp and clean for better and safer performance.  
Do not use dull or broken Hougen Cutters.  
Follow instructions for lubricating and changing accessories.  
Keep handles dry, clean, and free from oil and grease.

# IMPORTANT SAFETY INSTRUCTIONS - CONTINUED

*Continued...*

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.

## **18. Disconnect Tools**

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

## **19. Remove Adjusting Keys and Wrenches**

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

## **20. 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.

## **21. 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.

## **22. Outdoor Use Extension Cords**

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

## **23. 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 Hougen 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 Hougen Cutter and arbor after each hole. With motor off and power disconnected, grasp chips with leather gloved hand or pliers and pull while rotating counter-clockwise.

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.

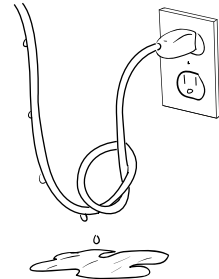
## **24. Operating Near Welding Equipment**

It is NOT recommended that you use this tool on the same work surface as an arc welder. This can cause severe damage to the unit, particularly the power cord. 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 below. Also elevate extension cords or gang box connections.

## **26. Save These Instructions**



# UNPACKING YOUR NEW MAGNETIC DRILL

1. Open shipping carton and remove the literature and hardware packages.
2. Read and follow all instructions before attempting to operate your new Magnetic Drill.
3. Complete and mail the Product Registration Card NOW. It is important that Hougen Mfg., Inc. have a record of product ownership.
4. Contents of Tool Box (40100)
  - 10730 - Safety Chain
  - 10569 - Feed Handles (3)
  - 04532 - Knobs (3)
  - 10565 - Hex Key 1/8" S.A.
  - 13013 - Wrench Allen 5/32"
  - 10779 - Wrench Allen 7/32"
  - 10727 - Wrench Allen 3/16"
  - 10780 - Wrench Allen 5/16"
  - 10781 - Wrench Allen 3/8"
  - 40040 - Adapter Assembly
  - 40041 - Screw-Soc Set 5/8-11
  - 40042 - Screw-Soc Set 3/4-10 (2)
  - 40061 - Handle Assembly
  - 05487 - Grease - Lubriplate GR-132
  - 40126 - Coolant Btl. Assembly \*

*\*(sometimes packed separately)*
5. Lift the unit out of the shipping case.
6. Remove all packing and securing material from the drill unit.
7. Screw the three knobs (10570) onto the three feed handles (10569) and then screw the handles into the hub.
8. Install coolant bottle on unit, utilizing screws that are provided
9. Your Magnetic Drill was factory adjusted prior to shipping. Check to make sure that the feed rod adjustment screws, motor mount screws, exterior bolts and screws have not vibrated loose in transit.
10. Your New Magnetic Drill comes complete and ready to go. This unit utilizes the "42,000 and 43,000"-Series Cutters either with the 1-1/4" shank or the "12,000-Series" 3/4" shank cutters.

## OPERATING INSTRUCTIONS

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

1. Make sure workpiece and bottom of magnet are free chips, oil, etc.
2. Attach Safety Chain (particularly when operating on beams, horizontally, vertically, etc.)
3. Position drill by sliding it so that point of the ejector rod is above center of hole to be drilled.
4. Turn Magnet switch to ON position.
5. Set both impactors into the workpiece by striking with hammer.
6. Open the Adjustment Needle to provide a generous flow of cutting fluid until a puddle approximately the diameter of the cutter being used is developed on the workpiece. Once this initial supply of cutting fluid is established on the workpiece, adjust the flow to a steady drip.
7. Make certain that cutter is clear of workpiece and turn motor switch ON.
8. Feed Hougen Cutter slowly into workpiece. Only after cutting path is established to a depth of about 1/16" can full feed force be applied to feed handles.
9. Ease up on feed pressure as cutter starts breaking through.
10. At conclusion of cut, turn Motor OFF. Turn feed handles to raise Arbor, thereby ejecting the slug if it hasn't already fallen free.
11. Turn Magnet OFF and give switch a quick flip to the DEMAG position, allowing it to snap back to center or OFF position. (Do not hold switch in DEMAG position)
12. Remove chips from both cutter and magnet. Preferably while wearing leather work gloves.
13. Disconnect safety chain and you are ready to move unit to new position.

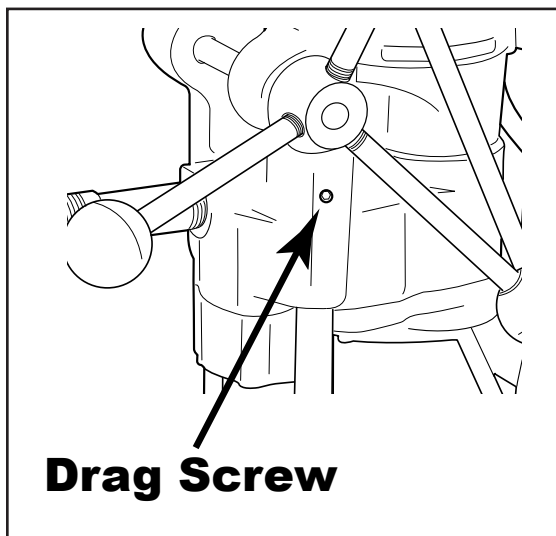
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### SPECIAL INSTRUCTION FOR HORIZONTAL OR OVERHEAD OPERATION

1. Always use Safety Chain and / or mechanical clamping.
2. Use grease or animal fat base solid lubricant applied liberally to cutter.

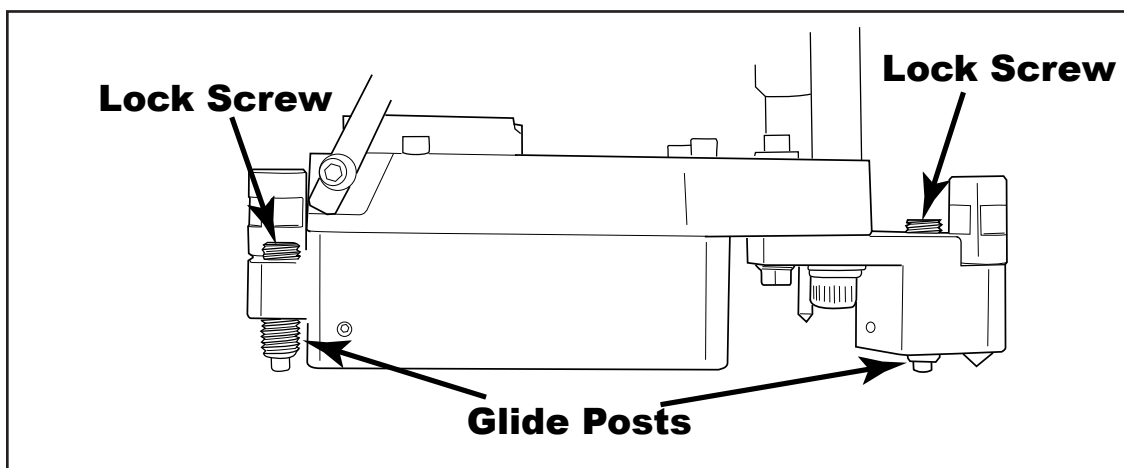
## FEED ADJUSTMENT

Drag Screw (Detail No 63A) must be adjusted against the Feed Rod (Detail No.13) so that main housing (Detail No. 63) moves freely up and down the feed rods when feed wheel is turned, so that main housing stays in position on feed rod when wheel is released.



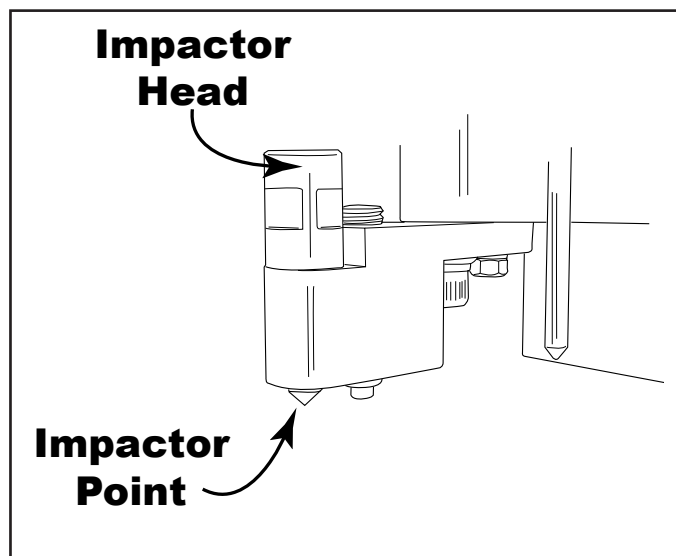
## GLIDE POST ADJUSTMENT

1. Adjustment is made with magnet on and glide posts over work surface.
2. Remove front glide post lock screw (Detail No. 27), and loosen rear glide post lock screw (Detail No. 51).
3. Screw both glide posts (Detail No. 28 & 50) up until the ends are above the work surface.
4. Place a .040" shim under the front glide post and a 0.125" shim under the rear glide post.
5. Screw glide posts down, compressing plungers, until the body of the glide posts rest on the shims.
6. Replace the front lock screw and tighten both the front and rear lock screws.



## IMPACTOR ADJUSTMENT

1. Adjustment is made with Magnet ON and impactor over the work surface.
2. Loosen Heads of Front and Rear Impactors (Detail No. 25)
3. Screw Impactor Points (Detail No. 26) up (counter-clockwise) until point just touches work surface.
4. Screw Impactors down (clockwise) until point just touches work surface.
5. Screw Impactor Points 1/2 turn further toward work surface. (It may be necessary to turn off Magnet while advancing Impactor).
6. Tighten Heads.





# EJECTOR ROD ADJUSTMENT

In addition to providing a positive method to insure that a slug is not retracted with the cutter, the ejector rod serves as a conduit for the cutting fluid and as a centering guide for positioning the Mag Drill on the workpiece. Under normal conditions, the point of the ejector rod should be kept at least 1/16" above the work surface.

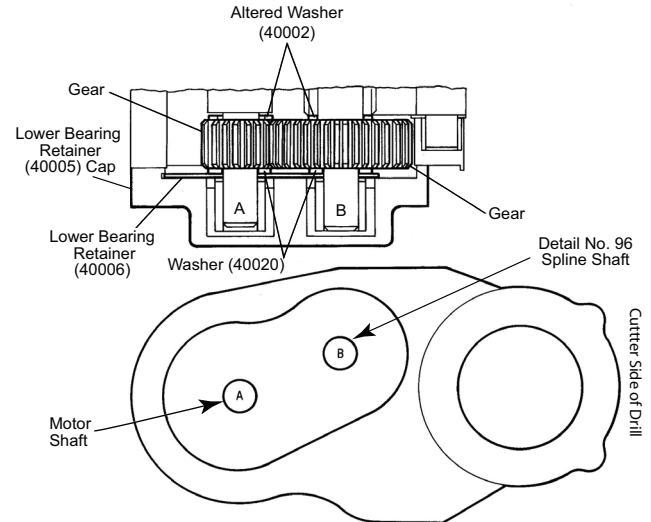
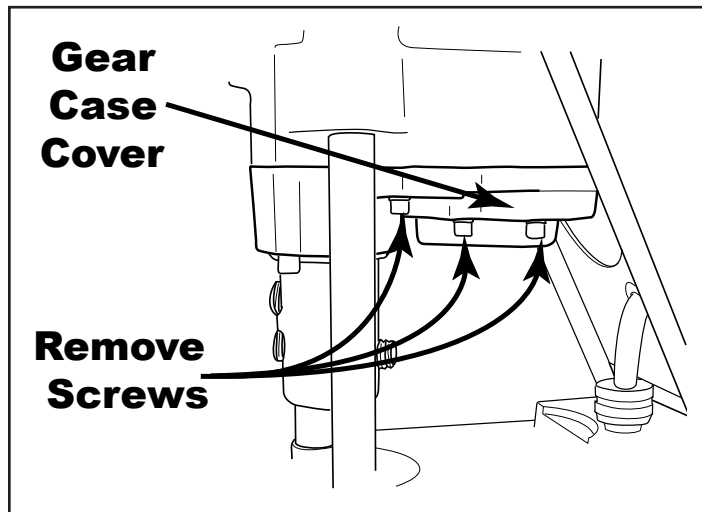
It is important that the point of the ejector rod not be allowed to rest on the work surface for two reasons:

- A)** The point will drag on the work surface when Mag Drill is repositioned which may cause the ejector rod to become bent.
- B)** The ejector rod may hold the front of the magnet off of the work surface, diminishing its holding ability.

## To adjust the ejector rod:

1. Place the Mag Drill on a steel plate and turn the magnet on.
2. Loosen the lock nut (Detail No. 14) and rotate the knurled nut (Detail No 15) until the point of the ejector rod is in the desired location.
3. When adjusted properly, the point should clear the work surface (1/16" minimum) both when the magnet is on and when it is off (Mag Drill riding on glide post).
4. When adjustment is complete, using a wrench, retighten the lock nut against the underside of the tie bar (Detail No. 11)

# GEAR COMBINATIONS FOR VARIOUS RPMs



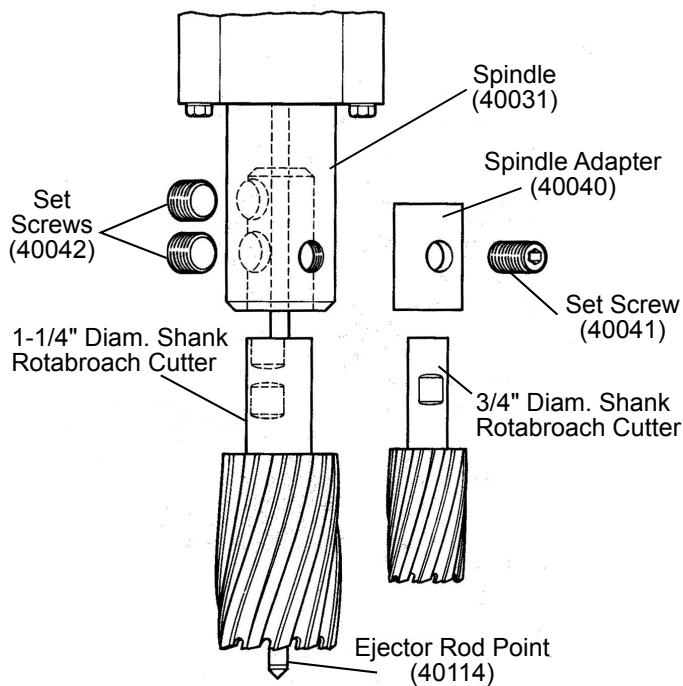
Drawings above show arrangement of gears. Be sure that upper and lower washers are replaced on Shafts A and B when changing gears. If necessary, refer to exploded view when removing lower bearing retainer cap.

Cutter RPM	No. of Teeth per Gear	
	Shaft A	Shaft B
100	16	32
120	18	30
200	24	24
332	30	18
400	32	16

Drill unit comes with 18-tooth gear (40012) on Shaft A and 30-tooth gear (40016) on Shaft B to provide 120 RPM. For other RPM's, use optional gears with the following procedure.

1. Remove the Lower Bearing Retainer Cap by removing the four Cap screws (Detail No. 122) and two Cap Screws (Detail No. 123)
2. Remove gears from Shafts A and B, being careful to save the two Altered Torrington Thrust Washers (Detail No. 95) and two lower Washers (Detail No. 98)
3. Be certain that the two Altered Torrington Thrust washers are first mounted on Shaft A and B.
4. Slide proper gears on Shafts A and B (refer to table on left).
5. Mount lower washers on both shafts.
6. Pack gears with liberal supply of grease.
7. Replace Lower Bearing Retainer Cap. Replace and tighten all six cap screws.

## INSTALLING CUTTER IN SPINDLE



1. Jog motor until appropriate set screws are accessible.
2. Either lay drill on its side with feed wheel up, or be sure Spindle sure Spindle clears table if unit is in normal operation position.
3. **A) Hougen Cutters with 1-1/4" dia. shanks**

Loosen the two short set screws (40040) and insert insert cutter shank being certain that the flats are aligned with the set screw holes. Tighten the lower set screw first and then tighten the upper set screw. (Be sure the long set screw on opposite side of spindle has been removed).

### **B) Hougen Cutters with 3/4" dia. shanks**

Install the spindle adapter (40040) using the same procedure as used when mounting cutters with 1-1/4" diameter shanks. Slip the Cutter Shank into the adapter so that the flat on its shank is aligned with the single set screw hole. Install the long set screw (40041) and tighten.

### **C) "12,000-Series" Shanks**

When using "12,000-Series" shank cutters, DO NOT use the long set screws (40041). Install cutter adapter (40040) using the two small set screws lining up the two flats. Install adapter into quill and secure using set screws (40042).

4. Check periodically during operation to be certain that the cutter is secure.

## OPERATION OF CUTTING FLUID RESERVOIR

When everything is ready to go (Magnet ON and Impactors seated), open the Adjustment Needle to provide a generous flow of cutting fluid until a puddle approximately the diameter of the cutter being used is developed on the workpiece. Once this initial supply of cutting fluid is established on the workpiece, adjust the flow to a steady drip.

## ADJUSTMENT OF CHIPBREAKER

Adjust the chipbreaker blade to within .020" to .030" of cutter and tighten securely.

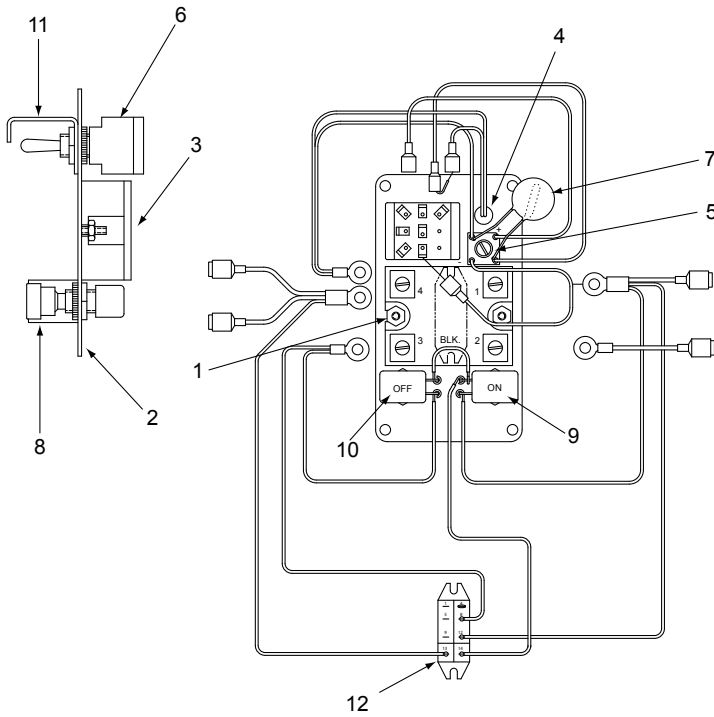
## HINTS FOR SMOOTHER OPERATION

1. Keep inside of Hougen Cutter clear of chips. Chips will interfere with cutting to maximum depth, may impede the free flow of cutting fluid and can cause cutter breakage.
2. Keep work, machine, arbor and Hougen Cutter free of chips and dirt.
3. Tighten all fasteners periodically.
4. We highly recommend using a light cutting fluid (preferably Hougen Cutting Fluid)
5. Occasionally check metering of cutting fluid flow. Lack of cutting fluid may cause Hougen 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. 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.
9. Cut overlapping holes using minimum steady pressure. (External lubrication should be used)

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



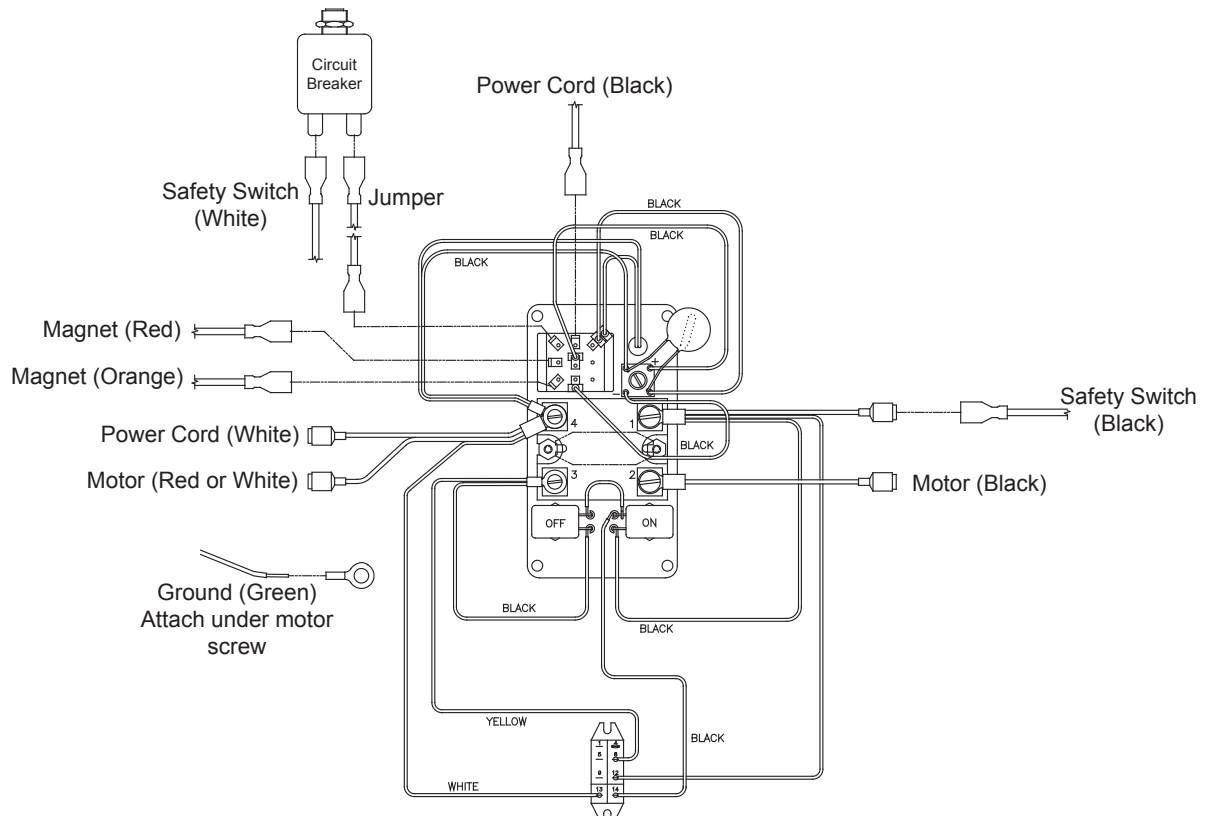
## 120V PANEL COMPONENTS (04381)



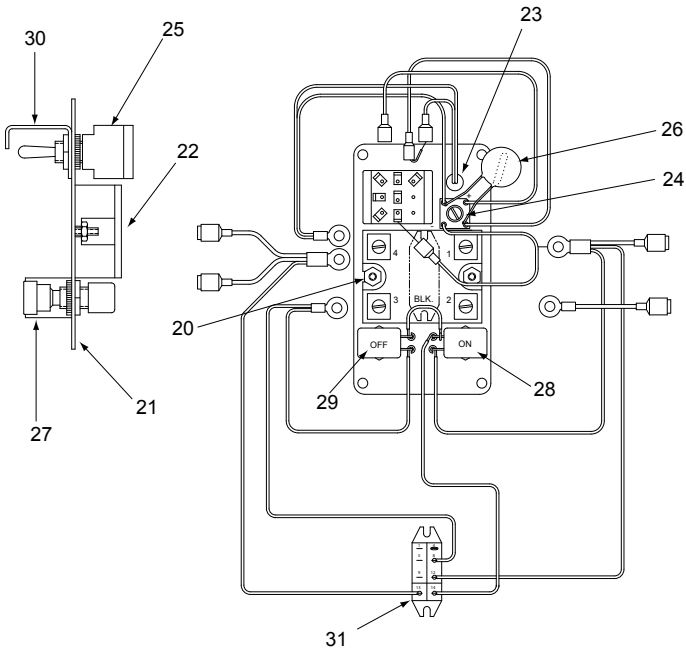
No.	Part #	Description	Qty.
1	40374	Nut #6-32	2
2	05840	Faceplate	1
3	04387	Relay - Solid State	1
4	10703	Pilot Light	1
5	10705	Rectifier	1
6	10715	Toggle Switch Magnet	1
7	10718	Surge Suppressor	1
8	10762	Push Button SwitchGuard	1
9	10763	Motor "ON" Switch	1
10	10764	Motor "OFF" Switch	1
11	10964	Toggle Switch Guard	1
12	01205	Relay Logic	1
13	04381	120V Panel Assy.	1
*	10766	Circuit Breaker	1
*	40084	Control Panel Wire Harness	1

\* Not Shown

## 120V HOOK UP DIAGRAM



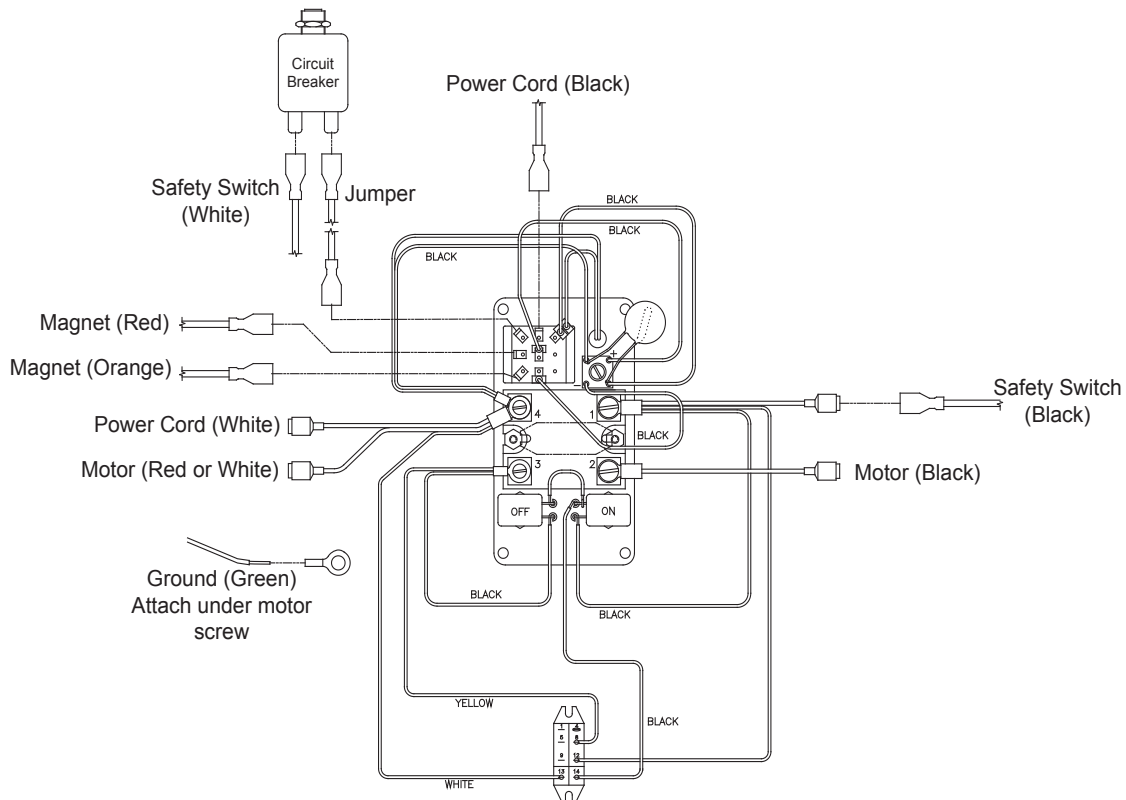
## 230V PANEL COMPONENTS (10796)



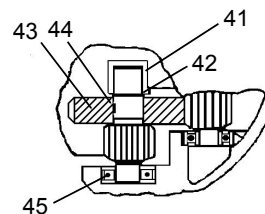
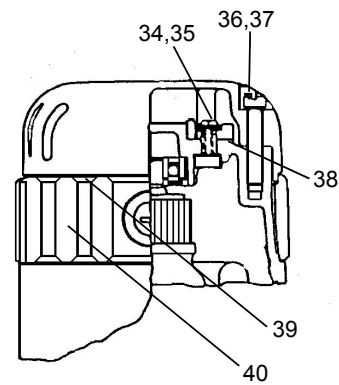
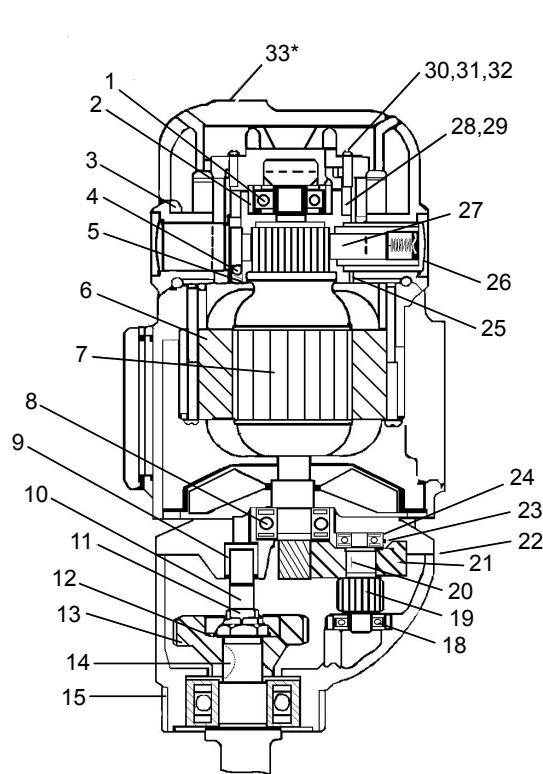
No.	Part #	Description	Qty.
20	40374	Nut #6-32	2
21	05840	Faceplate	1
22	04387	Relay - Solid State	1
23	10703	Pilot Light	1
24	10705	Rectifier	1
25	10715	Toggle Switch Magnet	1
26	10760	Surge Suppressor	1
27	10762	Push Button Switch Guard	1
28	10763	Motor "ON" Switch	1
29	10764	Motor "OFF" Switch	1
30	10964	Toggle Switch Guard	1
31	01005	Relay Logic	1
32	10796	230V Panel Assy.	1
*	10785	Circuit Breaker	1
*	40084	Control Panel Wire Harness	1

\* Not Shown

## 230V HOOK UP DIAGRAM



# MOTOR PARTS



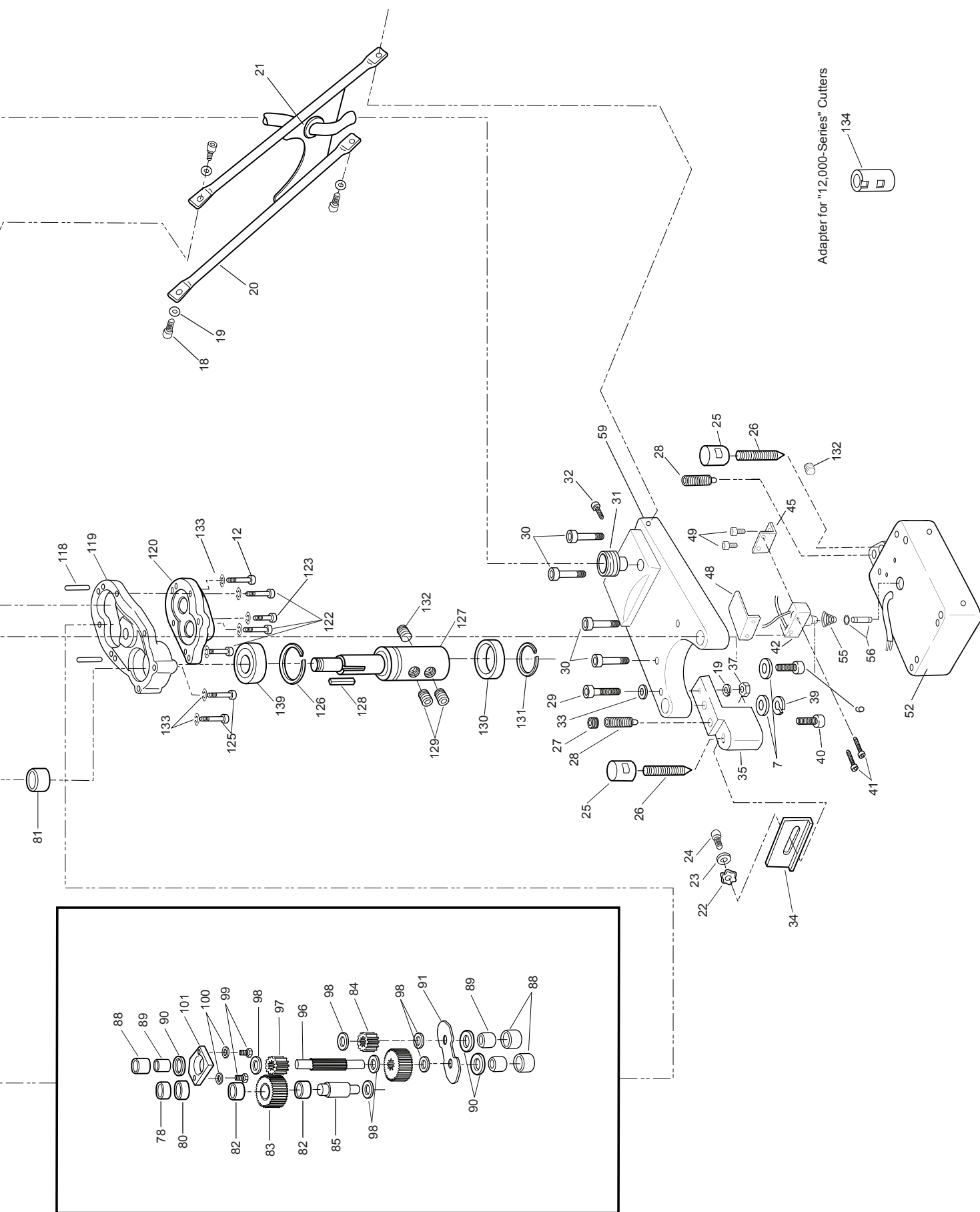
No.	Part #	Description	Qty
1	BD-14201	Ball Bearing	1
2	BD-30612	Bearing Plug	1
3	BD-31675	Set Screw	2
4	BD-475	3/16" Ball	1
5	BD-38769	Dentent Pin Spring	1
	40140	Lock Pin	1
6	07224	Field - 120V	1
	BD-450070-00	Field - 230V	1
7	07223	Armature - 120V	1
	BD-450063-42	Armature - 230V	1
8	BD-330003-12	Ball Bearing	1
9	BD-21635	Needle Bearing	1
10	40000	Output Shaft	1
11	BD-70920	Lock Nut	1
12	BD-45051	Cone Lock Washer	1
13	BD-55196	Spindle Gear	1
14	BD-13851	Spindle Gear Key	1
15	BD-38219	Bearing Cap	1
18	BD-30090	Ball Bearing	1
19	BD-38278	1st Internal Pinion	1
20	BD-6952	1st Internal Gear Key	1
21	BD-38210	1st Internal Gear	1
22	BD-939467-00	Gasket	1

No.	Part #	Description	Qty
23	BD-30613	Bearing Plug	1
24	BD-20774-01	Ball Bearing	1
25	BD-24323	Insulating Shield	2
26	BD-33880-81	Brush Holder Cap	2
27	10583	Brush (Pair)	1
28	BD-38226	Brush Lead	2
29	BD-9293	Brush Lead Terminal	2
30	BD-38225	Contact Block Assy	1
31	BD-4006-01	Rivet	2
32	BD-38224	Contact	2
33	BD-54914-06	Spade Handle	1
34	BD-4145-01	Lock Washer	2
35	BD-37955	Screw	2
36	BD-9842	Screw	2
37	BD-416	Lock Washer	6
38	BD-37914	Insulating Spacer	2
39	BD-445694	Anit-Friction Ring	1
40	BD-38201-02	Reverse Switch Ring	1
41	BD-38221	Needle Bearing	1
42	BD-38218	Thurst Washer	1
43	BD-55401	Gear & Pinion Assy	1
44	BD-6952	2nd Internal Gear Key	1
45	BD-8068	Ball Bearing	1

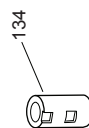
# HMD915 Exploded View

\* Included in 40126 Assembly

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117



Adapter for "12,000-Series" Cutters



# HMD915 PART NUMBERS

No.	Part #	Description	Qty
	<b>40126</b>	Bottle Assembly	1
1	<b>40126</b>	Cap (Must buy Bottle Assy)	1
2	<b>40123</b>	Hold Down Fitting	1
3	<b>40058</b>	Washer	1
4	<b>40121</b>	Bottle	1
5	<b>40126</b>	Block (Must buy Bottle Assy)	1
5a	<b>40125</b>	Drip Tube	1
6	<b>40070</b>	SHCS 1/2-13 x 1	3
7	<b>40069</b>	Washer 1/2	4
8	<b>40126</b>	Adjustment Needle	1
9	<b>40124</b>	O-Ring	1
10	<b>90071</b>	Screw 1/4-20 x 1/4	2
11	<b>40062</b>	Tie Bar	1
12	<b>40108</b>	SHCS 1/4-20 x 1-1/4	3
13	<b>40067</b>	Feed Rod	2
14	<b>40052</b>	Hex Nut 7/16-14	1
15	<b>40105</b>	Knurled Nut 7/16	1
16	<b>40113</b>	Ejector Rod	1
17	<b>40114</b>	Ejector Rod Point	1
18	<b>40558</b>	SHCS 5/16-18 x 3/4	4
19	<b>40107</b>	Lock Washer 5/16	4
20	<b>40086</b>	Strut Assy	1
21	<b>40117</b>	Grommet	1
22	<b>90065</b>	Lock Washer 1/4	3
23	<b>90027</b>	Flat Washer 1/4	1
24	<b>10553</b>	SHCS 5/16-18 x 7/8	1
25	<b>40181</b>	Head Impactor	2
26	<b>40182</b>	Point Impactor	2
27	<b>40141</b>	SCR-SOC Set 5/8-11 x 1/2	1
28	<b>10644</b>	Spring Plunger	2
29	<b>40183</b>	SCR-SHC 5/16-18 x 2-1/4	1
30	<b>40143</b>	SCR-SHC 5/16-18 x 1-1/2	4
31	<b>10592</b>	Strain Relief	3
32	<b>10977</b>	SCR-BHC 1/4-20 x 1/4	1
33	<b>40074</b>	Washer 5/16 Flat	1
34	<b>40095</b>	Chip Breaker Insert	1
35	<b>40134</b>	Chip Breaker Block	1
37	<b>40184</b>	Nut 5/16-18 UNC	1
39	<b>40110</b>	Washer Lock 1/2 Hel	4
40	<b>40111</b>	SCR-SHC 1/2-13 x 1-1/2	1
41	<b>10972</b>	SCR-BHC #6-32	2
42	<b>40130</b>	Safety Switch Assy	1

No.	Part #	Description	Qty
45	<b>04909</b>	Bracket-Safety Switch	1
48	<b>10983</b>	Shield-Safety Switch	1
49	<b>10971</b>	SCR-SHC 1/4-20 x 1/2	1
51	<b>90497</b>	SCR-SS 1/4-20 x 3/8 BR	2
52	<b>05329</b>	Magnet 230V	1
	<b>05325</b>	Magnet 115V	1
55	<b>17271</b>	Spring	1
56	<b>04961</b>	Plunger Assy	1
59	<b>40139</b>	Base Plate	1
61	<b>10626</b>	Seal 7/8	5
62	<b>40065</b>	Bushing 7/8	4
63	<b>40001</b>	Main Housing	1
64	<b>40071</b>	SCR-SHC 1/4-28 x 7/8	4
66	<b>40044</b>	Retaining Ring	1
67	<b>40032</b>	Washer 9/6 x 1-3/8	2
68	<b>40116</b>	Gear Spur 16 teeth	2
69	<b>40045</b>	Key	2
70	<b>40048</b>	Bushing 9/16	1
71	<b>40032</b>	Bushing 7/16	1
72	<b>40092</b>	Retaining Ring	1
73	<b>40112</b>	Thrust Washer	2
75	<b>40090</b>	Bearing 7/8	1
76	<b>40061</b>	Handle Assy	1
78	<b>40035</b>	Bushing	1
79	<b>40091</b>	Washer 7/8	1
80	<b>40026</b>	Gear Spindle 36 Teeth	1
81	<b>40118</b>	Spacer - Spindle	1
82	<b>40033</b>	Bearing 3/4	1
83	<b>40021</b>	Gear Idler 32 Teeth	1
84	<b>40011</b>	Change Gear 16 Teeth	1
	<b>40012</b>	Change Gear 18 Teeth	1
	<b>40014</b>	Change Gear 24 Teeth	1
	<b>40016</b>	Change Gear 30 Teeth	1
	<b>40017</b>	Change Gear 32 Teeth	1
85	<b>40018</b>	Idler Shaft	1
88	<b>40008</b>	Bearing	3
89	<b>40009</b>	Bearing	3
90	<b>40007</b>	Seal 3/4 x 1	3
91	<b>40006</b>	Retaining Ring Lower	1
94	<b>10681</b>	Grease Fitting	2
95	<b>40002</b>	Washer Altered	2
96	<b>40039</b>	Shaft-Spline	1



## HMD915 PART NUMBERS (CONT)

No.	Part #	Description	Qty
97	<b>40010</b>	Driven Gear 16 Teeth	1
98	<b>40020</b>	Thrust Washer	4
99	<b>40038</b>	SHCS 10-32 x 5/8	2
100	<b>10560</b>	Washer #10	2
101	<b>40037</b>	Upper Retaining Ring	1
104	<b>40083</b>	Electrical Box	1
105	<b>40082</b>	120V Motor	1
	<b>40131</b>	230V Motor	1
106	<b>10766</b>	Circuit Breaker 15A - 120V	1
	<b>10785</b>	Circuit Breaker 8A - 230V	1
107	<b>10771</b>	Grommet	1
108	<b>40066</b>	SCR-BHC 1/4-28	3
110	<b>10796</b>	Panel Assy - 120V	1
	<b>04381</b>	Panel Assy - 230V	1
111	<b>10710</b>	SCR- #6-32	2
112	<b>40128</b>	Power Cord 120V	1
	<b>04808</b>	Power Cord 230V	1
	<b>07562</b>	Power Cord 230V Type I	1
113	<b>90264</b>	Hub - Feed Shaft Assy	1
114	<b>10569</b>	Feed Handle	3
115	<b>04532</b>	Feed Handle Knob	3
116	<b>40084</b>	Cord	1

No.	Part #	Description	Qty
117	<b>40127</b>	O-Ring	1
118	<b>40076</b>	Dowel Pin 1/4	2
119	<b>40003</b>	Housing Spindle Bearing	1
120	<b>40005</b>	Lower Bearing Cap Assy	1
122	<b>40078</b>	SCR-SHC 1/4-20 x 1-1/2	3
123	<b>40077</b>	SCR-SHC 1/4-20 x 1	1
125	<b>40129</b>	SCR-SHC 1/4-20 x 2-1/4	2
126	<b>40023</b>	Retaining Ring	1
127	<b>40031</b>	Spindle	1
128	<b>40025</b>	Key 3/16	1
129	<b>40042</b>	SCR-SS 3/4-10 Alt	2
130	<b>40636</b>	Chip Guard	1
131	<b>40635</b>	Retaining Ring	1
132	<b>10621</b>	SCR-SS 1/4-20 x 1/4 BR	1
133	<b>04721</b>	Washer 1/4 Lock Washer	12
134	<b>40040</b>	Adapter	1
135	<b>40132</b>	Tag - Gear Chart	1
136	<b>40104</b>	#2 Drive Screw	4
137	<b>17537</b>	Label - Safety Instructions	1
138	<b>05841</b>	Label - 120V	1
	<b>05842</b>	Label - 230V	1
139	<b>40022</b>	Bearing	1

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