

# Magnetic Base Drilling Machine

## **BD35**

### **Operators Instruction Manual And Spare Parts Listings**

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## Introduction

Congratulations on the purchase of your new, lightweight multi-purpose magnetic base drill. This is a high quality product with unique features that make it the perfect solution for your entire hole drilling requirements.

- Easy to use and rugged design makes the BD35 a cost effective solution to drilling clean, accurately positioned holes in your work piece.
- Powered by a **BLACK AND DECKER 1320-98 MOTOR**

## Chapter 1. Technical Overview.

Machine	BD35
Clamping force	1900 lbs.
Speed	450 rpm.
Size (LxWxH)	11-13/16" x 3-15/16" x 15-3/8"
Cutter Capacity	7/16" – 1-3/8"
Twist Drill Capacity	1/2"
Power Consumption	700 watts
Weight	28 lbs.

## Chapter 2. Warnings and Safety Instructions.

Read these instructions carefully before operating, maintaining or servicing this tool.  
Please keep these instructions in a safe accessible place.



Read to fully understand and observe the following safety precautions and warnings. Careless or improper use of this equipment may result in serious or fatal injury.



Always wear eye, head and ear protection equipment, when using this tool



### **WARNING!**

Indicates instant possibility of severe personal injury or loss of life, if instructions are not followed.



### **CAUTION!**

Indications a possibility of personal injury or equipment damage, if instructions are not followed.

### **Operator Safety**

- Always read the instructions carefully so as to avoid any injury or damage when unfamiliar with this equipment.
- Always wear a safety face shield or goggles.
- Wear ear defenders when using this equipment.
- Always wear heavy clothing, boots and gloves. Do not wear loose clothing, short pants, sandals etc. and ensure that long hair is tied up above shoulder length.
- Do not operate this equipment when tired, ill or under the influence of alcohol, drugs or medication.
- Never allow an inexperienced person operate this equipment.
- Never operate the equipment in damp, or water logged area.
- Keep all carrying handles and levers free from oil.
- Keep hands away from the cutter when it is rotating. Ensure that it has stopped rotating and is disconnected from the power source before touching the cutter.

### **Tool Safety**

- Inspect the entire piece of equipment before use.
- Replace damaged components, lubricate where necessary and ensure that all fasteners are secure.
- Always use a safety chain to secure the equipment when it is being used above the ground.
- Use only accessories that have been recommended by the manufacturer. Failure to do so could result in damage to the tool and may invalidate the warranty.



### **WARNING!**

Never modify the tooling any way. Do not use your equipment for any job other than for which it is intended.

### **Maintenance safety**

- Maintain according to the manufacturers recommended procedures.

- Do not attempt to gain access into the electrical panel. There is risk of electrical shock.
- Never use a larger diameter cutter than specified for use with this equipment.
- Do not attempt to connect the equipment to a power source other than that specified by the manufacturer.
- Ensure that the cutter being used is sharp and free from damage.

- Disconnect the equipment from the power source before attempting any maintenance.
- Use only genuine replacement components as recommended by the manufacturer.

### **Transport and Storage**

- Before moving the tool, ensure that the cutter has stopped rotating.
- Carry the tool with the cutter pointing away from the body to avoid laceration.
- After use, clean the equipment and its accessories and store in a dry place.
- Store the equipment along with the maintenance tools in its correct carrying case when not in use.

## Chapter 3. Operating Instructions.



Ensure that the unit is disconnected from the power before working on the machine.

- **Insert Pilot Pin.**

The pilot pin is used to align the cutter and eject the slug on completion of the cut.

Slide the pilot through the hole in the centre of the cutter shank.



- **Fit the Cutter.**

Two grub screws are used to secure the cutter to the arbour. The cutter shank has two flats that must be aligned with the grub screws in the arbour.

Insert the cutter shank into the arbour. The screws must be tightened evenly so that the cutter is prevented from moving. The screws are tightened using the **4mm** Allen key supplied.

(A cutter with a shank diameter of  $\frac{3}{4}$ " and cutting diameter of no larger than  $1\text{-}\frac{3}{8}$ " must be used).



- **Mark the centre of the required hole.**

- **Position the Machine.**

Ensure that the workpiece is clean and flat. Position the machine by aligning the pilot with the holes centre mark.

- **Fit the safety strap/chain.**

- **Connect the machine to the power source.**

Switch on the power by depressing the RED power switch on the side panel.



- **Energize the magnet.**

Switch on the magnetic base by depressing the YELLOW magnet switch.

CHECK that the pilot is still aligned with the hole centre mark, as energizing the magnetic base can cause the machine to move.



- **Apply Coolant**

Using cutting oil can increase the tool life and ensures that the slug is ejected cleanly.

Fill coolant bottle and open the drain stop slightly to allow coolant to flow through the coolant tube to the arbour. Coolant will then be dispensed to the cutting surface when the pilot begins to retract in the arbour. If cutting surface is vertical or steeply inclined, then cutting paste, gel or foam should be used.

- **Start Cutting**

Start the drill by depressing the GREEN drill switch.

Lower the cutter to the surface by turning the handle and with light pressure cut an initial groove. Increase pressure until motor is loaded and maintain steady pressure until cut is complete.

- **Finish Cutting**

When the cut is complete the slug will be ejected from the cutter. Raise the cutter again; stop the motor and switch off the magnet. **Note: Depressing any button while the motor is on will only shut off the motor only, leaving the magnet energized.**



**NOTE: –**

- Applying too much pressure will not speed the cut, it will reduce the life of the tool and may cause damage to the motor.
- If swarf becomes blue in colour then more cutting oil is required.
- If the power is interrupted during the cut, the magnet must be reset before the motor will restart.

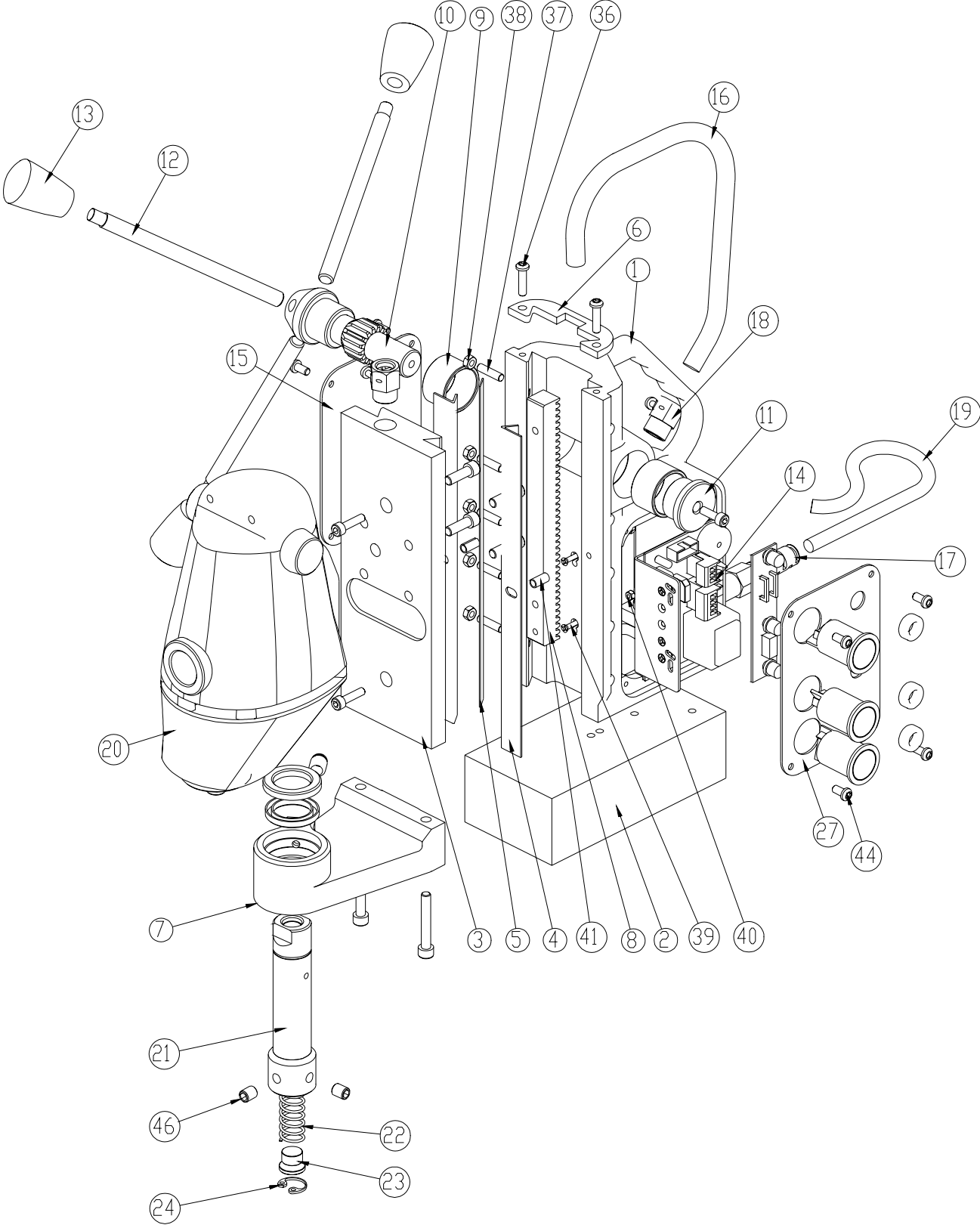
## Chapter 4. Maintenance Instructions

- Occasionally apply a few drops of oil to the rack gear teeth.
- The bearings of the feed shaft are self-lubricating and must not be greased.
- Grease the sliding surface of the carriage with MOLYCOTE grease.
- When not in use or being transported the unit should be kept in the case supplied.
- After use ensure unit is clean of swarf and dirt.
- Parts that are worn or damaged should be replaced immediately with original UBIBOR replacements.
- Ensure all cutting edges are sharp when in operation. Using blunt cutting tools may lead to an overload of the motor.
- After repeated use, the cradle may become loose. This is remedied by adjusting the tension screws on the side of the body. Put 2.5mm Allen Key into head of cradle retaining nuts, using 8mm Spanner undo the locking nuts anti-clockwise holding the Allen key without moving grub screws.  
Using the Allen Key gently tighten screws in series until the cradle moves freely in the slide but does not allow the motor to wobble.  
When adjustment is complete re-tighten locking nuts clockwise.





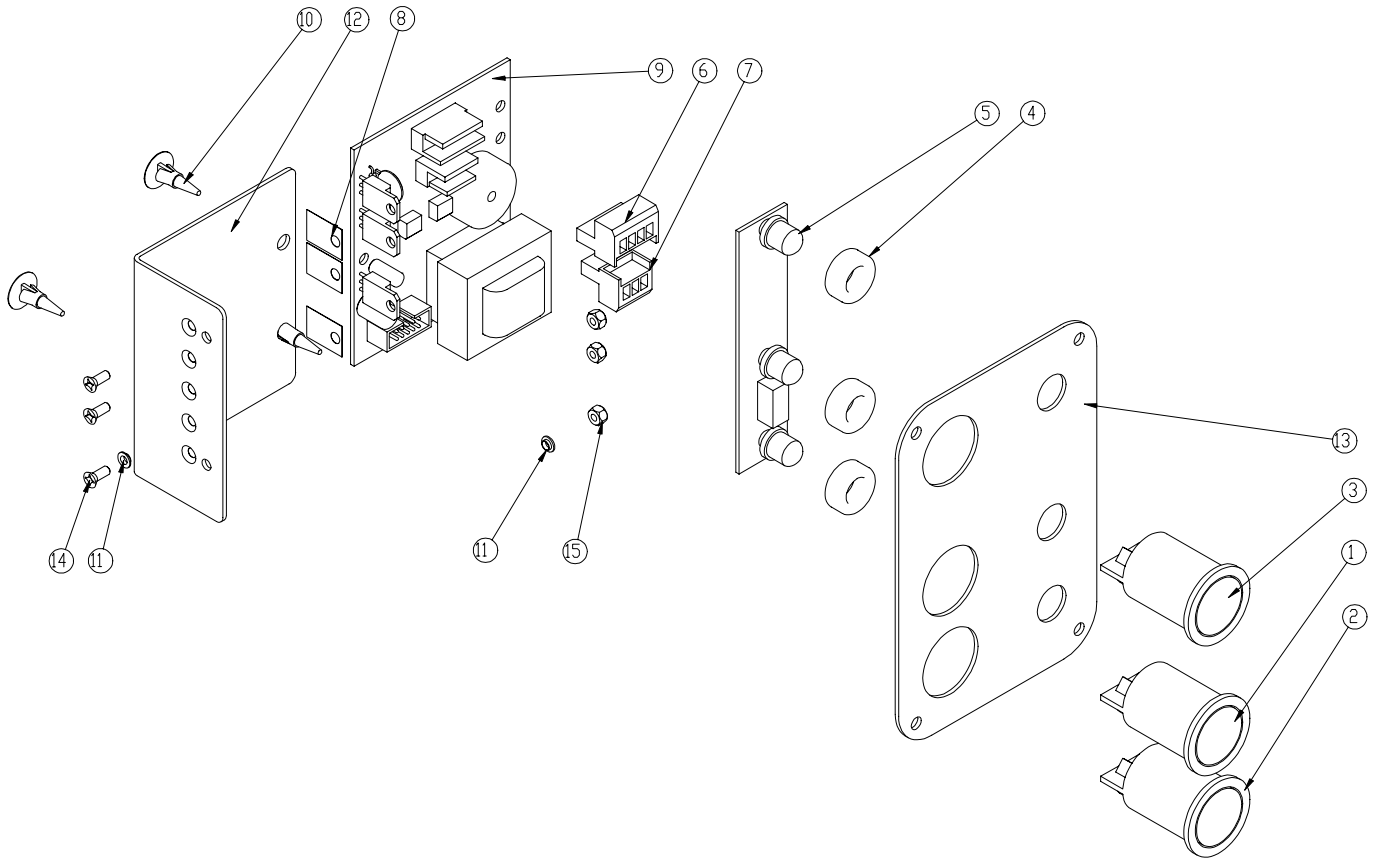
# Chapter 5. Exploded Views



## Chapter 5. Component listing.

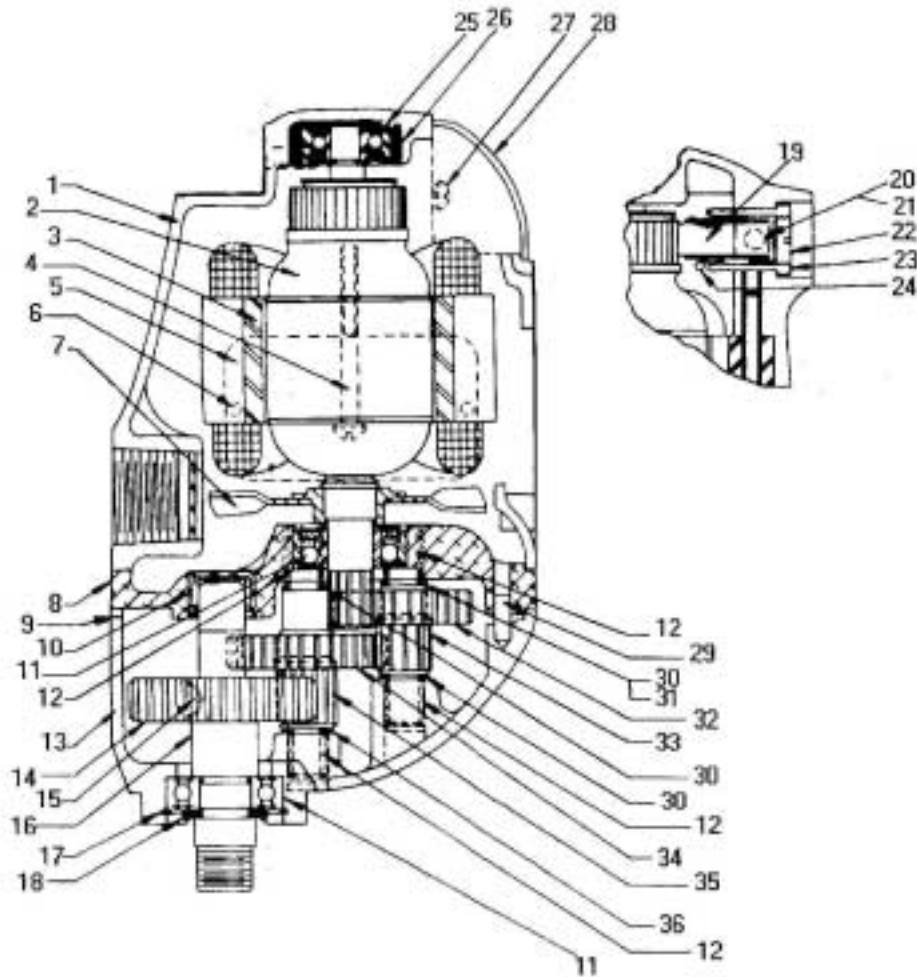
Item No.	Stock Code	Description	Quantity
1	M0001	Body	1
2	M0031	Magnet Base	1
3	M0166	Slide	1
4	M0101	Brass Rail	2
5	M0441	G.F.S.	1
6	M0811A	Oilfeed Top Plate	1
7	M0515	Support Bracket	1
8	M0831	Rack	1
9	M0081	Pinion Bush	2
10	M0041	Pinion	1
11	M0072	Pinion End Cap	1
12	M0061	Handle	3
13	M0841	Handle Knob	3
14	PANELP	Panel Assembly – No Facia	1
15	M0221B	Warning Plate	1
16	M0444	Conduit (Black)	1
17	10231	Strain Relief	1
18	M0451	Cable Gland	2
19	CABL02	Power Cable – 16 Gauge	1
20	BD1321-1	Black and Decker 1320-98 110V Drill	1
21	M0502	Long Reach Arbour Complete	1
22	20356	Arbour Spring	1
23	10205	Arbour Ejection Plug	1
24	CCP-19	19mm Internal Circlip	1
27	MO241B	BD35 Switch Plate	1
28	STRAP01	Polyester Webbing Safety Strap (not shown)	1
29	OIL05	Oil Cup Assembly (not shown)	1
31	KEY01	Allen Key 2.5mm (not shown)	1
32	KEY03	Allen Key 4mm (not shown)	1
33	KEY04	Allen Key 5mm (not shown)	1
35	CASE01	Carrying case – Plastic (not shown)	1
36	SC520BUT	M5 x 20mm Button Head Screw	2
37	SC525GRUB	M5 x 25mm Grub Screw	5
38	NUT-M5	M5 Nut	5
39	SC310CSK-X	M3 x 10mm Countersink Screw	2
40	NUT-M3	M3 Nuts	2
41	SELPIN410	Ø4 x 10mm Selocp Pin	2
42	SC410CSK-X	M4 x 10mm Countersink Brass (not shown)	1
43	NUT-M4	M4 Nut Brass (not shown)	1
44	SC510BUT	M5 x 10mm Button Head Screw	8
45	SC625CAP	M6 x 25mm Cap Head Screw	4
46	SC88GRUB	M8 x 8mm Grub Screw	2

# PANEL COMPONENT LIST



Item No.	Stock Code	Description	Quantity
1	MM1-1	MM1 MAGNET BUTTON - YELLOW	1
2	MM1-2	MM1 MOTOR BUTTON - GREEN	1
3	MM1-10	MM POWER BUTTON - RED	1
4	MM1-3	MM1 L.E.D. GROMMET	3
5	MM1-4	MM1 LED BOARD – C/W LEDs	1
6		<b>NO LONGER REQUIRED</b>	
7		<b>NO LONGER REQUIRED</b>	
8		<b>NO LONGER REQUIRED</b>	
9	IMI-MM1-5	REPLACEMENT PCB BOARD	1
10	MM1-16	STAND OFF CLIP FOR NEW PANEL	2
11		<b>NO LONGER REQUIRED</b>	
12	MM1-17	PCB SUPPORT PLATE	1
13	M0241B	SWITCH PLATE	1
14	SC316CSK-X	M3 x 16 PHILIPS HEAD SCREW	3
15	NUT-M3	M3 LOCK NUT	3

# Chapter 5. Electric Motor Break Down



ITEM NO.	PART NO.	DESCRIPTION	QTY
1	144266-00	Field Case(Incl. 20,21,22)	1
2	445786-31	Armature (13 Teeth)	1
3	400322-71	Field	1
4	12158-00	#10-32 x 2" Screw & Washer	2
5	144111-02	Nameplate	1
6	14437-00	#2 x 3/16" Drive Screw	2
7	133410-00	Fan	1
8	51404-03	Gear Case Cover (Incl. 10,12,29)	1
9	143681-00	Gasket	1
10	135937-00	Needle Bearing	1
11	700984-00	Ball Bearing	2
12	21246-00	Needle Bearing	4
13	51403-00	Gear Case (Incl. 12)	1
14	400147-00	Spindle Gear(50 Teeth)	1
15	7027-00	Key	1
16	133316-00	Spindle (1/2"-20" in/d)	1
17	99022-02	Retaining Ring	1
18	450819-00	Washer	1
19	400814-00	Brush Assembly	2
20	376-00	#10-32 x 3/8" Set Screw	2
21	400718-00	Nylon Ball	2
22	48210-00	Brush Holder Plug	2
23	61208-03	Brush Holder	2
24	48212-00	Brush Lead Terminal	2
25	330003-04	Ball Bearing	1

Form No. 230242-02

ITEM NO.	PART NO.	DESCRIPTION	QTY.
26	132332-00	Bearing Sleeve	1
27	33874-00	#10-32 x 1/2" Screw & Washer	2
28	21235-00	Brush Cover	1
29	700735-00	Dowel Pin	1
30	51407-00	Fiber Washer	4
31	51405-00	1st Inter Gear Assm.	1
32	49062-00	1st Inter. Gear(44 Teeth)	1
33	51401-00	1st Inter.Pinion(13 Teeth)	1
34	51405-00	2nd Inter. Gear Assm.	1
35	21822-00	2nd Inter. Gear(48 Teeth)	1
36	51402-00	2nd Inter. Pinion(15 Teeth)	1

### EXTRA EQUIPMENT:

- (Not Supplied With Unit)
- 264053-00 BD-L2.0 Grease (7 lb.)
  - 445649-00 Connection Diagram

### NOTES:

- 11 Seal to face inside gear case.
- 25 Seal towards fan.
- 26 Sleeve must be seated in bottom of bore.

### LUBRICATION:

Distribute 5 oz. of BD-L2.0 grease in gear case.

(May99-TS-OP)

### PARTS NOT SHOWN:

(Supplied with Unit)

99447-20	1/4"-28 x 1-1/4" Screw & Washer (Gear Case)	2
99447-40	1/4"-28 x 2-1/2" Screw & Washer (Gear Case)	2
400912-00	Terminal (on leads coming out of unit)	2

### NO LOAD TEST SPECIFICATIONS:

AMPS		SPEED	
MIN.	MAX.	MIN.	MAX.
2.0	2.8	450	610

**IMPORTANT!** To assure product SAFETY and RELIABILITY, repairs, maintenance and adjustment should be performed by BLACK & DECKER Service Centers or other qualified service organizations, always using BLACK & DECKER replacement parts.

### GEAR MOTOR

Cat. no.	Type	Volts	Amps	RPM
1320-98	5	120	6.0	450
AC/DC				

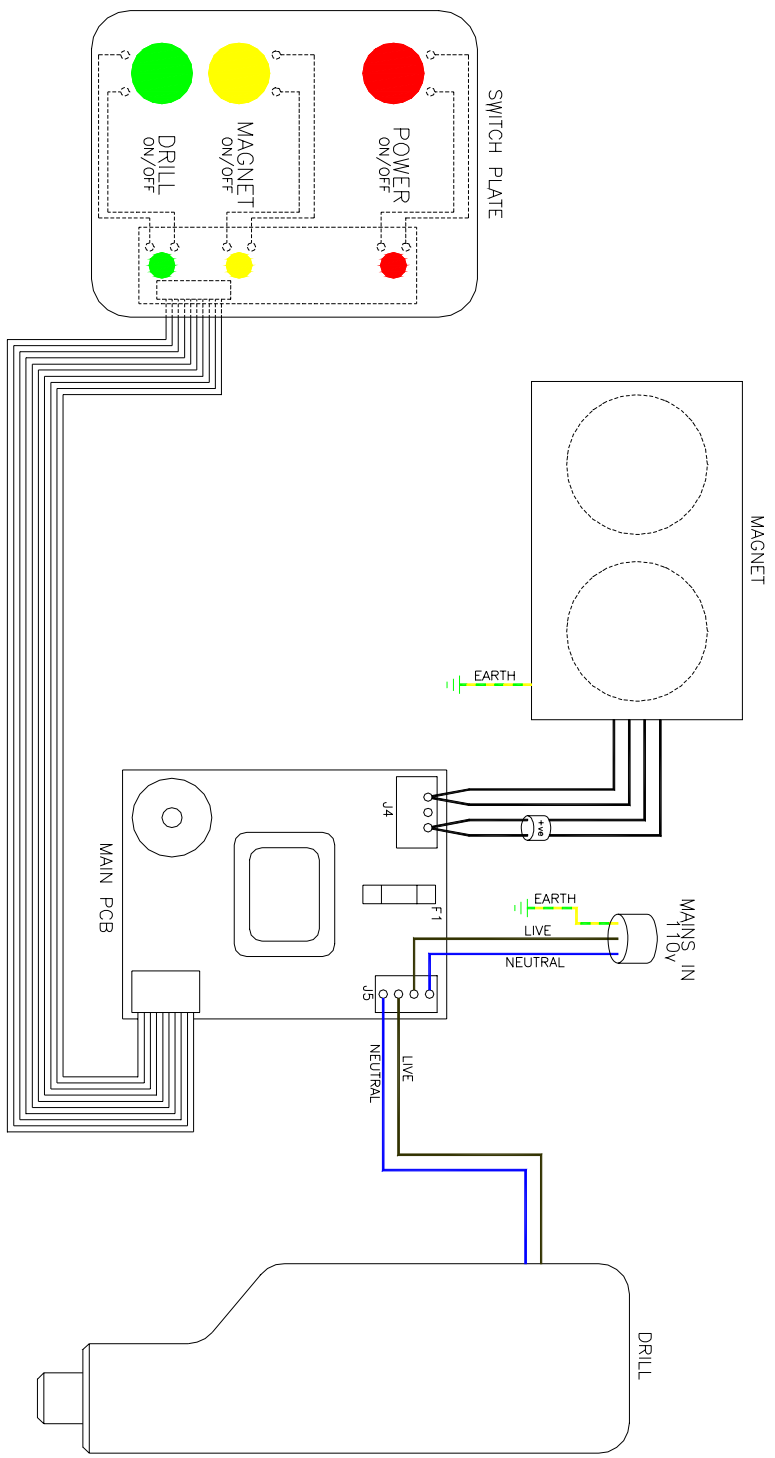
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FIRST ANGLE PROJECTION DO NOT SCALE IF IN DOUBT - ASK

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