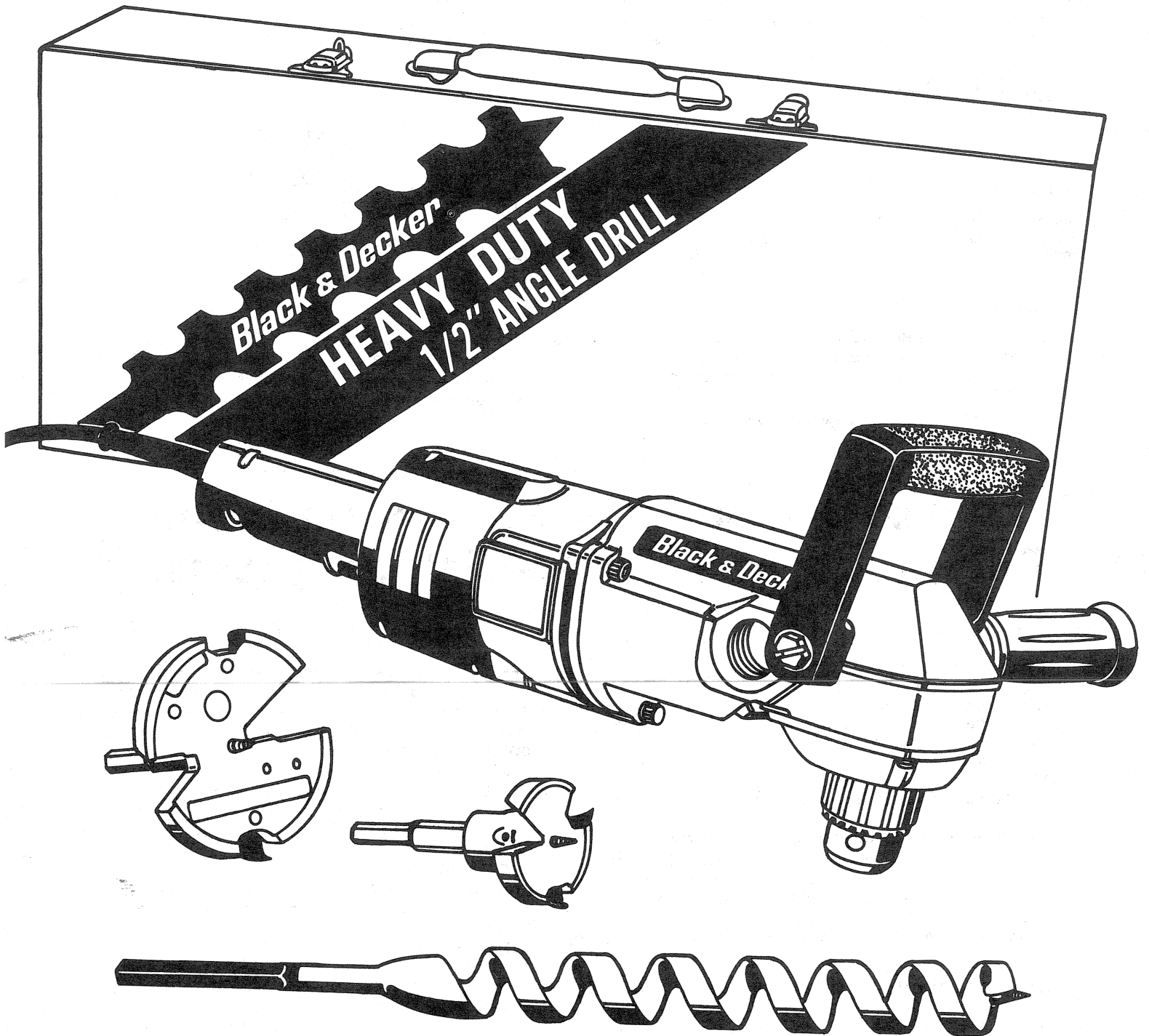


**BLACK & DECKER®**



Drill Bits pictured above are not included.

# INSTRUCTION MANUAL

# Introduction

IT SHOULDN'T TAKE COURAGE TO HANDLE A BIG ANGLE DRILL. That's why Black & Decker has combined extra long length with a patented exclusive safety clutch designed to let you control the drill rather than the other way around.

Your 1/2" angle drill is an extremely rugged and powerful tool made for heavy duty drilling jobs. The right angle head and 2 position bail handle make drilling in tight places easy and there's plenty of power in the 2 speed models for driving large diameter

self-feed bits. Rated for continuous duty, these drills are perfectly suited to the needs of plumbers, electricians and anyone who needs to drill large diameter holes.

Because these drills operate somewhat differently than conventional angle drills, please take the time to carefully read this Owner's Manual with particular attention to the safety precautions. Don't forget to send in your warranty card. **Thanks for buying Black & Decker!**

## Specifications:

CAT. NO.	SPEED	RPM	CLUTCH	CAPACITY IN WOOD			CAPACITY IN STEEL	VOLTS	AMPS
				SHIP AUGERS	DOUBLE TWIST BITS	SELF FEED BITS	TWIST BITS		
1351-09	High	1200	No	1-1/2"	1-1/4"	2-9/16"	1/2"	120	8.0
1350-09	High	1200	No	1-1/2"	1-1/4"	2-9/16"	1/2"	120	8.0
1350-09	Low	300	Yes	1-1/2"	1-1/4"	4-5/8"	1/2"	120	8.0
1349-09				Same as 1350-09 but includes kit					

## Features:

1. Exclusive, patented Black & Decker Safety Clutch. Designed to greatly enhance personal safety by slipping when high torque levels result from drilling large diameter holes with self-feed bits.
2. Extra long 20" design for greater torque control. No more dangerous torque reactions with big bits.
3. Black & Decker "Checkpoint" brush system. Designed to prevent commutator damage from worn out brushes. The drill will automatically stop when the brushes wear out.
4. Two position bail and side handles for added versatility.

# The most important part of this tool is you. Please observe these special safety rules:

## Safety Rules:

1. Wear safety goggles or other eye protection.
2. Always use the side handle supplied with the tool. Keep a firm grip on the drill when it is operating.
3. Don't overreach with the drill. Maintain a firm, balanced working stance. When necessary, use only properly positioned, safe platforms, ladders and scaffolds, to do the job SAFELY!
4. Drill bits get hot in operation. Wear gloves when touching them.
5. Never attempt to lock the trigger switch on in any way.

**CAUTION:** When drilling into walls, floors or wherever "live" electrical wires may be encountered, DO NOT TOUCH ANY METAL PARTS OF THE TOOL! Hold the drill only by the plastic handle to prevent electric shock if you drill into a "live" wire. Use the side handle provided in order to properly control the torque (twisting action) of the tool.

## IMPORTANT SAFETY INSTRUCTIONS

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

### READ ALL INSTRUCTIONS

1. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite injuries.
2. **CONSIDER WORK AREA ENVIRONMENT.** Don't expose power tools to rain. Don't use power tools in damp or wet locations. Keep work area well lit.
3. **GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces. For example: pipes, radiators, ranges, refrigerator enclosures.

4. **KEEP CHILDREN AWAY.** All visitors should be kept away from work area. Do not let visitors contact tool or extension cord.
5. **STORE IDLE TOOLS.** When not in use, tools should be stored in dry, and high or locked-up place—out of reach of children.
6. **DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was intended.
7. **USE RIGHT TOOL.** Don't force small tool or attachment to do the job of a heavy-duty tool. Don't use tool for purpose not intended, for example, don't use circular saw for cutting tree limbs or logs.
8. **DRESS PROPERLY.** Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
9. **USE SAFETY GLASSES.** Also use face or dustmask if cutting operation is dusty.
10. **DON'T ABUSE CORD.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.
11. **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.
12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safe performance. 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 replace if damaged. Keep handles dry, clean, and free from oil and grease.

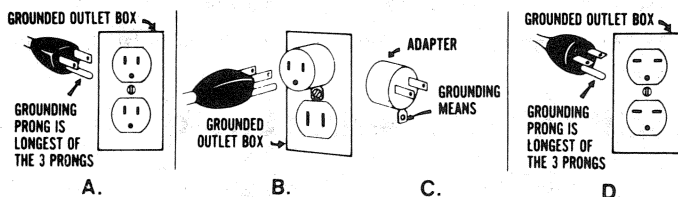
14. **DISCONNECT TOOLS.** When not in use, before servicing, and when changing accessories, such as blades, bits, cutters.
15. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. **AVOID UNINTENTIONAL STARTING.** Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugging in.
17. **OUTDOOR USE EXTENSION CORDS.** When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
18. **STAY ALERT.** Watch what you are doing. Use common sense. Do not operate tool when you are tired.
19. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other 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 guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual. Have defective switches replaced by Authorized Service Center. Do not use tool if switch does not turn it on and off.
20. **DO NOT OPERATE** portable electric tools near flammable liquids or in gaseous or explosive atmospheres. Motors in these tools normally spark, and the sparks might ignite fumes.

## Grounding:

This tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with an approved three-conductor cord and three-prong grounding type plug to fit the proper grounding type receptacle. The green (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 tool is for use on less than 150 volts, it has a plug like that shown in Figure A. If it is for use on 150 to 250 volts, it has a plug like that shown in Figure D. An adapter, Figures B and C, is available for connecting Figure A plugs to two-prong receptacles. The green-colored rigid ear, lug, etc., must be connected to a permanent ground such as a properly grounded outlet box.

No adapter is available for a plug as shown in Figure D. The adapter shown in Figures B & C is not for use in Canada.



We recommend that you NEVER disassemble the tool or try to do any rewiring in the electrical system. Any repairs should be performed only by B&D Service Centers or other qualified service organizations. Should you be determined to make a repair yourself, remember that the green-colored wire is the "grounding" wire. Never connect this green wire to a "live" terminal. If you replace the plug on the power cord, be sure to connect the green wire only to the grounding (longest) prong on a 3-prong plug.

## SAVE THESE INSTRUCTIONS

### Motor:

Your Black & Decker tool is powered by a B&D-built motor. Be sure your power supply agrees with the nameplate marking.

"Volts 50/60 Hz" or "AC only" means your tool must be operated only with alternating current and never with direct current. "Volts DC-60 Hz" or "AC/DC" means your tool may be operated with either alternating or direct current.

A voltage decrease of more than 10% will cause a loss of power and overheating. All B&D tools are factory tested; if this tool does not operate, check the power supply.

## Extension Cords

Tools that have 3 wire cords requiring grounding must only be used with extension cords that have 3-prong grounding type plugs and 3-pole receptacles. Only round jacketed extension cords should be used, and we recommend that they be listed by Underwriters Laboratories (U.L.). If the extension will be used outside, the cord must be suitable for outdoor use. Any cord marked as outdoor can also be used for indoor work.

An extension cord must have adequate wire size (AWG or American Wire Gauge) for safety, and to prevent loss of power and overheating. The smaller the gauge number of the wire, the greater the capacity of the cable, that is 16 gauge has more capacity than 18 gauge. When using more than one extension to make up the total length, be sure each individual extension contains at least the minimum wire size.

To determine the minimum wire size required, refer to chart below:

NAMEPLATE RATING - AMPS	CHART FOR MINIMUM WIRE SIZE (AWG) OF EXTENSION CORDS							
	TOTAL EXTENSION CORD LENGTH - FEET							
	25	50	75	100	125	150	175	200
0 - 10.0	18	18	16	16	14	14	12	12
10.1 - 13.0	16	16	14	14	14	12	12	12
13.1 - 15.0	14	14	12	12	12	12	12	—

Before using an extension cord, inspect it for loose or exposed wires, damaged insulation, and defective fittings. Make any needed repairs or replace the cord if necessary. Black & Decker has extension cords available that are U.L. listed for outdoor use.

## Torque:

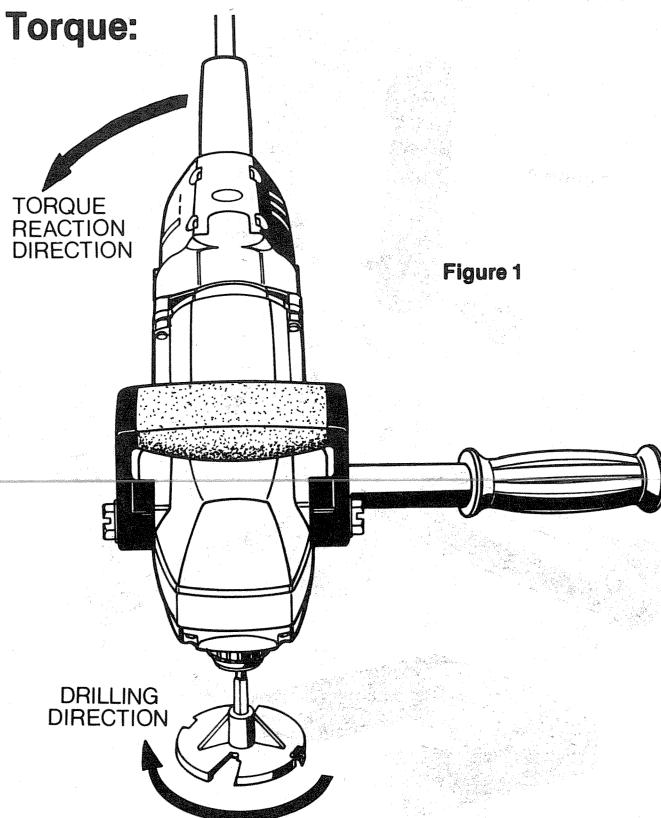


Figure 1

Torque is the twisting action produced back through the drill as the drill bit meets resistance in the material being drilled (see Figure 1). As the resistance increases, so does the torque until the full torque capacity of the motor and gear is reached. When this point is reached, a conventional drill will stall and the torque level produced is dangerously high. High enough, in fact, to cause operator injury. This, of course, causes ordinary angle drills to be handled with extreme care.

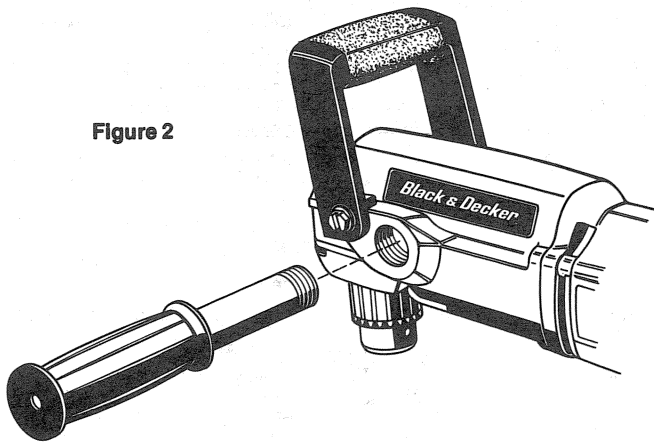
This is where Black & Decker's traditional concern for operator safety enters the picture. Our exclusive safety clutch will slip before any dangerous torque level is ever reached. No high torque spike will cause loss of control over your drill.

The clutch is designed to operate only in the low speed (300 RPM) high torque range. High speed drilling operation's (1200 RPM) produce lower torque so that the clutch is not necessary.

**NOTE:** Only the heaviest loads will cause the clutch to slip.

## Assembling Side Handle:

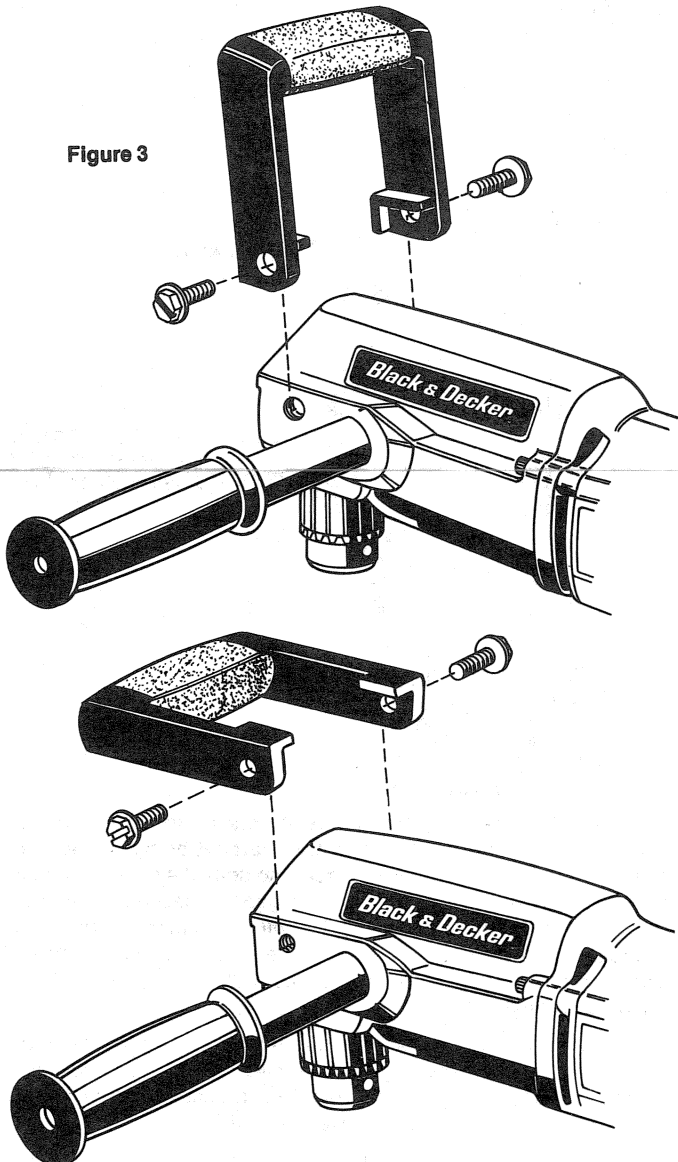
Figure 2



Two threaded bosses are supplied as shown in Figure 2 for installation of the side handle. Install side handle as shown on desired side and tighten securely by hand. Use of the side handle is recommended when drilling at the low speed setting.

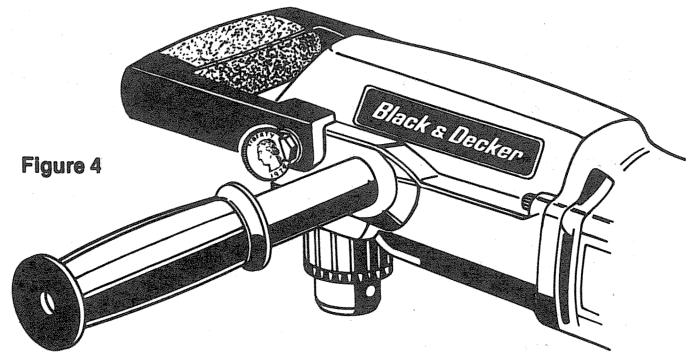
## Assembling Bail Handle:

Figure 3



A Bail Handle is provided for carrying the tool and for use as a hand hold when drilling. Assemble the bail handle in either of the positions shown in Figure 3. When changing the location of the

Figure 4



Bail Handle from one position to the other, it is necessary to remove completely the two bolts securing it. These bolts can be loosened or tightened with a quarter or other suitable coin as shown in Figure 4. Turn the handle around (1/2 turn) and reinstall as desired. Always operate this tool with the Bail handle installed.

## Switches:

Depressing the trigger switch turns the tool "ON," releasing the trigger turns the tool "OFF." There is a slide switch built into the handle for operating in reverse. For drilling, this switch is put in the "F" position and for reversing operations, it is pushed to the "R" position.

**NOTE:** The switch provided is a common part for use on several other tools. Ignore the "HI/LO" markings for this drill. A built in mechanical interlock prevents operation of the slide switch unless the trigger is released. Avoid reversing the drill's direction while it is still coasting to a stop.

## Speed Selection:

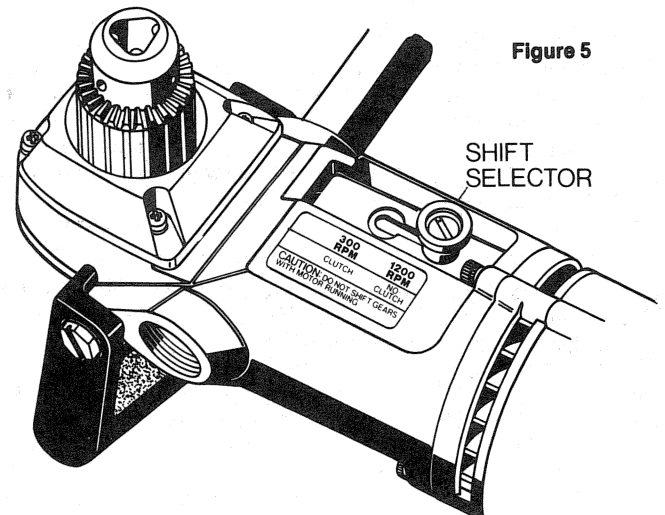
Your 1350-09 or 1349-09 is equipped for two speed operation. To select the drilling speed best suited to a particular operation, consult the chart below. Note that the chart also shows when the clutch is operative.

Bit Type	Bit Diameter	Drilling Speed	Clutch Operative
Ship Augers	All	1200 RPM	No
Self-Feed Bits	Up to 2-9/16"	1200 RPM	No
Self-Feed Bits	Over 2-9/16"	300 RPM	Yes
Double Twist Bits	All	1200 RPM	No
Hole Saws	All	300 RPM	Yes
Twist Bits	Up to 1/2"	1200 RPM	No

**NOTE:** For holes in metal greater than 1/2" diameter, use hole saws.

## Shifting to the Desired Speed:

Figure 5



To select high speed (1200 RPM) pull up on the speed selector and slide it to the position shown in Figure 5. Make sure that when you release the selector, it snaps down into the detent in the housing.

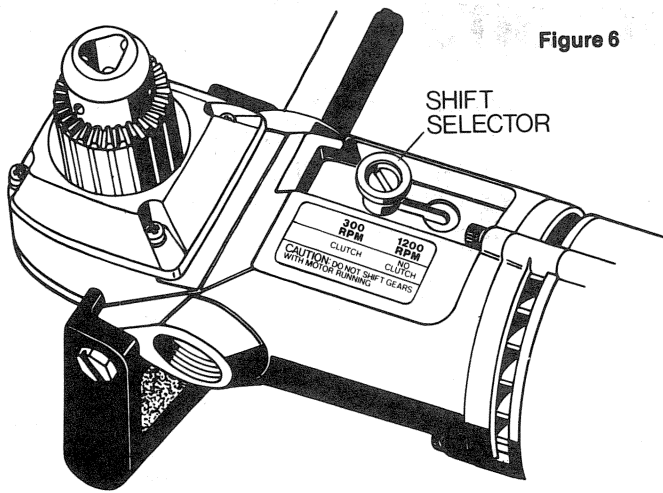


Figure 6

To select low speed (300 RPM) pull up on the speed selector and slide it to the position shown in Figure 6. Make sure that when you release the selector, it snaps down into the detent in the housing.

**NOTE:** It may be necessary to rotate the chuck slightly by hand when shifting speeds. Never change speeds when the drill is running or coasting.

## Operation: General Instructions

**CAUTION:** Always unplug the tool when attaching or changing bits or accessories.

1. Open chuck jaws by turning collar with fingers and insert shank of bit about 3/4" into chuck. Tighten chuck collar by hand. Place chuck key in each of the three holes, and tighten in clockwise direction. It's important to tighten chuck with all three holes. To release bit, turn chuck key counter clockwise in just one hole, then loosen chuck by hand.
2. Use sharp drill bits only. For WOOD, use twist drill bits, double twist bits, ship auger bits, hole saws, or self-feed bits. For METAL, use high-speed steel twist drill bits or hole saws. For MASONRY, such as brick, cement, cinder block, etc., use carbide-tipped masonry bits.
3. Be sure the material to be drilled is anchored or clamped firmly. If drilling thin material, use a wood "back-up" block to prevent damage to the material.
4. Always apply pressure in a straight line with the bit. Use enough pressure to keep drill biting, but do not push hard enough to stall the motor or deflect the bit.
5. Hold drill firmly to control the twisting action of the drill.
6. IF DRILL STALLS, it is usually because it is being overloaded or improperly used. RELEASE TRIGGER IMMEDIATELY, remove drill bit from work, and determine cause of stalling. DO NOT CLICK TRIGGER OFF AND ON IN AN ATTEMPT TO START A STALLED DRILL—THIS CAN DAMAGE THE DRILL.
7. To minimize stalling or breaking through the material, reduce pressure on drill and ease the bit through the last fractional part of the hole.
8. Keep the motor running when pulling the bit back out of a drilled hole. This will help prevent jamming.

### Drilling in Wood

Holes in wood can be made with the same twist drills used for metal. These bits may overheat unless pulled out frequently to clear chips from the flutes. For larger holes, use Black and Decker Self Feed Bits. Work that is apt to splinter should be backed up with a block of wood. When using Self Feed Bits, no pressure is required as these bits will pull themselves into the wood. **NOTE:** If

the clutch slips while using a Self Feed Bit, rock the drill slightly by pushing the switch handle toward the material being drilled and then pulling it back toward you several times.

### Drilling in Metal

Use a cutting lubricant when drilling metals. The exceptions are cast iron and brass which should be drilled dry. The cutting lubricants that work best are sulphurized cutting oil or lard oil; bacon grease will also serve the purpose.

### Accessories:

The accessories listed in this manual are available at extra cost from your local dealer or Black & Decker Service Center. A complete listing of service centers is included on the owner's registration card packed with your tool.

If you need assistance in locating any accessory, please contact: Black & Decker (U.S.) Inc., Consumer Service Department, 626 Hanover Pike, P.O. Box 618, Hampstead, Maryland 21074-0618.

### 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.

### Caution:

After servicing, the chuck must be torqued to 100 ft. lbs. onto the output spindle. The left-hand threaded socket head cap screw (found inside the jaws of the chuck) must then be torqued to 10 ft. lbs.

### Cleaning and Lubrication:

Use only mild soap and a damp cloth to clean the tool. Many household cleaners contain chemicals which could seriously damage the plastic. Also, do not use gasoline, turpentine, lacquer or paint thinner, dry cleaning fluids or similar products. Never let and liquid get inside the tool; never immerse any part of the tool into a liquid.

Self lubricating bearings are used in the tool and periodic relubrication is not required. However, it is recommended that, once a year, you take or send the tool to a B&D Service Center for a thorough cleaning, inspection and lubrication of the gear case. Service Center addresses are shown on the guarantee card packed with your tool.

### Commercial / Industrial Use Warranty:

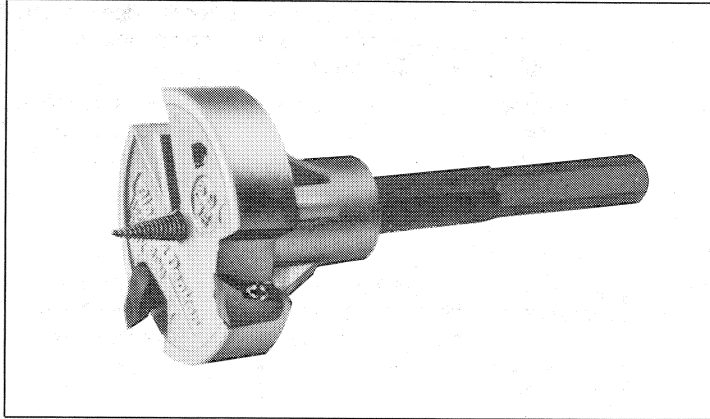
Black & Decker (U.S.) Inc. warrants this product for one year from date of purchase. We will repair without charge, any defects due to faulty material or workmanship. Please return the complete unit, transportation prepaid, to any Black & Decker Service Center or Authorized Service Station listed under "Tools Electric" in the yellow pages. This warranty does not apply to accessories or damage caused where repairs have been made or attempted by others.

Every Black & Decker Tool is of the highest quality. If you wish to contact us regarding this product, please call toll free between 8:00 a.m. and 8:00 p.m., ET, seven days a week.  
1-800-762-6672

# WOOD BORING BITS

A complete selection of 32 bits for large hole boring in wood; featuring self feed bits with replaceable blades, cutters and lead screw/shank combination. Included in the line are double twist bits, long and short ship augers, and extension sections. Diameters from  $\frac{9}{16}$ " to  $4\frac{5}{8}$ " to cover all standard pipe and conduit sizes.

## SELF FEED BITS



Hole Diameter	Shank x Length	Standard Pipe Size	Recommended Drill(s)
1 $\frac{1}{4}$	$\frac{7}{16}$ x6"	1, 1 $\frac{1}{4}$	1311-09, 1321, 1322, 1335-09, 1338-09, 1345-09, 1348-09, 1350-09, 1351-09 Or Larger.
2 $\frac{1}{2}$ 2 $\frac{1}{8}$	$\frac{7}{16}$ x6" $\frac{7}{16}$ x6"	1 $\frac{1}{2}$ 2	1321, 1335-09, 1345-09 (Low RPM), 1348-09, (Low RPM), 1350-09, 1351-09 Or Larger.
3 $\frac{3}{8}$	$\frac{7}{16}$ x6"	3	1330, 1405, 1350-09
4 $\frac{5}{8}$	$\frac{7}{16}$ x6"	4	1405, 1350-09

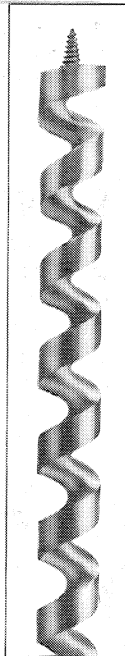
## SHIP AUGERS

Large open throat design allows excellent chip clearance from deep holes; self feeding, single cutting edge.

Hole Diameter	Shank x Length	Recommended Drills
$\frac{5}{8}$	$\frac{7}{16}$ x17"	
$\frac{5}{8}$	$\frac{7}{16}$ x17"	
1 $\frac{1}{8}$	$\frac{7}{16}$ x17"	1311-09, 1321, 1322, 1335-09, 1338-09, 1339-09, 1345-09, 1348-09, 1350-09, 1351-09 Or Larger.
1 $\frac{3}{8}$	$\frac{7}{16}$ x17"	
$\frac{7}{8}$	$\frac{7}{16}$ x17"	
1 $\frac{1}{2}$	$\frac{7}{16}$ x17"	
1	$\frac{7}{16}$ x17"	
1 $\frac{1}{8}$	$\frac{7}{16}$ x17"	
1 $\frac{1}{8}$	$\frac{7}{16}$ x17"	
1 $\frac{1}{4}$	$\frac{7}{16}$ x17"	All drills listed above except 1322.
1 $\frac{3}{8}$	$\frac{7}{16}$ x17"	All drills listed above except 1322 & 1339-09.
1 $\frac{1}{2}$	$\frac{7}{16}$ x17"	

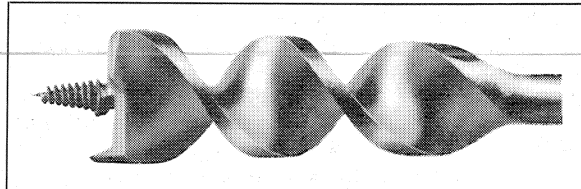
Note: Same excellent chip clearance as above but in shorter lengths.

$\frac{5}{8}$	$\frac{7}{16}$ x6"	
$\frac{3}{4}$	$\frac{7}{16}$ x6"	
1 $\frac{1}{8}$	$\frac{7}{16}$ x6"	1311-09, 1321, 1322, 1335-09, 1338-09, 1339-09, 1345-09, 1348-09, 1350-09, 1351-09, Or Larger.
$\frac{7}{8}$	$\frac{7}{16}$ x6"	
1 $\frac{1}{8}$	$\frac{7}{16}$ x6"	
1	$\frac{7}{16}$ x6"	
1 $\frac{1}{8}$	$\frac{7}{16}$ x6"	
1 $\frac{1}{4}$	$\frac{7}{16}$ x6"	All drills listed above except 1322.
1 $\frac{1}{2}$	$\frac{7}{16}$ x6"	All drills listed above except 1322 & 1339-09



## DOUBLE TWIST BITS

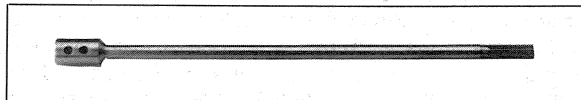
Self feeding, single spur; with two cutting surfaces for fast drilling.



Hole Diam.	Shank x Length	Recommended Drills
$\frac{3}{4}$	$\frac{5}{16}$ x6"	1311-09, 1321, 1322, 1335-09, 1338-09, 1339-09, 1345-09, 1348-09, 1350-09, 1351-09 Or Larger.
$\frac{7}{8}$	$\frac{5}{16}$ x6"	
1	$\frac{5}{16}$ x6"	
1 $\frac{1}{8}$	$\frac{7}{16}$ x7"	
1 $\frac{1}{4}$	$\frac{7}{16}$ x7"	All above models except 1322

## EXTENSION SECTIONS

For self feed and double twist bits, and ship augers when additional drilling depth is required.



Largest Diameter	Shank x Length	
$\frac{7}{8}$	$\frac{5}{16}$ x18"	Fits 21612 & 21614 Only.
1	$\frac{7}{16}$ x18"	Fits All Others.

# WELDED EDGE HOLE SAWS\*

A universal line of welded edge hole saws for rapid cutting and improved impact resistance; the complete line ranges from 9/16" to 6" diameter with a 1 1/8" depth of cut. There are 50 sizes, five mandrels, a #3 morse taper, and a unique slug ejector.

**The body:** tough alloy steel for improved load bearing, greater impact resistance.

**The mandrels:** all have 1/4" high speed steel pilot drills, the two largest are quick-change type with replaceable drive pins. The #3 morse taper has a replaceable 3/8" pilot pin, and drive pins.

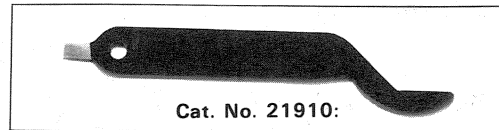
**The teeth:** welded high speed steel for fast, clean cuts.

**The applications:** cuts holes in almost any machinable material; steel, brass, bronze, cast iron, copper, aluminum, wood and plastics.

## HOLE SAWS

Saw Diameter	Use Mandrel No.	Pipe Sizes		
		Pipe Tap	Pipe Entrance	
9/16"	21900, 21901	3/4"	3/8"	
5/8"			1/2"	
1 1/16"				
3/4"				
13/16"				
7/8"				
15/16"				
1"				
1 1/16"				
1 1/8"			1	3/4"
1 3/16"				
1 1/4"	21902	1 1/4"	1	
1 5/16"				
1 3/8"				
1 7/16"				
1 1/2"				
1 5/8"				
1 3/4"				
1 11/16"				
1 3/4"			1 1/2	1 1/4"
1 13/16"				
1 7/8"				
2"				
2 1/16"				
2 1/8"				
2 1/4"	2			
2 5/16"				
2 3/8"				
2 1/2"	21903	2 1/2"	2	
2 9/16"				
2 5/8"				
2 3/4"				
2 7/8"	21904	3"	2 1/2"	
3"				
3 1/16"				
3 1/4"				
3 3/8"				
3 1/2"				
3 5/8"				
3 3/4"				
3 7/8"			3 1/2	3
4"				
4 1/8"	21905	4 1/2"	3 1/2"	
4 1/4"				
4 3/8"				
4 1/2"				
4 3/4"				
4 5/8"				
4 3/4"				
5"				
5 1/2"				
6"				5

## ACCESSORY



Cat. No. 21910:

Unique to Black & Decker only; one-of-a-kind Hole Saw Slug Remover with Screwdriver Blade for Removal of Pilot Drill Set Screw.

## EXTENSION SECTION

Shank x Length
7/16" x 18" Fits All 7/16" Hex Shank Mandrels

# HOLE SAWS AND MANDRELS

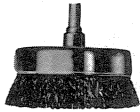
MANDRELS FIT ALL TOOLS WITH CHUCKS: AIR, ELECTRIC OR STATIONARY.

## DRILL ACCESSORIES

### 3" Wire Cup Brush

Use with  $\frac{3}{8}$ " Drills in cleaning and removing rust, scale, old paint. (straight chuck shank). Max. safe RPM—5,000.

See P. 86 for Wire Cup Brushes for use with production Sanders.



### Wire Wheel Brushes

Use with  $\frac{1}{4}$ " Drills in cleaning and removing rust, scale, old paint.

See P. 92 for complete listing of Wire Brushes.

4" Fine Brush, crimped; Max. safe RPM— 4,500

4" Coarse Brush, crimped; Max. safe RPM— 4,500



### Wheel Arbor

Fits  $\frac{1}{4}$ " to  $\frac{1}{2}$ " Drills. Carries wire wheel brushes and buffing wheels.

No. 39026:  $\frac{1}{4}$ " Arbor ( $\frac{1}{2}$ " dia.,  $\frac{1}{4}$ " shank).



### Buffing Wheels

Use with  $\frac{1}{4}$ " to  $\frac{1}{2}$ " Drills and Wheel Arbors.

No. 39015: 3" x  $\frac{3}{8}$ " x  $\frac{1}{2}$ " Cotton Buff.



### Rubber Backing Pad

Fits  $\frac{1}{4}$ " to  $\frac{1}{2}$ " Drills.

4 $\frac{5}{8}$ " Rubber Backing Pad with plain shank.



### Round-Shank Masonry Bits

These bits are carbide-tipped for top performance and extra-long life in most masonry-drilling applications.

Bit Diam. (in.)	Usable Drilling Depth (in.)	Shank Diam. (in.)
$\frac{3}{16}$	1 $\frac{1}{2}$	$\frac{3}{16}$
$\frac{1}{4}$	2	$\frac{1}{4}$
$\frac{5}{16}$	2 $\frac{1}{4}$	$\frac{1}{4}$
$\frac{3}{8}$	2 $\frac{1}{2}$	$\frac{1}{4}$
$\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{1}{4}$
$\frac{5}{8}$	4 $\frac{1}{4}$	$\frac{1}{4}$

## HIGH-SPEED HOLE SAWS

Use with Mandrels		
Saw Outside Diam.	For Conduit Sizes	For Pipe Tap Sizes
$\frac{3}{8}$ "		
$\frac{3}{4}$ "	$\frac{3}{4}$ "	
$\frac{7}{8}$ "	$\frac{1}{2}$ "	
1 $\frac{1}{8}$ "		$\frac{3}{4}$ "
1"		
1 $\frac{1}{8}$ "		
1 $\frac{1}{4}$ "	$\frac{3}{4}$ "	
1 $\frac{3}{8}$ "		1"
1 $\frac{1}{2}$ "	1"	
1 $\frac{3}{4}$ "		1 $\frac{1}{4}$ "
1 $\frac{7}{8}$ "		
1 $\frac{3}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "
1 $\frac{7}{8}$ "		
2"	1 $\frac{1}{2}$ "	
2 $\frac{1}{8}$ "		
2 $\frac{1}{4}$ "		
2 $\frac{1}{2}$ "		
2 $\frac{3}{4}$ "		
2 $\frac{7}{8}$ "	2"	
2 $\frac{3}{4}$ "		
2 $\frac{7}{8}$ "		
3"	2 $\frac{1}{4}$ "	
3 $\frac{1}{8}$ "		
3 $\frac{1}{4}$ "		
3 $\frac{1}{2}$ "	3"	
3 $\frac{3}{4}$ "		
3 $\frac{1}{2}$ "		
4"	3 $\frac{1}{2}$ "	

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