WATER REQUIREMENTS FOR DIAMOND DRILLING

A continuous flow of water is necessary to keep the diamonds cool or from polishing; also to remove the cuttings, and to keep the core from sticking to the core barrel.

A rising current of 12 inches to 18 inches per second in the hole is usually sufficient.

To maintain this latter figure requires about 120 gallons of water per hour in an EW hole (1-1/2"); 200 gallons in AW hole (1-7/8" dia.); 430 gallons in a BW hole (2 3/8" dia.) using (EW), (AW) and (BW) drill rods. The volume of water required in normal rock drilling ranges from about 2 gallons per minute using XRW rods cutting a 1-1/4" dia. hole, and water pressure required from 80 lbs. to 120 lbs. Hard rock formation will consume less water than soft rock formation. Always make certain to flush and clean out the bottom of the drill hole before starting to rotate the drill rods. This is always good practice and will increase your daily footage as well as giving a better percentage of core recovery. A constant flow of water through the bit is required at all times whether using a diamond bit, drag bit, a chopping bit or a wing type bit.

UNIPRESS

To anchor unipress, drill holes the same diameter as your split wedge bolt or bolts, approximately 5" deep, then tighten the nut to secure split wedge bolt. You are now ready to place your unipress on top of the same. Then tighten the second nut to secure the base to split wedge bolt or bolts.

To drill angle holes, use portable protractor with level bubble. Position the protractor on the guide rod. Loosen the two nuts on the guide bar hinge bolts and tilt unipress until level bubble comes to rest at desired angle; tighten both nuts and adjust back stay to maintain proper position.

METHODS OF ANCHORING DRAW DOWN CHAIN

1. "Dead Man" Installation

Dig a hole adjacent to the boring or casing to a depth where sound soil exists. At this depth undermine the hole. Place a cross bar parallel to ground surface in the undermined hole such that when it is lifted up, it butts against sound soil. Attach a chain of sufficient length to this bar to tie down the unipress. Now, fill this hole and tamp the soil such that you have constructed a "dead man" anchor.

2. Truck or Auto Plate Method

By using a plate of 10" wide x 36" long x ½" thick, a vehicle can be driven on this plate such that the weight of the vehicle will "anchor" the unipress. (Which is bolted to the plate).

EYE BOLT OR ANCHOR BOLT

The eye bolt is a recoverable split type wedge anchor to secure the base of the drill to allow the operator to exert a pull down force on the cutting tool. Eye bolts come in various sizes. For example, for the EW Core Barrel, use 1-1/2" OD eye bolt. Always use the same diameter eye bolt as core barrel.

To secure the eye bolt, drill a hole approximately 5" deep, approximately 8" distance from the exploration hole to be drilled; put the eye bolt into the drilled hole then tighten nut on top to secure the same.

SOILS ANCHOR

The eyebolt must be replaced by a soils anchor when starting holes in overburden and no outcropping of rock is available. The soil anchor can be turned into the soil by hand or with a wrench, same as an auger. It is complete with chain.

WINKIE DRILLING TOOLS

Masonry drilling - For masonry drilling, the drill string is used mush simpler. This string consists of the Winkie, a sub and the masonry bit. The sub is AW box to 1-1/4-7 thread pin, the box thread on the masonry bit (2" to 6-1/4" dia.) is 1-1/4-7 thread. The core barrel of the masonry bit is an integral part of the bit and is usually 12" long; however, the can be purchased in 18" or 14" lengths or longer at extra cost.

"W" SERIES ALUMINUM DRILL RODS

JKS aluminum rods are manufactured from high quality seamless aluminum tubing and the couplings are made from alloy steel. JKS aluminum rods have the following advantages compared to steel rods; less than half the weight, easier handling, faster lowering and hoisting, increase drill capacity, increased production and lower transportation costs. JKS "W" series aluminum drill rods conform to DCDMA, CDDA and BSI standards.

ROD SIZES		EW	AW
Rod O.D.	Inches	1 3/8	1 3/4
	Mm	34.9	44
Coupling I.D.	Inches	7/16	5/8
	Mm	11.1	15.9
SQ. Thread per Inch		3	3
Five foot (1.52m) rod And steel coupling	Lbs.	5.5	7.5
	Kg.	2.5	3.4

STEEL DRILL RODS

Rod sizes EW and AW have been generally specified for diamond drilling instead of referring to the O.D. nominal inches.

		EW	AW
Rod O.D.	Inches	1 3/8	1 3/4
	Mm	34.9	44
Coupling I.D.	Inches	7/16	5/8
	Mm	11.1	15.9
SQ. Threads per Inch		3	3

DIAMOND BITS

Mining Series – All types of mining series bits are available. See Bit Section.

Reaming Shells – The Reaming shell is used between the core barrel and the diamond bit to maintain the gauge of the drill hole. See Bit Section.

Masonry Bits – Masonry thinwall diamond bits are identified by nominal O.D. (inches); sizes up to 14" diameter are available and are complete with 12" long core barrel (or longer on request at extra cost). These bits are designed to drill through plain or reinforced concrete. They have very narrow kerf which minimizes the amount of concrete to be cut. A narrow kerf bit is also a faster penetrating bit.

Tungsten carbide coring bits can be used in very soft formations. Diamond bits are recommended for hard formations.

TUNGSTEN CARBIDE DRAG BIT

This bit is adapted to the drill rods and will drill through any soft formation such as clay and shale when core recovery is not required. It can also be used for probing to determine the depth of overburden but must be used with water circulation through it at all times.

HOISTING EQUIPMENT

LOWERING IRON

This is an eccentric clevis with a 5" handle attached. When placed over the drill rods, it will hold the rods in position for adding lengths when lowering into the hole.

PIPE PIN TO CASING PIN

To recirculate and save on water consumption, the adapter is installed to the top of the casing, after bedrock gas been reached, and a pipe T is used. EW to 1 ½" pipe, AW to 2" pipe, and BW to 2 ½" pipe.

ADAPTERS

ROD BOX TO CASING PIN

Sub used to connect the casing to the drill rods.

AW ROD BOX TO BW ROD PIN

Required when using AW drill rods and a BW core barrel.

AW ROD PIN TO EW ROD PIN SUB OR AW ROD PIN TO BW ROD PIN SUB

This sub is used to reduce the size from the Winkie AW box to the smaller drill rods and core barrels such as EW; also to larger drill rods. It is attached directly to the Winkie spindle (output shaft).

FISHING TOOLS

ROD AND COUPLING RECOVERY TAPS

Used when drill rod or couplings break in the drill hole. It is a tapered and threaded tool that is attached to the drill rods and lowered into the hole. Turn the upper string of rods with a wrench, until the tap is secured firmly into the broken string of lower drill rods, and then withdraw the complete string of drill rods.

OPERATING INSTRUCTIONS FOR YOUR WINKIE

The Winkie Diamond Drill has been designed to give you the most in drill performance and economy.

Engine Care and Operation

The Winkie Drill is powered by a 10 HP, 2 cycle, air cooled, high speed gasoline engine. If the following instructions are carefully observed, you may be assured of dependable and long service.

"IMPORTANT"

Fuel: Refer to Plate # 1619B on fuel

When operating in extreme cold weather you may add one pint of diesel fuel oil to one gallon of your regular Winkie Mix. As above item B explained, this will eliminate the engine stalling due to the non-detergent oil congealing in the carburetor.

Starting Engine:

1. Make sure fuel is at carburetor by using hose pump.

2. Move choke lever to choke position (move towards the air filter).

3. Open throttle wide.

4. Crank the engine by pulling the recoil starter handle. A short, quick pull, allowing no more than two (2) feet of rope to be exposed assures quicker and easier starting plus great starter life. In very cold weather, or if the engine has not been run for a long period, two or more pulls may be necessary. After the engine start, gradually move the choke lever back until the engine has warmed up. When starting a warm engine, choking is not necessary. Choking a warm engine or excessively choking a cold engine can cause flooding. If this occurs, continue cranking engine until it starts, with the choke pushed open and the fuel line disconnected.

Stopping Engine:

To stop engine, close choke.

Muffler and Exhaust Ports:

The muffler and the exhaust ports should be cleaned every fifty (50) hours if the engine is running under continuous full load conditions and every one hundred (100) to one hundred fifty (150) hours if the engine is running under lighter loads. Clean exhaust ports if the engine loses power.

To clean the cylinder exhaust ports, remove muffler and spark plug, then turn the starter pulley so that the piston is at the bottom of stroke, below the exhaust holes. With any blunt instrument, scrape the carbon from the three (3) cylinder holes so they are completely open and remove the carbon from the surrounding exhaust chamber. Crank the engine several times to blow out the loosened carbon. Replace the spark plug and muffler.

Throttle Linkage:

For proper engine operation, throttle linkage, and carburetor throttle shaft and spring, must be free of all foreign material. Check each time the engine is used and clean if necessary.

Carburetor Adjustments;

These three (3) adjustments are on the carburetor:

1. High speed at full load adjustment, marked by a stamping on the carburetor housing with the letter “H”.

2. Low speed (no load) adjustment, marked by a stamping on the carburetor housing with the letter “L”.

3. Idle speed adjustment, merely is an adjustable set screw to increase, or decrease the distance the carburetor throttle shaft may travel.

High Speed Adjustment

This was previously referred to as the full load adjustment. This has been properly adjusted before leaving the factory and should not be tampered with needlessly. When attempting an adjustment, do it while drilling at full throttle. To adjust the engine, the unit must be under load. The adjustment may be made by ear. Rotate the adjustment screw slowly at first to the left, then to the right until the engine speeds up and runs at the smoothest tempo. Do not run with screw less than one (1) full turn open. If screw is less than one (1) full turn open the proper amount of lubricant cannot enter.

For normal operation use one and one half (1-1/2) turns.

WINKIE DRILL CARE & MAINTENANCE

CAUTION:

Before operating the drill or starting the engine, fill the gear case with Shell Tellus #69 or an equivalent high speed transmission oil.

Capacity of the gear case is one (1) quart. With temperature of less than 40 degrees F. it may be necessary to thin the oil with any good SAE 30 weight oil. In unusual circumstances when the aforementioned oil is not readily available use SAE 40 weight oil in plus 40 degree F. temperatures, and SAE oil in minus 40 degree F. temperatures. Fill the gear case so that the oil just runs out the filler hole when the drill is held in upright position.

A. Tighten all nuts and screws after the first eight (8) hours of use.

B. Repeat this tightening of all nuts and screws after each fifty (50) hours of operation or as needed.

Safety Note

Never attempt to add or take off drill rods while engine is idling. If in doubt about any operation STOP AND THINK!!

ENGINE MAINTENANCE

Spark Plug: 9AC 44 F, Champion L90C, NGK B5HS)

Check plug periodically. Oily or carboned plug causes difficulty. Some plugs may operate hours and then prove defective requiring replacement.

The spark plug should be cleaned, and the points set at .030 inches. If there is any doubt of the condition of the plug, it should be replaced with original equipment. (Same type)

Air Filter:

Replace when necessary.

Low Speed Adjustment:

This again has been set at the factory and need not be tampered with unless deemed absolutely necessary. When an adjustment is necessary, run the machine at an idle without load, adjusting in the same manner as the High Speed Adjustment. Adjustment should be normally one and one quarter (1-1/4) turns for low speed.

Idle Speed Adjustment:

This adjustment may be governed to suit an individual's preference.

NOTE: Two cycle engines, when running under light loads, may appear to miss. This in no way affects the operation of the engine.

Should Engine Fail to Start:

A. Check for fuel in the fuel tank and check to see that the valve is open.
B. Check for spark; remove spark plug and, with magneto wire attached, hold the base of the plug against the engine, crank engine. A spark should jump across the plug points. If it does not, clean the plug or replace with a new one.
C. Check magneto; hold the spark wire 3/16" from engine, spark should jump from the terminal to the engine when cranked. If no spark occurs, test the condenser and coil. If faulty, replace.
D. Check for flooding. Remove spark plug and if plug is wet or if gap is closed by liquid fuel, the plug should Be dried and with shut-off valve closed the engine should be cranked until vapor stops coming out of spark plug hole. Re-insert plug and open shut-off valve.
E. Check for gasket leaks and for leaks around the crankshaft seal.

Should Engine Overheat:

Check the flow of air over the cylinder. If restricted by grease or dirt, remove the air shroud and clean cylinder fins. Be sure to use the correct fuel mixture. Use a clean container for mixing oil and fuel. (See Fuel Section, Plate #1619B)

NEVER USE SYNTHETIC OIL

Should Engine Knock:

Check connecting rod bearings; move flywheel back and forth quickly a few degrees; if rod is worn, play can be felt and a loud click can be heard; if worn, replace. Check piston and pin; if worn, replace.

Should Engine Lack Power:

A. Check carburetor adjustments. See instructions preceding.
B. Check for carbon. If exhaust port and muffler are restricted by carbon, scrape clean.
C. Check compression. Remove spark plug and place compression gauge in cylinder spark plug hole. After cranking the engine several times, the gauge should register 90 lbs. or more. If compression is faulty,
D. Check for proper fuel mixture.
E. Check cylinder, carburetor, read plate and transfer port gaskets for leaks. Also check for leaks around the crankshaft seals. The governor cover and magneto must be removed for this check.

POWER BEE FUEL MIX AND BREAK-IN

1) The factory recommended 24:1 (1/3) pint oil per gallon gasoline or 4% oil) fuel mix. Factory oil recommendation is BIA-TCW oil carries many names, but a “BIA-TCW” label appears on all containers. This oil has passed severe testing by BIA. Under heavy drilling conditions use 20:1 fuel mixture and a 16:1 Fuel mixture for break-in conditions.

   BIA-TCW or equivalent is recommended (automotive motor oil should not be used).

2) Break-in of any new engine is critical and is necessary for reliable operation. Never run a new engine wide open throttle until the break-in has been completed, 45 minutes to (1) hour, of idle and part throttle operation with momentary bursts to wide open throttle and with at least 2 cooling down periods of 20 minutes to ½ hour each.

Be sure proper oil is used and at correct gas-oil ration. If in doubt, for break-in purposes, use a slightly richer gas-oil mix.