

## TECHNICAL DATA

MODEL	HD20
WORKING PRESSURE	1600-1800 psi
MAX PRESSURE	2500 psi
WEIGHT	46 lbs
DIMENSIONS LxW	24-5/8" x 16-1/4"
TOOL CHUCK SIZE	7/8" x 4-1/4"
HOSE CONNECTION	3/8"
REQUIRED OIL FLOW	5.5-7 GPM
DRILL HOLE FLUSHING BUILT-IN AIR COMPRESSOR	
COMPRESSOR PRESSURE	29 psi
AIR DISPLACEMENT	28 CFM

**UNIT SERIAL NUMBER**

**SKIDRIL**

P.O. BOX 8041  
GREENSBORO, NC 27419  
TEL: 800-843-3745

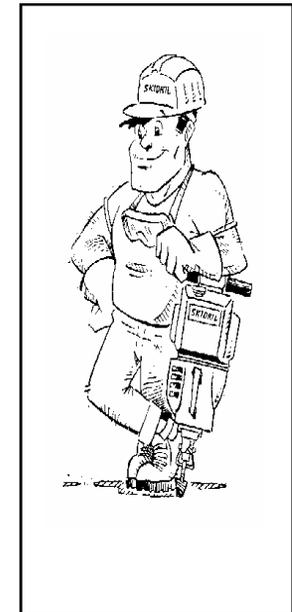
# SKIDRIL

## OPERATION & PARTS MANUAL

### HYDRAULIC ROCKDRILL MODEL HD20

ANY PERSON  
OPERATING THIS  
MACHINE SHOULD  
READ AND  
UNDERSTAND THIS  
MANUAL FIRST!

FOLLOW ALL SAFETY  
INSTRUCTIONS



**1-800-843-3745**

# 1 WARRANTY INFORMATION

The production of SKIDRIL hydraulic equipment is based on many years of experience and the use of high quality material which enables the equipment to resist the mechanical and thermic stress occurring under normal working conditions.

## General Warranty Conditions

- From the delivery date there is a twelve-month warranty
- The warranty covers all functional disturbances caused by defects in material or manufacture
- Shipping costs are to be paid by the purchaser
- Any parts replaced are the property of the factory
- The factory assumes no liability for indirect damage and other costs such as loss of production
- Warranty claims will be considered only when reported to the dealer immediately upon discovery of the defect

## The Warranty Does Not Cover

- Damage caused by faulty connection or improper handling
- Costs to cover repairs undertaken by a non-authorized **SKIDRIL dealer**
- Damage caused by imperfect maintenance, improper use or damage in transit
- Fair wear and tear
- Damage to hoses and quick-release couplings caused by wear or imperfect maintenance

THE WARRANTY CEASES ON CHANGE OF OWNERSHIP OF THE EQUIPMENT AND IN CASE OF REPAIRS UNDERTAKEN BY A NON-AUTHORIZED SKIDRIL SHOP WITHOUT THE FACTORY'S EXPRESS AUTHORIZATION.

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## PARTS LIST

Ref.	Part No.	Part Name	Q'ty	Ref.	Part No.	Part Name	Q'ty
1	MD08Z001 A0	Seal Liner	1	51	ISI20.28.5	U-Cup Packing	1
2	MD08Y031 A0	Piston	1	52	LBI20.28.4.5.6	Dust Seal	1
3	MD08Z004 A0	Stud Bolt	2	53	MDSI40	Dust Seal	1
4	MD08Y032 A1	Cylinder	1	54	WGS1	Seal Washer	1
5	MD08Z003 A0	Hammer Piston	1	55	W18S1	Seal Washer	2
6	MD08Z015 A0	Piston Ring	1	56	WF-14-2L	Washer	2
7	MD08Y034 A0	Compressor Cylinder	1	57	WF-12-2L	Washer	2
8	MD08Z018 A0	Bush	1	58	KF-6x6x18(WR)	Key	1
9	MD08Z013 A0	Spring	1	59	QB-1/4	Steel Ball	1
10	MD08Z020 B0	Motor Block	1	60	φ6x12	Roller	2
11	MD08Z008 B0	Dial Knob	1	61	BPH1-PT1/8	Plug	7
12	MD08Z007 B0	Valve Guide	1	62	BPH1-PT1/16	Plug	5
13	MD08Z009 C0	Selector Valve	1	63	OG-90	O-Ring	1
14	MD08Z011 A0	Thrust Washer	1	64	OG-65	O-Ring	1
15	MD08Z010 A0	Internal Shaft	1	65	OG-60	O-Ring	1
16	MD08Z006 A0	Idel Gear	1	66	OG-50	O-Ring	2
17	MD08Z005 A0	Drive Gear	1	67	OS-56	O-Ring	1
18	MD08Z019 A0	Gear Housing	1	68	OS-16	O-Ring	1
19	MD08Z014 A1	Drill Stay	1	69	OC-0621	O-Ring	1
20	MD08Z016 A0	Seat Packing	1	70	OP-42	O-Ring	2
21	MD08Z012 A0	Valve Seat	1	71	OP-14	O-Ring	1
22	1410-429	Packing(B)	1	72	OP-8	O-Ring	3
23	1410-430-A	Cleaner Case	1	73	OP-5	O-Ring	1
24	1410-442	Packing	1	74	OBP-5	Back Up Ring	1
25	1410-441	Element	1	75	PR-2.5x8	Pin	1
26	1410-431	Cleaner Sponge	1	76	PR-5x36	Pin	1
27	1410-432	Cleaner Cover	1	77	PR-6x20	Pin	2
28	MDWTE105 A0	Retainer(B)	4	78	WH6-15	Spring	1
29	1410-425	Lead Valve	4	79	SH-4x5	Screw	1
30	1034-710	Air Seal	1	80	SH-4x5	Screw	1
31	MIKTE108 A1	Cap Nut	1	81	QC-03M	Coupler(male)	1
32	1120-413-B	Cap Bolt	1	82	QC-03F	Coupler(female)	1
33	MIKTE110 A2	Lid	1	83	OP-03F	O-Ring	1
34	MBO2E006 A0	Diaphragm	1	84	OBP-03S	Back Up Ring	1
35	MIKTD105 A3	Shell	1	85	14091.2-30	Hydraulic Hose	1
36	MIKTE119 A1	Handle Grip	2	86	07091.2-45	Hydraulic Hose	1
37	MIKTE101 A9	Valve Body	1	87	BH-12x50	Bolt	2
38	MIKTE112 A5	Control Lever	1	88	BH-10x25	Bolt	4
39	MIKTE117 A0	Sticker	1	89	BH-6x20	Bolt	4
40	MIKTE111 A5	Valve Rod	1	90	WS-10	Washer	4
41	MIKTE110 A4	Valve Guide	1	91	WS-6	Washer	4
42	MIKTE108 A4	Control Valve	1	92	SR-3x6(3P)	Screw, Pan Head	8
43	1120-423	Nut	2	93	OBP-8	Back up ring	1



## APPLICATIONS

The following constitute conventional and acceptable uses for the HD20 hydraulic drill/breaker.

1. Hand drilling up to a 3-1/2" diameter hole in rock or concrete up to a depth of 5' by turning rotation control dial to vary rotation speed up to 400 RPM..
2. Hand breaking rock or concrete by turning rotation control dial (item G, page 4) completely clockwise to stop drill rotation.

The following are considered unconventional uses, and are therefore not covered under warranty.

1. Permanently mounting the rockdrill as in a boom or truck-mounted application.
2. Using the rockdrill in underwater drilling applications.
3. Using the rockdrill on a power source which exceeds the stated required flow and pressure.
4. Dropping the rockdrill tool first into work. i.e. - using the machine manually to hammer.
5. Using tools other than the specified required size.
6. Using the rockdrill for any other purpose than described in this section.

### NOTICE!

\* **DO NOT** use the rockdrill in applications for which it is not intended!

\* **DO NOT** operate the rockdrill with damaged or missing parts or fasteners!

\* **DO NOT** handle rockdrill after long periods of use without wearing thick gloves as the rockdrill may become hot!



### WARNING!

\* **KEEP HANDS AND FEET CLEAR** of moving parts of rockdrill while in operation!

\* **DO NOT** stand below rockdrill when operating.

\* **DO NOT** use the rockdrill over your head.



## NITROGEN ACCUMULATOR

### CHARGING THE NITROGEN ACCUMULATOR

The nitrogen accumulator is a feature of the HD20 that requires regular service. From time to time, as you notice the impact energy decrease while using the machine, the nitrogen accumulator will need to be re-charged with nitrogen gas. SKIDRIL strongly recommends sending your unit into an authorized SKIDRIL dealer to have this service performed, as this procedure is dangerous and should not be performed by untrained or unqualified individuals. Should you decide to perform this procedure yourself, call SKIDRIL for detailed instructions to follow before beginning the procedure.

**WARNING!** - Working with compressed nitrogen gas is dangerous. SKIDRIL recommends this service be performed during scheduled maintenance by an authorized SKIDRIL Dealer. Should you decide to perform this procedure yourself, call SKIDRIL to acquire a set of detailed instructions and the proper equipment to use in charging the nitrogen accumulator.

#### NOTICE!

Call SKIDRIL at (800) 843-3745 before attempting any maintenance to the nitrogen accumulator section (Item J, page 4) of the model HD20 rockdrill.



## OPERATION CONTINUED

8. Stop the hydraulic power source before proceeding.
9. Disconnect the quick-connect couplings at the rockdrill end. Connect both sets of couplings to one another to keep the connections clean and to minimize oil leakage.
10. Open the drill stay and remove the tool.
11. Clean the air compressor filter per maintenance instructions (see page 8).
12. Wipe remaining dust or oil from machine before storing for the next job.

#### NOTICE!

\* **DO NOT** use more than 25' of supply hose as performance will be reduced..

\* **DO NOT** allow bystanders within 20 feet of the drill while in operation.

\* **DO** ensure you have safe footing before starting the drill.

\* **DO** wear safety boots, hard hat, gloves, eye and ear protection while using the rockdrill.

\* **STOP** operation if you notice any oil leaks.

\* **ALWAYS** lay the drill flat on the ground while not in operation.

\* **ALWAYS** clip quick-connect couplings back together to minimize damage



## TROUBLESHOOTING CONTINUED

### 6. Oil leaks from control lever.

CAUSE	SOLUTION
Worn or hardened O-ring.	* Replace.

### 7. Oil is escaping with compressed drill flushing air.

CAUSE	SOLUTION
Piston rod seal worn	* Replace
Piston rod seal scratched.	Replace or remove scratch.

### 8. Oil leaks from gear case assembly.

CAUSE	SOLUTION
Motor shaft O-ring is worn.	* Replace
Damaged packing	* Replace
Motor housing O-ring worn.	* Replace

### 9. Oil leaks from internal shaft.

CAUSE	SOLUTION
Gear housing O-ring worn.	* Replace.



## MAINTENANCE CONTINUED

### SERVICE SCHEDULE

Inspection Point	200 Hours or One Year	400 Hours or Two Years	Over Three Years
Accumulator Gas Pressure Check	X		
Replace Accumulator Diaphragm		X*	
Replace U-Cup packing		X*	
Replace valve rod O-ring		X*	
Replace Compressor Piston Ring	X		
Replace Gear Case Grease		X*	
Replace Motor Shaft O-ring		X*	
Replace Every O-ring			X*

\* SKIDRIL strongly recommends having your model HD20 rockdrill serviced exclusively by a factory authorized SKIDRIL service center. Due to extremely high manufacturing tolerances, many service procedures require special tools and/or techniques to be performed successfully and without causing damage to other components of the rockdrill.



## TROUBLESHOOTING

### 1. Drill does not operate when control lever is depressed.

CAUSE	SOLUTION
Hydraulic power source is not in operation, or selector valve has not been turned on.	Start the power source and switch selector valve to allow oil to flow to rockdrill.
Disconnected hose.	Connect the hose.
Quick coupling.	Check the couplings.
Connections to rockdrill are reversed.	Check connections. With rockdrill standing up, high pressure should go into top orifice, return should go to lower.
Relief valve setting on power source too low	Raise relief valve setting.
Broken control valve.	* Replace.
Control valve malfunction.	Disassemble drill, improve control valve and valve body fitting and eliminate foreign matter.

### 2. Drill hammers but will not rotate.

CAUSE	SOLUTION
The rotation adjust dial is turned fully clockwise (Closed position).	Turn the knob counterclockwise to achieve the desired drill speed.
The gear motor key is worn or damaged.	* Replace.
The gear motor is obstructed by debris.	Disassemble and clean.



## TROUBLESHOOTING CONTINUED

### 3. Drill operates but strikes and rotates at slow rate.

CAUSE	SOLUTION
Low hydraulic source flow rate.	Increase flow rate by increasing engine RPM on power source.
Relief valve setting on power source is too low.	Set to proper pressure.

### 4. Striking rate is normal, but impact is weak.

CAUSE	SOLUTION
Low accumulator gas pressure.	Increase pressure to 40 kg/cm <sup>2</sup> by charging with nitrogen gas. <a href="#">See page 14 for important note.</a>
Broken accumulator diaphragm.	* Replace.

### 5. Drill flushing air is weak.

CAUSE	SOLUTION
The air cleaner element or sponge is clogged with debris.	Clean with soapy water, rinse, wring out and replace.
Debris stuck in compressor lead valve.	Disassemble and remove debris.
Compressor piston ring is worn.	* Replace
Compressor bushing is worn.	* Replace.



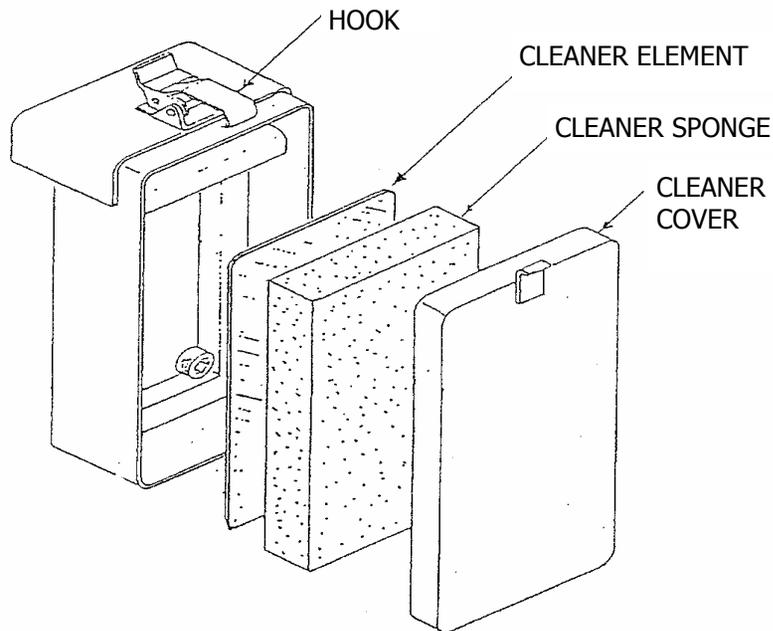
## MAINTENANCE

1. The rockdrill requires no lubrication other than that which is automatically provided by the hydraulic fluid.
2. Check the hydraulic oil volume of the power supply to ensure the level is sufficient for operation before each use.
3. Check the hydraulic oil condition after each use. Replace the oil if it appears milky or changes color, or if it becomes sticky.
 

**WARNING!** - Do not touch hydraulic oil directly as it may be hot and is a known carcinogen when absorbed through the skin!
4. The air cleaner sponge and element (see below) should be cleaned after each use. Clean thoroughly with soapy water, rinse and wring dry. Failure to do this will result in poor flushing of the drill cuttings, and worse may result in premature wear of the compressor cylinder, piston ring and valve.



**WARNING!** - Do not touch hydraulic oil directly as it may be hot and is a known carcinogen when absorbed through the skin!



## TROUBLESHOOTING CONTINUED

### 10. Drill rod rotates but does not impact.

CAUSE	SOLUTION
The rotation adjust knob is turned fully counter-clockwise.	Turn knob clockwise to achieve desired impact.
Control valve is damaged.	* Replace.
Piston is damaged.	Replace the piston and hammer.

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## OPERATION

### PREPARATION FOR USE

1. Inspect all fasteners and ensure they are tight before each use.
2. Inspect all hydraulic hoses, couplings and fittings for wear or damage before each use.
3. Connect hoses of power supply to drill before starting power source. Make sure connections are clean and free of dirt or other debris before connecting. Connect pressure side to top hose, and the return side to the bottom hose. Confirm connections are complete and secure before proceeding.
4. Open the drill stay (item I, page 4) and insert the tool appropriate for the application, drill steel or breaker steel. Close the drill stay.

**IMPORTANT NOTE:** The air compressor operates regardless of whether you are using the machine to drill or break. Therefore, you must use breaker tools which are slotted on the hex end to allow the compressed air to escape. Using standard breaker tools will result in unsatisfactory breaking performance. Call SKIDRIL for prices and availability of slotted breaker tools.

5. Start the hydraulic power source and open flow control valve to charge the circuit to the rockdrill.
6. Grip the machine by the handles. Ensure you have safe footing before starting the drill by pressing down on the control lever (item A, page 4). The drill will begin to operate.
7. When finished drilling, release the control lever.

### NOTICE!

\* **ALWAYS** inspect hoses, fasteners, couplings before each use!

\* **ALWAYS** connect both hydraulic hoses to the tool **before starting the power source!**

\* **ALWAYS** be sure couplers are clean and free of debris **before**



### WARNING!

\* **DO NOT** operate the rockdrill with damaged hoses, fittings or fasteners.

\* **DO NOT** substitute hoses for another make/type.

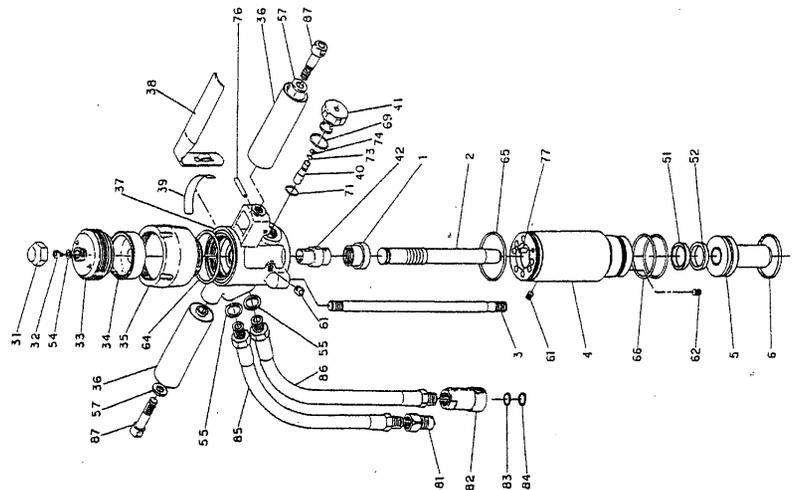
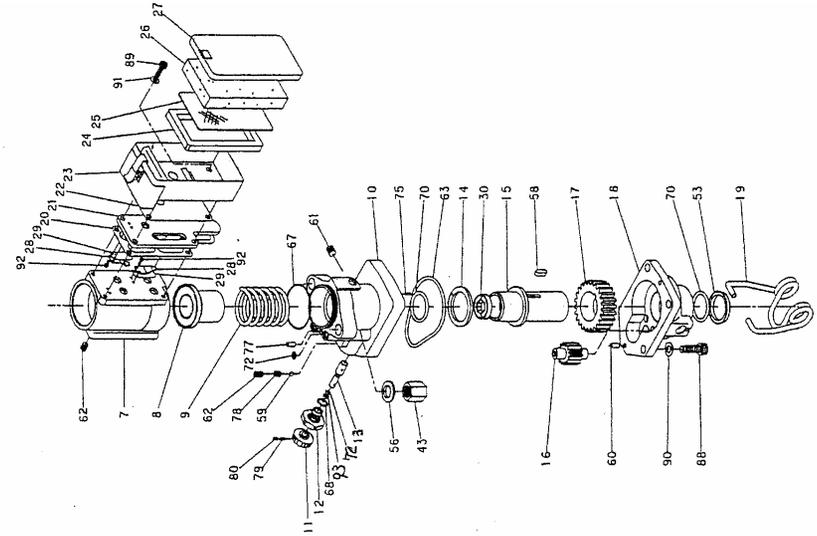
\* **DO NOT** stand below rockdrill when operating.

\* **DO NOT** use the rockdrill over your head.



## EXPLODED VIEWS

**NOTE:** To find part numbers, cross-reference the numbers in the exploded view below with the list of part numbers on the following page.





# SAFETY FIRST

**READ, UNDERSTAND AND FOLLOW SAFETY GUIDELINES AND SAFE WORK PRACTICES.**



TAKE NOTE OF **WARNINGS** IN THIS MANUAL AS THEY IDENTIFY INSTRUCTIONS INTENDED TO PREVENT INJURY TO YOU OR OTHERS.

**NOTICE:** **NOTICES:**, ARE INTENDED TO PREVENT DAMAGE TO THE MACHINE OR PROPERTY.



## **WARNING!**

**DO NOT:** USE EQUIPMENT IN APPLICATIONS FOR WHICH IT IS NOT INTENDED.

**DO NOT:** USE IMPROPERLY TRAINED OR UNQUALIFIED PERSONNEL TO OPERATE OR PERFORM REPAIRS ON THIS EQUIPMENT.

**DO NOT:** LEAVE MACHINE RUNNING UNATTENDED OR WHEN NOT IN USE.

**DO NOT:** REFUEL OR ADD HYDRAULIC OIL TO A HOT OR RUNNING MACHINE.

**DO NOT:** SPILL FUEL OR HYDRAULIC OIL WHEN FILLING THE MACHINE.

**DO NOT:** SMOKE WHILE FUELING OR OPERATING MACHINE.

**DO NOT:** REFUEL NEAR AN OPEN FLAME OR SPARK.

**DO NOT:** OPERATE THE MACHINE WITHOUT PROPER SAFETY PROTECTION SUCH AS PROTECTIVE EYEWEAR, SAFETY BOOTS, EAR PROTECTION, HARD HAT, GLOVES ETC.

**DO NOT:** OPERATE THE MACHINE INDOORS OR IN AN AREA WHERE EXHAUST GASES MAY COLLECT., OR WHERE VENTILATION IS NOT ADEQUATE.

**DO NOT:** OPERATE THE MACHINE WITHOUT SOLID FOOTING OR WITH THE MACHINE ELEVATED ABOVE YOUR HEAD.

**DO NOT:** STORE THE MACHINE IN A PLACE OR POSITION THAT IT MAY FALL, DROP OR SLIDE FROM WHEN NOT IN USE.

**DO NOT:** OPERATE THE MACHINE WITH LOOSE, DAMAGED OR MISSING PARTS.

# HELPFUL TIPS & SERVICE



Cleaning the air filter element and sponge after each use will greatly extend the service life of the rockdrill.



To maximize driving power, do not use more than 25' of hose from the power source to the rockdrill.



To prevent dirt from entering the quick-connect couplings, and possibly damaging the breaker or pack, be sure to clip couplings together after disconnecting driver from pack.

**Your SKIDRIL requires regular service (at least annually) to maintain it in good running order, and ensure long life.**



### How to obtain service:

**Call SKIDRIL for a Repair Order number.  
Toll-free (800) 843-3745**

### Where to obtain service:

**SKIDRIL INC.,  
Attn: Repair Order No. XXXXX  
235 Labrador Drive  
Randleman, NC 27317**