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HAVA

Mining and Rock Drilling Air Tools



ROCK DRILLS

DRY / WET

INSTRUCTION MANUAL

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Introduction

INTRODUCTION

HAVA make Rock Drill is a robust hand held pneumatic rock drill designed for various drilling applications. It is capable of drilling 27mm to 48 mm diameter holes with H22 integral / extension steels up to depths 6 meters and is available in two models.

HAVA ROCK DRILL- DRY



- Quarry Drilling, Bench Mining & General Excavation
- In Marble & Granite Industries
- Construction & Surface mining

This air flushed medium duty Rock Drill is capable of drilling 27-48 mm diameter holes with H22 integral steel up to a depth of 6 meter.

Rock Drills can used for holes upto 20 feet or over but are most efficient when confined to holes of not over 10 to 12 feet. Rock drills are designed to cut the hardest material created by nature-rock & ore.

HAVA ROCK DRILL - WET



- In Underground Mines & Tunnels
- Horizontal / Inclined Drilling

This water-flushed model is used for horizontal or inclined dustless drilling in conjunction with a Pusher leg such as in underground mines and tunnels.

TECHNICAL DATA

Model	Weight Kg	AIR REQUIREMENT		PISTON		IMPACT	DRILLING	HOSE CONNECTION	
		(at 6 bar) m ³ /Min	(87 PSI) Cfm	Diameter MM	Stroke MM	Rate Blows/Min	Rate* MM/Min	Air MM	Water MM
DRY	25	3.4	119	65	60	2000	425	19	—
WET	26	2.9	101	65	60	2050	410	19	12.7

* Drilling Rate of 33 mm Drill bit at an air pressure of 6 kg/cm². Due to varying Rock conditions, actual results may be greater or less than those listed.

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Airline Lubricator

AIRLINE LUBRICATOR



DON'T FORGET LUBRICATION,
NEVER DRILL WITHOUT THE LUBRICATOR.

- Use Only Rock Drill Oil.
- Check Oily Mist From Exhaust.
- Check that the Lubricator is Placed At the Correct Distance of 3M. (10 ft.)

INSUFFICIENT LUBRICATION CAUSES DAMAGE

The obvious result of insufficient oil is frictional wear. The piston in the average Rock Drill reciprocates about 1800 to 2000 times per min. Other internal parts move at corresponding Friction produces heat, and this is the factor that causes real trouble. Despite fine metallurgy, lack of oil can produce heat; sufficient to cause minute surface cracks that may result in complete breakage of the parts. Hence use of Airline lubricators, which are designed to provide sufficient lubrication to ensure smooth working & prevent frictional wear on piston.

AIRLINE LUBRICATOR

By using wrong oil like engine oil, the components wear or fail prematurely, as engine oil does not have emulsification character (Mixing with water without losing property)

RECOMMENDED LUBRICANTS

We recommend following oil for rockdrills

ESSOS	PNEUMATIC - 100
BHARAT PETROLEUM	METUMOL - 100
CASTROL	ROCK DRILL OIL - LIGHT
INDIAN OIL COMPANY (IOC)	SERVONEUM - 100

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SAFETY PRECAUTIONS

HINTS AND TIPS TO THE OPERATOR OF THE MACHINE

Always blow out the hose clean before coupling it on.
Sufficient air pressure is vital, hence it is necessary to have.

- Small pipe length
- Hose pipe should not have many joints
- Hose pipe should not leak or choke at the joints.

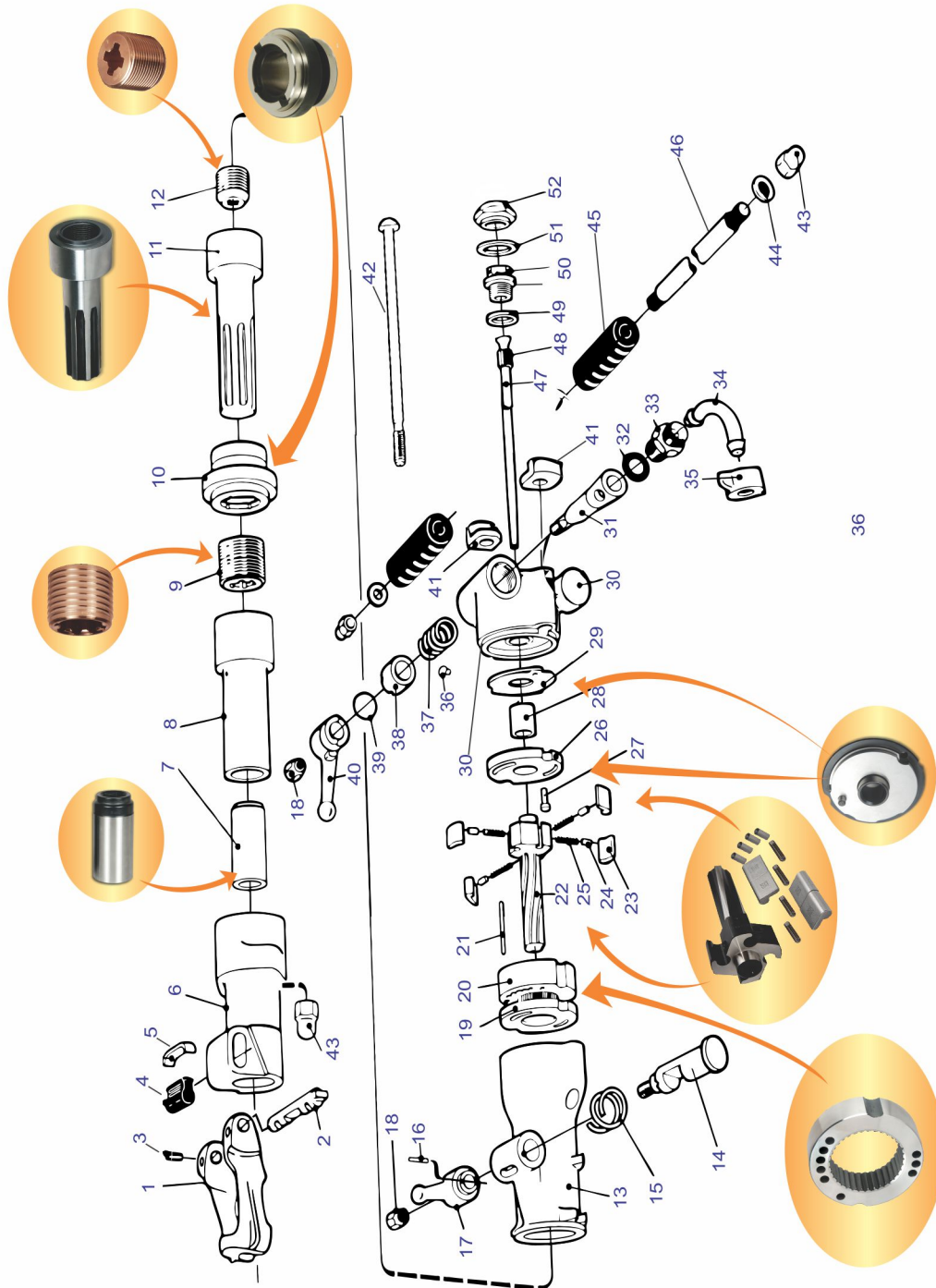
DO NOT START WITH TOO MUCH FEED PRESSURE

- Align the machine and then collar with reduced feed pressure at half throttle until the bit takes hold, to avoid straining drill rods & bits.
- To guide the bit end of the drill steel between the toes can be disastrous
- Rock drill with steel is to be kept proper on the surface with the result the operator can guide the bit end of drill steel with the ARCH of the foot and start the rock drill at low speed.

TO GET THE BEST OUT OF YOUR ROCK DRILL REMEMBER THESE IMPORTANT HINTS AND TIPS:

- **Use** a compressor of right capacity with clean air having correct degree of humidity
- **Always** use a Lubricator and only use Rock drill oil and not Engine Oil.
- **Overhaul** rock drills regularly and replace worn parts in time with Genuine Hava Spares
- **Inspect** Chuck Bushing at regular intervals as excessively worn chuck bushing will cause damage of drill steel, Piston, Rifle Bar, Rifle Nut, Air and water tubes
- **Check** pawls periodically and always replace all pawls together with a new pawl set

Rock Drill (Dry) - Exploded View



Spare Part List of Rock Drill (Dry)

SR.NO.	DESCRIPTION	REF NO.	SR.NO.	DESCRIPTION	REF NO.
1	Retainer	3121-0851	27	Guide Pin	3100-9665
2	Retainer pin	3121-0852	28	Bush for Cover	3100-9894-01
3	Tension pin	0108-3392	29	Main Valve	3106-8681
4	Rubber Buffer	3121-0030	30	Back Head	3115-0569
5	Buffer Plate	3121-0029	31	Throttle Valve	3121-0349
6	Front Head	3121-0342	32	Washer	3115-1045
7	Chuck Bushing	3121-0023	33	Adopter	9000-0345
8	Rotation Chuck	3121-0769	34	Hose nipple	3115-1170
9	Chuck Nut	3115-1221	35	Wing Nut	9000-0338
10	Intermediate Part	3121-0339	36	T.Pin	3121-0329
11	Piston	3100-8478	37	Spring for Throttle Valve	3111-0136
12	Rifle Nut	3100-9299-05	38	Lock Washer	3121-0332
13	Cylinder	3121-0337	39	O-Ring	0663-2128
14	Outlet Valve	3106-9949	40	Lever Handle Top	3115-0573
15	Spring for Outlet Valve	3121-0338	41	Washer for Bracket	3115-0574
16	Elastic pin	0108-3330	42	Side Rod	3121-0343
17	Lever Handle Bottom	3106-9950	43	Dome Nut	3121-0292
18	Conical Nut	3006-8734	44	Washer	3000-0119-01
19	Guide Disc	3106-8683	45	Rubber Grip	3101-1372
20	Ratchet Ring	3106-8682	46	Handle Bolt	3121-0360
21	Pin for Ratchet Ring	0108-1336	47	Air Tube	3121-0352
22	Rifle Bar	3101-3154	48	Rubber Packing	3121-0336
23	Pawl	3101-3159	49	Seal Washer (small)	3000-9341-02
24	Pawl Pin	3100-9641-01	50	Adopter	3100-9623-01
25	Pawl Spring	3100-9140-02	51	Seal Washer (large)	3101-4146
26	Cover	3106-8680	52	Protective Nut	3100-9643-01

Spare Part List of Rock Drill (Wet)

SR.NO.	DESCRIPTION	REF NO.	SR.NO.	DESCRIPTION	REF NO.
1	Retainer	3121-0851	31	Throttle Valve (Wet)	3121-0331
2	Retainer pin	3121-0852	32	Elbow (Wet)	3101-1371
3	Tension pin	0108-3392	33	Adapter (Wet)	3101-1370
4	Rubber Buffer	3121-0030	34	Adapter (Wet)	9000-0350
5	Buffer Plate	3121-0029	35	Hose Nipple (Wet)	9000-0325
6	Front Head	3121-0342	36	Wing Nut	9000-0338
7	Chuck Bushing	3121-0023	37	T- Pin	3121-0329
8	Rotation Chuck	3121-0769	38	Spring for Throttle Valve	3111-0136
9	Chuck Nut	3115-1221	39	Lock Washer	3121-0332
10	Intermediate Part	3121-0339	40	O-Ring	0663-2128
11	Piston	3100-8478	41	Lever Handle Top	3115-0573
12	Rifle Nut	3100-9299-05	42	Bracket Set (Left & Right)	3121-0344-45
13	Cylinder	3121-0337	43	Side Rod	3121-0343
14	Outlet Valve	3106-9949	44	Dome Nut	3121-0292
15	Spring for Outlet Valve	3121-0338	45	Washer	3000-0119-01
16	Elastic Pin	0108-3330	46	Rubber Grip	3101-1372
17	Lever Handle Bottom	3106-9950	47	Handle Bolt	3121-0360
18	Conical Nut	3006-8734	48	Air Tube (Wet)	3115-0028
19	Guide Disc	3106-8683	49	Rubber Packing (Wet)	3000-0121
20	Ratchet Ring	3106-8682	50	Seal Washer (small)	3000-9341-02
21	Pin for Ratchet Ring	0108-1336	51	Adapter	3100-9623-01
22	Rifle Bar	3101-3154	52	Seal Washer (large)	3101-4146
23	Pawl	3101-3159	53	Protective Nut	3100-9643-01
24	Pawl Pin	3100-9641-01	54	Guide Ring (Wet)	3121-0776
25	Pawl Spring	3100-9140-02	55	Rubber Packing (Wet)	3100-9646
26	Cover	3106-8680	56	Water Tube (Wet)	3121-0588
27	Guide Pin	3100-9665	57	Adapter (Wet)	3121-0010
28	Bush for Cover	3100-9894-01	58	Packing (Wet)	3121-0012
29	Main Valve	3106-8681	59	Adapter (Wet)	3100-9652
30	Back Head (Wet)	3115-0568	60	Rubber Packing (Wet)	3100-9653
			61	Hose Water Nipple (Wet)	3100-9654

Rock Drill Trouble Shooting Chart

ROCK DRILL TROUBLE SHOOTING CHART

TROUBLE	CAUSE	REMEDY
Rapid wear of rifle nut and/or rifle bar.	Usually due to faulty lubrication. May also be due to grit in machine or contamination of oil.	Keep machine clean and use plenty of the proper rock drill oil
Breaking pistons and/or rifle bars.	Usually due to heat cracking caused by faulty lubrication. May also be caused by bad steel shanks or excessive chuck bushing wear	Proper lubrication and replacement of worn parts.
Spalling of piston face	May be due to steel shanks having improperly shaped striking faces. May also be caused by badly worn chuck bushing allowing steel to be struck at an angle.	Check shank faces and replace worn chuck bushings.
Breaking side rods	May be caused by uneven tension on rods or by loose rods. Usually caused by piston and / or Intermediate part worn beyond limits, allowing piston to strike front end.	Check tension on side rods. Check clearance between int. part & piston and replace one or both, if necessary.
Broken pawls/ Ratchet Ring	Invariably caused by the operator turning the drill steel in the wrong direction with a pipe wrench in an effort to free stuck drill steel.	Replace, and instruct operator
Broken or battered water tubes	Shanks improperly punched. Badly worn chuck bushing.	Check shank, chuck bushing & striking face of piston.
Broken steel shanks	Usually caused by worn chuck bushing or striking face of piston not square and flat. Frequent breakages in shank might also be due to uneven steel quality.	Check chuck bushing & striking face of piston. Replace accordingly.

Rock Drill Trouble Shooting Chart

TROUBLE	CAUSE	REMEDY
Drill refuses to start	May be because of plugged exhaust ports, frozen piston due to faulty lubrication, main valve stuck by gummy lubricant, or plugged air passages due to dirt or rubber from worn hose lining.	Check exhaust ports. Dismantle drill, clean and re-oil. clean air passages. If due to frozen piston, remove piston and repair surfaces, where possible, by stoning or fine emery cloth. Replace worn hose.
Drill refuses to rotate or weak rotation	May be caused by bad drilling ground (ravelly, fitchery, clay seams, bug holes, etc) May be loss of big gauge allowing bit to blind in hole. Also may be due to worn chuck busing, chuck nut, piston, rifle nut, rifle bar.	Replace bit if worn. Replace any or all worn parts
Drill does not have standard hitting power	May be due to short shanks. Short piston (through wear or regrinding), loss of front end cushion, low air pressure (at source, long runs of small dia. hose or pipe or plugged air passages in drill). If an air line filter is used, it may be plugged.	Check shank and piston. Check front end cushion. Check air passages in drill and be certain air filter is clean. Check compressor for proper loading and unloading pressures. Check air lines to be certain they will carry required volume of air.
Drill heats	New drills may heat, particularly at int. part, due to close fits and heavy work load or lack of oil, Heating in other than new drills are always caused by faulty lubrication, although hot air from an overloaded compressor is a contributing factor.	Take it easy with new drill and give it lots of oil. With older drills use enough of the proper oil and use a compressor large enough to avoid overloading



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