Operating and Maintenance Manual

Chenabore CB 300 Hammer

Chenalord
drilling supplies

Contents

1. Introduction

The Chenabore range of down the hole hammers are manufactured to the highest quality. The hammers have been designed to give longevity and fast, efficient performance that is un-paralleled.

The Chenabore hammers incorporates several different types of stress relieving and heat processing technologies which are carried out on each of the hammer's components enabling it to withstand the stresses of drilling in the most severe conditions.

The hammers runs excellent under water and handles foam and polymers with minimum reduction in performance.

2. Safety

The Chenabore Hammer is a high speed rotational tool which during it's operation will emit noise and discharges air and debris.

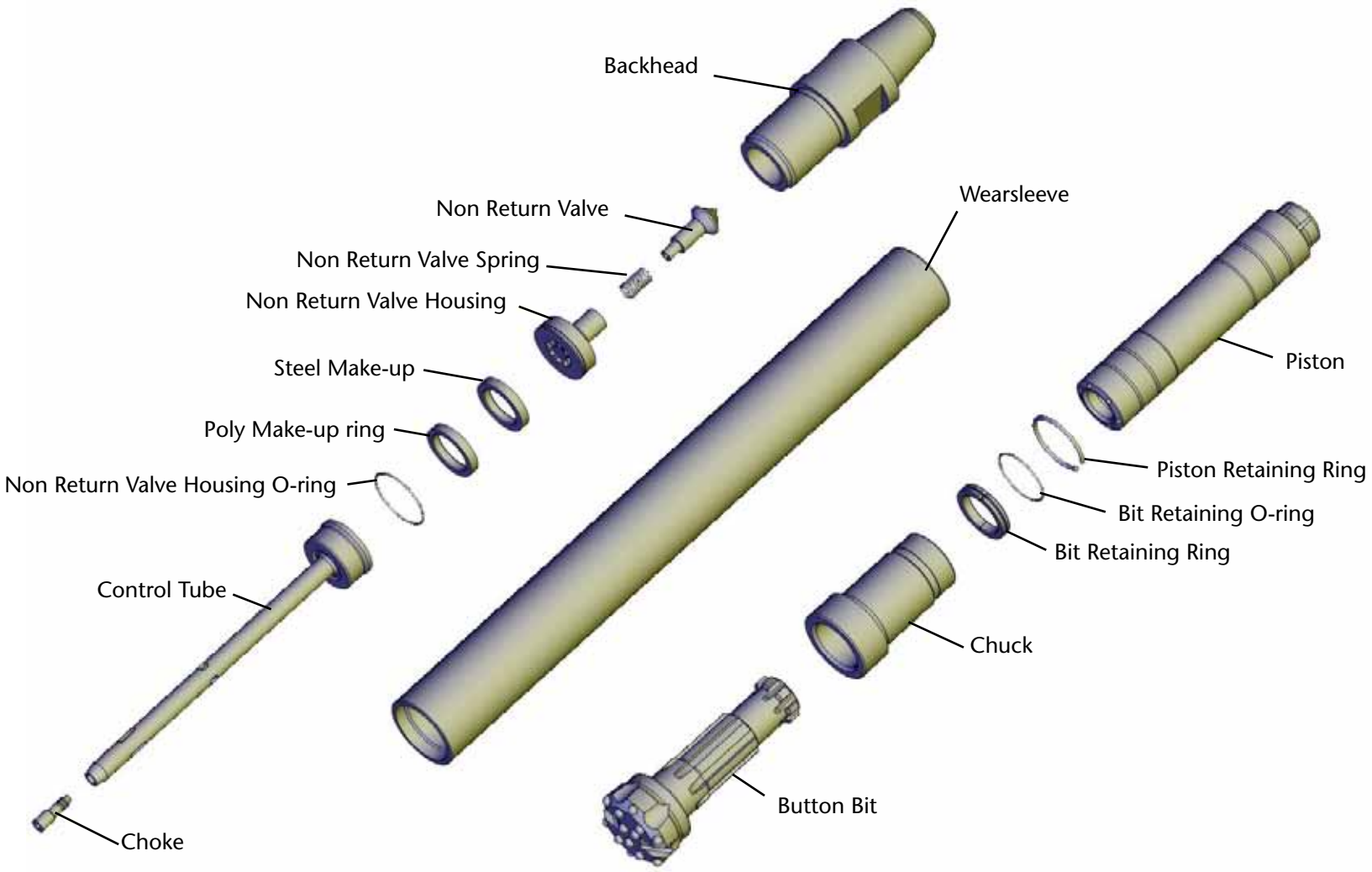
Always wear appropriate protective clothing and safety equipment and comply with health and safety guidelines issued by your employer or contractor on site.

We recommend the following:

- **Helmet**
- **Overalls —(No loose clothing to be worn that may get caught in fast moving rotational parts).**
- **Safety Gloves**
- **Ear Defenders**
- **Safety Glasses**
- **Safety Boots**

The weight of all the hammers exceed the recommended manual safe lifting guide. So the appropriate lifting equipment should be used when handling. Always use an approved lifting sub or nylon sling.

3. HAMMER COMPONENTS



4. HAMMER PARTS LIST

Chenabore Hammers exploded view — Parts list and description.

Chenabore Parts Lists

ITEM NO.	DESCRIPTION	CHENABORE 300	
		3015 Bit	IR3.5 Bit
1	Backhead	CB301	CB301
2	Non Return Valve	CB302	CB302
3	Non Return Valve Spring	CB303	CB303
4	Make-up Ring (Steel)	CB304	CB304
5	Make-up-Ring (Poly)	CB305	CB305
6	Non Return Valve Housing	CB306	CB306
7	Non Return Valve Housing O-Ring	CB307	CB307
8	Control Tube	CB308	CB308
9	Choke (Blank – 1/8 & 3/16 holes)	CB309	CB309
10	Piston	CB310	CB316
11	Wearsleeve	CB311	CB317
12	Piston Retaining Ring	CB312	CB312
13	Bit Retaining Ring – O-Ring	CB313	CB318
14	Bit Retaining Ring	CB314	Cb319
15	Chuck	CB315	CB320

5. CHENABORE HAMMER SPECIFICATIONS

	CHENABORE 300	
STANDARD TOP THREAD CONNECTIONS	2. 3/8" API REG PIN	
OPTIONAL 2.7/8"		
STANDARD CHUCK CONNECTIONS	A30-15	IR 3.5
LENGTH WITHOUT DRILL BIT	36.8" (924MM)	
OUTSIDE DIAMETER	31/2" (82.5MM)	
WEIGHT WITHOUT BIT	66 LBS (30KG)	
CYLINDER BORE	2.625" (66.67MM)	
PISTON STROKE		
PISTON WEIGHT	15.07 LBS (6.85 KG)	
HOLE SIZES	3 5/8 (92MM)	4" (102MM)
ACROSS FLATS	3" (76MM)	

6. AIR CONSUMPTION

The Chenabore Hammer has been designed to operate on air pressures from 150 PSI (10.2 Bar) to 250 PSI (17 Bar)

Air Consumption Chart

CFM @ 150 PSI M_ /MIN @ 10.55 KG/CM_	180 5.1
CFM @ 200 PSI M_ / MIN @ 14.0KG/CM_	244 6.9
CFM @ 250 PSI M_ / MIN @ 21.09 KG/M_	294 8.3
CFM @ 300 PSI M_ / MIN @ 24.61 KG/M_	___ ___

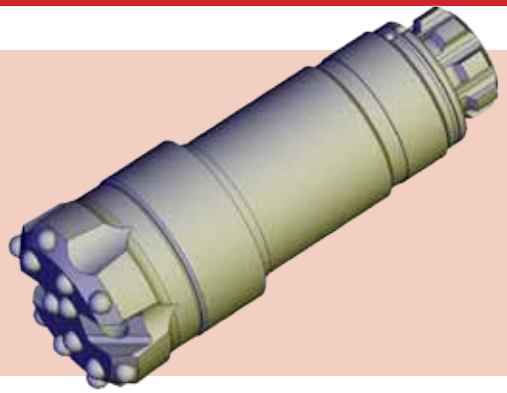
Air Pressure Regulating Chokes

	1/8"	3/16"
150 PSI	35 CFM	61 CFM
200 PSI	41 CFM	74 CFM
250 PSI	48 CFM	88 CFM

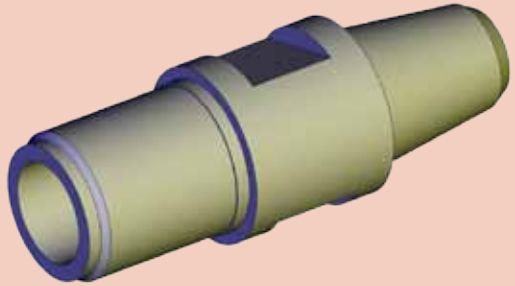
The Chenabore 300 Hammer is shipped with a blank choke fitted. The open choke allows water to be injected straight through the hammer minimising the effect on the piston operation.

7. DISMANTLING OF CHENABORE HAMMERS

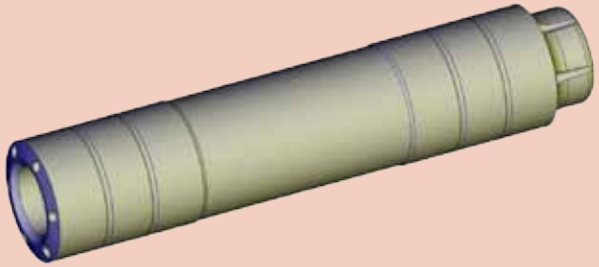
Step 1. Unscrew the chuck assembly containing the Bit Retaining Rings.



Step 2. Unscrew and remove the Top Sub and the Non-Return Valve Spring.



Step 3. Lift the Chuck end allowing the Piston, Control Tube, Make-Up-Rings and Non Return Valve Housing to be removed from the Top Sub end of the Wearsleeve (a suitable bar inserted into the Chuck end maybe needed to push the items to the end.



8. MAINTENANCE CHECKS FOR WEAR AND DAMAGE

It is recommended to change the appropriate parts when the wear limit has been reached.

1. Inspect the Piston for burn marks on the outside diameter. Burns on the Piston indicate insufficient lubrication. Minor marks may be removed by polishing with an emery cloth.

2. Check clearances between the piston outside diameter and the Wearsleeve internal diameter. The maximum recommended clearance is 0.011" (0.28mm).

3. The hammer's performance will deteriorate with excessive piston to Wearsleeve clearance.

Hammer	Minimum Diameter
Chenabore 300	63.27MM (2.490")

9. CHECKING FOR WEAR AND DAMAGE

Control Tube

Hammer	Minimum Diameter
Chenabore 300	22.1742 mm (0.874”)

Inspect for excessive wear, damage and cracks. Check the clearance between the Control Tube outside diameter and the internal diameter of the Piston. The recommended maximum clearance is 0.016” (0.4064mm). Excessive wear could be a result of insufficient lubrication.

Wearsleeve

Hammer	Minimum Diameter
Chenabore 300	66.69 mm (2.625”)

Inspect for abrasive wear, damage, corrosion and burns. Minor scores can be polished with an emery cloth. Severe damage may require honing using a hand hone to remove or replaced. Excessive clearances will affect the performance of the hammer.

10. REBUILDING OF CHENABORE CB 300 HAMMER

Ensure that all maintenance procedures have been completed and if the hammer has been in storage that the guidelines have been followed.

Step 1. Coat all components liberally in rock drill oil. Coat all threads with a copper based thread grease.

Step 2. Position the Wearsleeve on the floor or a suitable bench with the Chuck end facing upwards. Assemble the Chuck and Bit Retaining Ring on to the Bit.

Step 3. Install the Chuck assembly into the lower end of the Cylinder using the correct thread grease.

Step 4. Insert the Piston, small diameter first into the top end of the Wearsleeve and carefully slide to the lower end of the Wearsleeve.

Step 5. Install the Choke, small end first into the Control Tube, making sure that it sits in the bottom end of the bore.

Step 6. Insert the Control Tube into the top end of the Wearsleeve, making sure that the shoulder of the Control tube is positioned correctly on the Wearsleeve.

Step 7. Place the Buffer Ring over the Non Return Valve Housing insert the Steel Make-Up-Ring placing it on top of the Buffer Ring.

Step 8. Insert the Non-Return Valve Spring and the Non-Return Valve into the Non Return Valve Housing.

Step 9. Insert the Top Sub and tighten by hand until the correct stand off is achieved between the shoulder of the Top Sub and the end of the Wearsleeve. The recommended stand off range is: 1.016mm (0.040”) - 2.286mm (0.090”)

11. LUBRICATION GUIDE

The Chenabore Hammer is a precision made tool, manufactured to a high quality standard. Therefore, only the highest quality lubrication should be used and a constant flow of oil is to be maintained at all times. Failure to do so will result in premature, excessive component wear and in cases where the oil supply is completely cut off, this will cause the piston to seize inside the wearsleeve resulting in permanent damage to the components and hammer failure.

RECOMMENDED LUBRICATION AMOUNT = 1.5LTRS - 2LTRS PER HOUR

Make	Light Duty	Heavy Duty
ESSO	AROX EP 65	AROX EP 150
MOBIL	ALMO No.3	ALMO No.5
SHELL	TORCULA 100	TORCULA 320
CASTROL	RD OIL DP 100	RD OIL DP 220
TEXACO	1542 EPM	1543 EPM

Heavy duty oil is recommended for all year round use, especially where the air supply to the hammer is at a high temperature. Where the hammer is operated in conditions of very low temperatures, the oil should be increased by 30%.

RECOMMENDED PULL DOWN

3.5" DRILL BIT = 1750 ILBS / 794 KG **4" DRILL BIT = 2000 ILBS / 907 KG**

12. TROUBLESHOOTING

Fault	Possible Cause	Remedy
Hammer Does Not Operate	• Insufficient Or No Air • Hammer Incorrectly Assembled • Dirt in Hammer • Hammer Parts Seized, Broken Or Worn • Flushing Holes Blocked	• Check Compressor. • Strip and Reassemble Correctly. • Strip, Clean and Reassemble. • Strip, Inspect and Service. • Clean Out Holes
Slow Penetration	• Insufficient Air • Worn Drill Bit • Worn Drill Parts • Incorrect Amount of Lubrication • Slow Rotation	• Check Air Pressures • Change Bit • Replace Worn Parts • Check Oil Feeder • Increase To Recommended Rotation Speeds

13. STORAGE

If you intend to remove the Chenabore Hammer from service and place it into storage, then the following procedure should be followed to ensure the hammer is kept in optimum condition for it's return to service.

1. Strip down the hammer, clean and wipe away any moisture.
2. Coat all component parts in rock drill oil.
3. Re-assemble the hammer and fit end caps to both ends of the hammer to keep out any debris.
4. Store the hammer horizontally in a clean and dry environment.

If the hammer is stored for a long period of time, then we strongly recommend that steps 1 & 2 are repeated prior to use to ensure trouble free operation.

14. WARRANTY

Chenalord warrants it's product against faulty design, materials and workmanship only for a period of 3 months from initial operation and or 6 months from shipment date. Chenalord does not warrant defects arising as a result of misuse, negligence, normal wear and tear or where service, operation and maintenance procedures have not been adhered to.

At Chenalord's discretion where the product is found to be defective Chenalord may either agree to repair the defective part or issue a full or partial credit towards a replacement part.

PLEASE OBSERVE THE WARNING LABEL ATTACHED TO THE HAMMER

The Chenabore Hammer Warranty Will Be Voided Where The Following Occurs:

1. Damage caused to components from insufficient lubrication.
2. Evidence of welding or application of heat or impact.
3. Damage caused due to the use of incorrect tools.
4. Evidence of distortion of components.
5. The hammer or any of it's components have reached a reasonable amount of it's expected life.

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drilling supplies

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