

MAINTENANCE MANUAL



halcorocktools.com



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HAMMER QUICK REFERENCE

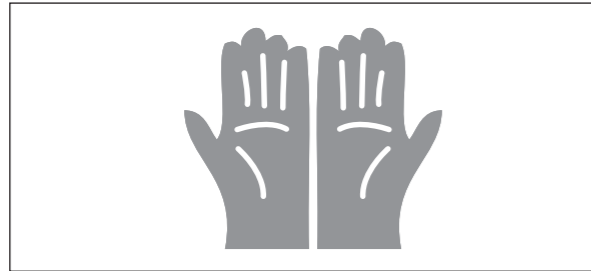
1" RANGE		
HAMMER MODEL	DISMANTLING PAGE	ASSEMBLY PAGE
DOMINATOR 100	12-13	58-59
2" RANGE		
HAMMER MODEL	DISMANTLING PAGE	ASSEMBLY PAGE
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SUPER DOMINATOR 1200	50-51	100-101

COMMISSIONING INSTRUCTIONS



SAFETY EQUIPMENT

Always wear the appropriate safety equipment. Safety boots, head protection, ear protection, eye protection and gloves.



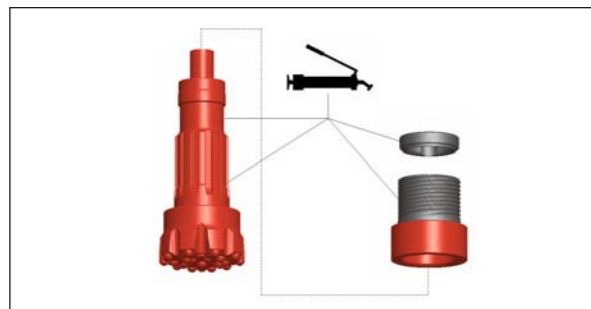
MANUAL HANDLING

Carry out a manual handling assessment prior to use.



HAMMER EQUIPPED WITH SPLINE DRIVE PINS

Always ensure that a full set of serviceable drive pins are fitted to these hammers before operating otherwise damage to splines will occur. In these circumstances, warranty from the manufacturer will not apply



GREASE COMPONENTS

Grease all threads and splines when assembling drill bit into hammer.



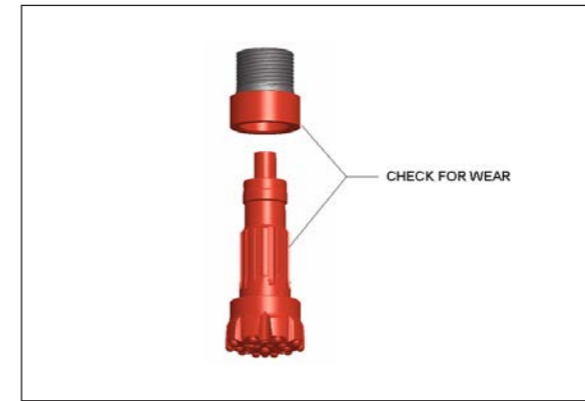
CHECK DRILL BIT DIAMETER

Never try to use a drill bit which is larger in diameter than a partially drilled hole.



COMMISSIONING

- Ensure hammer lubricator is working
- Pour ½ pint (0.30 litres) of air line oil into hammer
- When attached to drill rig, blow through with air to ensure all internal parts are lubricated
- Operate at low pressure initially, progressively increasing, during the first hour, in order to run in the hammer.



NEW HAMMER OR CHUCK WITH USED DRILL BIT

Check the drill bit splines for wear otherwise damage to the chuck could occur.



IDENTIFICATION NUMBERS

- Keep a note of equipment serial numbers for future reference.
- Retain the certificate and spare parts list supplied with the hammer.



SUB ADAPTOR

A Sub Adaptor will be required if the hammer top thread differs to the drill tube thread.



NON RETURN VALVE

You may remove the non return valve in dry conditions to give a slight increase in performance.



BIT RETAINING RINGS

Never mix pairs of bit retaining rings which generally are manufactured as matching pairs and always re-fit them in the same position as when dismantled.

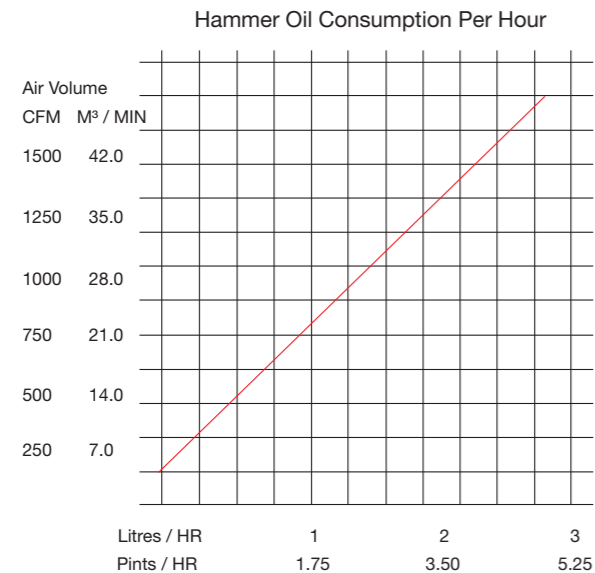
LUBRICATION INSTRUCTIONS

LUBRICATING OIL

Just like any other piece of precision machinery, the DTH hammer must be lubricated and small quantities of oil should be injected into the air stream at regular interval whilst the hammer is working. Rock drill oils are recommended because these contain the emulsifying and viscosity additives necessary to deal with high pressure and high air flow conditions in which water is usually present, if only from condensation in the air line. Oil not only provides slip to prevent pick up and premature failure of components but it also acts as a seal on the surface of running parts to use air efficiently without pressure loss.

It is therefore of paramount importance that the correct grade of oil is used at the appropriate consumption rate to suit volume and pressure, in line with the hammer manufacturers recommendation.

Most modern valveless hammers, particularly when operating at high pressures need a heavy oil providing of course that ambient temperatures allow the oil to run through the airline.



DTH HAMMERS NEED

- 1/3 of imp. pint of oil per hour per 100 CFM of air consumed.

Or

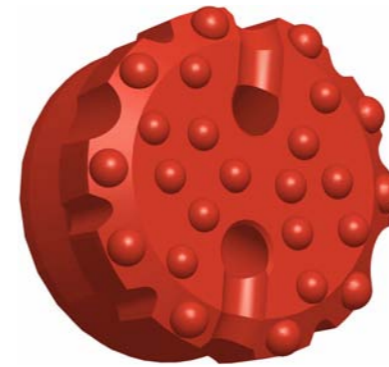
- 0.20L of oil per hour per 3 M³ / Min of air consumed.

Up to double the amount of oil is required when used with water injection. At temperatures below 5°C oil with an antifreeze additive may be required

Make	Below 10°C	From 10°C to 32°C	Above 32°C	Hammer Grease	
Halco	HS3	HS200	HS200	Hammer Grease	Hammer 'O' Ring
Molybond	Molyhammer 320			Faxene CP Compund	Faxene H76
BP	Emergol RD-100	Maccurat D220	Maccurat D220	COG	
Caltex	Caltex Aries 100	Caltex Aries 320	Caltex 320	Energriase AS11	-
Castrol	RD Oil 100	RD Oil 150	Perfora 220	Threadtex	-
Elf	Perfora 100	Perfora 220	Arox EP150 or Febis K220	-	Red Rubber Grease
Esso	Arox EP 46	Arox EP 150	Gulfstone Heavy	Tifora CA	Naturelf GEP 2
Gulf	Gulfstone	Gulfstone Heavy	Vactra Oil No.4	-	-
Mobil	Almo 527	Almo 529	Tonna TX220	Anti No.2	-
Shell	Torcula 100	Tonna TX220	Way Lubricant X220	High Pressure Thread	-
Texaco	Aires 100	Way Lubricant X220		-	-

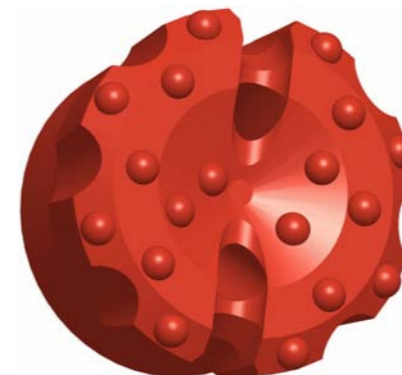
CHOOSING THE RIGHT DRILL-BIT

HEAD DESIGNS



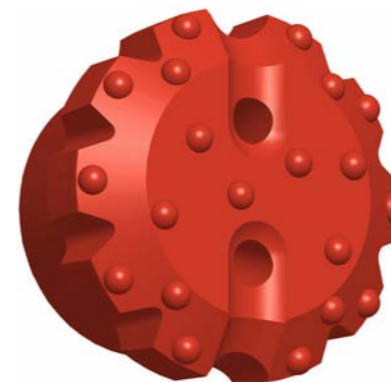
FLAT FACE

Alternative design for all rock conditions especially fractured and fissured rocks and changing formations.



CONCAVE

Alternative design for all rock conditions particularly deep hole drilling can improve hole alignment as a result of inverted pilot.



CONVEX

Strong design for all conditions especially hard abrasive rock. Good balance of fast drilling and long service life.

INSERTS TYPES



BALLISTIC INSERTS

Suitable for soft and medium compact low abrasive rocks producing large cuttings. Not suitable for badly fractured rocks.



DOMED INSERTS

Strong rugged shape for high performance and good service life in all conditions particularly suitable for very hard abrasive rocks and deep hole drilling.



SEMI-BALLISTIC INSERTS

Suitable for all soft and medium rock conditions including fractured and fissured rocks.

OPERATING DTH HAMMERS ROTATION SPEEDS

Where drill bit life and cost is a major consideration on a drill site, rotation speeds should be carefully monitored.

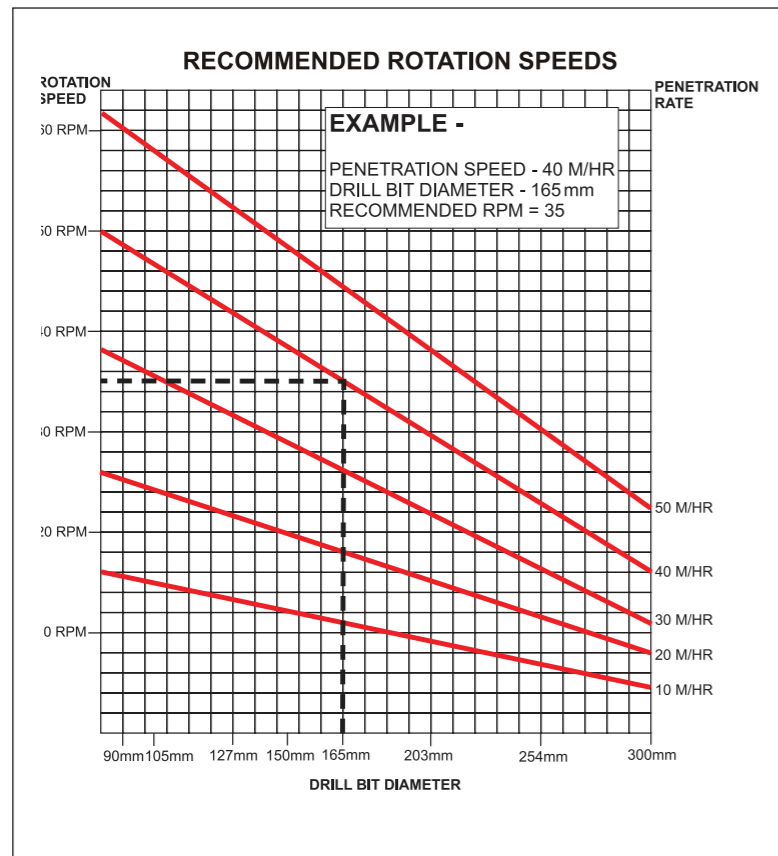
DTH drill bits are rotary - PERCUSSIVE tools with the emphasis on PERCUSSIVE. Their function is to fracture the material being drilled which should then be immediately carried away by the exhaust air. Button bits have no cutting or tearing action as such and the effect of rapid rotation can be detrimental to the life of the bit, especially in abrasive rock which wears away fast moving peripheral inserts or in solid dense material which causes the peripheral inserts to overheat and spall due to friction.

If the string is rotated too slowly, the buttons impact previously chipped areas of the hole with a resultant drop in penetration speed.

As a general guide - the harder the rock or the larger the bit diameter - the slower the rotation speed required.

It may be necessary to increase the rotation speed where the rock is badly fissured in order to prevent stalling.

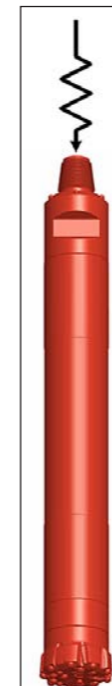
A bit stalling in the bore hole could be the result of an overly worn bit. Increasing the rotation speed in these circumstances will only accelerate the problem.



THRUST (PULLDOWN) / HOLDBACK / TORQUE

Thrust should be kept as low as possible at all times to avoid excessive vibration in the drill string. Hold back should be increased more and more as additional rods are added and as drilling progresses. DTH drilling is primarily percussive drilling using the energy imparted by the hammer piston to the rock through the bit. Any attempts to apply too much weight could damage the bit, hammer and drill string and impair the drilling rate.

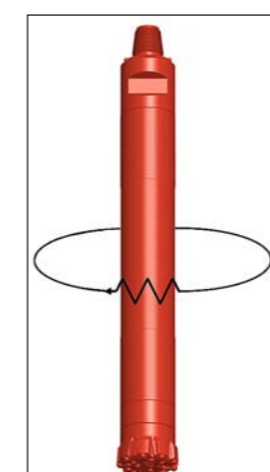
Although the base of the hammer should maintain contact with the drill bit, there should not be excess thrust or vibration due to the reaction between the hammer and drill bit. Insufficient thrust will cause the hammer to bounce resulting in a low blow energy to the rock causing vibration and also potential damage.



RECOMMENDED THRUST CAPACITIES

Hammer Size	Min. Thrust	Max. Thrust
3" 76 mm	150 kg (330 lbs)	300 kg (660 lbs)
4" 101 mm	250 kg (550 lbs)	500 kg (1100 lbs)
5" 127 mm	400 kg (880 lbs)	900 kg (1980 lbs)
6" 152 mm	500 kg (1100 lbs)	1500 kg (3300 lbs)
8" 203 mm	800 kg (1760 lbs)	2000 kg (4400 lbs)
12" 304 mm	1600 kg (3520 lbs)	3500 kg (7700 lbs)

When the total weight of the drill string including the weight of the rotary head exceeds the optimum thrust level, the drill string should be put in tension by gradually applying holdback as more tubes are added.

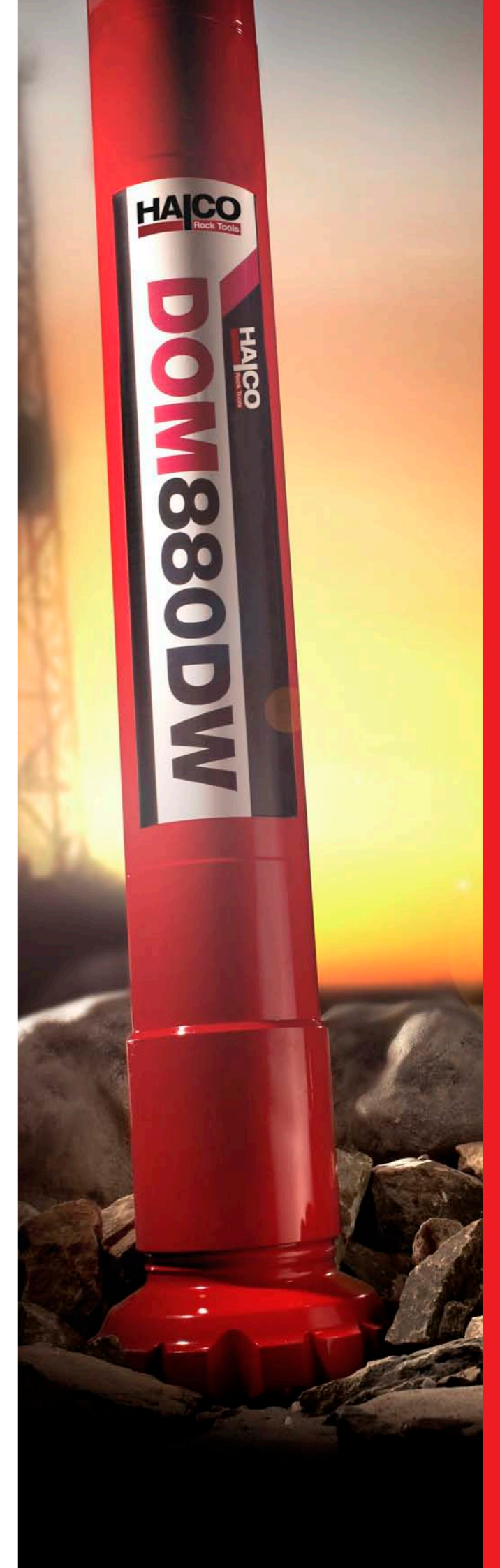


RECOMMENDED TORQUE RATINGS

DTH drill bits unlike rotary tricones require very little rotation torque.

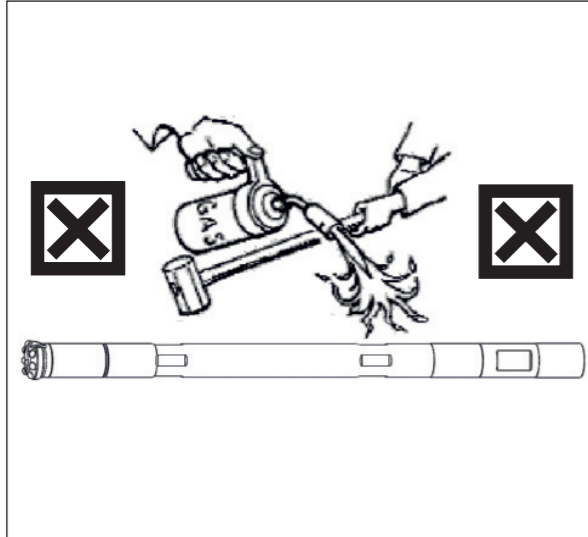
Drill Bit Dia.	Torque (Recommended)
105 mm (4 1/8")	50 kgm (360 ft/lbs)
127 mm (5")	120 kgm (865 ft/lbs)
165 mm (6 1/2")	250 kgm (1800 ft/lbs)
200 mm (7 7/8")	300 kgm (2170 ft/lbs)
300 mm (11 7/8")	350 kgm (2530 ft/lbs)
445 mm (17 1/2")	425 kgm (3075 ft/lbs)

DISMANTLING



DOMINATOR 100

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.



A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

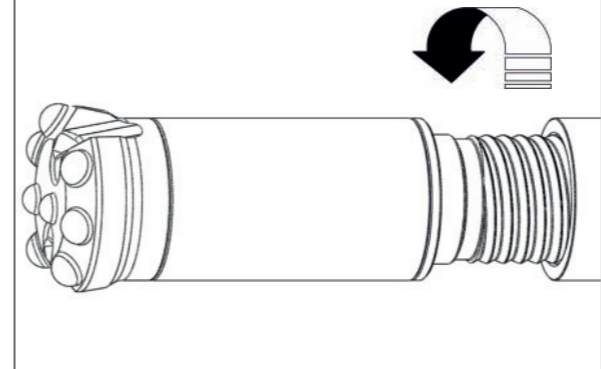


X & Y = DO NOT CLAMP HERE
 X = 136 mm (5.354")
 Y = 208 mm (8.189")

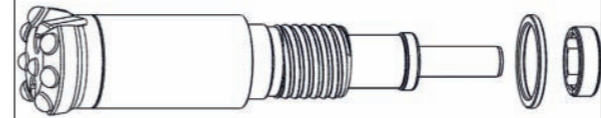
B. Break the top joint between Cylinder (10) and Top Adaptor (7) and bottom joint between Cylinder (10) and Chuck (15).



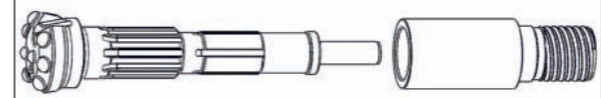
C. Unscrew and remove the Drill Bit (16), Chuck (15), Chuck Spacer (14) and Bit Retaining Ring (13).



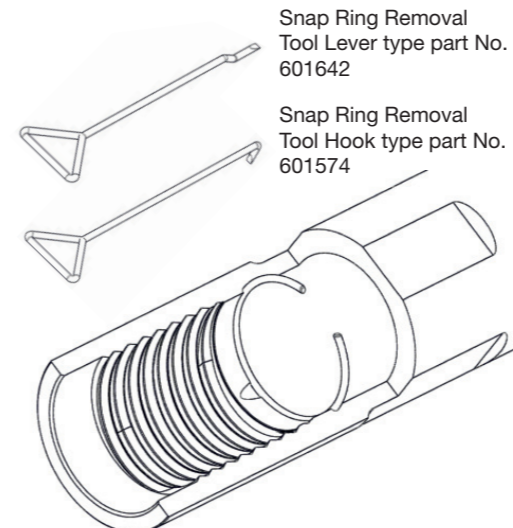
D. Remove Chuck Spacer (14) from Chuck (15) and remove Bit Retaining Ring (13) from Bit (16).



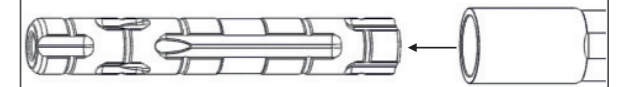
E. Remove Chuck (15) from Bit (16).



F. Remove Snap Ring (12) from Cylinder (10) using the tools illustrated below.



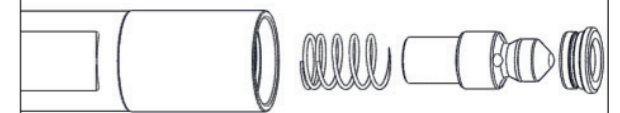
G. Remove Piston (11) from Cylinder (10).



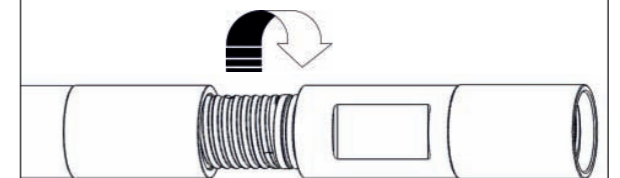
H. Remove Snap Ring (2) from Top Adaptor (7).



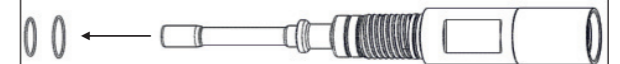
I. Remove Non Return Valve assembly (3-6) from Top Adaptor (7).



J. Unscrew and remove Top Adaptor (7) from Cylinder (10)

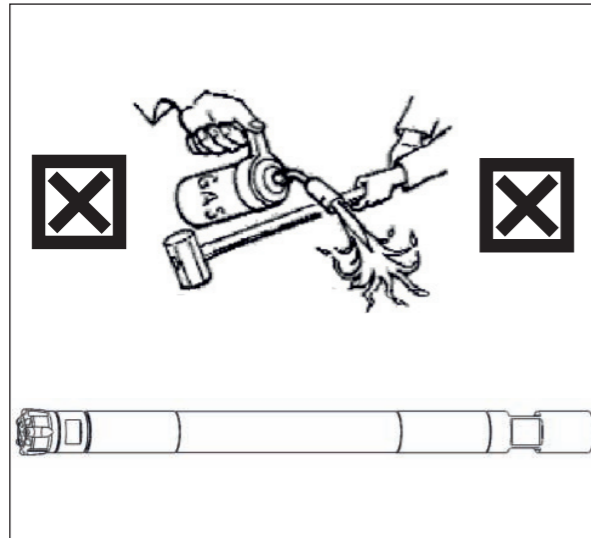


K. Remove 'O' Rings (8 & 9) from Top Adaptor (7)



MACH 20

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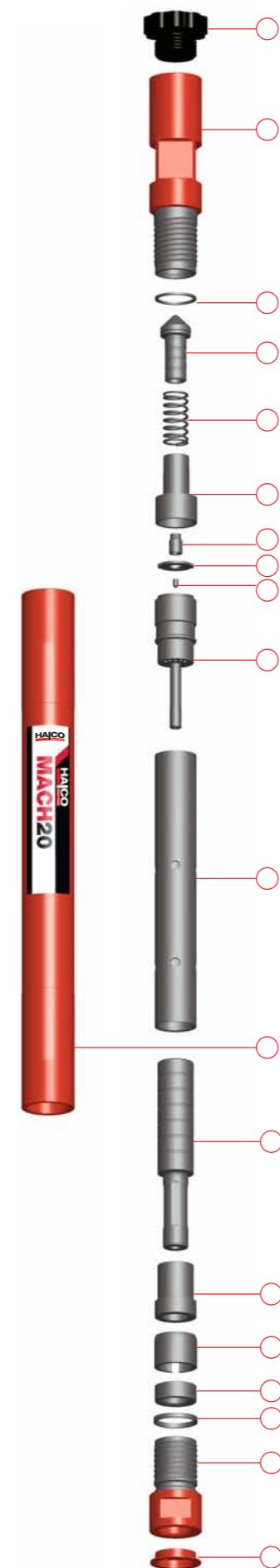


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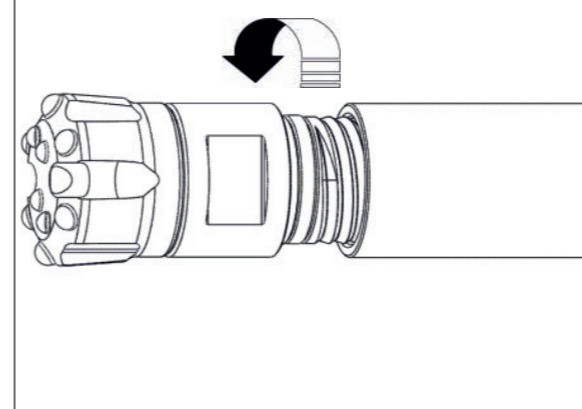


X & Y = DO NOT CLAMP HERE
 X = 115 mm (4.528")
 Y = 230 mm (9.055")

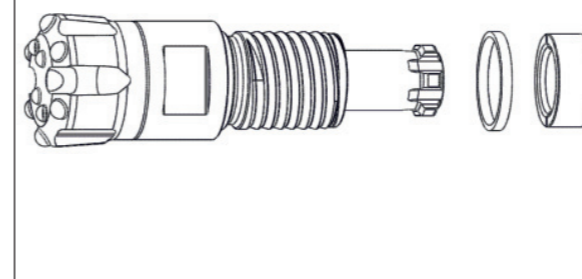
B. Break the top joint between Top Adaptor (2) and Cylinder (12) and bottom joint between Chuck (18) and Cylinder (12).



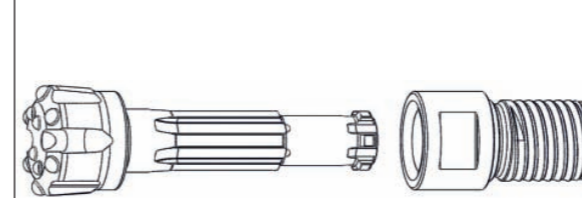
C. Unscrew and remove the Bit (19), Chuck (18), Chuck Lock Ring (17) and Bit Retaining Ring (16).



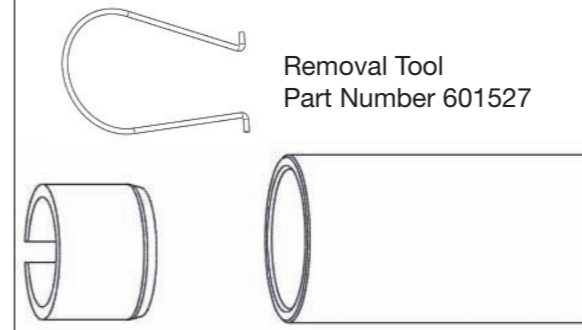
D. Remove Chuck Lock Ring (17) from Chuck (18) and remove Bit Retaining Ring (16) from Bit (19).



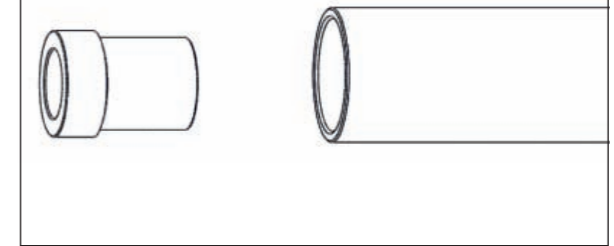
E. Remove Chuck (18) from Bit (19).



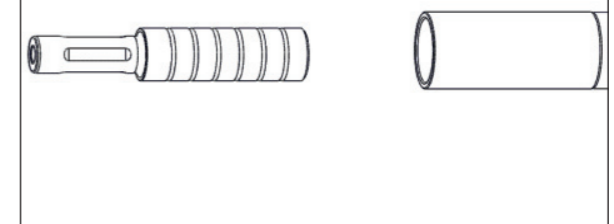
F. Remove the Bottom Spacer (15) from the Cylinder (12) using the tool illustrated below.



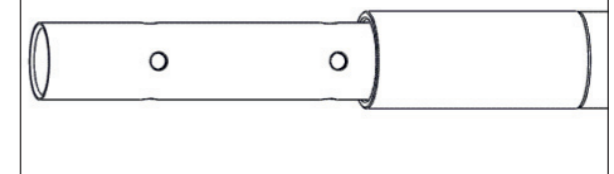
G. Remove Piston Guide Bush (14) from Cylinder (12).



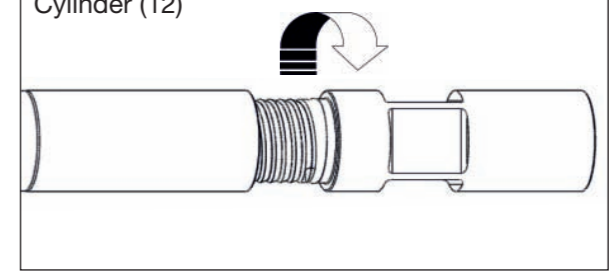
H. Remove Piston (13) from Cylinder (12).



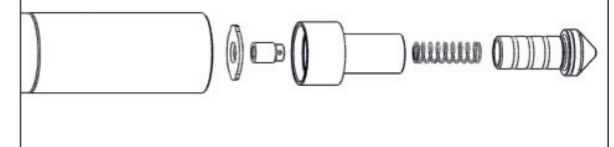
I. Remove Liner (11) from Cylinder (12).



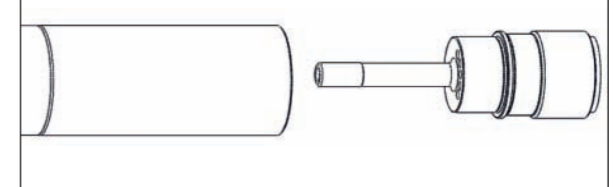
J. Unscrew and remove Top Adaptor (2) from Cylinder (12)



K. Remove Non Return Valve assembly (4-8) from Cylinder (12).

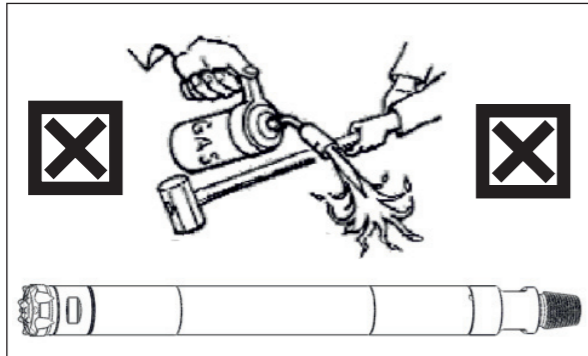


L. Remove Air Distributor (10) from Cylinder (12).



MACH 303 / DART 350 / DOMINATOR 350

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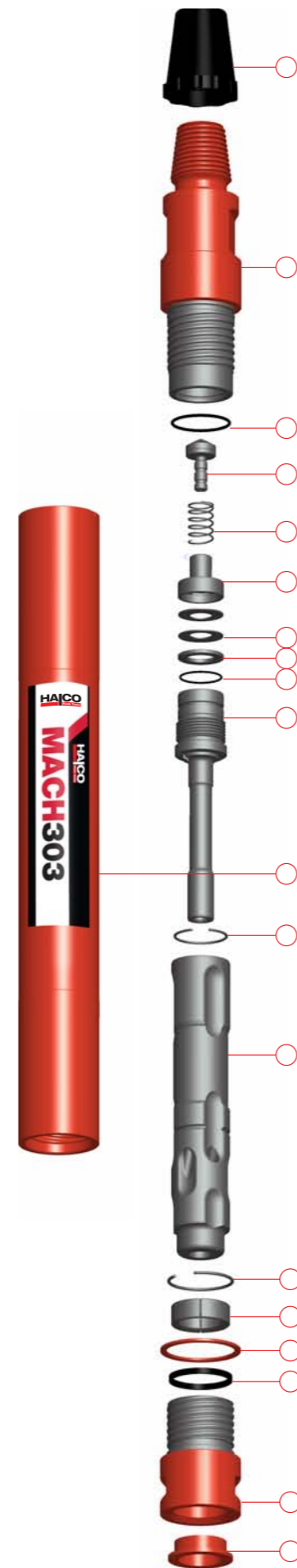
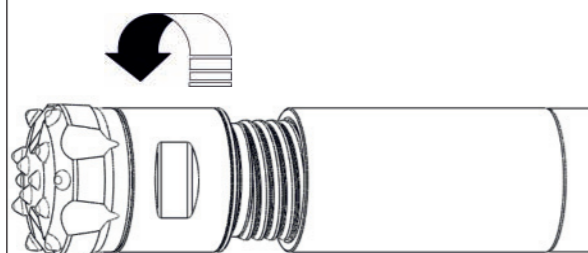


X & Y = DO NOT CLAMP HERE
X = 120 mm (4.724")
Y = 285 mm (11.220")

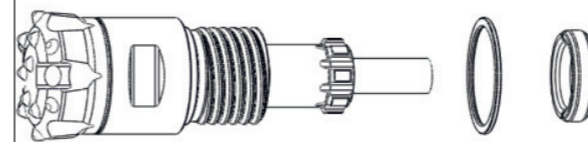
B. Break top joint between Cylinder (14) and Top Adaptor (2) and bottom joint between Cylinder (14) and Chuck (19).



C. Unscrew and remove Drill Bit (20), Chuck (19), Chuck Spacer (18) and Bit Retaining Ring (16).



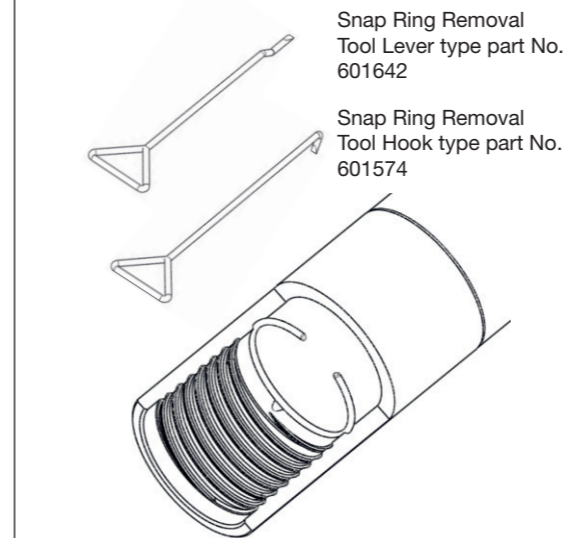
D. Remove Bit Retaining Rings (16) from Drill Bit (20) and Chuck Spacer (18) from Chuck (19).



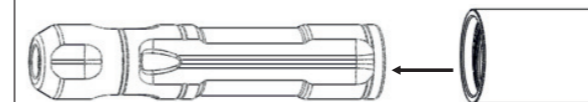
E. Remove Chuck (19) from Drill Bit (20). On Mach 303 hammers remove Chuck Lock Ring (17) from Chuck (19).



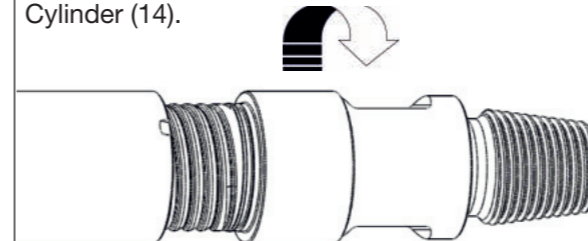
F. Remove Snap Ring (15) from Cylinder (14) using the tools illustrated below.



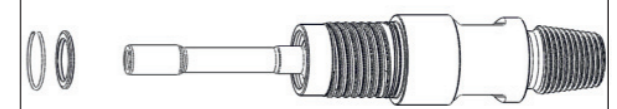
G. Remove Piston (13) from Cylinder (14).



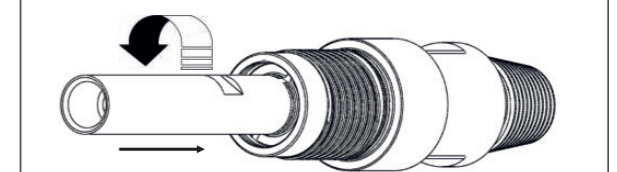
H. Unscrew and remove Top Adaptor (2) from Cylinder (14).



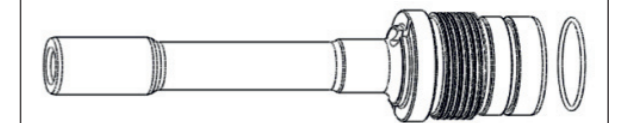
I. Remove Snap Ring (12) from Top Adaptor (2). On Dart 350 from Dominator 350 hammers remove Washer (11).



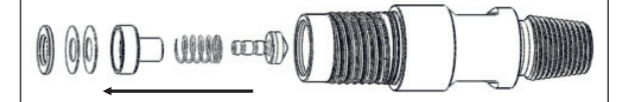
J. Insert Distributor Tool Part No. 603007 over stem of Air Distributor (10) and unscrew from Top Adaptor (2).



K. Remove 'O' ring (9) from Air Distributor (10),



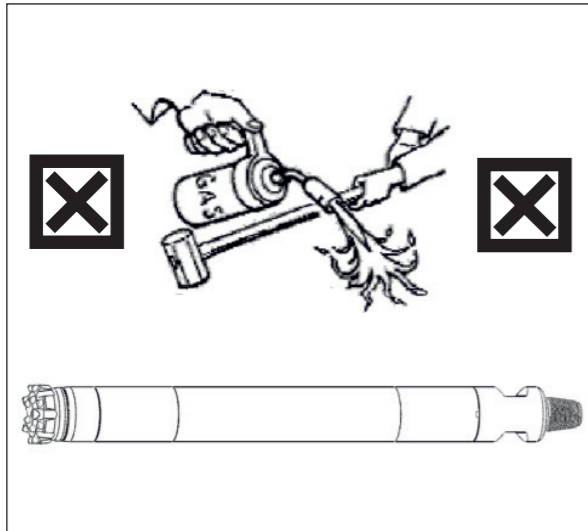
L. Remove Thrust Washer (8), Disk Spring (7) and Non Return Valve assembly (4-6) from Top Adaptor (2).



M. Remove 'O' Ring (3) from Top Adaptor (2).



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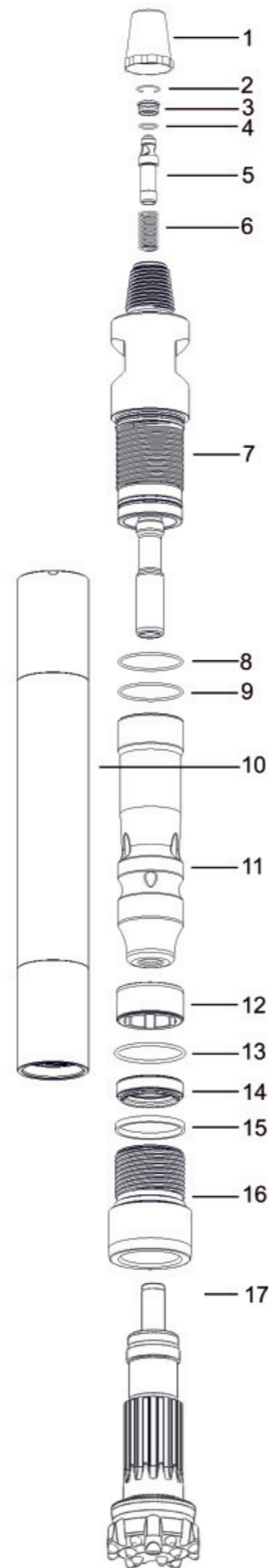


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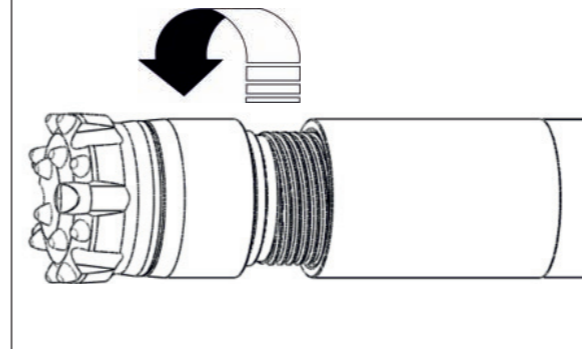


X & Y = DO NOT CLAMP HERE
 X = 130 mm (5.315")
 Y = 300 mm (11.811")

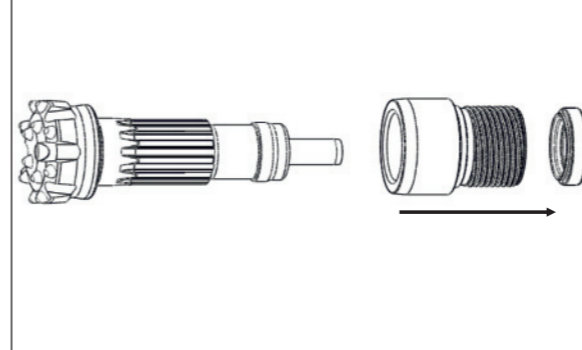
B. Break top joint between the Cylinder (10) and the Top Adaptor (7) and the bottom joint between the Cylinder (10) and the Chuck (16).



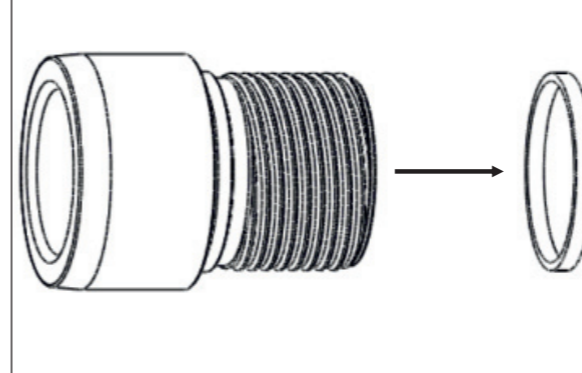
C. Unscrew and remove Drill Bit (17), Chuck (16) and Bit Retaining Rings (14).



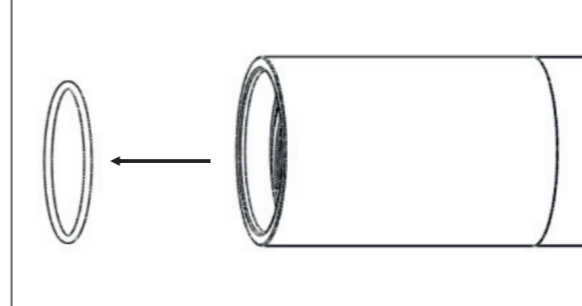
D. Remove Bit Retaining Rings (14) and Chuck (16) from Drill Bit (17).



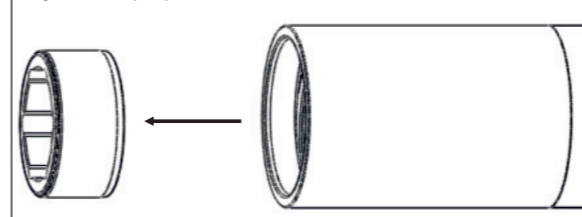
E. Remove Chuck Lock Ring (15) from Chuck (16).



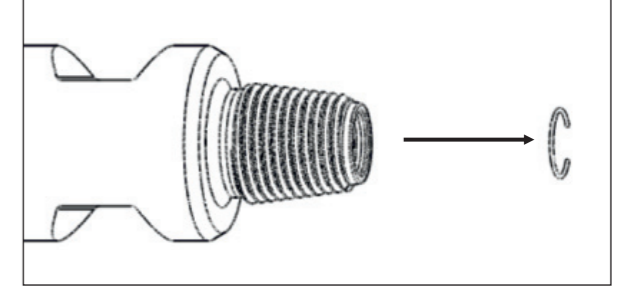
F. Remove 'O' Ring (13) from Cylinder (10).



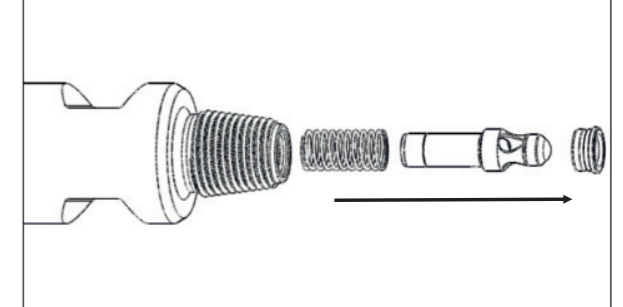
G. Remove Bit Guide Bush (12) from Cylinder (10).



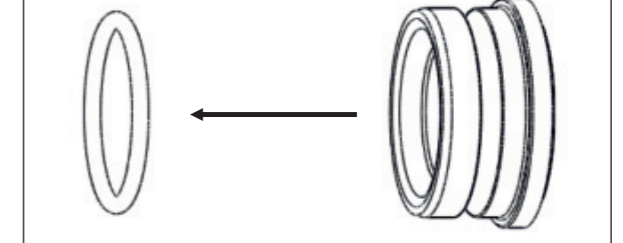
H. Remove Snap Ring (2) from Top Adaptor (7).



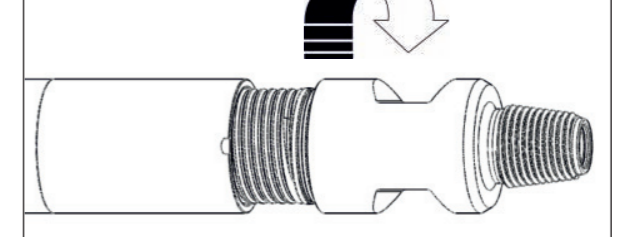
I. Remove Non Return Valve assembly (3-6) from Top Adaptor (2).



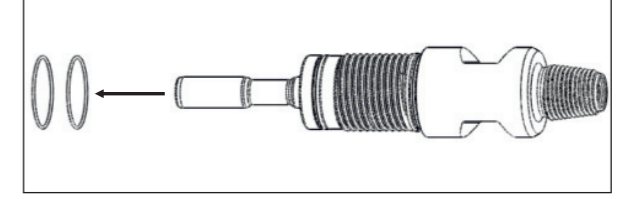
J. Remove 'O' Ring (4) from Non Return Valve Seat (3).



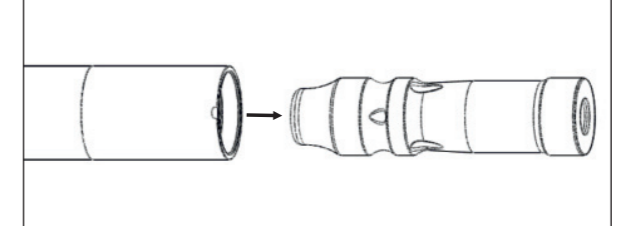
K. Unscrew and remove Top Adaptor (7) from Cylinder (10).



L. Remove 'O' Rings (8-9) from Top Adaptor (7).

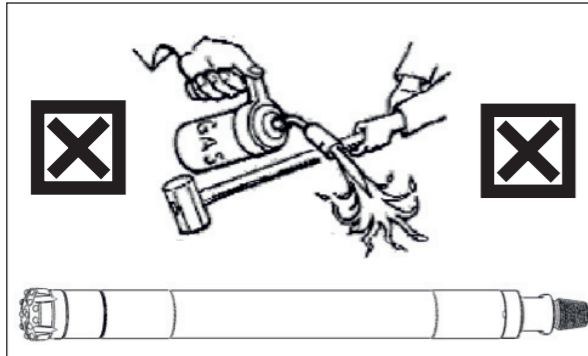


M. Remove Piston (11) from the top adaptor end of Cylinder (10).



MACH 44

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.



A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

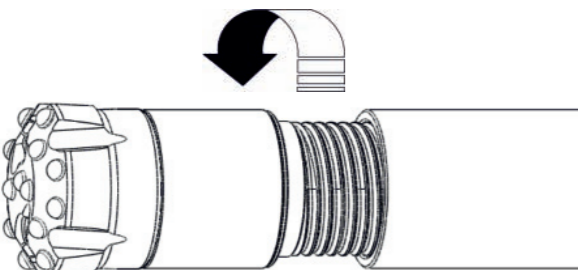


X & Y = DO NOT CLAMP HERE
 X = 165 mm (6.496")
 Y = 280 mm (11.024")

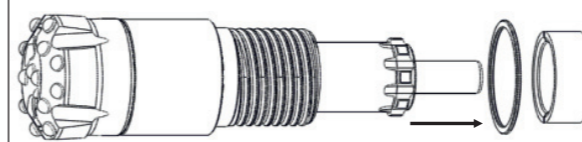
B. Break the top joint between the Cylinder (13) and the Top Adaptor (2) and bottom joint between Cylinder (13) and Chuck (19).



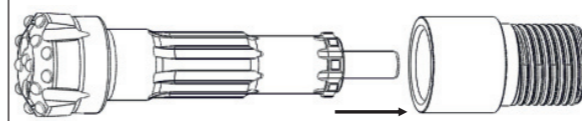
C. Unscrew and remove the Drill Bit (20), Chuck (19), Chuck Spacer (18) and Bit Retaining Rings (17).



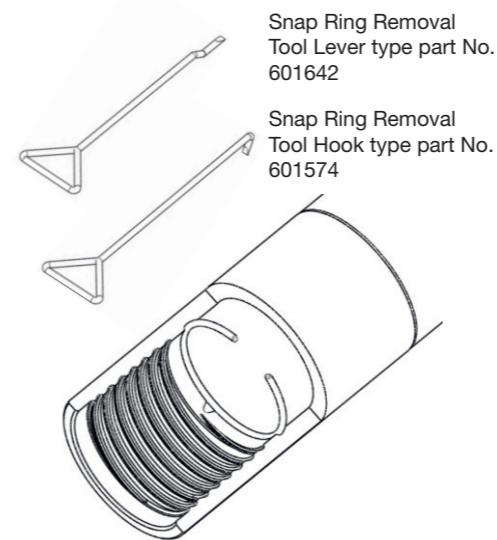
D. Remove Chuck Spacer (18) from Chuck (19) and remove Bit Retaining Rings (17) from Drill Bit (20).



E. Remove Chuck Lock Ring (19) from Chuck (20).



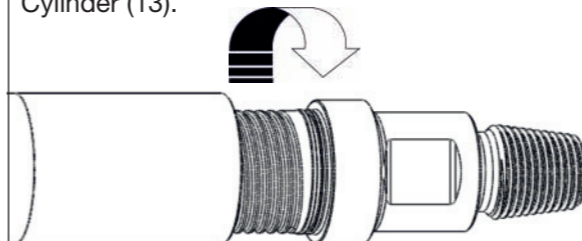
F. Remove Snap Ring (15) from Cylinder (13) using the tools illustrated below.



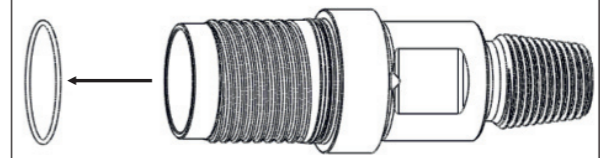
G. Remove Piston (14) from Cylinder (13).



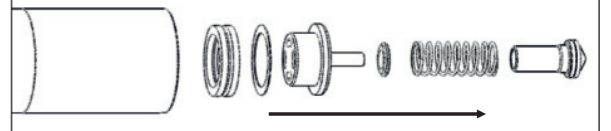
H. Unscrew and remove Top Adaptor (2) from Cylinder (13).



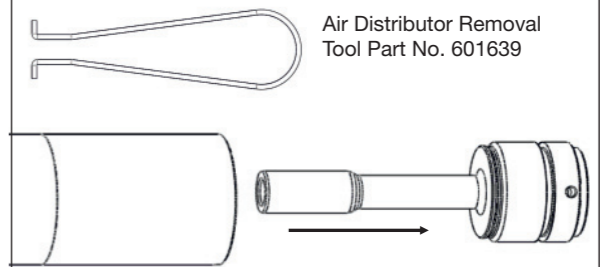
I. Remove 'O' Ring (3) from Top Adaptor (2).



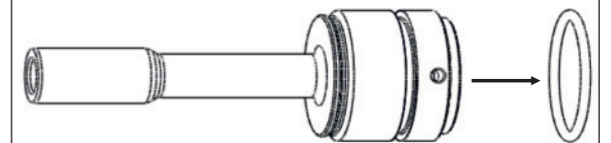
J. Remove Non Return Valve and make-up assembly (4-9).



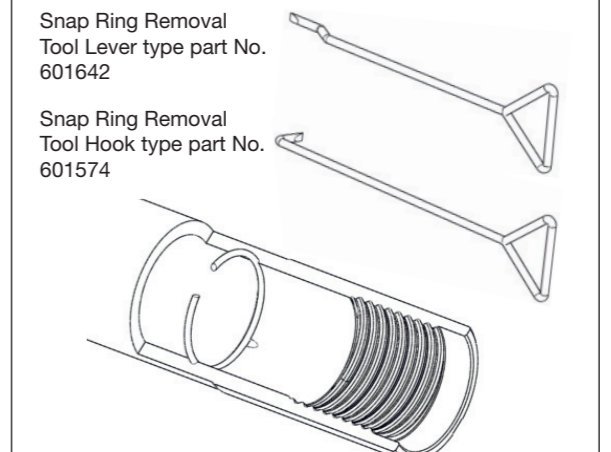
K. Remove Air Distributor (11) from Cylinder (13) using tool illustrated below.



L. Remove 'O' Ring (10) from Air Distributor (11).

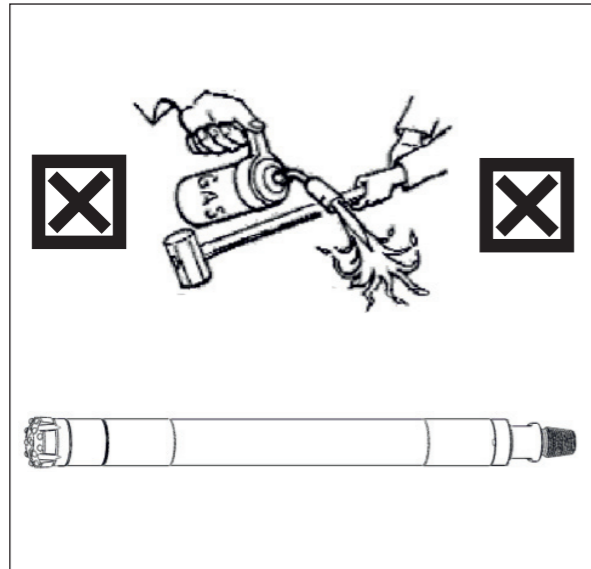


M. Remove Snap Ring (12) from Cylinder (13) using the tools illustrated below.



SUPER DOMINATOR 400

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.



A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

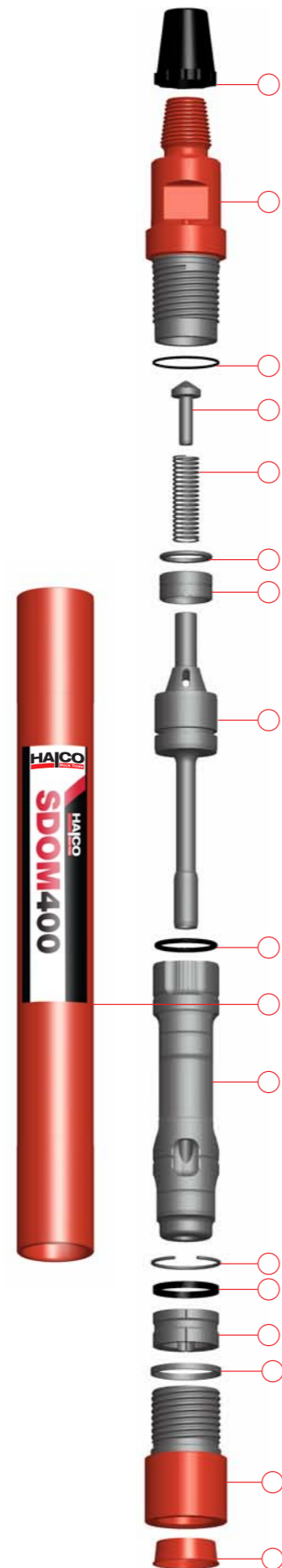
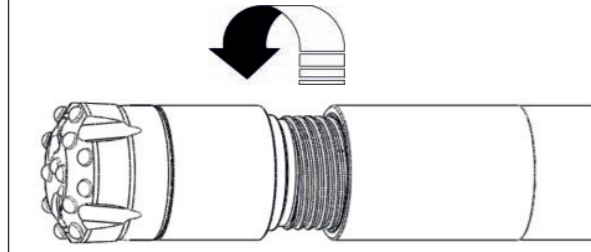


X & Y = DO NOT CLAMP HERE
 X = 190 mm (7.480")
 Y = 300 mm (11.811")

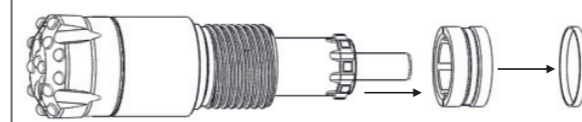
B. Break the top joint between the Cylinder (10) and the Top Adaptor (2) and bottom joint between Cylinder (10) and Chuck (16).



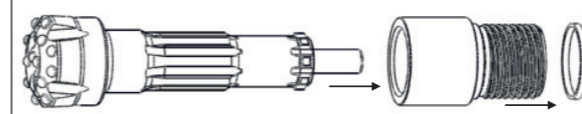
C. Unscrew and remove the Drill Bit (17), Chuck (16) and Bit Retaining Rings (14).



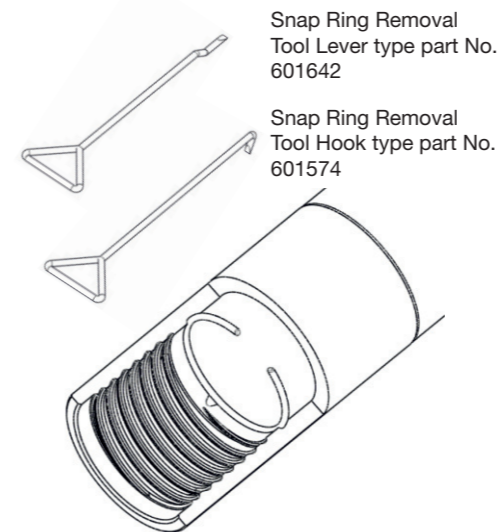
D. Remove Bit Retaining Rings (14) from Drill Bit (17). Remove Containment Band (13) if fitted from Bit Retaining Rings (14).



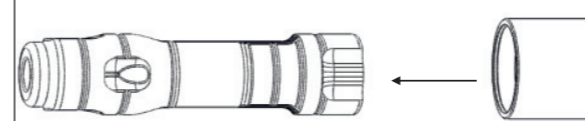
E. Remove Chuck (16) from Drill Bit (17). Remove Chuck Lock Ring (15) from Chuck (16).



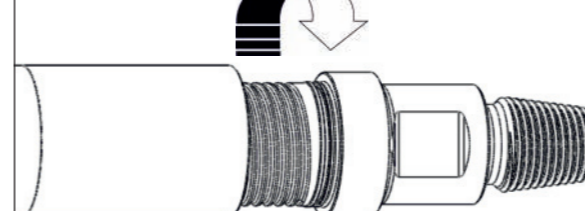
F. Remove Snap Ring (12) from Cylinder (10) using the tools illustrated below.



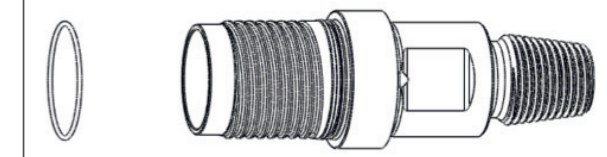
G. Remove Piston (11) from Cylinder (10).



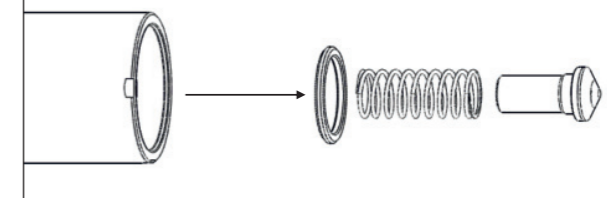
H. Unscrew and remove Top Adaptor (2) from Cylinder (10).



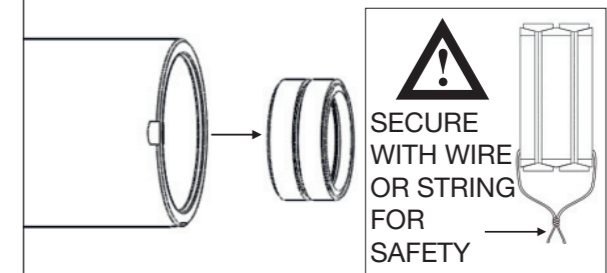
I. Remove 'O' Ring (3) from Top Adaptor (2).



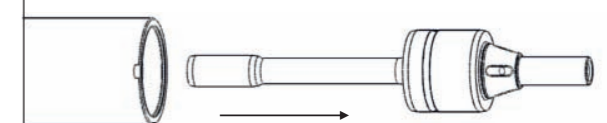
J. Remove Non Return Valve (4), NRV Spring (5) and Shim (6) from Cylinder (10).



K. Remove Compression Spring (7) from Cylinder (10). Ensure that eye protection is worn when removing Compression Spring. Remove with great care as the components may spring apart without warning if dropped. If removed intact secure with wire or string before separating.



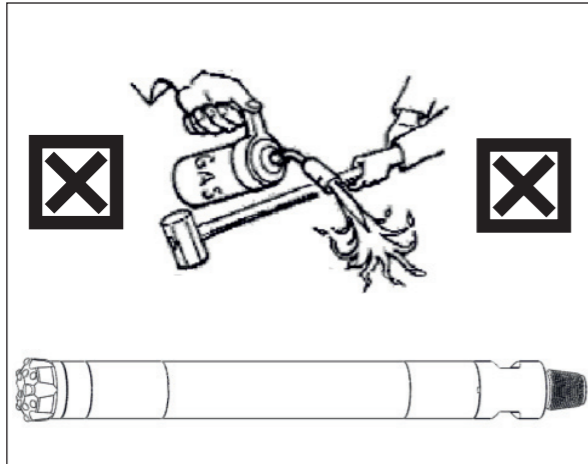
L. Remove Air Distributor (8) from Cylinder (10).



M. Remove Piston (11) from the top adaptor end of Cylinder (10).



DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.



A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

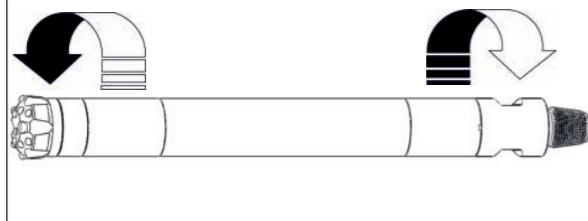


X & Y = DO NOT CLAMP HERE

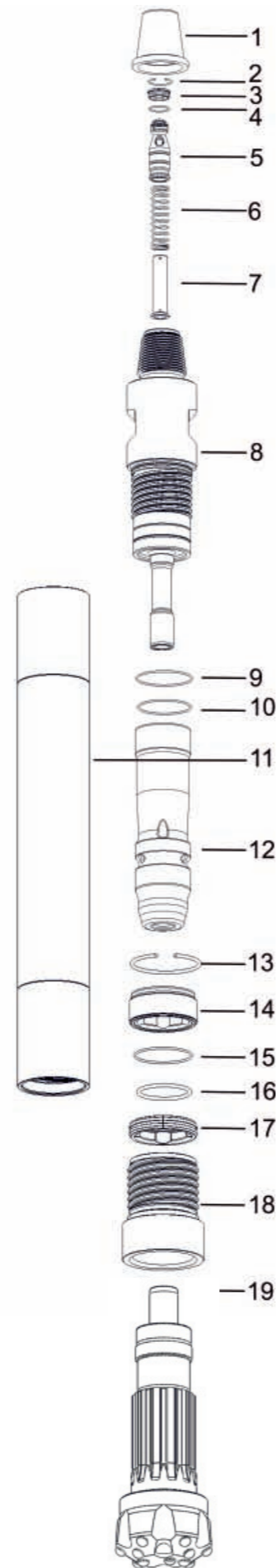
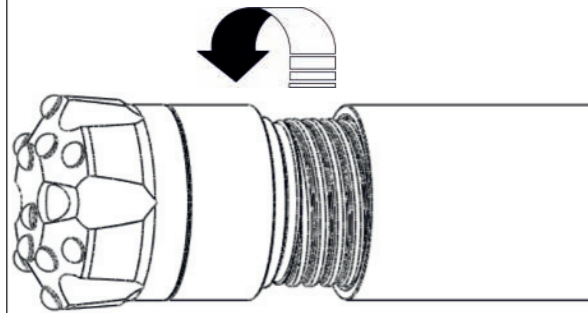
X = 150 mm (5.905")

Y = 330 mm (12.992")

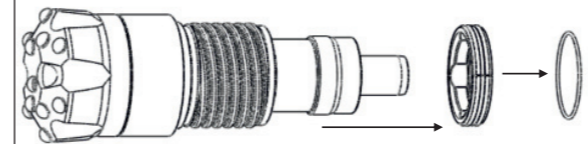
B. Break the top joint between the Cylinder (11) and the Top Adaptor (8) and bottom joint between Cylinder (11) and Chuck (18).



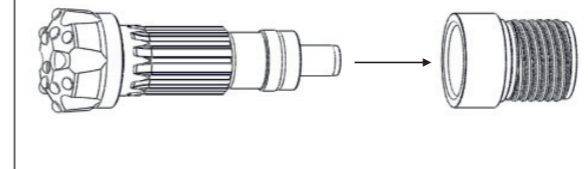
C. Unscrew and remove Drill Bit (19), Chuck (18) and Bit Retaining Rings (17).



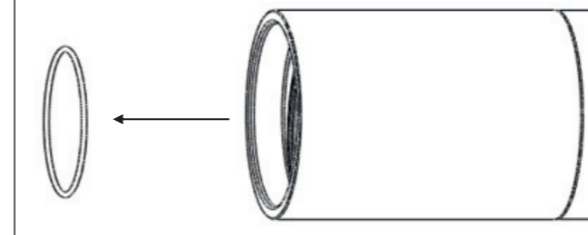
D. Remove 'O' Ring (16) from Bit Retaining Rings (17) and remove Bit Retaining Rings (17) from Drill Bit (19).



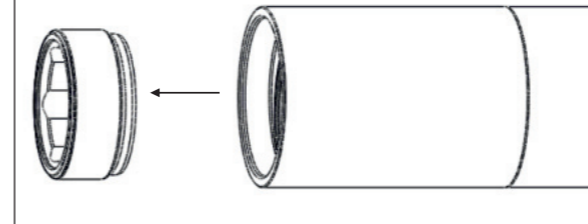
E. Remove Chuck (18) from Drill Bit (19).



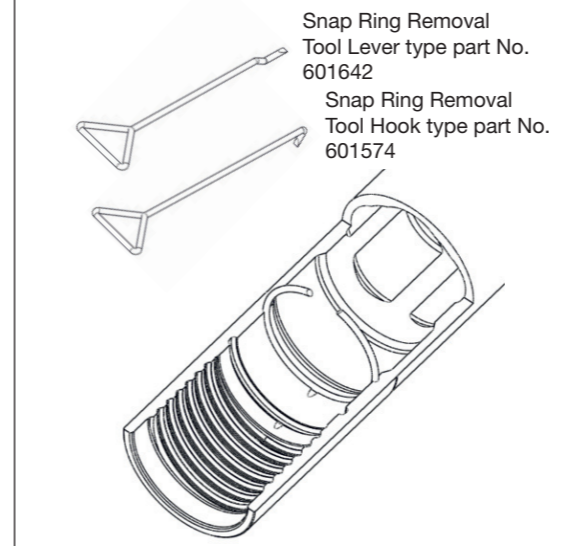
F. Remove 'O' Ring (15) from Cylinder (11).



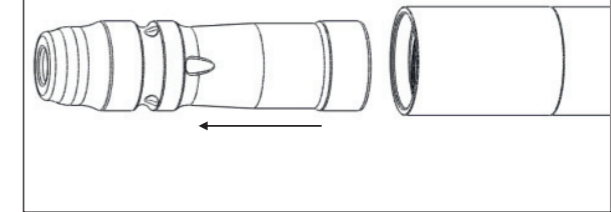
G. Remove Bit Guide Bush (14) from Cylinder (11).



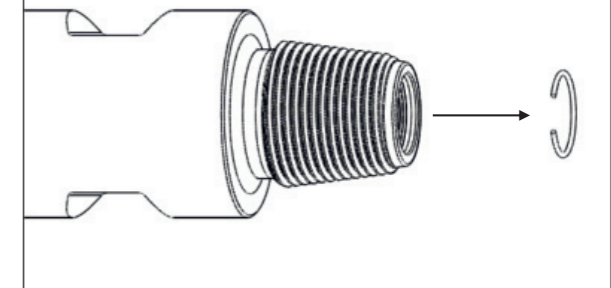
H. Remove Snap Ring (13) from Cylinder (11) using the tools illustrated below.



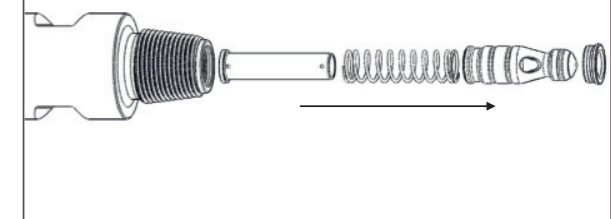
I. Remove Piston (12) from bottom of Cylinder (11).



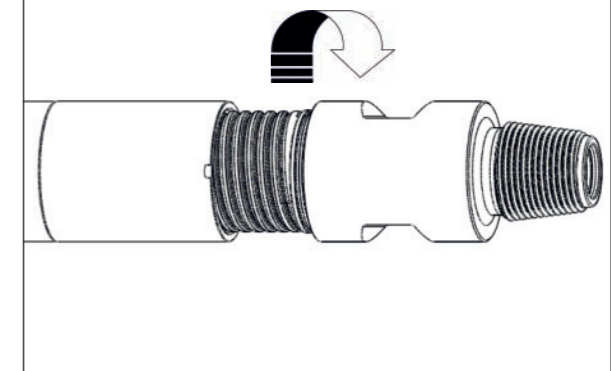
J. Remove Snap Ring (2) from Top Adaptor (8).



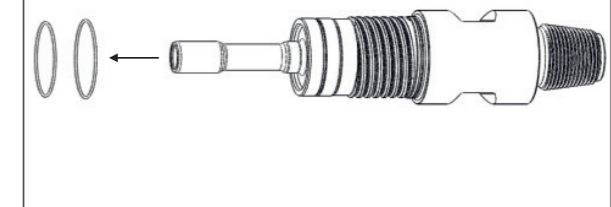
K. Remove Non Return Valve assembly (3-7) from Top Adaptor (8).



L. Unscrew and remove Top Adaptor (8) from Cylinder (11).

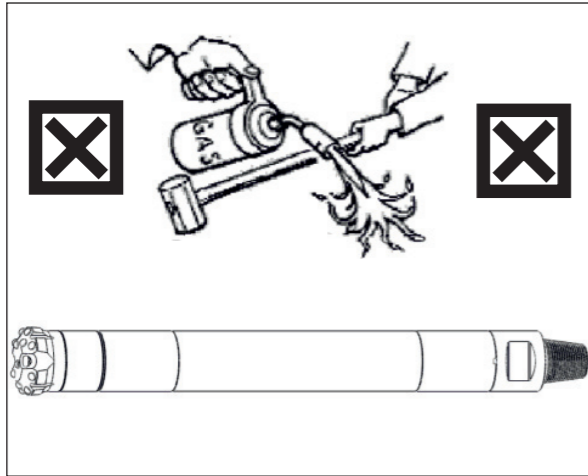


M. Remove 'O' Rings (9 & 10) from Top Adaptor (8).



MACH 50

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.



A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

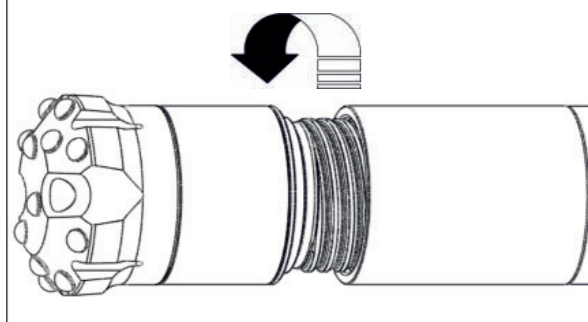


X & Y = DO NOT CLAMP HERE
 X = 175 mm (6.889")
 Y = 300 mm (11.811")

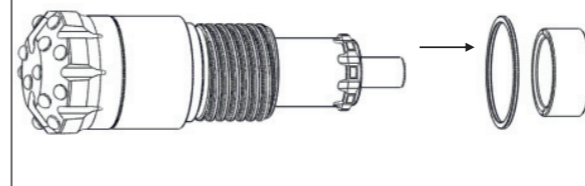
B. Break the top joint between the Cylinder (13) and the Top Adaptor (2) and bottom joint between Cylinder (13) and Chuck (18).



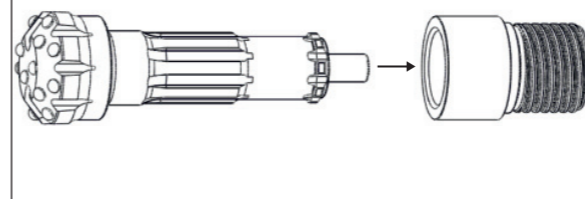
C. Unscrew and remove Drill Bit (19), Chuck (18), Chuck Spacer (17) and Bit Retaining Rings (16) from Cylinder (13).



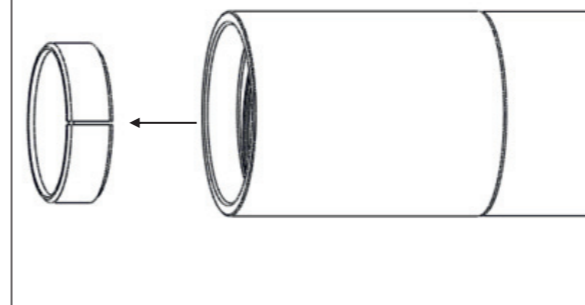
D. Remove Chuck Spacer (17) from Chuck (18) and Bit Retaining Rings (16) from Drill Bit (19).



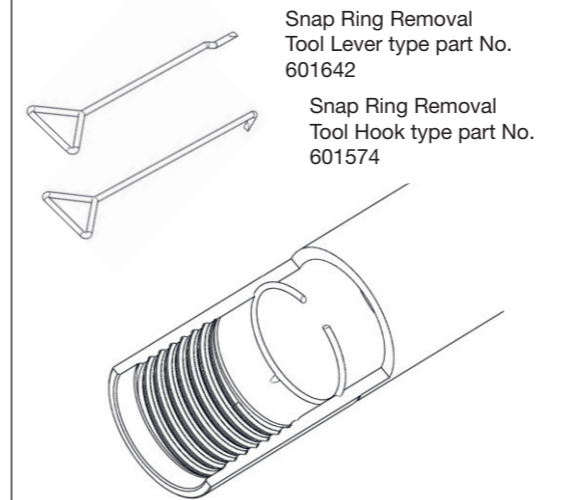
E. Remove Chuck (18) from Drill Bit (19).



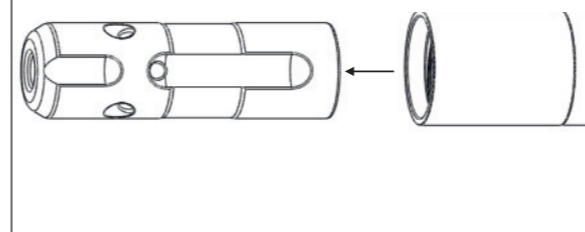
F. Remove Spacer (15) from Cylinder (13).



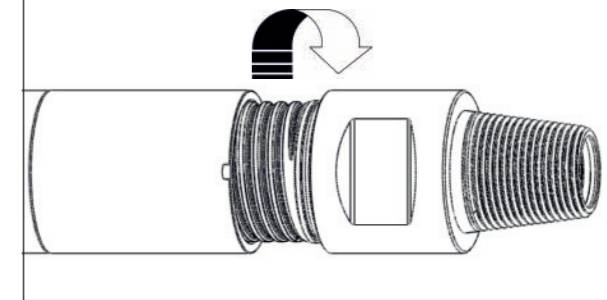
G. Remove Snap Ring (14) from Cylinder (13) using the tools illustrated below.



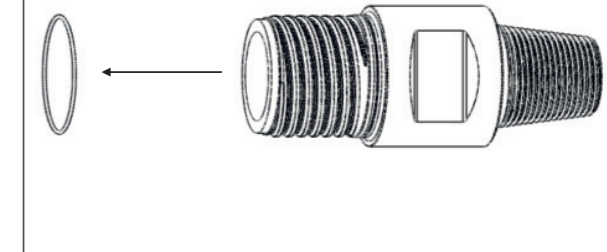
H. Remove Piston (12) from Cylinder (13).



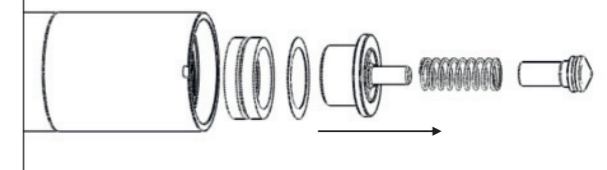
I. Unscrew Top Adaptor (2) from Cylinder (13).



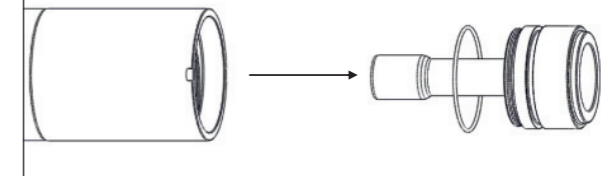
J. Remove 'O' Ring (3) from Top Adaptor (2).



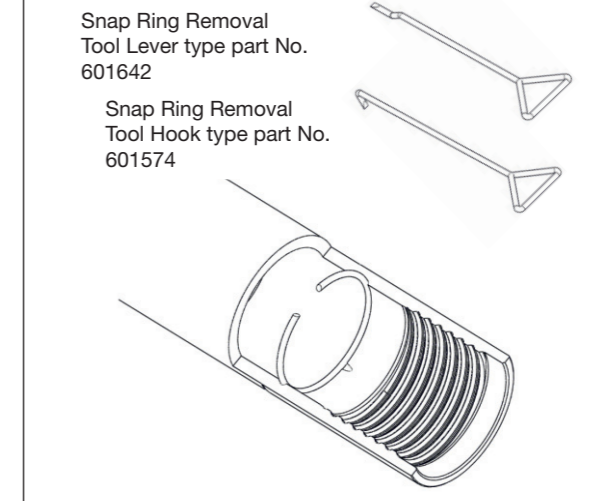
K. Remove Non Return Valve and Make-up assembly (4-8) from Cylinder (13).



L. Remove Air Distributor (9) from Cylinder (13). Remove 'O' Ring (10) from Air Distributor (9).

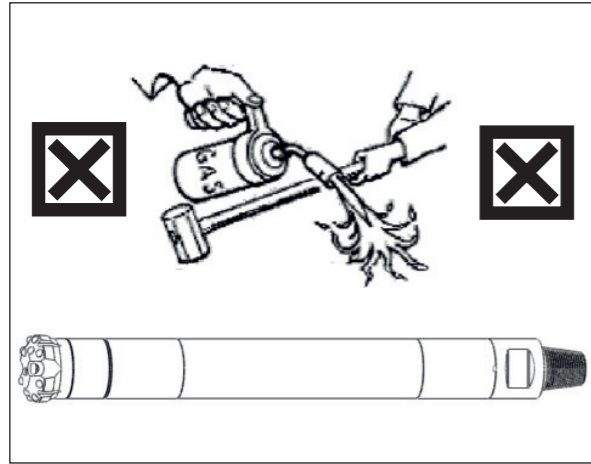


M. Remove Snap Ring (11) from Cylinder (13) using the tools illustrated below.



DOMINATOR 500 / SUPER DOMINATOR 500 & 550

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.



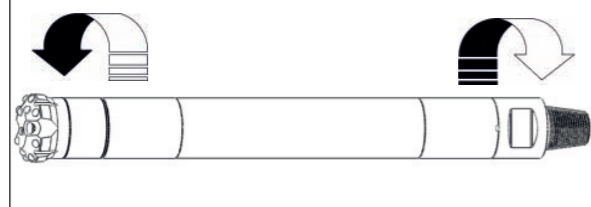
A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.



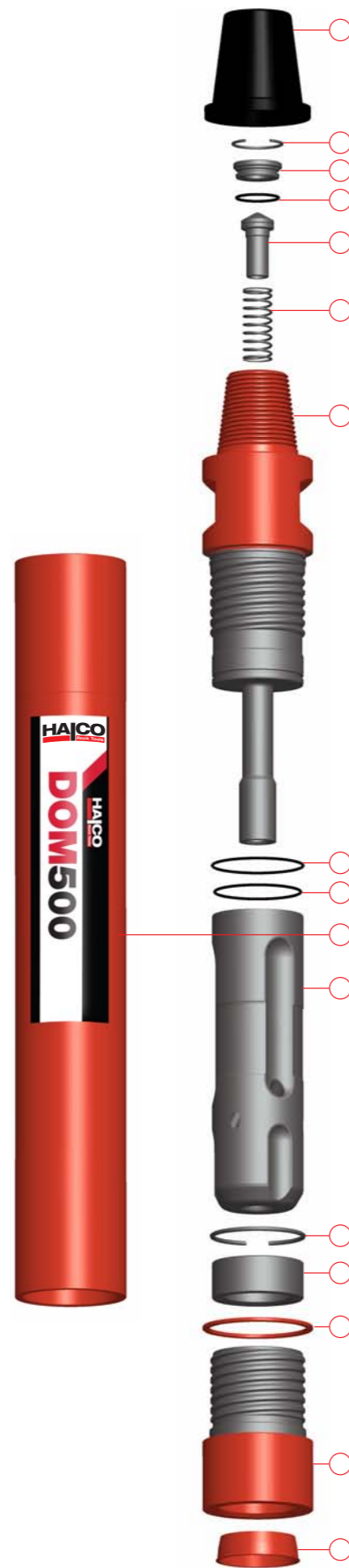
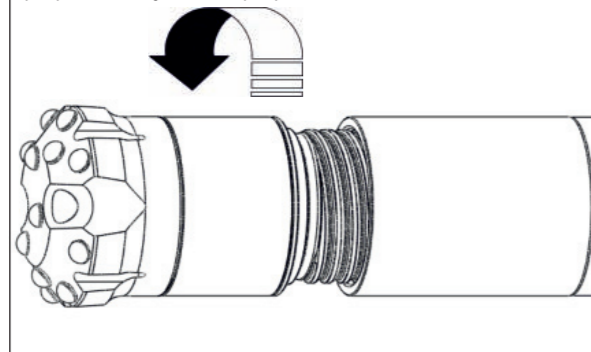
X & Y = DO NOT CLAMP HERE

X = 175 mm (6.889")
Y = 300 mm (11.811")

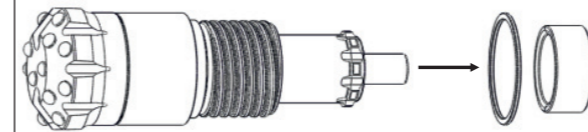
B. Break the top joint between the Cylinder (11) and the Top Adaptor (8) and bottom joint between Cylinder (11) and Chuck (17).



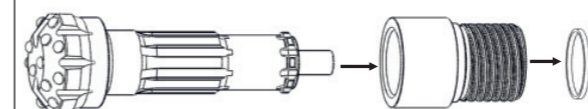
C. Unscrew and remove Drill Bit (18), Chuck (17), Chuck Spacer (16) and Bit Retaining Rings (14) from Cylinder (11).



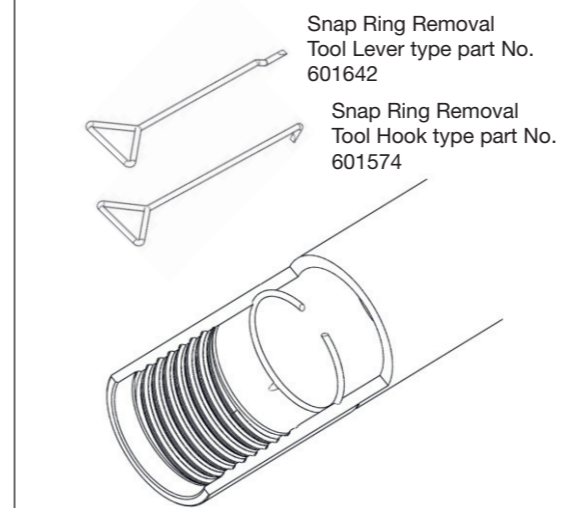
D. Remove Chuck Spacer (16) from Chuck (17) and remove Bit Retaining Rings (14) from Drill Bit (18).



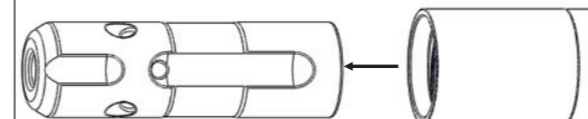
E. Remove Chuck (17) from Drill Bit (18) and remove Chuck Lock Ring (15) from Chuck (17) if fitted.



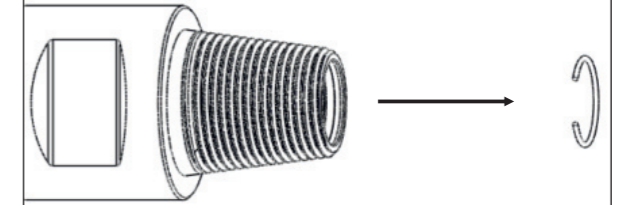
F. Remove Snap Ring (13) from Cylinder (11) using the tool illustrated below.



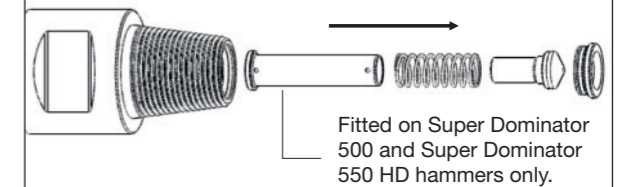
G. Remove Piston (12) from Cylinder (11).



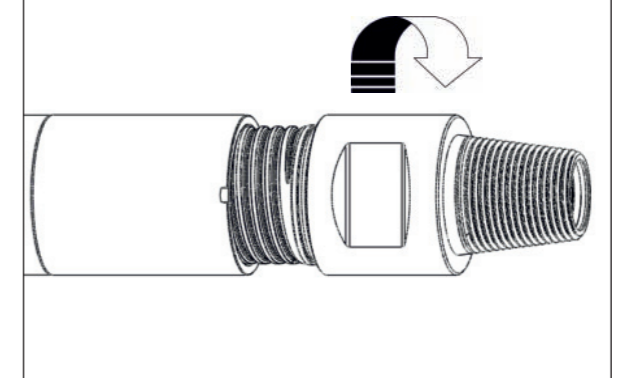
H. Remove Snap Ring (2) from Top Adaptor (8).



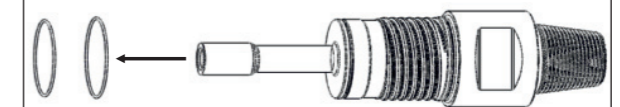
I. Remove NRV Seat (3), Non Return Valve (5) and NRV Spring (6) from Top Adaptor (8). Also remove NRV Shield (7) on Super Dominator 500 & 550 HD hammers.



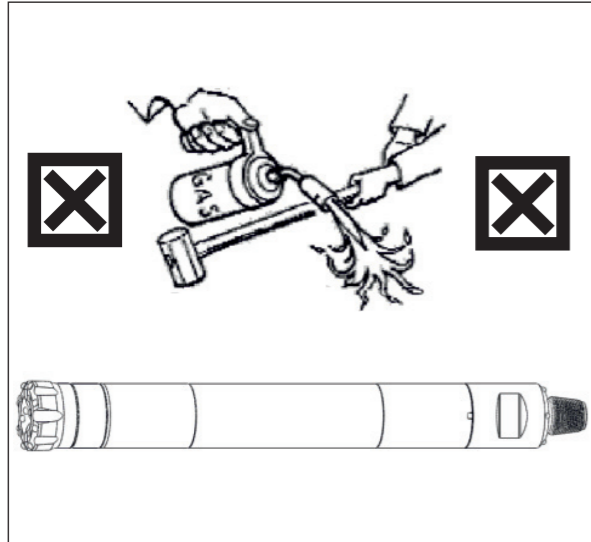
J. Unscrew and remove Top Adaptor (8) from Cylinder (11).



K. Remove 'O' Rings (9 & 10) from Top Adaptor (8).



DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.

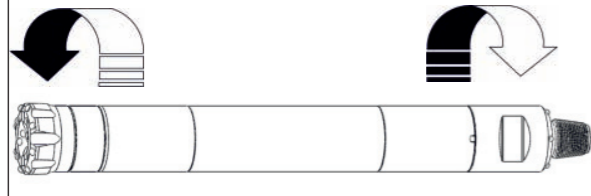


A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

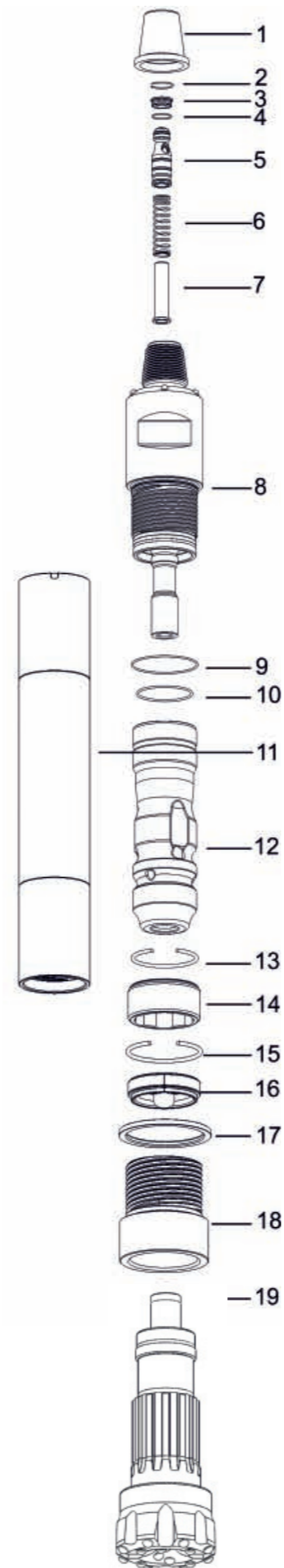
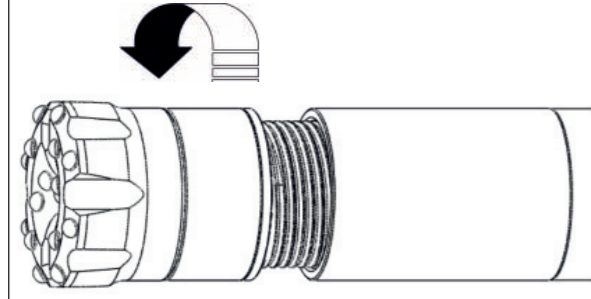


X & Y = DO NOT CLAMP HERE
 X = 175 mm (6.889")
 Y = 300 mm (11.811")

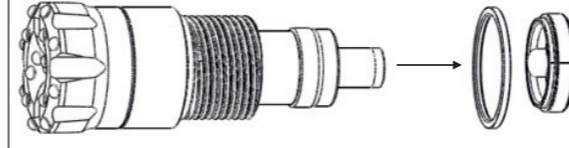
B. Break the top joint between the Cylinder (11) and the Top Adaptor (8) and bottom joint between Cylinder (11) and Chuck (18).



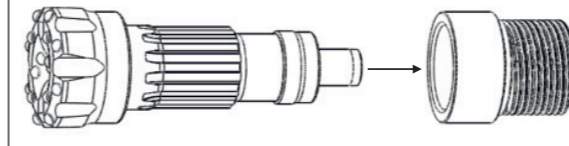
C. Unscrew and remove Drill Bit (19), Chuck (18), Chuck Spacer (17) and Bit Retaining Rings (16) from Cylinder (11).



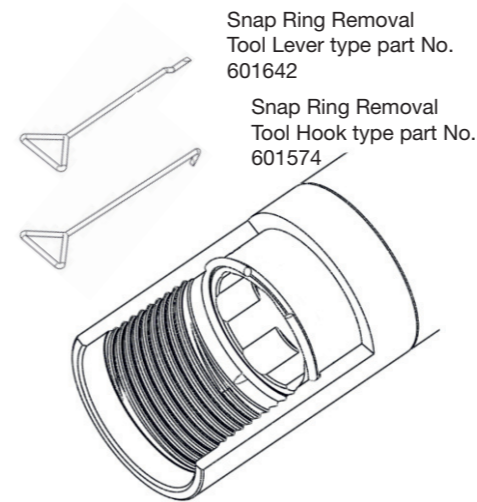
D. Remove Bit Retaining Rings (16) from Drill Bit (19) and remove Chuck Spacer (17) from Chuck (18).



E. Remove Chuck (18) from Drill Bit (19).



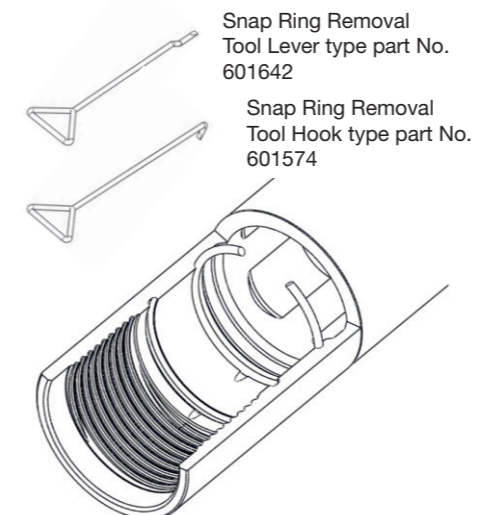
F. Remove Snap Ring (15) from Cylinder (11) using the tool illustrated below.



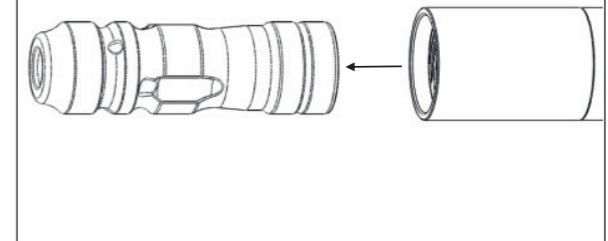
G. Remove Bit Guide Bush (14) from Cylinder (11).



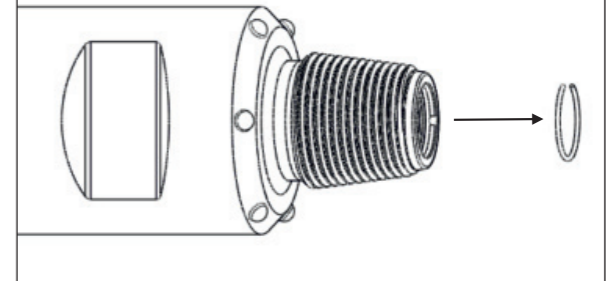
H. Remove Snap Ring (13) from bottom of Cylinder (11) using the tools illustrated below.



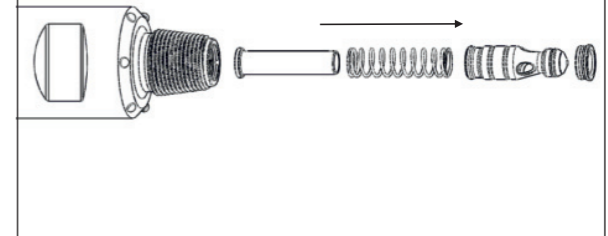
I. Remove Piston (12) from bottom of Cylinder (11).



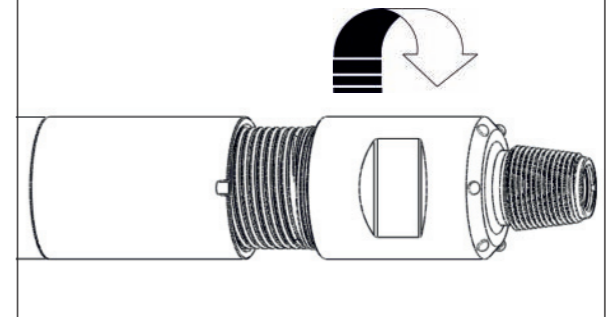
J. Remove Snap Ring (2) from Top Adaptor (8).



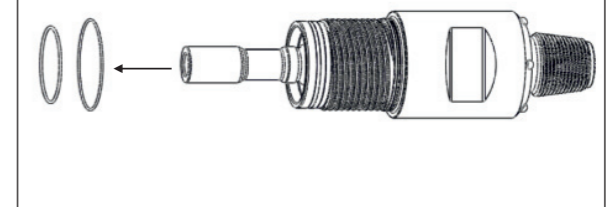
K. Remove Non Return Valve assembly (3-7) from Top Adaptor (8).



L. Unscrew and remove Top Adaptor (8) from Cylinder (11).

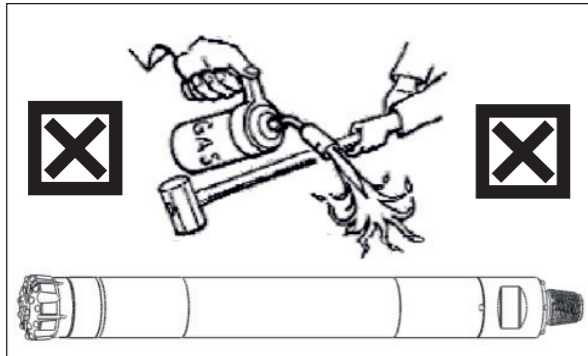


M. Remove 'O' Rings (9 & 10) from Top Adaptor (8).



SUPER DOMINATOR 600 / 650

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.



A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

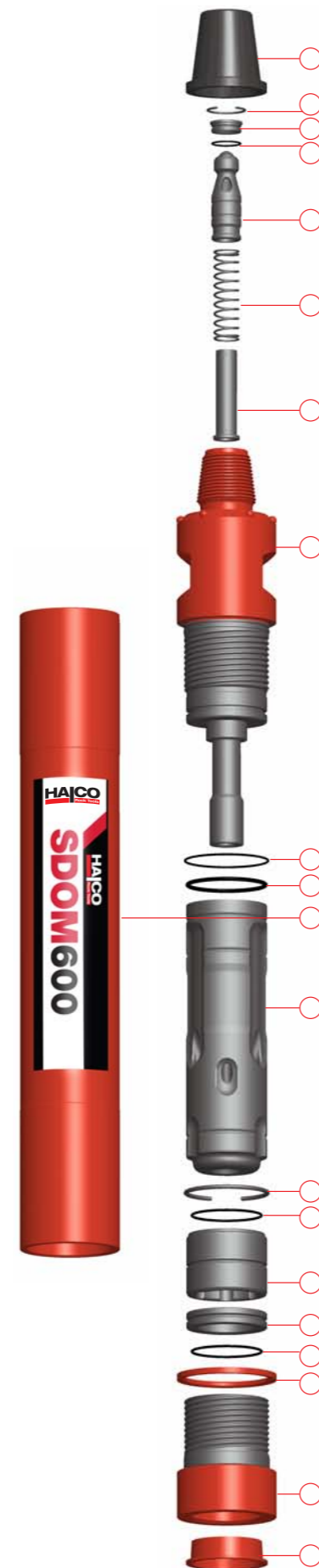
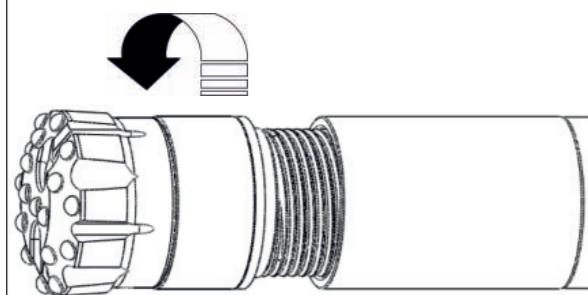


X & Y = DO NOT CLAMP HERE
 X = 200 mm (7.874")
 Y = 390 mm (15.354")

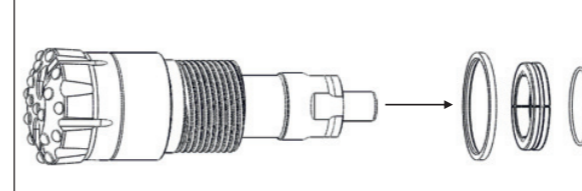
B. Break the top joint between the Cylinder (11) and the Top Adaptor (8) and bottom joint between Cylinder (11) and Chuck (20).



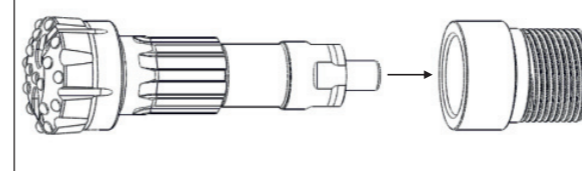
C. Unscrew and remove Drill Bit (21), Chuck (20), Chuck Spacer (19) and Bit Retaining Rings (17) from Cylinder (11).



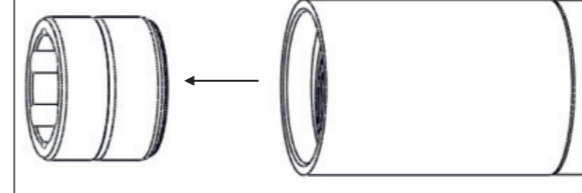
D. Remove Chuck Spacer (19) from Chuck (20). Remove Bit Retaining Rings (17) from Drill Bit (21) and remove 'O' Ring (18) from Bit Retaining Rings (17).



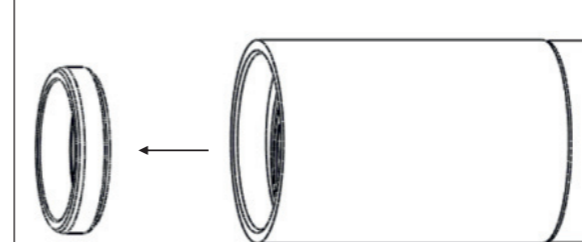
E. Remove Chuck (20) from Drill Bit (21).



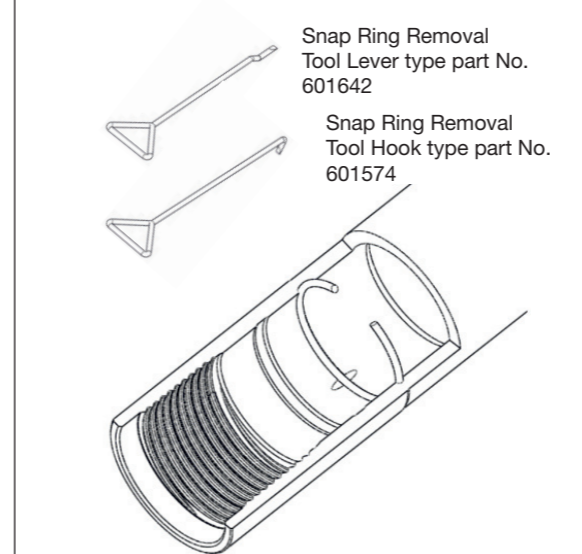
F. Remove Bit Guide Bush (16) from Cylinder (11).



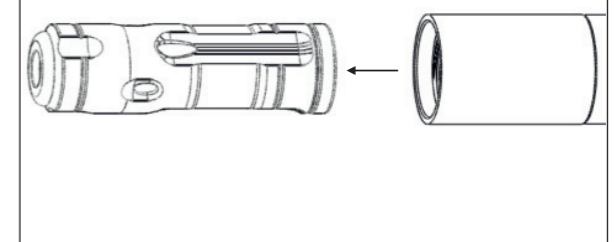
G. For Hammers designed to take A53-15 (SD6) shanked bits only remove Bottom Spacer (14) from Cylinder (11).



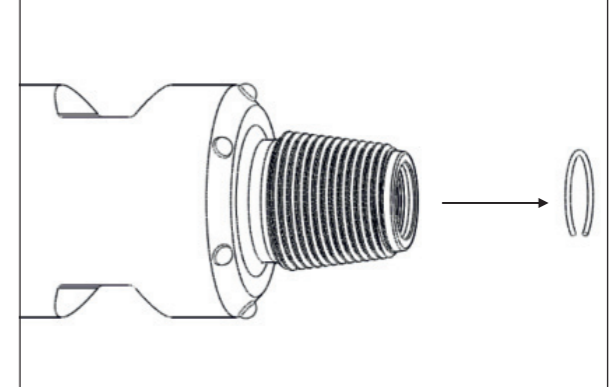
H. Remove Snap Ring (13) from bottom of Cylinder (11) using the tools illustrated below.



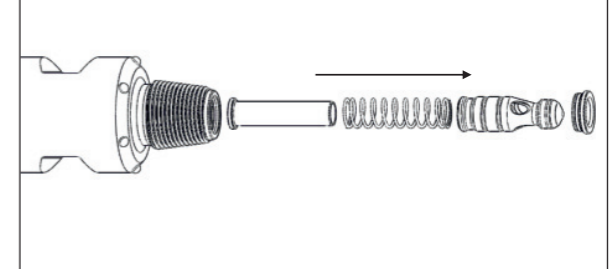
I. Remove Piston (12) from the bottom of Cylinder (11).



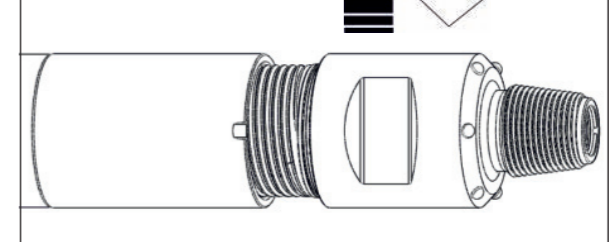
J. Remove Snap Ring (2) from Top Adaptor (8).



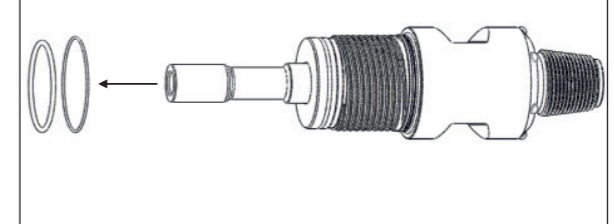
K. Remove Non Return Valve assembly (3-7) from Top Adaptor (8).



L. Unscrew and remove Top Adaptor (8) from Cylinder (11).

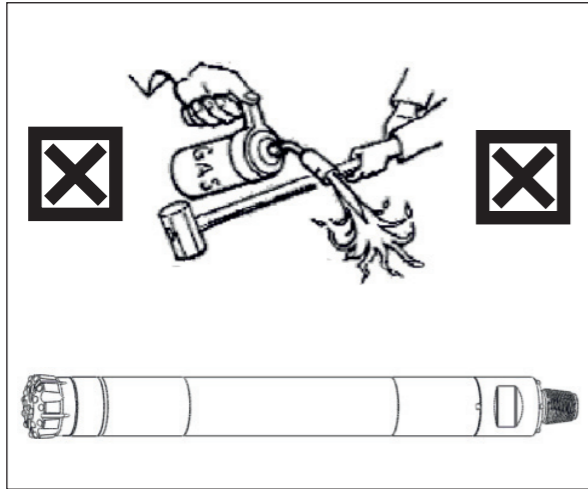


M. Remove 'O' Rings (9 & 10) from Top Adaptor (8).



MACH 60

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.

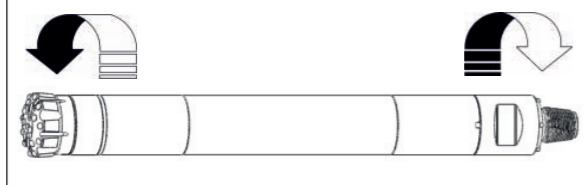


A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

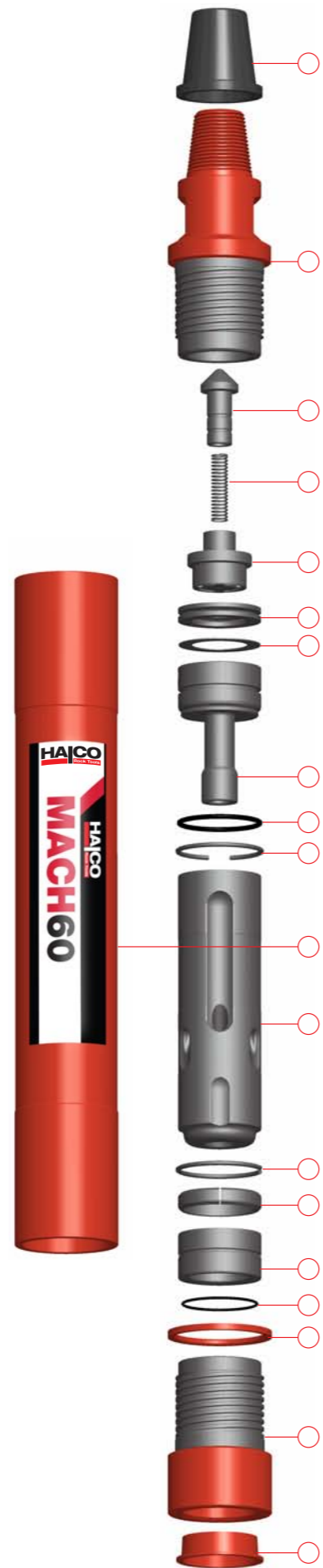
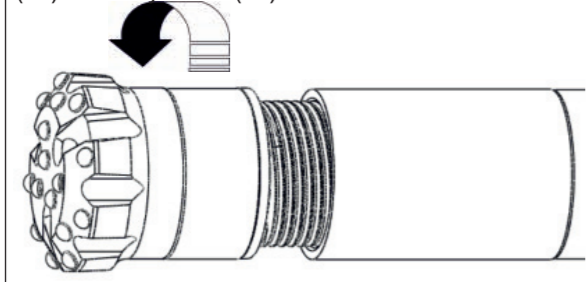


X & Y = DO NOT CLAMP HERE
 X = 205 mm (8.071")
 Y = 330 mm (13.000")

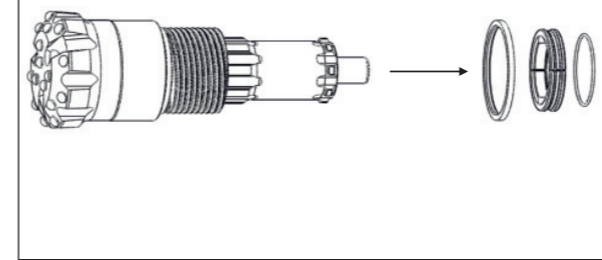
B. Break the top joint between the Cylinder (11) and the Top Adaptor (2) and bottom joint between Cylinder (11) and Chuck (18).



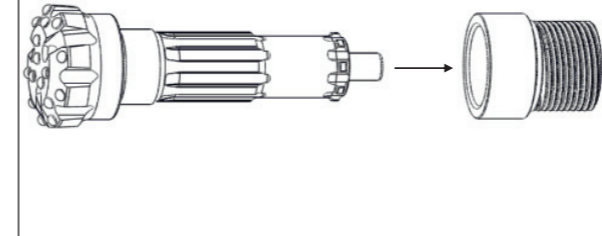
C. Unscrew and remove Drill Bit (19), Chuck (18), Chuck Spacer (17) and Bit Retaining Rings (15) from Cylinder (11).



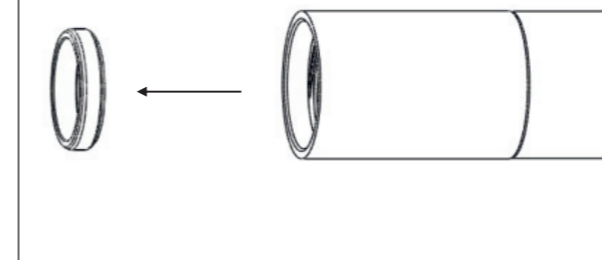
D. Remove Chuck Spacer (17) from Chuck (18). Remove Bit Retaining Rings (15) from Drill Bit (19) and remove 'O' Ring (16) from Bit Retaining Rings (15).



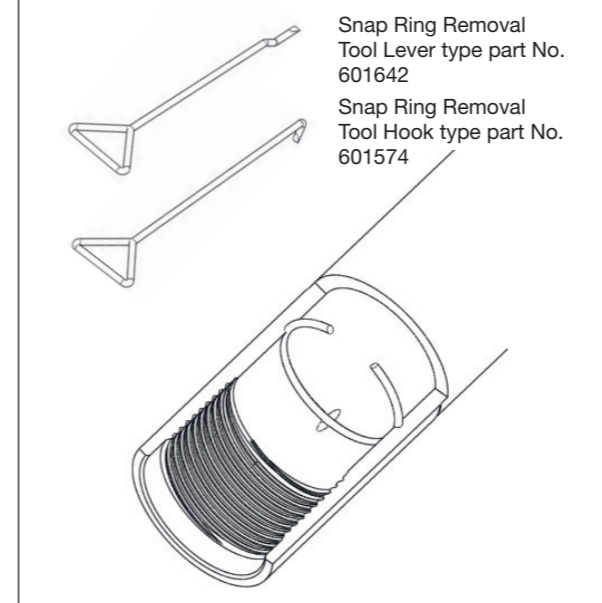
E. Remove Chuck (18) from Drill Bit (19).



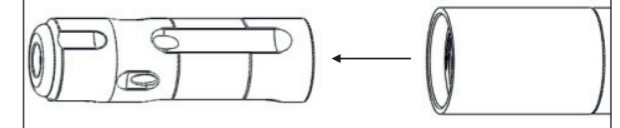
F. Remove Bottom Spacer (14) from Cylinder (11).



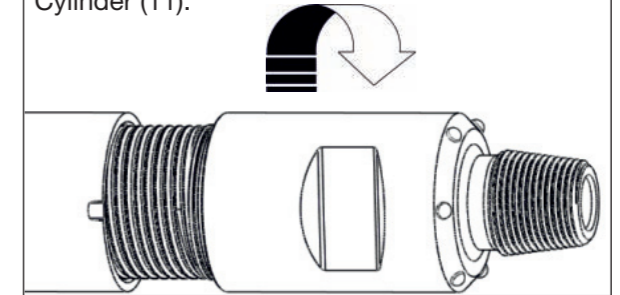
G. Remove Snap Ring (13) from the bottom of Cylinder (11) using the tools illustrated below.



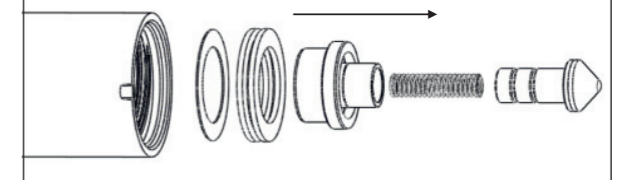
H. Remove Piston (12) from Cylinder (11).



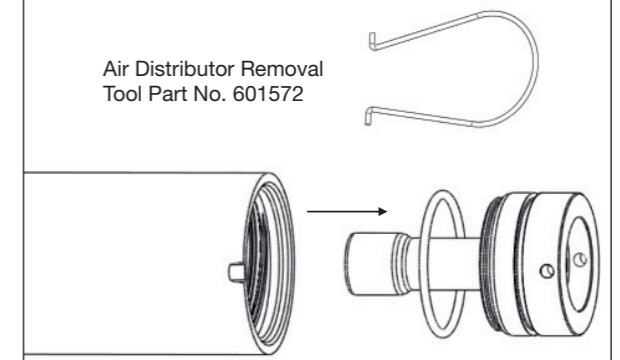
I. Unscrew and remove Top Adaptor (2) from Cylinder (11).



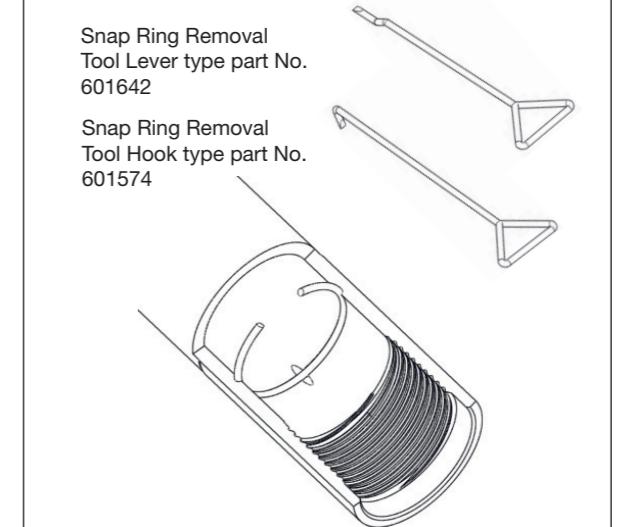
J. Remove Non-Return Valve and Make-up assembly (3-7) from Cylinder (11).



K. Remove Air Distributor (8) from Cylinder (11) using the tool illustrated below. Remove 'O' Ring (9) from Air Distributor (8).

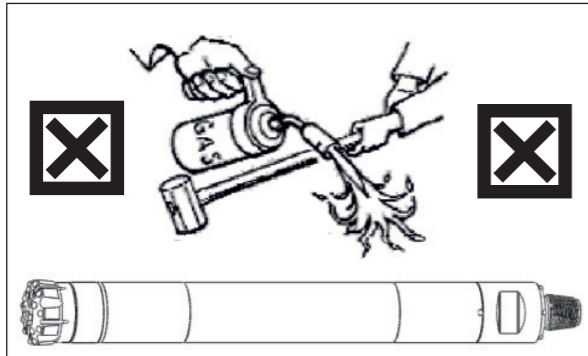


L. Remove Snap Ring (10) from the top of Cylinder (11) using the tools illustrated below.

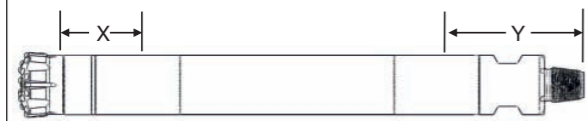


DOMINATOR 600

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.

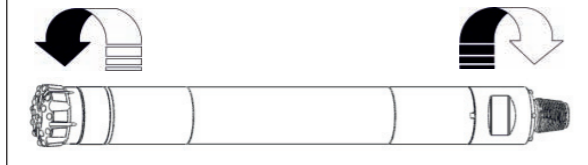


A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

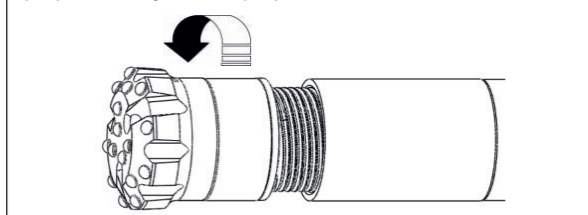


X & Y = DO NOT CLAMP HERE
 X = 205 mm (8.071")
 Y = 420 mm (16.535")

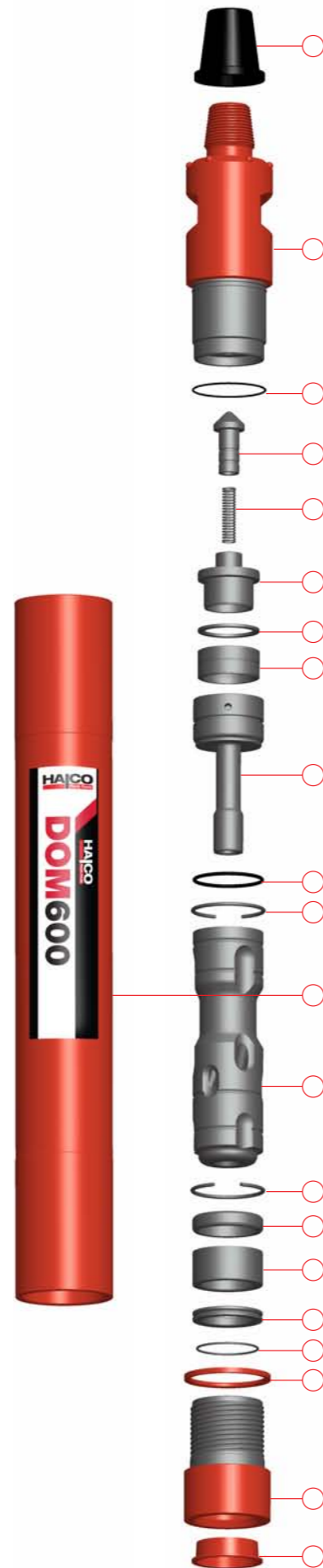
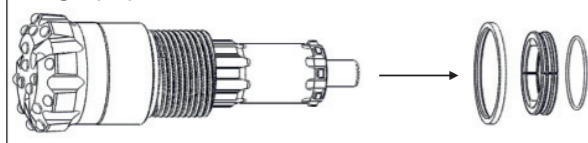
B. Break the top joint between the Cylinder (12) and the Top Adaptor (2) and bottom joint between Cylinder (12) and Chuck (20).



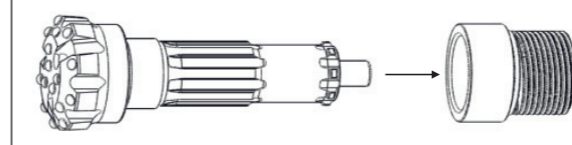
C. Unscrew and remove Drill Bit (21), Chuck (20), Chuck Spacer (19) and Bit Retaining Rings (17) from Cylinder (12).



D. Remove Chuck Spacer (19) from Chuck (20). Remove Bit Retaining Ring (17) from Drill Bit (21) and remove 'O' Ring (18) from Bit Retaining Rings (17).

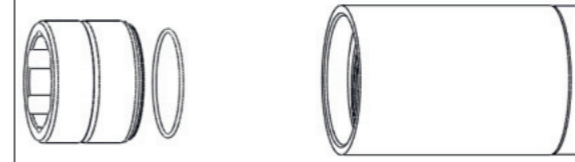


E. Remove Chuck (20) from Drill Bit (21).



F1. INGERSOLL RAND VERSION

Remove Bit Guide Bush (16) from Cylinder (12). Remove 'O' Ring (15) from Bit Guide Bush (16).



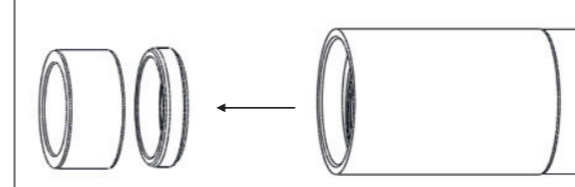
F2. HALCO VERSION

Remove Bottom Spacer (15) from Cylinder (12).

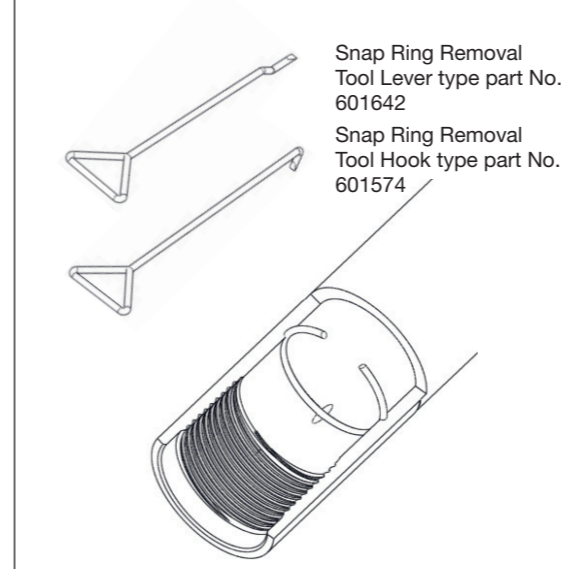


F3. MISSION VERSION

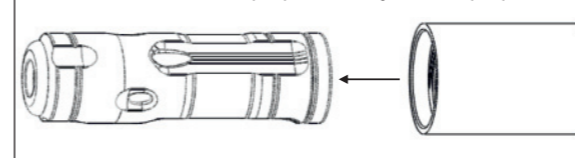
Remove Bit Guide Bush (16) and Bottom Spacer (15) from Cylinder (12).



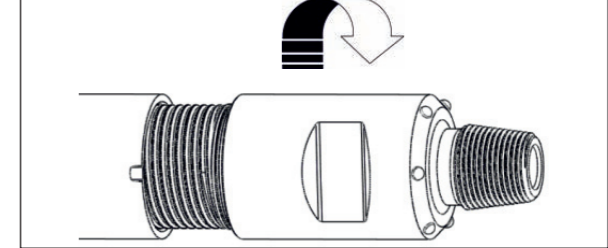
G. Remove Snap Ring (14) from the bottom of Cylinder (12) using the tools illustrated below.



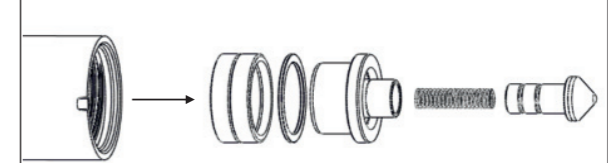
H. Remove Piston (13) from Cylinder (12).



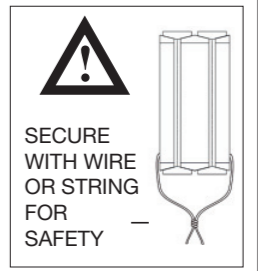
I. Unscrew and remove Top Adaptor (2) from Cylinder (12).



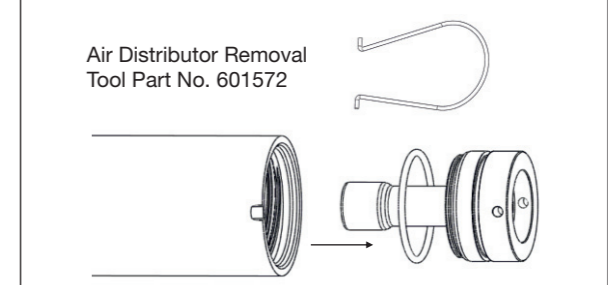
J. Remove Non-Return Valve and Make-up assembly (4-8) from Cylinder (12).



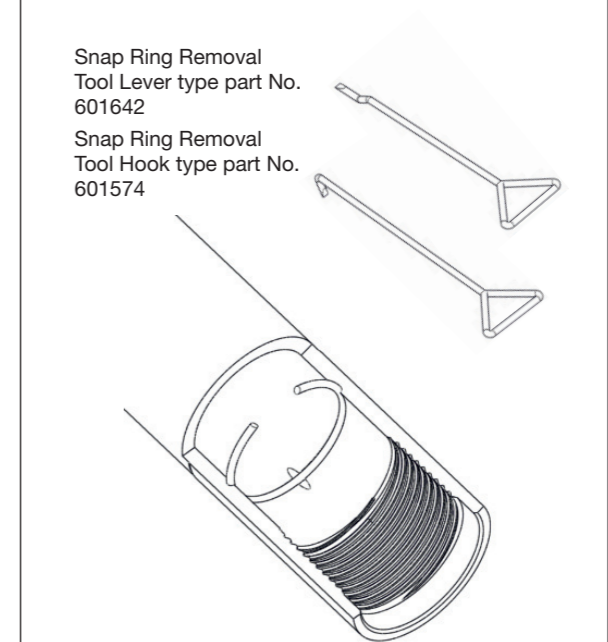
NOTE! Ensure that eye protection is worn when removing Compression Spring (8). Remove with great care as the components may spring apart without warning if dropped. If removed intact secure with wire or string before separating.



K. Remove Air Distributor (9) from Cylinder (12) using the tool illustrated below. Remove 'O' Ring (10) from Air Distributor (9).

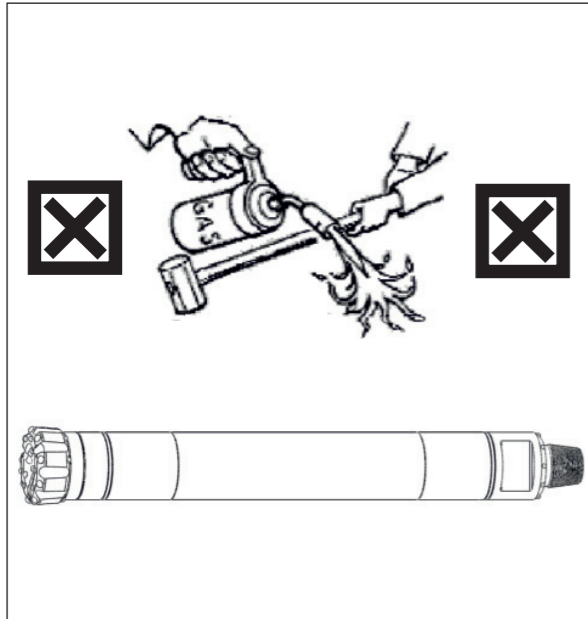


L. Remove Snap Ring (10) from the top of Cylinder (11) using the tools illustrated below.



DOMINATOR 750

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.

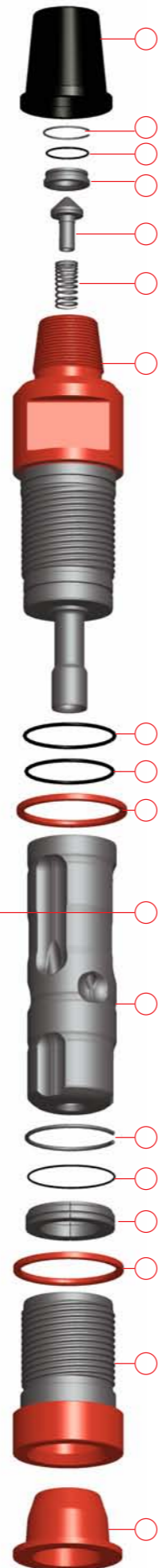
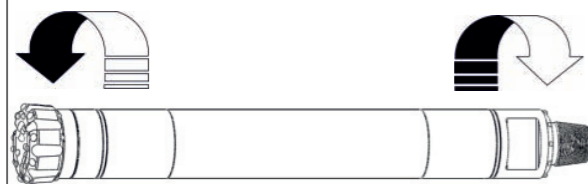


A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

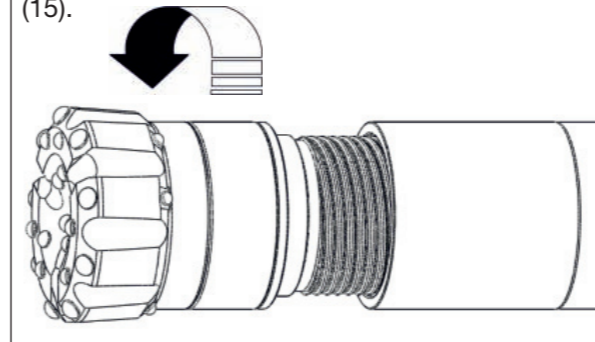


X & Y = DO NOT CLAMP HERE
 X = 250 mm (9.842")
 Y = 460 mm (18.110")

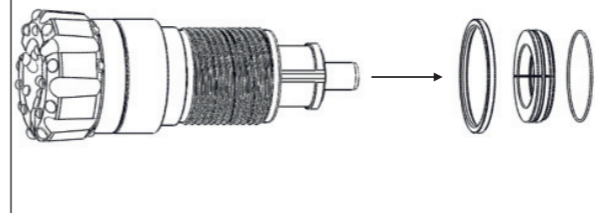
B. Break the top joint between the Cylinder (11) and the Top Adaptor (7) and bottom joint between Cylinder (11) and Chuck (17).



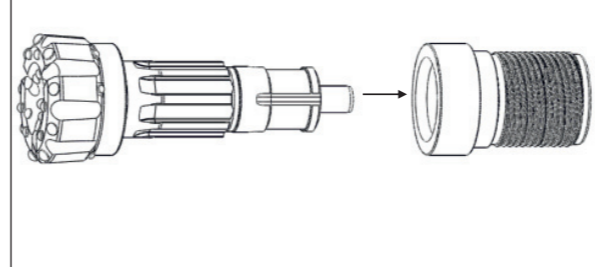
C. Unscrew and remove Drill Bit (18), Chuck (17), Chuck Spacer (16) and Bit Retaining Rings (15).



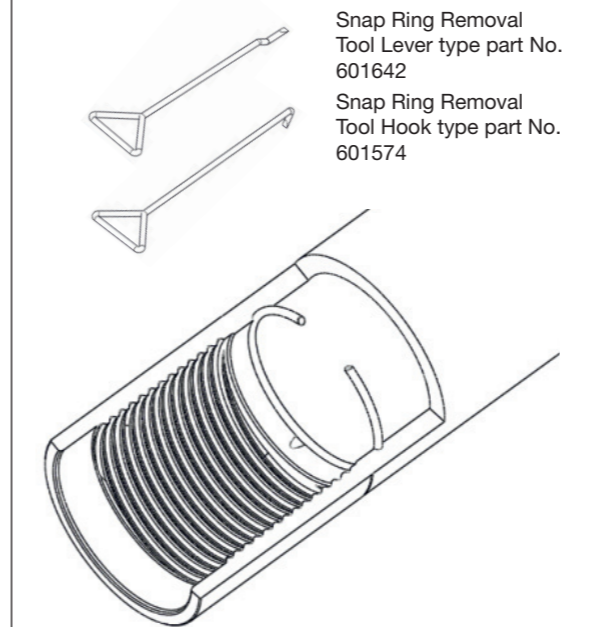
D. Remove Chuck Spacer (16) from Chuck (17). Remove Bit Retaining Rings (15) from Drill Bit (18) and remove 'O' Ring (14) from Bit Retaining Ring (15).



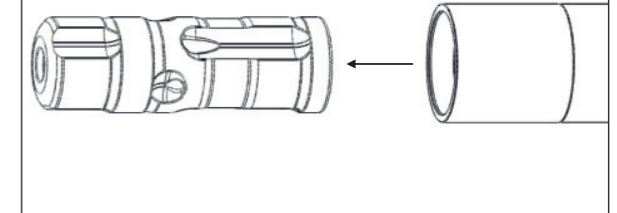
E. Remove Chuck (17) from Drill Bit (18).



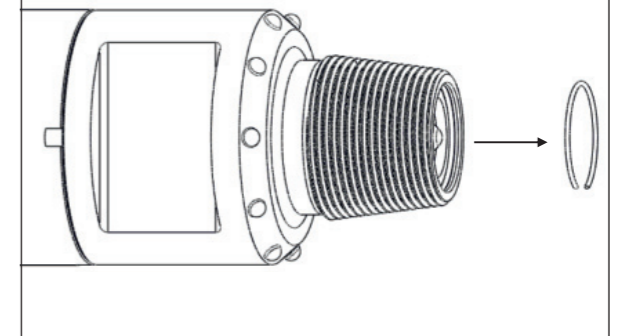
F. Remove Snap Ring (13) from bottom of Cylinder (11) using the tools illustrated below.



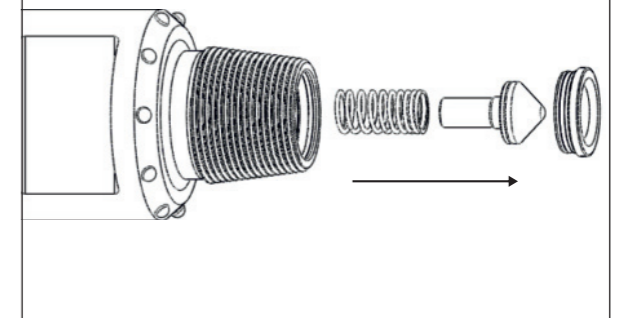
G. Remove Piston (12) from the bottom of Cylinder (11).



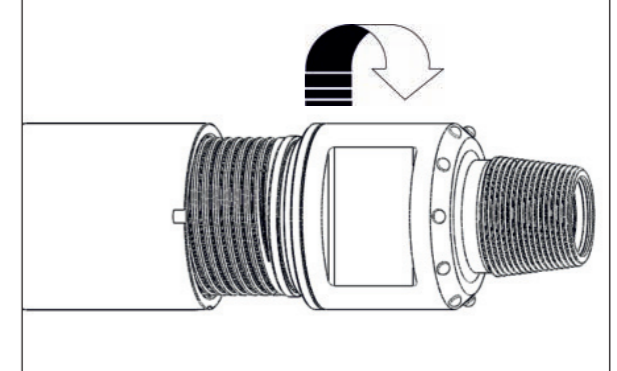
H. Remove Snap Ring (2) from Top Adaptor (7).



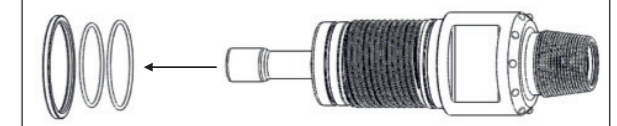
I. Remove Non Return Valve assembly (3-6) from Top Adaptor (7).



J. Unscrew and remove Top Adaptor (7) and Spacer (10) from Cylinder (11).

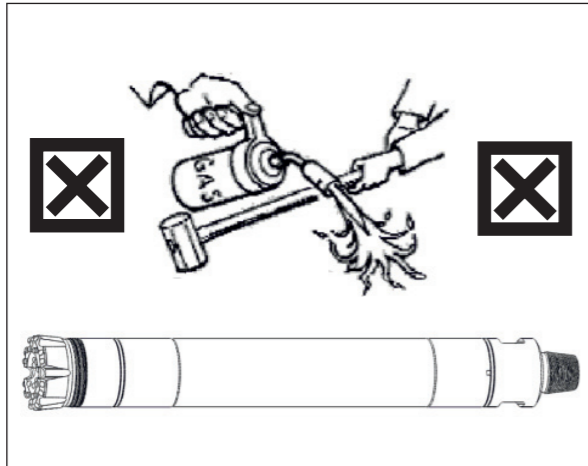


K. Remove Spacer (10) and 'O' Rings (8 & 9) from Top Adaptor (7).



DOMINATOR 800 / 880 / 880 DW

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.



A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

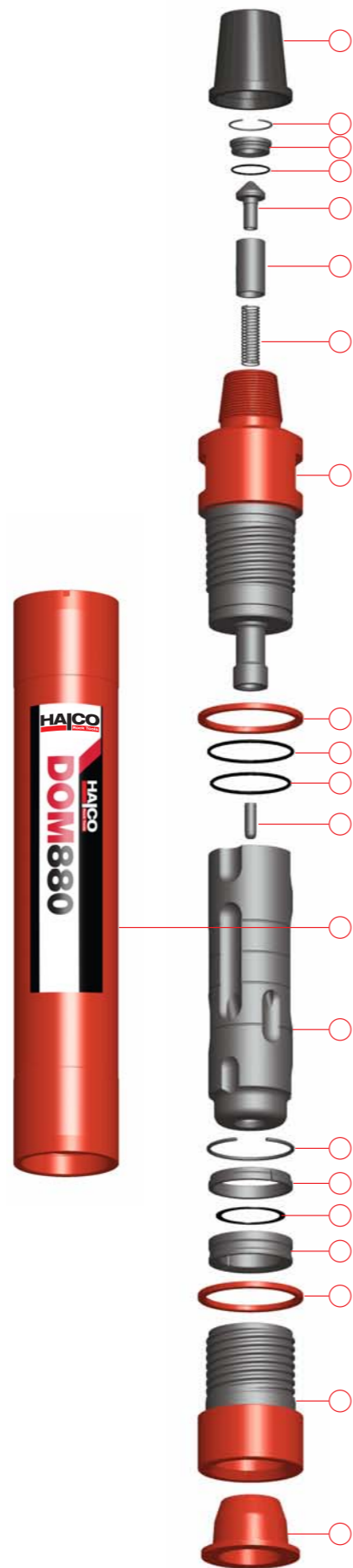
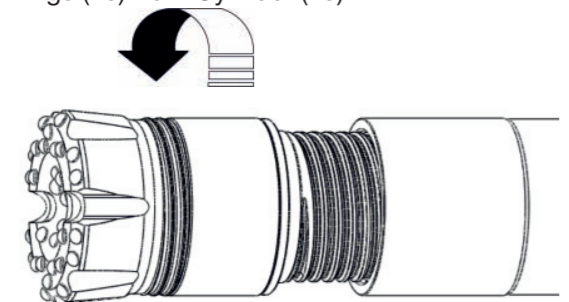


X & Y = DO NOT CLAMP HERE
 X = 245 mm (9.646")
 Y = 445 mm (17.520")

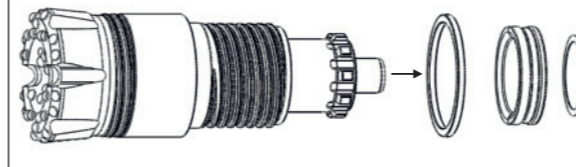
B. Break the top joint between the Cylinder (13) and the Top Adaptor (8) and bottom joint between Cylinder (13) and Chuck (20).



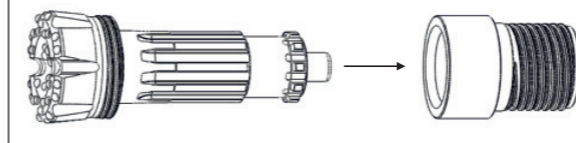
C. Unscrew and remove Drill Bit (21), Chuck (20), Chuck Spacer (19) and Bit Retaining Rings (18) from Cylinder (13).



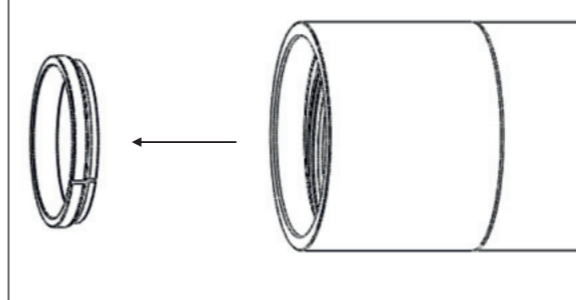
D. Remove Chuck Spacer (19) from Chuck (20). Remove Bit Retaining Rings (18) from Drill Bit (21) and remove Containment Band (17) from Bit Retaining Rings (18).



E. Remove Chuck (20) from Drill Bit (21).



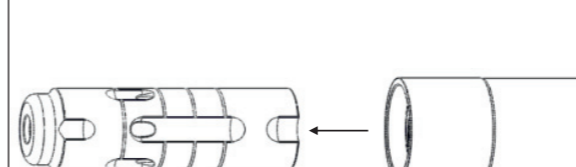
F. INGERSOLL RAND VERSIONS ONLY
 Remove Spacer (16) from Cylinder (13).



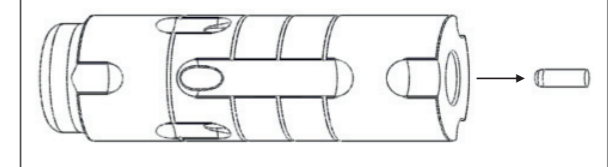
G. Remove Snap Ring (15) from Cylinder (13) using the tools illustrated below.



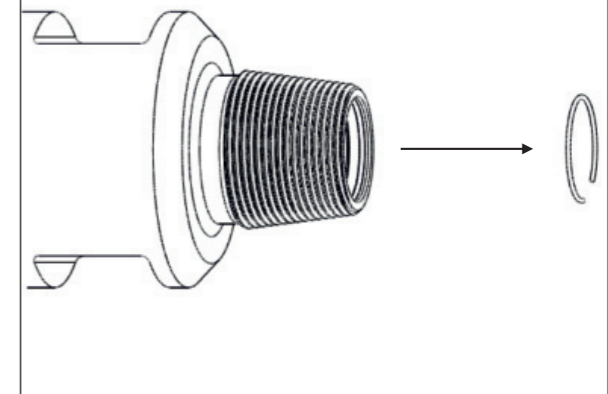
H. Remove Piston (14) from bottom of Cylinder (13).



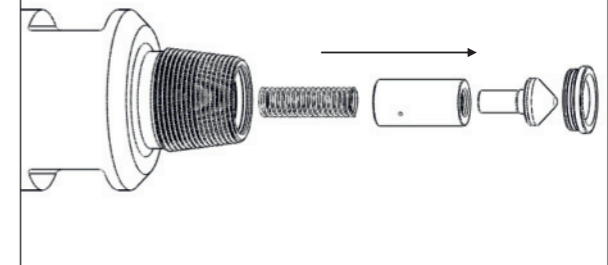
I. DOMINATOR 880 VERSIONS ONLY
 Remove Choke Plug (12) from Piston (14).



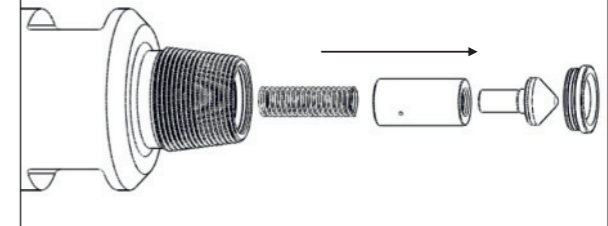
J. Remove Snap Ring (2) from Top Adaptor (8).



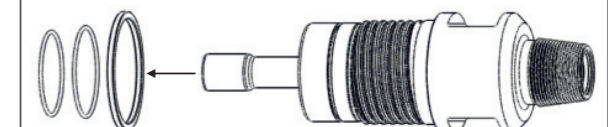
K. Remove Non Return Valve assembly (3-7) from Top Adaptor (8).



L. Unscrew and remove Top Adaptor (8) and Spacer (9) from Cylinder (13).

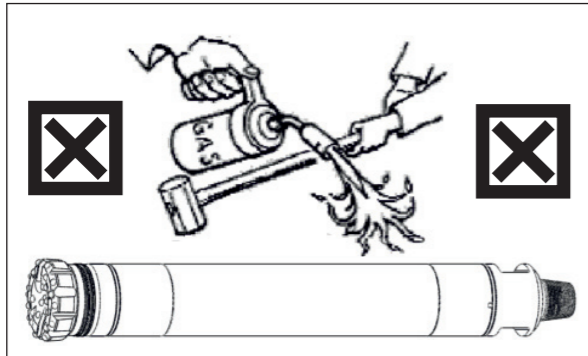


M. Remove Spacer (9) and 'O' Rings (10 & 11) from Top Adaptor (8).



DOMINATOR 850

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.

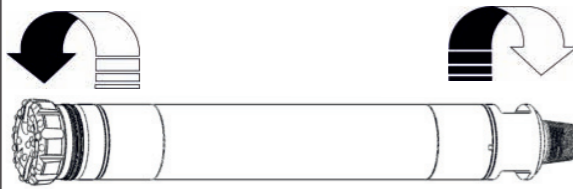


A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

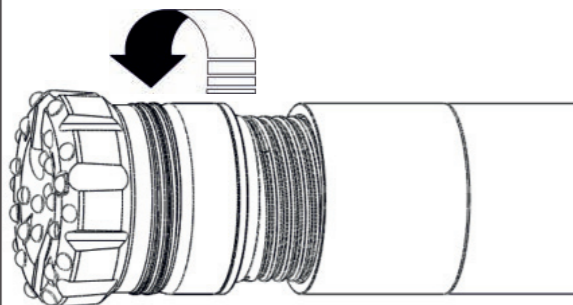


X & Y = DO NOT CLAMP HERE
 X = 200 mm (7.874")
 Y = 466 mm (18.346")

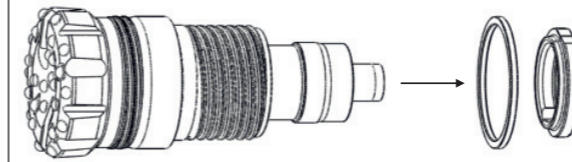
B. Break the top joint between the Cylinder (13) and the Top Adaptor (8) and bottom joint between Cylinder (13) and Chuck (20).



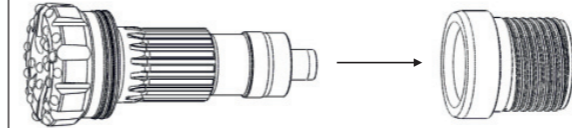
C. Unscrew and remove Drill Bit (19), Chuck (18), Chuck Spacer (17) and Bit Retaining Rings (16) from Cylinder (11).



D. Remove Chuck Spacer (17) from Chuck (28). Remove Bit Retaining Ring (16) from Drill Bit (19).



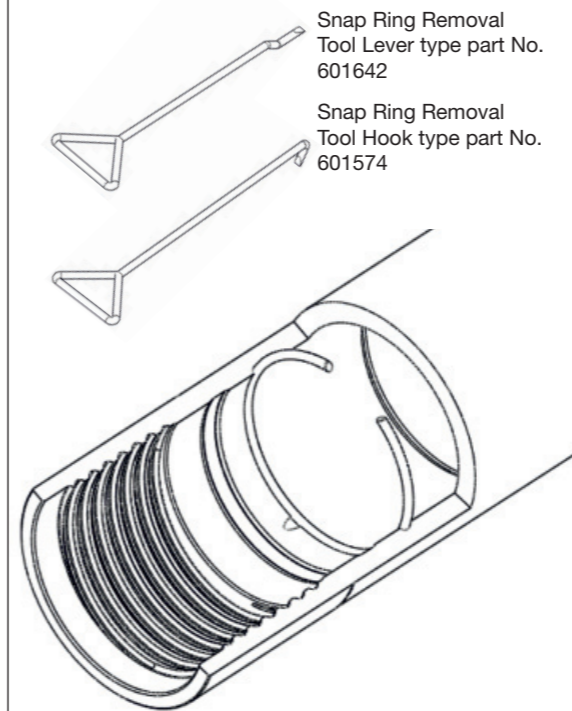
E. Remove Chuck (18) from Drill Bit (19).



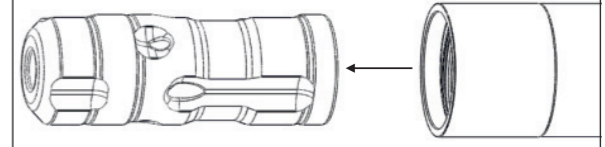
F. Remove Bit Guide Bush (15) from Cylinder (11).



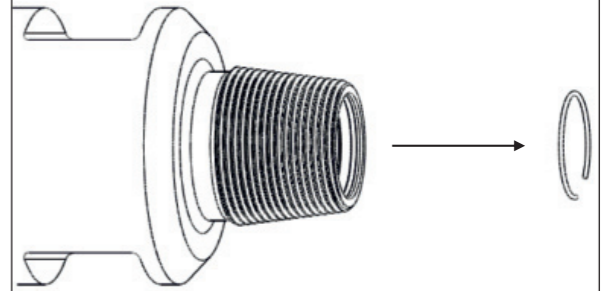
G. Remove Snap Ring (15) from Cylinder (13) using the tools illustrated below.



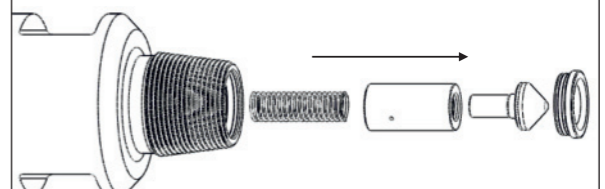
H. Remove Piston (12) from bottom of Cylinder (11).



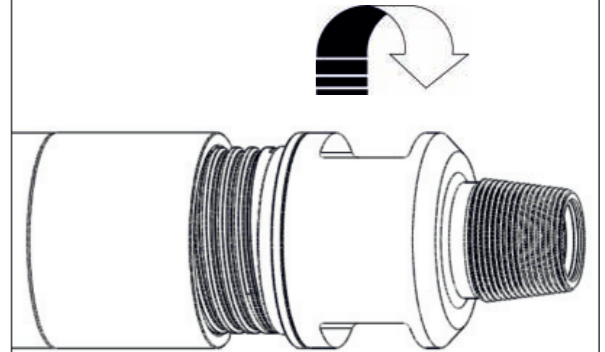
I. Remove Snap Ring (2) from Top Adaptor (8).



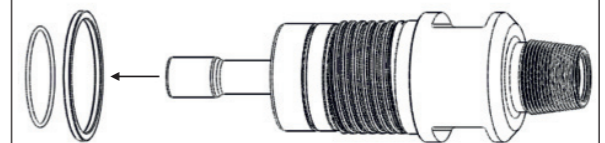
J. Remove Non Return Valve assembly (3-7) from Top Adaptor (8).



K. Unscrew and remove Top Adaptor (8) and Spacer (9) from Cylinder (11).

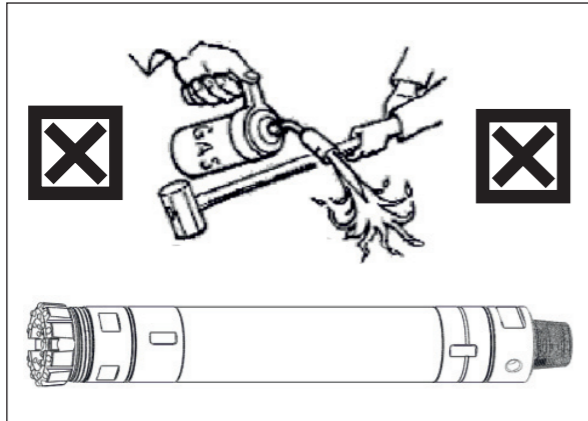


L. Remove Spacer (9) and 'O' Rings (10) from Top Adaptor (8).

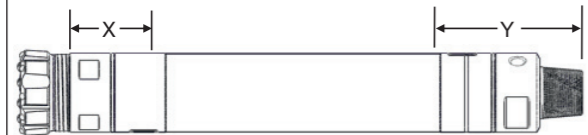


DOMINATOR 1000

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.

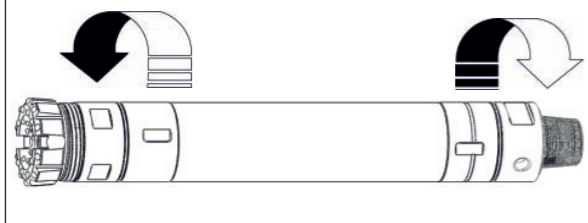


A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

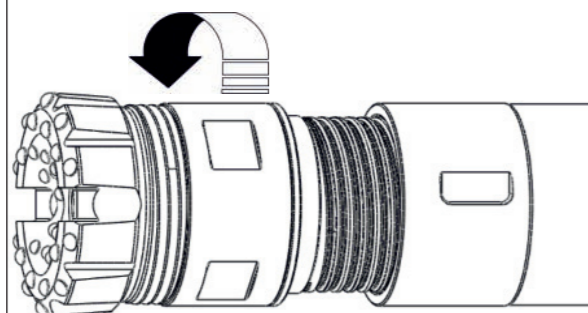


X & Y = DO NOT CLAMP HERE
 X = 285 mm (11.220")
 Y = 490 mm (19.291")

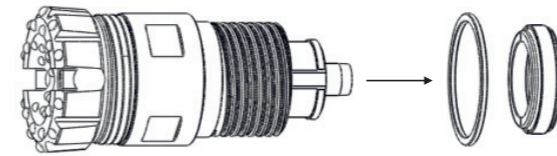
B. Break the top joint between the Cylinder (12) and the Top Adaptor (7) and bottom joint between Cylinder (12) and Chuck (17).



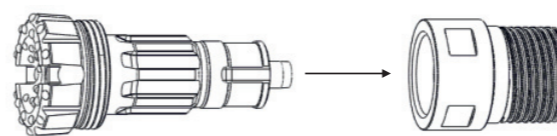
C. Unscrew and remove Drill Bit (18), Chuck (17), Chuck Spacer (16) and Bit Retaining Rings (15) from Cylinder (12).



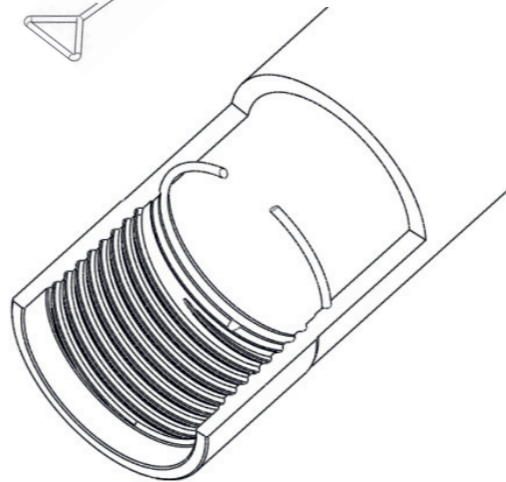
D. Remove Chuck Spacer (16) from Chuck (17). Remove Bit Retaining Rings (15) from Drill Bit (18).



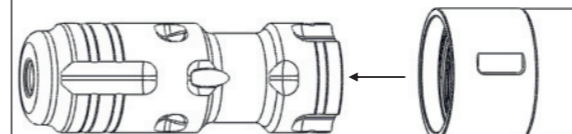
E. Remove Chuck (17) from Drill Bit (18).



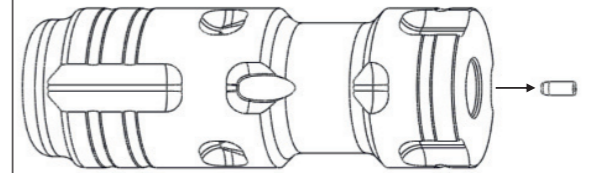
F. Remove Snap Ring (14) from bottom of Cylinder (12) using the tools illustrated below.



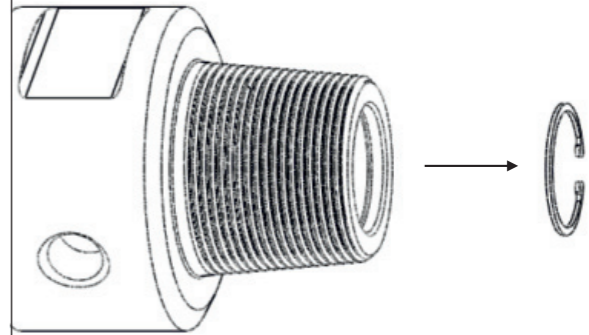
G. Remove Piston (13) from the bottom of Cylinder (12).



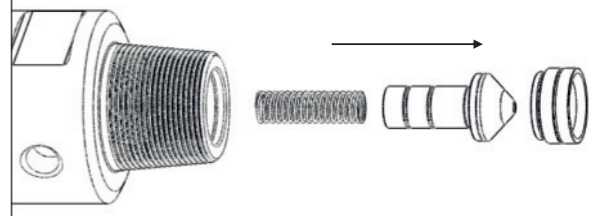
H. Remove Bleed Plug (11) from Piston (13).



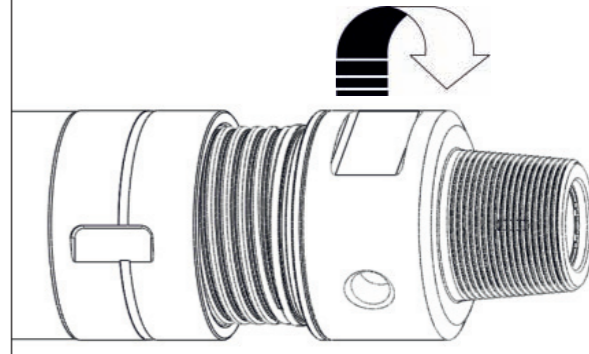
I. Remove Circlip (2) from Top Adaptor (7).



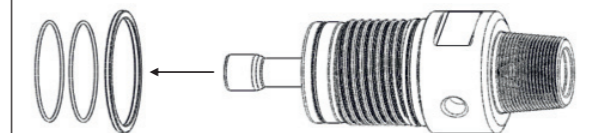
J. Remove Non Return Valve assembly (3-6) from Top Adaptor (7).



K. Unscrew and remove Top Adaptor (7) and Top Adaptor Spacer (8) from Cylinder (12).

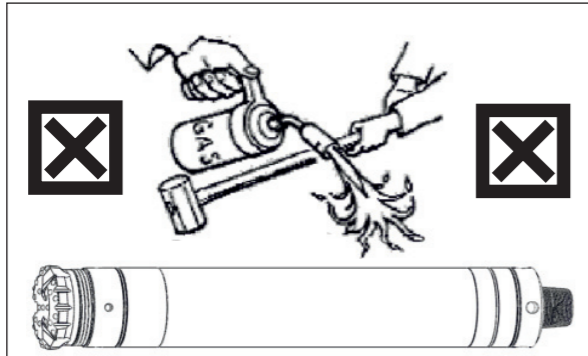


L. Remove Top Adaptor Spacer (8) and 'O' Rings (9 & 10) from Top Adaptor (7).



MACH 120 / MACH 122

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.



A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

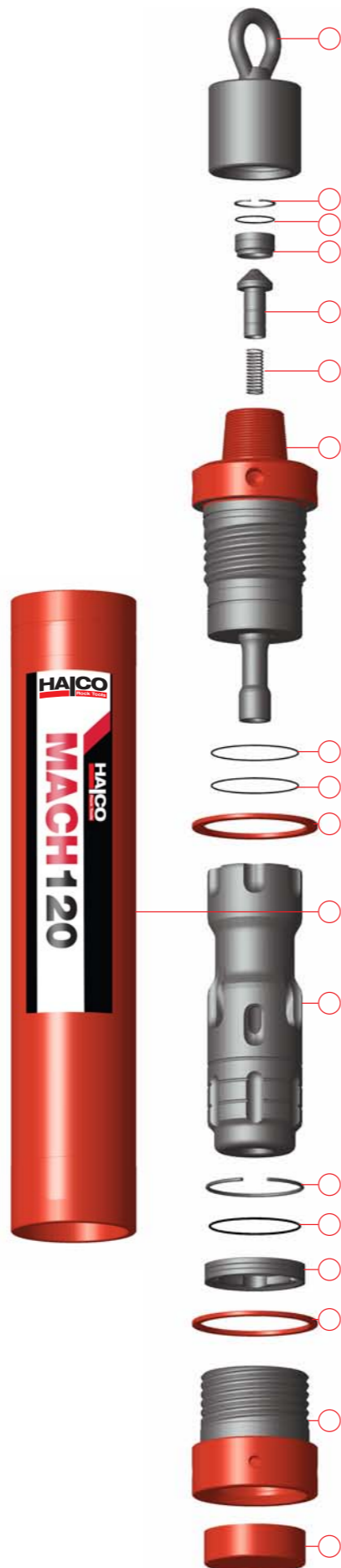
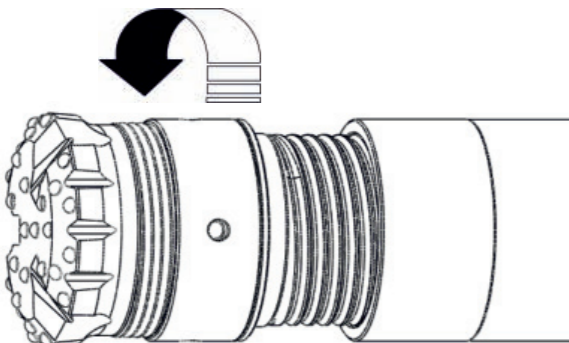


X & Y = DO NOT CLAMP HERE
 X = 370 mm (14.567")
 Y = 520 mm (20.472")

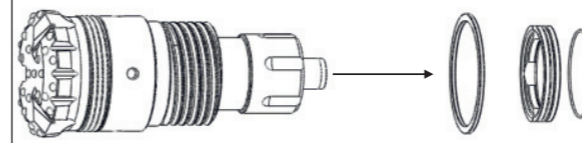
B. Break the top joint between the Cylinder (11) and the Top Adaptor (7) and bottom joint between Cylinder (11) and Chuck (17).



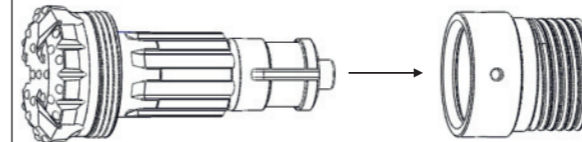
C. Unscrew and remove Drill Bit (18), Chuck (17), Chuck Spacer (16) and Bit Retaining Rings (15) from Cylinder (11).



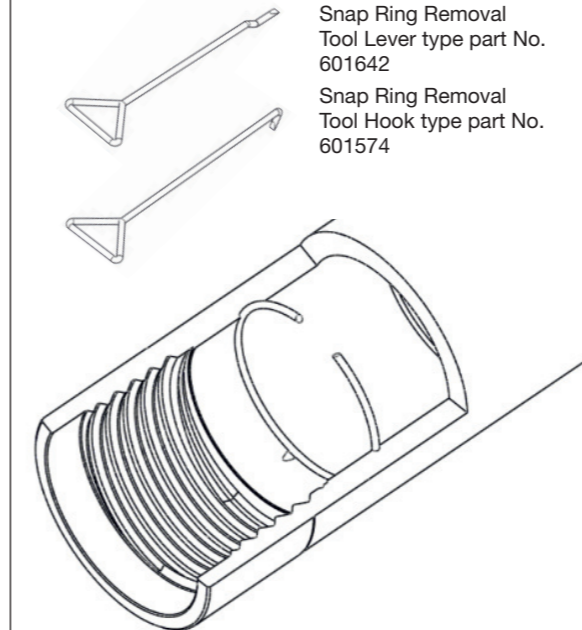
D. Remove Chuck Spacer (16) from Chuck (17). Remove Bit Retaining Rings (15) from Drill Bit (18) and remove Containment Band (14) from Bit Retaining Rings (15).



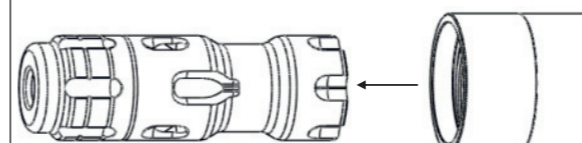
E. Remove Chuck (17) from Drill Bit (18).



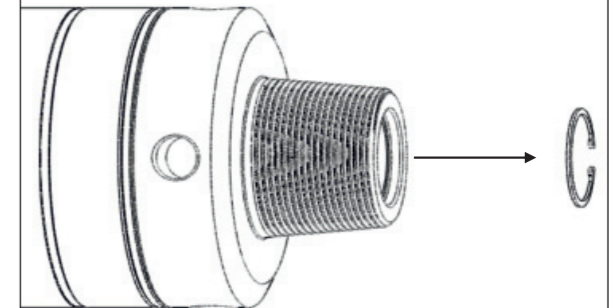
F. Remove Snap Ring (13) from Cylinder (11) using the tools illustrated below.



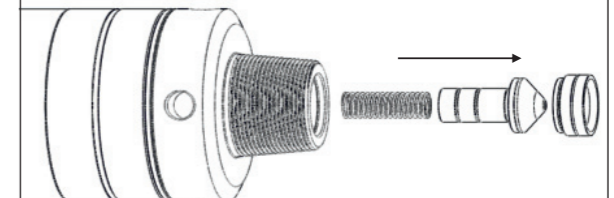
G. Remove Piston (12) from the bottom of Cylinder (11).



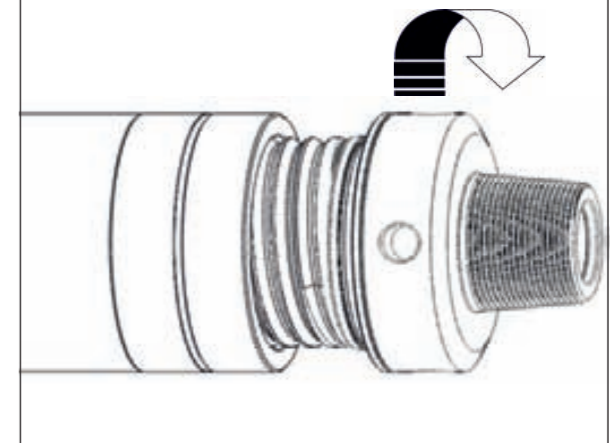
H. Remove Circlip (2) from Top Adaptor (7).



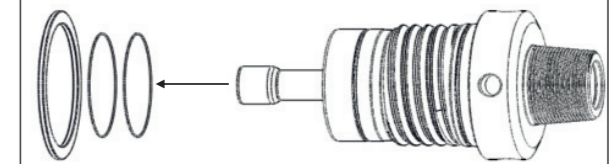
I. Remove Non Return Valve assembly (3-6) from Top Adaptor (7).



J. Unscrew and remove Top Adaptor (7) and Top Adaptor Spacer (10) from Cylinder (11).

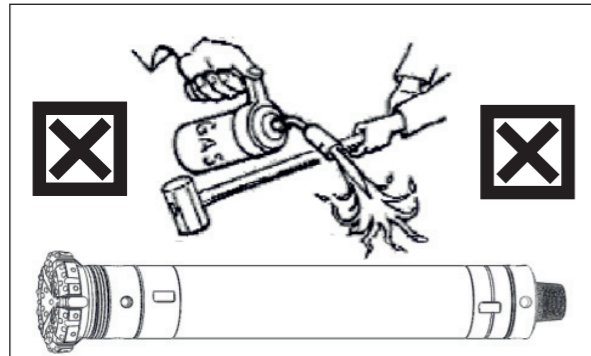


K. Remove Top Adaptor Spacer (10) and 'O' Rings (8 & 9) from Top Adaptor (7).



MACH 132 / MACH 142

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.

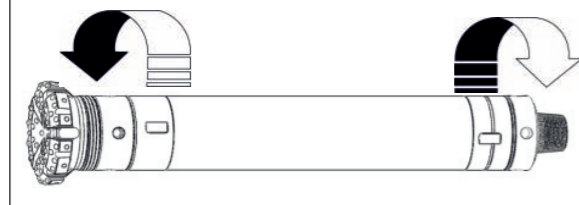


A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

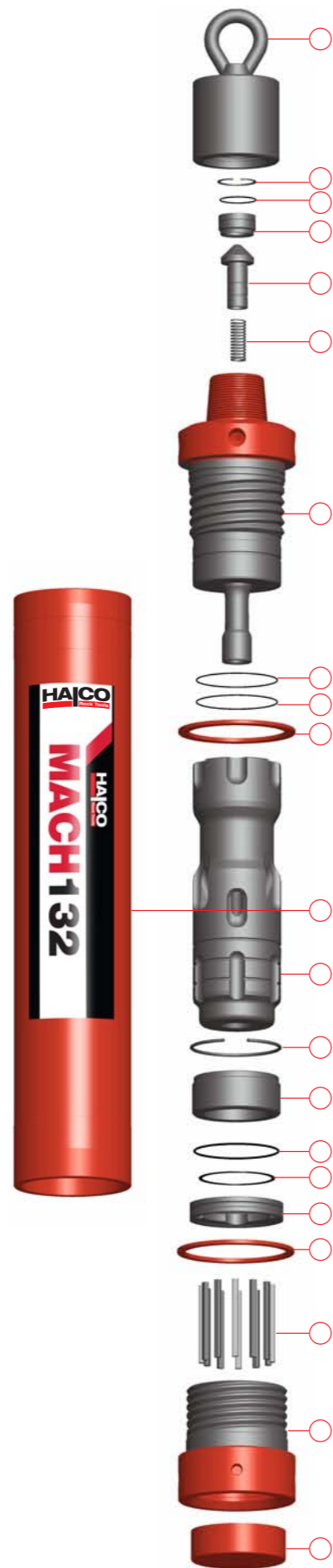
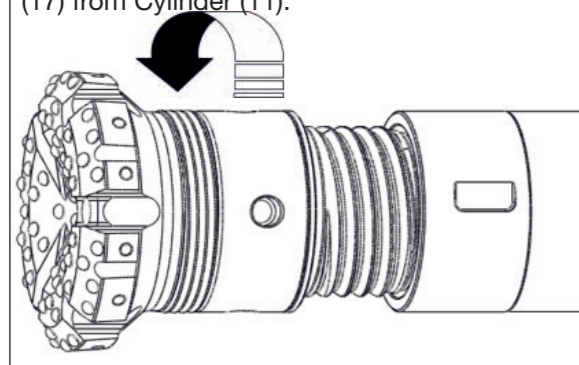


X & Y = DO NOT CLAMP HERE
MACH 132
 X = 300 mm (11.811")
MACH 142
 X = 441 mm (17.362")
MACH 132 & 142
 Y = 520 mm (20.472")

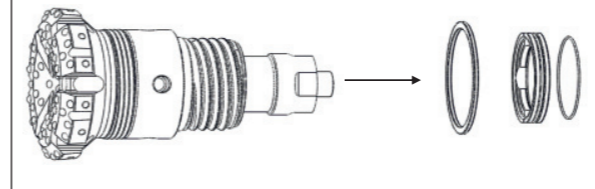
B. Break the top joint between the Cylinder (11) and the Top Adaptor (7) and bottom joint between Cylinder (11) and Chuck (20).



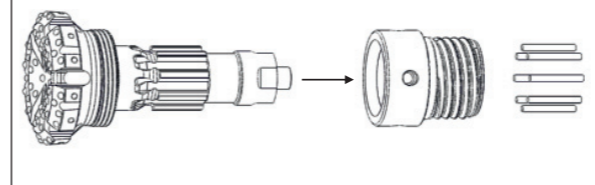
C. Unscrew and remove Drill Bit (21), Chuck (20), Chuck Spacer (18) and Bit Retaining Rings (17) from Cylinder (11).



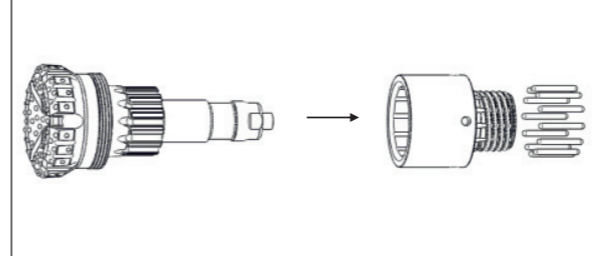
D. Remove Chuck Spacer (18) from Chuck (20). Remove Bit Retaining Rings (17) from Drill Bit (21) and remove Containment Band (16) from Bit Retaining Rings (17).



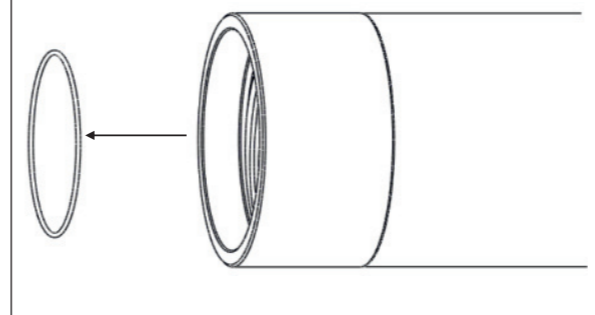
E1. MACH 132 VERSIONS
 Remove Chuck (20) and Drive Pins (19) from Drill Bit (21).



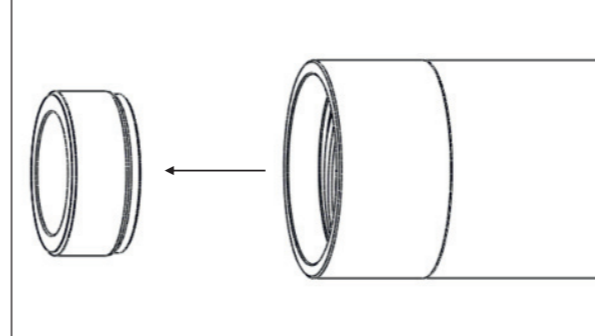
E2. MACH 142 VERSIONS
 Remove Chuck (20) and Drive Pins (19) from Drill Bit (21).



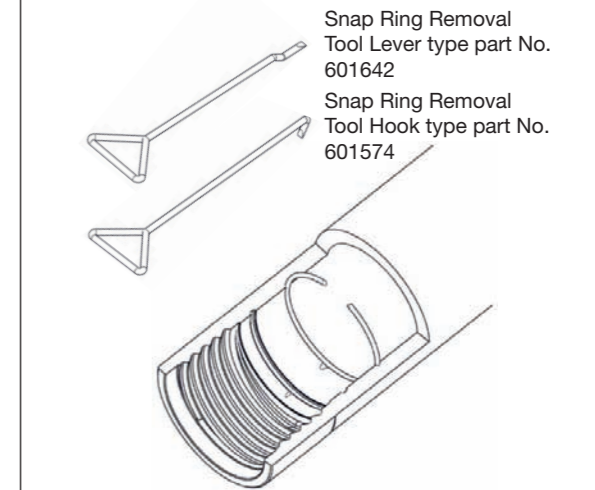
F. Remove 'O' Ring (15) from bottom of Cylinder (11).



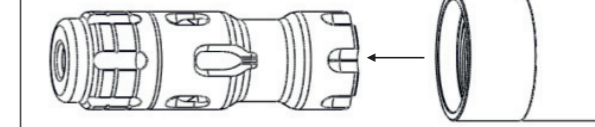
G. Remove Bearing Bush (14) from bottom of Cylinder (11).



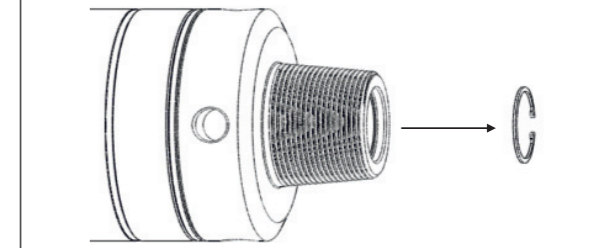
H. Remove Snap Ring (13) from Cylinder (11) using the tools illustrated below.



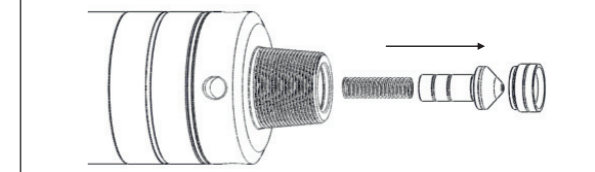
I. Remove Piston (12) from the bottom of Cylinder (11).



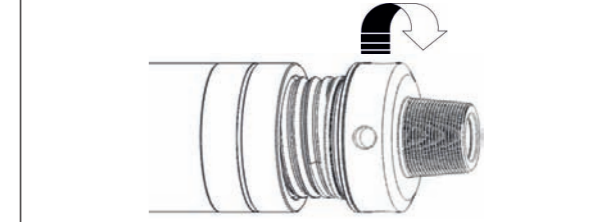
J. Remove Circlip (2) from Top Adaptor (7).



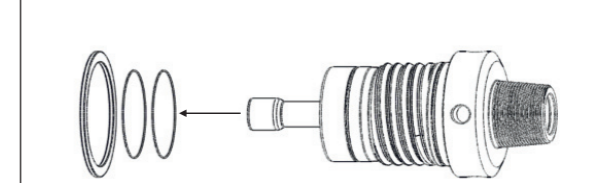
K. Remove Non Return Valve assembly (3-6) from Top Adaptor (7).



L. Unscrew and remove Top Adaptor (7) and Top Adaptor Spacer (10) from Cylinder (11).

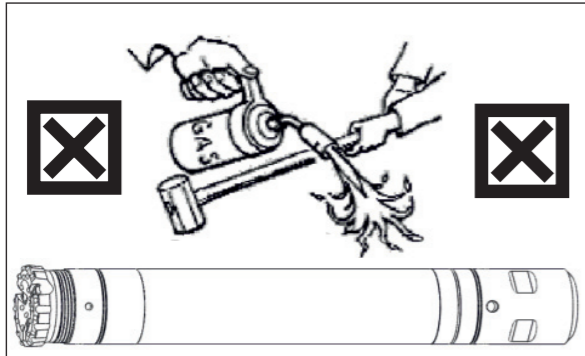


M. Remove Top Adaptor Spacer (10) and 'O' Rings (8 & 9) from Top Adaptor (7).



SUPER DOMINATOR 1200

DO NOT apply heat or direct impact to the outside of the hammer as this usually damages the equipment.



A. When dismantling hammers it is essential that cylinders are clamped in the correct position, away from threads, which can be damaged.

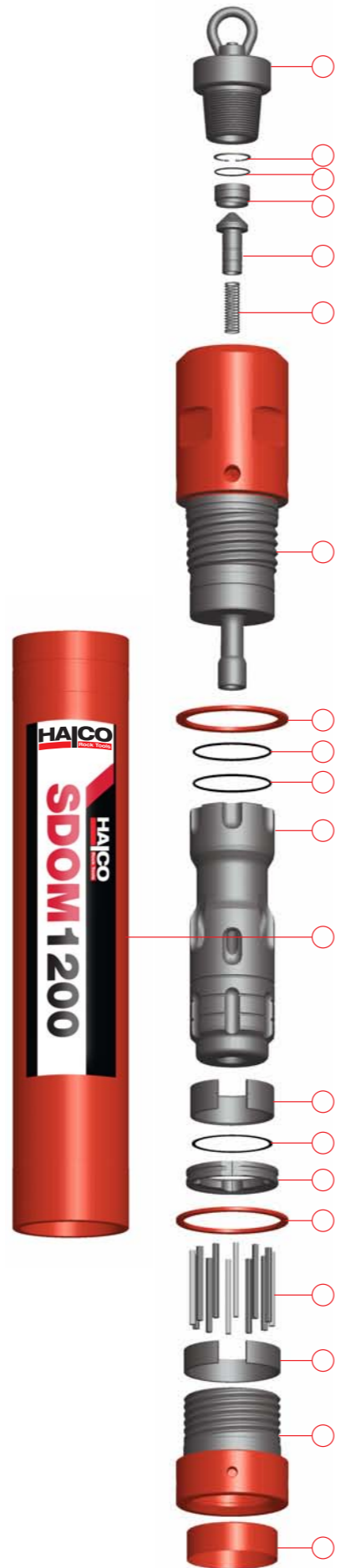
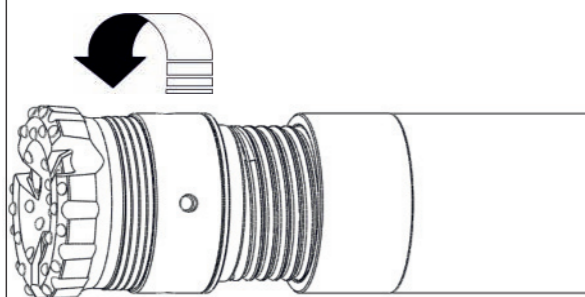


X & Y = DO NOT CLAMP HERE
 X = 280 mm (11.024")
 Y = 685 mm (26.970")

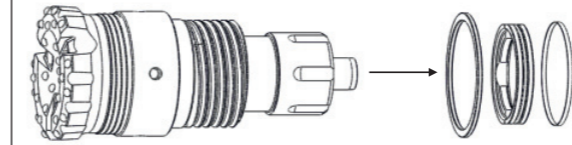
B. Break the top joint between the Cylinder (11) and the Top Adaptor (7) and bottom joint between Cylinder (11) and Chuck (19).



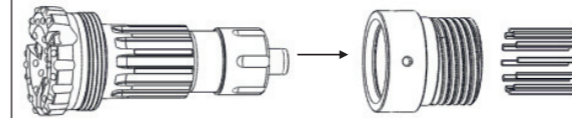
C. Unscrew and remove Drill Bit (20), Chuck (19), Chuck Spacer (16) and Bit Retaining Rings (15) from bottom of Cylinder (11).



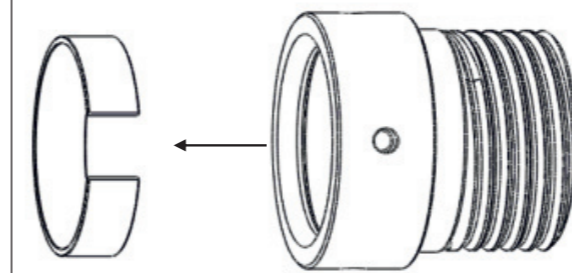
D. Remove Chuck Spacer (16) from Chuck (19). Remove Bit Retaining Rings (15) from Drill Bit (20) and remove Containment Band (14) from Bit Retaining Rings (15).



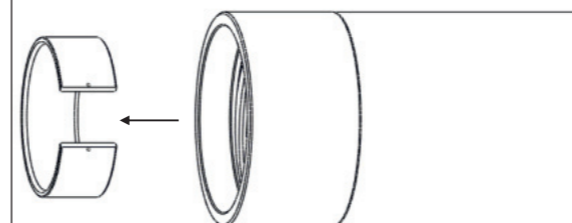
E. Remove Chuck (19) and Drive Pins (17) from Drill Bit (20).



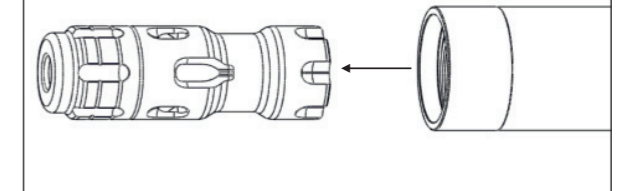
F. Remove Chuck Bearing (18) from bottom of Chuck (19).



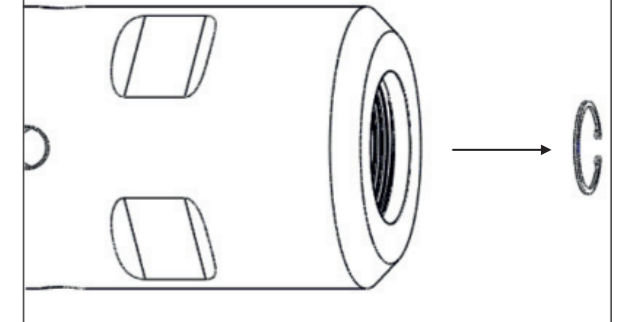
G. Remove Inner Bearing Ring (13) from bottom of Cylinder (11).



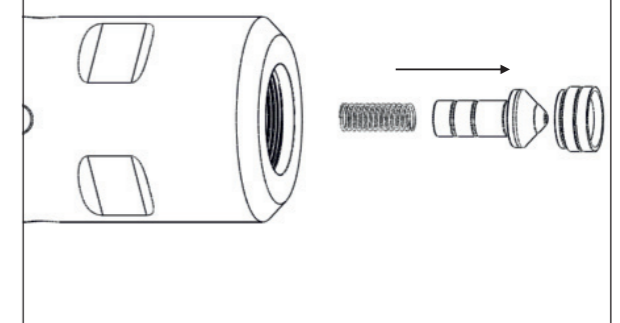
H. Remove Piston (12) from bottom of Cylinder (11).



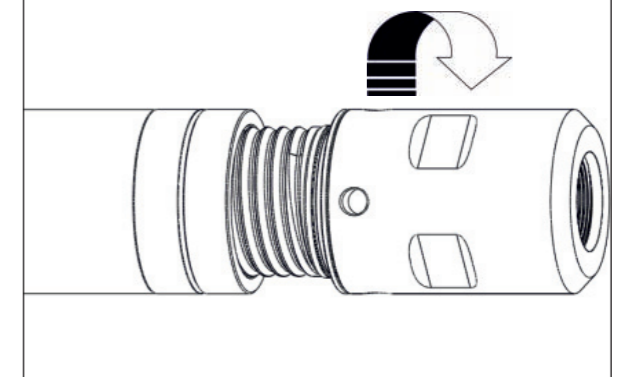
I. Remove Circlip (2) from Top Adaptor (7).



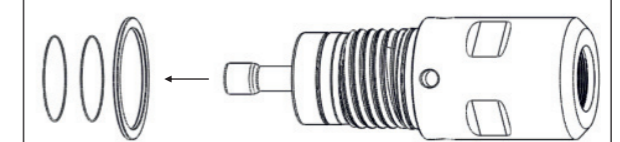
J. Remove Non Return Valve assembly (3-6) from Top Adaptor (7).



K. Unscrew and remove Top Adaptor (7) and Top Adaptor Spacer (10) from Cylinder (11).



L. Remove Top Adaptor Spacer (10) and 'O' Rings (8 & 9) from Top Adaptor (7).



WEAR LIMITS



ASSEMBLY

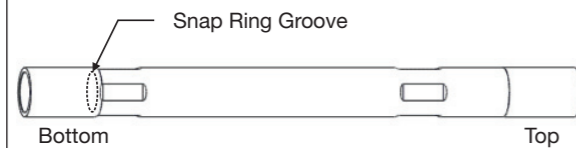


DOMINATOR 100

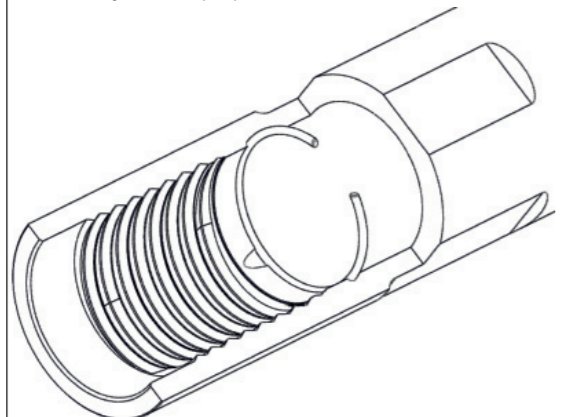
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



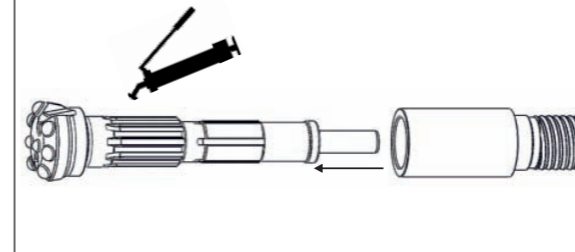
B. Secure Cylinder (10) on a stripping bench or suitable stripping equipment. The Dominator 100 cylinder is not reversible and the bottom of the hammer is the cylinder end with an internal snap ring groove.



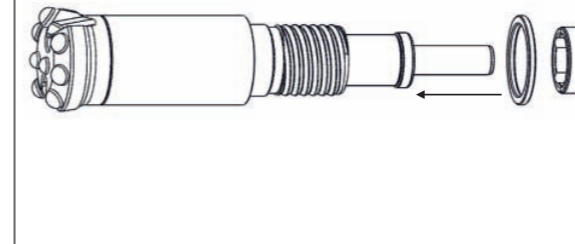
C. Insert bottom Snap Ring (12). Ensure that it seats in the snap ring groove in the bottom end of the Cylinder (10).



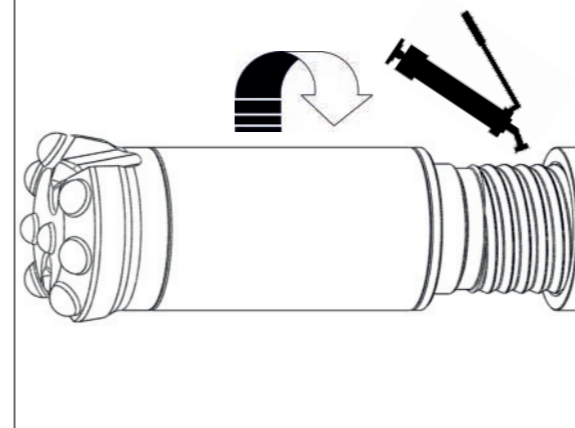
D. Grease splines and fit Chuck (15) over Drill Bit (16).



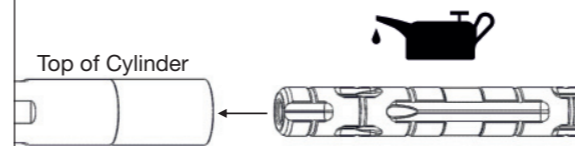
E. Fit Chuck Spacer (14) over Chuck (15) and fit Bit Retaining Ring (13) over Drill Bit (16).



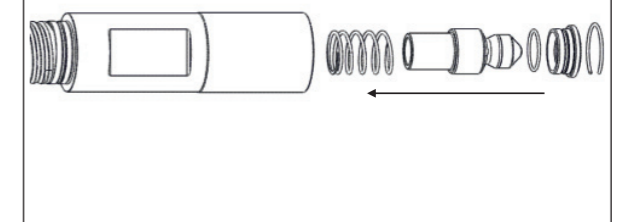
F. Grease threads and screw Drill Bit (16), Chuck (15), Chuck Spacer (14) and Bit Retaining Rings (13) into bottom of Cylinder (10) until fully tightened.



G. Coat Piston (11) liberally with rock oil - minimum 200 centistroke, and insert into top of the Cylinder (10). Ensure that the piston is inserted the right way round - as illustrated below, and that it seats up against the Drill Bit (16).



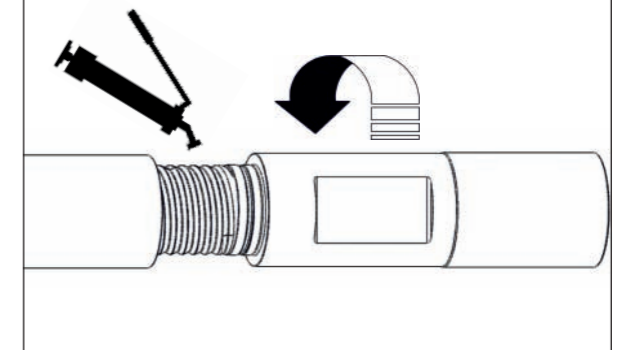
H. Fit 'O' Ring (4) over NRV Seat (3) and ensure it is seated in the 'O' ring groove. Insert non return valve assembly (3-6) into Top Adaptor (7) and secure with Snap Ring (2).



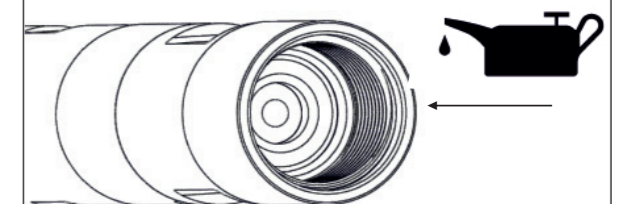
I. Fit 'O' Rings (8 & 9) onto Top Adaptor (7). Ensure that the 'O' Rings seat in the appropriate grooves.



J. Grease threads and screw Top Adaptor (7) into top of Cylinder (10) until fully tightened.



K. Depress the Non Return Valve (5) and pour a 1/4 litre of air line oil into the hammer.



NOTE: New Mach 20 hammers are designed with a gap of 3.2 mm (0.125") between the Chuck and Cylinder. During service this gap with gradually reduce and it is critical that it is checked at regular intervals. When the gap reaches 1.6 mm (0.06") a Wear Spacer should be fitted.

To fit a Wear Spacer: Unscrew Top Adaptor (2) and insert Wear Spacer (3) onto NRV Housing (6). Screw Top Adaptor (2) back into Cylinder (12). The gap should now measure its original width of 3.2 mm (0.125")



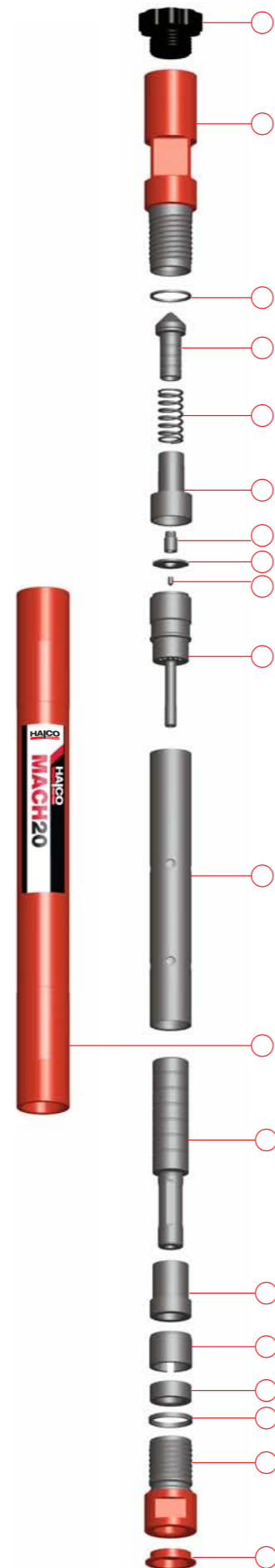
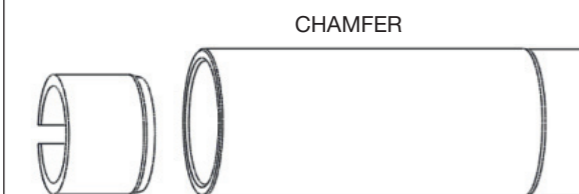
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



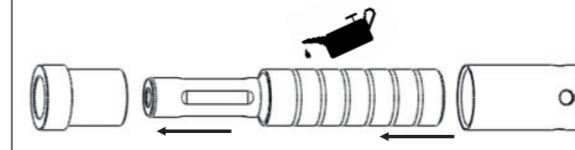
B. Secure Cylinder (12) on a stripping bench or suitable stripping equipment. The Mach 20 cylinder is not reversible and the top of the hammer is the cylinder with the machined flat.



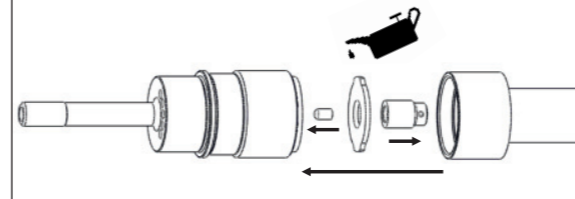
C. Insert Bottom Spacer (15) into the bottom of the Cylinder (12) with the chamfer end first. Carefully drive the spacer into the cylinder bore until it seats securely behind the recess.



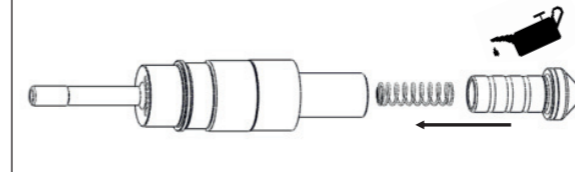
D. Oil Piston (13) and insert piston shank into Piston Guide Bush (14). Then slide Liner (11) with air holes nearest the end first over Piston (13) and up against the shoulder of Piston Guide Bush (14).



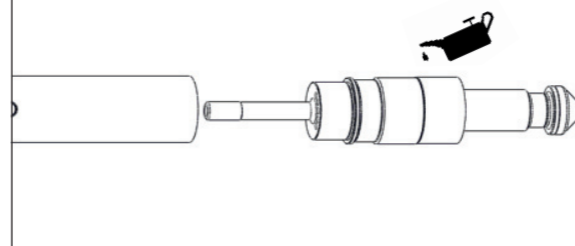
E. Insert Valve Centraliser (7) into the NRV Housing (6). Insert Bleed Plug (9) into the Air Distributor (10). Smear a thin layer of oil on Valve (8), then join NRV Housing (6) to Air Distributor (10) with Valve (8) in between over Centraliser (7).



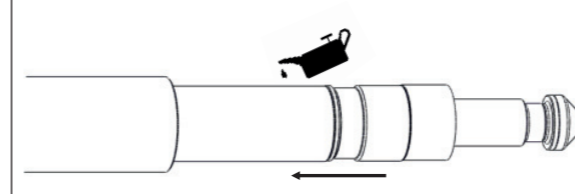
F. Insert NRV Spring (5) into Non Return Valve (4), lightly oil and insert Non Return Valve (4) and NRV Spring (5) into NRV Housing (6).



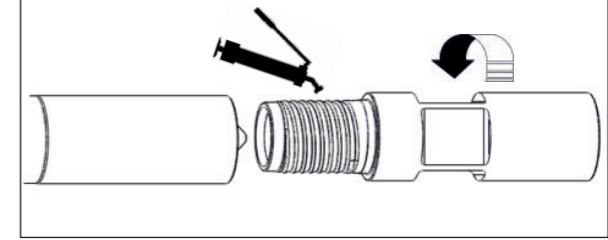
G. Lightly oil Non Return Valve and Air Distributor (4-10) assembly and insert into the top of Liner (11).



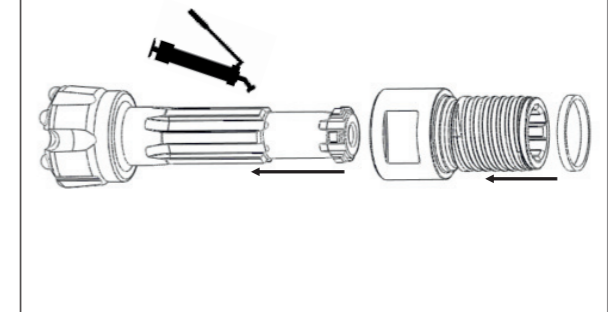
H. Lightly oil all outside surfaces of Liner, Valve and Air Distributor assembly and slide into the top of Cylinder (12) ensure the Piston Guide Bush (14) is butting up against the Bottom Spacer (15).



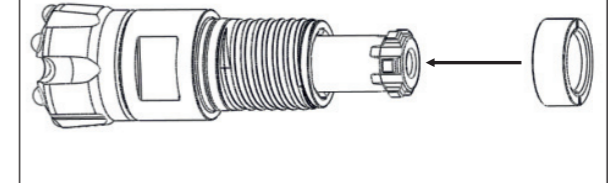
I. Grease threads and screw Top Adaptor (2) into top of Cylinder (12) until fully tightened.



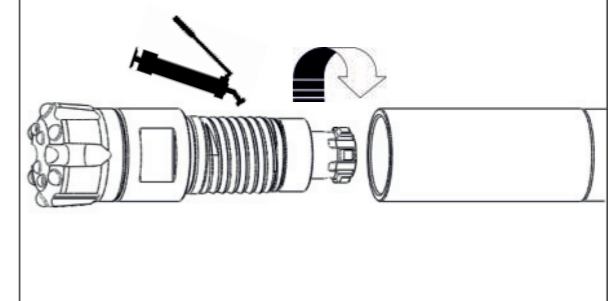
J. Fit Chuck Lock Ring (17) over Chuck (18) ensure it seats securely in the groove. Grease splines and fit Chuck (18) over Drill Bit (19).



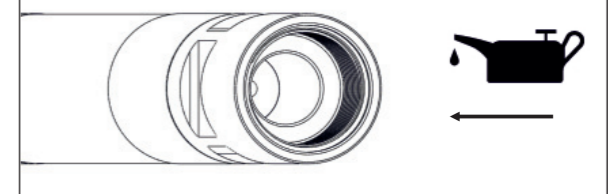
K. Fit Bit Retaining Ring (16) over Drill Bit (19).



L. Grease threads and screw Drill Bit, Chuck and Bit Retaining Ring (16-19) into bottom of Cylinder (12) until fully tightened.



M. Depress Non Return Valve (4) and pour 1/4 litre of air line oil into the hammer.

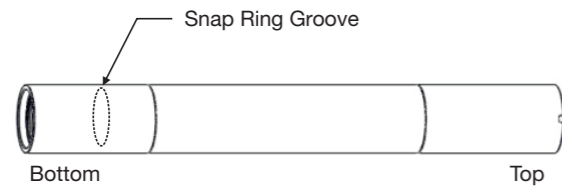


MACH 303 / DART 350 / DOMINATOR 350

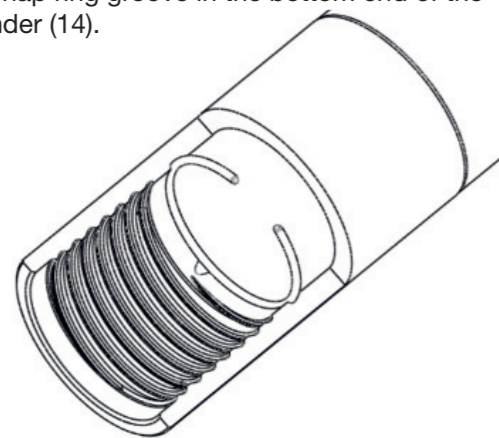
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



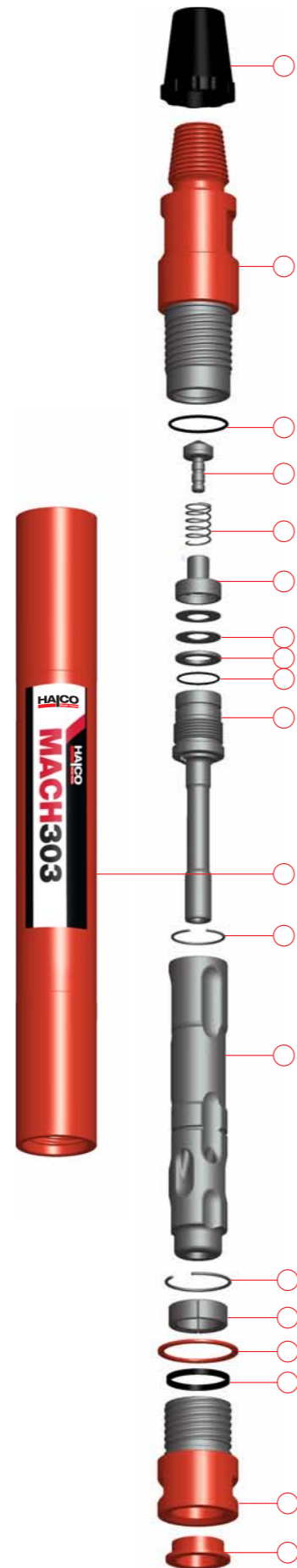
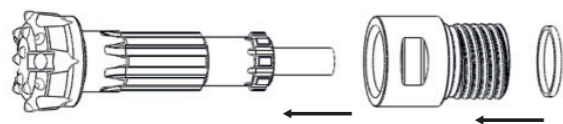
B. Secure Cylinder (14) on a bench or suitable stripping equipment. The cylinder is not reversible and the bottom of the hammer is the cylinder end with the internal snap ring groove.



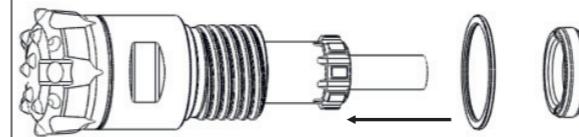
C. Insert Snap Ring (15) ensure that it seats in the snap ring groove in the bottom end of the Cylinder (14).



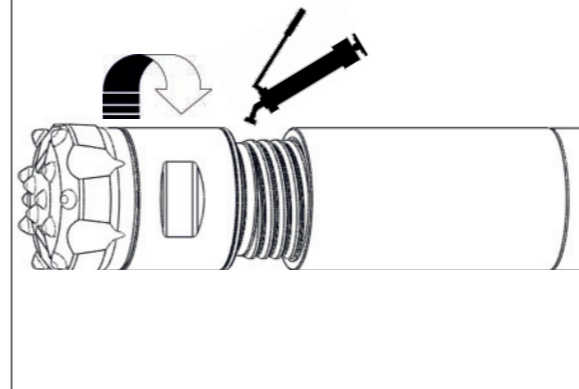
D. Place Chuck (19) over Drill Bit (20). On Mach 303 hammers fit Chuck Lock Ring (17) onto Chuck (19) ensure it seats in the chuck lock ring groove.



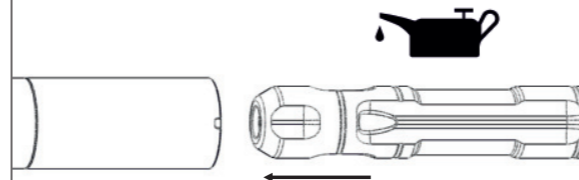
E. Place Chuck Spacer (18) over Chuck (19) and place Bit Retaining Rings (16) over Drill Bit (20).



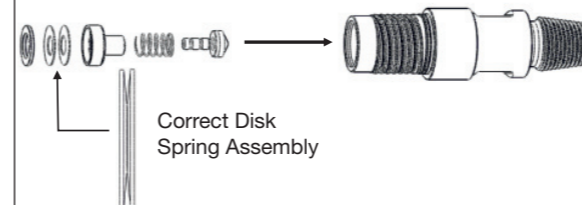
F. Grease threads and screw Drill Bit (20), Chuck (19), Chuck Spacer (18) and Bit Retaining Rings (16) into bottom of Cylinder (14) until fully tightened.



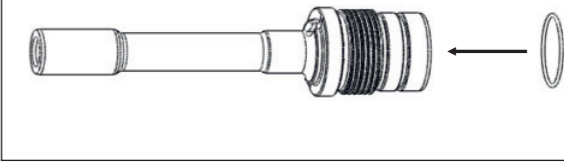
G. Coat Piston (13) liberally with rock oil - minimum 200 centistroke and insert into the top of the Cylinder (14). Ensure that the piston is inserted the right way round as illustrated.



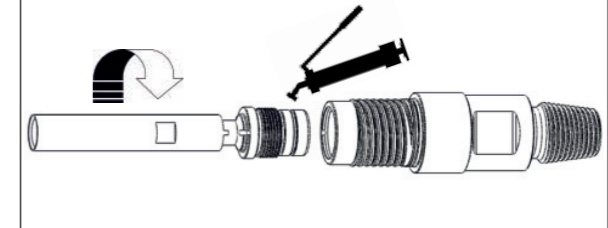
H. Insert Non Return Valve assembly (4-6), Disk Springs (7) and Thrust Washer (8) into Top Adaptor (2). Ensure Disk Spring (7) is assembled as shown below.



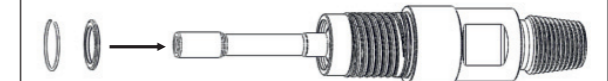
I. Place 'O' Ring (9) onto Air Distributor (10).



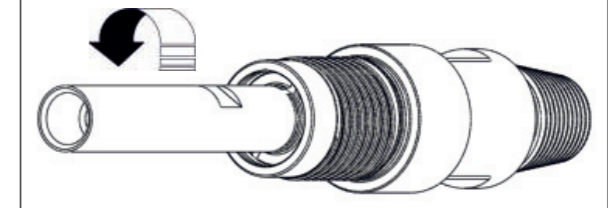
J. Grease Air Distributor (10) and screw into Top Adaptor (2) using Distributor Tool Part No. 603007.



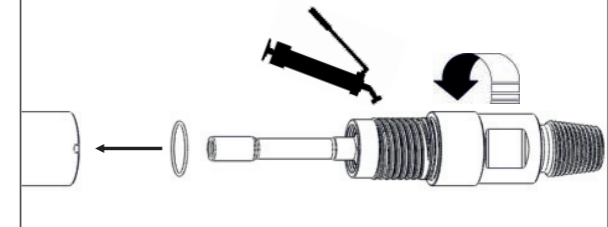
K. On Dart 350 and Dominator 350 hammers insert Washer (11) onto Air Distributor (10). On all hammers secure Air Distributor (10) in Top Adaptor (2) with Snap Ring (12).



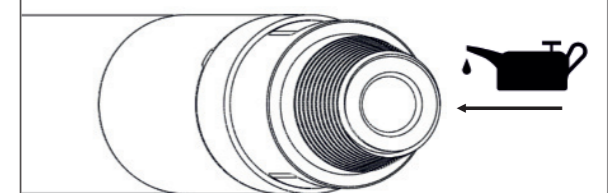
L. Reverse rotate slightly the Air Distributor (10) using the Distributor Tool so that it seats up against the Snap Ring (12).



M. Fit 'O' Ring (3) over Top Adaptor (2), grease threads and screw into the top of Cylinder (14) until fully tightened.



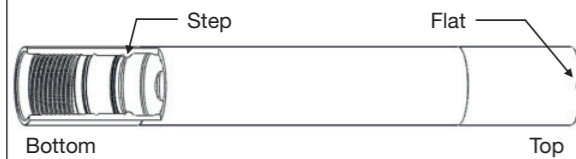
N. Depress the Non Return Valve (4) and pour 1/3 litre of air line oil into the hammer.



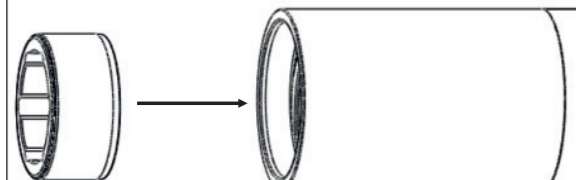
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



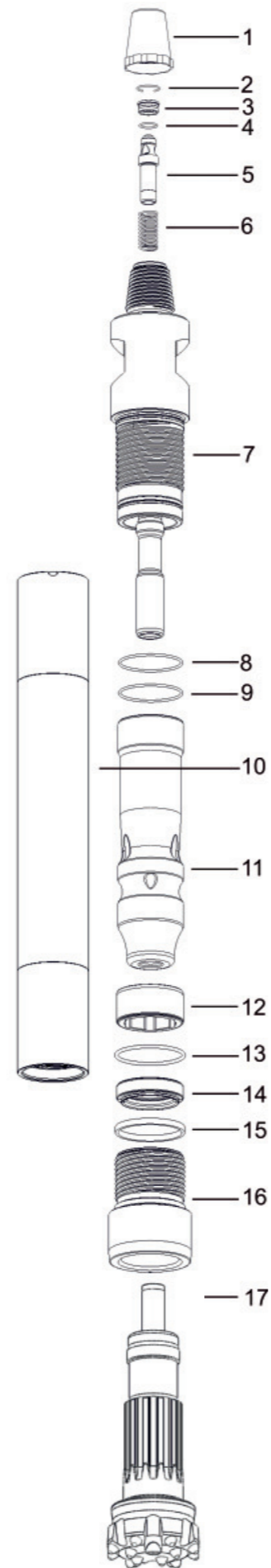
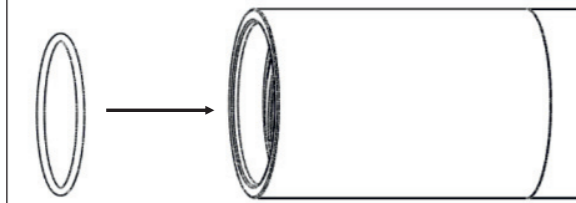
B. Secure Cylinder (10) on a stripping bench or suitable stripping equipment. The NT4 cylinder is not reversible and the bottom of the hammer is the cylinder end with an internal step and the top of the hammer is the cylinder end with the machined flat.



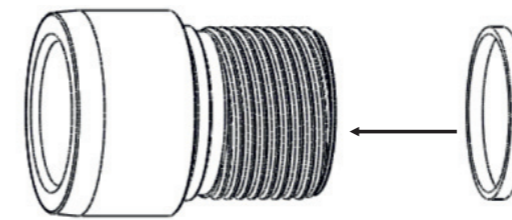
C. Insert Bit Guide Bush (12) into bottom of Cylinder (10) ensure that the flutes are towards the bottom of the cylinder and that it seats up to the step in the cylinder.



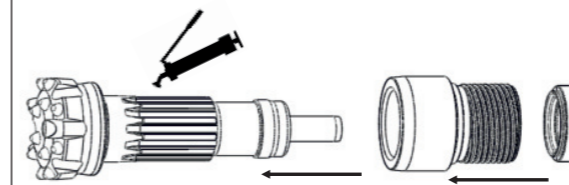
D. Insert 'O' Ring (13) into bottom of Cylinder (10) ensure it seats in the groove and up to the Bit Guide Bush (12).



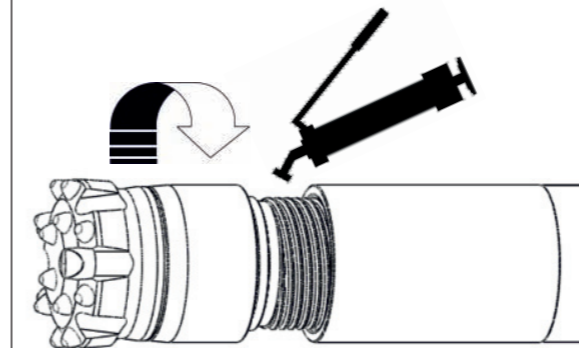
E. Fit Chuck Lock Ring (15) onto Chuck (16) ensure it seats in the appropriate groove.



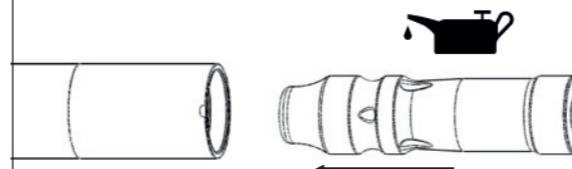
F. Grease threads and fit Chuck (16) over Drill Bit (17). Fit Bit Retaining Ring (14) over Drill Bit (17) and insert into Chuck (16).



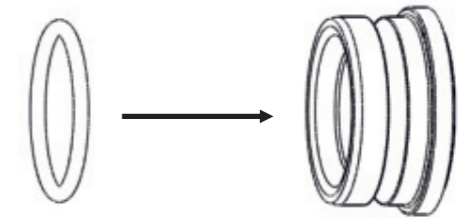
G. Grease threads and screw Drill Bit (17), Chuck (16) and Bit Retaining Rings (14) into bottom of Cylinder (10) until fully tightened.



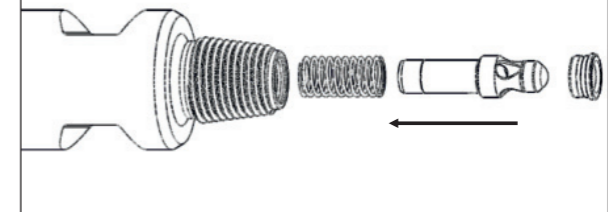
H. Coat Piston (11) liberally with rock oil - minimum 200 centistroke and insert into top of Cylinder (10). Ensure it is fitted the right way round as illustrated.



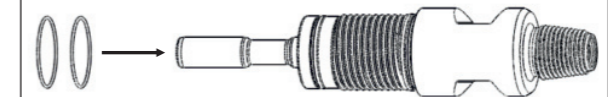
I. Fit 'O' Ring (4) to Non Return Valve Seat (3).



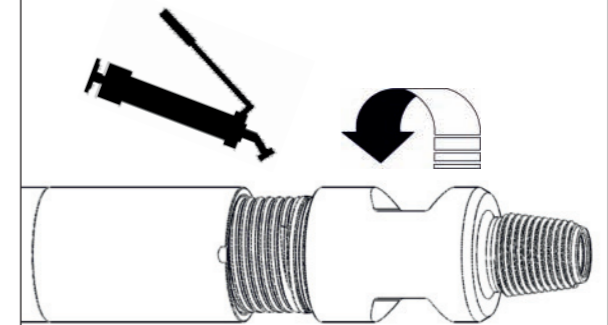
J. Insert Non Return Valve assembly (3-6) into Top Adaptor (7) and secure with Snap Ring (2).



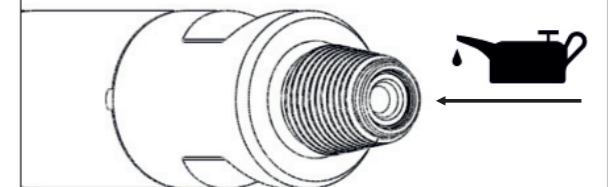
K. Fit 'O' Rings (8 & 9) onto Top Adaptor (7) ensure that the seat in the appropriate grooves.



L. Grease threads and screw Top Adaptor (7) into Cylinder (10) until fully tightened.



M. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.

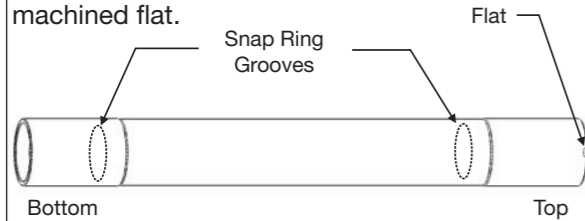


MACH 44

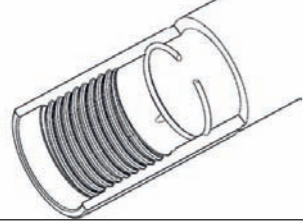
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



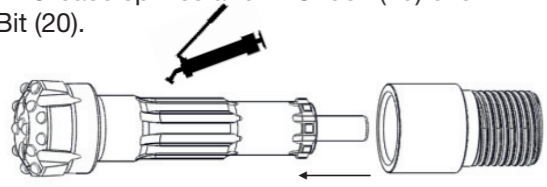
B. Secure Cylinder (13) on a bench or suitable stripping equipment. The cylinder is not reversible and the bottom of the hammer is the cylinder end where the internal snap ring groove is nearest the cylinder threads and the top of the hammer is the cylinder end with the machined flat.



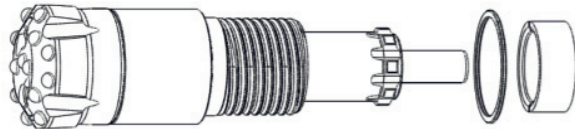
C. Insert Snap Ring (15) into bottom of Cylinder (13). Ensure it seats in the snap ring groove.



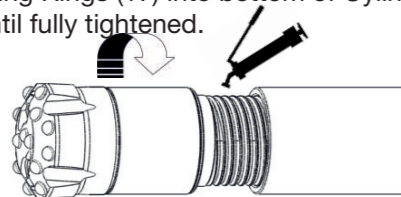
D. Grease splines and fit Chuck (19) over Drill Bit (20).



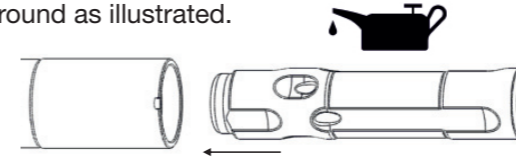
E. Fit Chuck Spacer (18) over Chuck (19) and fit Bit Retaining Rings (17) over Drill Bit (20).



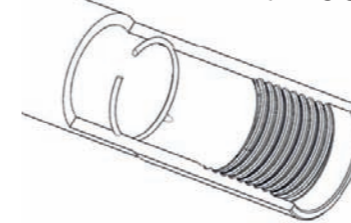
F. Grease threads and screw Drill Bit (20), Chuck (19), Chuck Spacer (18) and Bit Retaining Rings (17) into bottom of Cylinder (13) until fully tightened.



G. Coat Piston (14) liberally with rock oil - minimum 200 centistroke and insert into top of Cylinder (13) ensure it is inserted the right way round as illustrated.

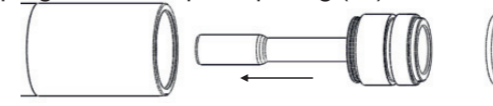


H. Insert Snap Ring (12) into top of Cylinder (13). Ensure it seats in the snap ring groove.

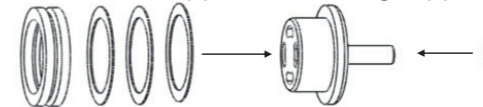


SETTING CORRECT TOLERANCES

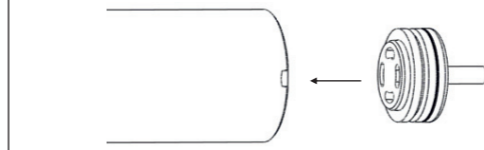
I. Fit 'O' Ring (10) onto Air Distributor (11) and insert into top of Cylinder (13) so that it seats up against the top Snap Ring (12).



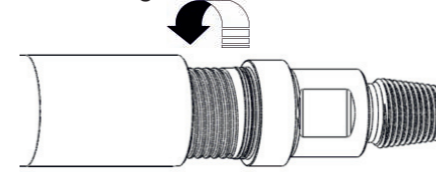
J. Fit NRV Seat (6) onto NRV Finger (7). Fit Compression Ring (9) along with existing and additional Shims (8) onto NRV Finger (7).



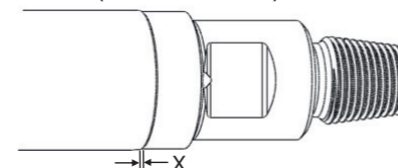
K. Insert NRV Finger (7), NRV Seat (6), Compression Ring (9) and Shims (8) into top of Cylinder (13).



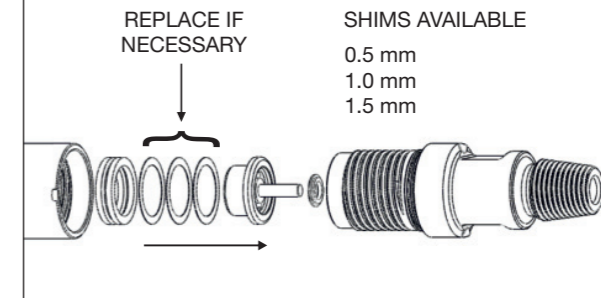
L. Screw Top Adaptor (2) into Top of Cylinder (13) and hand tighten.



M. Measure make up gap 'x' between Cylinder (13) and Top Adaptor (2). Correct gap should be 2.0 - 2.5 mm (0.079 - 0.098").

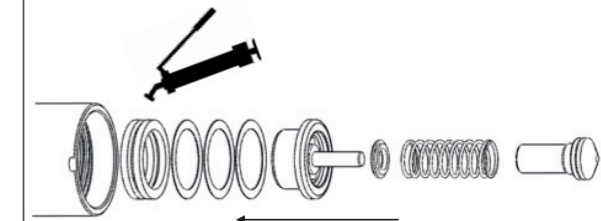


N. Unscrew Top Adaptor (2) and remove NRV Finger (7), NRV Seat (6), Shims (8) and Compression Ring (9) from Cylinder (13). Replace shimming in order that make-up gap falls between minimum and maximum figures.

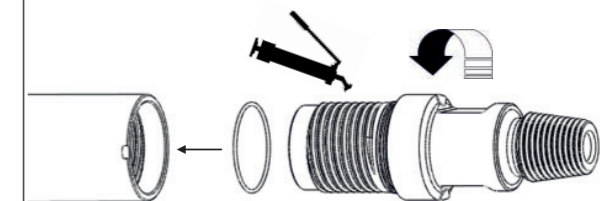


FINAL ASSEMBLY

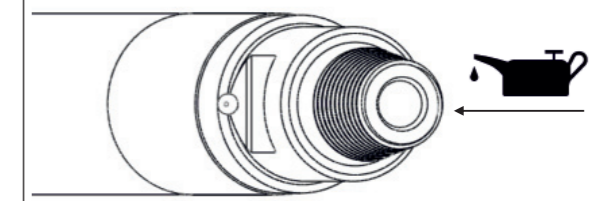
O. Fit Compression Spring (9) necessary Shims (8) and Non Return Valve assembly (4-6) onto NRV Finger (7) and insert into top of Cylinder (13).



P. Fit 'O' Ring (3) onto Top Adaptor (2). Grease threads and screw Top Adaptor (2) into Cylinder (13) until fully tightened.



Q. Depress Non Return Valve (4) and pour 1/3 litre of air line oil into the hammer.

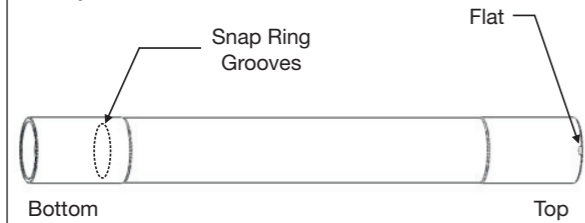


SUPER DOMINATOR 400

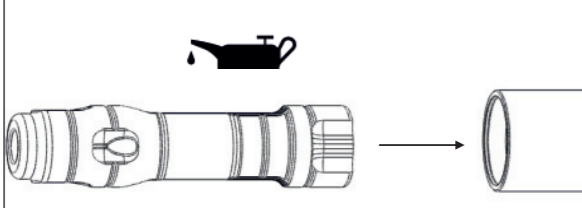
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



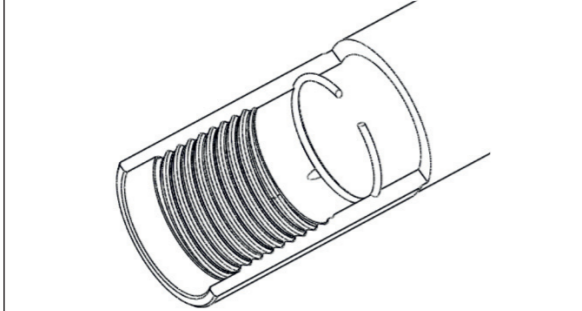
B. Secure Cylinder (10) on a bench or suitable stripping equipment. The cylinder is not reversible and the bottom of the hammer is the cylinder end where the internal snap ring groove is situated and the top of the hammer is the cylinder end with the machined flat.



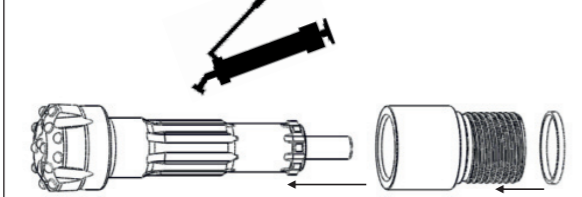
C. Coat Piston (11) liberally with rock oil - minimum 200 centistroke and insert into bottom of Cylinder (10) ensure it is facing the right way as illustrated.



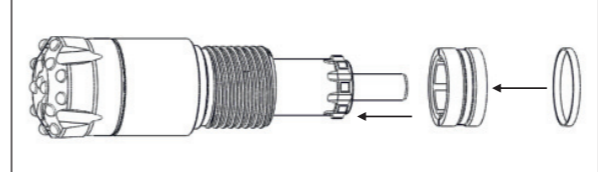
D. Insert Snap Ring (12) into Cylinder (10). Ensure it seats in the snap ring groove.



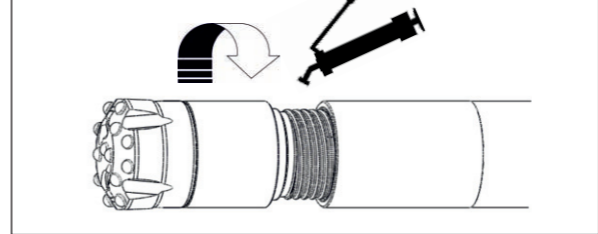
E. Fit Chuck Lock Ring (15) onto Chuck (16). Grease splines and fit Chuck (16) onto Drill Bit (17).



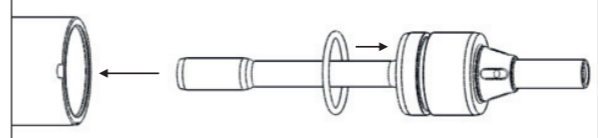
F. If required fit Containment Band (13) onto Bit Retaining Rings (14). Fit Bit Retaining Rings (14) onto Drill Bit (17).



G. Coat Piston (14) liberally with rock oil - minimum 200 centistroke and insert into top of Cylinder (13) ensure it is inserted the right way round as illustrated.

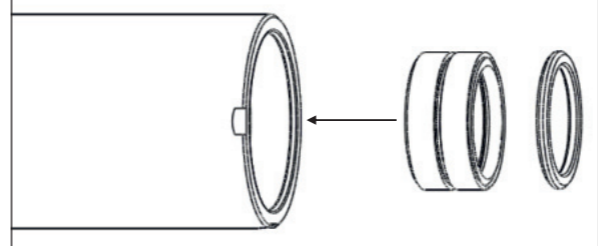


H. Fit 'O' Ring (9) onto Air Distributor (8). Insert Air Distributor into top of Cylinder (10) ensure it seats up against the internal shoulder.

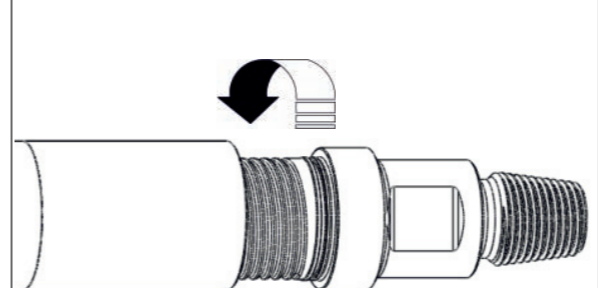


SETTING CORRECT TOLERANCES

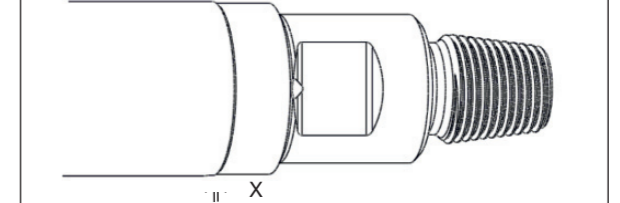
I. Insert Compression Ring (7) into top of Cylinder (10) ensure the Compression Ring components are in the same sequence as originally fitted. Insert Shim (6) into Cylinder (10) ensure that Shim fitted is thicker than the one taken from the hammer.



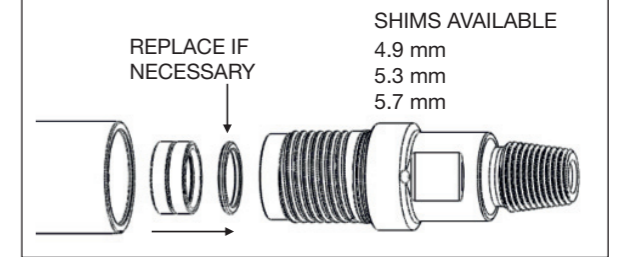
J. Screw Top Adaptor (2) into Cylinder (10) hand tighten.



K. Measure gap 'X' between Top Adaptor (2) and Cylinder (10). Correct make up gap should be 2.5 - 3.00 mm (0.10" - 0.12").

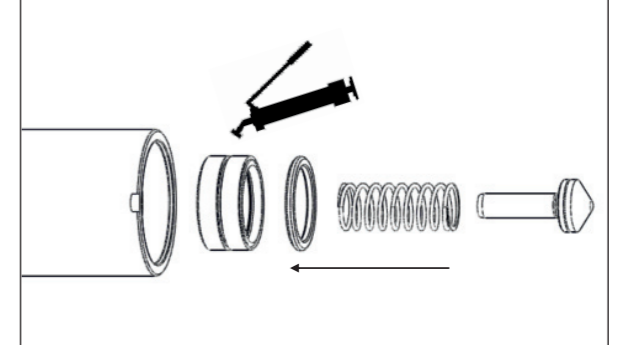


L. Unscrew Top Adaptor (2) and remove Compression Ring (7) and Shim (6) from Cylinder. Replace Shim (6) if necessary in order that the make up gap fall between the maximum and minimum figures stated above.

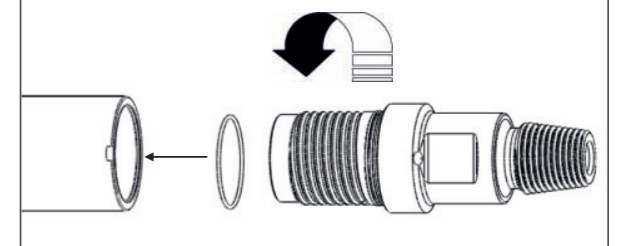


FINAL ASSEMBLY

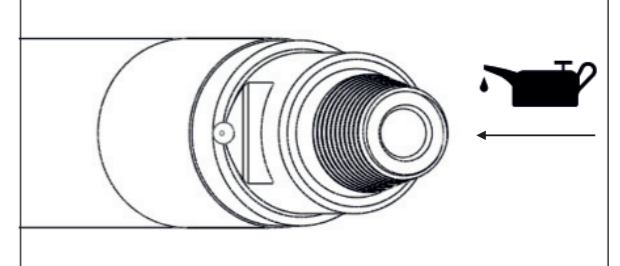
M. Grease Compression Spring (7) and along with Shim (6) NRV Spring (5) and Non Return Valve (4) insert into top of Cylinder (10).



N. Fit 'O' Ring (3) onto Top Adaptor (2). Grease threads and screw Top Adaptor (2) into Cylinder (10) until fully tightened.



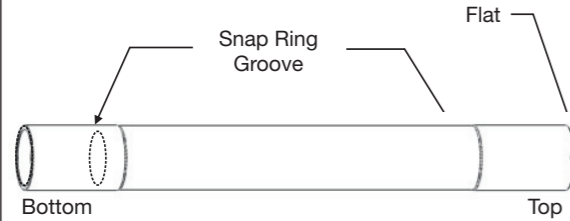
O. Depress Non Return Valve (4) and pour 1/3 litre of air line oil into the hammer.



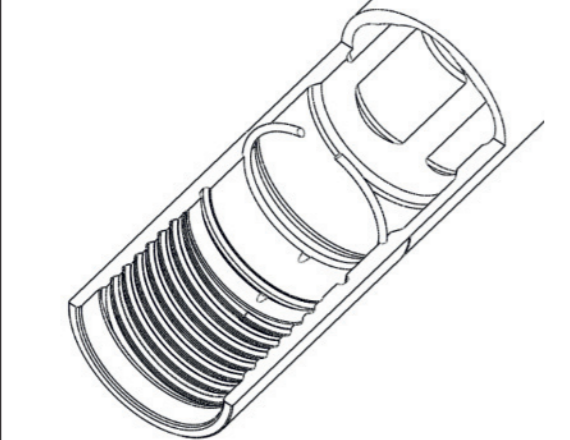
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



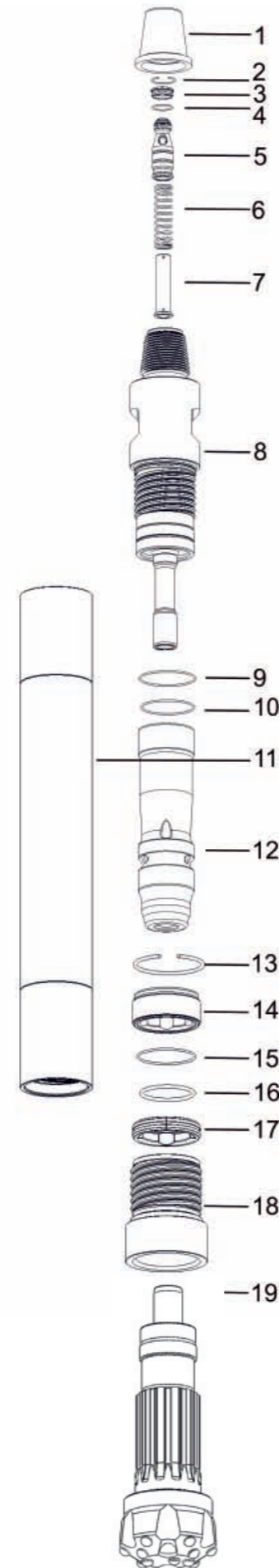
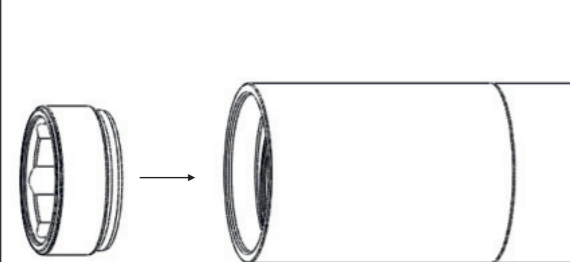
B. Secure Cylinder (11) on a bench or suitable stripping equipment. The cylinder is not reversible and the bottom of the hammer is the cylinder end where the internal snap ring groove is situated and the top of the hammer is the cylinder end with the machined flat.



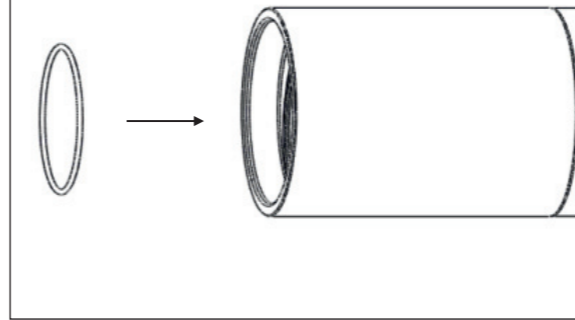
C. Insert Snap Ring (13) into bottom of Cylinder (11) ensure it seats in the snap ring groove.



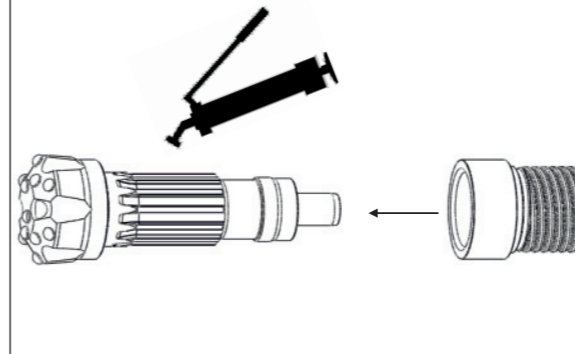
D. Insert Bit Guide Bush (14) into Cylinder (11) ensure it is fitted the right way round as illustrated and that it seats up against Snap Ring (13).



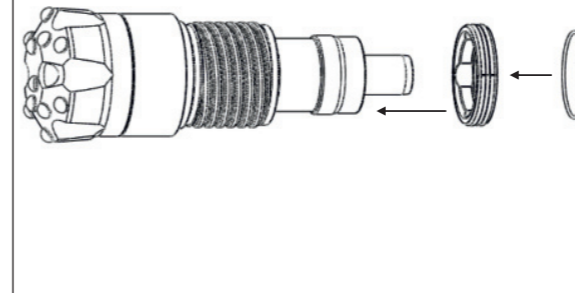
E. Insert 'O' Ring (15) into Cylinder (11) ensure that it seats in the internal 'O' Ring groove and up against the Bit Guide Bush (14).



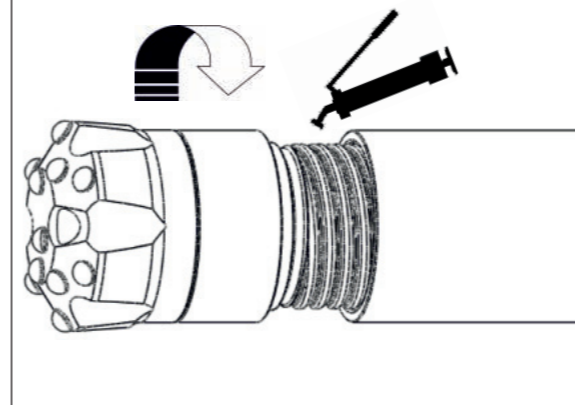
F. Grease splines and fit Chuck (18) onto Drill Bit (19).



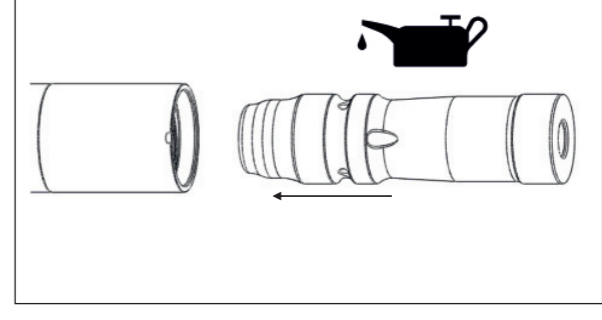
G. Fit 'O' Ring (16) to Bit Retaining Rings (17). Fit Bit Retaining Rings (17) to Drill Bit (19).



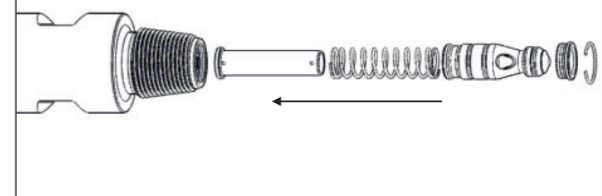
H. Grease threads and screw Drill Bit (19), Chuck (18) and Bit Retaining Rings (17) into bottom of Cylinder (11) until fully tightened.



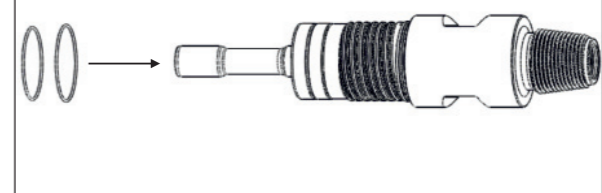
I. Coat Piston (12) liberally with rock oil - minimum 200 centistroke and insert into the top of Cylinder (11) ensure that it is facing the right way as illustrated.



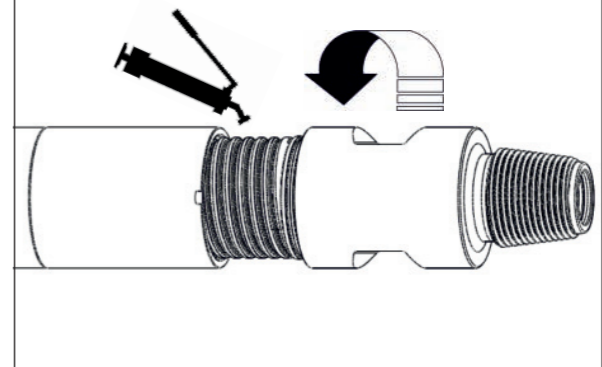
J. Insert Non Return Valve assembly (3-7) into Top Adaptor (8) and secure with Snap Ring (2).



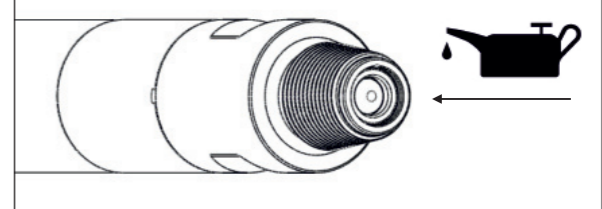
K. Fit 'O' Rings (9 & 10) onto Top Adaptor (8) ensure they seat in the appropriate 'O' Ring grooves.



L. Grease threads and screw Top Adaptor (8) into top of Cylinder (11) until fully tightened.



M. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.

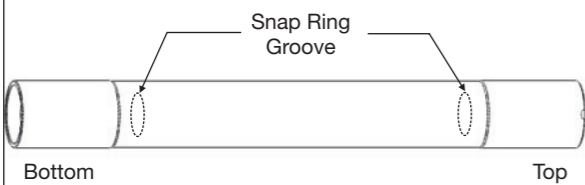


MACH 50

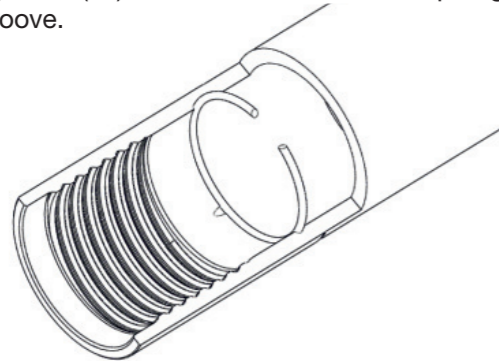
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



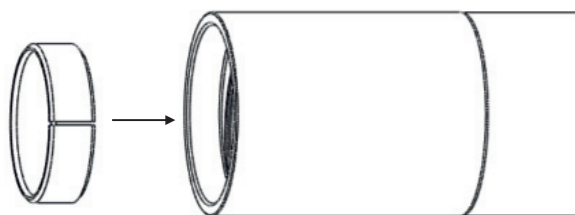
B. Secure Cylinder (13) on a bench or suitable stripping equipment. The cylinder has two identically positioned snap ring grooves and is reversible.



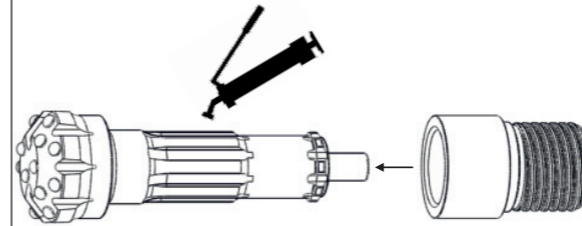
C. Insert Snap Ring (14) into the bottom of Cylinder (13). Ensure it seats in the snap ring groove.



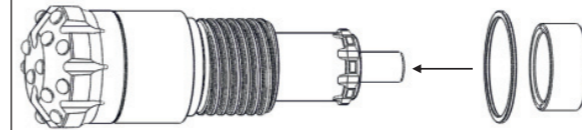
D. Insert Spacer (15) into the bottom of Cylinder (13) ensure it seats fully up against Snap Ring (14).



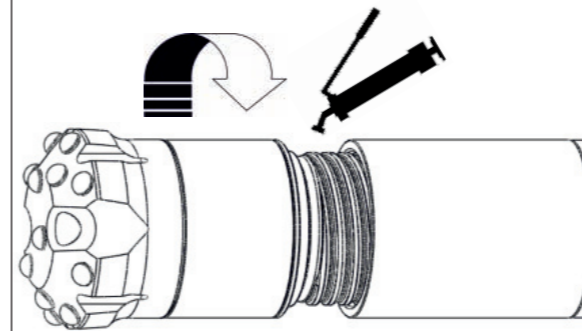
E. Grease splines and fit Chuck (18) onto Drill Bit (19).



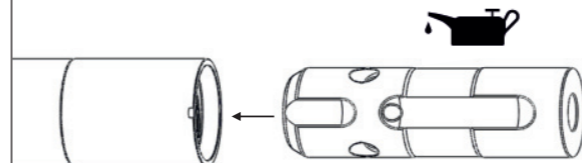
F. Fit Chuck Spacer (17) over Chuck (18) and fit Bit Retaining Rings (16) into the bottom of Cylinder (13).



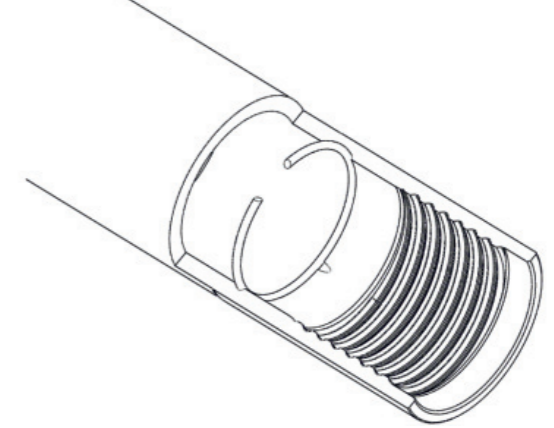
G. Grease threads and screw Drill Bit (19), Chuck (18), Chuck Spacer (17) and Bit Retaining Rings (16) into the bottom of Cylinder (13).



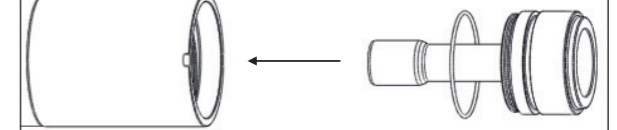
H. Coat Piston (12) liberally with rock oil, minimum 200 centistroke and insert into the top of Cylinder (13) ensure it is facing the right way as illustrated.



I. Insert Snap Ring (11) into the top of Cylinder (13) ensure it seats in the snap ring groove.

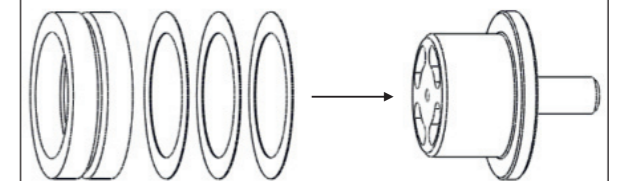


J. Fit 'O' Ring (10) onto Air Distributor (9) and insert into the top of Cylinder (13) so that it seats up against Snap Ring (11).

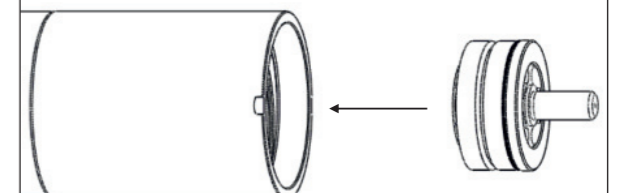


SETTING CORRECT TOLERANCES

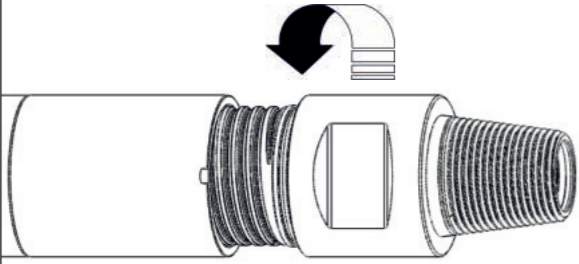
K. Fit Make Up Ring (8) onto lower end of NRV Finger (6) along with existing and additional Shims (7).



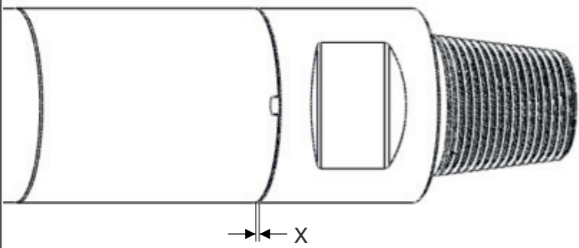
L. Insert NRV Finger (6) Shims (7) and Make Up Ring (8) into the top of Cylinder (13).



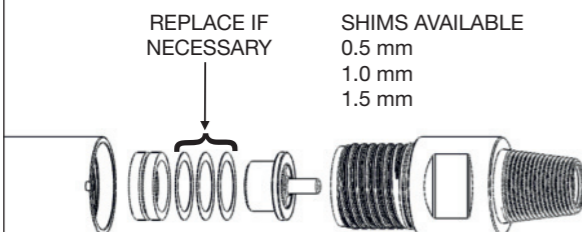
M. Screw Top Adaptor (2) into the top of Cylinder (13) and hand tighten.



N. Measure make up gap 'X' between Cylinder (13) and Top Adaptor (2). Correct gap should be 2.5 - 3.0 mm (0.098 - 0.118").

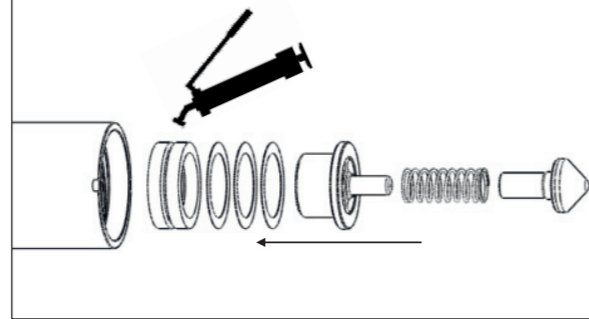


O. Unscrew and remove Top Adaptor (2), NRV Finger (6), Shims (7) and Make Up Ring (8) from Cylinder (13). Replace Shimming in order that make up gap 'X' falls between minimum and maximum figures.



FINAL ASSEMBLY

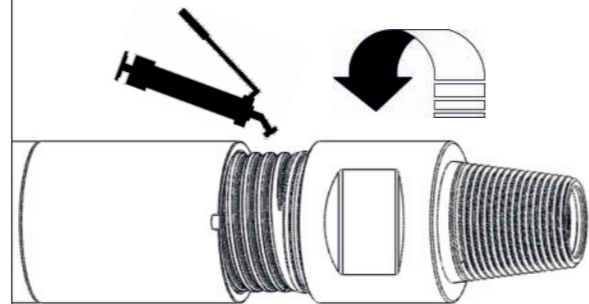
P. Fit Compression Spring (5), Non Return Valve (4), necessary Shims (7) and Make Up Ring (8) onto NRV Finger (6). Grease Make Up Ring (8) and insert assembly into Cylinder (13).



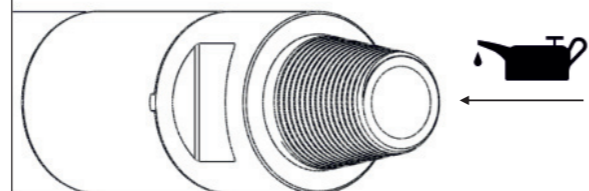
Q. Fit 'O' Ring (3) onto Top Adaptor (2).



R. Grease threads and screw Top Adaptor (2) into Cylinder (13) until fully tightened.



S. Depress Non Return Valve (4) and pour 1/3 litre of air line oil into the hammer.

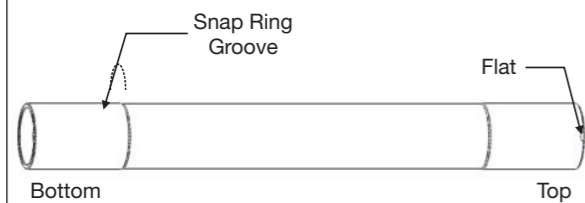


DOMINATOR 500 / SUPER DOMINATOR 500 & 550

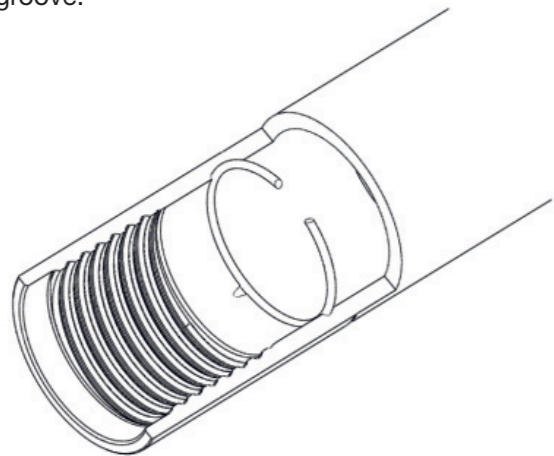
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



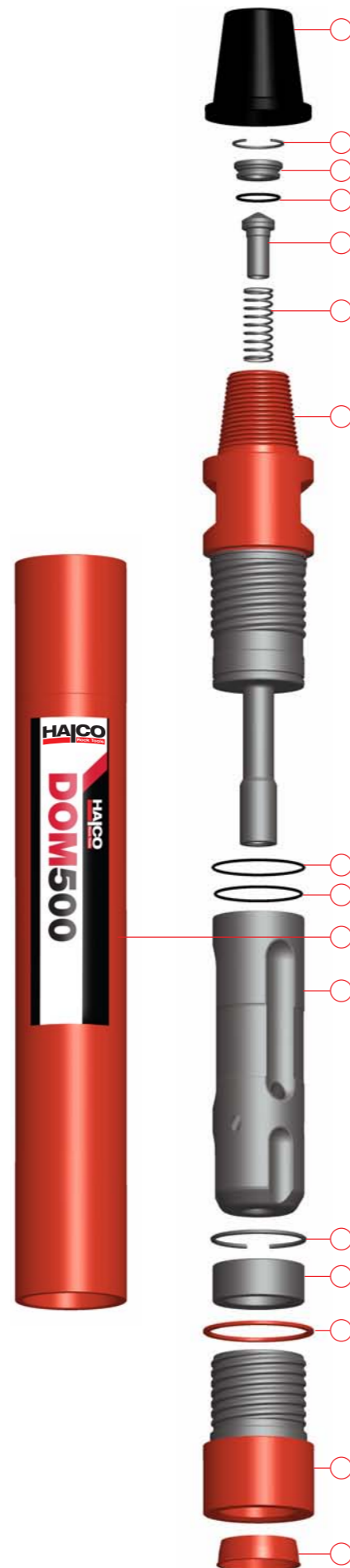
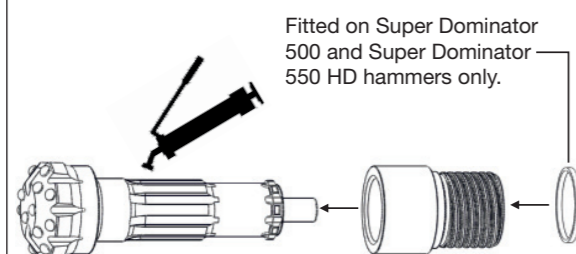
B. Secure Cylinder (11) on a bench or suitable stripping equipment. The cylinder is not reversible and the bottom of the hammer is the cylinder end where the internal snap ring groove is situated and the top of the hammer is the cylinder end with the machined flat.



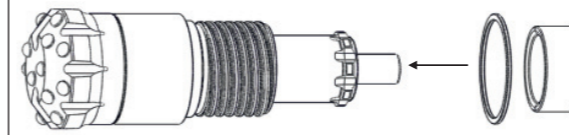
C. Insert Snap Ring (13) into the bottom of Cylinder (11). Ensure it seats in the snap ring groove.



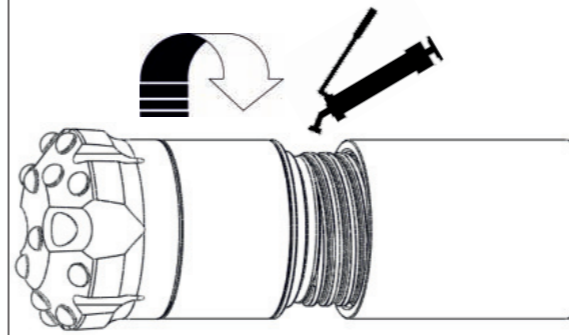
D. If required fit Chuck Lock Ring (15) onto Chuck (17). Grease splines and fit Chuck (17) onto Drill Bit (18).



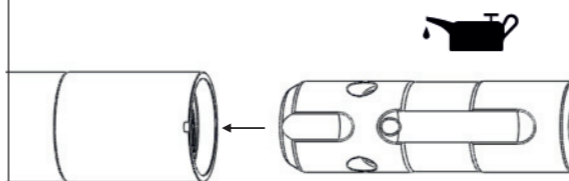
E. Fit Chuck Spacer (16) over Chuck (17) and fit Bit Retaining Rings (14) over Drill Bit (18).



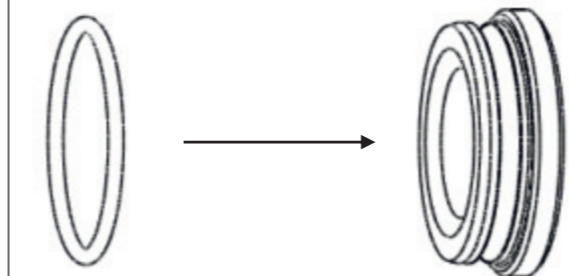
F. Grease threads and screw Drill Bit (18), Chuck (17), Chuck Spacer (16) and Bit Retaining Rings (14) into the bottom of Cylinder (11).



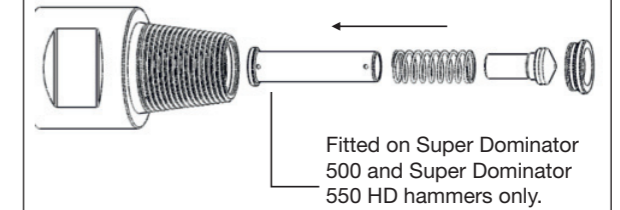
G. Coat Piston (12) liberally with rock oil, minimum 200 centistroke and insert into the top of Cylinder (11) ensure it is facing the right way as illustrated.



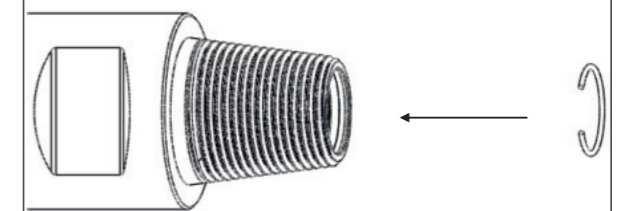
H. Fit 'O' Ring (4) onto Non Return Valve Seat (3).



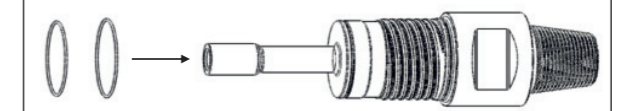
I. Insert Snap Ring (11) into the top of Cylinder (13) ensure it seats in the snap ring groove.



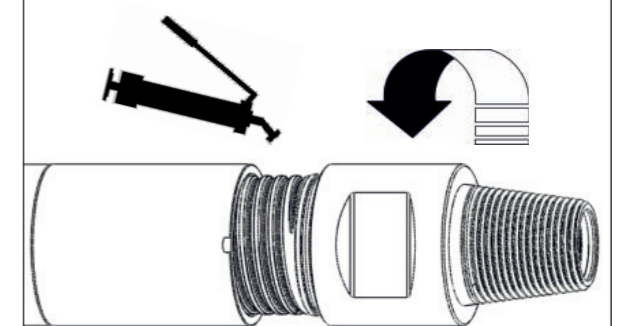
J. Fit Snap Ring (2) into Top Adaptor (8) ensure it seats in the snap ring groove.



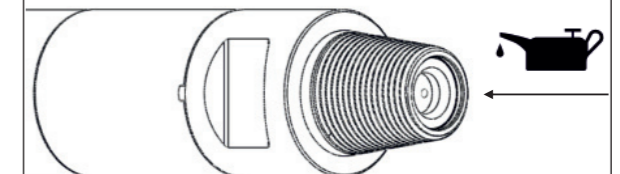
K. Fit 'O' Ring (9 & 10) onto Top Adaptor (8)



L. Grease threads and screw Top Adaptor (8) into Cylinder (11) until fully tightened.



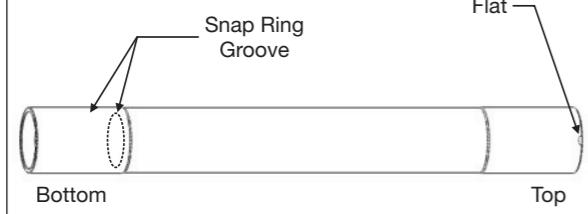
M. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.



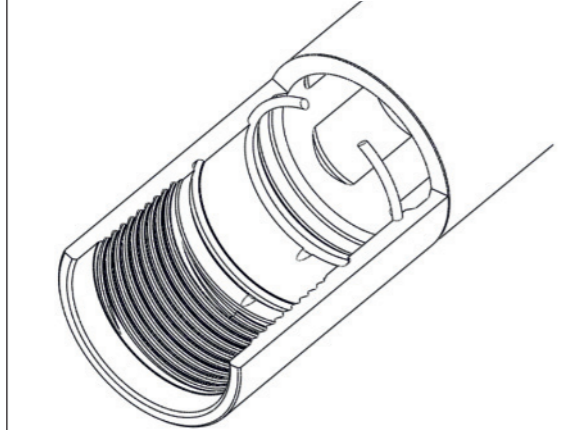
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



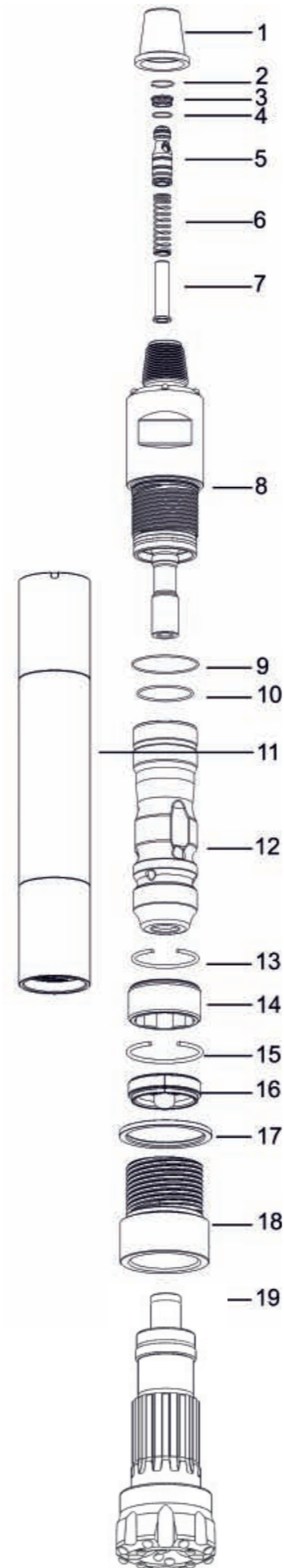
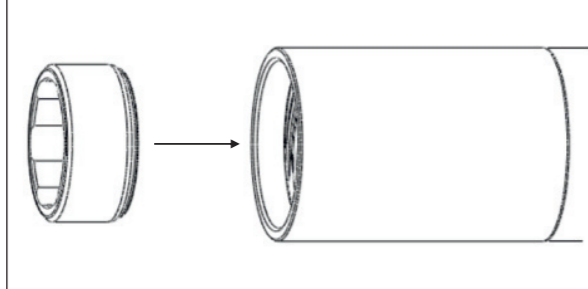
B. Secure Cylinder (11) on a bench or suitable stripping equipment. The cylinder is not reversible and the bottom of the hammer is the cylinder end where the internal snap ring grooves are situated and the top of the hammer is the cylinder end with the machined flat.



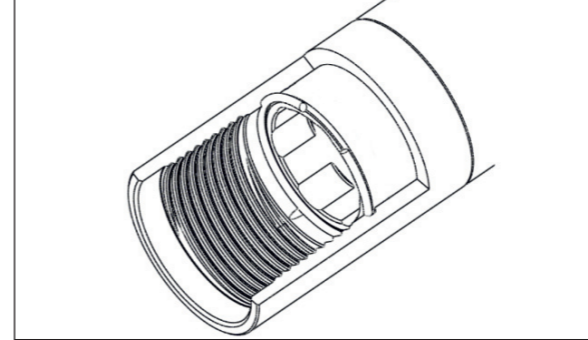
C. Insert Snap Ring (13) into bottom of Cylinder (11) ensure it seats in the snap ring groove furthest from the cylinder end.



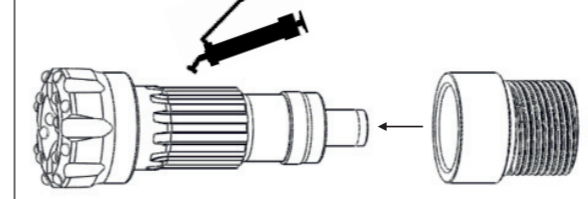
D. Insert Bit Guide Bush (14) into bottom of Cylinder (11) ensure it is inserted the right way round as illustrated below and that it seats up against Snap Ring (13).



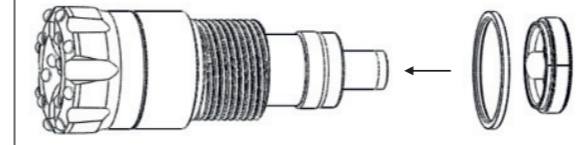
E. Insert Snap Ring (15) into Cylinder (11) ensure it seats in the snap ring groove.



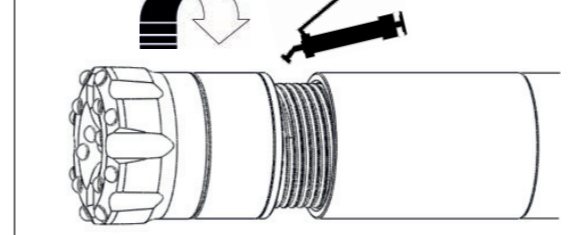
F. Grease splines and fit Chuck (18) onto Drill Bit (19).



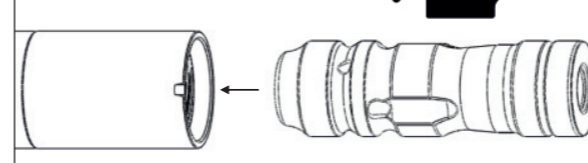
G. Fit Chuck Spacer (17) onto Chuck (18). Fit Bit Retaining Rings (16) over Drill Bit (19) and insert into Chuck (18).



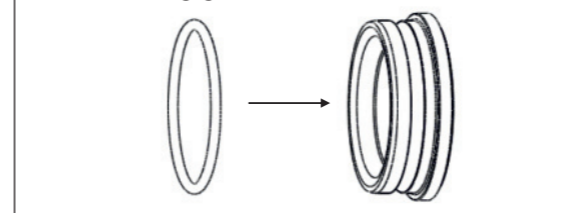
H. Grease threads and screw Drill Bit (19), Chuck (18), Chuck Spacer (17) and Bit Retaining Rings (16) into bottom of Cylinder (11).



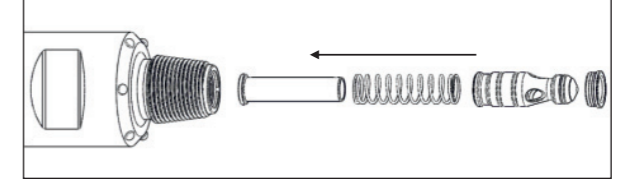
I. Coat Piston (12) liberally with rock oil - minimum 200 centistroke and insert into the top of Cylinder (11) ensure that it is facing the right way as illustrated.



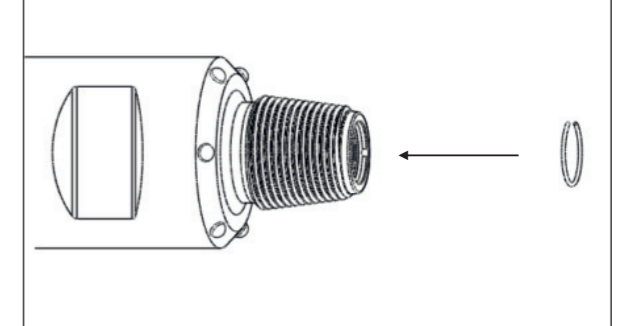
J. Fit 'O' Ring (4) to NRV seat (3) ensure it seats in the 'O' Ring groove.



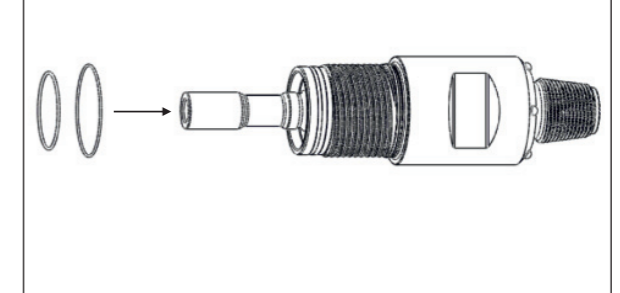
K. Insert Non Return Valve assembly (3 - 7) into Top Adaptor (8).



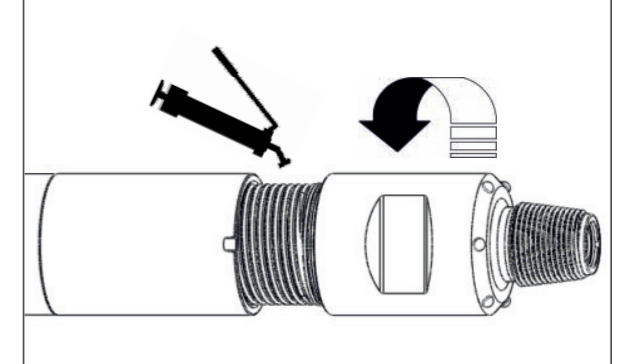
L. Insert Snap Ring (2) into Top Adaptor (8) ensure it seats in the snap ring groove.



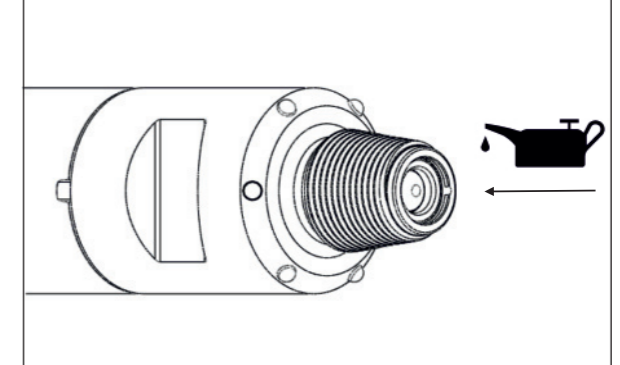
M. Fit 'O' Rings (9 & 10) onto Top Adaptor (8) ensure they seat in the appropriate 'O' Ring grooves.



N. Grease threads and screw Top Adaptor (8) into Cylinder (11) until fully tightened.

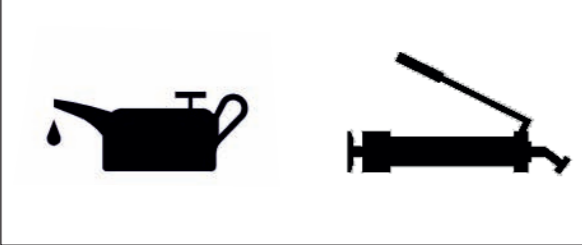


O. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.

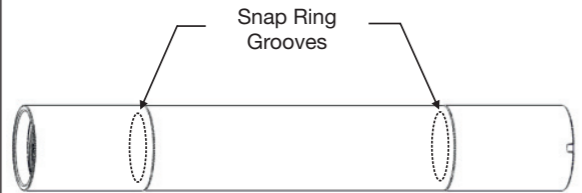


SUPER DOMINATOR 600 & 650

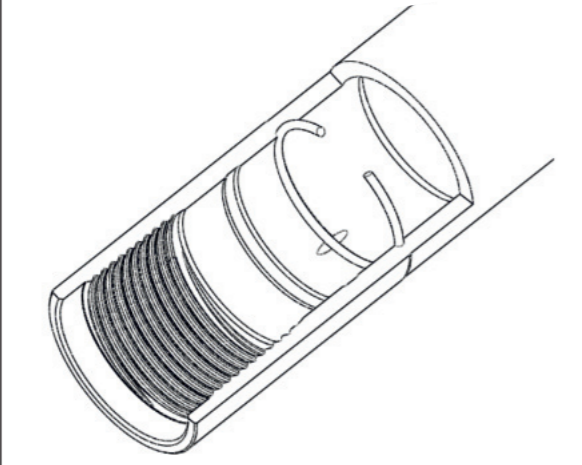
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



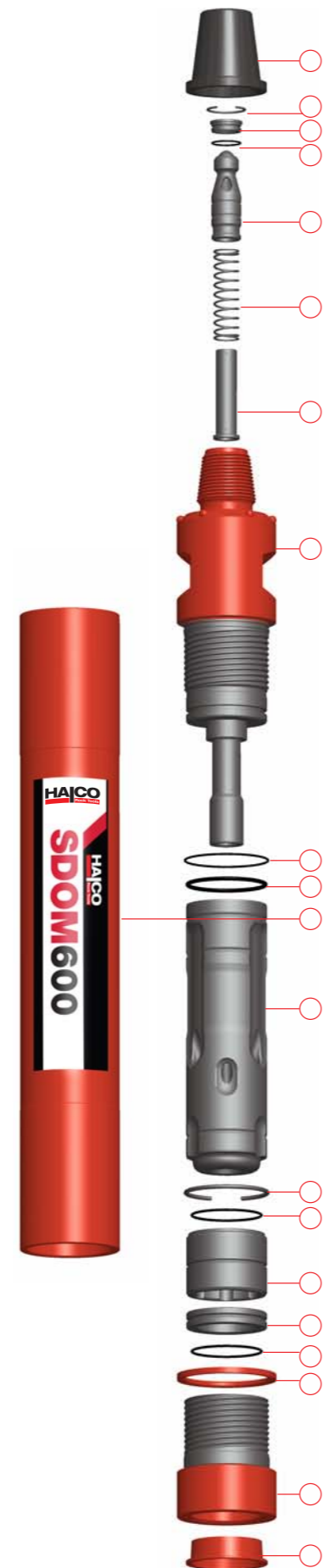
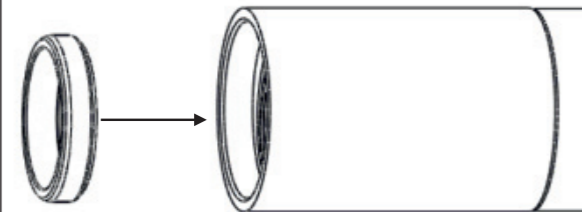
B. Secure Cylinder (11) on a bench or suitable stripping equipment. The cylinder has two identically positioned snap ring grooves and is reversible.



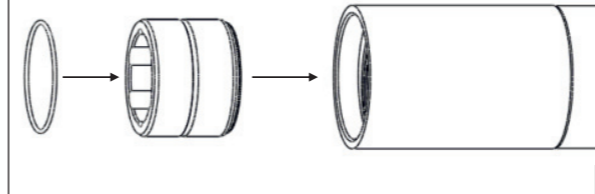
C. Insert Snap Ring (13) into bottom of Cylinder (11) ensure it seats in the snap ring groove.



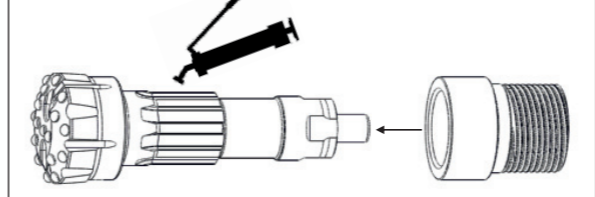
D. For hammers designed to take A53-15 (SD6) shanked bits insert Bottom Spacer (14) into bottom of Cylinder (11) ensure it seats up against Snap Ring (13).



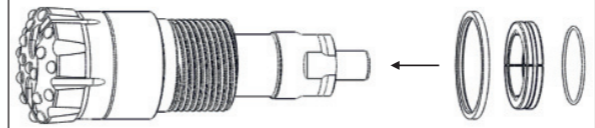
E. Fit 'O' Ring (15) onto Bit Guide Bush (16) ensure it seats in the 'O' Ring groove. Insert Bit Guide Bush (16) into bottom of Cylinder (11).



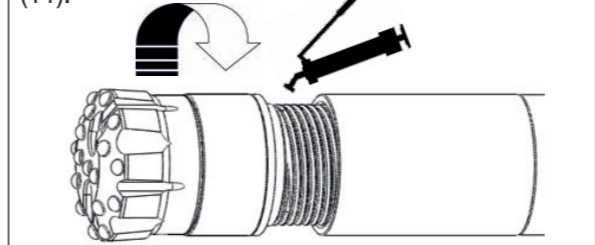
F. Grease splines and fit Chuck (20) onto Drill Bit (21).



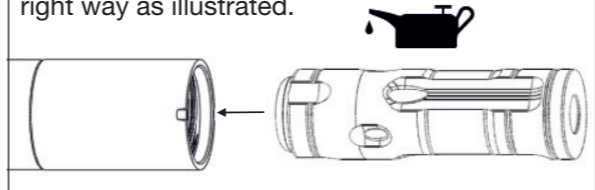
G. Fit Chuck Spacer (19) onto Chuck (20). Fit 'O' Ring (18) onto Bit Retaining Rings (17) ensure it seats in the 'O' Ring groove. Fit Bit Retaining Rings (17) to Drill Bit (21).



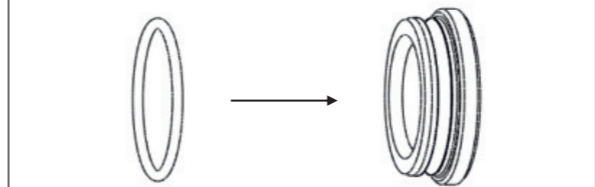
H. Grease threads and screw Drill Bit (21), Chuck (20), Chuck Spacer (19) and Bit Retaining Rings (17) into bottom of Cylinder (11).



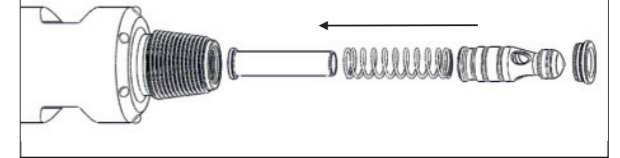
I. Coat Piston (12) liberally with rock oil - minimum 200 centistroke and insert into the top of Cylinder (11) ensure that it is facing the right way as illustrated.



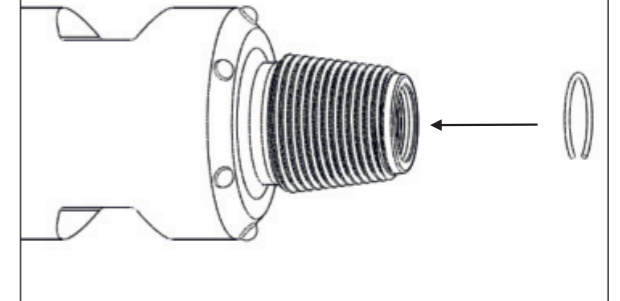
J. Fit 'O' Ring (4) to NRV seat (3) ensure it seats in the 'O' Ring groove.



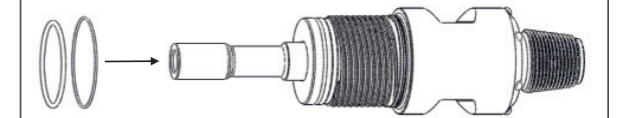
K. Insert Non Return Valve assembly (3 - 7) into Top Adaptor (8).



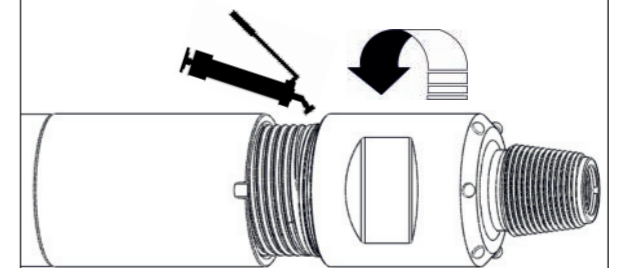
L. Insert Snap Ring (2) into Top Adaptor (8) ensure it seats in the snap ring groove.



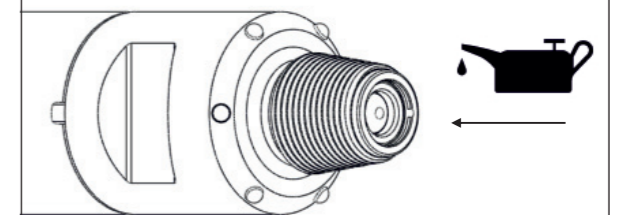
M. Fit 'O' Rings (9 & 10) onto Top Adaptor (8) ensure they seat in the appropriate 'O' Ring grooves.



N. Grease threads and screw Top Adaptor (8) into Cylinder (11) until fully tightened.



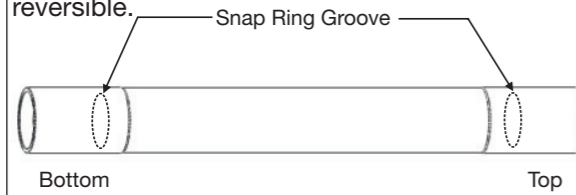
O. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.



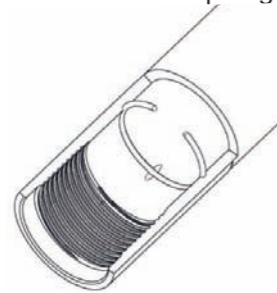
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



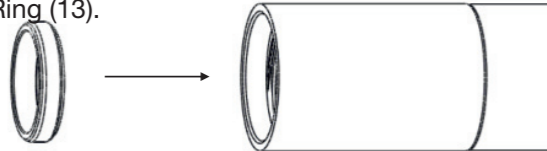
B. Secure Cylinder (11) on a bench or suitable stripping equipment. The cylinder has two identically positioned snap ring grooves and is reversible.



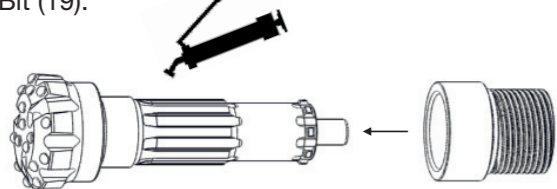
C. Insert Snap Ring (13) into bottom of Cylinder (11) ensure it seats in the snap ring groove.



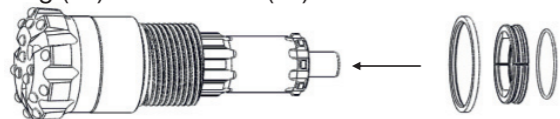
D. Insert Bottom Spacer (14) into bottom of Cylinder (11) ensure it seats fully up to Snap Ring (13).



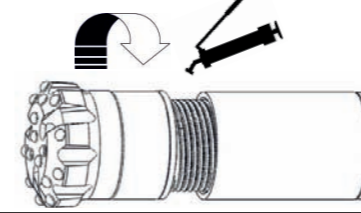
E. Grease splines and fit Chuck (18) onto Drill Bit (19).



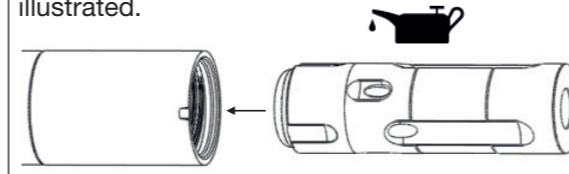
F. Fit Chuck Spacer (17) over Chuck (18). Fit 'O' Ring (16) onto Bit Retaining Ring (15) ensure it seats in the 'O' Ring groove. Fit Bit Retaining Ring (15) onto Drill Bit (19).



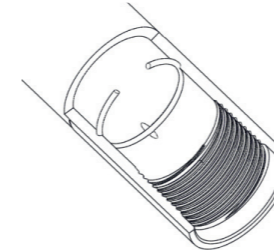
G. Grease threads and screw Drill Bit (19), Chuck (18), Chuck Spacer (17) and Bit Retaining Ring (15) into bottom of Cylinder (11).



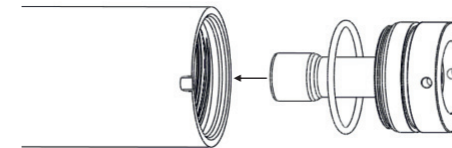
H. Coat Piston (12) liberally with rock oil, minimum 200 centistroke and insert into top of Cylinder (11) ensure it is facing the right way as illustrated.



I. Insert Snap Ring (10) into top of Cylinder (11). Ensure it seats in the snap ring groove.

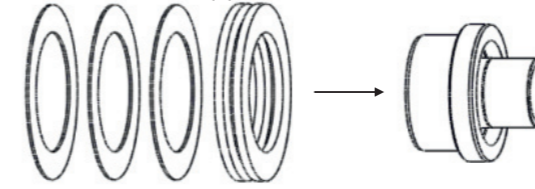


J. Fit 'O' Ring (9) onto Air Distributor (8) and inset into Cylinder (11) so that it seats up against Snap Ring (10).

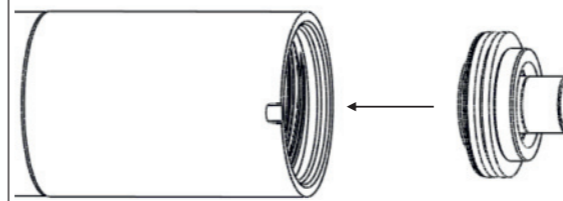


SETTING CORRECT TOLERANCES

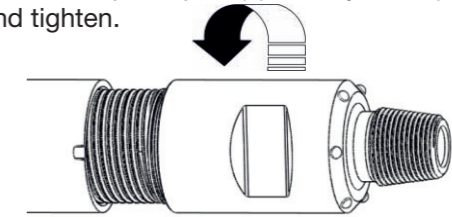
K. Fit Compression Ring (6) onto lower end of NRV Housing (5) along with existing and additional Shims (7).



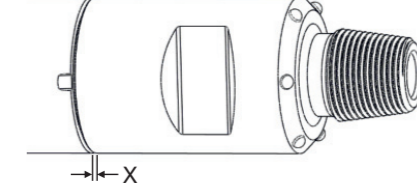
L. Insert NRV Housing (5) Compression Ring (6) and Shims (7) into top of Cylinder (11).



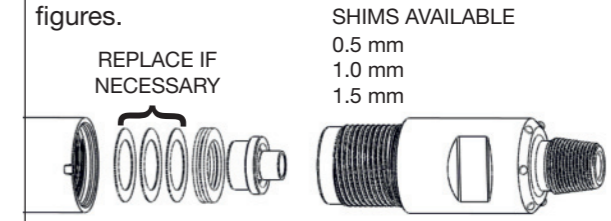
M. Screw Top Adaptor (2) into Cylinder (11) and hand tighten.



N. Measure make up gap 'X' between Cylinder (11) and Top Adaptor (2). Correct make up gap should be between 2.7 mm - 3.5 mm (0.106"-0.138").

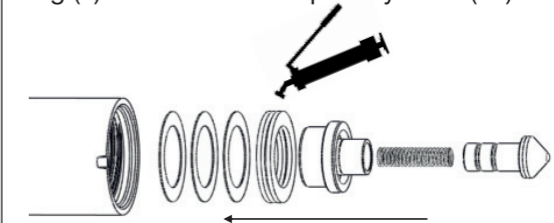


O. Unscrew and remove Top Adaptor (2), NRV Housing (5), Compression Ring (6) and Shims (7). Replace shimming in order that make-up gap 'X' falls between minimum and maximum figures.

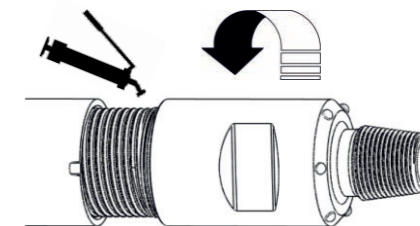


FINAL ASSEMBLY

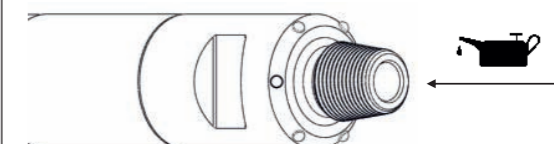
P. Fit NRV Spring (4), Non Return Valve (3), Compression Ring (6) and necessary Shims (7) onto NRV Housing (5). Grease Compression Ring (6) and insert into top of Cylinder (11).



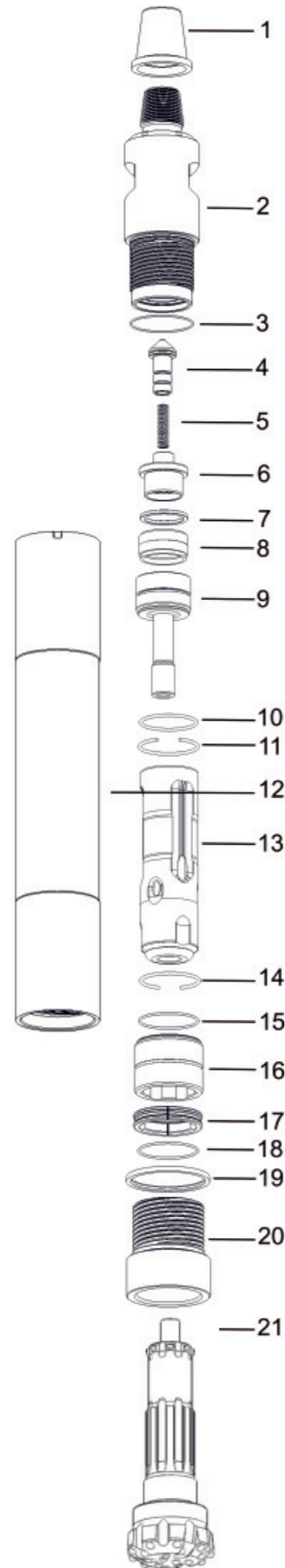
Q. Grease threads and screw Top Adaptor (2) into Cylinder (11) until fully tightened.



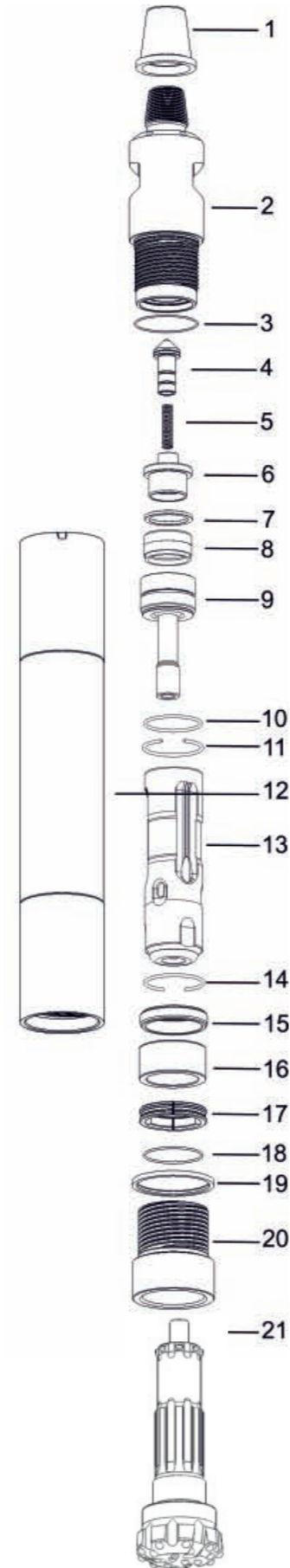
R. Depress Non Return Valve (3) and pour 1/3 litre air line oil into the hammer.



INGERSOLL RAND VERSION



HALCO & MISSION VERSION



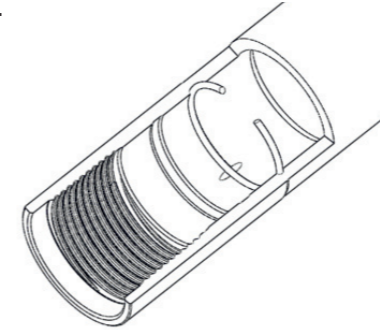
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



B. Secure Cylinder (12) on a bench or suitable stripping equipment. The cylinder has two snap ring grooves and is not reversible. The top of the hammer is indicated by a machined flat.

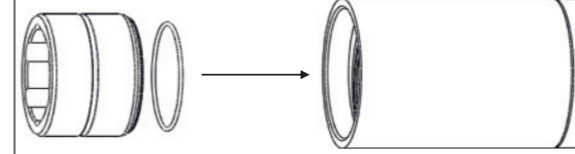


C. Insert Snap Ring (14) into the bottom of Cylinder (12) ensure it seats in the snap ring groove.



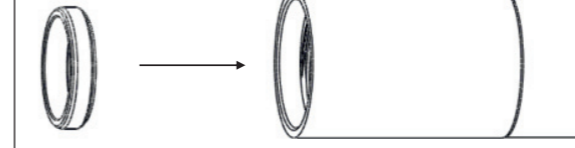
D1. INGERSOLL RAND VERSION

Fit 'O' Ring (15) to Bit Guide Bush (16) and insert into bottom of Cylinder (12) ensure it seats up against Snap Ring (14).



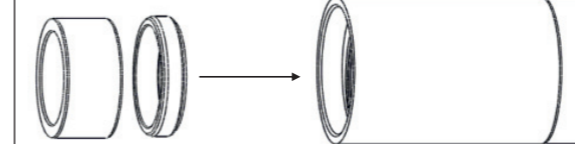
D2. HALCO VERSION

Insert Bottom Spacer (15) into bottom of Cylinder (12) ensure it seats up against Snap Ring (14).

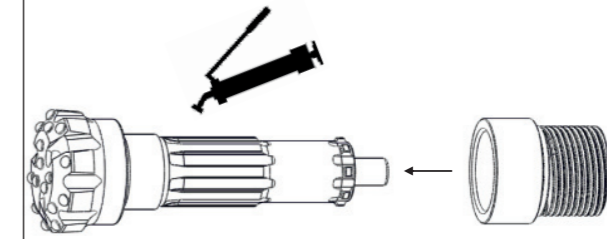


D3. MISSION VERSION

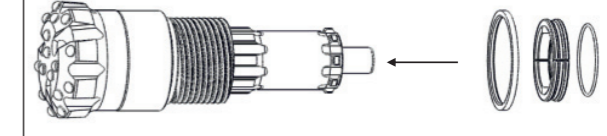
Insert Bottom Spacer (15) into bottom of Cylinder (12) ensure it seats up against Snap Ring (14). Insert Bit Guide Bush (16) into bottom of Cylinder (12).



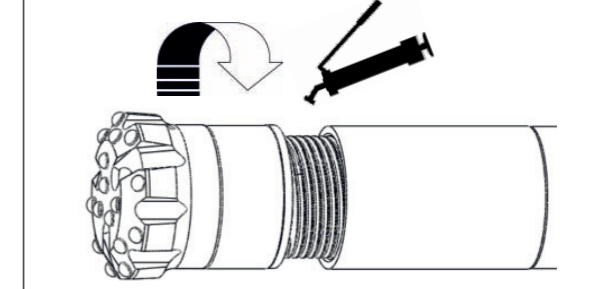
E. Grease Splines and fit Chuck (20) onto Drill Bit (21).



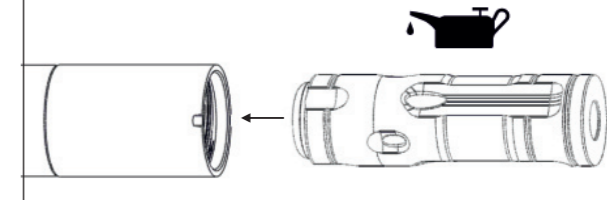
F. Fit Chuck Spacer (19) over Chuck (20). Fit 'O' Ring (18) onto Bit Retaining Ring (17) ensure it seats in the 'O' Ring groove. Fit Bit Retaining Ring (17) onto Drill Bit (21).



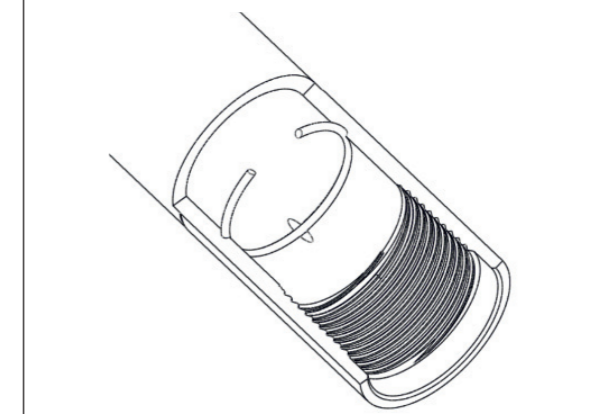
G. Grease threads and screw Drill Bit (21), Chuck (20), Chuck Spacer (19) and Bit Retaining Ring (17) into bottom of Cylinder (12).



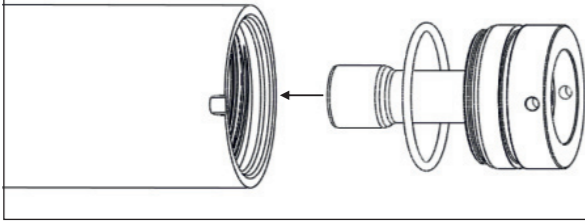
H. Coat Piston (13) liberally with rock oil, minimum 200 centistroke and insert into top of Cylinder (12) ensure it is facing the right way as illustrated.



I. Insert Snap Ring (11) into the top of Cylinder (12). Ensure it seats in the snap ring groove.

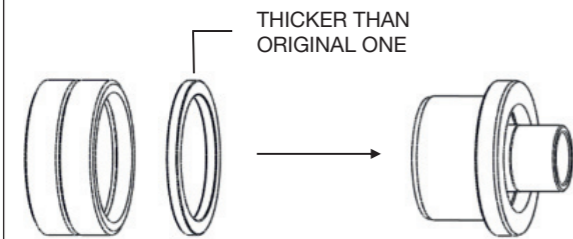


J. Fit 'O' Ring (10) onto Air Distributor (9) and inset into Cylinder (12) so that it seats up against Snap Ring (11).

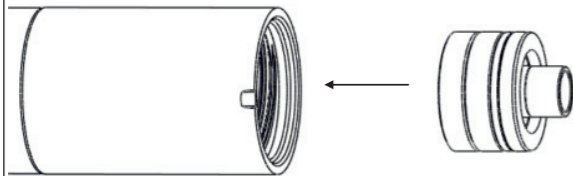


SETTING CORRECT TOLERANCES

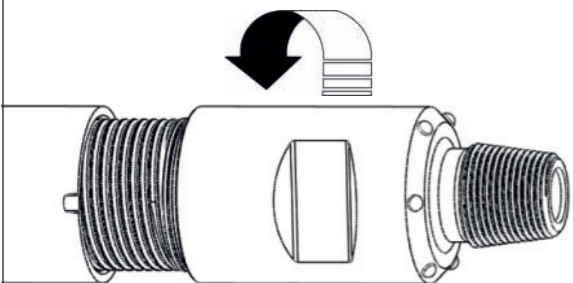
K. Fit a Shim (7) thicker than the one taken from the hammer onto the NRV Housing (6). Fit Compression Spring (8) onto NRV Housing (6). Ensure it is assembled correctly and in the same sequence as originally fitted.



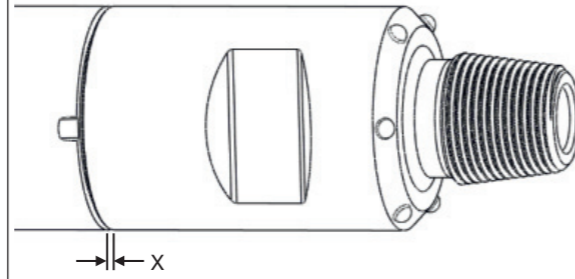
L. Insert NRV Housing (6), Shim (7) and Compression Spring (8) into the top of Cylinder (7).



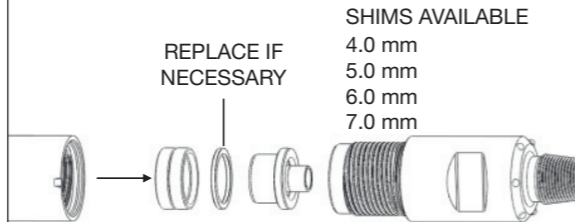
M. Screw Top Adaptor (2) into Cylinder (12) and hand tighten.



N. Measure make up gap 'X' between Cylinder (12) and Top Adaptor (2). Correct make up gap should be between 2.0 mm - 3.0 mm (0.079" - 0.157").



O. Unscrew and remove Top Adaptor (2), NRV Housing (6), Shims (7) and Compression Spring (8). Replace shimming in order that make up gap 'X' falls between minimum and maximum figures.

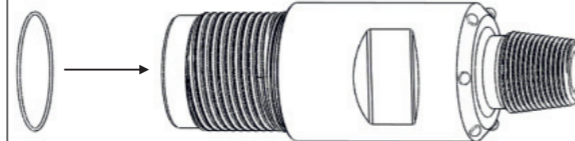


FINAL ASSEMBLY

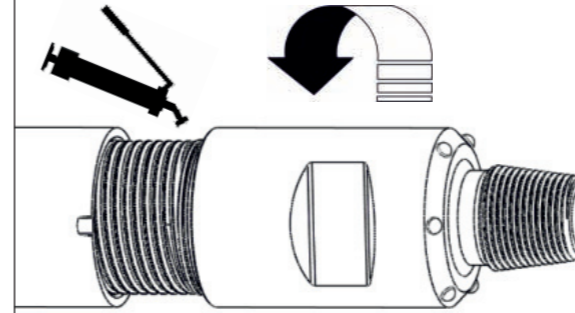
P. Fit NRV Spring (5), Non Return Valve (4), necessary Shims (7) and Compression Spring (8) onto NRV Housing (6). Grease Compression Spring (8) and insert into top of Cylinder (12).



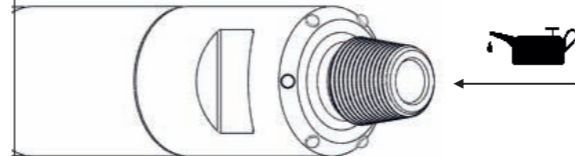
Q. Fit 'O' Ring (3) onto Top Adaptor (2) ensure it seats in the 'O' Ring groove.



R. Grease threads and screw Top Adaptor (2) into Cylinder (12) until fully tightened.



S. Depress Non Return Valve (4) and pour 1/3 litre air line oil into the hammer.

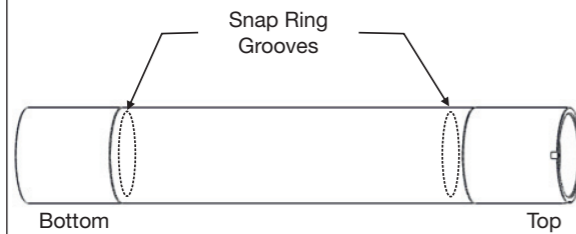


DOMINATOR 750

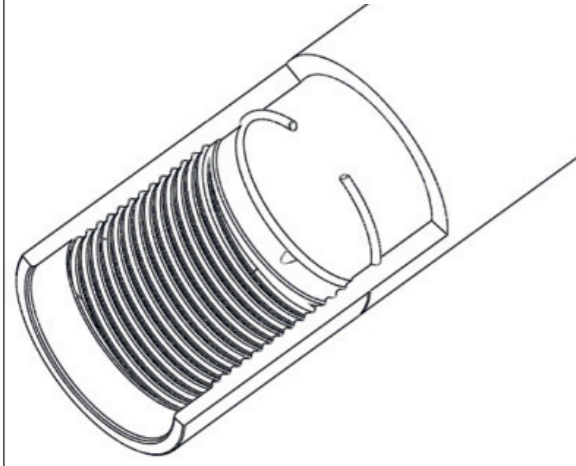
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



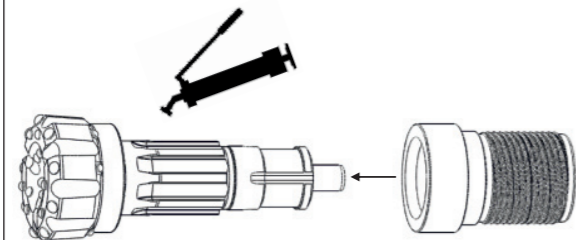
B. Secure Cylinder (11) on a bench or suitable stripping equipment. The cylinder has two identically positioned snap ring grooves and is reversible.



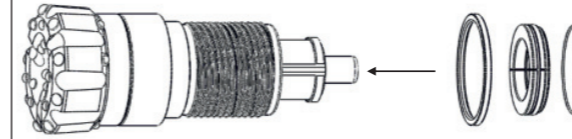
C. Insert Snap Ring (13) into bottom of Cylinder (11) ensure it seats in the snap ring groove.



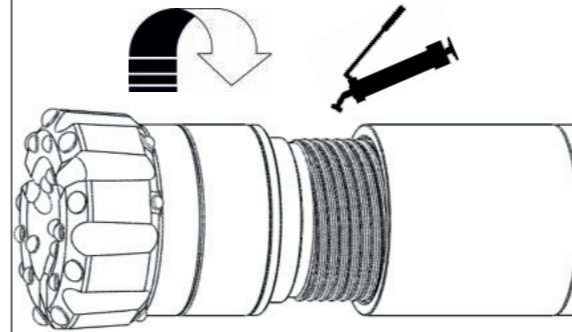
D. Grease splines and fit Chuck (17) onto Drill Bit (18).



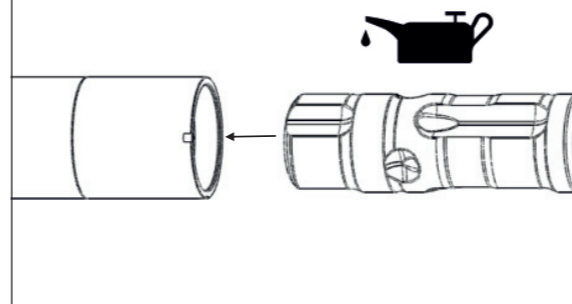
E. Fit Chuck Spacer (16) onto Chuck (17), Fit 'O' Ring (14) onto Bit Retaining Rings (15) ensure it seats in the 'O' Ring groove. Fit Bit Retaining Rings (15) onto Drill Bit (18).



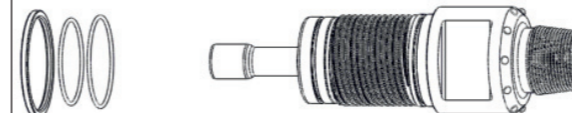
F. Grease threads and screw Drill Bit (18), Chuck (17), Chuck Spacer (16) and Bit Retaining Rings (15) into Cylinder (11).



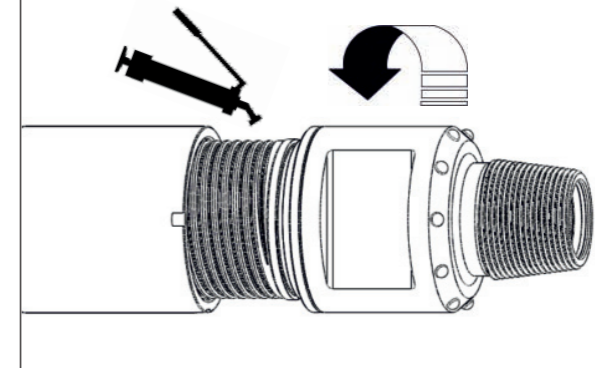
G. Coat Piston (12) liberally with rock oil, minimum 200 centistroke and insert into top of Cylinder (11) ensure it is facing the right way as illustrated.



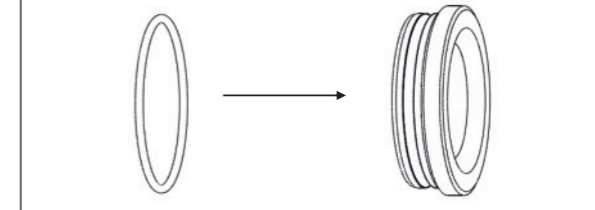
H. Fit 'O' Rings (8 & 9) onto Top Adaptor (7) ensure they seat in the appropriate 'O' Ring grooves. Fit Spacer (10) onto Top Adaptor (7).



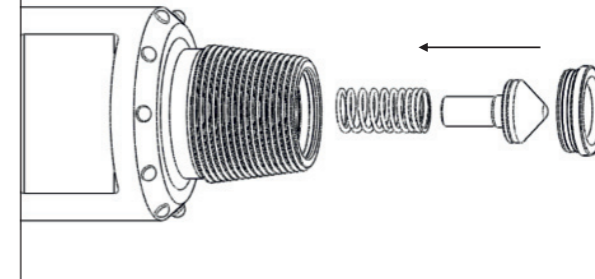
I. Grease threads and screw Top Adaptor (7) and Spacer (10) into top of Cylinder (11) until fully tightened.



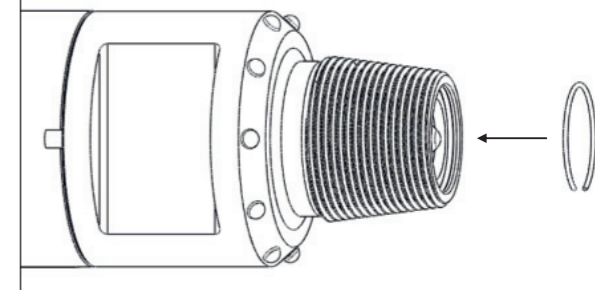
J. Fit 'O' Ring (3) onto NRV Seat (4) ensure it seats in the 'O' Ring groove.



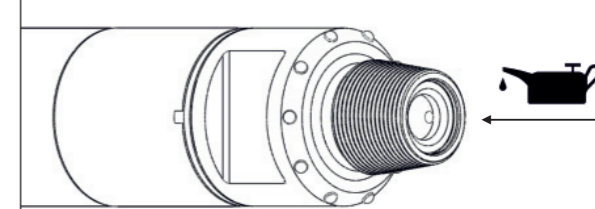
K. Insert Non Return Valve assembly (3-6) into Top Adaptor (7).



L. Insert Snap Ring (2) into Top Adaptor (7) ensure it seats in the snap ring groove.



M. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.



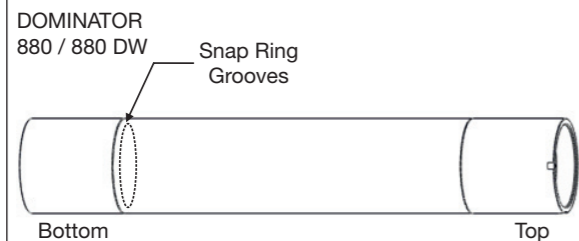
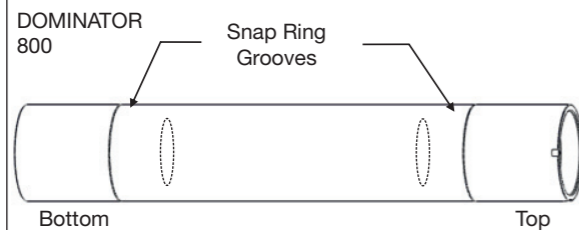
DOMINATOR 800 & 880

DOMINATOR 880 DW

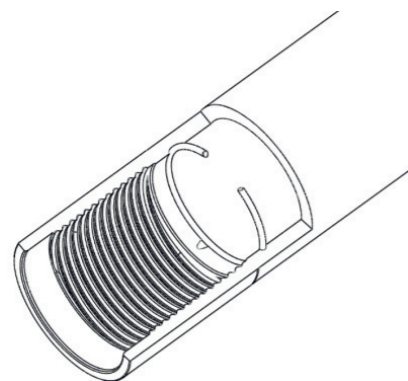
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



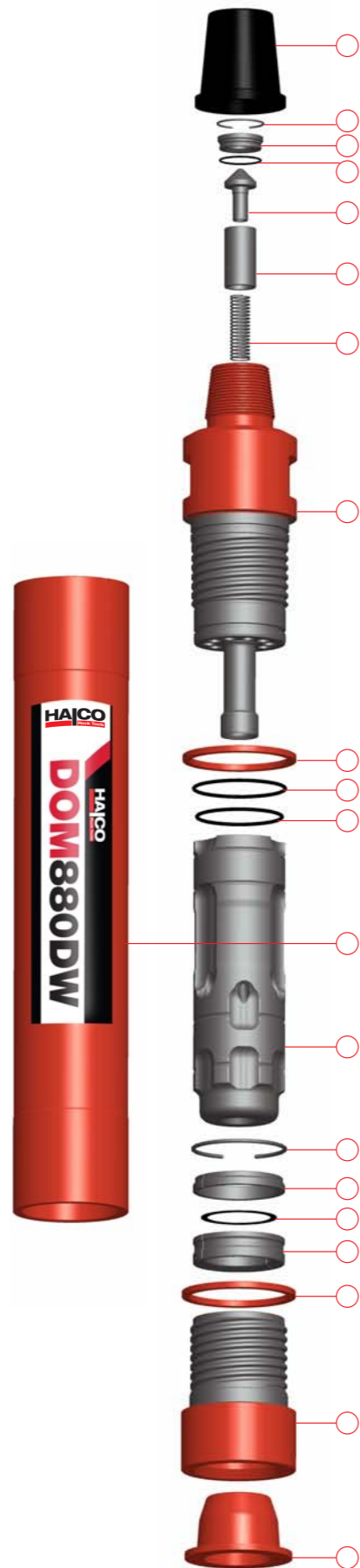
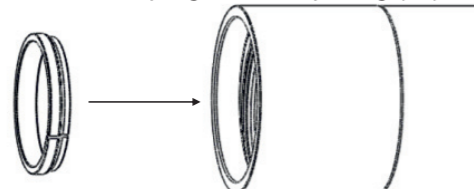
B. Secure Cylinder (13) on a bench or suitable stripping equipment. The Dominator 800 cylinder has two identically positioned snap ring grooves and is reversible. The Dominator 880 & 880 Deepwell cylinder is not reversible and the bottom end is the only cylinder end with an internal snap ring groove.



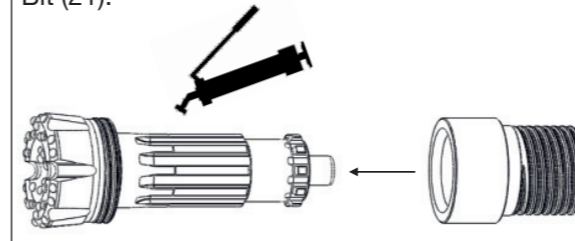
C. Insert Snap Ring (15) into bottom of Cylinder (13) ensure it seats in the snap ring groove.



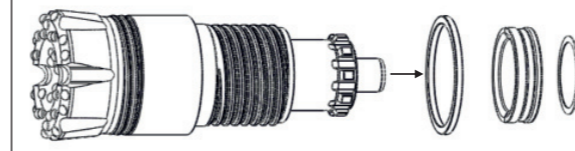
D. INGERSOLL RAND VERSIONS ONLY
Insert Spacer (16) into bottom of Cylinder (13) ensure it seats up against Snap Ring (15).



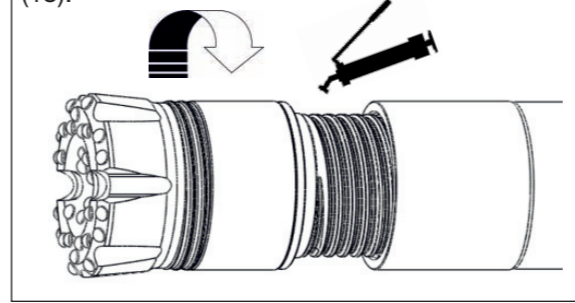
E. Grease splines and fit Chuck (20) onto Drill Bit (21).



F. Fit Chuck Spacer (19) onto Chuck (20). Fit Containment Band (17) onto Bit Retaining Rings (18). Fit Bit Retaining Rings (18) onto Drill Bit (21).

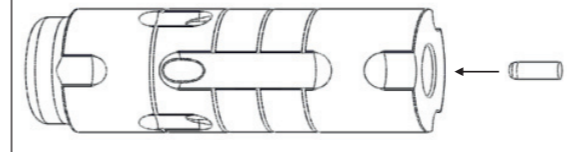


G. Grease threads and screw Drill Bit (21), Chuck (20), Chuck Spacer (19) and Bit Retaining Rings (18) into bottom of Cylinder (13).

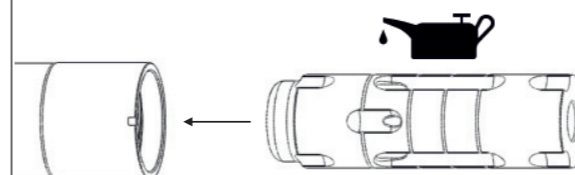


H. DOMINATOR 880 VERSIONS ONLY
If required insert Choke Plug (12) into top of Piston (14) ensure it is pushed fully into the bleed hole.

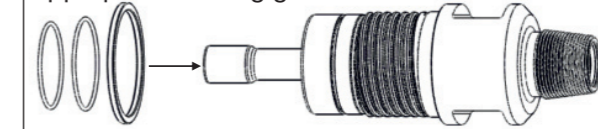
PLUGS AVAILABLE
BLANK
4 mm
6 mm
8 mm



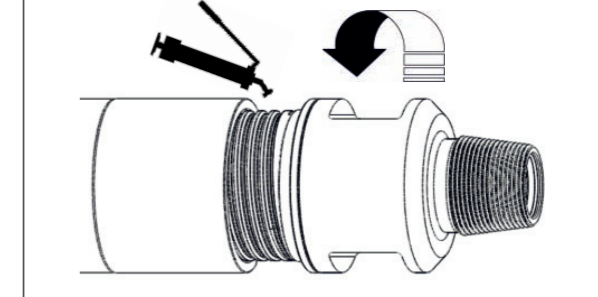
I. Coat Piston (14) liberally with rock oil, minimum 200 centistroke and insert into top of Cylinder (13) ensure it is facing the right way as illustrated.



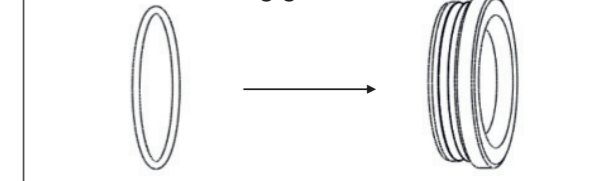
J. Fit Spacer (9) and 'O' Rings (10 & 11) onto Top Adaptor (8) ensure 'O' Rings seat in the appropriate 'O' ring grooves.



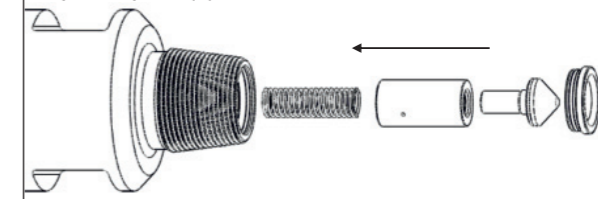
K. Grease threads and screw Top Adaptor (8) and Spacer (9) into top of Cylinder (13) until fully tightened.



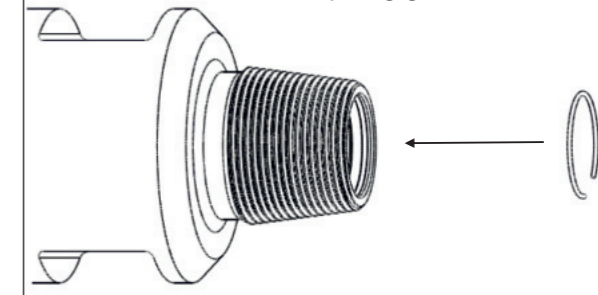
L. Fit 'O' Ring (4) onto NRV Seat (3) ensure it seats in the 'O' Ring groove.



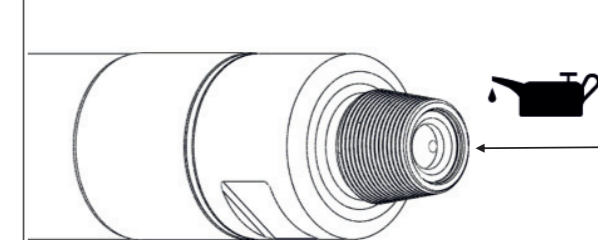
M. Insert Non Return Valve assembly (3-7) into Top Adaptor (8).



N. Insert Snap Ring (2) into Top Adaptor (8) ensure it seats in the snap ring groove.



O. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.

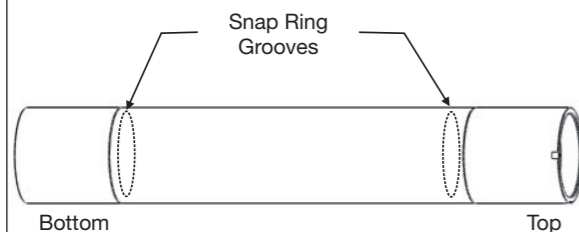


DOMINATOR 850

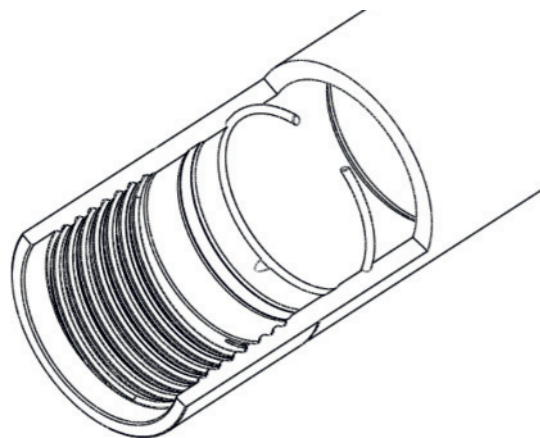
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



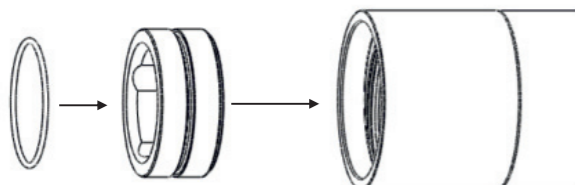
B. Secure Cylinder (11) on a bench or suitable stripping equipment. The cylinder has two identically positioned snap ring grooves and is reversible.



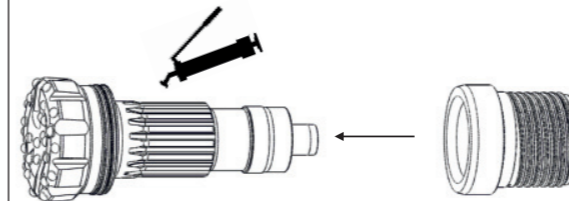
C. Insert Snap Ring (13) into bottom of Cylinder (11) ensure it seats in the snap ring groove.



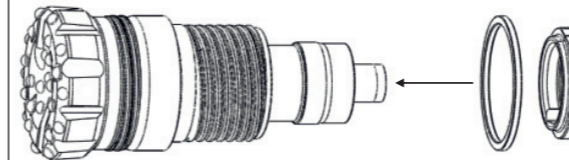
D. Fit 'O' Ring (14) to Bit Guide Bush (15) ensure it seats in the 'O' ring groove. Insert Bit Guide Bush (15) into bottom of Cylinder (11) ensure it seats up against Snap Ring (13).



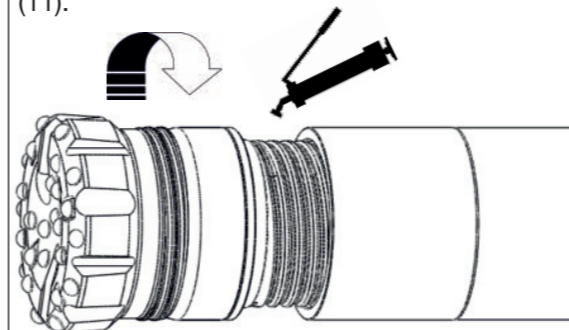
E. Grease splines and fit Chuck (18) onto Drill Bit (19).



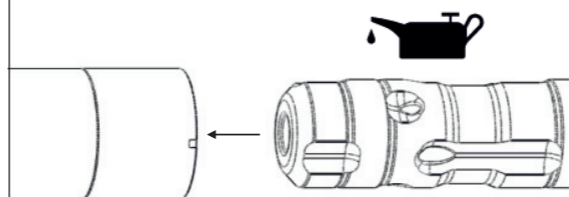
F. Fit Chuck Spacer (17) onto Chuck (18), Fit Bit Retaining Rings (16) over Drill Bit (19) and insert into Chuck (18).



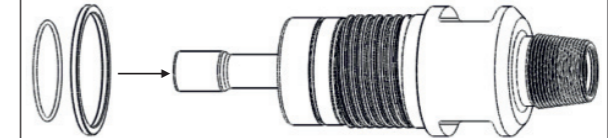
G. Grease threads and screw Drill Bit (19), Chuck (18), Chuck Spacer (17) and Bit Retaining Rings (16) into bottom of Cylinder (11).



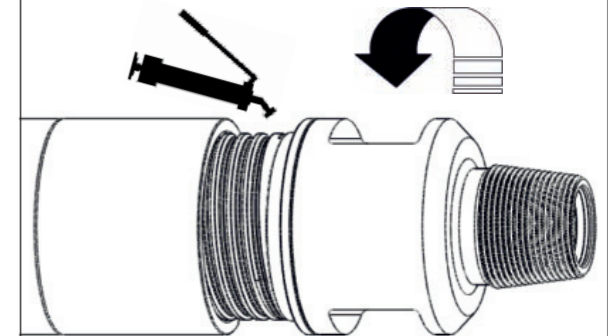
H. Coat Piston (12) liberally with rock oil, minimum 200 centistroke and insert into top of Cylinder (11) ensure it is facing the right way as illustrated.



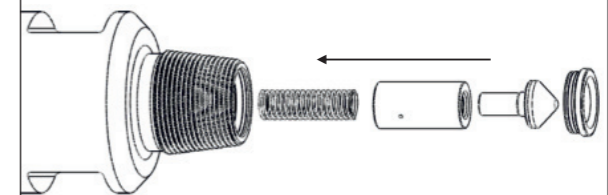
I. Fit Spacer (9) onto Top Adaptor (8), fit 'O' Ring (10) onto Top Adaptor (8) ensure it seats in the 'O' ring groove.



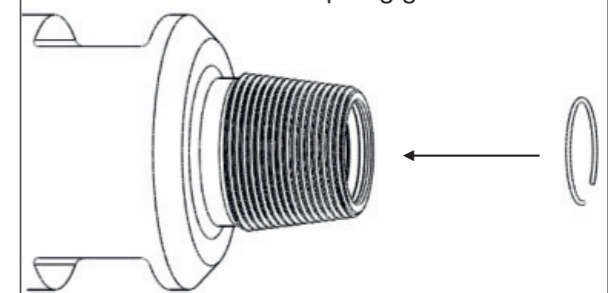
J. Grease threads and screw Top Adaptor (8) into top of Cylinder (11) until fully tightened.



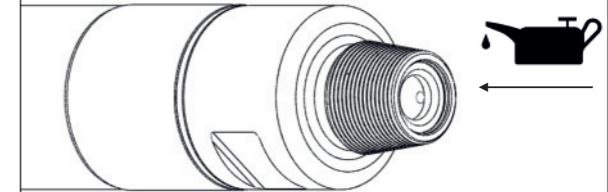
K. Insert Non Return Valve assembly (3-7) into Top Adaptor (8).



L. Insert Snap Ring (2) into Top Adaptor (8) ensure it seats in the snap ring groove.



M. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.

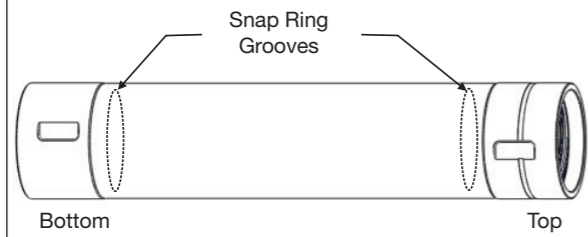


DOMINATOR 1000

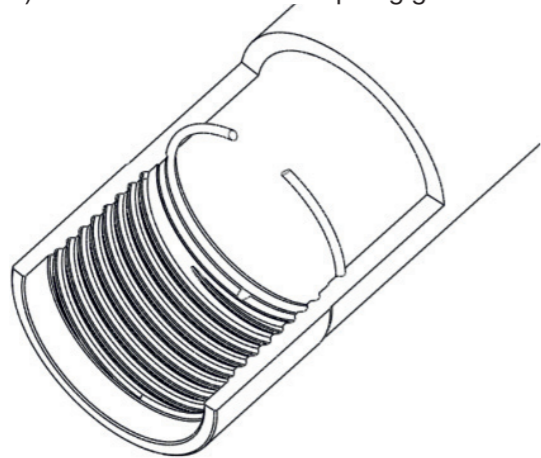
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



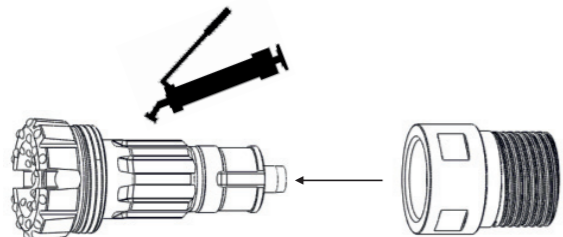
B. Secure Cylinder (12) on a bench or suitable stripping equipment. The cylinder has two identically positioned snap ring grooves and is reversible.



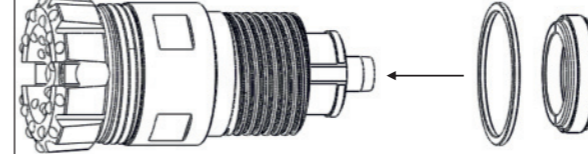
C. Insert Snap Ring (14) into bottom of Cylinder (12) ensure it seats in the snap ring groove.



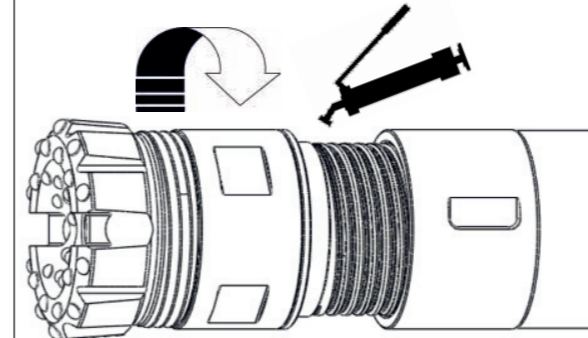
D. Grease splines and fit chuck (17) onto Drill Bit (18).



E. Fit Chuck Spacer (16) onto Chuck (17), Fit Bit Retaining Rings (15) over Drill Bit (18) and insert into Chuck (17).

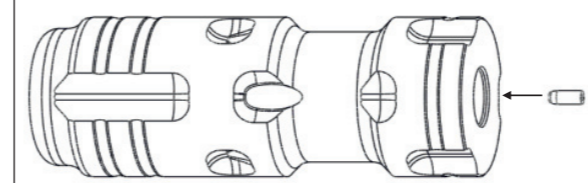


F. Grease threads and screw Drill Bit (18), Chuck (17), Chuck Spacer (16) and Bit Retaining Rings (15) into bottom of Cylinder (12).

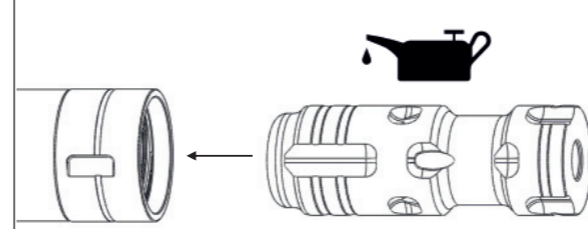


G. If required insert Bleed Plug (11) into top of Piston (13) ensure it is pushed fully into the bleed hole.

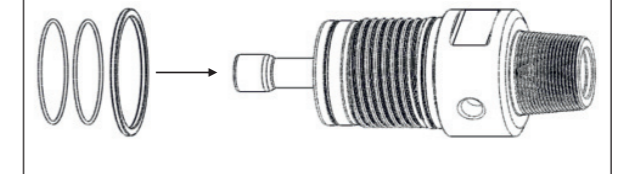
Bleed Plugs Available	
Blank	5 mm
3 mm	6 mm
4 mm	8 mm



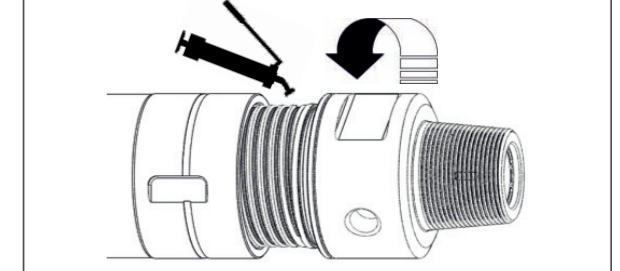
H. Coat Piston (13) liberally with rock oil, minimum 200 centistroke and insert into top of Cylinder (12) ensure it is facing the right way as illustrated.



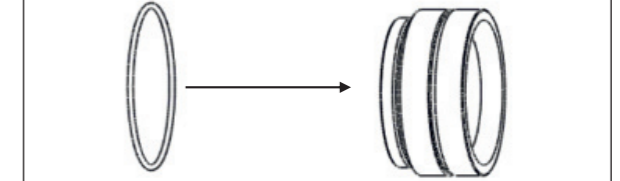
I. Fit Top Adaptor Spacer (8) and 'O' Rings (9 & 10) onto Top Adaptor (7) ensure 'O' rings seat in the appropriate 'O' ring grooves.



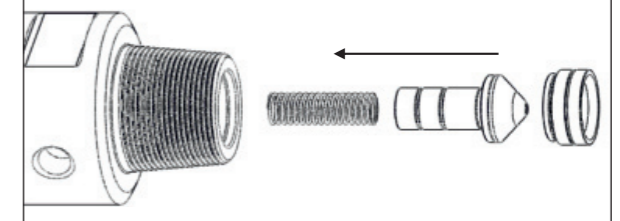
J. Grease threads and screw Top Adaptor (7) and Top Adaptor Spacer (8) into top of Cylinder (12) until fully tightened.



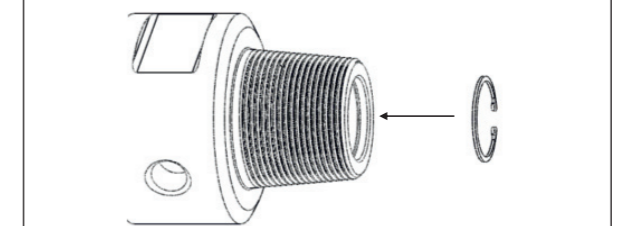
K. Fit 'O' Ring (3) onto NRV Seat (4) ensure it seats in the 'O' Ring groove.



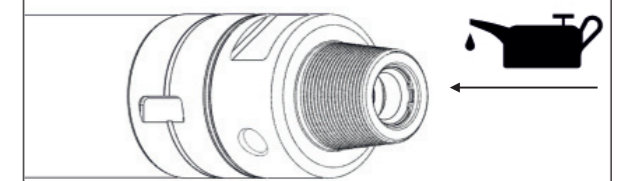
L. Insert Non Return Valve assembly (3-6) into Top Adaptor (7).



M. Insert Circlip (2) into Top Adaptor (7) ensure it seats in the circlip groove.



N. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.

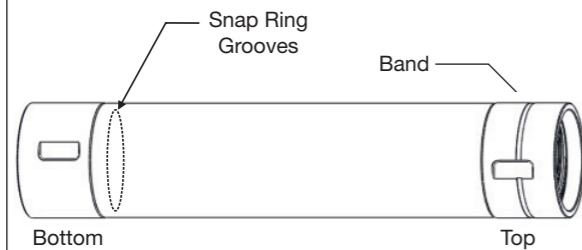


MACH 120 / MACH 122

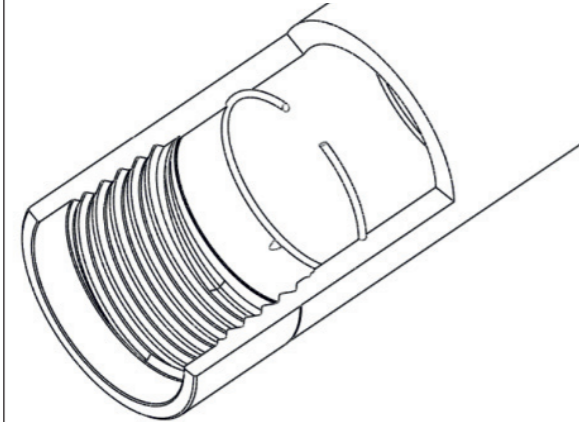
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



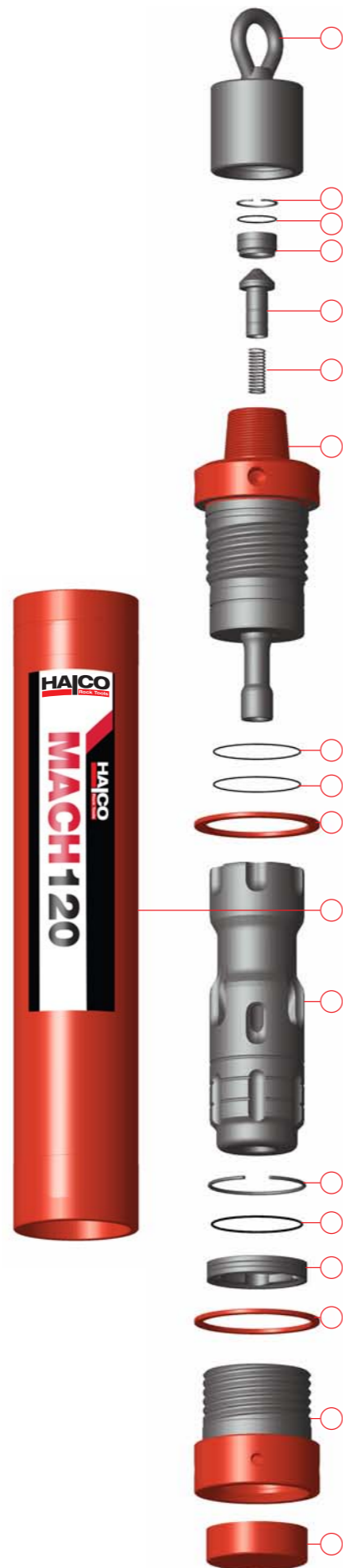
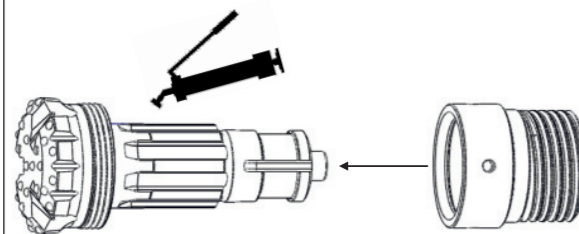
B. Secure Cylinder (11) on a bench or suitable stripping equipment. The cylinder is not reversible and the bottom end is the only cylinder end with an internal snap ring groove. The top end is indicated by a machined band.



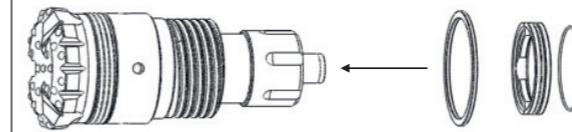
C. Insert Snap Ring (13) into bottom of Cylinder (11) ensure it seats in the snap ring groove.



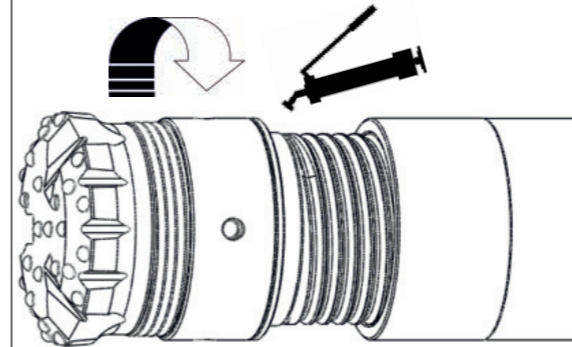
D. Grease splines and fit Chuck (17) onto Drill Bit (18).



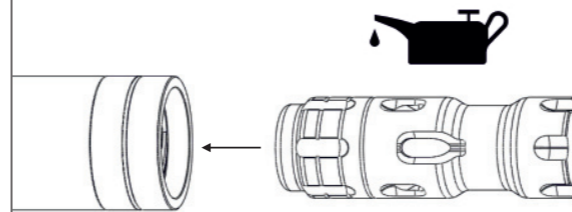
E. Fit Chuck Spacer (16) onto Chuck (17). Fit Containment Band (14) onto Bit Retaining Rings (15) and fit Bit Retaining Rings (15) onto Drill Bit (18).



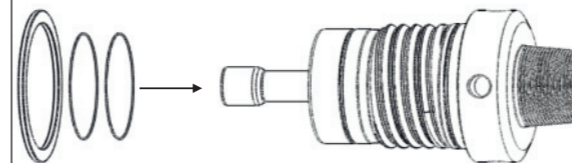
F. Grease threads and screw Drill Bit (18), Chuck (17), Chuck Spacer (16) and Bit Retaining Rings (15) into bottom of Cylinder (11).



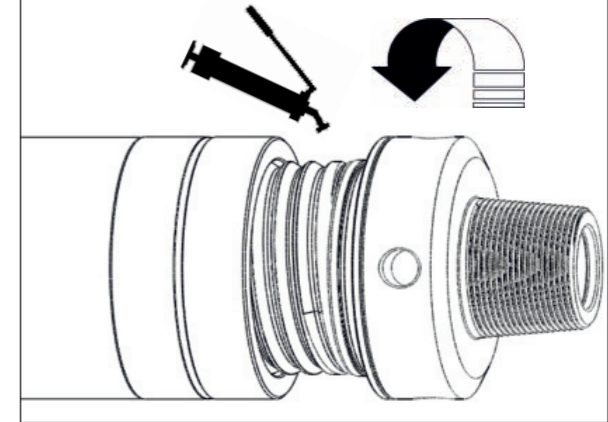
G. Coat Piston (12) liberally with rock oil, minimum 200 centistroke and insert into top of Cylinder (11) ensure it is facing the right way as illustrated.



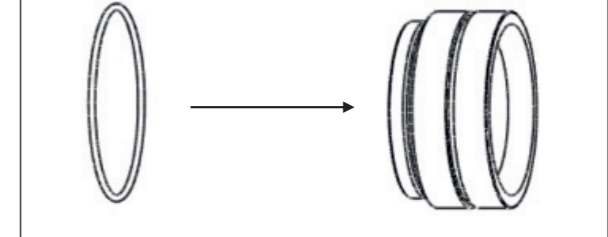
H. Fit Top Adaptor Spacer (10) and 'O' Rings (8 & 9) onto Top Adaptor (7) ensure 'O' rings seat in the 'O' ring grooves.



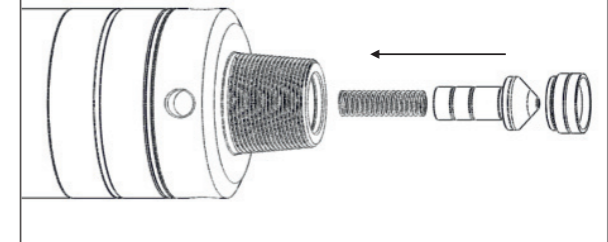
I. Grease threads and screw Top Adaptor (7) and Top Adaptor Spacer (10) into top of Cylinder (11) until fully tightened.



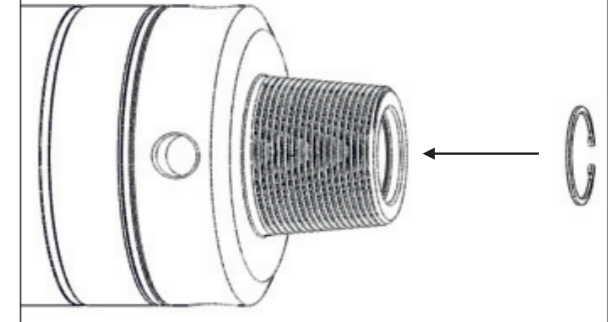
J. Fit 'O' Ring (3) onto NRV Seat (4) ensure it seats in the 'O' ring groove.



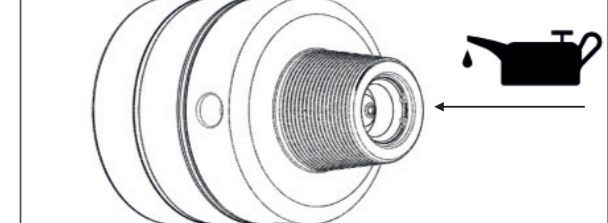
K. Insert Non Return Valve assembly (3-6) into Top Adaptor (7).



L. Insert Circlip (2) into Top Adaptor (7) ensure it seats in the circlip groove.

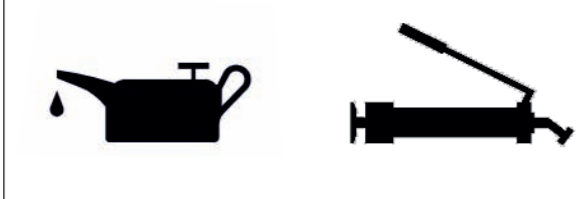


M. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.

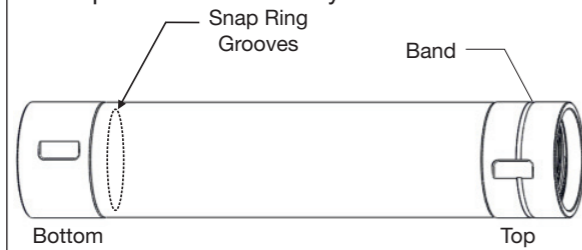


MACH 132 / MACH 142

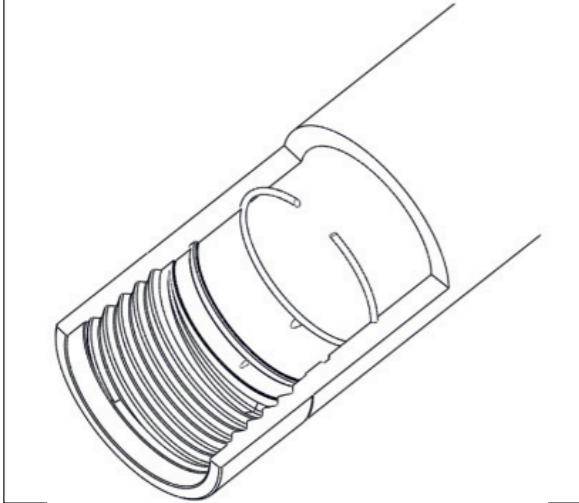
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



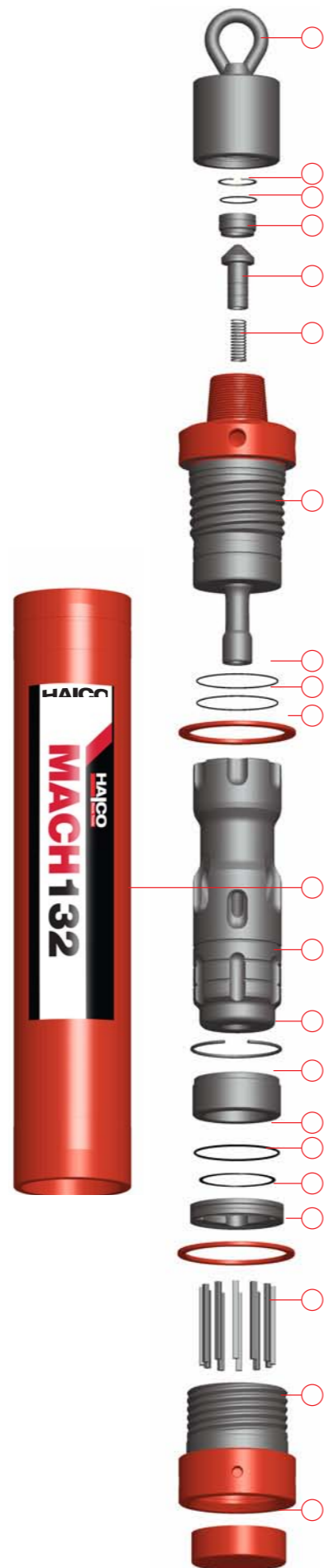
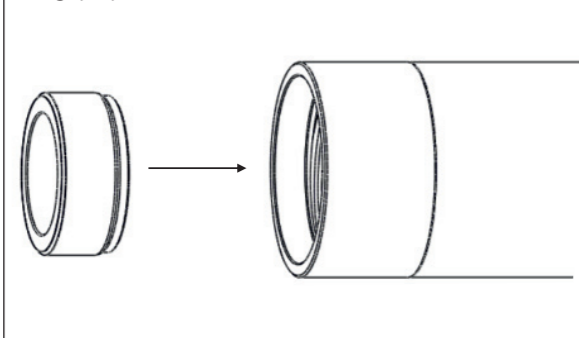
B. Secure Cylinder (11) on a bench or suitable stripping equipment. The cylinder is not reversible and the bottom end is the only cylinder end with an internal snap ring groove. The top end is indicated by a machined band.



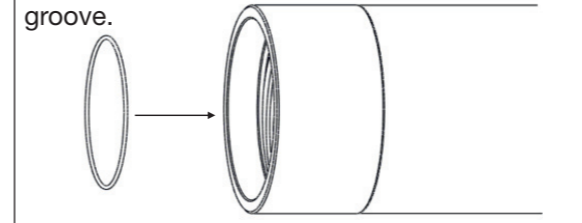
C. Insert Snap Ring (13) into bottom of Cylinder (11) ensure it seats in the snap ring groove.



D. Insert Bearing Bush (14) into bottom of Cylinder (11) ensure it seats up against Snap Ring (13).

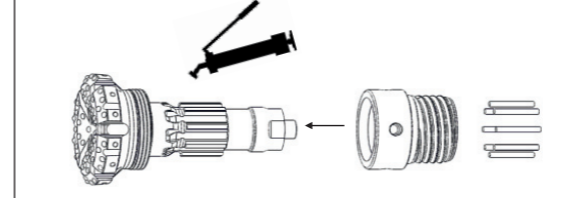


E. Insert 'O' Ring (15) into bottom of Cylinder (11) ensure it seats in the internal 'O' ring groove.



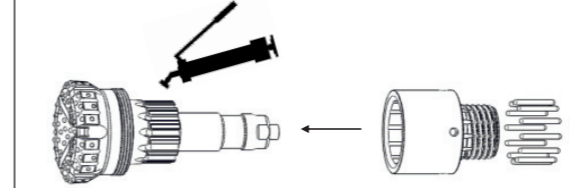
F1. MACH 132 VERSIONS

Grease splines and fit Chuck (20) onto Drill Bit (21). Insert Drive Pins (19) between Drill Bit (21) and Chuck (20) splines.

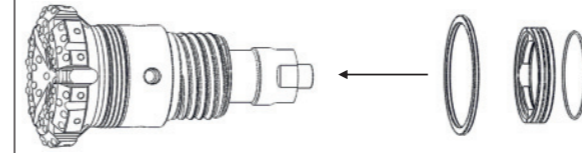


F2. MACH 142 VERSIONS

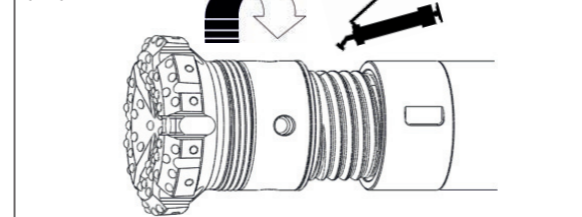
Grease splines and fit Chuck (20) onto Drill Bit (21). Insert Drive Pins (19) between Drill Bit (21) and Chuck (20) splines.



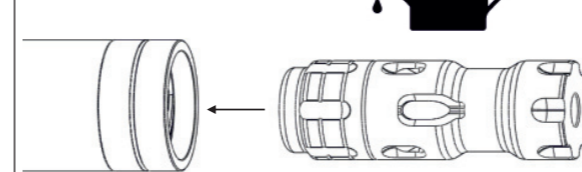
G. Fit Chuck Spacer (18) onto Chuck (20). Fit Containment Band (16) onto Bit Retaining Rings (17) and fit Bit Retaining Rings (17) onto Drill Bit (21).



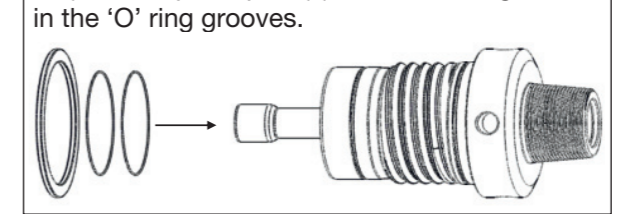
H. Grease threads and screw Drill Bit (21), Chuck (20), Chuck Spacer (18) and Bit Retaining Rings (17) into bottom of Cylinder (11).



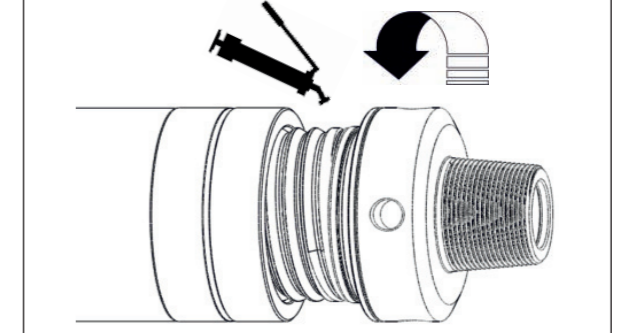
I. Coat Piston (12) liberally with rock oil, minimum 200 centistroke and insert into top of Cylinder (11) ensure it is facing the right way as illustrated.



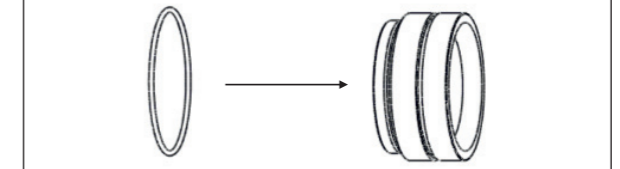
J. Fit Top Adaptor Spacer (10) and 'O' Rings (8 & 9) onto Top Adaptor (7) ensure 'O' rings seat in the 'O' ring grooves.



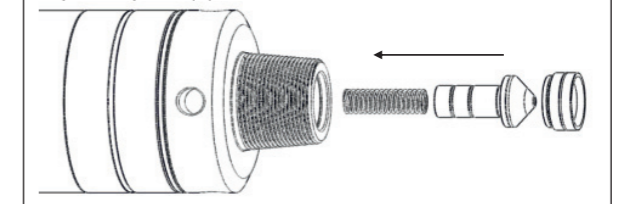
K. Grease threads and screw Top Adaptor (7) and Top Adaptor Spacer (10) into top of Cylinder (11) until fully tightened.



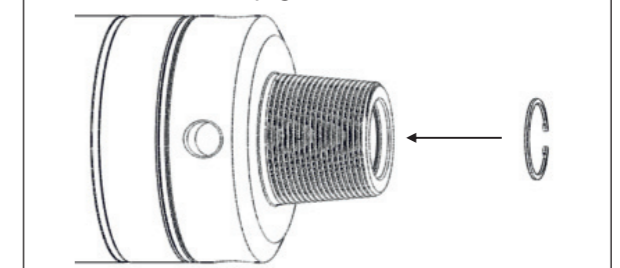
L. Fit 'O' Ring (3) onto NRV Seat (4) ensure it seats in the 'O' ring groove.



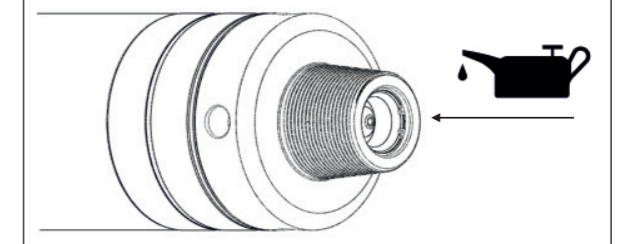
M. Insert Non Return Valve assembly (3-6) into Top Adaptor (7).



N. Insert Circlip (2) into Top Adaptor (7) ensure it seats in the circlip groove.



O. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.

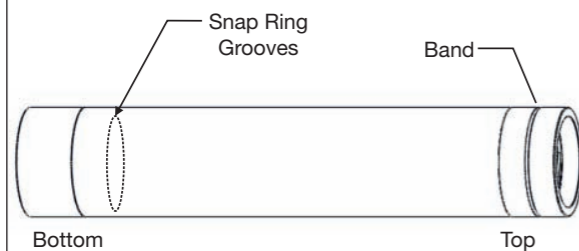


SUPER DOMINATOR 1200

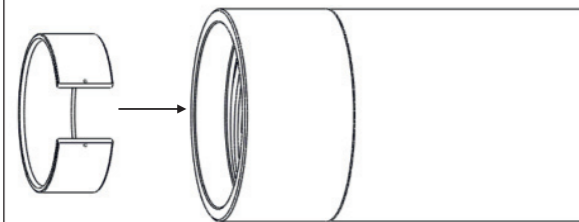
A. Before assembly ensure that all components are cleaned, greased and lubricated. Lay out components in the order of the illustration above for ease of identification.



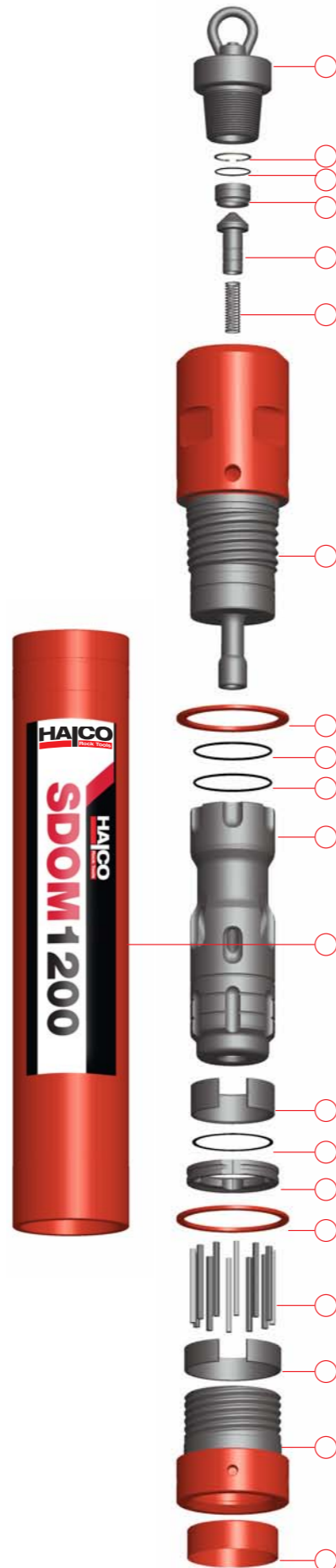
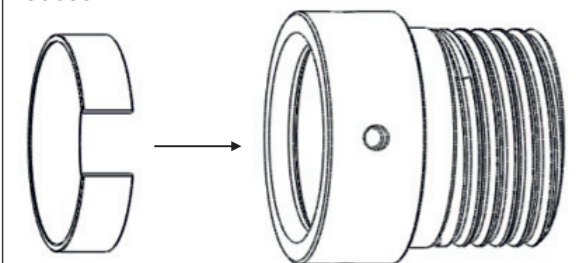
B. Secure Cylinder (11) on a bench or suitable stripping equipment. The cylinder is not reversible and the bottom end is the only cylinder end with an internal snap ring groove. The top end is indicated by a machined band.



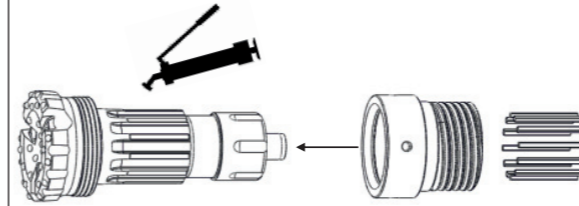
C. Insert Inner Bearing Bush (13) into bottom of Cylinder (11) ensure it seats in the bearing bush recess.



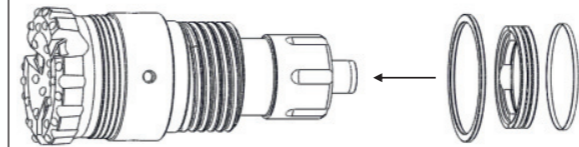
D. Insert Chuck Bearing (18) into bottom of Chuck (19) ensure it seats in the bearing recess.



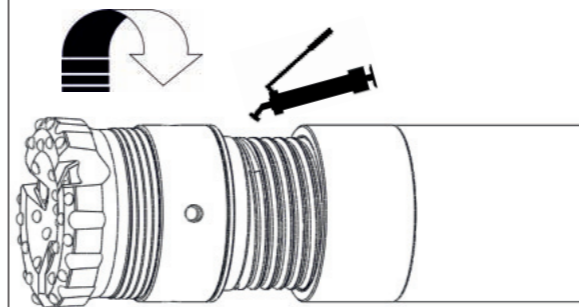
E. Grease spline and fit Chuck (19) onto Drill Bit (20). Insert Drive Pins (17) between Drill Bit (20) and Chuck (19) splines.



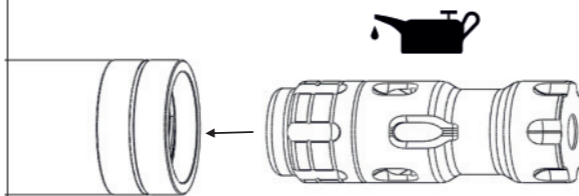
F. Fit Chuck Spacer (16) onto Chuck (19). Fit Containment Band (14) onto Bit Retaining Rings (15) and fit Bit Retaining Rings (15) onto Drill Bit (20).



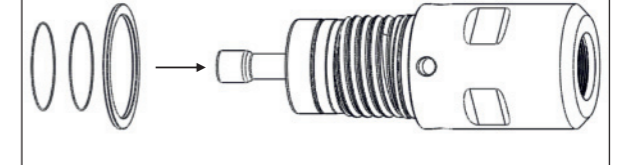
G. Grease threads and screw Drill Bit (20), Chuck (19), Chuck Spacer (16) and Bit Retaining Rings (15) into bottom of Cylinder (11).



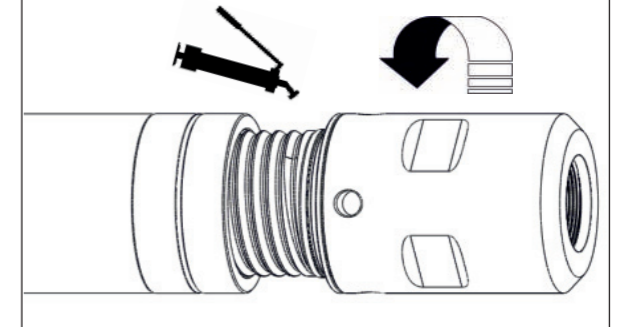
H. Coat Piston (12) liberally with rock oil, minimum 200 centistroke and insert into top of Cylinder (11) ensure it is facing the right way as illustrated.



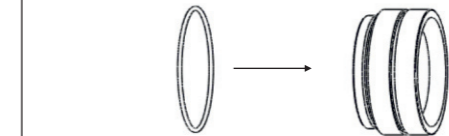
I. Fit Top Adaptor Spacer (10) and 'O' Rings (8 & 9) onto Top Adaptor (7) ensure 'O' rings seat in the 'O' ring grooves.



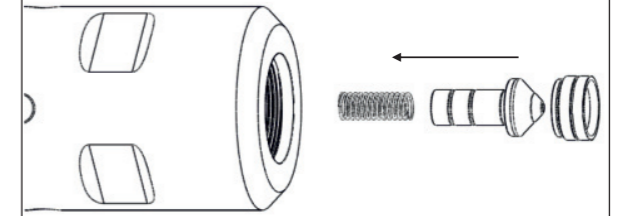
J. Grease threads and screw Top Adaptor (7) and Top Adaptor Spacer (10) into top of Cylinder (11) until fully tightened.



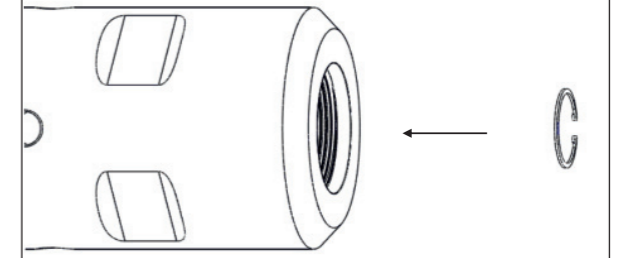
K. Fit 'O' Ring (3) onto NRV Seat (4) ensure it seats in the 'O' ring groove.



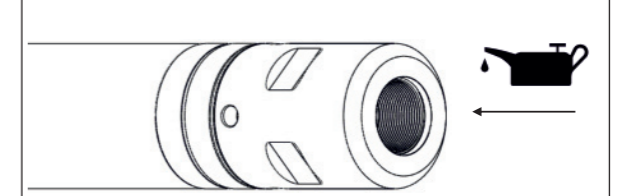
L. Insert Non Return Valve assembly (3-6) into Top Adaptor (7).



M. Insert Circlip (2) into Top Adaptor (7) ensure it seats in the circlip groove.



N. Depress Non Return Valve (5) and pour 1/3 litre of air line oil into the hammer.



Halco Rock Tools
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