



Medium & Large Series Breakers

Models

CH110	CH150
CH120	CH165
CH130	CH175
CH140	CH180
	CH205

(CH180 Model Pictured)

Operator's Manual CH-Series

Safety, Operation & Maintenance



Part #CHE00171

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Contact your Connect Work Tools Representative or the Connect Work Tools Parts Department for replacement manuals.
Inquiries regarding the content of this manual must include the release date shown below.

Information in this manual is subject to change without advance notice.

Table 1.1 About this manual

Document ID No.	CHE00171
Type	Safety, Operation and Maintenance
Release Date	March 2019
Product Name	Hydraulic Impact Breaker
Series	CH
Applicable Models	CH110/CH120/CH130/CH140 CH150/CH165/CH175/CH180/CH205
Years of Manufacture	2016 & above

Safety Information

Safety Statements and Hazard Alerts

Within this manual, you will find important safety information. The information will include specific information related to the Connect Work Tools attachment as well as the carrier. It is imperative that operators, maintenance personnel, or individuals loading or transporting the equipment read and understand the safety contents of this manual, as well as all safety decals and labels. Safety decals and labels must be kept legible and intact on the attachment. Replace damaged, missing or illegible safety labels or decals.

Purpose of Safety Messages

The reason safety messages and information has been included in this manual is most importantly to protect you and those individuals in the work area. Additionally, it is provided to eliminate damage to surroundings, attachments and the carrier due to incorrect operation and use or lack of maintenance of the equipment.

Key Points before operating equipment

1. Know your surroundings, survey the area prior to operation.
2. Know where the potential hazards are within the work area and notify personnel of those hazards.

Safety messages provide the following information:

1. **Alert** personnel to potential hazards
2. **Identify** the nature of the hazard
3. **Describe** the severity of the hazard, if encountered
4. **Instruct** how to avoid the hazard

ATTENTION, BECOME ALERT, YOUR SAFETY IS INVOLVED.

Signal Words

Safety symbols and signal words, as shown below, are used to emphasize all operator, maintenance and repair actions which, if not strictly followed, could result in a life-threatening situation, bodily injury or damage to equipment.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



This safety alert and signal word indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



This safety alert and signal word indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



This safety alert and signal word indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



This signal word indicates a potentially hazardous situation which, if not avoided, may result in property damage or damage to the equipment.



This signal word indicates a situation which, if not avoided, may result in damage to the equipment.

Fig. S1 Safety Signal Words

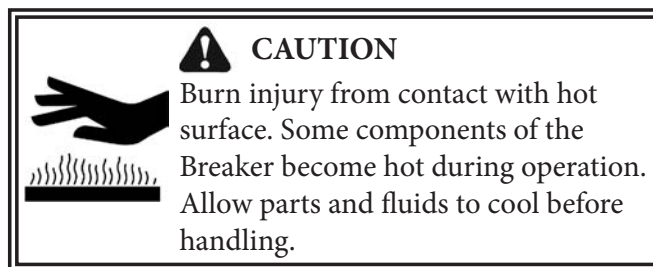


Fig. S2 Safety Message

Signal Words Used for Non-Hazard Messages

This manual contains other message types that use the signal words IMPORTANT and NOTE. These are information messages that provide instructions and are not considered hazardous to workers.

IMPORTANT - Identify instructions that if not followed, may damage the equipment or diminish the service life of components.

NOTE - Highlight suggestions, which will enhance installation, reliability, or operation.






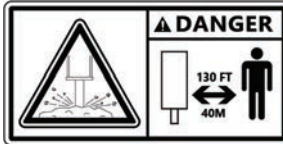
Safety Information

Safety, Information and Identification Labels







Information labels affixed to the Connect Work Tools equipment include safety warnings, identification and instructions important to operation and service. Refer to Figure "L-13" for their location on the equipment.

Keep all safety & identification labels clean. Words and illustrations must be legible.

Before operating this equipment, replace damaged or missing labels. For replacement, refer to the appropriate Parts Manual for identification.

Fig.	Label	Description
Fig. L-1		DUST MASK REQUIRED - Decal alerts personnel of a possible breathing hazard. Individuals will be required to wear the proper breathing PPE in this environment.
Fig. L-2		FLYING OBJECTS - Decal alerts of the risk of injury from impact by rock fragments. Protective guards must be placed between the breaker and operator to shield against material fragments becoming projectiles. It directs personnel to the safety instructions in the Operator's Manual. NOTE: Place the smaller size decal in a conspicuous location inside the operator's cab.
Fig. L-3		READ INSTRUCTIONS - Decal directs personnel to the manual for further information/instructions.
Fig. L-4		HEARING PROTECTION REQUIRED - Decal alerts personnel of loud, harmful noises. Individuals will be required to wear the proper hearing PPE in this environment.
Fig. L-5		GREASE POINT DECAL - Directs personnel where to grease the equipment.
Fig. L-6		STAY CLEAR - Decal alerts personnel and by-standers to maintain a safe distance from the Breaker while in operation.

Safety Information

Fig.	Label	Description
Fig. L-7		MODEL - Decal identifies the specific model.
Fig. L-8		CONNECT WORK TOOLS LOGO - This decal is the Connect Work Tools identifier and is a registered trademark of Connect Work Tools.
Fig. L-9		SERIAL PLATE - Contains identifying information about the equipment, including: Manufacturer's name, serial number, model number, part number, product weight, operating pressure, oil flow, carrier relief pressure, and nitrogen pressure.
Fig L-10		LIFT POINT - Decal identifies approved lift points.
Fig L-11		PRESSURIZED NITROGEN ACCUMULATOR - Decal warns of pressurized gas and directs personnel to the Repair Manual for service instructions.
Fig L-12		ANTI-BLANK FIRE - Decal identifies Anti-Blank Fire location and access.

Safety Information

Label Positions

CH110/CH120/CH130/CH140 Decal Placement

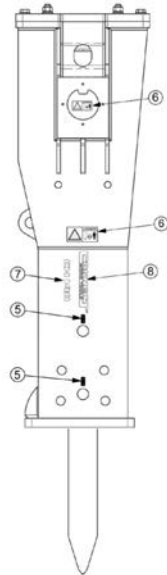


Figure L13-1
CH110/CH120/CH130/CH140

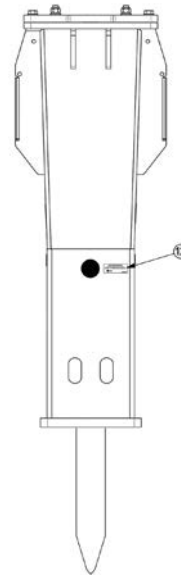


Figure L13-2
CH110/CH120/CH130/CH140

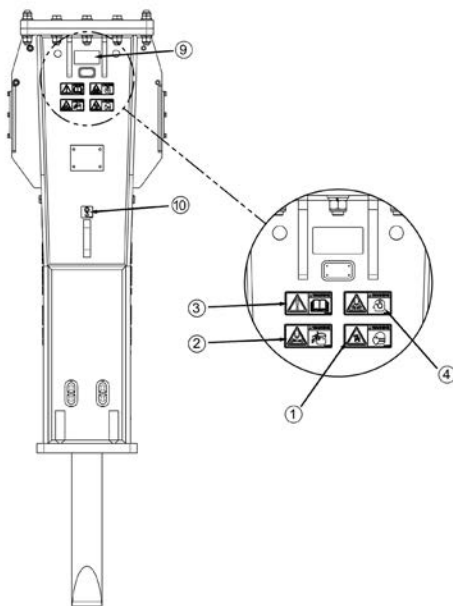


Figure L13-3
CH110/CH120/CH130/CH140

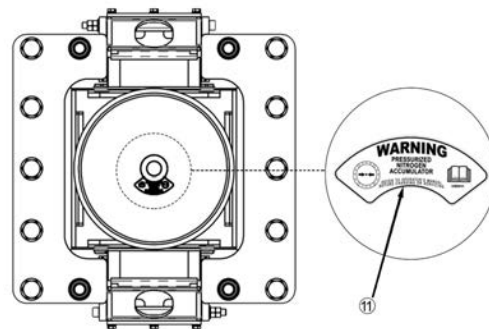


Figure L13-4
CH110/CH120/CH130/CH140

Safety Information

Label Positions

CH150/CH165/CH175/CH180 Decal Placement

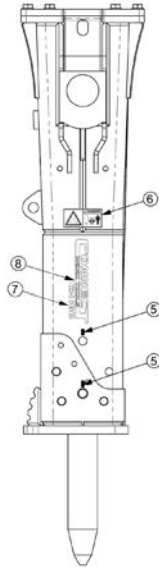


Figure L13-5
CH150/CH165/CH175/CH180

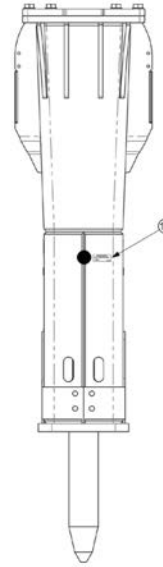


Figure L13-6
CH150/CH165/CH175/CH180

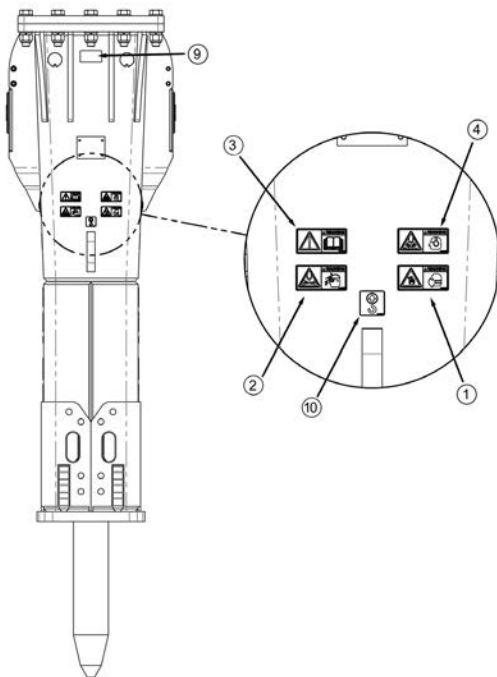


Figure L13-7
CH150/CH165/CH175/CH180

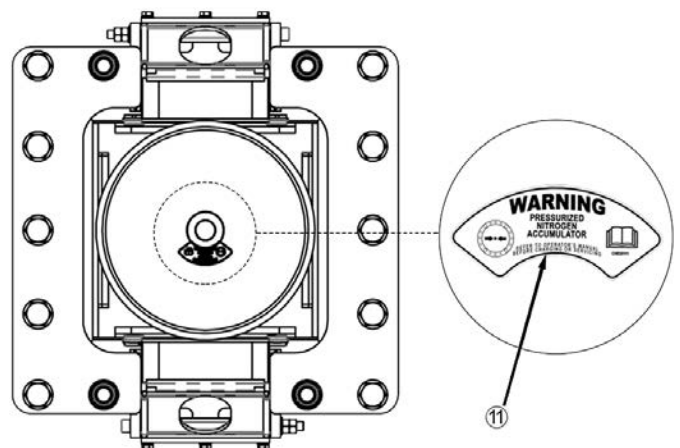


Figure L13-8
CH150/CH165/CH175/CH180

Safety Information

Label Positions

CH205 Decal Placement

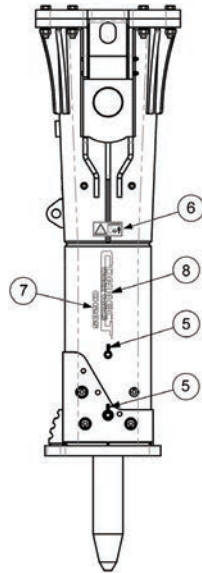


Figure L13-9 CH205

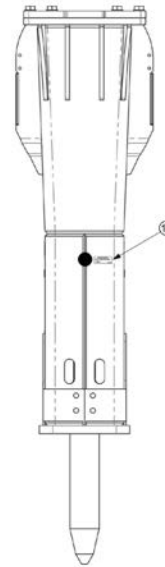


Figure L13-10 CH205

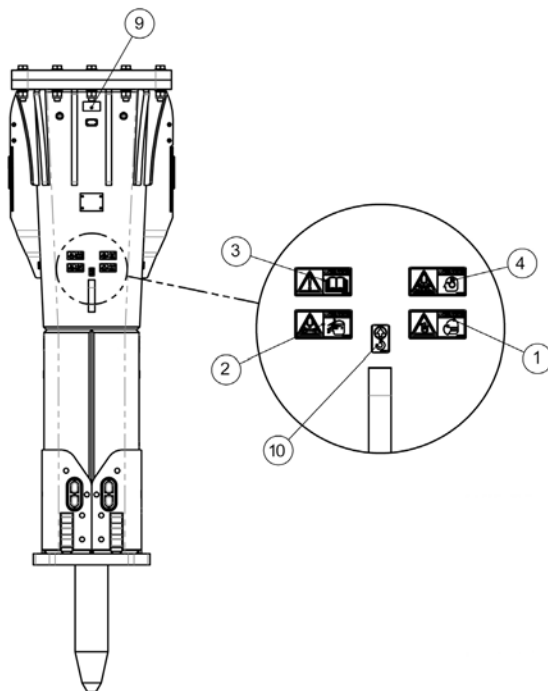


Figure L13-11 CH205

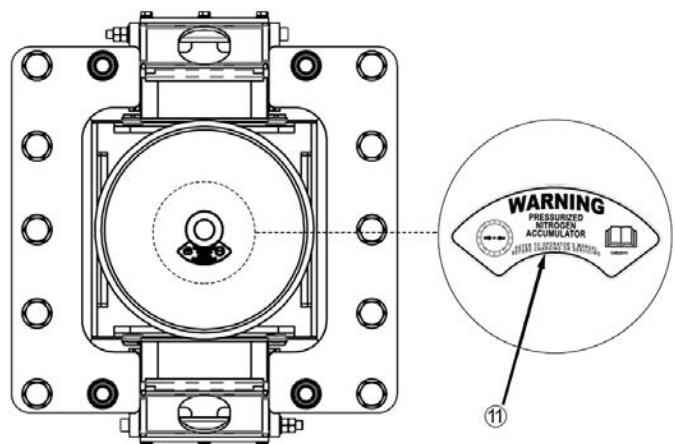


Figure L13-12 CH205

Safety Information

Meaning of Pictograms

Pictograms are used to rapidly communicate information. For the purposes of this manual and labels affixed to the Connect Work Tools equipment, pictograms are defined as follows:



- Read the Manual
- Refer to the manual for further details
- Procedures are explained in the manual



Read the Service Manual for Additional Information



- Crush Point



- Pinch Point



Moving part (in direction indicated by arrow)



- Falling object
- Unsupported loads

Personal Protection Equipment



- Hearing Protection



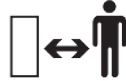
- Safety Eyewear



- Gloves



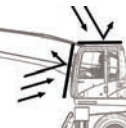
- Safety Shoes
- Falling Part



Personnel maintain a safe distance from breaker



Fragments/debris becoming airborne projectiles



Protective guards required on cab when operating this work tool



Leaking fluid under pressure



Hot Surfaces



Gas/Oil under pressure



Shut off carrier & remove key before servicing



Identifies lift point



Any figure displaying an X-out or a circle with a diagonal slash is a prohibited action



Prohibited actions must be avoided to prevent injury and/or equipment damage



The check mark is used to indicate correct actions or approved methods that are recommended

Fig. S3 Meaning of Pictograms

Safety Information

Attention Read the Manual



Improper installation, operation or maintenance of the Connect Work Tools Equipment could result in serious injury or death. Only qualified operators may operate the Connect Work Tools equipment. Personnel responsible for the maintenance of the Connect Work Tools equipment or its systems, including inspection, installation or adjustments must also be qualified. Operators and personnel responsible for the maintenance of this equipment should read this manual. Other manuals, such as those published by the machinery used in support of the Connect Work Tools equipment, should also be read.

General Construction Safety

Always follow procedures that promote safe conditions for workers and bystanders. The standard safety precautions expected and required of those working in construction shall include, but not limited to:

- Locating existing underground service and utility lines
- Establishing pedestrian barriers
- Using personal protection equipment appropriate to working conditions, etc.

Owner's Responsibilities

Ensure that only qualified personnel operate and service the Connect Work Tools equipment.

Ensure personal protection equipment is available to personnel and enforce the use of PPE.

Ensure that carriers are in safe, working order and all guards and safety equipment is installed and in operating condition.

Ensure safety-related materials such as instructions and including this manual are kept in a convenient location so that they are easily accessible to operators and maintenance personnel.

Personal Protective Equipment (PPE)



Personnel operating or nearby the equipment and exposed to the hazard of falling, flying and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases shall use the particular personal protective equipment (PPE) necessary to protect them from the hazard. Such PPE may include safety eyewear, face shield, hearing protection, safety footwear, gloves and dust mask. Supervisors shall review proper PPE selection and ensure PPE is made available to personnel. Personnel are responsible for wearing PPE as directed by the supervisor.

Protective Equipment - Guarding



Construction equipment designed with guards shall have guards in place when equipment is in use. Guards are fitted to the equipment to protect against unsafe situations that could not be eliminated through design measures. Where it was not possible to prevent an unsafe situation by means of a guard, safety messages appear on the equipment, warning personnel of a hazardous condition.

Guards shall not be removed unless for the purpose of inspection and service of components. All guards must be reinstalled after service or adjustments are completed. Do not operate the Connect Work Tools attachments without guards.

Additional guarding, not included with the Connect Work Tools equipment, is necessary at the operator's station to protect the operator and other nearby personnel against flying debris from material being cut or demolished. Do not handle, demolish or cut material overhead without proper guards installed.

To prevent accidental start up, the control switch shall be located in a protected area that is guarded and makes it difficult to accidentally operate the equipment.

Unapproved Modifications



In order to provide and maintain efficient production and reliable service, while ensuring operator safety, the Connect Work Tools equipment may not be modified or used for any other purpose other than, for which it was intended. Use of the Connect Work Tools equipment, other than those specified in this manual, may place personnel at risk of injury and/or may subject the equipment to damage. The Connect Work Tools equipment shall not be modified or used in unapproved applications unless written consent is received from the Connect Work Tools Engineering Department.

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General Information

1. Introduction



Preface

This manual will provide an understanding of the Connect Work Tools Breakers by providing instructions for safe and effective operation and instructions for regular maintenance activities of the breaker in addition to parts information.

Before installation or operation of the breaker for the first time, please read and understand this manual.

The specifications and designs presented in this manual are subject to change without prior notice.

2. Safety Precautions

Operation

- Operate the breaker for its intended purpose only.
- Operate the breaker only when the operator is seated in the cabin with full control of the machine.
- No bystanders are allowed in the vicinity of the breaker when it is operating. Small pieces of stone or concrete can fly off causing serious injury to bystanders.
- Stay clear of the breaker when it is operating.
- Before operating the breaker, read and follow the safety decals located on the housing and power cell.
- Be sure that all decals are clearly visible. Clean and replace as necessary.

Protective Equipment



- Always wear the following personal protective equipment: safety glasses, ear protection, protective gloves and protective shoes.

Heat Caution



- Never touch the hot parts and wait for them to cool down first if you have to touch them.
- Hot hydraulic oil can cause burns. Never use your fingers to check for hydraulic fluid leaks and always keep your face away from a possible leak.

Do not operate the breaker unless the following safety instructions have been thoroughly read and understood! Read this manual before installing, operating or maintaining this equipment.

- A flying projectile from the breaker, breaker tool, rock or other material may enter the operator's compartment and cause serious or fatal injury to the operator. Personal protection equipment must be used.
- A flying projectile from the breaker, breaker tool, rock or other material may cause serious or fatal injury to bystanders. Never operate the breaker when bystanders are in the work area.
- On some machines/carriers, the breaker can enter the operator's compartment if it breaks loose and swings toward the operator. Make sure that suitable impact shields are used when operating the breaker with this type of equipment.
- Do not operate the breaker unless all safety decals described in this manual are in place. The decals must be inspected periodically to ensure that all wording is legible. The decals must be replaced if illegible. Replacement decals can be obtained from your authorized Connect Work Tools distributor.
- When operating the breaker you must use ear protection, eye protection, and breathing protection.

Specification

1. Breaker Specifications

Specification	Unit	CH Medium Series				CH Large Series				
		CH110	CH120	CH130	CH140	CH150	CH165	CH175	CH180	CH205
Working Weight	kg	1,200	1,500	1,734	2,250	2,440	2,950	3,750	5,500	7,500
	lbs	2,645	3,306	3,823	4,960	5,380	6,504	8,267	12,125	16,535
Impact Rate	bpm	400-500				300-450		300-400		
Operating Pressure	bar psi	120-140 1,740-2,030			130-150 1,885-2,175					140-160 2,030-2,320
Carrier Relief Pressure	bar psi	170-190 2,465-2,755			180-200 2,610-2,900					190-210 2,755-3,045
Oil Flow	lpm	80-100	100-150	130-150	170-200	190-220	210-240	250-305	300-400	
	gpm	21-26	26-39	34-39	45-53	50-58	55-63	66-81	79-106	
Back Pressure	bar psi	10 145								
Accumulator Pressure	bar psi	40 580								50 725
Pressure Port Size (Inlet)	mm	19	25						32	38
	inch	3/4	1.0						1.25	1.5
	SAE	-12	-16						-20	-24
Return Port Size (Outlet)	mm	25			31.75			38	51	
	inch	1			1.25			1.5	2.0	
	SAE	-16			-20			-24	-32	

*See Parts Manual for hose details

CH Medium Series Carrier Weight	CH Large Series Carrier Weight
CH110	CH150
Carrier Weight Range 30,900-40,000 lbs.	Carrier Weight Range 61,700-72,800 lbs.
CH120	CH165
Carrier Weight Range 40,000-55,100 lbs.	Carrier Weight Range 73,000-90,000 lbs.
CH130	CH175
Carrier Weight Range 48,500-61,700 lbs.	Carrier Weight Range 88,000-154,000 lbs.
CH140	CH180
Carrier Weight Range 55,000-68,300 lbs.	Carrier Weight Range 110,000-190,000 lbs.
	CH205
	Carrier Weight Range 154,000-240,000 lbs.

Specification

2. Main Dimensions

CH110/CH120/CH130/CH140/CH150/CH165/CH175/CH180/CH205

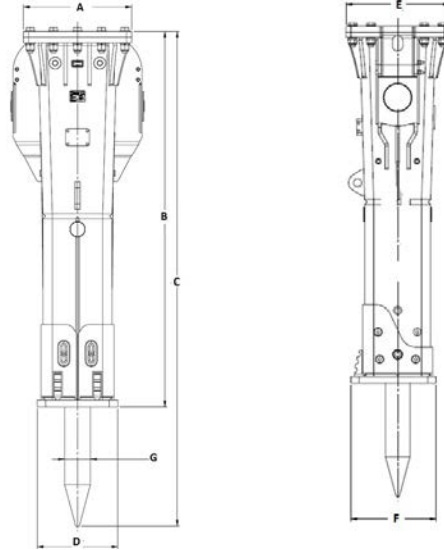


Fig. Sp.1 CH110/CH120/CH130/CH140/CH150/CH165/CH175/CH180/CH205 Main Dimensions

CH Medium Series Breakers														
Dimension	A		B		C		D		E		F		G	
Model	Metric	Standard	Metric	Standard	Metric	Standard	Metric	Standard	Metric	Standard	Metric	Standard	Metric	Standard
CH110	510	20.07	1,771	69.72	2,280	89.76	360	14.17	570	22.44	400	15.74	110	4.33
CH120	510	20.07	1,835	72.24	2,473	97.36	410	16.14	570	22.44	460	18.11	120	4.72
CH130	570	22.44	1,853	72.95	2,506	98.66	430	16.92	600	23.62	490	19.29	130	5.11
CH140	570	22.44	2,085	82.08	2,730	107.48	460	18.11	600	23.62	520	21.47	140	5.51
CH Large Series Breakers														
Dimension	A		B		C		D		E		F		G	
Model	Metric	Standard	Metric	Standard	Metric	Standard	Metric	Standard	Metric	Standard	Metric	Standard	Metric	Standard
CH150	630	24.80	2,188	86.14	2,881	113.42	470	18.15	630	24.80	520	20.47	150	5.91
CH165	730	28.74	2,371	93.34	3,080	121.25	482	18.97	730	28.74	565	22.24	165	6.49
CH175	820	32.28	2,531	99.64	3,361	132.32	540	21.25	730	28.74	620	24.46	175	6.88
CH180	860	33.85	2,688	105.82	3,533	139.09	620	24.40	860	33.85	700	27.55	180	7.08
CH205	1,000	39.37	3,090	121.65	3,886	152.99	730	28.74	1,000	39.37	800	31.49	205	8.07

Specification

3. Bolt Patterns

CH110/CH120

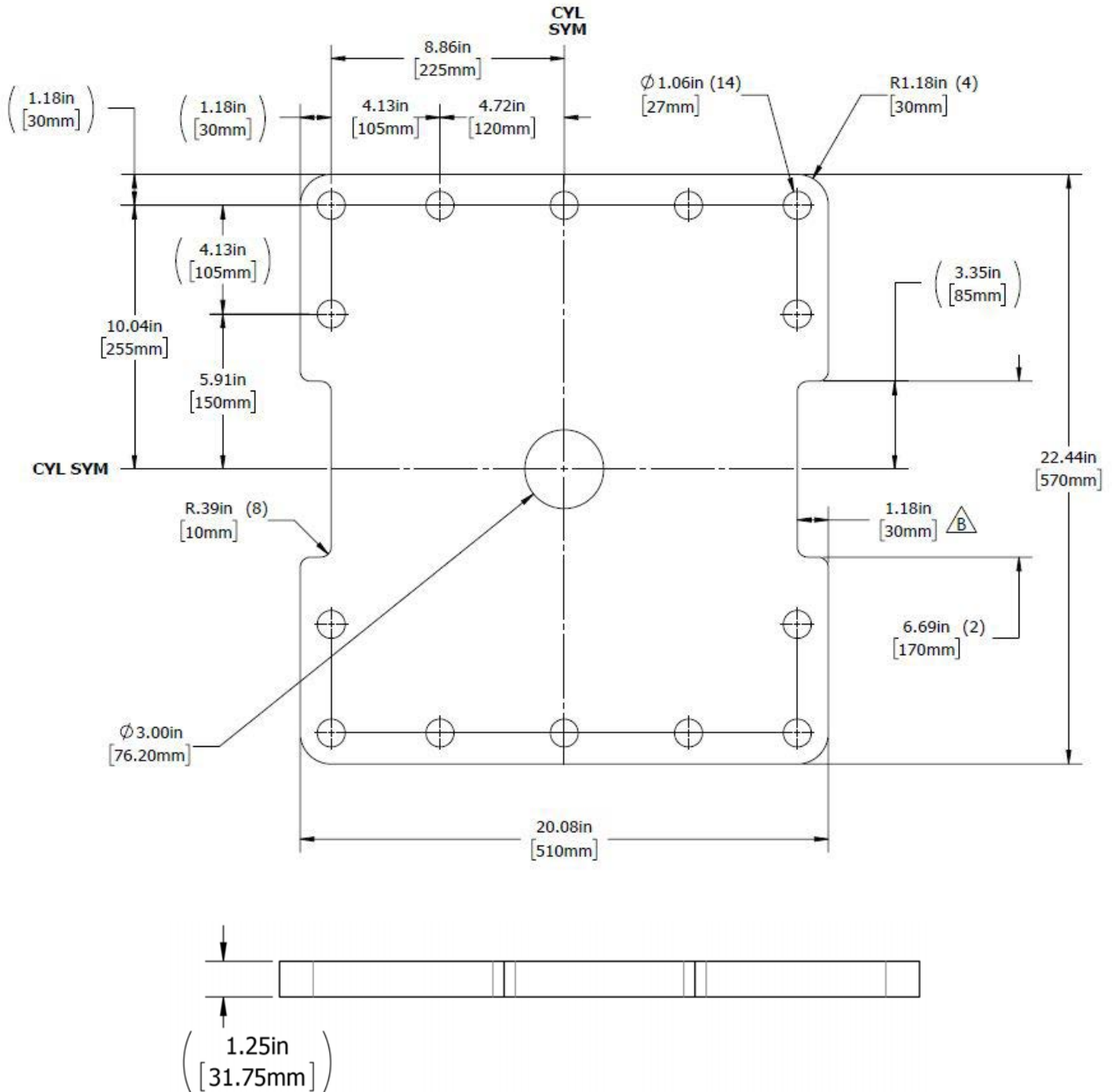


Fig. Sp.2 CH110/CH120 Bolt Patterns

Mounting Plates for the CH110/CH120 are available

Model	Part No.
CH110/CH120	CHE00103

Specification

3. Bolt Patterns

CH130/CH140

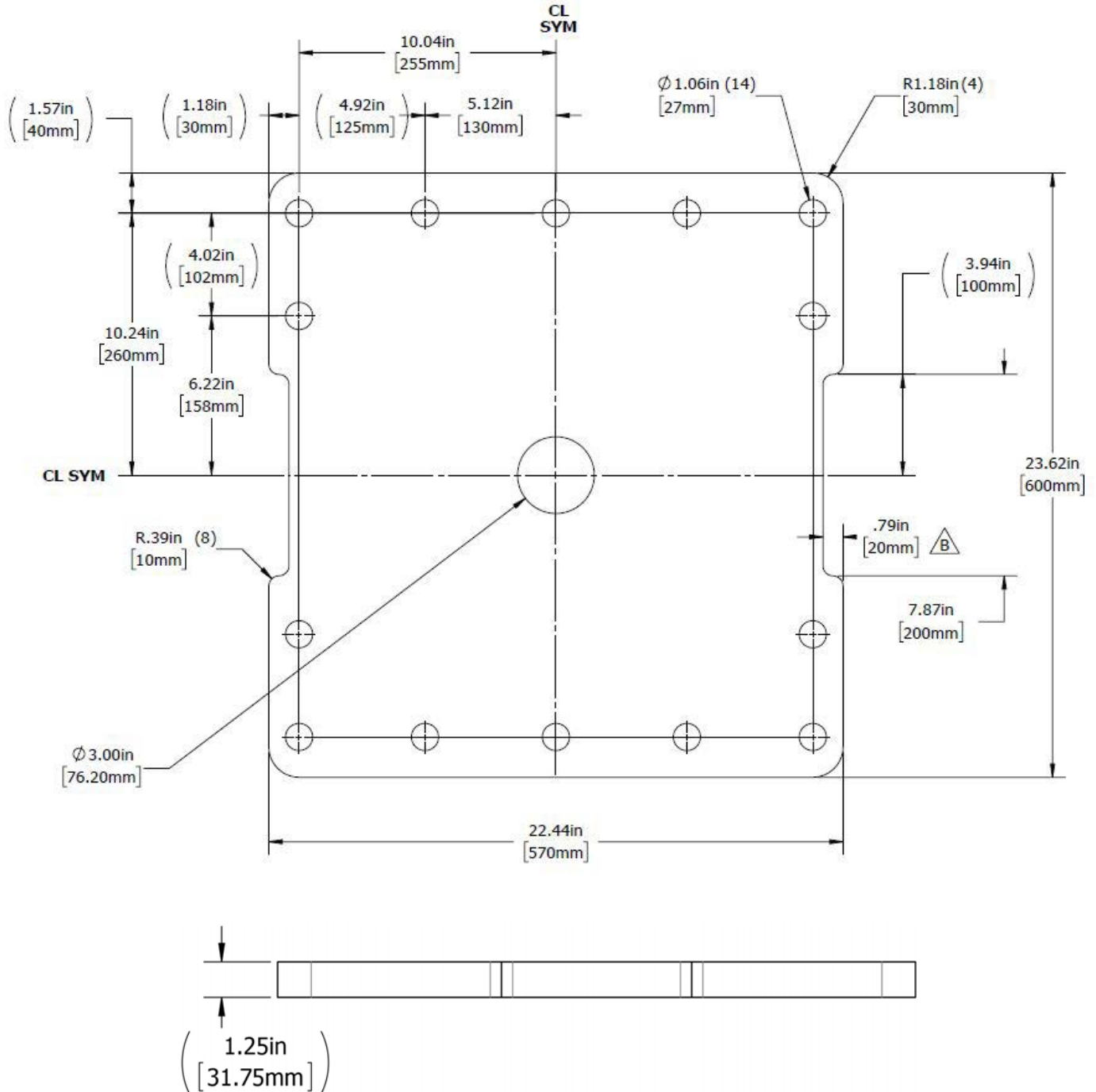


Fig. Sp.3 CH130/CH140 Bolt Patterns

Mounting Plates for the CH130/CH140 are available

Model	Part No.
CH130/CH140	CHE00104

Mounting Plate for the CH150 is available

Model	Part No.
CH150	CHE00102

Specification

3. Bolt Patterns

CH165/CH175

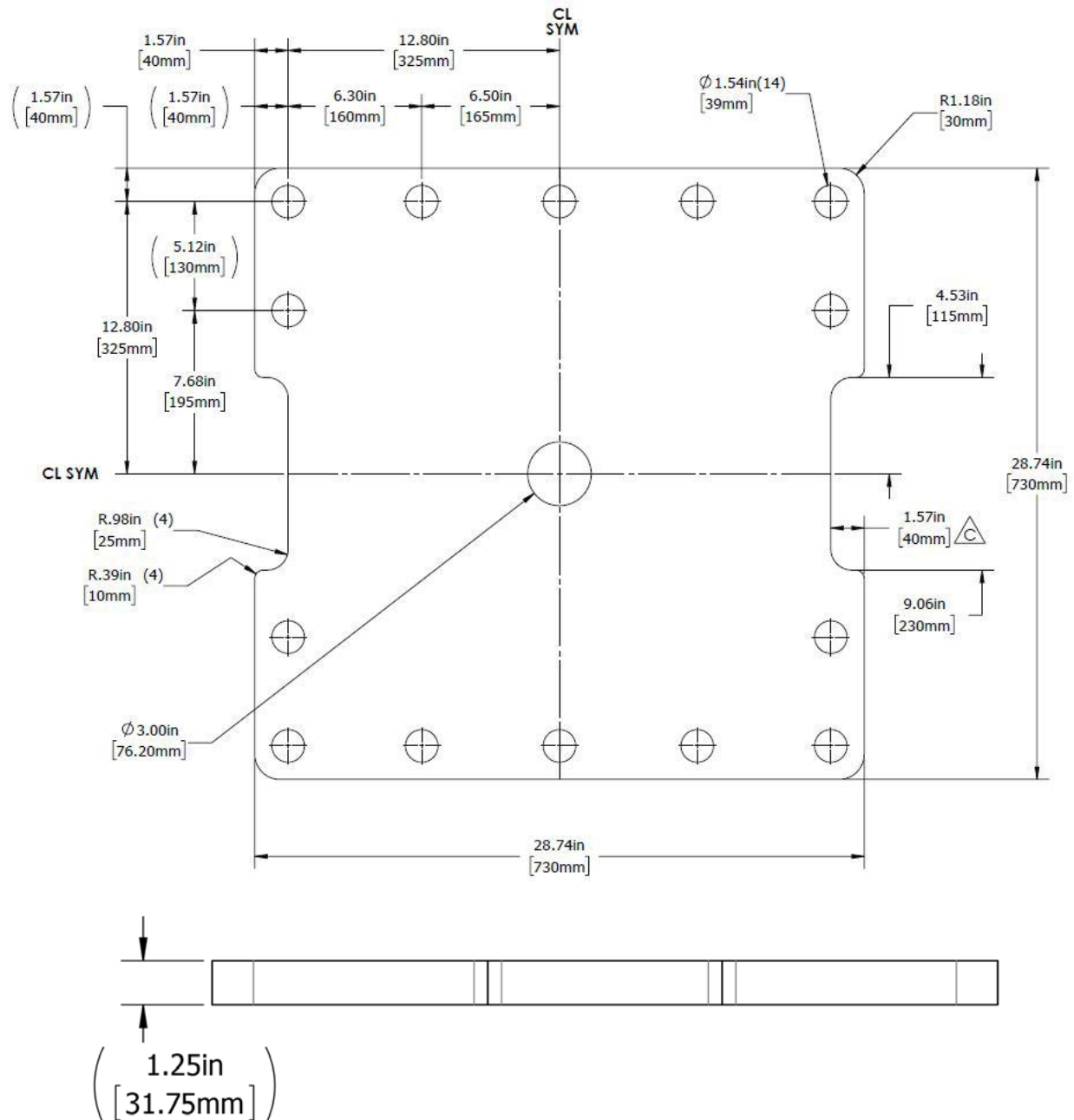


Fig. Sp.5 CH165/CH175 Bolt Patterns

Mounting Plates for the CH165/CH175 are available

Model	Part No.
CH165/CH175	CHE00105

CHE00171_release23august

Specification

3. Bolt Patterns

CH205

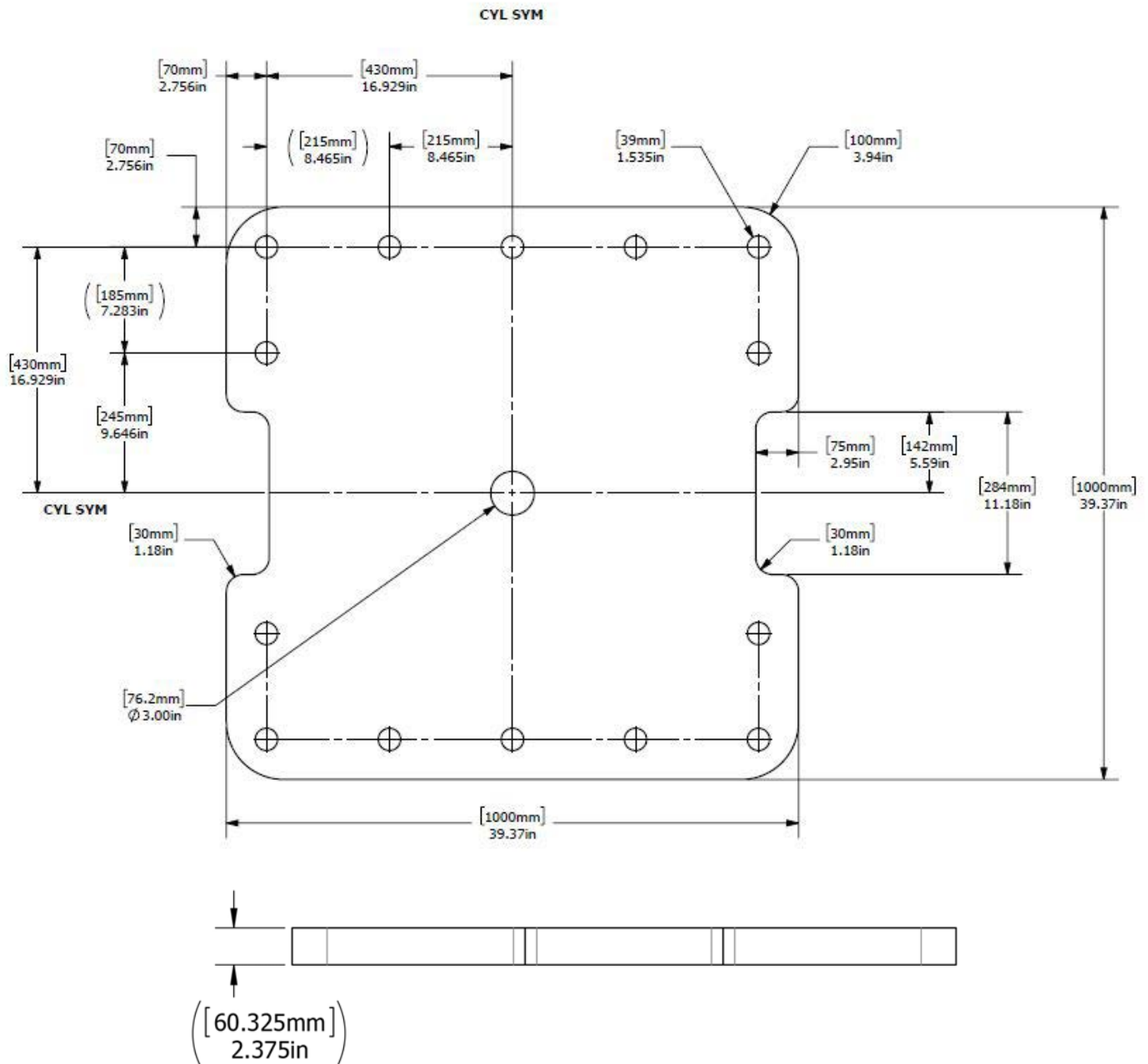


Fig. Sp.7 CH205 Bolt Patterns

Mounting Plate for the CH205 is available

Model	Part No.
CH205	CHE00114

Specification

4. Top Plate/Bracket Torque Specifications

CH Medium/Large Series Breaker									
Model	CH110	CH120	CH130	CH140	CH150	CH165	CH175	CH180	CH205
Bolt Diameter	M24	M24	M24	M24	M30	M36	M36	M36	M36
Torque **See Note**	550 FT-LBS	550 FT-LBS	550 FT-LBS	550 FT-LBS	1,080 FT-LBS	1,890 FT-LBS	1,890 FT-LBS	1,890 FT-LBS	1,890 FT-LBS

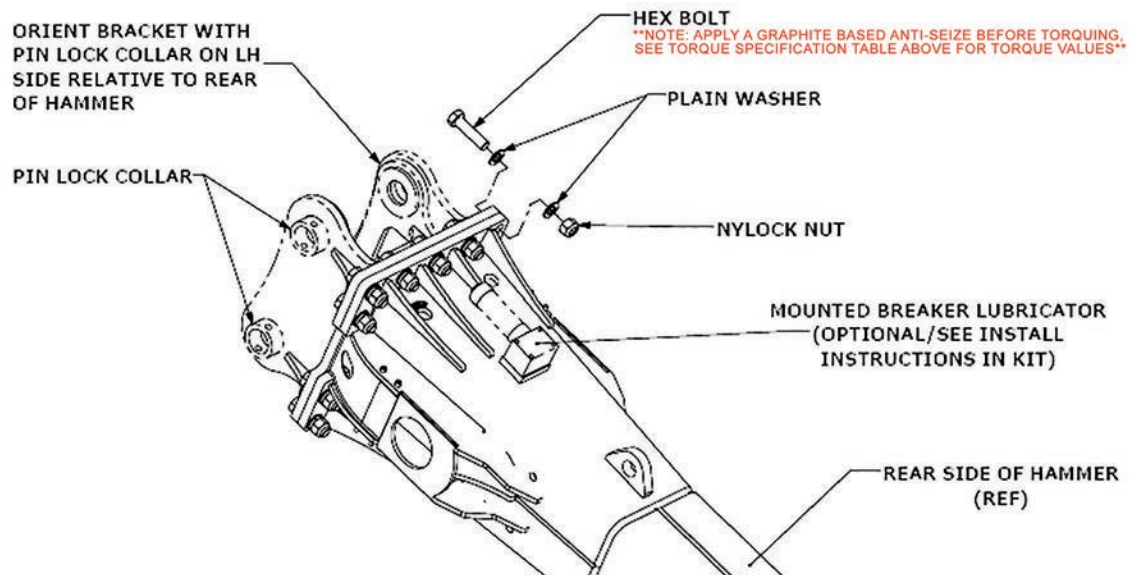




Fig. Sp.8 Top Plate/Bracket Torque Specifications

Specification

5. Carrier Weight

Breaker Model	Carrier Weight (ton)							
	0	10	20	30	40	50	60	70
CH110					28-36			
CH120						36-50		
CH130							44-56	
CH140								50-64
Breaker Model	Carrier Weight (ton)							
	50	75	100	125	150	175	200	225
CH150		55-75						
CH165			60-90					
CH175				80-120				
CH180					100-150			
CH195						140-200		
CH205							155-240	

Specification

6. Tool Specifications

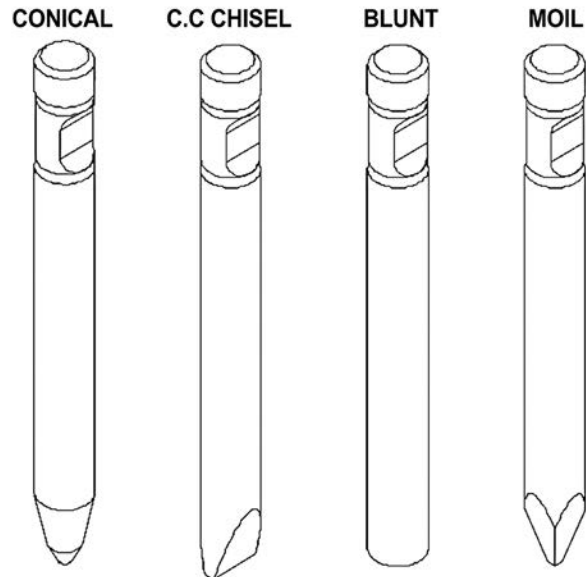


Fig. Sp.9 Tool Specifications

Breaker Model	Tool Type	Length mm (in)	Weight kg (lb)	Diameter mm (in)
CH110	Conical	950 (37.4)	63 (139)	110 (4.3)
	Chisel	950 (37.4)	64.5 (142)	110 (4.3)
	Blunt	870 (34.2)	62 (137)	110 (4.3)
	Moil	950 (37.4)	61 (134)	110 (4.3)
CH120	Conical	1,050 (41.34)	76 (167.5)	120 (4.72)
	Chisel	1,050 (41.34)	77 (169.8)	120 (4.72)
	Blunt	950 (37.4)	74 (163)	120 (4.72)
	Moil	1,050 (41.34)	74 (163)	120 (4.72)
CH130	Conical	1,100 (43.31)	93 (205)	130 (5.12)
	Chisel	1,100 (43.31)	96 (211)	130 (5.12)
	Blunt	1,000 (39.37)	92 (202)	130 (5.12)
	Moil	1,100 (43.31)	91 (200)	130 (5.12)
CH140	Conical	1,200 (47.24)	127 (280)	140 (5.51)
	Chisel	1,200 (47.24)	132 (291)	140 (5.51)
	Blunt	1,050 (41.34)	121 (267)	140 (5.51)
	Moil	1,200 (47.24)	126 (278)	140 (5.51)
CH150	Conical	1250 (49.21)	136.9 (302)	150 (5.9)
	Chisel	1250 (49.21)	140.6 (310)	150 (5.9)
	Blunt	1100 (43.30)	131 (290)	150 (5.9)
	Moil	1250 (49.21)	138.3 (305)	150 (5.9)

Breaker Model	Tool Type	Length mm (in)	Weight kg (lb)	Diameter mm (in)
CH165	Conical	1350 (53.15)	196 (432)	165 (6.5)
	Chisel	1350 (53.15)	202 (445)	165 (6.5)
	Blunt	1300 (51.2)	204 (449)	165 (6.5)
	Moil	1350 (53.15)	195 (430)	165 (6.5)
CH175	Conical	1500 (59)	246 (542)	175 (6.89)
	Chisel	1500 (59)	254 (560)	175 (6.89)
	Blunt	1400 (55)	247 (545)	175 (6.89)
	Moil	1500 (59)	240 (529)	175 (6.89)
CH180	Conical	1600 (63)	281 (619)	180 (7.09)
	Chisel	1600 (63)	292 (643)	180 (7.09)
	Blunt	1500 (59)	284 (626)	180 (7.09)
	Moil	1600 (63)	275 (626)	180 (7.09)
CH205	Conical	1650 (65)	383 (844.4)	205 (8.07)
	Chisel	1650 (65)	394.9 (870.6)	205 (8.07)
	Blunt	1600 (63)	400.7 (883.4)	205 (8.07)
	Moil	1650 (65)	370.7 (817.3)	205 (8.07)

Specification

7. Breaker Structure

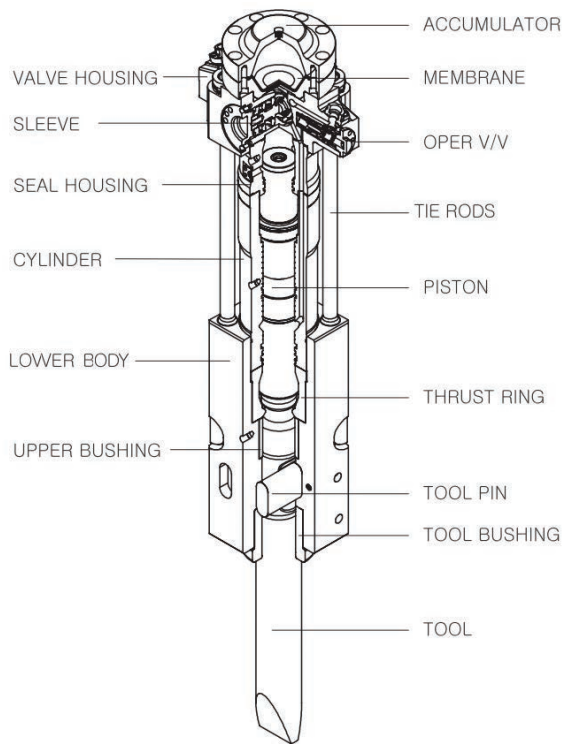


Fig. Sp.10 Breaker Structure

SIDE ROD

Three major parts of the breaker, lower body, cylinder and valve housing, are secured by four tie rods.

VALVE HOUSING

Hydraulic ports and operation control valve are built into the valve housing.

CYLINDER

Hydraulic circuit for reciprocating the piston is built into the cylinder.

ACCUMULATOR

Accumulator stores hydraulic fluid for use during hammering cycle and absorbs any pulsations in the hydraulic circuit.

PISTON

Kinetic energy of the piston is converted into impact energy when it is transmitted to the working steel.

LOWER BODY

Lower body holds the tool via thrust ring and built-in upper bushing.

TOOL

Depending upon the application, conical, chisel, blunt ormoil tool can be used.

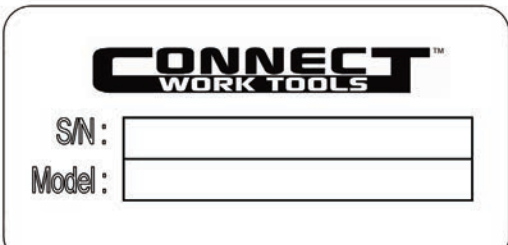
Operation

1. Serial Number

Identification of the product and part serial number is important when claiming warranty or ordering spare parts.

Product Serial Number

The product serial number is stamped on the back head & decal is located on the breaker housing or side.



Parts serial number location

Tool Bit



Fig. O-1

Piston



Fig. O-2

Tool Bushing



Fig. O-3

Tool Pin

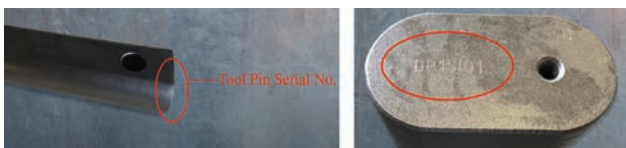


Fig. O-4

Cylinder

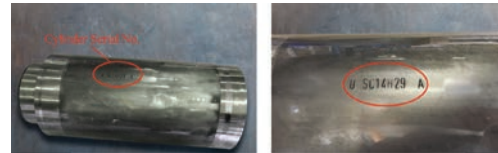


Fig. O-5

Lower Body



Fig. O-6

Warranty Parts must be genuine CH Breaker parts and ordered through Connect Work Tools in order to file and complete the warranty process.

Operation

2. Guide to Tool Choice

The correct choice of the most suitable tool is crucial not only for increasing hydraulic breaker productivity but also for the life of the tool itself

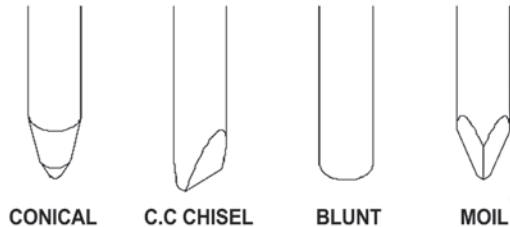


Fig. O-7 Guide to Tool Choice

Conical,moil or chisel tools are suitable for most jobs In trenching and demolition applications, the material is broken by a combination of impact energy and a wedging effect that forces the material to separate as the tool penetrates. Conical is used for general demolition work where penetrative breaking is required. Moil is used where increased breakout forces are required. Chisel is preferred where a cutting action is required.

Blunt tool is suitable for secondary breaking, boulder reduction applications and scaling in mines or tunnels. The tool breaks the material with stress waves generated by the breaker, passing through the tool and into the material. Blunt provides an excellent combination of productivity and resistance to wear.

3. Breaker Tool Installation

USE PROPER PPE WHEN REMOVING & INSTALLING THE TOOL BIT



1. Place the breaker horizontally on a level surface, or if mounted to the carrier position the breaker in a horizontal position. The breaker must be elevated off the ground with blocks so the retainer pins will clear when removed. Make sure the carrier is secured, engine off and engage the shutoff valve to the off position.
2. Prior to installation of the tool - The bushings, and tool retainer components must be inspected for tolerance, damage and wear.

Inspect the lubrication system and lubrication components while the tool is removed. Make sure the lubrication passages are not blocked and the tool will receive lubrication. Replace the components as necessary that are damaged, missing or not within the specification.

Failure to replace worn and damaged tool bits, bushings and retainer components will lead to costly repairs and premature failure of major components and the breaker.

3. Using a brush pre-lubricate the upper tool shank of the tool bit and the tool bit retainer slots along with the lower bushing. Use the recommended tool bit lubricant.
4. Using a strap and hoist align slide the tool bit (H) into the front head tool bore. Align the tool bit retainer slots with the retainer pin bores.

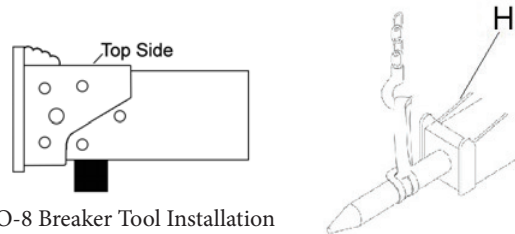


Fig. O-8 Breaker Tool Installation

5. Install the tool retainers. (E). Make sure the retainer pin bore is aligned.

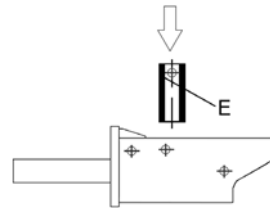


Fig. O-8 Breaker Tool Installation

6. Install the retainer pin and rubber plug. (D & C).

Top View

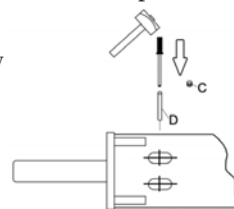


Fig. O-9 Breaker Tool Installation

7. Using snap ring pliers install the retaining ring. (B).

Top View

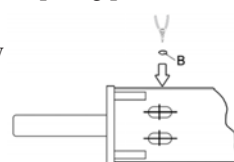


Fig. O-10 Breaker Tool Installation

8. Install the rubber plugs (A and G) into the housing.

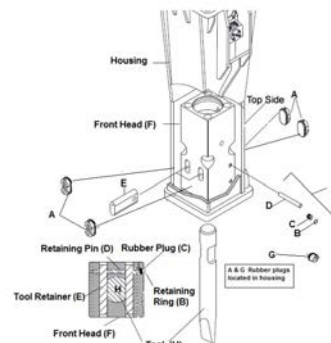


Fig. O-11 Breaker Tool Installation

9. Lubricate the breaker using a grease gun.

Operation

4. Breaker Tool Removal

USE PROPER PPE WHEN REMOVING & INSTALLING THE TOOL BIT



1. Place the breaker on a level surface. The breaker can remain on the carrier if attached. Close the shutoff valve to the off position if equipped.

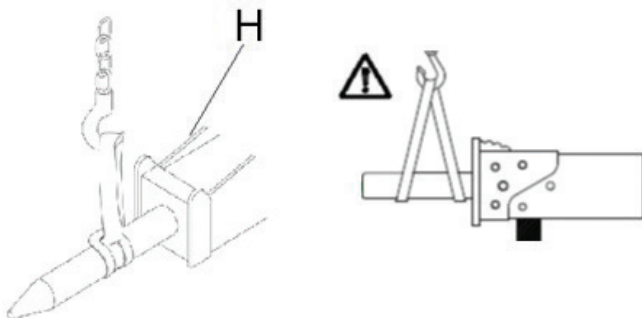
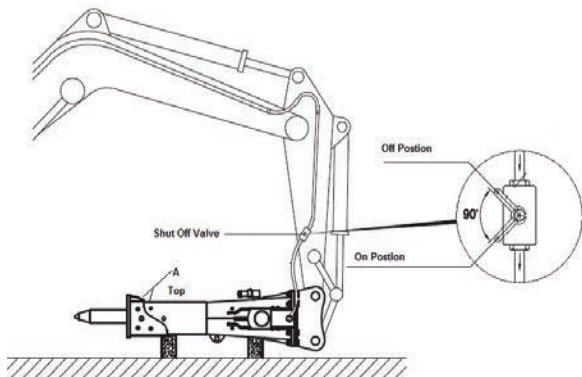


Fig. O-12 Breaker Tool Removal

2. Install a strap and hoist to the tool bit to safely support the weight of the tool during removal.

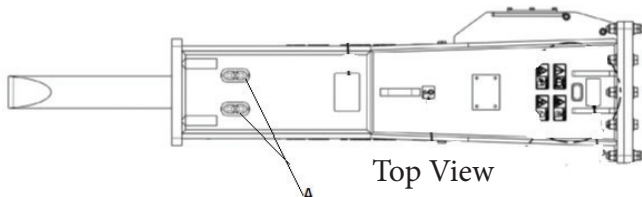


Fig. O-13 Breaker Tool Removal

3. Using a screw driver, carefully remove the rubber plugs from the top and bottom of the housing (A) .

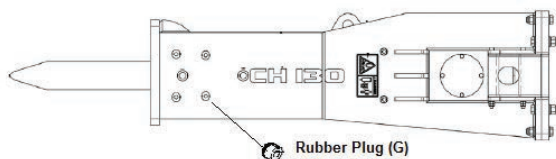


Fig. O-14 Breaker Tool Removal

4. Remove the two rubber plugs (G) from both sides of the housing.

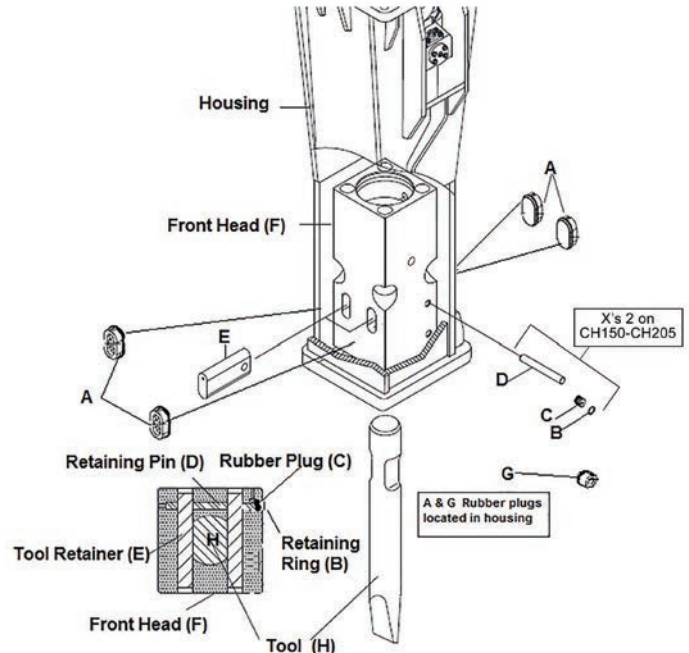


Fig. O-15 Breaker Tool Removal

5. Using snap ring pliers remove the retaining ring (B) and the rubber plug C from the front head (F).

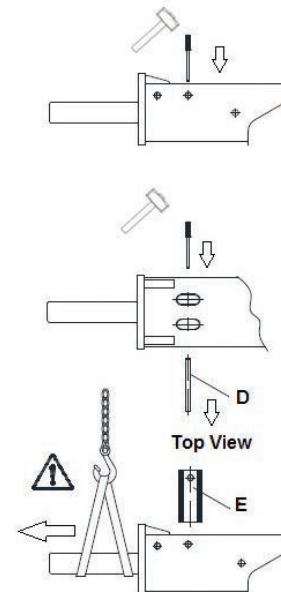


Fig. O-16 Breaker Tool Removal

6. Using a breaker and punch, drive the retaining pin (D) from the front head (F).
7. Remove the tool retainers from the front head (F).
8. Remove the rubber retaining plug (C). Drive the retaining pin (D) from the front head (F)

Operation

5. Installation and Removal of the Breaker

USE PROPER PPE WHEN REMOVING & INSTALLING THE TOOL BIT



Installation

1. Prior to installation of the breaker, install the hoses, mounting bracket to the breaker. Avoid contamination by making sure the hoses and fittings are clean prior to installation.

If using quick couplers (Small Breakers) make sure they are in proper working order. Ensure the mount bracket and hoses are properly tightened and torqued. Flow check the machine prior to installation of the breaker.

2. Place the breaker horizontally with the tool bit facing the on a level surface cab of the carrier. Carefully, align the carrier boom stick with the mounting bracket holes. Install the boom stick pin through the bracket and boom stick.

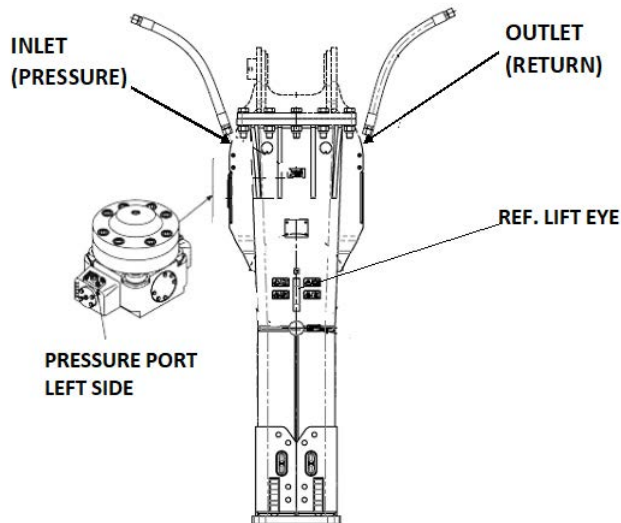


Fig. O-17 Installation of Breaker

3. Carefully, align the carrier bucket link and mounting bracket holes. Install the link pin stick pin through the bracket and pin link.
4. Hook the hoses the hoses to the carrier making sure the hoses correctly attached to the inlet and outlet of the carrier and the breaker. Open the carrier stop valves.
5. Position the breaker in the upright position, with down pressure on the tool bit. Lubricate the breaker using the correct tool lubricant.
6. Move the breaker to the upright operating position. On a hard surface check the breaker operation.

Removal From Carrier



1. Place the breaker horizontally with the tool bit facing the on a level surface cab of the carrier.
2. Stop the carrier and close the stop valves, disconnect the hoses plug the hoses and protect them from contamination and oil spills.
3. Remove the boom link pin.
4. Remove the boom stick pin.

6. Setting of Carrier Relief Pressure

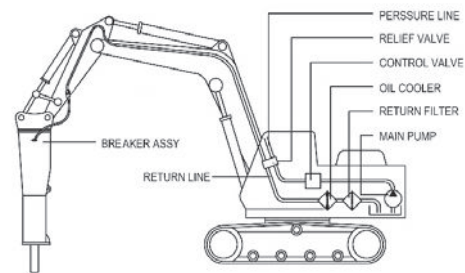


Fig. O-18 Setting of Carrier Relief Pressure

Carrier Relief Valve

- The carrier relief valve is a safety device which is used to protect the breaker when the pressure rises in hydraulic circuit.
- The carrier relief pressure is measured from the carrier pressure line.
- The carrier relief valve setting is set using a flow meter prior to installation of the breaker to the carrier. The carrier relieve specification can be found on the breaker Serial Number Data Plate and this manual. Consult the service manual for setup procedure.

Operation

7. Operating Precautions

Keep the cab windows and doors closed during operation.

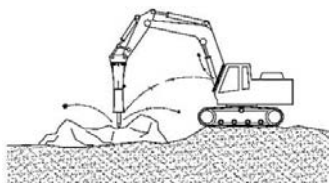


Fig. O-19

Ensure that protective window screens are installed on cab and wear protective eye wear.

Use the excavator boom to press the breaker firmly against the object.

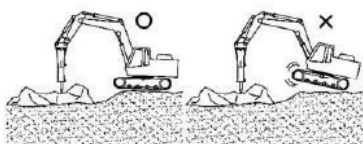


Fig. O-20

Place the tool against the object at a 90 degree angle. Listen to the breaker's sound when you are using it. If the sound becomes thinner and the impact less efficient, the tool is misaligned with the material and/or there is not enough down force on the tool. Realign the tool and press the tool firmly against the material if necessary.

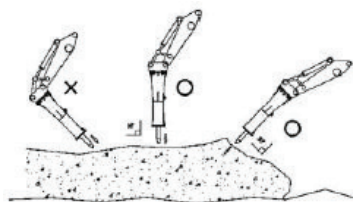


Fig. O-21

When demolishing vertical structures, place the tool against the wall at a 90 degree angle.

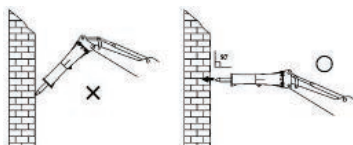


Fig. O-22

Do not strike in one spot for more than **15 seconds** at a time. If the object does not break, or if the tool does not penetrate, stop the breaker and change the position of the tool.

Do not strike in one spot for more than 15 seconds at a time. If the object does not break, or if the tool does not penetrate, stop the breaker and change the position of the tool.



Fig. O-24

When the object starts to break, stop the breaker immediately. Do not allow the breaker to break through and blank fire. Frequent idle strokes would lead deteriorating effect on the breaker components.

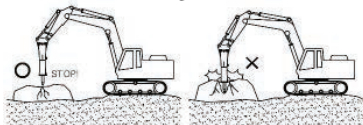


Fig. O-25

When breaking concrete, hard or frozen ground, never strike and pry with the tool at the same time. The tool may snap off. Bending may be caused by stones inside hard or frozen ground. Be careful and stop striking if you find sudden resistance under the tool.

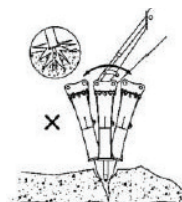


Fig. O-25

Do not operate the breaker with the carrier's boom stick or bucket cylinders at the end of their stroke (either fully extended or fully retracted). This may result in damage of the carrier cylinder.

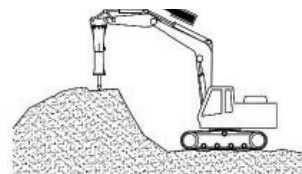


Fig. O-26

The breaker as a standard assembly, must not be used under water. Please always contact Dealer or Customer Support in case of underwater application. The breaker must be equipped with an underwater (UW) kit. UW application without proper setup and kit will severely damage the breaker and may cause environmental damage.

UW operation is not covered under warranty.

UW operation of the breaker is the responsibility of the owner or end-user.

The carrier hydraulic system must be inspected immediately after UW application. The breaker must be inspected and resealed to avoid corrosion (rust) and internal component damage to breaker and carrier hydraulic system.

Follow all environmental, state and federal guidelines.

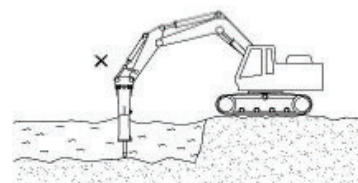


Fig. O-27

Operation

8. Operating Temperature

The optimized operating temperature of the breaker is $-20^{\circ}\text{C} \sim 80^{\circ}\text{C}$ ($-4^{\circ}\text{C} \sim +176^{\circ}\text{C}$). If the temperature is lower than -20°C (-4°C), the breaker and tool must be preheated before starting the operation in order to avoid damage of the tool.

9. Hydraulic Circuit

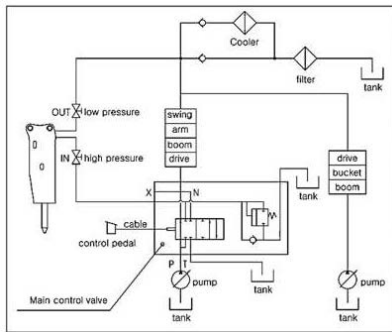


Fig. O-28 Hydraulic Circuit

10. Hydraulic Oil

General Requirements for Hydraulic Oil

IMPORTANT

In general, the hydraulic oil originally intended for the carrier can be used with this product. However, the temperature of the

temperature of the oil must be monitored. If the temperature of the hydraulic oil exceeds $+80^{\circ}\text{C}$, an auxiliary oil cooler is needed.

When the breaker is used continuously, the temperature of the hydraulic oil converges at a certain level depending on conditions of environment and the carrier. At this temperature, the viscosity of the hydraulic oil should be 20-40 cSt (2.90-5.35°E). The breaker should not start if the viscosity of the hydraulic oil is above 1000cSt (131 °E) or below 15cSt (2.35°E).

When the oil is too thick, the following problems may occur:

- Difficult start up
- Slow operation
- Irregular and slow strike
- Danger of cavitation in the pumps and hydraulic breaker.
- Sticky valves
- Filter bypass, possible contamination of oil

When the oil is thin, the following problems may occur:

- Low efficiency (internal leaks)
- Leakage
- Accelerated component wearing due to decreased lubrication efficiency

VI = Viscosity Index
 Permitted Oil Temperature
 Recommended Oil Temperature

Oil Specification	Oil Temperature											°F	Viscosity at -40°C cSt (°E)	
	-4	14	32	50	68	86	104	122	148	158	176			
	-20	-10	0	10	20	30	40	50	60	70	80			°C
Multigrade Hydraulic Oil (VI>130)														
ISO VG 32														32.0 (4.32)
ISO VG 46														46.0 (6.15)
ISO VG 68														68.0 (9.0)
ISO VG 100														100.0 (13.2)
Single grade Hydraulic Oil (VI>120)														
ISO VG 32														32.0 (4.32)
ISO VG 46														46.0 (6.15)
ISO VG 68														68.0 (9.0)
ISO VG 100														100.0 (13.2)
Engine Oil (SAE Classification)														
10w														<3.0 (5.75)
20w -20														58.0 (7.7)
30														85.0 (11.2)
10w-30														75.0 (9.85)
15w-40														109.0 (14.3)

Oil Specifications

Table below shows hydraulic oils recommended for breaker use. The most suitable oil can be selected in such a way that the temperature of the hydraulic oil in continuous use is in the ideal of the recommended oil temperature area on the chart.

Special Oil

When considering use of special oil (e.g. biological oil and non-inflammable oil), check if the viscosity range of the special oil is in the range of 15~1,000cSt. (2.35~131°E).

Connect Work Tools does not recommend glycol based oils or vegetable based oils. Use of these oils will cause premature wear and failure of seals and internal components. Use of incorrect or non-approved lubricants will void breaker warranty.

Operation

11. Oil Filter

The purpose of the oil filter is to remove impurities from the hydraulic oil. Impurities normally enter the carrier hydraulic system in case of repairing components, installing the breaker on the carrier.

Oil Filter Specifications

- The oil filter must allow maximum particle size of 25 microns.
- The oil filter material must be man-made fiber cloth or very fine gauge metallic mesh to withstand pressure fluctuations.
- The oil filter must have a nominal flow capacity of at least twice the breaker's maximum flow.
- In general, oil companies guarantee new oils to have a particle count of 40 microns maximum. Filter the oil when filling the tank.

Damage Caused by Hydraulic Oil Impurities

- Reduced working life of the pumps and other components
- Cavitation
- Oil leakage
- Oil overheating
- Oil quality deteriorates
- Electro-chemical changes in hydraulic oil
- Accelerated wear of moving parts and seals
- Reduced breaker efficiency
- Improper function of valves
- Piston seizing up
- Spools binding

12. Oil Cooler

The correct place to connect the breaker return line is between the oil cooler and the main filters. The breaker return line should not be connected before the oil cooler. Routing the breaker flow through the cooler, might damage either the cooler, due to pulsating flow, or the breaker, due to increased back pressure.

The carrier hydraulic system must be able to maintain the temperature within an acceptable level during the breaker operation because seals, wipers, membrane can normally withstand temperature up to 80°C (176°F) and the higher the temperature is, the less oil viscosity becomes.

13. Lubrication

IMPORTANT

Proper breaker maintenance requires a sufficient supply of the correct grease to the tool.

Recommended is a lithium soap base NLGI grade 2 grease with Molybdenum Disulfide or other surface protecting additives and drop point of 260°C (500°F).

Greasing Interval

- Tool shank must be well lubricated before installing tool.
- 5~10 strokes from grease gun to upper and lower bushings until grease comes out between the tool and the lower bushing.
- This should be done every 2 hours of operation.
- If the grease schedule cannot be controlled, then grease the breaker more often than required, for example, once every hour. It is far cheaper than replacing prematurely worn out tool or tool bushings.
- Insufficient greasing or use of improper grease may cause breakage of tool or abnormal wear of tool or tool bushings.

Correct Greasing

When manually greasing a CH Series Breaker, the breaker must be in the upright position with down force on the tool bit.

Do not lubricate the breaker in the horizontal position or laying on the ground.

Failure to lubricate the breaker in the upright position with the tool bit installed will fill the tool bit chamber with grease resulting in damage to the breaker seals, pushing them out of the cylinder when the breaker is operated.

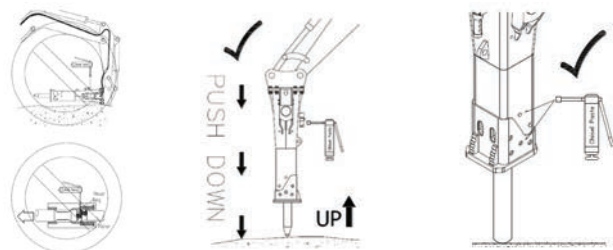


Fig. O-29 Lubrication

The greasing points on the breaker are marked with the sticker.

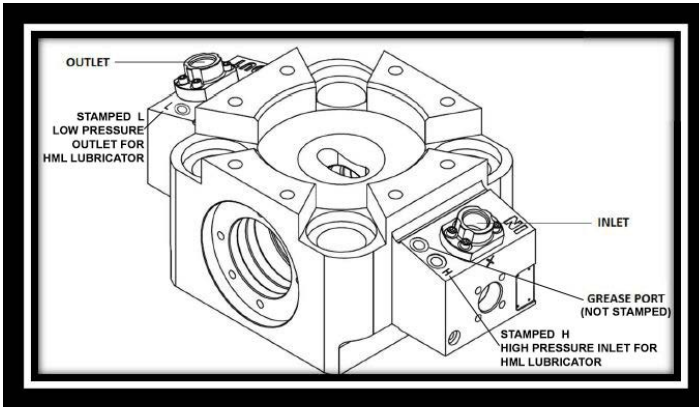
Automatic Lubrication

Automatic lubrication methods can be installed on all Connect Work Tools models. The breakers are equipped with top-down lubrication. The tool grease is supplied from the pump into the breaker by hose. This is recommended for longer service life of wear parts.

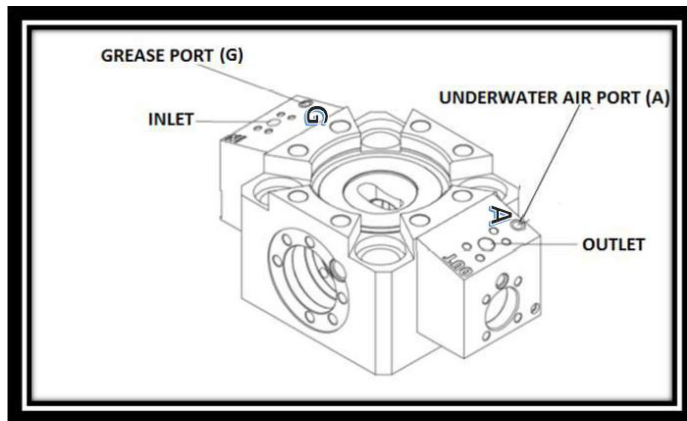
Operation

13. Lubrication - continued

All CH Series breakers are equipped with top down lubrication ports to accommodate the automatic lubricators. The large breakers series are equipped with port marked G.



MODELS CH110-CH140



MODELS CH150-CH205

The medium series breakers are marked. High Pressure (Inlet) and Low Pressure (Outlet) ports are stamped, locate -6 BSPP plug. The Grease port is not marked on the valve housing, it is located on the inlet side of the breaker.

Remove the Rubber Port Cover. Remove the plug -6. Install the -6 adapter and hose that comes in the Connect Work Tools Lubricator Kit.

If the lubricator is supplied by another source, an adapter and hose will need to be supplied, they are not part of the breaker. The adapter is -6 (3/8) BSPP Male leading into the breaker.

The hose from the lubricator is then ran to the breaker auto lube port JIC fitting. Route the hose and tighten the fittings.

Install the tool bit. With down pressure on the tool bit, lubricate with grease gun using chisel paste. This will prime the grease galley and avoid galling during initial start and use of the auto lube.

DO NOT LUBRICATE THE BREAKER WITHOUT DOWN PRESSURE ON THE TOOL BIT. BREAKER SEAL DAMAGE WILL OCCUR.

Refer to the operator manual lubrication section for procedure.

Adjust the auto lube to desired lubrication for the application you are working in.

Refer to the specific Connect Work Tools lubrication system manual for installation and setup of BML, HML and CML lubricators.

Operation

14. CH110/CH120/CH130/CH140/CH150/CH165/CH175/CH180/CH205

Anti-Blank Fire (ABF) Operation

If equipped on your breaker. The Anti Blank Firing (ABF) system is designed to be adjustable so that the operator can selectively switch on/off the mode. The adjust procedure is provided in this manual.

When ABF function is activated, high pressurized oil from the pump to the piston lower chamber is bypassed via ABF channel directed towards the tank. Since there is no force acting on the piston, lowered piston automatically stops in the middle of piston cycle and idle strokes are prevented

In (Fig. 1), ABF function is activated by the downward stroke of the piston. When the piston is below a certain level within cylinder flow is redirected as the tool moves downward. The ABF function does not affect the blow output or performance of the breaker.

This occurs when there is no down force on the tool or the tool is not properly in contact with the work piece. There is no difference in hitting while the tool is well supported against the work piece.

The breaker can be restarted once proper down pressure is applied to the breaker against the work piece using carrier arm. The breaker is protected from the stress inside the breaker due to blank firing.

The ABF system works as an indicator for proper operation especially in work conditions where visibility is poor. Breaker starts and stops depending on the contact with the material.

In ABF off mode (Fig. 2), ABF adjuster blocks the ABF channel. Now that there is no bypass channel, high pressurized oil from the pump fills up the piston lower chamber, and thus lifts up the lowered piston to continue its cycle.

In this mode, the breaker will fire without any load applied to the tool against the work piece, thus simplifying handling. Operator can save time to position the breaker.

In both modes the Operator will need to reposition the breaker regularly to avoid blank fire and premature wear of components and internal damage to the breaker

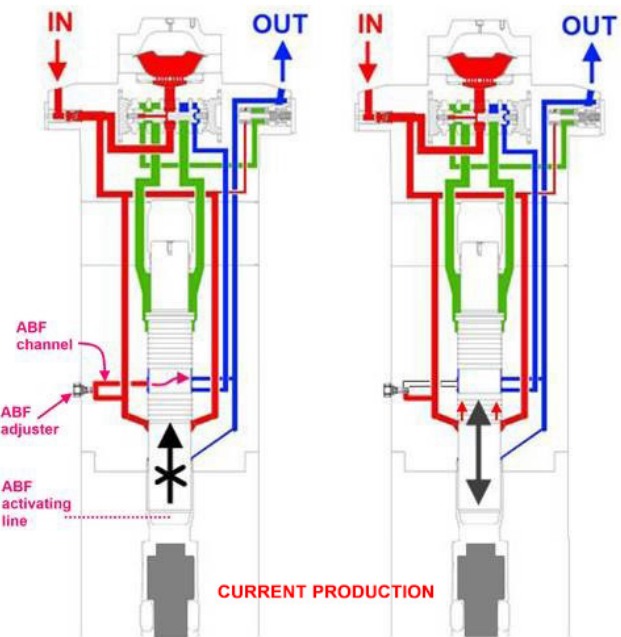


Fig. 1 : ABF On mode

Fig. 2 : ABF Off mode

Switching between the two modes is simply done by putting/ removing the pin that fits to the ABF channel. When the pin is removed, ABF channel opens to turn the ABF system on. When putting the pin, ABF channel is blocked to turn the ABF system off.

These ABF adjusters (plug & pin) are located in the cylinder.

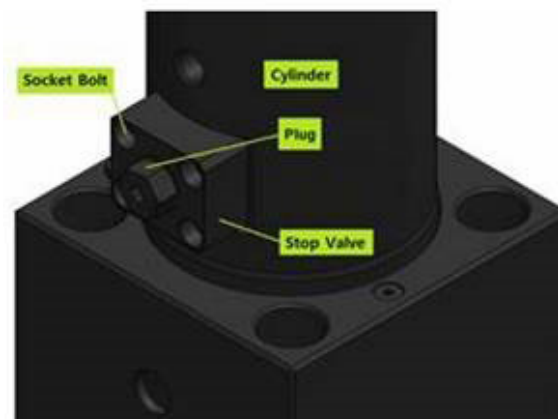
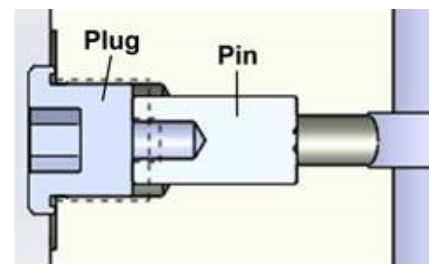


Fig. O-30 Anti-Blank Fire Operation

Operation

15. Auto Shut-Off System

ASO System

- ASO system prevents damages on F/H, Tool pin, Side rod & Tool bit.
- Factory standard is ASO on made (On: 4-5 times open from the ASO valve bolt fully closed).
- Operator can switch ON and switch OFF.
- Recommended ASO ON even for an experienced operator.

SWITCHING ASO ON/OFF MODE

CAUTION

- Make sure that the operator fully understands the manual before use.

WARNING

- High pressurized oil inside the breaker may cause serious injury or death.
- Wait until the residual pressure is bled off before operating ASO valve.

Switching to ASO OFF Mode

WHEN THE BREAKER IS RECEIVED FROM CONNECT WORK TOOLS IT IS IN THE ASO ON MODE

1. Place the breaker on flat surface and stop the carrier engine.
2. Close Stop valve on the supply line. Wait until the residual pressure is bled off.
3. Remove the Rubber Plug on the housing.

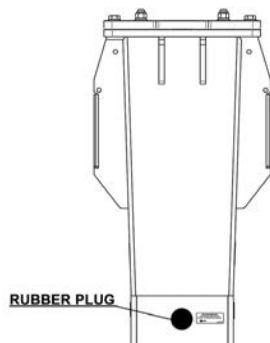


Fig. O-31 Auto Shut-Off System

4. Slightly loosen the Hex Nut by using a 32mm wrench.
5. While holding Hex Nut, fully tighten the ASO valve bolt by rotating it clockwise with a 10mm Allen wrench.

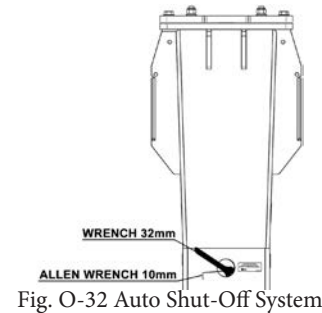


Fig. O-32 Auto Shut-Off System

6. Tighten the Hex Nut.
7. Assemble the Rubber Plug on the housing and open the Stop valve on supply line.

Switching to ASO ON Mode

1. Place the breaker on flat surface and stop the carrier engine.
2. Close Stop valve on piping line. Wait until the residual pressure is bled off.
3. Remove the Rubber Plug on the housing.

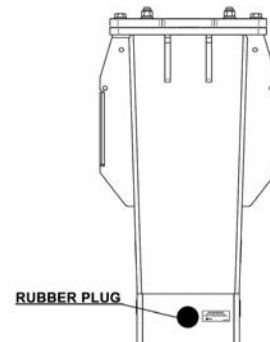


Fig. O-33 Auto Shut-Off System

4. Slightly un-tighten the Hex Nut by using a 32mm wrench.
5. While holding Hex Nut, un-tighten the ASO V/V Bolt by rotating it 5 revolutions counter-clockwise with a 10mm Allen wrench.

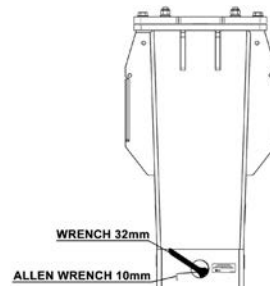


Fig. O-34 Auto Shut-Off System

6. Tighten the Hex Nut.
7. Assemble the Rubber Plug on the housing and open the Stop valve on the supply line.

Maintenance

1. General Precautions

IMPORTANT

Maintenance instructions should be followed to ensure the breaker is operating in best condition. Check every component of the machine before and after operating the breaker and repair or replace the related items if necessary for maximum durability.

Clean the Machine Before Inspection

Breaker housing should be cleaned for removing dirt before inspection to ensure proper detection of damage of the breaker.

Keep away from the heat

Excavator, breaker body, hydraulic oil still have high level of temperature after certain operation. Due to this reason, do not touch any parts which have high temperatures and wait until they are cooled down, otherwise it may cause serious injury.

Release pressure in the hydraulic system

Before disassembling hydraulic parts (e.g. hydraulic hose, plug, adjust bolt), make sure that stop valves on both hydraulic lines are fully closed and wait until the pressure in the hydraulic system of the machine are lowered to prevent hydraulic oil from leaking.

Keep record inspection history

Inspect the machine regularly and record the inspection result for future maintenance. Schedule will be provided.

2. Storage

IMPORTANT

Short Term Storage

For short term storage between works, place the breaker horizontal on wooden blocks. Make sure that the tool is lubricated and the hydraulic hoses are securely capped. Cover the breaker with a waterproof tarp.

Long Term Storage

Check the followings for safe long term storage of the breaker to prevent rust and to make the breaker ready to be used.

- Breaker must be stored in upright position.
- If back head is charged with N2 gas, the front head of the piston is protruded from the cylinder.
- Remove the tool and push the piston all the way in.
- Grease the exposed front end of the piston.
- Plug the hydraulic hoses.
- Cover the breaker with a waterproof tarp

3. Periodic Inspection & Schedule

Predelivery and Service Interval Schedule	Reseal Breaker Every 600 to 800 Hours	Check Tie Rod Torque	Inspect Upper Buffer & Side Pads	Inspect Upper & Lower Bushing Wear	Check Mounting Pins & Bracket Fasteners for Cracks, Broken? Loose? Missing?	Check all Fasteners & Hardware Missing? Loose? Broken?	Check for Cracks in Housing or Side Plates, Missing Plugs, Covers, Loose? Missing, Broken Hardware	Check For Hydraulic Oil Leaks	Lubricate Based on Application (Using Down Pressure on the Tool Bit. Use Chisel Paste)	Setup & Check Lubrication System	Check Nitrogen Charge	Registration of Attachment	Duration
			X		X	X		X	X	X	X	X	Pre Delivery Initial In-Service
			X	X		X	X	X	X				Daily
			X	X		X	X	X					Weekly
			X	X		X	X	X					Monthly
		X	X	X		X	X	X			X		Bi Annual
	X	X	X	X	X	X	X	X		X	X	X	Annual

Maintenance

4. Accumulator Charge Procedure



- The accumulator and back head are charged with nitrogen gas. Only use nitrogen gas to recharge them. Charging with any other gas could trigger an explosion and lead to serious or possibly fatal injuries.
- Make sure that all gas in the accumulator and back head is completely relieved before beginning disassembly to avoid potential accidents or injury.
- Stay clear of the tool when recharging the back head. Gas pressure may lead to unexpected piston movement and hence the tool movement.
- Do not substitute alternate parts not intended for the application. Failure to comply can result in machine failure.

1. Install the accumulator assembly with a new usit-ring E and the accumulator gas bolt D.
2. Connect the gas charging device C to the accumulator.



Do not use a wrench to tighten the gas charging device to the adapter. Carefully hand tighten and secure. Overtightening will damage the device.

3. Open the accumulator gas bolt D through the gas charging device.
4. Open the valve of the nitrogen bottle and observe the gauge pressure.

5. Set the pressure to that shown in column A and shut the bottle valve.
6. Wait gas 2 minutes to allow the pressure to stabilize.
7. Adjust the pressure to that shown in column B by releasing screw F.
8. Shut the accumulator gas bolt D, tightening torque Nm/ft.lb 15/10.
9. Release the pressure from the hose and remove the gas charging device.
10. Check for leakage at the accumulator gas bolt D by dropping a small quantity of oil around the accumulator gas bolt D.
11. Place the accumulator cap G.

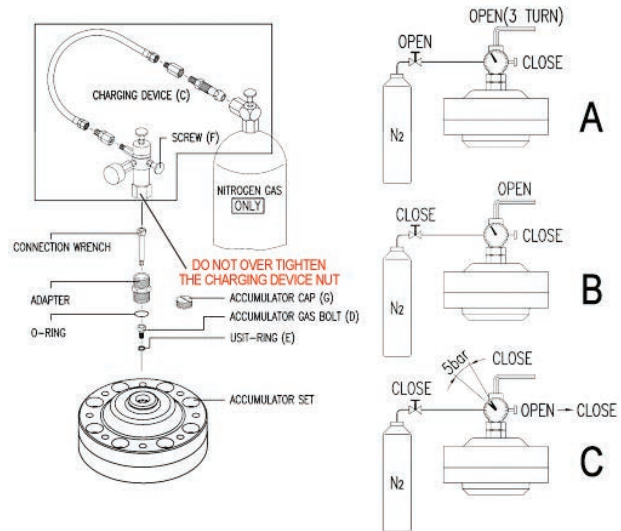


Fig. M-1 Accumulator Charge Procedure

5. Charge/Torque Specifications

Item	UNIT	CH110	CH120	CH130	CH140	CH150	CH165	CH175	CH180	CH205
Acc. Gas Pressure	bar/psi	40/580								50/725
Acc. Gas Bolt	N.m./Ft-lb	15/10								

Maintenance

6. Wear Limit of Consumable Parts

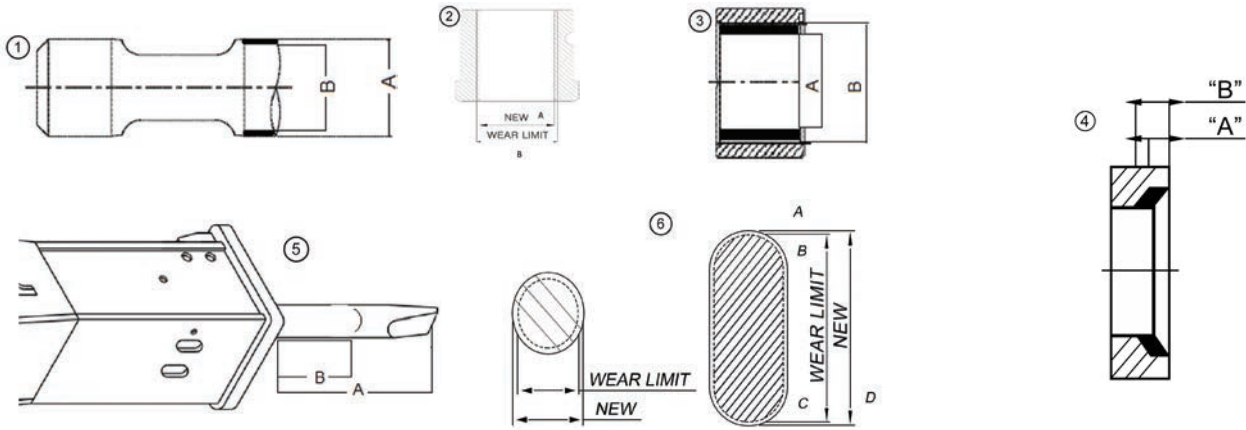


Fig. M-2 Wear Limit

Breaker Model	① Tool		② Tool Bushing		③ Upper Bushing		④ Thrust Ring		⑤ Tool		⑥ Tool Pin				
	New (A)	Reject (B)	New (A)	Reject (B)	New (A)	Reject (B)	New (A)	Reject (B)	New (A)	Reject (B)	New (A)	Reject (B)	New (C)	Reject (D)	E
CH110	110	108	110	112	110	112	10	15	673	450	40	37	80	77	1.5
CH120	120	118	120	122	120	122	12.5	17.5	638	450	45	42	85	82	1.5
CH130	130	128	130	132	130	132	11.5	16.5	655	450	45	42	100	97	1.5
CH140	140	138	140	142	140	142	12.5	17.5	650	450	50	47	125	123	1.5
CH150	150	147.5	150	152.5	150	152.5	-	-	695	500	50	47	125	123	1.5
CH165	165	162.5	165	167.5	165	167	-	-	709	500	50	47	130	127	1.5
CH175	175	172.5	175	177.5	175	177	-	-	830	550	50	47	130	127	1.5
CH180	185	182.5	180	182.5	185	187	-	-	943	600	50	47	130	127	1.5
CH205	205	200	205	210	205	207	-	-	943	600	65	62	155	152	1.5

Maintenance

7. Wear Pad Tolerance

Item	CH Medium Series							
	CH110		CH120		CH130		CH140	
	New	Minimum	New	Minimum	New	Minimum	New	Minimum
Top Buffer A	90 mm	88 mm	120 mm	118 mm	114 mm	112 mm	135 mm	133 mm
Top Wear Plate B	10 mm	8 mm	10 mm	8 mm	10 mm	8 mm	10 mm	8 mm
Side Buffers C	65 mm	63 mm	85 mm	83 mm	85 mm	83 mm	85 mm	83 mm
Wear Plate D	16 mm	14 mm	16 mm	14 mm	16 mm	14 mm	16 mm	14 mm
Wear Plate D1	250 mm	246 mm	270 mm	266 mm	300 mm	296 mm	310 mm	306 mm
Wear Plate D2	250 mm	246 mm	270 mm	266 mm	300 mm	296 mm	310 mm	306 mm

Item	CH Large Series									
	CH150		CH165		CH175		CH180		CH205	
	New	Minimum	New	Minimum	New	Minimum	New	Minimum	New	Minimum
Top Buffer A	135 mm	133 mm	150 mm	148 mm	150 mm	148 mm	155 mm	153 mm	220 mm	218 mm
Top Wear Plate B	10 mm	8 mm	10 mm	8 mm	10 mm	8 mm	10 mm	8 mm	10 mm	8 mm
Side Buffers C	85 mm	83 mm	85 mm	83 mm	85 mm	83 mm	85 mm	83 mm	100 mm	98 mm
Wear Plates D	16 mm	14 mm	16 mm	14 mm	16 mm	14 mm	20 mm	18 mm	20 mm	18 mm
Wear Plates D1	320 mm	316 mm	340 mm	336 mm	380 mm	376 mm	410 mm	406 mm	470 mm	466 mm
Wear Plates D2	320 mm	316 mm	340 mm	336 mm	380 mm	376 mm	410 mm	406 mm	470 mm	466 mm

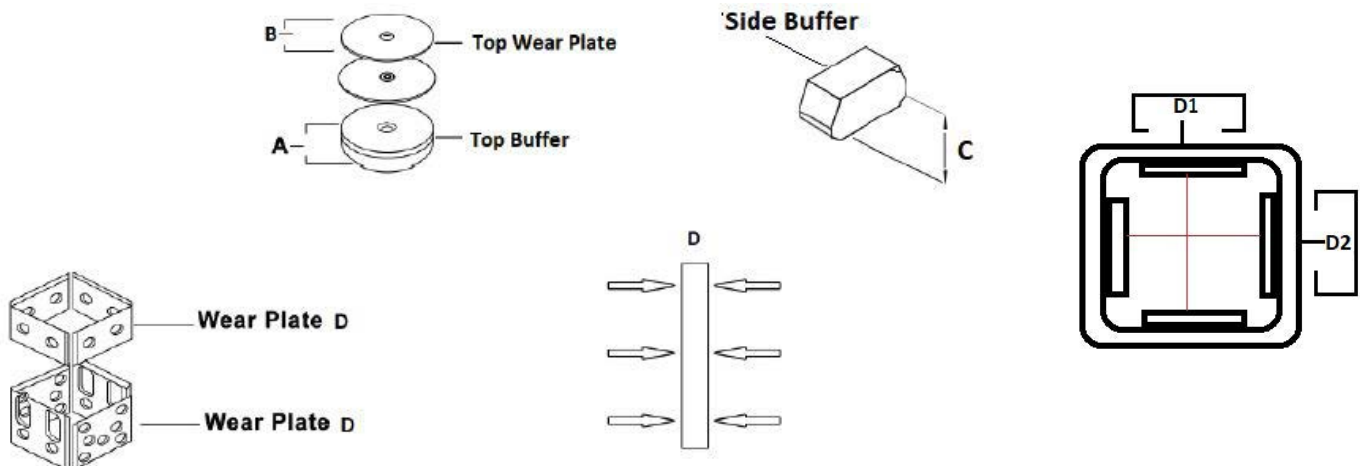


Fig. M-3 Wear Pad Tolerance

Maintenance

8. Tool Bit Failure Cause and Effect

Common fractures caused by excessive prying/ bending and leverage of the tool bit.

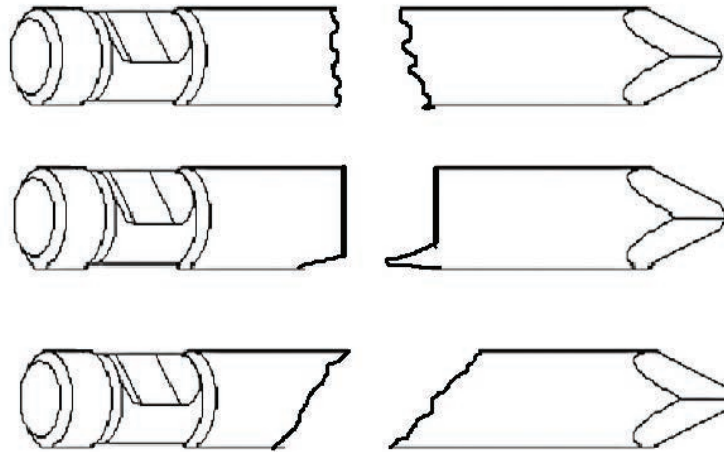


Fig. M-4 Tool Bit Failure

Considered Non-Warrantable - Incorrect operation and abuse

High Stress Fracture caused by anchoring the tool in the material and rocking and pulling with the carrier

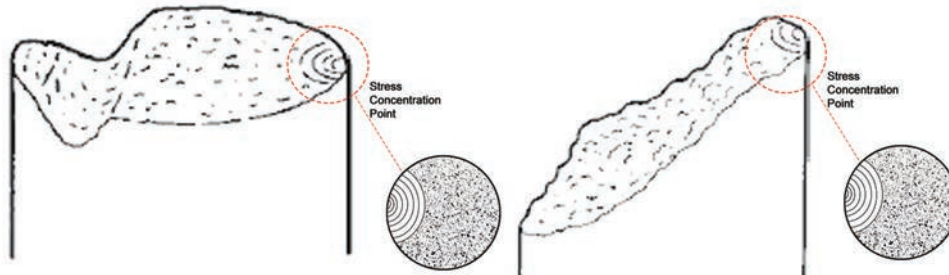
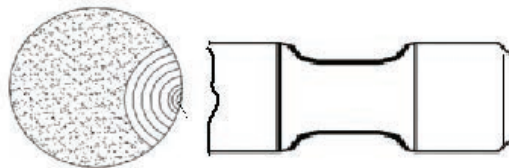


Fig. M-5 Tool Bit Failure

Fractures Caused leveraging or prying the tool while buried in the material



Stress Concentration Point At 90 Degrees To The Retainer Pins

Fig. M-6 Tool Bit Failure

Maintenance

8. Tool Bit Failure Cause and Effect

Fractures caused by blank firing, and worn tool bushings

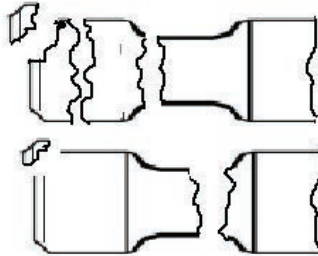


Fig. M-7 Tool Bit Failure

Fractures caused by blank firing and twisting of the tool due to worn or damaged tool retainers



Fig. M-8 Tool Bit Failure

Failure Resulting From Extreme Down Pressure

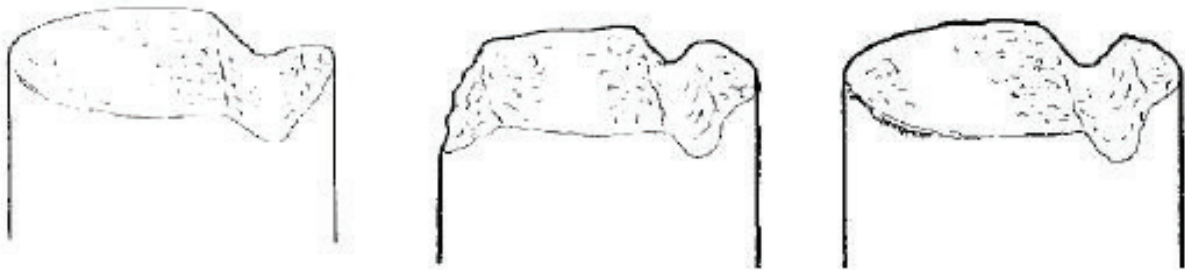


Fig. M-9 Tool Bit Failure

Lack Of Lubrication and Bushing Wear or Damage Failure



Fig. M-10 Tool Bit Failure

Maintenance

8. Tool Bit Failure Cause and Effect

Mushrooming caused by driving the chisel or point into hard, dense material for too long of a period of time without penetration. Generating intense heat softening the point and causing deformation of the point. The breaker should be operated for 15 seconds then re-position the tool on the material

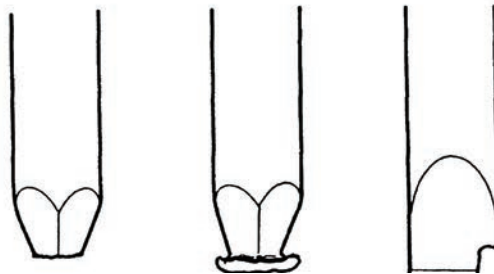


Fig. M-11 Tool Bit Failure

Internal fatigue from the internal point (Not the outer diameter)



Fig. M-12 Tool Bit Failure

This is an uncommon failure due to material defect. This failure is covered under warranty

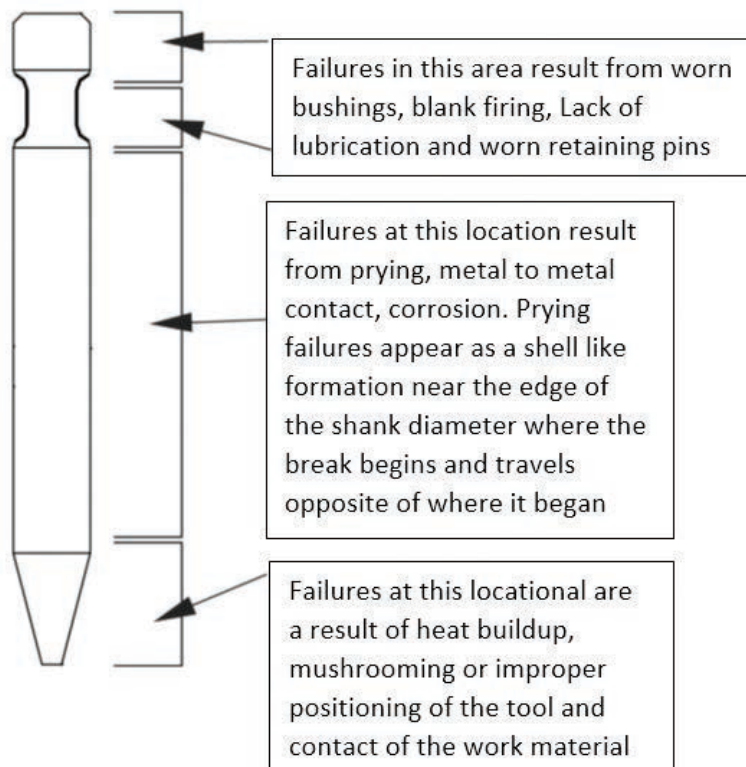


Fig. M-13 Tool Bit Failure

Troubleshooting Guide

1. Breaker Does Not Start

Piston is in its lower hydraulic breaker

- ▶ Keep the breaker control valve open and force the tool against to the object. The tool head will push the piston out of its area.

Breaker control valve does not open

- ▶ When operating the breaker control valve, check that the pressure line pulsation this indicates the breaker control valve is opened. If the valve does not operate, check the operating means: mechanical connections, pilot pressure or electrical control.

Relief valve in hydraulic circuit is opened at a low pressure

- ▶ Check the installation. Check the relief valve operation. Adjust the relief valve in hydraulic circuit. Measure the high pressure in the breaker inlet line.

Leakage from return line in carrier hydraulic circuit

- ▶ Check the installation. Check the pump and the other hydraulic components.

Pressure and return hoses installed backwards

- ▶ Change the pressure and return hoses.

Failure in breaker valve operation

- ▶ The breaker must be serviced in an authorized service shop.

Piston failure

- ▶ The breaker must be serviced in an authorized service shop.

2. Breaker Operates Irregularly But The Blow Has Full Power

Relief valve in hydraulic circuit opens at a low pressure. Breaker operating pressure is not reached

- ▶ Check the installation. Check the relief valve operation. Adjust the relief valve in hydraulic circuit. Measure the high pressure in the breaker inlet line.

Failure in breaker valve operation

- ▶ The breaker must be serviced in an authorized service shop.

Not enough feed force from the carrier

- ▶ Refer to correct working methods

3. Breaker Operates Poorly And The Blow Has No Power

Relief valve in hydraulic circuit opens at low pressure. Breaker operating pressure is not opened

- ▶ Check the installation. Check the relief valve operation. Adjust the relief valve in hydraulic circuit. Measure the high pressure in the breaker inlet line.

Pressure loss in the accumulator

- ▶ The breaker must be serviced in an authorized service shop.

The working method is not correct

- ▶ Refer to correct working methods.

Pressure control valve setting is incorrect

- ▶ The breaker must be serviced in an authorized service shop.

4. Impact Rate Slows Down

Oil overheated (over 176°F /80°C)

- ▶ Check for a fault in the oil cooling system or an internal leakage in the breaker. Check the hydraulic circuit of the carrier. Check the relief valve operation in the carrier. Check the line size. Assemble an extra oil cooler.

Relief valve in hydraulic circuit opens at a low pressure. Breaker operating pressure is not reached

- ▶ Check the installation. Check the relief valve operation. Adjust the relief valve in hydraulic circuit. Measure the high pressure in the breaker inlet line.

Leakage from return line in carrier hydraulic circuit

- ▶ Check the installation. Check the pump and the other hydraulic components.

Pressure loss in the accumulator

- ▶ The breaker must be serviced in an authorized service shop.

Failure in breaker valve operation

- ▶ The breaker must be serviced in an authorized service shop.

Hydraulic viscosity is too low

- ▶ Check hydraulic oil

Troubleshooting Guide

5. Oil Overheats

Relief valve in hydraulic circuit opens at a low pressure.

Breaker operating pressure is not reached

- ▶ Check the installation. Check the relief valve operation. Adjust the relief valve in hydraulic circuit. Measure the high pressure in the breaker inlet line.

Leakage from return line in carrier hydraulic circuit

- ▶ Check the installation. Check the pump and the other hydraulic components.

Internal oil leak in the breaker

- ▶ The breaker must be serviced in an authorized service shop.

Hydraulic viscosity is too low

- ▶ Check hydraulic oil.

Cooling capacity of the factory oil cooler is too low

- ▶ Assemble an extra oil cooler.

CH SERIES

PRESSURE AND FLOW INFORMATION

BREAKER MODEL	BREAKER WEIGHT (LBS)	FLOW LIMITS (GPM)	OPERATING PRESSURE (PSI)	MAX BACK PRESSURE (PSI)	CARRIER RELIEF PRESSURE (PSI)
CH65	630	10 - 17	1,595 - 1,885	145	2,610
CH65H	660	10 - 17	1,595 - 1,885	145	2,610
CH70EX	685	11 - 24	1,595 - 1,885	145	2,610
CH70SS	948	11 - 24	1,595 - 1,885	145	2,610
CH75	905	16 - 22	1,595 - 1,885	145	2,610
CH75H	950	16 - 22	1,595 - 1,885	145	2,610
CH85	1,185	16 - 22	1,595 - 1,885	145	2,610
CH95	1,465	18 - 24	1,740 - 2,030	145	2,610
CH100	1,965	18 - 26	1,740 - 2,030	145	2,610
CH110	2,645	24 - 26	1,740 - 2,030	145	2,755
CH120	3,306	26 - 39	1,740 - 2,030	145	2,755
CH130	3,823	34 - 39	1,740 - 2,030	145	2,755
CH140	4,960	45 - 53	1,885 - 2,175	145	2,900
CH150	5,380	45 - 53	1,885 - 2,175	145	2,900
CH165	6,504	50 - 58	1,885 - 2,175	145	2,900
CH175	8,267	55 - 63	1,885 - 2,175	145	2,900
CH180	12,125	66 - 81	1,885 - 2,175	145	2,900
CH205	16,535	79 - 106	2,030 - 2,320	145	3,045

Important Storage Procedure

Short Term Storage

For short term storage between usage, place the breaker horizontal on wooden blocks. Make sure that the tool is lubricated, and the hydraulic hoses are securely capped. Cover the breaker with a waterproof tarp.

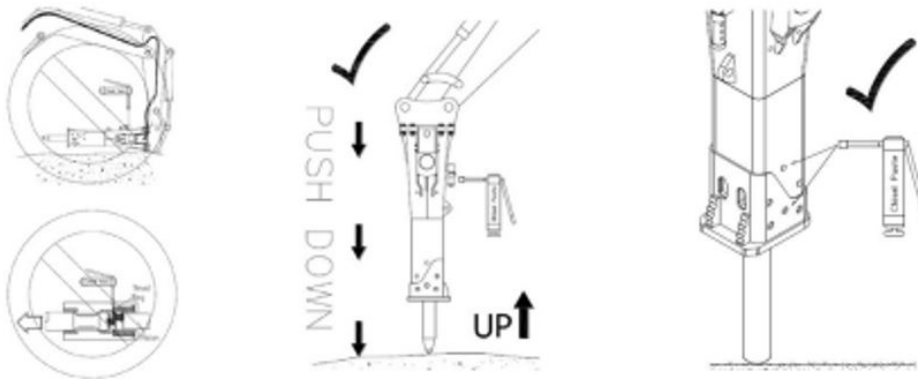
Long Term Storage

Check the followings for safe long-term storage of the breaker to prevent rust and make breaker ready for next use.

- Breaker must be stored in upright position.
- If back head is charged with N2 gas, the front head of the piston is protruded from the cylinder.
- Remove the tool and push the piston all the way in.
- Grease the exposed front end of the piston.
- Plug the hydraulic hoses.
- Cover the breaker with a waterproof tarp

Correct Greasing

When manually greasing a CH Series Breaker, the breaker must be in the upright position with down force on the tool bit. Do not lubricate the breaker in the horizontal position or laying on the ground. Failure to lubricate the breaker in the upright position with the tool bit installed will fill the tool bit chamber with grease resulting in damage to the breaker seals, pushing them out of the cylinder when the breaker is operated.



Automatic Lubrication Automatic lubrication methods can be installed on all Connect Work Tools models. The breakers are equipped with top-down lubrication. The tool grease is supplied from the pump into the breaker by hose. This is recommended for longer service life of wear parts.



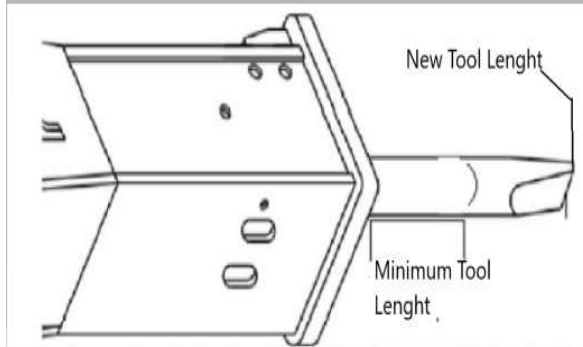
Breaker Inspection Form

Location/ Branch	
Customer	
Inspection Date	
Time	
Attachment Description	
Model	
Serial Number	

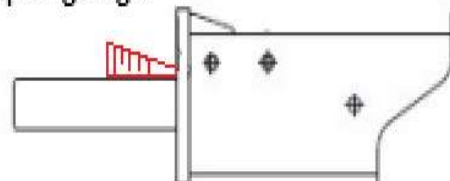
Breaker Check inspection:	YES	NO	Notes
Missing Plugs, Pins, bolts			
Check for Oil leaks (before testing)			
Signs of grease around tool			
Measure Tool/ Bushing Wear			Note space between tool and bushing see spec (mm)
Measure Tool Length			Note tool length see spec (mm/in)
Remove tool and check for excessive bushing wear wear. Check for signs of blank fire			
Check Hoses and fitting for Damage			
If no hose. Caps need to be installed			
Does unit have auto lube system?			
Has correct grease been used?			
Ensure breaker is correctly greased before testing or putting back in service			
Test breaker for operation on hard surface (Thick metal plate if available)			If correct operation is questionable. Please consult operation manual. Please contact Product support Johnnie Gibbons at (512-565-3578) johnnie@connectworktools.com
Remarks:			Correct Action Needed:
Inspected By			

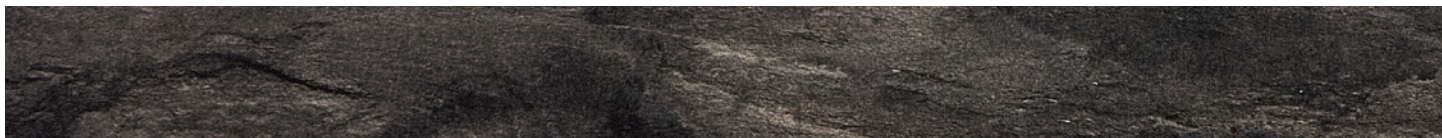
Connect Work Tool's Tool & Bushing Wear

Breaker Model	Combine Tool and Bushing WEAR Out of SPEC	Tool Length OUT of SPEC	New bushing ID	Bushing Out of Spec ID
CH65	5MM	254mm 10 in	65mm	67mm
CH75	5MM	254mm 10in	75mm	77mm
CH85	5MM	254mm 10in	85mm	87mm
CH95	5MM	350mm 14in	95mm	97mm
CH100	5MM	350mm 14in	100mm	102mm
CH110	6MM	450mm 17.7in	110mm	112mm
CH120	6MM	450mm 17.7in	120mm	122mm
CH130	6MM	450mm 17,7in	130mm	132mm
CH140	6MM	450mm 17.7in	140mm	142mm
CH150	6MM	500mm 19.68in	150mm	152.5mm
CH165	6MM	500mm 19,68in	165mm	167.5mm
CH175	6MM	550mm 21.65in	175mm	177.5mm
CH185	6MM	600mm 23.62in	185mm	187mm
CH205	6MM	600mm 23.62in	205mm	207mm



taper gauge



[illegible]



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