LGH
THE LIFTING EXPERTS

OPERATION MANUAL

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HC1201T-M0_012018_EN-FR-ES

BVA HYDRAULICS

Single Acting, Hollow Hole Cylinders Service Parts

MODELS: HC1201T, HC1202T, HC1202XT, HC1203XT - 12 Ton Capacity
HC2002T, HC2006T - 20 Ton Capacity
HC3002T, HC3006T - 30 Ton Capacity
HC6003T, HC6006T - 60 Ton Capacity
HC10003T - 100 Ton capacity

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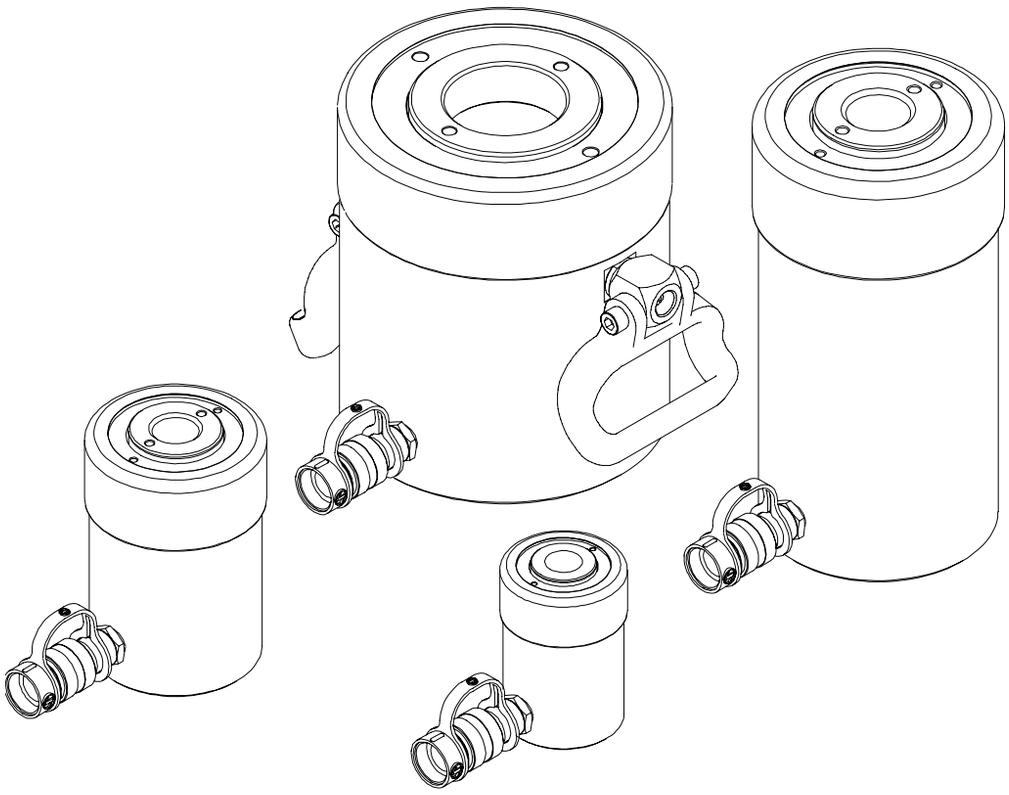
Maximum Operating Pressure 10,000 PSI



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.

Oporations Manual 135 03/24/2021

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SAFETY AND GENERAL INFORMATION

Save these instructions. For your safety, read and understand the information contained within. The owner and operator shall have an understanding of this product and safe operating procedures before attempting to use this product. Instructions and safety information shall be conveyed in the operator's native language before use of this product is authorized. Make certain that the operator thoroughly understands the inherent dangers associated with the use and misuse of the product. If any doubt exists as to the safe and proper use of this product as outlined in this factory authorized manual, remove from service immediately.

Inspect before each use. Do not use if leaking, broken, bent, cracked or otherwise damaged parts are noted. If the cylinder has been or suspected to have been subjected to a shock load (a load dropped suddenly, unexpectedly upon it), discontinue use until checked out by a BVA Hydraulics authorized service center. Owners and operators of this equipment shall be aware that the use and subsequent repair of this equipment may require special training and knowledge. It is recommended that an annual inspection be done by qualified personnel and that any missing or damaged parts, decals, warning/safety labels or signs be replaced with BVA Hydraulics authorized replacement parts only. Any cylinder that appears to be damaged in any way, is worn or operates abnormally shall be removed from service immediately until such time as repairs can be made.

PRODUCT DESCRIPTION

BVA Hydraulics Single Acting Hollow Hole Cylinder is designed for rated capacity pushing, spreading and pressing jobs. A wide variety of applications exist for this category of product. Special skill, knowledge and training may be required for a specific task and the product may not be suitable for all the jobs described above. Unsuitable applications would include applications that call for a device to move, level or support persons, animals, hazardous materials, mobile homes/dwellings in general, mirrors and/or plate glass, and/or to connect/secure hatches, components, etc. between bulkheads. The user ultimately must make the decision regarding suitability of the product for any given task and therefore accept responsibility for that decision. Immediately after lifting, loads must be supported by appropriate mechanical means.

⚠ **WARNING:** *NEVER use hydraulic cylinder as a support device.*

⚠ **WARNING:** *Always check connections before using. Alteration of these products is strictly prohibited. Use only those adapters and attachments provided and approved by the manufacturer.*

⚠ **WARNING:** *To reduce the risk of personal injury and/or property damage, ensure that the rated working pressure of each pressurized attachment be equal to or greater than the rated working pressure developed by the hydraulic pump.*

BEFORE USE

1. Before using this product, read the owner's manual completely and familiarize yourself thoroughly with the product, its components and recognize the hazards associated with its use.
2. Verify that the product and the application are compatible. If in doubt, call BVA Hydraulics Technical Service (888) 332-6419.
3. Inspect before each use. Do not use if bent, broken, leaking or damaged components are noted.
4. Replace worn or damaged parts and assemblies with BVA Hydraulics authorized replacement parts only. Lubricate as instructed in Maintenance Section.
5. Ensure method of confirming load is accurate and working properly. Have gauge or load cell accuracy verified by qualified personnel on a yearly basis.

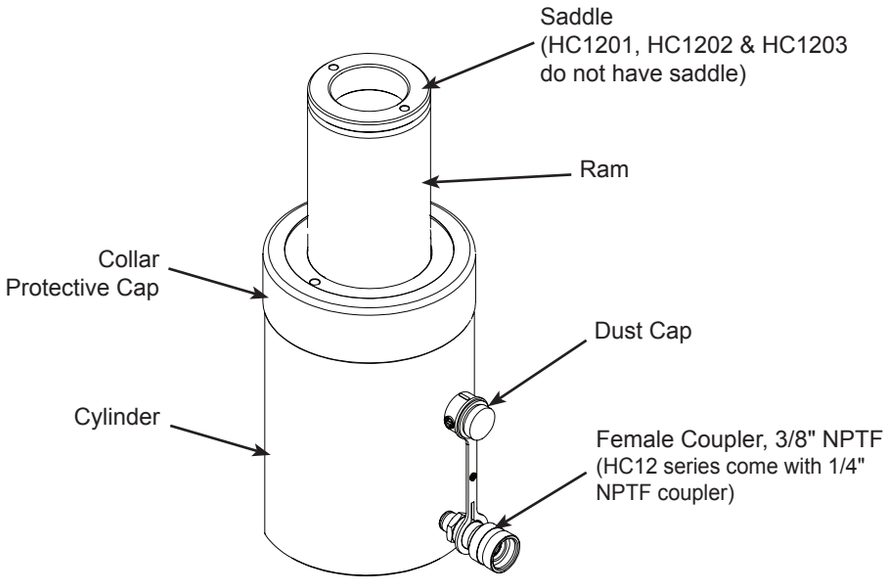


Figure 1 - Typical Cylinder Components

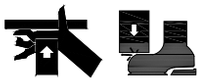
⚠WARNING

Failure to comply with the following warnings may result in **personal injury** as well as **property damage**.

- Study, understand, and follow all instructions provided with and on this device before use.
- The user must be a qualified operator familiar with the correct operation, maintenance, and use of cylinders.

Wear protective gear when operating hydraulic equipment.

This device is **NOT** suitable for use as **support** device! As the load is lifted, use blocking and cribbing to guard against a falling load. Stay clear of a lifted load before it is properly supported. Never rely on hydraulic pressure to support a load.



Crush Hazard. Keep hands and feet away from cylinder and workpiece during operation.

- Do not exceed rated capacity of the cylinder or any equipment in the system. The cylinder is designed for a max. pressure of 10,000 psi.
- Do not connect a cylinder to a pump with higher pressure rating.
- Do not subject cylinder to a shock loads, a load dropped suddenly, causing the system pressure to exceed rated pressure.

The system operating pressure must not exceed the pressure rating of the lowest rated component the system. Install a pressure gauge or other load measuring instrument to monitor the operating pressure. Burst hazard exists if hose, connection or any other component in the system exceed its rated pressure.

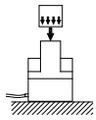
Avoid damaging hydraulic hose. Do not allow hose to kink, twist, curl, crush, cut or bend so tightly that fluid flow within the hose is blocked or reduced. Periodically inspect the hose for wear.

Do not pull, position or move cylinder setup by the hose. Use carrying handle or other means of safe transport.

Do not handle pressurized hoses. Never attempt to grasp a leaking pressurized hose. Ensure to release the system pressure before disconnecting hydraulic hose or connections.

Hydraulic fluid can ignite and burn. Keep hydraulic equipment away from flames and heat. Excessive heat will soften seals, resulting in fluid leaks. Heat also weakens hose materials.

Cylinder must be on a stable base which is able to support the load while pushing or lifting. Use shims, friction material or constrains to prevent slippage of the base or load. Ensure cylinder is fully engaged into/onto adapters, extension accessories.



Center load on cylinder. Distribute load evenly across the entire saddle surface. Do not off-center loads on a cylinder. The load can tip or the cylinder can “kick out”.

Never try to disassemble a hydraulic cylinder, refer repairs to qualified, authorized personal. Contact BVA Hydraulics tech service for authorized service center.

Do not subject hose to sharp objects or heavy impact.

Hose material or seals must not come in contact with corrosive materials such as battery acid, creosote-impregnated objects and wet paint. Never paint a coupler or hose.

- No alteration shall be made to the cylinder.
- Use only factory authorized fasteners, accessories and hydraulic fluid.

INSTALLATION

NOTICE: *Use an approved, high-grade pipe sealant to seal all hydraulic connections.*

1. Remove the dust cover and rubber plug from coupler.
2. Inspect all threads and fittings for signs of wear or damage, and replace as needed. Clean all threads and fittings.
3. Connect hydraulic hose from hydraulic pump to the cylinder coupler. Ensure that there are no fluid leaks.
4. Install in-line pressure gauge.
5. Check for leaks in system and have repaired by qualified personnel.

NOTICE: *The use of cylinder attachments or extensions reduces the cylinder capacity by at least 50% per attachment/extension.*

⚠ **WARNING:** *Before operating the pump, tighten all hose connections with proper tools. Do not overtighten. Connections should only be tightened securely and leak-free. Overtightening can cause premature thread failure or high pressure fittings to burst.*

⚠ **WARNING:** *Before repairs are made, depressurize cylinder.*

Tips for hydraulic hoses & fluid transmission lines:

- Avoid short runs of straight line tubing. Straight line runs do not provide for expansion and contraction due to pressure and/or temperature changes.
- Reduce stress in tube lines. Long tubing runs should be supported by brackets or clips.

BEFORE USE

1. Before using this product, read the instruction manual completely and familiarize yourself thoroughly with the product, its components and recognize the hazards associated with its use.
2. Verify that the product and the application are compatible. Inspect before each use. Do not use if bent, broken, leaking or damaged components are noted.
3. Replace worn or damaged parts and assemblies with BVA Hydraulics Authorized Replacement Parts only (See Replacement Parts Section). Lubricate as instructed in Maintenance Section.
4 Ensure method of confirming load is accurate and working properly. Have gauge or load cell accuracy verified by qualified personnel on a yearly basis.
5. Pumps should be stored where protected from the elements, abrasive dust, and damage. Pumps can be stored horizontally or vertically.

SET UP

⚠ **WARNING:** *The pump's maximum working pressure is 10,000 PSI. Make sure that all hydraulic equipment such as cylinders, hoses, couplers and etc. used with this pump are rated at 10,000 PSI operating pressure or more.*

1. Prepare the pump for use:

   For models P350, P1000 & P1000AD:
   - Pull spring loaded lock pin, pivot toward rear to unlock the handle (Fig. 3).
   - Loosen vent screw counter-clockwise (Fig. 4).
2. Depressurize system by opening release valve counter-clockwise, but no more than 2 full turns. Then carefully remove the threaded plug on oil outlet port, and connect 3/8" NPTF (1/4" NPTF P350) hydraulic connection to oil outlet port, i.e. coupler, gauge adapter, hydraulic hose etc. Ensure all fluid ports and thread connections are clean before connect.

NOTICE: *Always secure threaded connections with non-hardening pipe thread compound. Take care not to introduce compound into port orifices. Tighten securely to prevent accidental removal of components while in use.*

3. Install a pressure gauge in-line from the pump for better control and safety purpose.

NOTICE: *It is recommended to use BVA fittings, gauge adapter and guage.*

4. Tighten securely to prevent accidental removal of components while in use.
5. Check for leaks in system and repair by qualified personnel as needed. Depressurize the hydraulic system before servicing.

OPERATION

⚠ **WARNING:** *ALWAYS monitor pressure, load or position using suitable equipment. Pressure may be monitored by means of an optional manifold and gauge (contact BVA Hydraulics). Load may be monitored by means of a load cell and digital indicator. Correct application position can only be determined by the operator of the equipment.*

1. Remove the threaded plug, then connect the pump to suitable application.
2. Ensure the oil level is correct and the system fittings and connections are leak free before operating the pump.
3. Pump may be used in horizontal and vertical position as illustrated in Figure 5.

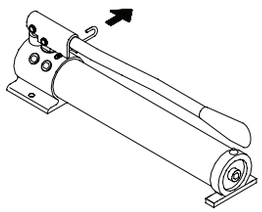


Figure 3 - Pull spring loaded lock pin, pivot toward rear to unlock pump handle.

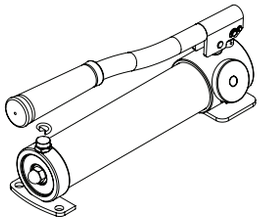


Figure 4 - Loosen vent screw counter-clockwise.

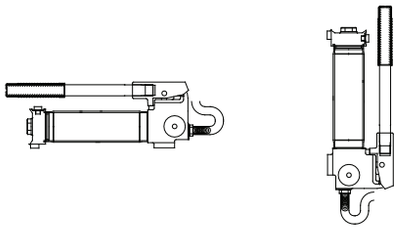


Figure 5 - Horizontal and Vertical Position

⚠ **CAUTION:** *NEVER operate pump with release valve closed and disconnected from application. If operated in this condition, the hose and connections become pressurized. This increases burst hazard. Damage may occur to pump and its components*

4. Close release valve by turning it clockwise. Finger tight ONLY. Using tools on release valve can damage it and cause the pump to malfunction.
5. Pump handle until desired pressure, load or position is reached.
6. Pressure will maintain until the release valve is opened.
7. To retract application, turn the release valve knob slowly counterclockwise (never more that 2 full turns).

MAINTENANCE (cont.)

NOTICE: *Do not attempt to grasp with pliers or wrench without first wrapping the jaws of such tool with rags or similar padding.*

How to bleed air from system:

1. Place pump at a higher elevation than the hose and cylinder as shown in Figure 2.
2. Operate pump to fully extend and retract the cylinder 2 or 3 times. The objective is to force the air bubbles up hill and back to the pump reservoir.
3. Follow pump instruction manual to bleed the air from pump reservoir. On most pumps, air can escape by opening the oil filler plug/screw.

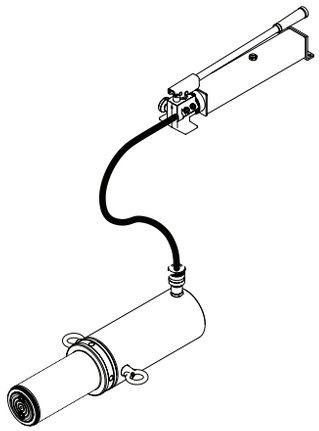


Figure 2 - Illustration to bleed air from system

TROUBLESHOOTING GUIDE

The following information is intended as an aid in determining if problem exists. Cylinders should be repaired only by authorized BVA Service Center. For repair service, contact service center in your area.

Symptom	Possible Causes	Corrective Action
Erratic action	• Air in system or pump cavitation. • External leakage in cylinder. • Cylinder sticking or binding.	• Vent the system (refer to figure 2). • Contact service center. • Contact service center.
Cylinder will not extend, or respond to pressurized fluid	• Overload condition. • Loose couplers. • Faulty couplers. • Improper valve position. • Oil level in pump is low. • Pump not operating. • Air-locked pump.	• Remedy overload condition. • Tighten couplers. • Replace both female and male couplers. • Close release valve or change valve position. • Fill and bleed the system. • Check pump's operating instructions. • Prime pump per pump operating instructions.
Cylinder extend only partially	• Oil level in pump is low. • Overload condition. • Cylinder is sticking or binding.	• Fill and bleed the system. • Remedy overload condition. • Contact service center.
Cylinder move slower than normal	• Loose connection or coupler. • Restricted hydraulic line or fitting. • Pump not working correctly. • Cylinder seals leaking.	• Tighten connection or coupler. • Clean and replace if damaged. • Check pump's operating instructions. • Contact service center.
Cylinder responds to pressurized fluid, but system does not maintain pressure	• Overload condition. • Pump or valve malfunctioning. • Cylinder seals leaking.	• Remedy overload condition. • Check pump's operating instructions. • Contact service center.
Oil leaking from cylinder	• Worn or damaged seals.	• Contact service center.
Cylinder will not retract or retracts slower than normal	• Improper valve position. • Malfunctioning coupler, damaged application. • Pump reservoir overfilled. • Cylinder damage internally.	• Open release valve or change valve position. • **Secure load by other means**. **Depressurize** pump and hoses, remove application and replace coupler. • **Secure load by other means**. **Depressurize** pump and hoses, remove application, then drain fluid to proper level. • Contact service center.
Cylinder performs poorly	• Oil level in pump is low. • Air trapped in system.	• Ensure proper oil level. • Vent the system (refer to figure 2).