



# INSTRUCTION MANUAL



## Model 13070

### 10 Ton Low Profile Cylinder Kit

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# INSTRUCTION MANUAL

## ! WARNING !

To avoid serious personal injury, always wear proper protective gear, such as hard hats, safety glasses, gloves, and steel toe shoes when using hydraulic equipment. Failure to chock the wheels and crib the vehicle can result in Serious injury or death. Always deflate tires before removing a wheel, a rim, or part of a rim clamp or nut. If you do not deflate the tire, the tire could explode, causing serious injury or death. Always stand to one side of the rim when using the bead breaker. Standing to one side of the bead breaker allows you to maintain control of the bead breaker. If it is not seated properly and flies off the rim, the bead breaker could cause serious injury or death.



### SAFETY and GENERAL INFORMATION

**Save these instructions.** For your safety, read, understand, and follow the information provided with and on this cylinder before using. The owner and operator of this equipment shall have an understanding of this cylinder and safe operating procedures before attempting to use. The owner and operator shall be aware that use and repair of this product may require special skills and knowledge. Instructions and safety information shall be conveyed in the operator's native language before use of this cylinder is authorized. If any doubt exists as to the safe and proper use of this cylinder, remove from service immediately.

**Inspect before each use.** Do not use if broken, bent, cracked or damaged parts are noted. Any cylinder that appears damaged in any way, or operates abnormally shall be removed from service immediately. If the cylinder has been or suspected to have been subjected to a shock load (a load dropped suddenly, unexpectedly upon it), immediately discontinue use until cylinder has been checked by a factory authorized service center (contact distributor or manufacturer for list of authorized service centers). It is recommended that an annual inspection be done by qualified personnel. Labels and Operator's Manuals are available from manufacturer.

### PRODUCT DESCRIPTION

BVA Hydraulics Single Acting Low Profile 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.



**NEVER** use hydraulic cylinder as a support device.



**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.

### SPECIFICATIONS

Model Number	Cylinder Capacity (ton)	Stroke (in)	Cylinder Effective Area (in <sup>2</sup> )	Oil Capacity (in <sup>3</sup> )	Collapsed Height (in)	Extended Height (in)	Internal Pressure at Capacity (psi)	Cylinder Housing Dia. (in)	Ram Plunger Dia. (in)
J72101	10	1.50	2.35	3.53	3.48	4.98	8,511	2.75	1.50

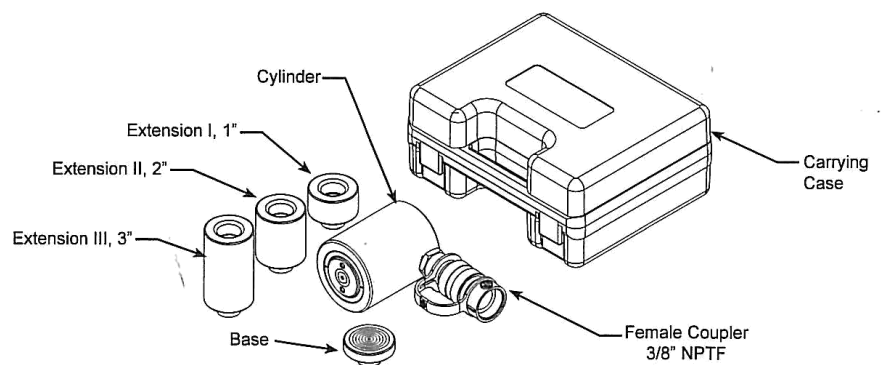


Figure 1 - Low Profile Cylinder Kit Components



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### INSTALLATION

**IMPORTANT!** 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.
3. Clean all threads and fittings.
4. Connect hydraulic hose from hydraulic pump to the cylinder coupler. Ensure that there are no fluid leaks.
5. Install in-line pressure gauge.
6. Check for leaks in system and have repaired by qualified personnel.

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



*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.*



*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 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 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.
6. Cylinders should be stored where protected from the elements, abrasive dust, and damage. These cylinders should be stored in the upright position.

## ! 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 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 constraints 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 disconnect a hydraulic





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- 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 in 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.



Never try to disassemble a hydraulic cylinder, refer repairs to qualified, authorized personal. Contact Omega 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.

## OPERATION

Operate the hydraulic pump to advance and retract the cylinder. Do not continue pumping when cylinder is fully extended or retracted. Internal pressure will build up and may damage the seal of the cylinder.



To help prevent material fatigue if the cylinder is to be used in a continuous application, the load should not exceed 85% of the rated capacity.



Your cylinder, hose(s), couplings and pump all must be rated for the same maximum operating pressure, correctly connected and compatible with the hydraulic fluid used. An improperly matched system can cause the system to fail.



All personnel must be clear before lowering load.

## MAINTENANCE

1. Inspect hoses & connections daily. Replace damaged components immediately with BVA Hydraulics Replacement Parts only.
2. Tighten connections as needed. Use pipe thread sealing compound when servicing connections.
3. Always use clean, approved hydraulic fluid and change as recommended or sooner if the fluid becomes contaminated (never exceed 400 hours). Follow pump manufacturers instructions for changing and adding hydraulic fluid. Use only good quality hydraulic fluid. We recommend Mobil DTE13M or equivalent when using with hand pump or air pump; BVA Hydraulics Oil (F01) or equivalent when using with electric pump. **NEVER** use brake fluid, transmission fluid, turbine oil, motor oil, alcohol, glycerin etc. Use of other than good quality hydraulic oil will void warranty and damage the cylinder, pump, hose etc.
4. Use an approved, high-grade pipe thread sealant to seal all hydraulic connections. Teflon tape can be used if only one layer of tape is used and it is applied carefully (two threads back) to prevent the tape from being introduced into hydraulic system. A piece of tape could travel through the system and obstruct the flow of fluid and adversely affect function.

### Lubrication & Cleaning

Keep cylinder clean at all times.

1. Any exposed threads (male or female) must be cleaned and lubricated regularly, and protected from damage. Lubricate with light machine oil.
2. If a cylinder or ram has been exposed to rain, snow, sand, airborne abrasive, or any corrosive environment, it must be cleaned, lubricated, and protected immediately after exposure. Daily clean exposed ram with clean cloth dampened with light machine oil. Protect exposed ram from the elements at all times.
3. Keep the hydraulic system as free of dirt as possible. When not in use, couplers must be sealed with dust covers. All hose connections must be free of dirt and grime. Any equipment attached to the cylinder must be kept clean.



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### Storage

Cylinders should be stored with ram plunger fully retracted in a dry, protected area, not exposed to corrosive vapor, dust or other harmful elements. When a cylinder has not been used for a period of 4 months, it should be connected to a pump and fully extended and then retracted a minimum of 5 times. This cycle will lubricate the cylinder wall, reducing the possibility of corrosion and damage thereof.

### How to remove faulty coupler:

If cylinder does not retract,

1. Secure load by other means.
2. Depressurize pump and hose, then remove cylinder from application.
3. Disconnect and replace with new coupler.

**Important:** 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 two or three times. The objective is to force the air bubbles up hill and back to the pump reservoir.

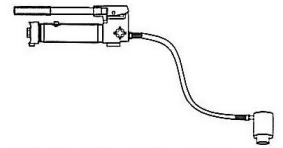


Figure 2 - Illustration to bleed air from system



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## Parts List For 10 Ton Low Profile Cylinder Kit Model 13070

### REPLACEMENT PARTS

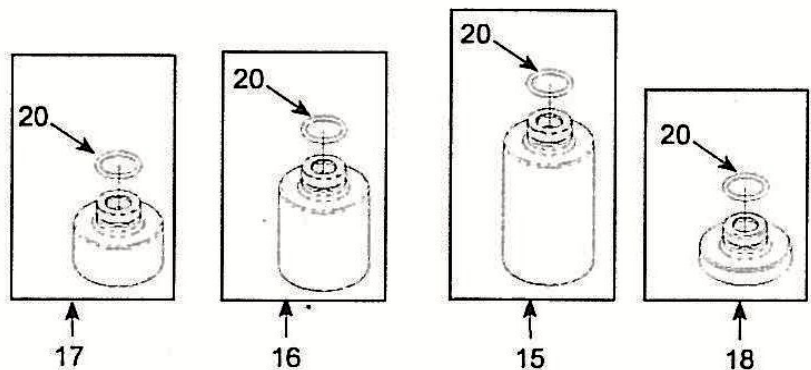
Not all components of the cylinder are replacement items, but are illustrated as a convenient reference of location and position in the assembly sequence.

Model: 13070

Item	Part Number	Description	Qty
1	N/A	Cylinder Housing	1
2	13070-001	Return Spring Assy	1
3	13070-002	Ram Plunger	1
4	*	Back-up Ring	1
5	*	O-Ring	1
6	*	Special Washer	1
7	13070-003	Bolt	1
8	13070-004	Upper Bearing	1
9	*	Dust Seal	1
10	13070-005	Bolt	1
11	13070-006	Coupler, Female	1
12	13070-007	Dust Cover	1

Item	Part Number	Description	Qty
13	13070-008	Rubber Plug	1
14	13070-009	Cylinder	1
15	13070-009	Adapter III PP	1
16	13070-010	Adapter II PP	1
17	13070-011	Adapter I PP	1
18	13070-012	Base	1
19	13070-013	Carrying Case	1
20	13070-014	O-Ring	1
(*)	13070-015	Seal Kit, Cylinder	1

(\*) - indicates items included in, and available only as part of Seal Kit  
N/A - part is not available as replacement







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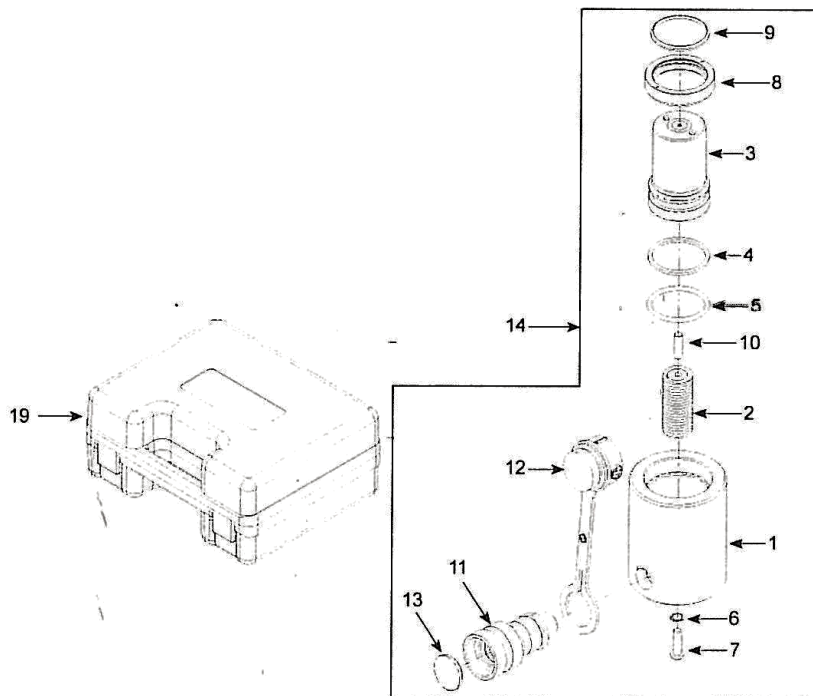
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