



# Hydraulic Gear Puller Instruction Manual

**MODELS: HGP053  
HGP103  
HGP153  
HGP253  
HGP503**

**- 5 Ton Capacity  
-10 Ton Capacity  
-15 Ton Capacity  
-25 Ton Capacity  
-50 Ton Capacity**

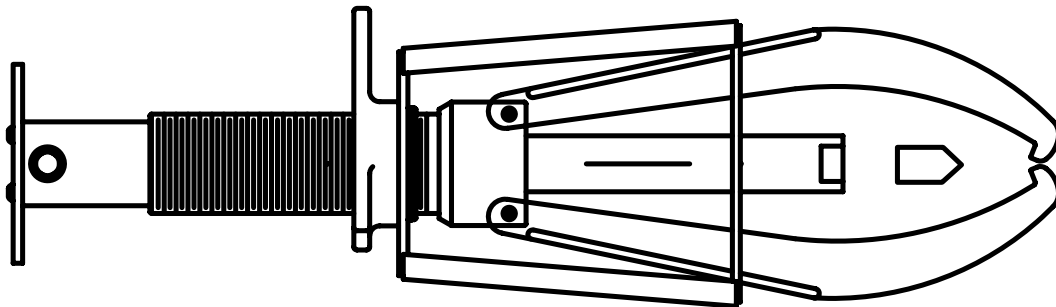
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## Maximum Operating Pressure 10,000 PSI



*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.*

## SAFETY AND GENERAL INFORMATION

### IMPORTANT RECEIVING INSTRUCTIONS:

Visually inspect all components for shipping damage. Shipping damage is not covered by warranty. If shipping damage is found notify the carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

### SAFETY FIRST:

It is impossible to predict the exact force needed for every pulling situation. The amount of press-fit and force of removal can vary greatly between jobs. The set-up requirements along with the size, shape and condition of the parts being pulled are all variables which must be considered. Remember that a significant amount of force can be exerted with a puller. Respect this force and always observe safety precautions. Failure to comply with the following cautions and warnings could cause equipment damage or personal injury.

**⚠ WARNING:** To avoid personal injury and equipment damage, make sure all hydraulic components withstand the maximum hydraulic pressure of 700 bar (10,000 psi).

**DO NOT** touch or handle hydraulic hoses or fittings with pressure in the system. Escaping oil under pressure may cause serious injury. If oil is injected under the skin see a doctor immediately.

**DO NOT** make any electrical adjustments with electrical power active in the system.

**DO NOT** make or break any hydraulic connections with pressure in the system.

**DO NOT** overload the equipment. Use the right size puller.

**DO NOT** use this equipment in circumstances where a sudden release of pressure can result in loss of balance or injury.

Make sure all system components are protected from external sources of damage, such as excessive heat, flame, moving machine parts, sharp edges and corrosive chemicals.

**⚠ CAUTION:** Make sure that all items being pulled are supported by a means other than the puller. When

using a puller in excess of 50 pounds, support puller by other means than a single person. Do not use the puller for lifting or supporting objects.

Avoid sharp bends and kinks in hoses as they may lead to premature hose failure. Inspect hoses and fittings for leaks or damaged areas. Immediately discard and replace damaged components.

**⚠ IMPORTANT:** Inspect puller for dents, cracks, or excessive wear before each use. Immediately replace worn or damaged parts.

It is recommended to use 3-jaw puller whenever possible for a more secure grip, a more even pulling force and better stability.

Cover application with a protective blanket before applying force. Since high force is applied on the part being pulled, breakage may occur and user may be exposed to flying debris.

Use hydraulic gauges in each hydraulic system to indicate safe operating loads.

Apply force gradually. Be sure the puller is square with the

component to be pulled.

Wear safety glasses or other approved eye protection. Keep hands away from possible pinching points.

**OPERATION IMPORTANT:** Hydraulic power is one of the safest methods for applying force when used cor-

rectly. Be sure to read all instructions, warnings and cautions carefully.

Follow all safety precautions to avoid personal injury or property damage during system operation. Posi Lock cannot be responsible for damage or injury resulting from unsafe use of product, lack of maintenance or incorrect product and/or system operation.

It is important that the operator has a full understanding of all the instructions, warnings, cautions and safety regulations before starting to operate equipment.

## 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.

# ⚠ 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.



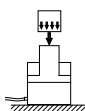
Do not handle pressurized hoses. Never attempt to grasp a leaking pressurized hose. Ensure to release the system pressure before disconnecting hydraulic hose or connections.



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 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 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.

## MAINTENANCE

1. Inspect hoses and 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.

**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.

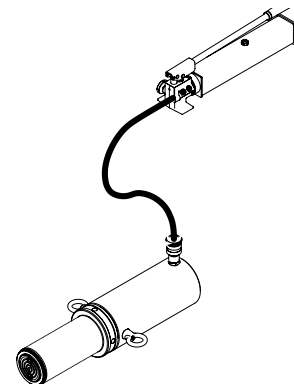


Figure 1 - Bleeding air from system

## ASSEMBLY INSTRUCTIONS

1. Remove the plastic thread protector.
2. Attach hydraulic cylinder to puller by threading collar threads clockwise into jaw head assembly. Make sure hydraulic cylinder collar threads are fully engaged in puller. Before each use, make certain hydraulic cylinder is fully tightened clockwise in puller.
3. Attach lift plate to coupler end of cylinder with provided bolts.
4. Remove the saddle (L) from the cylinder and insert the ram point (M) into the plunger.
5. Select ram point that will provide maximum contact with the shaft end.
6. Attach gauge adapter to pump.
7. Attach gauge to gauge adapter.
8. Attach male hydraulic hose ends to gauge and cylinder.

NOTE: Use sealing tape when connecting the gauge adapter and pump to help avoid leakage.

## OPERATION

1. To operate puller, support the puller and turn the T-handle (E) counterclockwise until the jaw opening is big enough to fit the

component to be pulled.

**DO NOT PINCH YOUR FINGERS DURING THIS PROCESS.**

2. Clean the shaft of debris. Place the puller over the component to be pulled. Retightening the T-handle may be necessary when the puller is new to get the jaws to properly seat in the cage.
3. Turn the T-handle clockwise to tighten the jaws firmly onto the component. Make sure the puller is square with the component being pulled.
4. Advance the plunger until the ram point contacts the shaft to ensure correct alignment. The center of the ram point should be aligned with the center of the shaft. Continue to advance the plunger slowly to pull the component off of the shaft. Do not retighten the T-handle during the pulling operation. Never exceed the maximum torque rating of the pullers.

|   |                            |
|---|----------------------------|
| A | Lift Plate                 |
| B | Female Hydraulic Connector |
| C | Hydraulic Cylinder         |
| D | Snap Ring                  |
| E | T-Handle                   |
| F | Tube                       |
| G | Jaw Head                   |
| H | Pin                        |
| I | Safety Cage                |
| J | Ram                        |
| K | Jaw                        |
| L | Saddle                     |
| M | Ram Point                  |

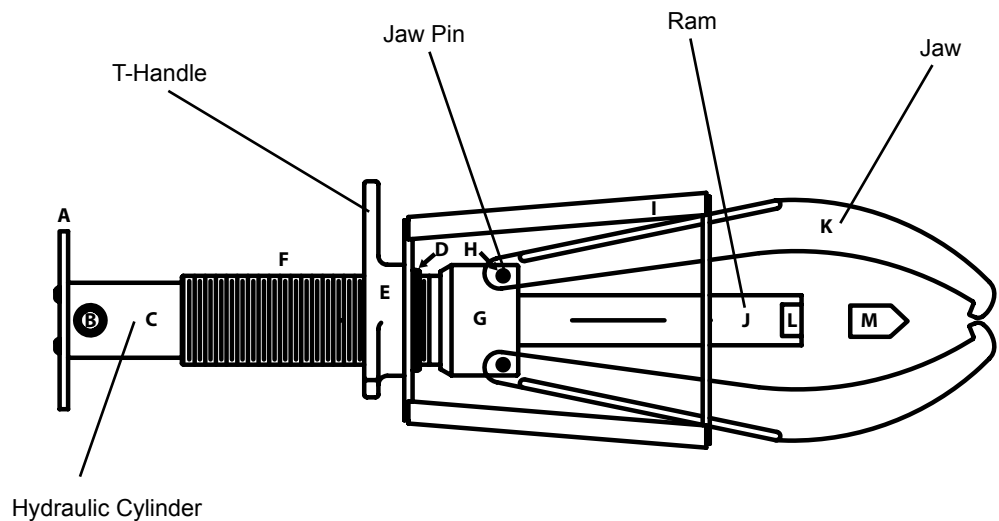


Figure 2 - Hydraulic Gear Puller

## 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                                                                | <ul style="list-style-type: none"> <li>Air in system or pump cavitation.</li> <li>External leakage in cylinder.</li> <li>Cylinder sticking or binding.</li> </ul>                                                                                    | <ul style="list-style-type: none"> <li>Vent the system (refer to figure 2).</li> <li>Contact service center.</li> <li>Contact service center.</li> </ul>                                                                                                                                                                                                                        |
| Cylinder will not extend, or respond to pressurized fluid                     | <ul style="list-style-type: none"> <li>Overload condition.</li> <li>Loose couplers.</li> <li>Faulty couplers.</li> <li>Improper valve position.</li> <li>Oil level in pump is low.</li> <li>Pump not operating.</li> <li>Air-locked pump.</li> </ul> | <ul style="list-style-type: none"> <li>Remedy overload condition.</li> <li>Tighten couplers.</li> <li>Replace both female and male couplers.</li> <li>Close release valve or change valve position.</li> <li>Fill and bleed the system.</li> <li>Check pump's operating instructions.</li> <li>Prime pump per pump operating instructions.</li> </ul>                           |
| Cylinder extend only partially                                                | <ul style="list-style-type: none"> <li>Oil level in pump is low.</li> <li>Overload condition.</li> <li>Cylinder is sticking or binding.</li> </ul>                                                                                                   | <ul style="list-style-type: none"> <li>Fill and bleed the system.</li> <li>Remedy overload condition.</li> <li>Contact service center.</li> </ul>                                                                                                                                                                                                                               |
| Cylinder move slower than normal                                              | <ul style="list-style-type: none"> <li>Loose connection or coupler.</li> <li>Restricted hydraulic line or fitting.</li> <li>Pump not working correctly.</li> <li>Cylinder seals leaking.</li> </ul>                                                  | <ul style="list-style-type: none"> <li>Tighten connection or coupler.</li> <li>Clean and replace if damaged.</li> <li>Check pump's operating instructions.</li> <li>Contact service center.</li> </ul>                                                                                                                                                                          |
| Cylinder responds to pressurized fluid, but system does not maintain pressure | <ul style="list-style-type: none"> <li>Overload condition.</li> <li>Pump or valve malfunctioning.</li> <li>Cylinder seals leaking.</li> </ul>                                                                                                        | <ul style="list-style-type: none"> <li>Remedy overload condition.</li> <li>Check pump's operating instructions.</li> <li>Contact service center.</li> </ul>                                                                                                                                                                                                                     |
| Oil leaking from cylinder                                                     | <ul style="list-style-type: none"> <li>Worn or damaged seals.</li> </ul>                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Contact service center.</li> </ul>                                                                                                                                                                                                                                                                                                       |
| Cylinder will not retract or retracts slower than normal                      | <ul style="list-style-type: none"> <li>Improper valve position.</li> <li>Malfunctioning coupler, damaged application.</li> <li>Pump reservoir overfilled.</li> <li>Cylinder damage internally.</li> </ul>                                            | <ul style="list-style-type: none"> <li>Open release valve or change valve position.</li> <li><b>Secure load by other means. Depressurize</b> pump and hoses, remove application and replace coupler.</li> <li><b>Secure load by other means. Depressurize</b> pump and hoses, remove application, then drain fluid to proper level.</li> <li>Contact service center.</li> </ul> |
| Cylinder performs poorly                                                      | <ul style="list-style-type: none"> <li>Oil level in pump is low.</li> <li>Air trapped in system.</li> </ul>                                                                                                                                          | <ul style="list-style-type: none"> <li>Ensure proper oil level.</li> <li>Vent the system (refer to figure 2).</li> </ul>                                                                                                                                                                                                                                                        |

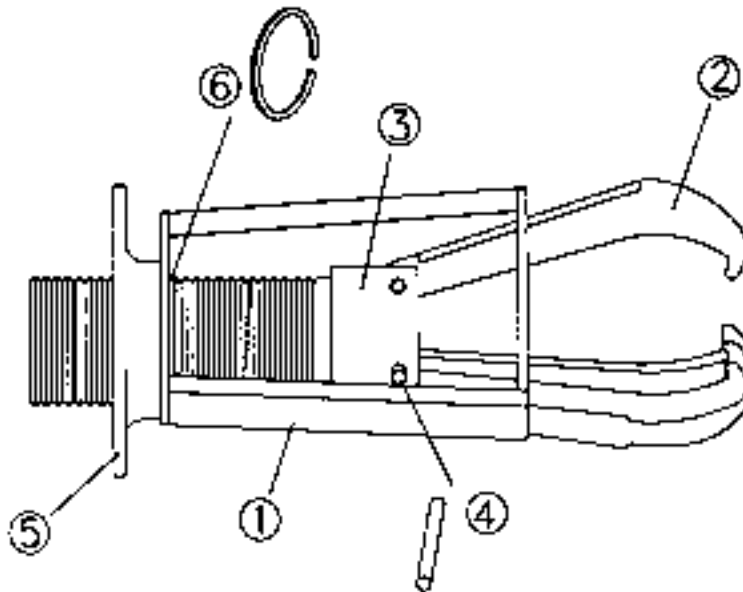


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**Note:** Not all components of the pump are replacement items, but are illustrated as a convenient reference of location and position in the assembly sequence.



| Components                     | HGP053   | HGP103   | HGP153                             | HGP253          | HGP503              |
|--------------------------------|----------|----------|------------------------------------|-----------------|---------------------|
| 1-Cage® - 3 Jaw                | PH-10653 | PH-10853 | PH-11053                           | PH-11353        | PH-11653            |
| 2-Jaw                          | 10654    | 10854    | PH-11054                           | 11354           | PH-11654/PH-21654   |
| 3-Jaw Head Assembly - 3 Jaw    | PH-10655 | PH-10855 | PH-11055                           | PH-11355        | PH-11655            |
| 4-Pin                          | 11056    | PH-10856 | PH-11056                           | 11356           | PH-11656/PH-21656   |
| 5-T-Handle                     | PH-10657 | PH-10857 | PH-11057                           | PH-11357        | PH-11657            |
| 6-Snap Ring                    | 11659    | PH-10859 | PH-11059                           | PH-11359        | PH-11659            |
| Optional Accessories           | HGP053   | HGP103   | HGP153                             | HGP253          | HGP503              |
| Interchangeable Ram Point Sets | PH-5-3   | PH-15-5  | PH-15-5                            | PH-25-7         | PH-50-8             |
| Guard Lift Plate               | PH-10652 | PH-11052 | PH-11052                           | PH-11352        | PH-11652            |
| Long Jaw                       | —        | 11054    | PH-11054L                          | 11354L          | PH-11654L/PH-21654L |
| Extra Long Jaw                 | —        | 11054L   | —                                  | —               | —                   |
| Leveling Arm & Bracket Set     | —        | —        | PH-1110/PH-1210<br>(Brackets only) | PH-1113/PH-1213 | PH-1116/PH-1216     |
| Hydraulic Lift Cart            | —        | —        | —                                  | PT-3050         | PT-3050             |
| Storage Transport Cart         | —        | —        | —                                  | PT-2550         | PT-2550             |

**Note:** To ensure safe and reliable performance, replace worn or damaged parts with BVA Hydraulics Authorized Replacement Parts only.

## LIMITED LIFETIME WARRANTY

BVA Hydraulics®, represented in the United States by SFA Companies ["SFA"] warrants this product to be free from defects in material and workmanship for the life of the product as long as the original purchaser owns the product. The warranty is non-transferable and is subject to the terms, exclusions, and limitations described below:

- Damaged components, including but not limited to bent rams, dented or crushed cylinder walls, broken welds or couplers as well as worn out seals, o-rings and springs are the result of misuse and not covered by warranty and BVA Hydraulics will not provide any warranty credit for such damaged components.
- This warranty does not cover ordinary wear and tear, overloading, alterations (including repairs or attempted repairs not performed by BVA Hydraulics or one of its authorized personnel), improper fluid use, or use of the product in any manner for which the product was not intended or the use of which is not in accordance with the instructions or warnings provided with the product.
- In the unlikely event that a BVA Hydraulics product fails due to material defect in workmanship, you may contact SFA for disposition. In such cases, the customer's sole and exclusive remedy for any breach or alleged breach of warranty is limited to the repair or replacement of the defective product.
- Under no circumstances is BVA Hydraulics liable for any consequential or incidental damage or loss whatsoever.
- THIS WARRANTY IS LIMITED TO NEW PRODUCTS SOLD THROUGH AUTHORIZED DISTRIBUTORS AND OTHER CHANNELS DESIGNATED BY BVA HYDRAULICS. NO AGENT, EMPLOYEE OR OTHER REPRESENTATIVE OF BVA HYDRAULICS IS AUTHORIZED TO MODIFY THIS WARRANTY.
- THE FOREGOING IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FOR A FITNESS FOR A PARTICULAR PURPOSE.
- Components not manufactured by BVA Hydraulics including certain motor systems, gasoline engines, and other are not covered by this warranty and instead are covered by the manufacturer's separate manufacturer's warranty provided in the package.
- BVA Hydraulics' liability in all cases is limited to, and will not exceed the purchase price paid for the product.



