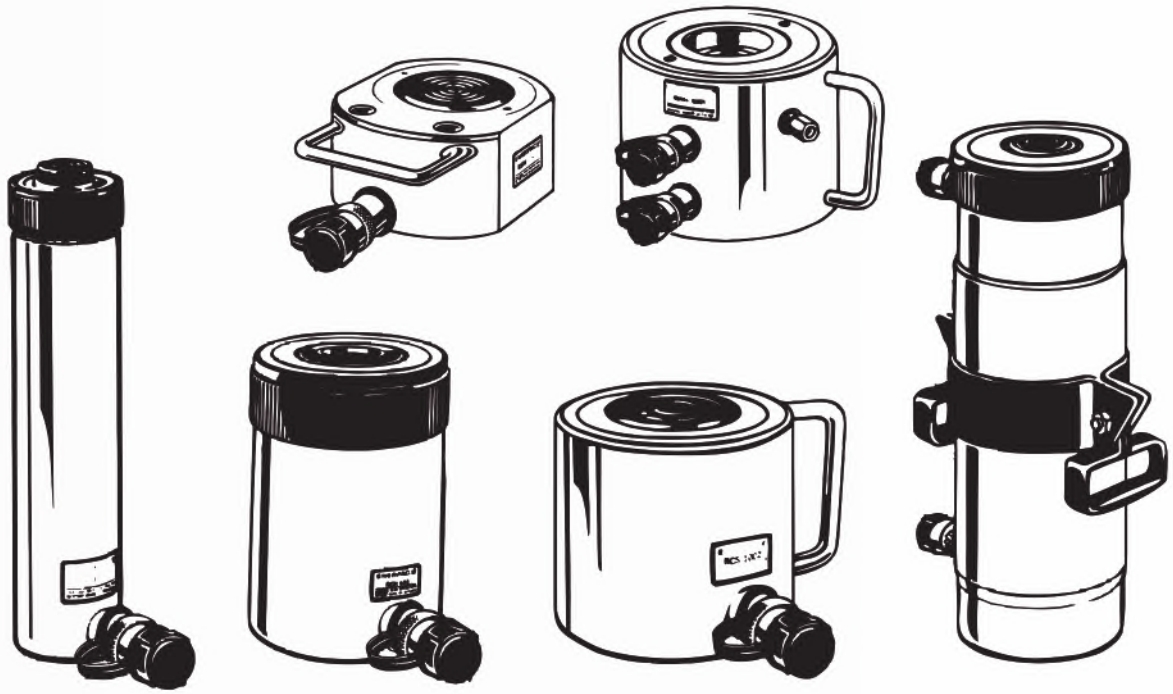
AERO BOOM®

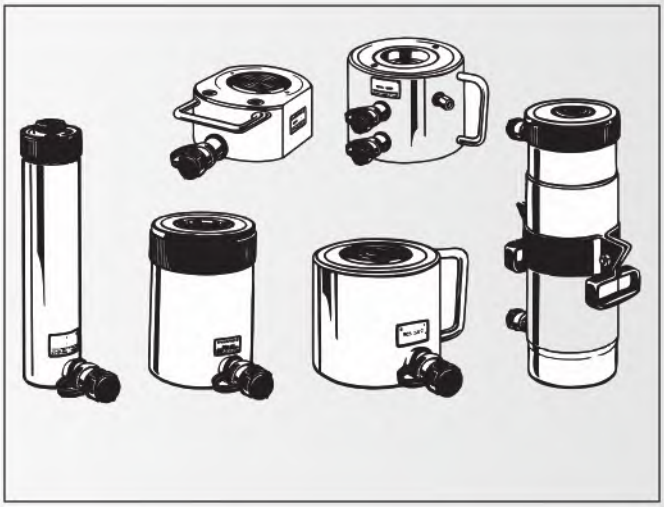
HIGH FORCE HYDRAULIC
TOOLS & SOLUTIONS

HYDRAULIC CYLINDER



OPERATION MANUAL

www.aeroboom.com info@aeroboom.com



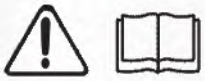
Repair Parts Sheets for this product are available from the web site at www.aeroboom.com, or from your nearest Authorized Aeroboom Service Center or Aeroboom sales office

1.0 IMPORTANT RECEIVING INSTRUCTIONS

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

SAFETY FIRST

2.0 SAFETY PRECAUTIONS



Read all instructions, warnings and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation. Aeroboom cannot be responsible for damage or injury resulting from unsafe product use, lack of maintenance or incorrect product and/or system operation. Contact Aeroboom when in doubt as to the safety precautions and operations. If you have never been trained on high-pressure hydraulic safety, consult your distribution or service center for a free Aeroboom Hydraulic safety course.

Failure to comply with the following cautions and warnings could cause equipment damage and personal injury.

A CAUTION is used to indicate correct operating or maintenance procedures and practices to prevent damage to, or destruction of equipment or other property.

A WARNING indicates a potential danger that requires correct procedures or practices to avoid personal injury.

A DANGER is only used when your action or lack of action may cause serious injury or even death.

WARNING: Wear proper personal protective gear when operating hydraulic equipment.

WARNING: Stay clear of loads supported by hydraulics. A cylinder, when used as a load lifting device, should never be used as a load holding device. After the load has been raised or lowered, it must always be blocked mechanically.

WARNING: USE ONLY RIGID PIECES TO HOLD LOADS. Carefully select steel or wood blocks that are capable of supporting the load. Never use a hydraulic cylinder as a shim or spacer in any lifting or pressing application.

DANGER: To avoid personal injury keep hands and feet away from cylinder and workpiece during operation.

WARNING: Do not exceed equipment ratings. Never attempt to lift a load weighing more than the capacity of the cylinder. Overloading causes equipment failure and possible personal injury. The cylinders are designed for a max. pressure of 700 bar [10,000 psi]. Do not connect a jack or cylinder to a pump with a higher pressure rating.

Never set the relief valve to a higher pressure than the maximum rated pressure of the pump. Higher settings may result in equipment damage and/or personal injury.

WARNING: The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Install pressure gauges in the system to monitor operating pressure. It is your window to what is happening in the system.

CAUTION: Avoid damaging hydraulic hose. Avoid sharp bends and kinks when routing hydraulic hoses. Using a bent or kinked hose will cause severe back-pressure. Sharp bends and kinks will internally damage the hose leading to premature hose failure.

Do not drop heavy objects on hose. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.

IMPORTANT: Do not lift hydraulic equipment by the hoses or swivel couplers. Use the carrying handle or other means of safe transport.

CAUTION: Keep hydraulic equipment away from ames and heat. Excessive heat will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings. For optimum performance do not expose equipment to temperatures of 65°C [150°F] or higher. Protect hoses and cylinders from weld spatter.

DANGER: DO NOT HANDLE PRESSURIZED HOSES. Escaping oil under pressure can penetrate the skin, causing serious injury. If oil is injected under the skin, see a doctor immediately.

WARNING: Only use hydraulic cylinders in a coupled system. Never use a cylinder with unconnected couplers. If the cylinder becomes extremely overloaded, components can fail catastrophically causing severe personal injury.

WARNING: BE SURE SETUP IS STABLE BEFORE LIFTING LOAD. Cylinders should be placed on a flat surface that can support the load. Where applicable, use a cylinder base for added stability. Do not weld or otherwise modify the cylinder to attach a base or other support.

Avoid situations where loads are not directly centered on the cylinder plunger. Off-center loads produce considerable strain on cylinders and plungers. In addition, the load may slip or fall, causing potentially dangerous results.

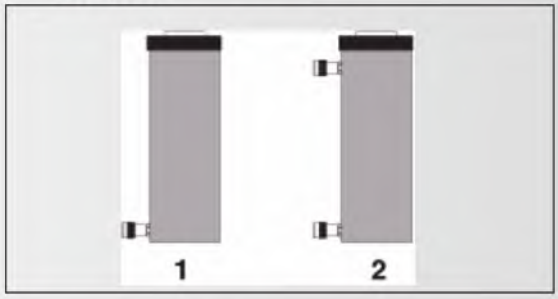
Distribute the load evenly across the entire saddle surface. Always use a saddle to protect the plunger.

IMPORTANT: Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the Authorized Aeroboom Service Center in your area. To protect your warranty, use only Aeroboom oil.

WARNING: Immediately replace worn or damaged parts by genuine Aeroboom parts. Standard grade parts will break causing personal injury and property damage. Aeroboom parts are designed to fit properly and withstand high loads.

3.0 INSTALLATION

1. Make hydraulic connections. For single-acting cylinders (1) use a pump with a release valve (or a 3-way valve) and one hose. For double-acting cylinders (2) use a pump with a 4-way valve and two hoses.



WARNING: On double-acting cylinders be certain that hoses are connected at BOTH couplers. Never attempt to pressurize a double-acting cylinder if only one hose is connected.

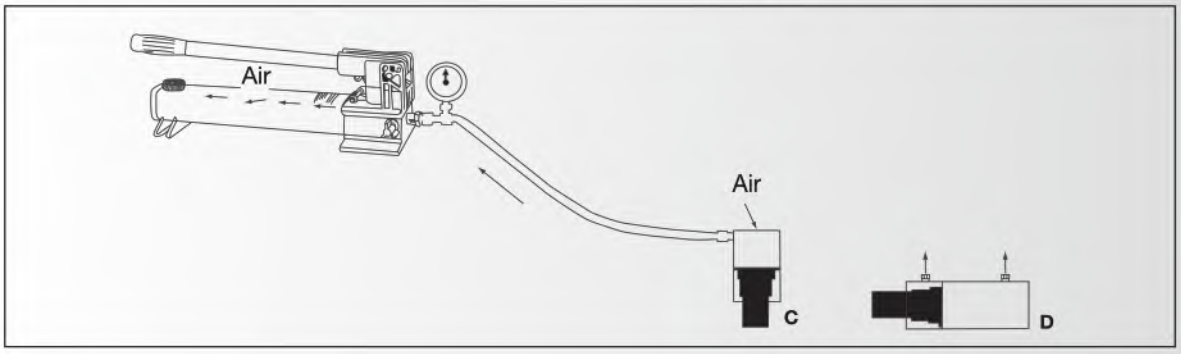
2. Fully hand-tighten all couplers. Loose coupler connections will block the flow of oil between the pump and the cylinder.
3. Remove air from the cylinder:

   Single-acting cylinders: Position the cylinder so that the plunger is pointed down and the cylinder is lower than the pump. Fully extend and retract the cylinder several times, until operation is smooth.

   Double-acting cylinders: Lay the cylinder on its side so that the couplers are facing up. Fully extend and retract the cylinder several times, until operation is smooth.
4. Install adaptors and attachments as required.

NOTES:

- During adaptor installation, extend the plunger and apply approximately 1500 to 2000 psi [103 to 138 bar] of hydraulic pressure. This will help keep the plunger from turning inside the cylinder base.



Do not allow the plunger to rotate during adaptor installation. Plunger rotation may damage the internal seals and/or the plunger return spring (if equipped).

- Use care when installing adaptors and attachments. Be careful not to nick or mar the plunger rod surface.
- Collar threads are rated for the full capacity of the cylinder when fully engaged in attachments.

WARNING: Some cylinder attachments require that the cylinder be used at no more than 50% of its rated capacity. Refer to the accessory instruction sheet for additional information.

4.0 OPERATION

Operate the hydraulic pump to advance and retract the cylinder. Some single-acting cylinders are spring-return, others are load-return. The speed of retraction is aff ected by the length of the hose and other restrictions in the line. Double-acting cylinders are powered in both directions by the pump.

The cylinder stop ring is designed to take the full load. However, to reduce cylinder wear, use less than full stroke and pressure when possible.

5.0 RELIEVING TRAPPED PRESSURE

Pressure can sometimes become trapped in a hydraulic cylinder if a hose is disconnected before pressure is completely relieved.

If a trapped pressure condition occurs, always use the Aeroboom model ACT-604 coupler bleed tool (available from your Authorized Aeroboom Distributor) to safely relieve the remaining pressure.

DANGER: Never attempt to relieve hydraulic pressure by loosening a coupler. Trapped hydraulic pressure can cause a loosened coupler to dislodge unexpectedly with great force. Serious personal injury or death will result if the coupler becomes a projectile and strikes persons working in the area.

WARNING: Loosening a coupler may result in an escape of high pressure oil that can penetrate the skin. Serious personal injury or death could result.

WARNING: Never use a hammer and punch (or other similar method) to unseat a coupler check ball that is under pressure. Serious personal injury or death could result due to the sudden and uncontrolled escape of high pressure oil.

6.0 MAINTENANCE

1. Use only Aeroboom oil with the cylinder. The use of any other oil may invalidate your warranty.
2. Use dust cap(s) when cylinder is disconnected from the hose(s). Keep the entire cylinder clean to prolong its life.
3. Single-acting cylinders only: Before long term storage, fully extend and retract the plunger once. Then, store the cylinder upside-down. This will help protect the cylinder from corrosion.

7.0 TROUBLESHOOTING

Refer to the troubleshooting chart for a list of typical cylinder problems and possible causes. The troubleshooting chart is not all-inclusive, and should be considered only as an aid to help diagnose the most common problems.

The cylinder should be repaired only by trained and experienced hydraulic technicians.

WARNING: Single-acting cylinders are spring-loaded and require special disassembly techniques to prevent personal injury.

TROUBLESHOOTING CHART	
	POSSIBLE CAUSE
Cylinder will not advance. PROBLEM	Pump release valve open. Coupler not fully tightened. Oil level in pump is low. Pump malfunctioning. Load is too heavy for cylinder. Cylinder seals leaking.
Cylinder advances part way.	Oil level in pump is low. Coupler not fully tightened. Cylinder plunger binding.
Cylinder advances in spurts.	Air in hydraulic system. Cylinder plunger binding.
Cylinder advances slower than normal.	Leaking connection. Coupler not fully tightened. Pump malfunctioning.
Cylinder advances but will not hold.	Pump malfunctioning. Leaking connection. Incorrect system set-up. Cylinder seals leaking.
Cylinder leaks oil.	Worn or damaged seals. Internal cylinder damage. Loose connection.
Cylinder will not retract or retracts slower than normal.	Pump release valve is closed. Coupler not fully tightened. Pump reservoir over-filled. Narrow hose restricting flow. Broken or weak retraction spring (if equipped). Cylinder damaged internally.
Oil leaking from external relief valve.	Coupler not fully tightened. Restriction in return line.

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WORLDWIDE HYDRAULIC SOLUTIONS

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