

OPERATING INSTRUCTIONS Cylinders- 700 Bar (10,000 psi)

Model No.: C series, CA series, CT series, CP series, CPT series, CM series, CH series, CHD series, CD series, CAL series, CL series, CPL series, CHA series, CHAD series



⚠ WARNING

Read and follow all Safety Instructions, Warnings, Cautions and Important information provided in this manual before using the equipment. They are provided for the safety of those operating the equipment and to prevent personal injury and/or damage to property when using this equipment.

**THIS EQUIPMENT SHOULD ONLY BE USED BY OPERATORS
WHO HAVE BEEN TRAINED IN THE SAFE USE OF HIGH
PRESSURE HYDRAULIC EQUIPMENT**



WARNING:

- Always wear the correct personal protective equipment when operating high pressure hydraulic tools and equipment.
- Always stay clear of loads supported by hydraulic systems, the load must be secured mechanically before work can commence.
- Always keep your hands and feet clear of the work activity during operation to avoid personal injury.
- Never handle pressurised hydraulic hoses. Escaping oil under pressure can penetrate the skin causing serious injury. Contact a doctor immediately if oil is injected under the skin.
- Never operate the system above the maximum rated output pressure.
- Never connect to the system components, fittings, couplers, hoses, valves etc. that are NOT rated to the full system operating pressure.
- Never exceed equipment ratings. Never attempt to lift a load greater than the capacity of the cylinder. Overloading causes equipment to fail and possible personal injury or damage to equipment.
- Boss cylinders and pumps are designed to operate at a maximum of 700 bar (10,000 psi) unless specified. Never connect a cylinder to a pump with a higher output pressure.
- Never use pumps and cylinders with disconnected couplers. Always ensure where couplers are used that they are all fully engaged. Failure to do so can result in the system becoming overloaded and can result in a catastrophic component failure potentially causing severe personal injury.
- Always ensure the system has a stable set up before operating the equipment. Cylinders should be located on a flat surface that has the capacity to support the load, cylinder bases and other supports should be used where applicable. Avoid situations where the load is not directly centred on the cylinders. Loads that are off centre place considerable strain on the cylinder and piston. This can result in the load slipping or the cylinder failing with potentially dangerous results. Always distribute the load evenly across the entire surface of the cylinder saddle. Always use a saddle to protect the cylinder rod.



WARNING:

- Never weld to or modify cylinders, pumps or other system components as they have been engineered and tested to meet specific standards.
- Always immediately replace worn or damaged parts with genuine Boss Hydraulics parts. The use of non-genuine parts can result in failure potentially causing personal injury and/or property damage.



CAUTION:

- Avoid damage to hydraulic hoses from sharp objects, vehicles and heavy objects falling on them, never kink or fit hoses with a sharp bend in them. All of these things can cause internal damage to the hose leading to premature hose failure.
- Keep hydraulic equipment away from sources of heat and flames. Heat will soften seals and hoses which results in hydraulic fluid leaks. For optimum performance, equipment should not be exposed to temperatures of 65° C (150° F) or higher. Always protect hoses from weld splatter or sparks from cutting or grinding tools.



IMPORTANT:

- Never lift or carry hydraulic equipment by the hose or couplers. Use carry handles or another safe method to transport or lift components.
- High pressure hydraulic equipment should only be serviced, adjusted, repaired and tested by qualified hydraulic technicians.
- After unpacking the equipment it should be inspected by a qualified person to ensure there is no shipping damage or missing part.
- A gauge is highly recommended to be used, so the pressure in the hydraulic system can be monitored.

1. SETUP/ INSTALLATION

- Prior to use, visually inspect the cylinder for cracks, wear, deformation, bent / damaged couplers or port threads, oil leaks, loose bolts, after-market modifications, damaged accessories etc.
- Boss Hydraulics cylinders are all furnished with quick connect couplers, however if these need to be removed or replaced the port connections will need to be secured with thread sealant – if using Teflon tape, start application one thread back from end of fitting to prevent excess tape entering the hydraulic system (refer diagram below).



- Connect the hose and cylinder couplers by hand, ensuring that they are fully engaged prior to use. Always connect hoses to both ports on a double-acting cylinder, never attempt to pressurise a double-acting cylinder that only has one hose connected.
- Bleed air from the system:
 - 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.
 - Position cylinder on a base that is stable, and capable of supporting the load while pushing or lifting – utilise cylinder support bases where possible.
 - Ensure that the cylinder is centred under the load – poorly balanced or off-centre loads can cause the cylinder to kick out and result in injury.

2. OPERATION

- Operate the hydraulic power unit to advance and retract the cylinder – if unsure of how to do this, refer to pump operating instructions.
- Single-acting cylinders are either spring-return or load-return, and the speed at which they retract is affected by the length and ID of the hose, any restrictions in the line and the load that it is lifting.

3. MAINTENANCE

- Only use approved hydraulic fluid, and change as required.
- Exposed threads must be cleaned and lubricated regularly.
- Ensure couplings remain clean, and always use dust caps when hoses are disconnected.
- Any servicing requirements must be undertaken by a qualified hydraulic technician.
- If unsure of servicing procedures, please contact a Boss Hydraulics representative for clarification.
- Cylinders should be stored in a vertical position, with the rod-end down.

4. TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Cylinder won't extend	Loose or faulty coupler	Tighten if loose, replace if faulty.
	Valve open to tank	Close release valve or shift DCV to another position
	Insufficient oil in pump reservoir	Fill and bleed the system
	Load exceeds system capacity	Use the correct equipment
	Malfunctioning pump	Refer pump operating instructions
Cylinder extends but won't hold pressure	Leaking connection	Clean thread, reseal with thread sealant and tighten connection
	Damaged or worn cylinder seals	Replace seals as required, check for contamination and replace hydraulic fluid if necessary.
	Malfunctioning pump or valve	Refer to pump or valve operating instructions.

4. TROUBLESHOOTING (CONTINUED)

PROBLEM	CAUSE	SOLUTION
Cylinder only partially extends	Insufficient hydraulic fluid in pump reservoir	Fill and bleed the system
	Load exceeds system capacity	Use the correct equipment
	Coupler not fully tightened	Tighten coupler
	Piston rod binding	Check for dirt or leaks, and bent / misaligned / worn parts
Slower than normal cylinder speeds	Loose connection or coupler	Tighten
	Restricted hydraulic line or fitting	Clean, replace if necessary.
	Malfunctioning pump	Refer pump operating instructions
	Damaged or worn cylinder seals	Replace seals as required, check for contamination and replace hydraulic fluid if necessary.
Erratic cylinder movement	Air in system	Check fluid level (top up if necessary), bleed air and check for leaks
	Piston rod binding	Check for dirt or leaks, and bent / misaligned / worn parts

PROBLEM	CAUSE	SOLUTION
Cylinder won't retract, or retracts slower than expected	Pump release valve closed	Open pump release valve
	Coupler not fully tightened	Tighten coupler
	Blocked hydraulic lines	Clean and flush lines
	Worn or broken retraction spring	Contact Boss Hydraulics representative for service advice
	Internal cylinder damage	Contact Boss Hydraulics representative for service advice
	Pump reservoir over-filled	Drain to required level.
Leaking cylinder	Damaged or worn cylinder seals	Replace seals as required, check for contamination and replace hydraulic fluid if necessary.
	Loose connection	Clean thread, reseal with thread sealant and tighten connection
	External relief valve activated (double-acting cylinders only)	Contact Boss Hydraulics representative.
	Cylinder extended beyond visual maximum stroke indicator (for cylinders with weep hole stroke limiters only)	Replace seals



BOSS HYDRAULICS:

Head Office: 19 Ricketts Road, Mt Waverley VIC 3149 | P: 1300 BOSS HYD (1300 267 749)

E: sales@bosshydraulics.com.au | W: www.bosshydraulics.com.au