

RECEIVING INSTRUCTIONS & INSPECTION

Visually inspect all products for shipping damage before use. Shipping damage is not covered by Freedom Industrial Hydraulics' warranty. Please contact carrier for any shipping damage claims.

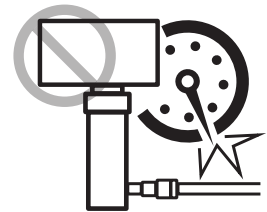
OPERATIONAL SAFETY INFORMATION & INSTRUCTIONS

IMPORTANT: Severe personal injury refers to injuries including death.

⚠ WARNING

DO NOT EXCEED CYLINDER RATED CAPACITIES.

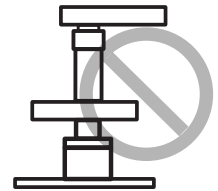
- Do not attempt to lift loads that exceed rated capacity of your cylinder. This can result in severe personal injury and/or equipment failure.
- Never attempt to connect cylinders to a pump with a pressure rating that exceeds 10,000 psi (700 bar). Installation of a pressure gauge will allow you to monitor operating pressure. Freedom Industrial Hydraulics cylinders are rated for a maximum pressure of 10,000 PSI (700 bar).



⚠ WARNING

ONLY USE RIGID SUPPORTS TO HOLD LOADS.

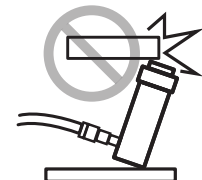
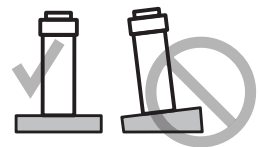
Only use rigid material capable of supporting full load. Never use hydraulic cylinders as supports in any lifting or pressing application. Failure to heed this warning can result in severe personal injury.



⚠ WARNING

VERIFY SYSTEM SETUP IS STABLE BEFORE USE.

- Cylinders should only be placed on flat level surfaces that are capable of supporting the load. When possible use a cylinder base for additional stability during lifting. Do not weld or otherwise modify the cylinder to attach a base or other support.
- Always center loads directly on cylinder plunger. Placing the load off center can result in the load slipping or falling and potentially causing severe personal injury and/or damage to the cylinder.
- Distribute the load evenly across entire surface of the saddle when possible. Protect the cylinder plunger by always using a saddle when threaded attachments are not being used.



SAFETY INFORMATION (Continued)

⚠ WARNING

DO NOT WORK UNDERNEATH LOADS SUPPORTED BY HYDRAULIC CYLINDERS.

Hydraulic lifting cylinders are not load holding devices; all lifted loads should be properly supported with load holding devices rated for the load before work is performed on, around, or under lifted loads. Failure to heed this warning can result in severe personal injury.



⚠ WARNING

NEVER USE HYDRAULIC CYLINDERS THAT HAVE UNCONNECTED COUPLERS.

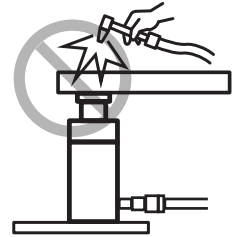
Never use hydraulic cylinders with couplers that are not connected. This can result in coupler failure, potentially causing the coupler check ball or hydraulic fluid to shoot out causing severe personal injury or damage.



⚠ CAUTION

NEVER EXPOSE HYDRAULIC EQUIPMENT TO FLAMES OR HEAT.

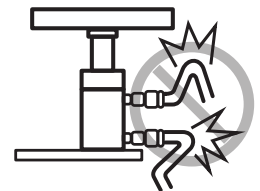
Excessive heat will weaken and damage components in a hydraulic system. Never expose hydraulic equipment to weld spatter. Never expose hydraulic equipment to temperatures exceeding 150°F (65°C).



⚠ CAUTION

AVOID DAMAGE TO HYDRAULIC HOSES.

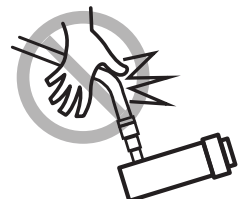
- Always avoid sharp bends or kinks in hydraulic hoses. These conditions can cause back pressure to build in the system, and internally damage the hoses.



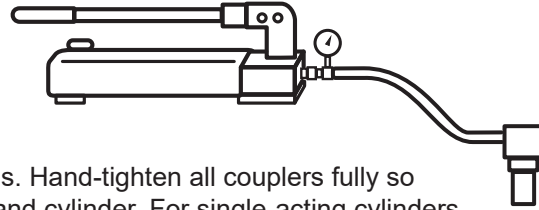
- Do not drop or place heavy objects on hoses. This will internally damage the hose possibly resulting in hose failure. Immediately remove from operation any hoses you believe are damaged.



- Never carry hydraulic equipment by using the hose as a lifting point.



INSTALLATION & ASSEMBLY



1. Make all hydraulic system connections. Hand-tighten all couplers fully so oil flows properly between the pump and cylinder. For single-acting cylinders use one hose and a pump with either a release valve, or three way directional valve. For double-acting cylinders use two hoses and a four-way valve, and make sure that both hoses are fully connected at both couplers.
2. Before use remove all air from the hydraulic system. Place single-acting cylinders upside down and at a lower elevation than the pump. Fully extend the plunger and retract 3 cycles. For double-acting cylinders place the cylinder on its side with the couplers facing up. Then fully extend the plunger and retract 3 cycles.

⚠ WARNING

- Collar threads are rated for full capacity only when fully engaged in attachments. Make sure full engagement is achieved. Failure to heed this warning can result in severe personal injury.
- The addition of any attachments or extensions into a hydraulic system reduces cylinder capacity to the lowest rated capacity component being used in that system. To prevent the plunger from turning while adding attachments, extend the plunger and apply enough force with the pump to prevent the plunger from turning while adding the attachment or extension.

OPERATION & MAINTENANCE

⚠ WARNING

ALWAYS USE PROPER EYE PROTECTION WHEN OPERATING OR NEAR ANY HYDRAULIC SYSTEM.

⚠ WARNING

NEVER HANDLE PRESSURIZED HOSES OR CYLINDERS.

Pressurized oil escaping from a pressurized hydraulic system can cause severe personal injury. Seek medical attention immediately if oil penetrates skin.



Use an appropriately rated hydraulic pump to operate hydraulic cylinders.

Use the pump to extend and retract double-acting cylinders.

Single acting cylinders will extend under the pump power, and retract under spring power or load if there is no spring in the cylinder.

Keeping cycles that unnecessarily reach full extension of the cylinder to a minimum, will extend the life of your cylinder by reducing wear.

Only use premium grade hydraulic oil with Freedom Industrial Hydraulic cylinders.

Always use coupler dust caps when couplers are disconnected.

Always keep cylinders clean.

Always store cylinders in an upright position.

Immediately remove from operation any damaged cylinders, or their components.

TROUBLESHOOTING

Freedom Industrial Hydraulic equipment should only be repaired by Authorized Hydraulic Service Centers. Never attempt to repair or modify hydraulic equipment yourself.

WARNING

CYLINDERS ARE SPRING LOADED AND IMPROPER DISASSEMBLY CAN CAUSE SEVERE PERSONAL INJURY.

PROBLEM	POSSIBLE CAUSES
CYLINDER WILL NOT EXTEND	PUMP NOT WORKING PROPERLY
	LOAD EXCEEDS RATED CAPACITY
	COUPLERS ARE NOT FULLY TIGHTENED
	PUMP RELEASE VALVE IS NOT CLOSED
	PUMP OIL LEVEL IS LOW
	SYSTEM IS NOT PROPERLY CONNECTED
CYLINDER EXTENDS TOO SLOWLY	LEAK IN HYDRAULIC CONNECTIONS
	COUPLERS ARE NOT FULLY TIGHTENED
	PUMP NOT WORKING PROPERLY
CYLINDER EXTENDS IN UNEVEN STROKES	THERE IS AIR IN THE HYDRAULIC SYSTEM
	CYLINDER PLUNGER IS BINDING
	PUMP NOT WORKING PROPERLY
CYLINDER STOPS EXTENDING	CYLINDER IS AT FULL EXTENSION
	PUMP OIL LEVEL IS LOW
	COUPLERS ARE NOT FULLY TIGHTENED
	CYLINDER PLUNGER IS BINDING
CYLINDER EXTENDS BUT DOES NOT HOLD PRESSURE	LEAK IN HYDRAULIC CONNECTIONS
	DAMAGE TO CYLINDER SEALS
	SYSTEM IS NOT PROPERLY CONNECTED
	PUMP NOT WORKING PROPERLY
CYLINDER WILL NOT RETRACT	COUPLERS ARE NOT FULLY TIGHTENED
	RETRACTION SPRING DAMAGED
	DAMAGE TO CYLINDER INTERNAL COMPONENTS
	PUMP RELEASE VALVE IS NOT OPEN
	PUMP OIL LEVEL IS OVER-FILLED
	THERE IS A RESTRICTION IN THE RETURN LINE
OIL LEAKS FROM THE CYLINDER RELIEF VALVE	THERE IS A RESTRICTION IN THE RETURN LINE
	COUPLERS ARE NOT FULLY TIGHTENED
OIL LEAKS FROM CYLINDER	DAMAGE TO CYLINDER SEALS
	DAMAGE TO INTERNAL COMPONENTS
	COUPLERS ARE NOT FULLY TIGHTENED