巨輪興股份有限公司
高雄市岡山區岡山北路199號

CHU LUN SING CO.,LTD
No.199, Gangshan N. Rd., Gangshan Dist.,
Kaohsiung City 82059, Taiwan
http://www.sunrun.com.tw
E-mail:sun.run@msa.hinet.net
TEL:886-7-6210505
FAX:886-7-6217575

液壓(缸)千斤頂
操作說明

S, RSC, RSSM, RSCS, RSCH, RSRH, RSR, RSAC,RSAR,RSACH,RSARH

中文
English
Ver.16

1. 安全預防措失


不遵守以下的注意事項和警告將引起設備損失及人員傷害。


重要事項：未滿18歲人員不得擅自操作。操作SUN RUN油壓設備前請先仔細閱讀並了解相關操作手冊、安全事項和警告事項。
操作人員負有油壓設備週邊之人員及環境之安全責任。


警告事項：為確保避免人員傷害和設備作業損失，請確認所有油壓設備及週邊配件，使用最大壓力為 700 bar(10,000psi)。


警告事項: 操作人員於使用期間為避免傷害，需全程配戴安全防護措施。


警告事項: 不得使用油壓設備作為支撐重物使用。當液(油)壓缸作為負載頂昇設備時，僅可頂昇，不可用來支撐重物使用。當完成頂升作用後，需使用機械性工具來固定支撐。


警告事項: 必須使用硬性物體來支撐重物。
慎選能承受重物的鋼鐵或木塊來支撐荷載。不要在頂升或持壓使用中將液(油)壓缸當做墊塊使用。


危險事項: 為避免人員傷害，請於操作過程中手、腳遠離液(油)油壓缸和液壓設備。


警告事項：禁止超載使用。
超載使用易造成設備損害及人員損傷。液(油)壓缸設計最大使用壓力為 700 bar (10,000psi)。


危險事項: 千萬不可 將溢流(安全)閥的壓力值設定高於泵浦的額定壓力。超載的壓力值可能引起設備損壞及人員損傷。
尤其千萬不可拆除溢流(安全)閥。


警告事項：系統操作壓力絕不可超過最低壓力元件之值最低值。系統中應加裝壓力錶藉以監測系統中的壓力並了解使用狀態。


警告事項: 避免損壞油壓管。捲收油管時，避免油管強烈彎曲或打結。使用彎曲或打結油管易引起背壓。強烈彎曲或打結的油管亦易引起內部損壞或提早油管老化。


千萬不要重壓油管。劇烈的撞擊會造成油管內鋼絲網損壞。使用受損的油管可能導致油管破裂。


重要事項: 千萬不要利用油管來提攜其他油壓設備(例如:小型油壓缸、泵浦..等)。


危險事項 : 液(油)壓設備應遠離火或熱源
高溫會軟化包裝和密封材料，導致液壓油洩漏；高溫同時也會造成油管材質與包裝變質。為確保最好狀態，不要將液(油)壓設備暴露於 65°C(150°F)高溫。在電焊場所時亦應注意防止電焊火花噴到油管。


危險事項: 不要用手對油管施加壓力(包括拉或舉高) 高壓下洩漏的液壓油會穿透皮膚造成嚴重傷害。當液壓油侵入皮膚請立即就診。

1. 安全預防措失

警告事項: 液(油)壓缸只能在已連接好的液壓油路中使用；快速接頭尚未確實連接時禁止使用或加壓，否則高壓情況下接頭的油封及鋼珠會高速噴出造成人員傷亡。

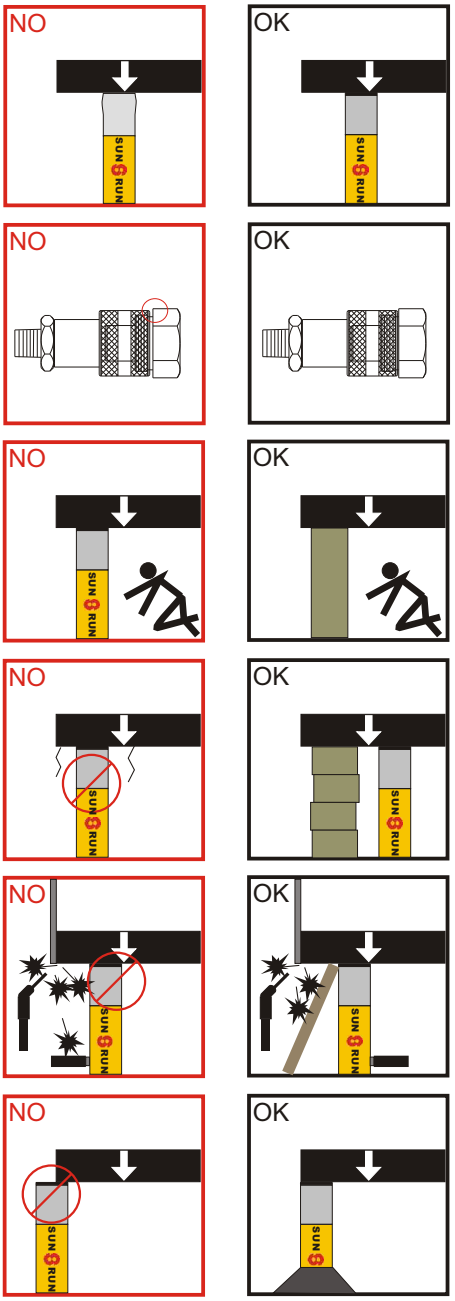
警告事項: 頂昇荷載前，請確保油壓裝置平穩
油壓缸必須放在平穩可支撐重物的基座上。若情況許可，可使用油壓缸基座來增加穩定性。千萬不可使用焊接或其他方法將油壓缸與所使用的基礎面(支撐座)連接一起。

避免荷載不直接作用在油壓缸的主軸中心上。偏心荷載易導致油壓缸和主軸受損。此外，重物亦可能因傾斜而滑落，引發潛在危險。

將荷載平均的分布在墊塊表面。
傾斜墊塊可消除偏荷載。當無使用縲牙連接其他附件時，一定要使用墊塊以保護主軸。

警告事項: 當零件出現裂痕或損壞時，應立即以**SUN RUN** 零件更換。正確標準的零件可防止人員或設備損傷。**SUN RUN**零件經特別設計可完全適用並適用產品標稱的額定荷載或壓力。

重要事項: 液壓設備必需由合格的液壓技工進行維修。需要修理時，請連繫就近的**SUN RUN**服務據點並使用**SUN RUN** 液壓油保固方為有效。

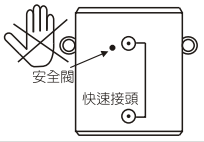


警 告

請勿調整安全閥壓力！

適用於雙動千斤頂
RSR, RSRH, CSLRG 系列

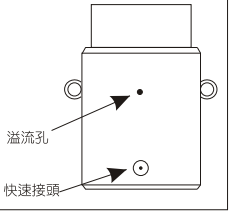
大部份的雙動千斤頂安全閥壓力設定值為10000psi(700bar)。
超出原廠設定值時，安全閥會噴出液壓油保護千斤頂。
當安全閥發生漏油狀況時請先檢查快速接頭連接狀況。



警 告

適用於單動,高噸位千斤頂
CSLP, CSLL, CSLS 系列

到達揚程極限時，溢流孔流出液壓油。藉此警告並保護主軸超揚昇。

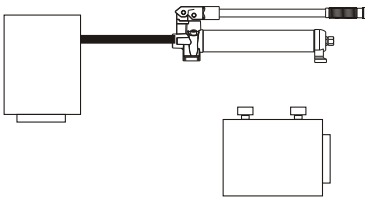


2. 安裝

2.1液壓連接。 操作單動液(油)壓缸時使用帶用洩壓閥或安裝3通閥的液(油)壓泵浦。
當操作雙動液(油)壓缸時則需使用4通閥和二條油管。

重要事項：
雙動液(油)壓缸必須二個油管接頭都確實連接好。
以手動方法確實鎖緊所有接口。 鬆動的連接接口會阻塞液壓泵浦與液(油)壓缸間液壓油的流通。

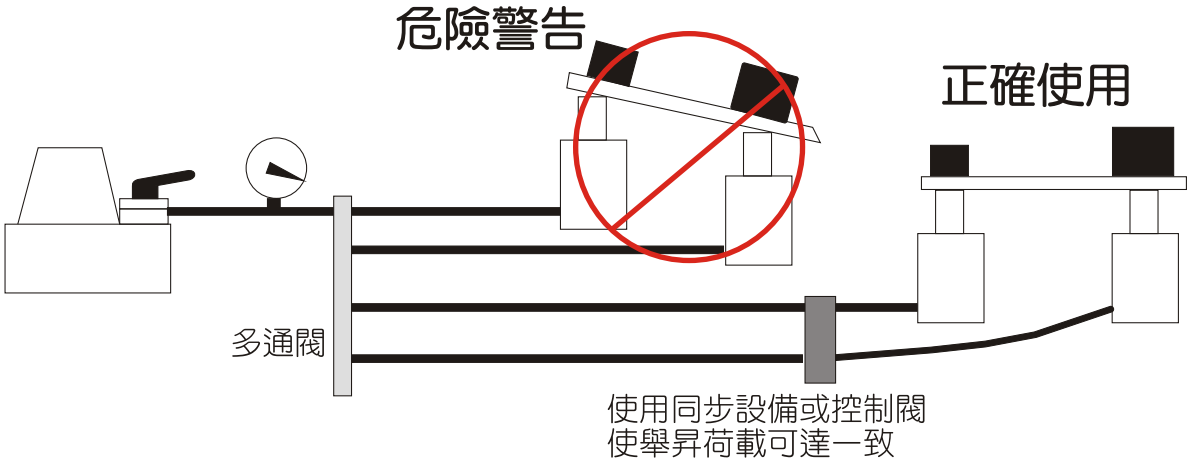
2.2排出液(油)壓缸內的空氣-如圖所示 (右圖)
單動液(油)壓缸:
將液(油)壓缸主軸朝下倒置，且液(油)壓缸位置需比泵浦低。
將油壓缸完全頂昇/ 回縮 2~3次。
雙動液(油)壓缸:
將液(油)壓缸平放地面，接頭朝上(如右圖所示)
將油壓缸完全頂昇/ 回縮2~3次。



2.3 **安裝配件時,千萬不可旋轉主軸。** 旋轉主軸會損毀彈簧，造成主軸無法回縮。
注意: 當使用配件時，外螺牙是依油壓缸額定荷載設計。
注意: 使用配件時，油壓缸荷載能力至少降低50%

3.操作

利用液壓泵浦操作液(油)壓缸前進/頂昇 和回縮/下降。 有些單動油壓缸採彈簧回縮；有則是重力回縮。油壓缸回縮的速度受油管長度和油壓線路中的其他條件所影響。 雙動油壓缸無論前進或回縮均需由泵浦提供壓力，得以動作。
液(油)壓缸的上螺帽是設計用來承受全部荷載的。 然而，為減少油壓缸疲疮，儘可能減少全揚程的使用。



4.維修

4.1只使用SUN RUN提供之液壓油，以確保液壓品質。
4.2當油壓缸與油管分開存放時，請分別以防塵蓋加以防護。保持油壓缸完全清潔可延長使用壽命。
4.3油壓缸應垂直儲放，避免油封變形。

5.疑難解答

問題	原因	M
液壓缸可動作可是無法持壓	1. 連接部份有洩漏 2. 液壓缸油封漏油 3. 泵浦或閥門故障	1. 清除並重新塗上接著劑於接頭螺牙上,重新鎖緊螺牙。 2. 更換不良的油封。確認油封是否遭污染或磨耗。務必更換已受污染的液壓油。 3. 請參考泵浦及閥門使用手冊。
液壓缸漏油	1. 不良的油封 2. 接頭鬆脫 3.洩壓閥發生作用 (僅限雙動液壓缸)	1. 更換不良油封。確認油封是否遭污染或磨耗。務必更換已受污染的液壓油。 2. 清除並重新塗上接著劑於接頭螺牙上,重新鎖緊螺牙。 3. 確認所有接頭是否卯合。 A. 假若洩壓閥持續漏油不要企圖維修或調整。請立即通知就近液壓維修廠。
液壓缸無法回縮或回縮速度較慢	1. 泵浦洩壓閥被關閉 2. 接頭鬆脫 3. 液壓線路阻塞 4. 回縮彈簧磨損或斷裂 5. 液壓缸內部損害 6. 泵浦油箱太滿	1. 打開泵浦洩壓閥。 2. 鎖緊接頭。 3. 清除並清洗疏通。 4. 請送回維修廠維修。 5. 請送回維修廠維修。 6. 將液壓油倒出至適當油位。

5.疑難解答

問題	原因	M
不規則動作	1. 系統內有空氣或泵浦有氣穴現象 2. 雙動液壓缸內部有洩露情形或單動液壓缸外部有洩露 3. 液壓缸阻塞或封塞	1. 增加油量、排出空氣並檢查是否有洩露情況。 2. 更換壞掉的油封。檢查是否太髒或磨損。太髒的液壓油是一定要更換的。 3. 確認是否髒物阻塞或漏油。確認是否有彎折、不合適接合或錯誤、損壞的零件。
液壓缸無動作	1. 快速接頭未密切接合 2. 快速接頭損壞 3. 不正確的閥門位置 4. 泵浦油箱液壓油太少或沒油了 5. 泵浦通氣口 6. 泵浦無法操作 7. 荷重超過系統能力 8. 液壓缸頂端洩壓閥漏油(雙動液壓缸)	1. 鎖緊快速接頭。 2.檢查母接頭是否無法鎖上(球型尖端卡入)。同時更換公、母接頭。 3. 關閉洩壓閥或換另一閥門位置。 4. 重新加滿新油 5. 新品使用前請詳閱操作手冊。 6. 確認泵浦操作手冊。 7. 請使用符合系統能力之設備。 8. 先確認所有接頭是否完全接合並與最近的專業液壓服務廠詢求服務。
液壓缸部份無法揚昇	1. 泵浦油箱內液壓油過低 2. 荷重超過系統能力 3. 液壓缸活塞是否有阻塞	1. 重新加滿新油 2. 請使用符合系統能力設備。 3. 確認是否髒物阻塞或漏油。確認是否有彎折、不合適接合或錯誤、損壞的零件。
液壓缸動作較平常慢	1. 連接部份或接頭鬆脫 2. 液壓管線或配件有被設限(阻塞) 3. 泵浦非正確運作 4. 油封洩漏	1. 請重新鎖緊 2. 請清除或更換 3. 確認泵浦操作(依手冊) 4. 更換不良油封。並確認是否受污染或磨損。

出廠証明暨保固書

產品名稱：

型　號　：

序　號　：

出廠日期：

保固期間：

該產品經公司嚴格品質管制,並測試合格出廠,本產品自驗收合格日起保固一年,如非人為使用不當或天然不可抗拒之災害,本公司免費維修,如非以上之原因本公司將酌收材料成本負責維修。

公司：巨輪興股份有限公司
負責人：蘇明益
高雄市岡山區岡山北路199號
TEL:886-7-6210505
FAX:886-7-6217575

SUN RUN

巨輪興股份有限公司
高雄市岡山區岡山北路199號

CHU LUN SING CO.,LTD
No.199, Gangshan N. Rd., Gangshan Dist.,
Kaohsiung City 82059, Taiwan
http://www.sunrun.com.tw
E-mail:sun.run@msa.hinet.net
TEL:886-7-6210505
FAX:886-7-6217575

OPERATING INSTRUCTIONS HYDRAULIC CYLINDERS

S, RSC, RSSM, RSCS, RSCH, RSRH, RSR, RSAC,RSAR,RSACH,RSARH

English：E1~E5

中文
English
Ver.16

1. SAFETY PRECAUTIONS

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

IMPORTANT : Minimum age of the operator must be 18 years The operator must have read and understood all instructions, safety issues, cautions and warnings before starting to operate the SUN RUN equipment. The operator is responsible for this activity towards other persons.

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

WARNING: Always wear safety glasses. The operator must take precaution against injury due to failure the tool or workpiece.

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 LOAD. 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 overload equipment. Overloading cause equipment failure and possible personal injury. The cylinders are designed for a max. Pressure of 700 bar (10,000psi).

DANGER: 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. Do not remove relief valve.

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 sharp bends and kinks that will cause severe back-up pressure in hoses. Bends and kinks lead 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 couplers. Use the carrying handle or other means of safe transport.

CAUTION : KEEP HYDRAULIC EQUIPMENT AWAY FROM FLAMES 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^{0}C(150^{0}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.

1. SAFETY PRECAUTIONS

WARNING: Never pressurize uncoupled couplers. Only use hydraulic equipment in a coupled system.

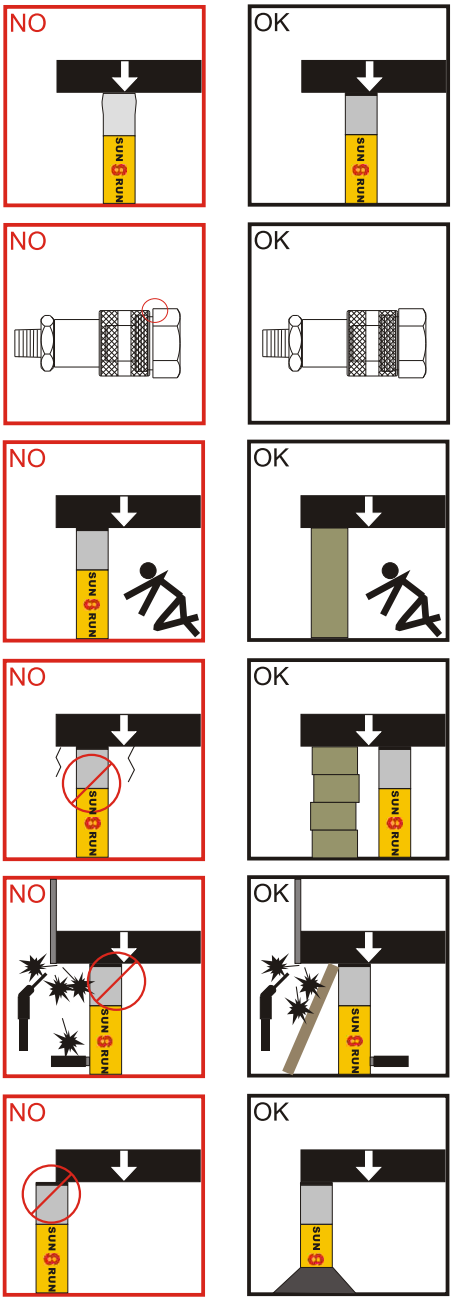
WARNING: BE SURE SETUP IS STABLE BEFORE LIFTING LOAD. Cylinders should be placed on a flat surface that can support the load. Where applicable, use a cylinder base for added stability. Do not weld or otherwise modify the cylinder to attach a base or other support.

Avoid situations where loads are not directly centered on the cylinder plunger. Off-center loads produce considerable strain on cylinder 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.

WARNING: Immediately replace worn or damaged parts with genuine SUN RUN parts. SUN RUN parts are designed to fit properly and withstand rated loads.

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

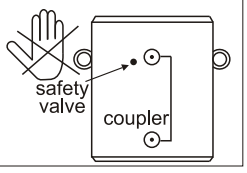


⚠ WARNING

Don't adjust safety valve pressure!

Apply to double-acting cylinder
RSR, RSRH, CSLRG series

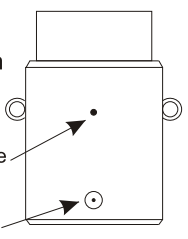
Most double-acting cylinder safety valve pressure setting 10000psi(700bar).
As surpasses the original factory hypothesis pressure safety valve will spurt oil to protect cylinder.
Leaking from safety valve, inspect connection of coupler at first.



⚠ WARNING

Apply to
Single-acting, High tonnage cylinder
CSLP, CSLL and CSLS series

When stroke limit is reached; overflow port ("weep hole") spurt oil to prevents piston from being overextended.



2. INSTALLATION

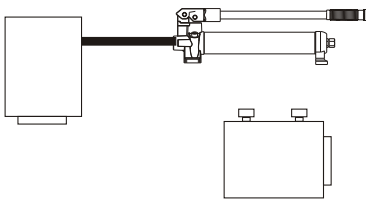
2.1Make hydraulic connections. Use a pump with a release valve or a 3-way valve and one hose for single-acting cylinder.
Use a pump with a 4-way valve and two hoses for double-acting cylinders.

IMPORTANT :

Double-acting cylinders must have both couplers connected.

Fully hand-tighten all couplers. Loose coupler connections will block the flow of oil between the pump and the cylinder.

2.2Remove air from the cylinder as show below.



Single-acting cylinders:
Position the cylinder so that the plunger is pointed down and the cylinder lower than the pump.
Fully extend and retract the cylinder 2 or 3 times.

Double-acting cylinder:
Lay the cylinder on its side and have the couplers facing up. Fully extend and retract the cylinder 2 or 3 times.

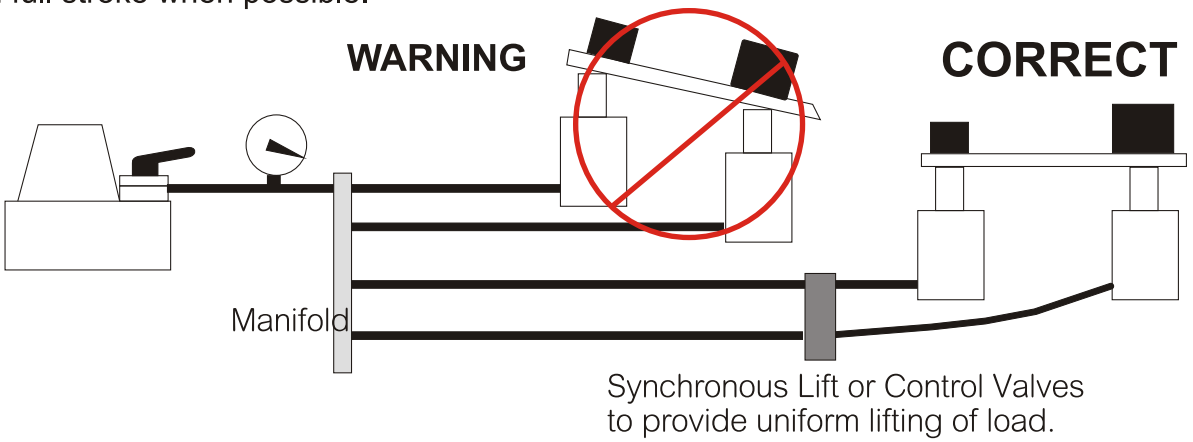
2.3Do not allow plunger to rotate when installing adaptors. Damage to the spring may result in rotating the plunger preventing retraction.

NOTE: Collar threads are rated for the full capacity of the cylinder when fully engaged in attachments.

NOTE: The use of cylinder attachments or extensions reduces the cylinder capacity by at least 50%.

3.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 affected 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 when possible.



4.MAINTENANCE

4.1Use only SUN RUN oil with these cylinder. The use of any other oil may invalidate your warranty.
4.2Use dust caps when cylinders are disconnected from the hose. Keep entire cylinder clean to prolong cylinder life.
4.3Store cylinders upright to prevent seal distortion.

5.TROUBLE-SHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Cylinder/Ram moves but dose not maintain pressure	1. Leaky connection 2. Cylinder seals leaking 3. Pump or valve malfunctioning	1. Clean, reseal with thread sealant and tighten connection 2. Replace worn seals. Check for excessive contamination or wear. Replace contaminated fluid as necessary. 3. Check pump or valve operating instructions
Cylinder/Ram leaks hydraulic fluid	1. Worn or damaged seals 2. Loose connections 3.Rod end relief valve has activated (double-acting cylinder only)	1. Replace worn seals. Check for excessive contamination or wear. Replace contaminated fluid as necessary. 2. Clean, reseal with thread sealant and tighten connection 3. Make sure all couplers are fully coupled. A. If relief valve is still leaking, do not attempt to service this component. Contact your nearest Authorized Hydraulic Service Center.
Cylinder/Ram will not retract or retracts slower than normal	1. Pump release valve closed 2. Loose couplers 3. Blocked hydraulic lines 4. Weak or broken retraction springs 5. Cylinder damaged internally 6. Pump reservoir too full	1. Open pump release valve 2. Tighten couplers 3. Clean and flush 4. Send to service center for repair 5. Send to service center for repair 6. Drain hydraulic fluid to correct level

5.TROUBLE-SHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Erratic action	1. Air in system or pump cavitation	1. Add fluid, bleed air and check for leaks
	2. Internal leakage in double-acting cylinder or external leakage in single-acting cylinders	2. Replace worn packings. Check for excessive contamination or wear. Replace contaminated fluid as necessary
	3. Cylinder sticking or binding	3. Check for dirt or leaks. Check for bent, misaligned, worn parts or defective packings.
Cylinder/Ram does not move	1. Loose couplers	1. Tighten couplers
	2. Faulty coupler	2.Verify that female coupler is not locked up(ball wedged into seat). Replace both female and male couplers.
	3. Improper valve position	3. Close release valve or shift to new position
	4. Low or no hydraulic fluid in pump reservoir	4. Fill and bleed the system
	5. Air-locked pump	5. Prime pump per pump operating instructions
	6. Pump not operating	6. Check pump's operating instructions
	7. Load is above the capacity of the system	7.Use the correct equipment
	8. Fluid leaks out of rod end relief valve(double-acting cylinders only)	8. Make sure all couplers are fully coupled. Contact your nearest Authorized Hydraulic Service Center
Cylinder/Ram extends only partially	1. Pump reservoir is low on hydraulic fluid	1. Fill and bleed the system
	2. Load is above the capacity of the system	2. Use the correct equipment
	3. Cylinder piston rod binding	3. Check for dirt or leaks. Check for bent, misaligned, worn parts or defective packings
Cylinder/Ram moves slower than normal	1. Loose connection or coupler	1. Tighten
	2. Restricted hydraulic line or fitting	2. Clean and replace if damaged
	3. Pump not working correctly	3. Check pump operating instructions
	4. Cylinder seals leaking	4. Replace worn seals. Check for excessive contamination or wear