



巨輪興股份有限公司

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液壓氣動泵浦 操作說明



中文 : C1~C5

中文
English
Ver.22

1. 安全預防措施



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。

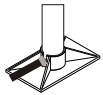


危險事項：不要用手對油管施加壓力(包括拉或舉高) 高壓下洩漏的液壓油會穿透皮膚造成嚴重傷害。當液壓油侵入皮膚請立即就診。

1. 安全預防措施



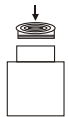
警告事項：液(油)壓缸只能在已連接好的液壓油路中使用；快速接頭尚未確實連接時禁止使用或加壓，否則高壓情況下接頭的油封及鋼珠會高速噴出造成人員傷亡。



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。



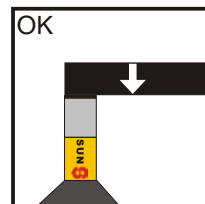
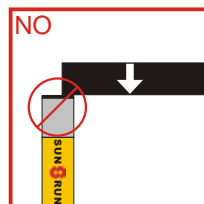
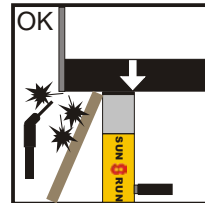
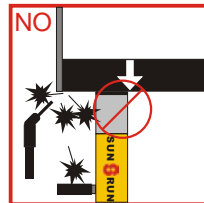
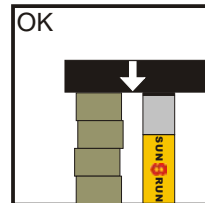
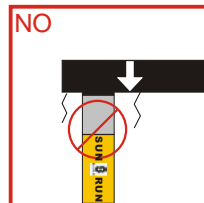
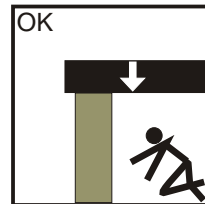
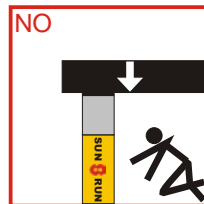
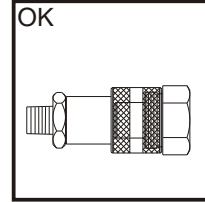
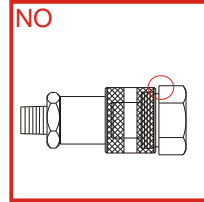
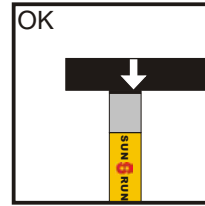
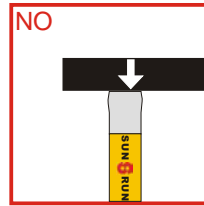
將荷載平均的分布在墊塊表面。傾斜墊塊可消除偏荷載。當無使用螺牙連接其他附件時，一定要使用墊塊以保護主軸。



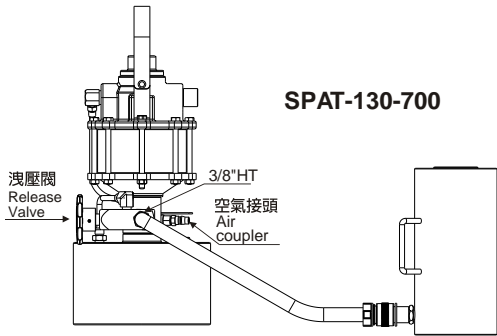
警告事項：當零件出現裂痕或損壞時，應立即以**SUN RUN**零件更換。正確標準的零件可防止人員或設備損傷。**SUN RUN**零件經特別設計可完全適用並適用產品標稱的額定荷載或壓力。



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。



2.說明 / 規範

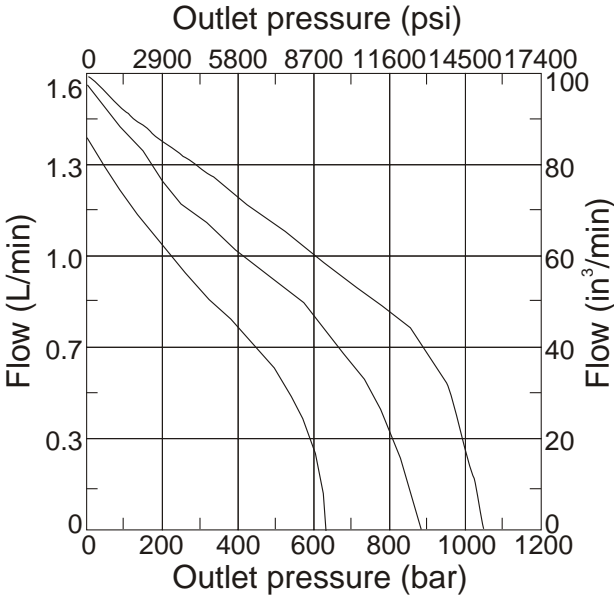


| 說明 Description | 型 號 Model Number | 壓縮比 Compress Ratio | 出油量 Output oil (cm³/per stroke) | 工作壓力 Work press. (bar) | 使用空壓 Air press. (kgf/cm²) | 儲油量 Equipped reservoir (c.c) | 重量 Weight (kg) | 外型尺寸 Dimensions | | |
|-------------------|---------------------|-----------------------|---------------------------------------|------------------------------|---------------------------------|------------------------------------|----------------------|--------------------|-----------|-----------|
| | | | | | | | | C | D | (mm) |
| 單提型 Portable | SPAT-130-700 | 1:150 | 2.5 | 700 | 5~7 | 2000 | 17.7 | — | 1/2"PT-14 | ø220x420L |
| 單提型 Portable | SPAT-130-700-4K | 1:150 | 2.5 | 700 | 5~7 | 4000 | 12 | — | 1/2"PT-14 | ø220x530L |

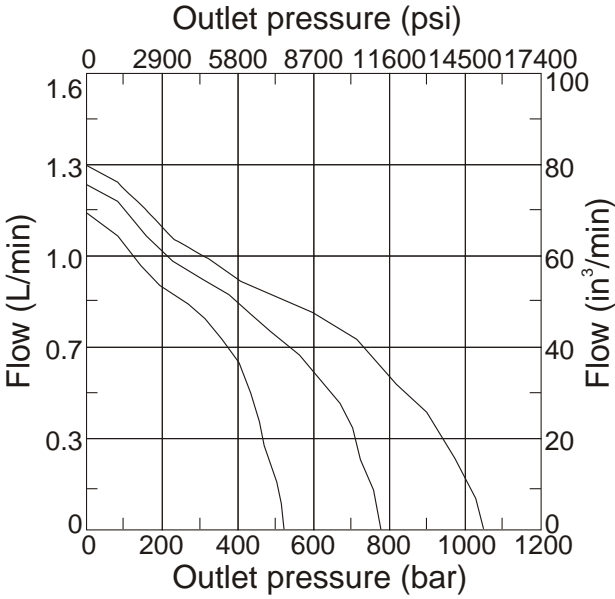
※ 油箱可以需求訂製 ※ 重量及外型尺寸依油箱改變
※ Reservoir will be changed by user. ※ Weight and dimension will be changed by reservoir alter.

| 型 號 Model Number | 空氣 活塞 Air piston (mm) | 液壓 活塞 Hydraulic piston (mm) | 液壓活塞 面積 Hydraulic piston area (cm²) | 液壓活塞 揚程 Hydraulic stroke (mm) | 空壓對應油壓壓縮比 Approximate air pressure to hydraulic pressure ratio- static condition (bar) | | | | | | |
|---------------------|--------------------------------|--------------------------------------|--|--|---|----|-----|-----|-----|-----|------|
| | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | 19 | 76 | 176 | 321 | 513 | 755 | 1050 |
| SPAT-130-700 | 130 | 11.2 | 0.98 | 31.8 | 19 | 76 | 176 | 321 | 513 | 755 | 1050 |
| SPAT-130-700-4K | 130 | 10 | 0.79 | 31.8 | 21 | 86 | 193 | 343 | 536 | 770 | 1050 |

SPAT-130-700 150:1 Ratio



SPAT-130-700-4K 150:1 Ratio



3. 安裝

泵浦連接

- 3.1. 先將油管接上泵浦出油口。使用一圈半的鐵弗龍帶(或其他螺紋密封材質)纏在油管接頭上。螺紋第一圈不可被密封帶遮住，避免密封帶脫落流入液壓系統引發危害，修剪鬆散的密封帶尾端。
- 3.2. 泵浦上安裝壓力錶，可更安全地操作液壓系統。
- 3.3. 將油管安裝至所使用的液壓缸或液壓工具
注意：以單動液壓缸來說，可以一條油管連接液壓缸和泵浦；而雙動液壓缸則需二條油管連接液壓缸和液壓泵浦，其中一條連接泵浦的壓力出口及液壓缸壓力口，另一條油管則連接泵浦及液壓缸回油口。

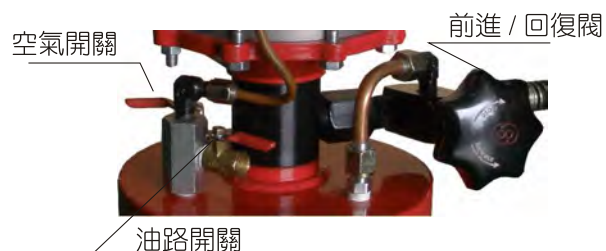
4. 操作

4.1 泵浦操作前準備

1. 確認系統所有的安裝及連接是否牢固無洩漏。
2. 確認操作前泵浦油位是否正常。可參考步驟5「如何加液壓油」。

4.2 操作

1. 接上空氣接頭後打開空氣開關，此時油路開關是閉鎖狀態，並可明顯聽見泵浦快速作動「啵啵啵啵」聲。
2. 欲使工作前進或後退時，則將空氣開關關閉；油路開關打開並旋轉前進 / 後退閥，工具即可動作。
3. 工作完成後務必關閉油路開關後再離開空氣開關。



4. 操作

4.3 雙動操作與4口3位手控閥

四口手控閥用來設計操作雙動液壓缸
請參考 圖6 閥門位置

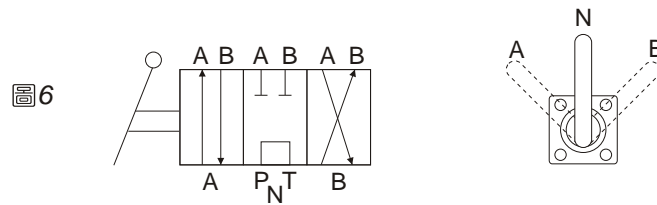
1. 下列為四口手控閥的各位置功能：

- (A) 流向孔 "A"; 則孔 "B" 為回油流向油箱
- (N) 中立; 孔 "A" 和孔 "B" 均為封閉狀態
- (B) 流向孔 "B" 則孔 "A" 為回油流向油箱

2. 操作泵浦至完成工作

3. 視需要改變閥門位置

警告: 需二條油管均連接上液壓泵浦，雙動液壓缸才可被操作。假若其中一條油管未妥善連接，油路中產生的高壓會引起設備損壞及人員傷亡。



5. 維修

5.1 油位確認

操作每隔40小時即需確認液壓油位是否正常。必要時加入液壓油至加油蓋下約1/2" (1cm) 處。

請使用由SUN RUN 所提供之液壓油。使用其他液壓油造成的設備損害，保固無效。

5.2 更換液壓油

操作每隔100小時即需更換新液壓油。假如操作環境較多污染則需更頻繁地更換液壓油。

1. 將加油/通氣栓打開。
2. 將儲油箱內所有舊油倒光。
3. 加入新油至加油/通氣塞下 1/2 inch (1cm)處。
4. 再鎖回加油/通氣栓。

重要事項: 加油時需確定所有液壓系統回縮歸零狀態，否則所加入的液壓油將超出本身所能容納的液壓油。



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OPERATING INSTRUCTIONS HYDRAULIC AIR PUMP



English : E1~E5

中文
English
Ver.22

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°C(150°F) or higher. Protect hoses and cylinders from weld spatter.




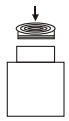
DANGER: Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin causing serious injury. If oil is injected under the skin, see a doctor immediately.


1. SAFETY PRECAUTIONS


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

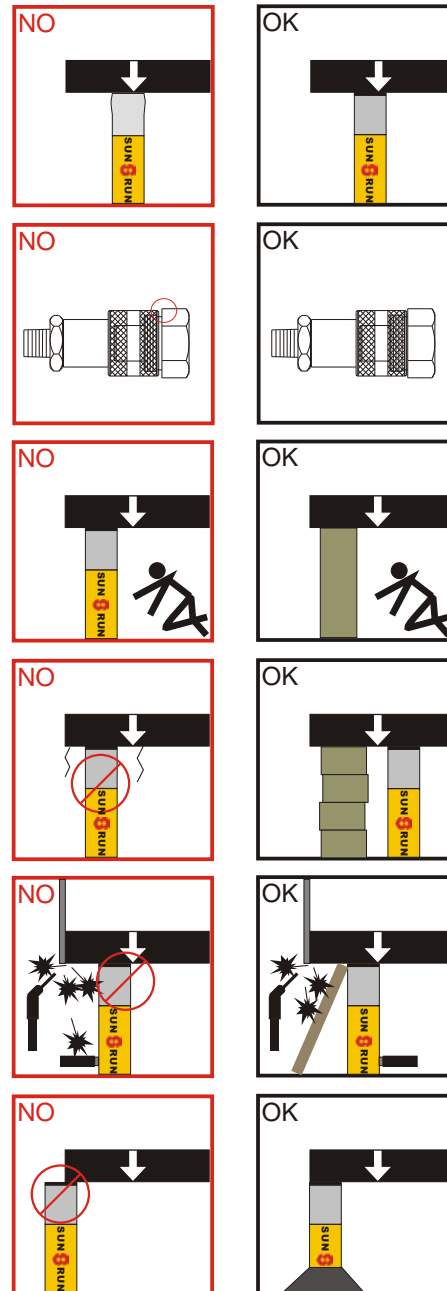
 **WARNING: BE SURE SETUP IS STABLE BEFORE LIFTING LOAD.** Cylinders should be placed on a flat surface that can support the load. Where applicable, use a cylinder base for added stability. Do not weld or otherwise modify the cylinder to attach a base or other support.

 **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.

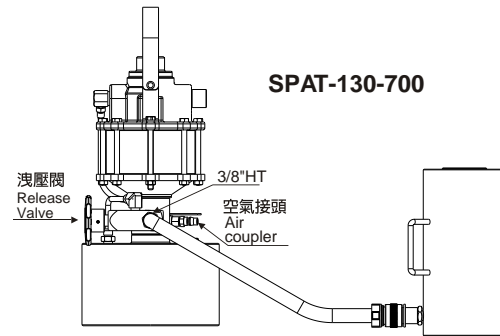
 Distribute the load evenly across the entire saddle surface. Always use a saddle to protect the plunger.

 **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.



2.SPECIFICATIONS



| 說明 Description | 型號 Model Number | 壓縮比 Compress Ratio | 出油量 Output oil (cm ³ /per stroke) | 工作壓力 Work press. (bar) | 使用空壓 Air press. (kgf/cm ²) | 儲油量 Equipped reservoir (c.c) | 重量 Weight (kg) | 外型尺寸 Dimensions | | |
|-------------------|--------------------|-----------------------|--|------------------------------|--|------------------------------------|----------------------|--------------------|-----------|-----------|
| | | | | | | | | C | D | (mm) |
| 單提型 Portable | SPAT-130-700 | 1:150 | 2.5 | 700 | 5~7 | 2000 | 17.7 | — | 1/2"PT-14 | ø220x420L |
| 單提型 Portable | SPAT-130-700-4K | 1:150 | 2.5 | 700 | 5~7 | 4000 | 12 | — | 1/2"PT-14 | ø220x530L |

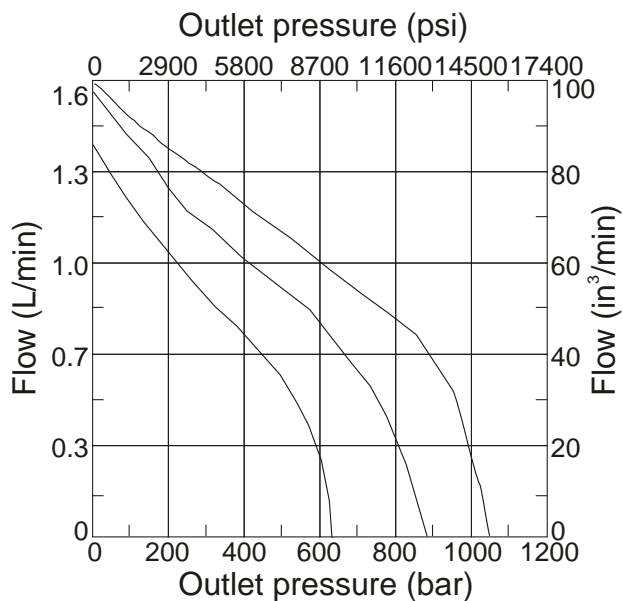
※油箱可以需求訂製

※重量及外型尺寸依油箱改變

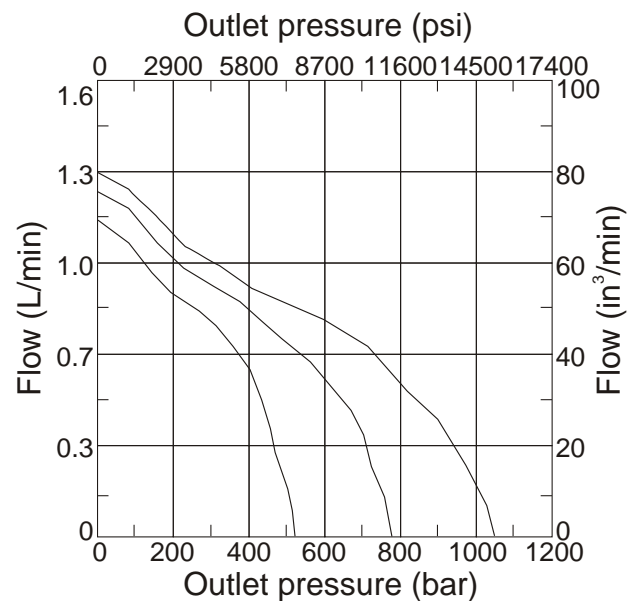
※Reservoir will be changed by user. ※Weight and dimension will be changed by reservoir alter.

| Model Number | Air piston (mm) | Hydraulic piston (mm) | Hydraulic piston area (cm ²) | Hydraulic stroke (mm) | Approximate air pressure to hydraulic pressure ratio-static condition (bar) | | | | | | |
|-----------------|-----------------|-----------------------|--|-----------------------|--|----|-----|-----|-----|-----|------|
| | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| SPAT-130-700 | 130 | 11.2 | 0.98 | 31.8 | 19 | 76 | 176 | 321 | 513 | 755 | 1050 |
| SPAT-130-700-4K | 130 | 10 | 0.79 | 31.8 | 21 | 86 | 193 | 343 | 536 | 770 | 1050 |

SPAT-130-700 150:1 Ratio



SPAT-130-700-4K 150:1 Ratio



3.INSTALLATION

Connecting the Pump

- 3.1.Thread hose into pump outlet. Use 1-1/2 wraps of Teflon tape (or suitable thread sealant) on hose fitting, leaving the first complete thread free of tape to ensure that tape does not shed into hydraulic system, causing damage. Trim loose ends.
- 3.2.Install a pressure gauge in-line from the pump for added safety and better control.
- 3.3.Connect the hose(s) to your cylinder or tool.

Note : For single-acting cylinders, connect one hoses from the pump to the cylinder. For double-acting cylinders, connect two hoses. Connect one hose from the pressure port of the pump to the pressure port of the cylinder. Connect another hose from the retract port of the pump to the retract port of the cylinder.

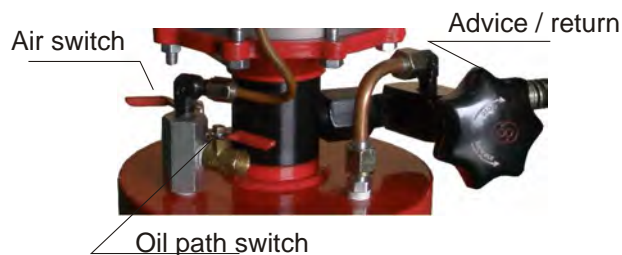
4.OPERATION

4.1 Before Using the Pump

- 1.Check all system fitting and connections to be sure they are tight and leak free.
- 2.Check oil level in reservoir before operating pump. See "Adding Oil to the Pump" on Item5.

4.2 Operating

- 1.Connect air adaptor and open air switch and close "oil path switch" (see below photo) at the same time user can hear a loud voice "BO BO BO" that because the pump working quickly.
- 2.If you want the object return back or release pressure, please close "Air switch" and open the "Oil path switch" then turn "Advice / return" valve to release direction.
- 3.After working, MUST close "oil path switch " and then separate the air connect and air switch.



4.OPERATION

4.3 Double-acting Applications with 4 way, 3Position Manual Valve

Pumps with 4-way control valves are designed to operate double-acting cylinders. See Figure 6 for valve positions.

1.Position lever on 4 way valve to select function as follows:

- (A) Flow to port "A"; port "B" returns flow to the reservoir
- (N) Neutral ; port "A" and "B" are blocked
- (B) Flow to port "B" port "A" returns flow to the reservoir

2.Operate pump to perform work.

3.change valve positions as needed.

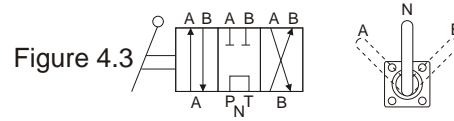


Figure 4.3

WARNING: Operate double-acting cylinder only when both hoses are connected to the pump. If one coupler is left unconnected, high pressure will build the coupler which could cause personal injury and/or equipment damage.

All pumps contain a factory set relief valve to prevent over-pressurization of the system. Lower pressure settings can be obtained.

5.MAINTAIENANCE

5.1 Checking the oil level

Check reservoir hydraulic oil level every 40 hours of operation. Add oil when necessary to bring the level to 1/2" (1cm) below the fill opening. Use only SUN RUN hydraulic oil. The use of other oils or fluids may damage your system, and will void your SUN RUN warranty.

5.2 Changing the oil level

Check the reservoir after every 100 hours of operation. Refill with new hydraulic oil. If pump is operated in very dusty areas or at high temperatures, drain and refill and refill more frequently.

- 1.To drain the reservoir, remove the vent/fill plug (F) from the top right hand corner of the reservoir.
- 2.Tip the pump until all old oil is drained.
- 3.Refill with new oil through the same opening. Reservoir capacity is 0.75 gal.(2.8L) or 2 gal.(8L) depending on model.
- 4.Replace fill plug (F).