



**巨輪興有限公司**

高雄縣岡山鎮岡山北路199號

**CHU LUN SING CO.,LTD**

No.199,Gangshan N. Rd., Gangshan Township, Kaohsiung County 820, Taiwan

<http://www.sunrun.com.tw>

E-mail:sun.run@msa.hinet.net

TEL:886-7-6210505

FAX:886-7-6217575

# OPERATING INSTRUCTIONS FOOT-OPERATED AIR POWER HYDRAULIC PUMP



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English : E1~E6

## 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.



**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).



**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.



**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.



**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. DESCRIPTION

These air -power hydraulic pumps are designed for use with single-acting cylinders and tools. The pump treadle may be operated by hand or foot for greater versatility. Swivel connection simplifies hydraulic connection and pump operation. (As fig.1)

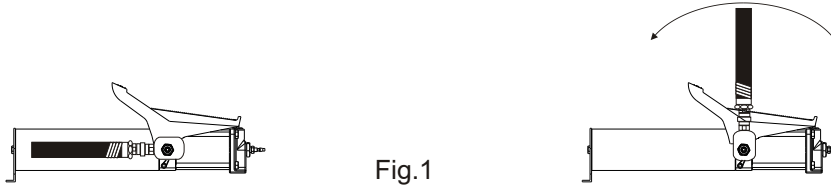


Fig.1

## 3. SAFETY INFORMATION

To avoid personal injury or property damage during system operation, read and follow all CAUTIONS, WARNINGS, and INSTRUCTIONS, included with or attached to each product. SUN RUN CANNOT BE RESPONSIBLE FOR DAMAGE OR INJURY RESULTING FROM UNSAFE USE OF PRODUCT, LACK OF MAINTENANCE, OR INCORRECT PRODUCT AND SYSTEM APPLICATION. Contact SUN RUN when in doubt as to safety precautions or applications.

### WARNING

1. Always wear proper personal protective gear when operating hydraulic equipment (i.e. Safety glasses, gloves, etc.).
2. The system operating pressure must not exceed the pressure rating of the lowest rated component in the system.
3. Make sure that all system components are protected from external sources of damage, such as excessive heat, flame, moving machine parts, sharp edges, and corrosive chemicals.
4. Disconnect air supply when pump is not in use. NEVER remove swivel air connector while air line is pressurized.
5. The pump is equipped with an overload valve, preset for maximum operating pressure. DO NOT attempt to adjust the overload valve. If adjustment is required, contact an SUN RUN service center. Adjustment by other than qualified personnel may cause malfunction, damage to the system, and / or personal injury.

## 4. SPECIFICATIONS

| Model Number | Used with Cylinder | Usable Oil Capacity | Pressure Rating        |        | Air Pressure Range     | Output Flow Rate (noload) | Dimensions(mm) |     |    |     |     | Compression Ratio |
|--------------|--------------------|---------------------|------------------------|--------|------------------------|---------------------------|----------------|-----|----|-----|-----|-------------------|
|              |                    |                     |                        |        |                        |                           | A              | B   | D  | L   | N   |                   |
|              |                    | (c.c.)              | (kgf/cm <sup>2</sup> ) | (psi)  | (kgf/cm <sup>2</sup> ) | (c.c./mm)                 |                |     |    |     |     |                   |
| SPA-70F      | Single Speed       | 800                 | 700                    | 10,000 | 6-10                   | 450                       | 432            | 500 | 32 | 192 | 159 | 1:100             |
| SPA-70FL     |                    | 1200                | 700                    | 10,000 | 6-10                   | 450                       | 542            | 610 | 32 | 192 | 159 | 1:100             |

## 5. INSTALLATION

### Adding Oil to th Reservoir

1. Remove fill plug (see fig.2) and fill SUN RUN hydraulic oil to 1/2" (1cm) below the fill opening. Use of fluids other than SUN RUN hydraulic oil may cause damage and will void your warranty.

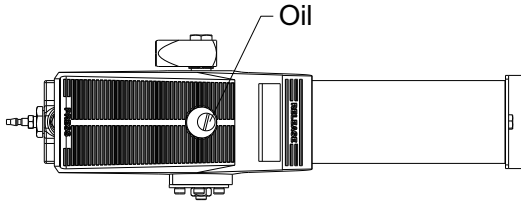


Fig.2

### **WARNING**

Attempting to overfill the reservoir will cause the reservoir to become pressurized. If the reservoir is subjected to high pressure, the casing may rupture, causing personal injury and/ or equipment damage.

2. Replace the fill plug and finger tighten.

**DO NOT use a wrench. Over-tightening will tear the reservoir bladder.**

3. Tip the pump and check for leakage. If leakage occurs, remove the plug and check the plug seal for cuts or nicks. Replace the seal if necessary.
4. Replace the fill plug making sure the seal is centered properly on the plug. If leakage still occurs, remove oil and take pump to your nearest SUN RUN Service.

### Connect Hydraulic Hose

1. See fig.3 Remove pipe plug from the female 3/8" NPTF hydraulic swivel connector, and install the male end of a 3/8" NPTF hydraulic fitting. The fitting can be a high flow coupler, hose, or gauge adaptor.

**NOTE :** SUN RUN recommends installing a gauge in line to monitor hydraulic system pressure.

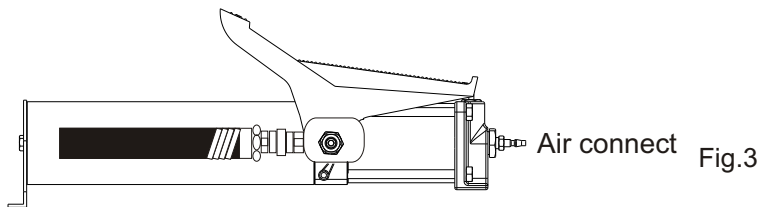
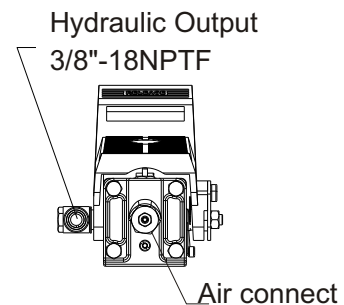


Fig.3



2. Seal connection with a high-grade pipe thread sealer, such as teflon tape.

**NOTE :** Use 1-1/2 wraps of teflon tape, leaving the first thread bare to prevent tape from shedding into the hydraulic system and causing damage. (See fig.4)



3. Tighten pipe connections securely, but DO Not over-tighten.

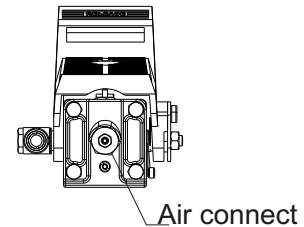
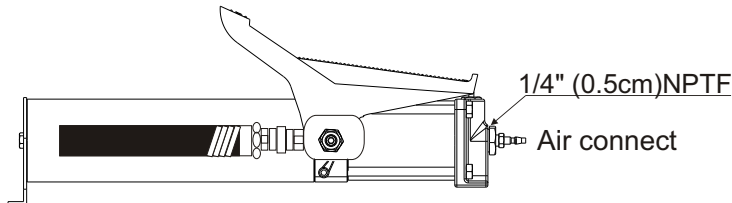
## 5. INSTALLATION (CONTINUE)

### Connect the Air Supply

Recommended air inlet pressure is 85~142 psi (6~10 bar).

1. See fig.5 . Connect a 9 CFM (15m<sup>3</sup>/h)(minimum) air supply source to the 1/4" (0.5cm)NPTF pump air inlet connector. Use only 1/4" (0.5cm) hose or quick disconnect fittings. Larger, heavier fittings are not recommended. Use a high-grade pipe thread sealer to seal the connection.
2. Tighten pipe connections securely, but DO NOT OVER-TIGHTEN.

**NOTE :** To promote long, trouble free pump operation, install an SUN RUN air filter regulator in the air line.



### Adjust Hydraulic Pressure

The hydraulic pressure output of your air pump is controlled by the air pressure into the pump. Increasing the air inlet pressure will increase hydraulic output pressure, and decreasing air inlet pressure will decrease the hydraulic output pressure.

### WARNING

**NEVER** remove swivel air connector while air line is pressurized. Removing a pressurized air line may lead to personal injury or equipment damage.

### Automatic Pressure Make-up

1. Adjust the air inlet pressure to the pump so that the hydraulic pressure output at stall corresponds to the desired circuit pressure.
2. With the air supply pressure continuously applied to the air motor, the pump will automatically cycle whenever circuit hydraulic pressure drops below the pump stall pressure.

**NOTE :** These pumps are not recommended for extended stall cycles.

### CAUTION

The treadle should only be tied down when continuous oil flow is required to maintain constant pressure. DO NOT tie treadle for normal pump start/stop operations.

## 6. OPERATION

1. Check the oil level in the pump, and add oil if necessary.
2. Check to make sure all air and hydraulic connections are secure before operating pump.

### To Activate the Pump

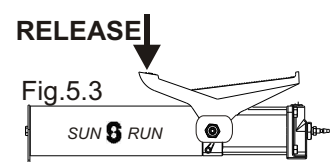
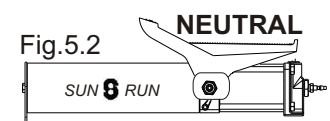
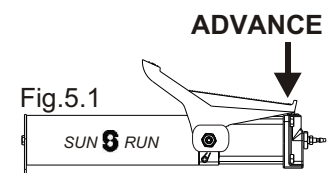
Depress the ADVANCE end of the treadle as shown in fig.5.1, and the air motor will be activated to pump hydraulic oil to the system.

### To Hold Load Pump

The air motor will stop and hold load pressure when the treadle is in the free NEUTRAL position. See fig.5.2.

### To Release Load Pump

To release load pressure or retract a cylinder, depress the RELEASE end of the treadle as shown in fig.5.3.



## 7. PRIMING THE PUMP

If pump does not operate properly, it may have lost its prime. Follow the procedure below to prime your pump, if necessary.

1. Fill pump with SUN RUN hydraulic oil, if necessary. See filling instructions on page 2.
2. Place pump on horizontal surface.
3. Set air supply pressure to 30~45 psi (2~3 bar).
4. Move pump treadle to RELEASE position.
5. Depress the button under the treadle to activate pump. Operate pump in RELEASE position momentarily several times to allow oil to flow back into pump and fill passage ways.
6. To verify that pump is primed, operate as normal with cylinder attached. If cylinder does not advance, repeat step 5.

If pump still does not deliver oil, contact your Authorized SUN RUN Service Center.

## 8. AIR FILTER REPLACEMENT

If the air motor does not perform as normal, check for a clogged air filter.

1. Shut off air pressure to the pump and release pressure in the line to the pump.

### **WARNING**

**NEVER remove swivel air connector while air line is pressurized.**

2. Note the position of the retaining clip. It can only be secured by the smallest tang of the metal retainer. Grasp air line with one hand and pull the retaining clip with pliers.
3. Pull the swivel air connector out.
4. Carefully remove air filter.
5. Clean air filter with an air hose or replace with a new air filter.
6. Re-insert the air filter.
7. Put a thin film of grease on the o-ring of the swivel air connector.
8. Reassemble the swivel air connector and retaining clip. Be sure that clip is secured on the smallest tang of the metal retainer.
9. Check to make sure the swivel air connector is securely attached before turning the air pressure back on.

## 9. MAINTENANCE

1. Periodically check all hydraulic and air connections to be sure they are tight. Loose or leaking connections may cause erratic and/or total loss of operation. Replace or repair all defective parts promptly.
2. Periodically check the hydraulic oil level in your system. See filling instructions on page 2.
3. Change hydraulic oil after every 100 hours of operation. In dusty or dirty areas, it may be necessary to change the oil more frequently. To change the oil, drain used oil through the fill opening and fill reservoir to 1/2" (1cm) below the fill opening with clean SUN RUN hydraulic oil. Dispose of used oil in accordance with local regulations.

### **WARNING**

**The pump is equipped with an overload valve, preset for maximum operating pressure. DO NOT attempt to adjust the overload valve. If adjustment is required, contact an SUN RUN Service Center. Adjustment by other than qualified personnel may cause malfunction, damage to the system, and/or personal injury.**

### **Storage**

When the unit will be stored for 30 days or more:

1. Wipe the entire unit clean.
2. Disconnect all air pressure and hydraulic lines to prevent accidental operation.
3. Cover the unit.
4. Store in a clean, dry environment. DO NOT expose equipment to extreme temperatures.

## 10. TROUBLESHOOTING

The following information is intended as an aid in determining if a problem exists. DO NOT disassemble the pump. For repair service, contact the Authorized SUN RUN Service Center in your area.

| Problem                    | PossibleCause                           | Solution  |
|----------------------------|---|---|
| Pump fails to deliver oil. | Low fluid level.                        | Check the oil level and add oil according to instructions on page2.   |
|                            | Lack of air pressure.                   | Check air filter and replace if necessary (see page4)<br>Check air line and filter-regulator for obstructions or leaks.<br>Check for damage to air motor. |
|                            | Pump has lost its prime.                | Prime the pump according to the instructions on page3   |
| Pump noise.                | Low fluid level.                        | Check the oil level and add oil according to instructions on page2.   |
|                            | Lack of air pressure.                   | Check air filter and replace if necessary (see page4)<br>Check air line and filter-regulator for obstructions or leaks.<br>Check for damage to air motor. |
|                            | Air motor section requires lubrication. | Place a few drops of oil in the air inlet port and cycle the motor several times to distribute the oil.   |
| Oil leakage.               | Worn or damaged parts.                  | Contact your local Authorized SUN RUN Service Center for repairs.   |
|                            | Loose connections.                      | Check that all connections are tight.   |
|                            | Reservoir bladder torn                  | Have reservoir bladder replaced by a qualified hydraulic technician.  |