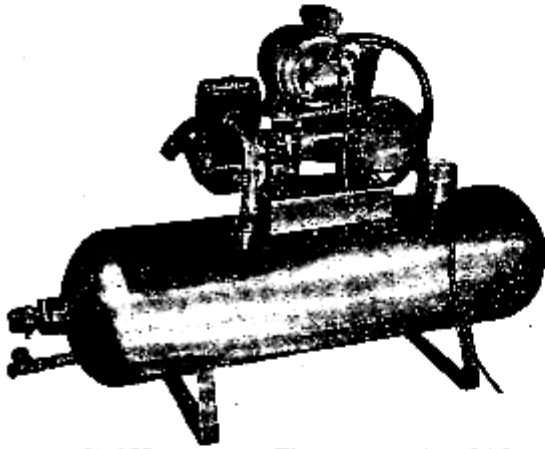


# **SOUTHERN CROSS - For POWER - For WATER**

## **INSTRUCTION SHEET for . . SOUTHERN CROSS POWER PUMPS**

**Sizes 1½" Bore x 1¾" Stroke  
and  
2½" Bore x 3" Stroke**



Southern Cross Automatic Water Pressure Units will provide a continual supply of water at a desired pressure **AUTOMATICALLY**, in the kitchen, or bathroom, showers, dairy, etc.

### **LOCATION :**

The pump should be located as near the source of supply as possible, but if sufficiently large suction piping is used the pump may be as much as 200 or 300 ft. away. However, the suction lift from the surface of the water being pumped to the centre line of the pump must not be more than 18 ft., including friction. The pump should be placed so that it is accessible from all sides.

### **FOUNDATION :**

The pump should be placed on a level and firm foundation. A concrete block with the foundation bolts set into it makes a suitable foundation.

**PIPING :**

Run all piping in as direct a line as possible ; avoid all unnecessary turns ; see that all joints and connections are tight, and if the pump lines are long, use a larger size pipe than that for which the pump is screwed. This will reduce friction and so reduce the load on the pump. Where a long pipe line is used for either the suction or discharge, fit a union or flanges into line close to the pump for ease of uncoupling the pump if it ever has to be moved.

**SUCTION PIPE**

The suction pipe should in no case be smaller than the size of the suction screwing of the pump, and, if very long, it should always be larger. In laying the suction pipe a uniform grade should be maintained throughout to avoid air pockets, and, if possible, the pipe should have a drop of not less than 6" in every 100 ft. length towards the source of supply.

**CHECK VALVES :**

A check valve should be fitted at or near the pump in the discharge pipe to relieve the pump valves of the back pressure of water in the discharge pipe.

Also it will enable work to be carried out on the pump without the water draining back out of the discharge pipe.

**Warning :** Under no circumstances should a gate or globe valve be fitted in the discharge pipe instead of a check valve, as the pump would be damaged if it was ever started with the gate valve or globe valve closed.

**FOOT VALVE :**

If a foot valve is used, it should have an area of at least  $1\frac{1}{2}$  times that of the suction pipe. If a strainer is used it should have a clear area 3 to 4 times that of the suction pipe.

**VACUUM  
CHAMBER :**

On the 2½" x 3" pump a vacuum chamber is supplied with the pump. This chamber should be fitted to the suction line as close to the pump as possible. If the pump is left standing for a long time it may be necessary to prime it by filling the vacuum chamber to the top of the baffle. It is not necessary to fill the whole suction line with water. Replace the plug on top of the chamber carefully, and ensure that it is air-tight.

**GLAND :**

This should be just tight enough to permit a slow drip from the gland when the pump is operating. If the gland is too tight, the pump will use excessive power and the plunger rod will wear rapidly.

**VALVES :**

Valves may be inspected by removing the valve covers, and can be removed from the pump by unscrewing the valve stem. Valves should not be disturbed unless trouble is suspected, and if the rubbers are disturbed, they should be removed from the pump and rubbed against a fine piece of emery paper supported on a flat surface until they are perfectly flat.

**SPEED :**

If the pump is operating under difficult suction conditions, the speed should be reduced to fewer strokes per minute.

**LUBRICATION :**

Provided that the sump is kept filled with oil to the correct level, lubrication is quite automatic.

For the 1½" x 1¾" pump use S.A.E. 20-40 engine oil, and for the 2½" x 3" pump medium heavy oil is recommended.

The gearbox should be drained and re-filled with fresh oil every 500 hours.

## EMERGENCY HINTS

- No water delivered** Check suction line fittings for blockages or leaks. Check plunger leathers and valves for excessive wear. Suction lift may be excessive.
- Uneven flow** See that air chamber is not water-logged. Check plunger leathers for wear; see that surface of the leather is not scored. Check valves: if face of rubber is worn or deformed, rub valve face against emery cloth supported on a flat surface until face is perfectly flat. See that no foreign matter is preventing valve from seating.
- Falling off of capacity or pressure** Check suction line and vacuum chamber plug for leaks. Check liner and plunger leathers for wear. Check plunger leathers for softness. Check speed of pump. Check valves.
- Pump knocks** Check air chamber; if necessary, fit snifter valve. Check valves. If pump still knocks, reduce speed.
- Gland leaks excessively** Tighten gland, repack if necessary. Check plunger rod for wear.

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## *The Southern Cross Organisation*

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