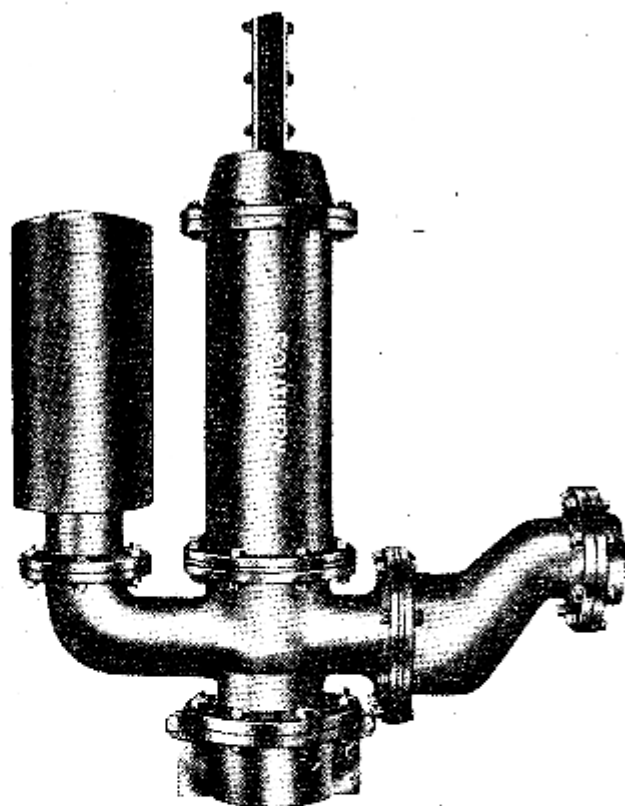


# INSTRUCTION SHEET *and* PARTS LIST

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## C.L. Pattern Cylinder Pumps

### The Southern Cross Organisation

#### QUEENSLAND:

TOOWOOMBA FOUNDRY SALES  
PTY. LTD.  
Box 166, P.O., Toowoomba.  
Box 115, P.O., Charleville.  
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SOUTHERN CROSS EQUIPMENT  
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Box 383, P.O., Rockhampton.

SOUTHERN CROSS MACHINERY CO.  
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Box 304, P.O., Townsville.

#### NEW SOUTH WALES

SOUTHERN CROSS ENGINE AND  
WINDMILL CO. PTY. LIMITED  
22 Young Street, Sydney.  
55-59 Princes Street, Moree.  
Box 163, P.O., Lismore.  
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SOUTHERN CROSS (TAMWORTH)  
PTY. LTD.  
Box 241, P.O., Tamworth.

#### VICTORIA:

SOUTHERN CROSS WINDMILLS &  
ENGINES PTY. LTD.  
24 Maray Street, South Melbourne, S.C. 5.  
Cor. Fairy and Merri Sts., Warrnambool.

#### SOUTH AUSTRALIA:

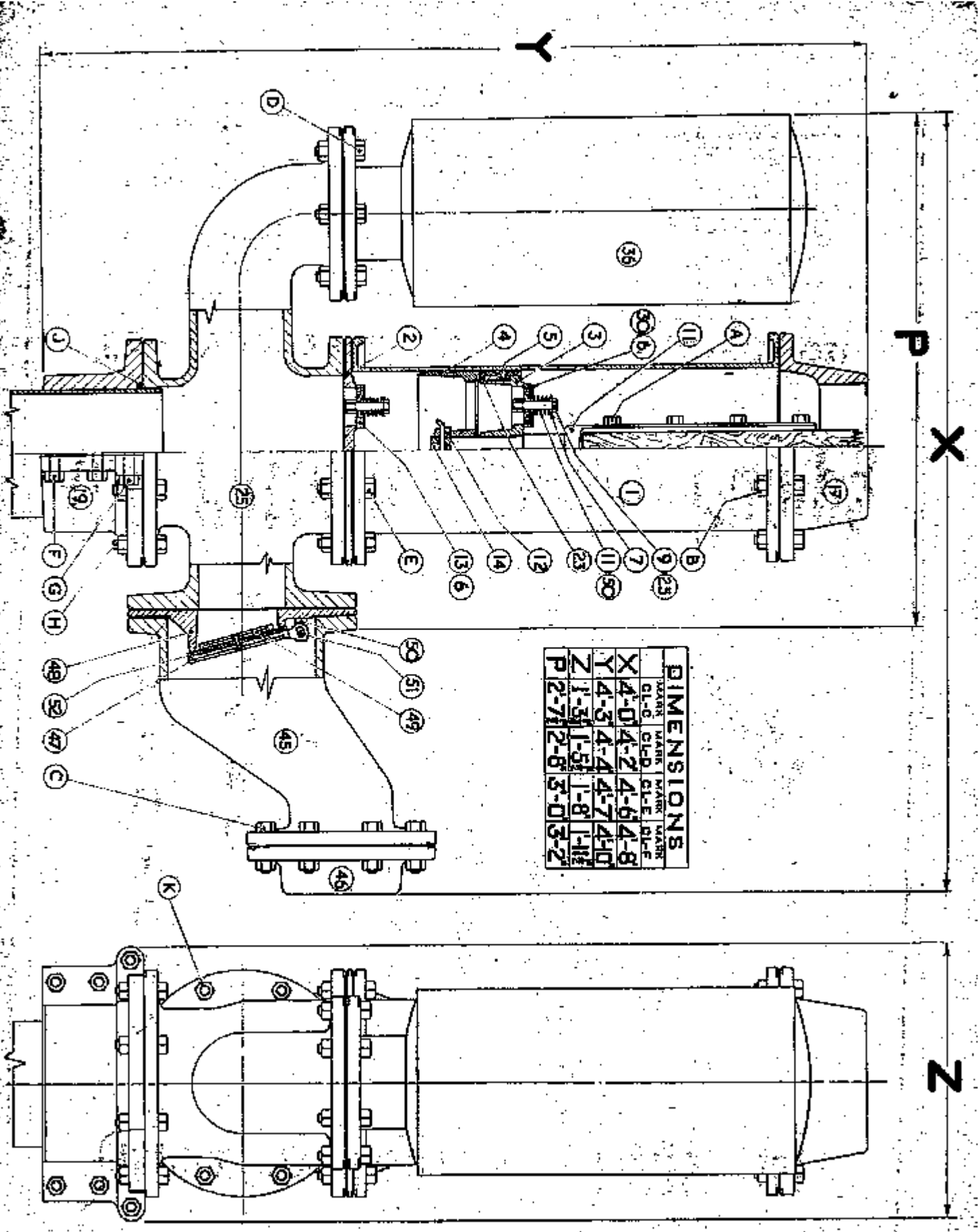
SOUTHERN CROSS MACHINERY  
PROPRIETARY LIMITED  
Box 33, P.O., Hindmarsh.

#### WESTERN AUSTRALIA:

SOUTHERN CROSS WINDMILL &  
ENGINE PTY. LTD.  
282-4 Railway Terrace, Maylands.

#### SOUTH AFRICA:

SOUTHERN CROSS WINDMILL &  
ENGINE CO. (PTY.) LTD.  
50 Henry Street, Bloemfontein.



**DIMENSIONS**

MARK	MARK	MARK	MARK
Q1-Q	Q1-Q	Q1-Q	Q1-Q
X 4-0	4-2	4-6	4-8
Y 4-3	4-4	4-7	4-10
Z 1-3	1-5	1-8	1-11
P 2-7	2-8	3-0	3-2

# PARTS LIST FOR "CL" PATTERN CYLINDER PUMPS.

## PUMP PARTS ONLY.

8in. CL-C	10in. CL-D	12in. CL-E	14in. CL-F	No. off.	Name of Part.
CL-C 1	CL-D 1	CL-E 1	CL-F 1	1	Pump Barrel (15in. stroke).
CL-C 2B	CL-D 2B	CL-E 2B	CL-F 2	1	Bottom Valve Seat
CL-C 3B	CL-D 3B	CL-E 3B	CL-F 3	1	Plunger Valve Seat
CL-C 4	CL-D 4	CL-E 4	CL-F 4	1	Plunger Follower.
CL-C 5	CL-D 5	CL-E 5	CL-F 5	1	Cup Leather Ring.
XA 6	XB 6			10	Large Valve Spring Washer.
		CL-E 8B	CL-F 6	8	Valve Rubber.
XA 7	XB 7			10	Small Valve Spring Washer
CL-C 9	CL-D 9	CL-E 9	CL-F 9	1	Pump Barrel (25in. stroke).
XA 9B	XB 9			10	Valve Stud.
CL-C11	CL-D11	CL-E11	CL-F11	1	Pump Rod Connection.
XA11	XB11			10	Valve Spring.
CL-C12	CL-D12	CL-E12	CL-F12	1	Pump Rod Connection Nut.
XA12B	XB12			10	Valve Rubber.
CL-C14	CL-D14	CL-E14	CL-F14	1	Pump Rod Connection Plug.
CL-C17	CL-D17	CL-E17	CL-F17	2	Standard Screwed Cap.
CL-C18	CL-D18	CL-E18		2	Special Cap for 6in. Piping.
CL-C19	CL-D19	CL-E19	CL-F19	2	Standard Clamp-on Casting.
CL-C20				1	Special Cap for 5in. Piping.
CL-C21	CL-D21	CL-E21	CL-F21	1	Barrel to Clamp-on Casting Adaptor.
CL-C23	CL-D23	CL-E23	CL-F23	2	Pump Bucket.
CL-C24	CL-D24	CL-E24	CL-F24	8	Pump Flange Gasket.
		SD25	SD25	8	Valve Guide.
		SD30	SD30	8	Valve Washer.
		SD50	SD50	8	Valve Spring.
3 3/4in. x 3/4in.	3 3/4in. x 3/4in.	3 3/4in. x 3/4in.	3 3/4in. x 3/4in.	4	A—Pump Rod Connection Bolt.
2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	3in. x 3/4in.	3-3-8-12	B—Top Cap to Barrel Bolt.
3in. x 3/4in.	3in. x 3/4in.	3 1/4in. x 3/4in.	3 1/4in. x 3/4in.	6-3-8-12	E—Bottom Barrel Flange Bolt.
2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	3-3-8-12	H—Clamp-on Casting Top Flange Bolt.
3 1/4in. x 3/4in.	3 1/4in. x 3/4in.	3 1/4in. x 3/4in.	3 1/4in. x 3/4in.	4	F—Clamp-on Casting Joint Short Bolt.
3 3/4in. x 3/4in.	2 3/4in. x 3/4in.	3 3/4in. x 3/4in.	3 3/4in. x 3/4in.	2	G—Clamp-on Casting Joint Long Bolt.
2ft.	2ft. 6in.	2ft. 6in.	3ft.	1/2in. Dia.	J—Graphited Round Steam Packing.

## SUCTION BOX PARTS ONLY.

CL-C24	CL-D24	CL-E24	CL-F24	1	Suction Box to Pump Flange Gasket.
CL-C25	CL-D25	CL-E25	CL-F25	1	Suction Box for Standard Size Casing.
CL-C26	CL-D26	CL-E26		1	Suction Box for Alternative Size Casing.
CL-C27	CL-D27	CL-E27		1	Bottom Cap for Alternative Size Casing.
			CL-E17	1	Bottom Cap for 8in. Casing.
CL-C28	CL-D28	CL-E28		2	Clamp-on Casting for Alternative Size Casing.
CL-C29	CL-D29	CL-D29	CL-D29	1	Suction Box Blind End Plate—Large.
CL-C30	CL-C30	CL-C30	CL-C30	1	Suction Box Blind End Plate—Small.
CL-C33	CL-D24	CL-D24	CL-D24	1	Suction Box to Blind End Plate Large Gasket.
CL-C34	CL-C34	CL-C34	CL-C34	1	Suction Box to Blind End Plate Small Gasket.
2 1/4in. x 3/4in.	2 1/4in. x 3/4in.	2 1/4in. x 3/4in.	2 1/4in. x 3/4in.	6	D—Suction Box Small Flange Bolt.
2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	8	Suction Box to Blind End Plate Large Bolt.

## SUCTION CHAMBER ONLY.

CL-C36	CL-D36	CL-E36	CL-F36	1	Suction Chamber Assembly for 15in. Stroke.
CL-D36	CL-D36	CL-F36	CL-F36	1	Suction Chamber Assembly for 25in. Stroke.

## BY-PASS FITTINGS ONLY.

CL-C53	CL-C24	CL-C24	CL-C24	1	By-Pass Connection Discharge Flange Gasket.
CL-C33	CL-D24	CL-D24	CL-D24	1	By-Pass Valve Seat Gasket.
CL-C45	CL-D45	CL-D45	CL-D45	1	By-Pass Connection.
CL-C46	CL-D46	CL-D46	CL-D46	1	By-Pass Connection Discharge Flange.
CL-C47	CL-D47	CL-D47	CL-D47	1	By-Pass Valve.
CL-C48	CL-D48	CL-D48	CL-D48	1	By-Pass Valve Seat.
CL-C49	CL-D49	CL-D49	CL-D49	1	By-Pass Valve Facing Disc.
CL-C50	CL-C50	CL-C50	CL-C50	2	By-Pass Valve Hinge Support.
CL-C51	CL-C51	CL-C51	CL-C51	1	By-Pass Valve Hinge Pin.
CL-C52	CL-D52	CL-D52	CL-D52	1	By-Pass Valve Facing.
3 1/4in. x 3/4in.	3 1/4in. x 3/4in.	3 1/4in. x 3/4in.	3 1/4in. x 3/4in.	8	K—By-Pass Connection to Suction Box Bolt.
2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	2 3/4in. x 3/4in.	8	C—Discharge Flange to By-Pass Conn. Bolt.

NOTE—When ordering parts, give symbol number and name of part and also size and number of pump.

All Bolts are Brass Whit. Hex.

# Pumping from Artesian Bores which have ceased to flow, or nearly so.

The supplies from Artesian Bores generally are decreasing, and many of them have ceased flowing. This cessation is caused, usually, not by any diminution in the volume of water available in the bore, but by a reduction of pressure or head, so that in such cases there is just the same supply a few feet below the surface as there was before flowing over the top.

Having the big supply available and drains, etc. already made, it is desirable to run the water as far as possible over the country it used to cover. The Southern Cross "CL" Pattern Cylinder Pump, operated by a 25ft. or 30ft. Southern Cross "R" Pattern Windmill is very suitable for this duty.

For instance, a 30ft. "R" Pattern on the long stroke operating a 12in. pump will pump approximately 68,500 gallons on an average per day against a total head of 34ft. This, of course, is in addition to any water which may be delivered through the by-pass, if fitted, and if the bore is still flowing.

The pumps are made in four sizes—8in., 10in., 12in., and 14in. inside diameter barrel. Two Special Rubber Composition Buckets are fitted as standard, these buckets being equally suited for use with hot or cold water.

The pumps are of very solid construction. The barrel, plunger valve assembly and bottom valve assembly are made of first quality gunmetal, while the plunger rod connection is made of manganese bronze which gives high tensile strength. The top and bottom caps are made of cast iron.

The top cap of the pump is screwed internally for the discharge casing. If the suction casing has a good thread, a bottom cap, screwed internally, can be supplied, but, if the thread is damaged, or there is no thread, a special clamp-on casting, with a ring of graphited steam packing to ensure air tightness, can be supplied in place of the bottom cap.

Where a clamp-on casting is to be used in conjunction with a pump, which is not fitted with a Suction Box, a special adaptor is necessary to fit between the pump and clamp-on casting.

For pumping from non-flowing bores the standard "CL" Pattern Cylinder Pump alone may be used. However, a Suction Chamber may be necessary for the particular installation. If this is so, a Suction Box with Suction Chamber can be supplied as an extra.

When installing these pumps, it is desirable to sink a shaft round the casing to sufficient depth and then concrete the bottom and cut off the bore casing. As the average loss of head in artesian bores is approximately two feet per year, the windmill to be installed must be of sufficient size to allow for the increasing head so that in eight or ten years it will not be overloaded.

For pumping from bores which are still flowing a little the pump is supplied with Suction Box and By-Pass and, in this case, the pump acts as a "booster". The By-Pass is fitted so that, when the pump is not working, the free-flowing water can flow through this By-Pass. When the pump commences to work, the valve on the By-Pass automatically closes on each up-stroke of the pump.

Should a Suction Chamber be necessary, a Suction Box, fitted with a Suction Chamber as well as a By-Pass, can be supplied.

In the By-Pass assembly, the valve seat is of gunmetal, while the valve is also of gunmetal, but with a Novasteen facing.

The discharge from the pump can be run into the drains, or, what is better, into a built up earth tank of large capacity, from which a steady flow through the drains can be maintained by means of a pipe and valve.

## "CL" PATTERN CYLINDER PUMPS CAN BE SUPPLIED IN THE FOLLOWING DIFFERENT COMBINATIONS.

1. Pump by itself with a top and bottom cap screwed for casing. Note that if the alternative screwing for the bottom cap is used, then the pump must be fitted with a Suction Box and Suction Chamber to avoid water hammer.
2. Pump by itself with a top cap and a clamp-on casting. To fit the clamp-on casting when used with a pump only, an adaptor is used also, which fits between the pump and clamp-on casting.
3. Pump with top cap, suction box, suction chamber and bottom cap or clamp-on casting. When a clamp-on casting is used with a suction box, there is no need to use an adaptor as in No. 2. Also, when a by-pass is not used on the suction box, a blind end plate fits on where the by-pass would fit.
4. Pump with top cap, suction box, by-pass and bottom cap or clamp-on casting. When a suction chamber is not used on the suction box, a blind end plate fits on where the suction chamber would fit.
5. Pump with top cap, suction box, by-pass, suction chamber and bottom cap or clamp-on casting.

Mark	Diam. Barrel	Stroke	Bottom Cap or Clamp-on Casting for size Suction Casing.		Top Cap for Size Disc. Casing	Plunger Rod Connection Drilled for
			Standard	*Alternative		
CL-C	8in.	15in.	6in.	5in.	6in.	2in. Wood Rods.
CL-D	10in.	15in.	8in.	6in.	8in.	2in. Wood Rods.
CL-E	12in.	15in.	8in.	6in.	8in.	2in. Wood Rods.
CL-F	14in.	15in.	8in.		8in.	2in. Wood Rods.

\* These alternative screwings should be used only where it is necessary to connect a pump to that size casing already in a bore. Where these screwings are used, however, a Suction Box and Suction Chamber MUST also be used.