

## IN-SERVICE INSTRUCTIONS

### DESCRIPTION

Once the System has been installed it will perform two functions : -

1. Eliminate marine growth and reduce the corrosion rate in the seawater service lines.
2. The System uses impressed current sacrificial anodes which last to designed life. Once in service the anodes will require renewal within designed life. Refer to instruction of anode renewal as specified separately. Please ensure a reasonable dispatch time when ordering replacement anodes.

You will require the following : -

ANODE	PART No.	Q'TY	ANODE LOCATION
CU (Copper)	KFCU 170	3	PIPE
AL (Aluminium)	KFAL 170	3	

When ordering, inform of maker's reference number specified on the cover sheet of this drawing.

### ADJUSTMENTS

The control panel is fully automatic and therefore does not require any adjustments in service.

### CHECKING

We suggest that as a matter of course the Control Panel should be checked every week.

When checking, see that all the digital display ammeters are working, this will determine all is correct. When the anodes have nearly wasted, the digital display above the corresponding anode will start to fall. When this happens, turn the anode current knob back to zero and leave it until the anode renewal.

Reset once again at sea after renewal to current settings given previously.

# K.C. LTD.

## SCOPE OF SUPPLY AND WEIGHTS PER HULL

<u>S/N</u>	<u>Item</u>	<u>Type</u>	<u>Q'ty</u>	<u>Wt. Each</u>	<u>Total weight</u>
①	Cu(Copper) anode ass'y	KF CU 170	3pc	43.3 kg	129.9 kg
②	Al(Aluminium) anode ass'y	KF AL 170	3pc	28.4 kg	85.2 kg
③	Control Panel	KCAF2020	3pc	20.0 kg	60.0 kg
④	Junction box	ABS	3pc	2.0 kg	6.0 kg
⑤	On board spares	-	2set		
Total net weight of system					281.1 kg

## ON BOARD SPARES

Only spares required for first 2 years operation are :

4 off 3.15 amp fuses for control panel modules and 4 off 2.5 amp fuses for control panel power unit & 2 power on led, spares are supplied with separate spare box.

For replacement anodes required after 2 years. See list above (only anode required).

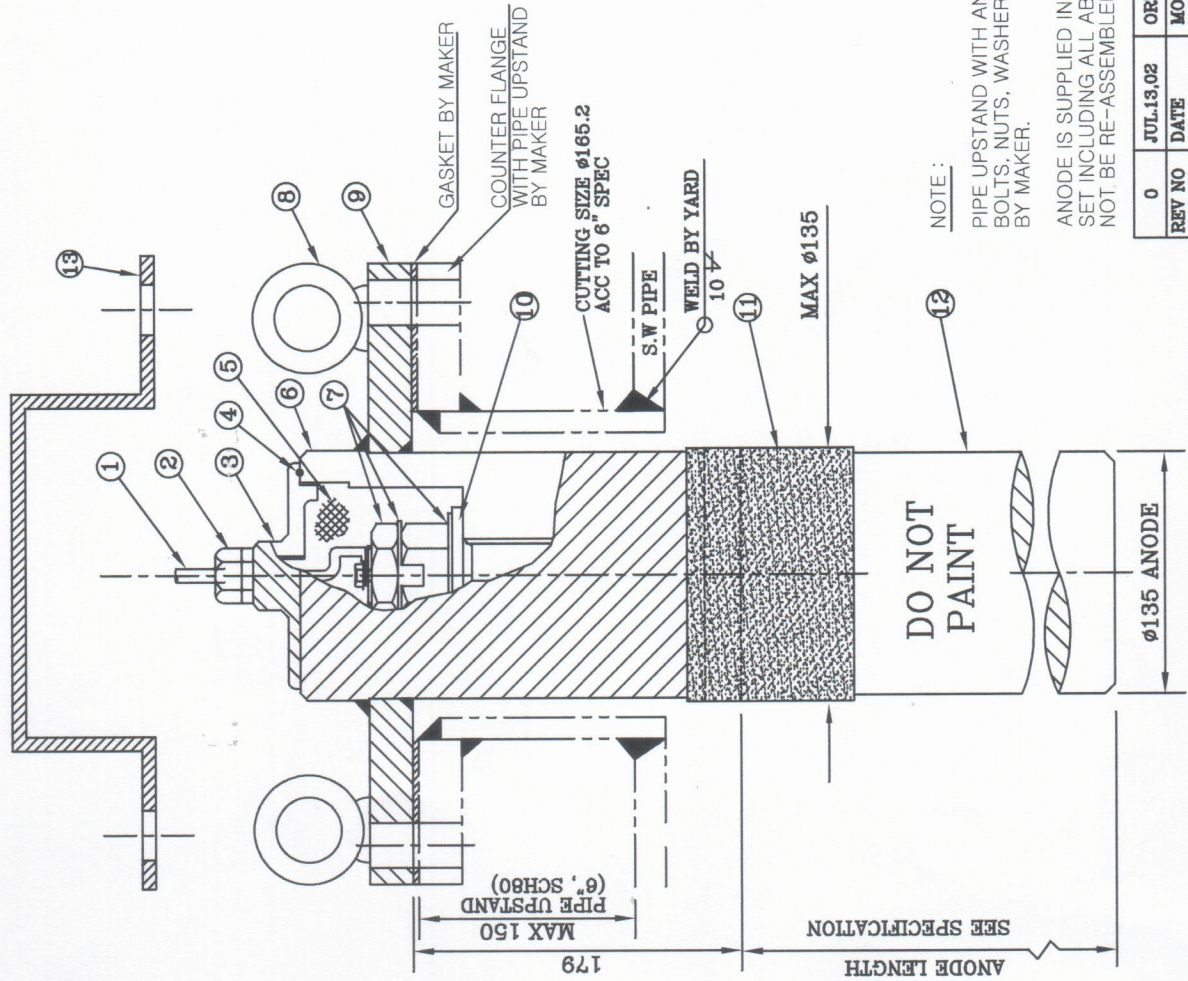
Replacement anode or guarantee work if required contact :

K.C. LTD. (see first page)

# K.C. LTD.

## SPECIFICATION & SCOPE OF SUPPLY FOR Anti-fouling System (M.G.P.S.)

Client Project No	Pacific Ship's plants & Industries P.L. P2006
Sea water to be treated	500 m <sup>3</sup> /h continuous flow of 3 sea water pipe(10" )
Anode location Anode mounting type	1 Cu X 1 AL in each of 3 sea water pipe(10" ) ANSI Class 150 6 " flange mounting sleeve
Scope of supply	3 X KFCU170(Copper) anode ass'y 3 X KFAL170(Aluminium) anode ass'y 3 X KCAF2020 control panel(IP44) with cable glands & seat including interlocking & alarm 3 X Junction box with cable glands & seat 6 X Counter flange with pipe upstand 6 X Gasket 48 X Bolt, Nut, Washer 1 X Set standard spares (1 X led, 4 X fuses) 1 X Set extra spares (1 X led, 4 X fuses) As many drawings as client wants
Painting colour Electric source Electric power consumption	Control panel to Munsell 7.5 BG 7/2 AC 220V, 60Hz, 1PH Max 60 Watt each
Life time of anodes	2 years



NOTE:

PIPE UPSTAND WITH ANSI CLASS 150 6" FLANGE, BOLTS, NUTS, WASHERS AND GASKET SUPPLIED BY MAKER.

ANODE IS SUPPLIED IN COMPLETELY ASSEMBLED SET INCLUDING ALL ABOVE ITEMS AND SHOULD NOT BE RE-ASSEMBLED.

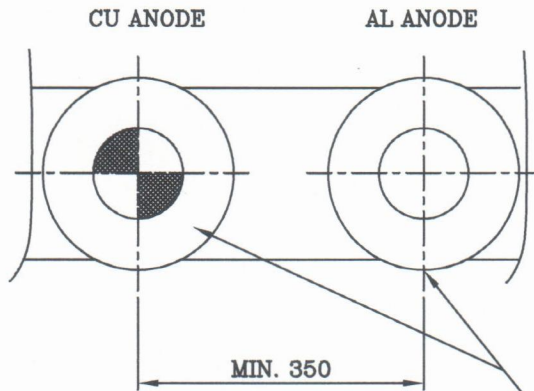
SPECIFICATION		
ANODE TYPE	ANODE LENGTH	ANODE Q'TY
CU(Copper) ANODE	170mm	3
AL(Aluminium) ANODE	170mm	3

NO.	DESCRIPTION	Q'TY	MT'L
1	ANODE CABLE (ø7.6)	3m	RUBBER
2	CABLE GLAND	1	NYLON
3	LID FOR MOUNTING SLEEVE	1	STEEL
4	'O' RING	1	NEOPRENE
5	ISOLATION GREASE	AS REQD	SPECIAL GREASE
6	MOUNTING SLEEVE	1	STEEL
7	ANODE MOUNTING ACCESSORY	EACH 1	HIGH TENSION STEEL
8	EYE BOLT FOR LIFTING	2	STEEL
9	ANODE MOUNTING FLANGE ANSI CLASS 150 6"	1	STEEL
10	SPECIAL INSULATOR	1	HD PE
11	HEAT SHRINKABLE TUBE	1	POLYOLEFIN
12	ANODE	AS PER SPEC	AS PER SPEC
13	ANODE CABLE PROTECTION PLATE	1	STEEL

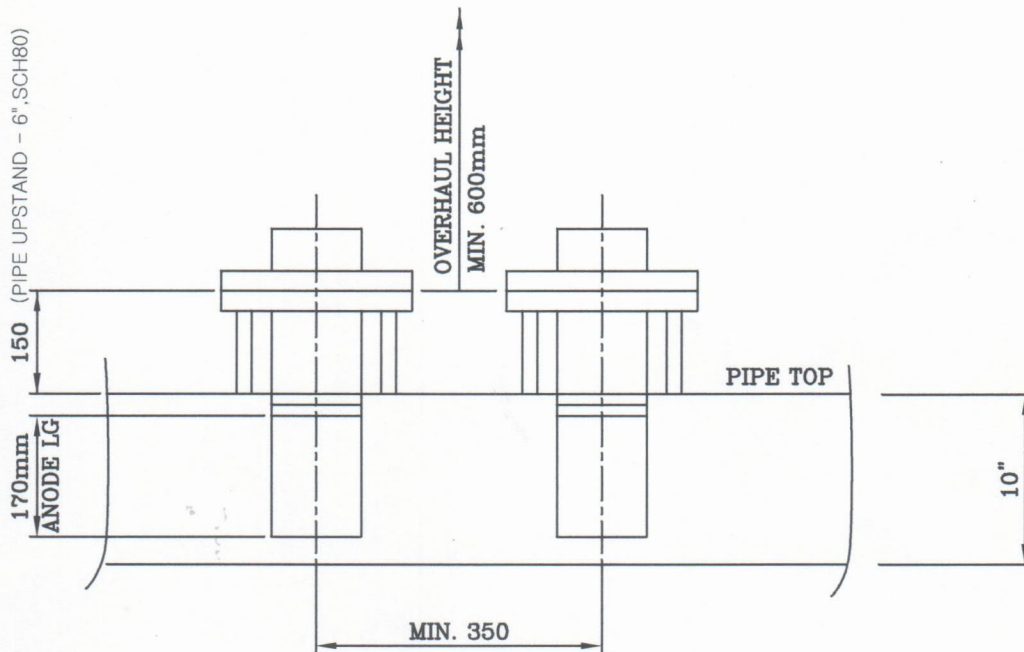
**K.C. LTD.**  
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TITLE: **DETAIL OF KF ANODE ASSEMBLY**

REV NO	DATE	ORIGINALLY PREPARED	REF.	DATE	SCALE	N.S
0	JUL.13.02			JUL.13.02		
MODIFICATION			DWN.	HYL	CHD.	SCO
HISTORY			APP.	SHJ		DRG NO
						MAKT12



KF 135Ø ANODES WITH  
ANSI CLASS 150 6" FLANGE  
MOUNTING



**K.C. LTD.**  
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TITLE

TYPICAL DRAWING OF ANODE POSITION

0	OCT.03,03	ORIGINALLY PREPARED	REF.	DATE	OCT.03,03	SCALE	N.S
REV NO	DATE	MODIFICATION	DWN.	SYH	CHD.	SCO	APP.
HISTORY							DRG NO
							M18010002