COMMON LOGIC PTY LTD

ACN. 011 029 262

Electrical Contractors

Contract No: BW.60095-05/06
PS235 Pioneer St

Electrical Manual

ISSUE NO 1
AS BUILT
15/11/2006

Unit 9/58 Wecker Road, Mansfield, Queensland 4122
Telephone (07) 3849 7449 Fax (07) 3343 5210
JH86

JH86Mj06

COMMON LOGIC Pty Ltd Specialist Electrical Contractors	Electrical Manual	
Subject: Pioneer Cres SP235	Sheet: 1 Of: 9	Section 1
Page Revision No: Date: 17/11/06	Manual Issue No: 1 Date: 17/11/06	

Authorised By: Grant Kerr

1.0 GENERAL

The following document describes the operation of the switchgear and relays installed into the change over switchgear cubicle.
The document does NOT describe the detailed operation of the generator PLC or the operation of the pump starters on the site.
The generator is a plug in device and can be removed from site by BW at their discretion.

2.0 OPERATIONAL DESCRIPTION

There are four components to the system. These are the Generator, RTU, Pump MCC, and the Generator change over switchgear. The last component will be described within this document in detail. The remaining devices will be described in the BW manual.

2.1 GENERATOR

The generator and associated PLC controls all automatic aspects of the change over switchgear, in affect making the basic transfer switch into an Automatic Transfer switch (ATS). The ATS will only operate if the generator PLC is fully operational.

The operation of the ATS is NOT fail safe and will NOT return to a predetermined condition on failure of the generator PLC or associated wiring.

Mains fail timing and return to mains timing is all controlled within the generator PLC.

2.2 RTU

The RTU monitors several generator alarm conditions and will report these conditions to the system as required.

The RTU can remotely start and stop the generator. The remote start will initiate a change over of the station to the generator. Stopping the generator will initiate a return to mains if available.

2.3 PUMP STARTER MCC

The pump starter MCC automatically starts and stops the pumps on demand determined by the wet well levels.
The starter has not been modified in any way to accommodate the generator ATS with the exception of the re-routing of the sub-mains cabling.

2.3.1. MCC MAIN SWITCH

The Main Switch in all cases refers to the Energex supply point of isolation.

The existing main switch in the pump starter MCC, when labelled as the "Main Switch", will isolate the incoming Energex Mains Supply.

For complete isolation of the switchboards where an automatic generator system is supplied the generator must also be isolated.

This must be carried out at the generator CB in the generator canopy as well as switching the control to the "OFF" position.

2.3.2. MAINS AVAILABLE INDICATOR

The mains available indicator mounted on the common control escutcheon is supplied by 24VDC originating from the RTU control supply.
The signal will be "ON" when the mains are healthy.

The mains available relay does indicate availability and correct rotation after 10 seconds.

2.3.3. MAINS FAIL IN MCC

The mains fail relay in the MCC is the device that assures the system has the correct rotation and supply available for the pumps to operate.
When re-connecting the generator to a site it is necessary to check the generator voltage rotation is also correct.

2.3.4. GENERATOR RUNNING.

The generator running indicator is supplied by 24VDC originating from the RTU control supply. .
The indicator will be "ON" when the generator is running as determined by the generator PLC. IE GRR relay is on.

2.4 ATS CUBICLE

The ATS cubicle comprises sections as described below.

2.4.1. GENERATOR INTERFACE

The generator interface is via a Clipsal 27 Pin plug and socket.
The multicore cable is connected core 1 to pin 1 and 2-2 etc.
The Multicore cable is labelled wire No. G01 for core 1 to pin 1 and No.G02 –Core2-Pin2 etc.
This enables simple and quick reference to all wiring between the plug and the hardware within the ATS cubicle.
All signals received from the generator are arranged to switch a relay powered from the generator 24VDC system.
The exceptio to this is the "Generator Not On Site" signal, which wires directly to the RTU via the interface terminals.

All control signals to the Generator are via clean contacts. Both sides of the contact are issued to the generator. These contacts switch relays in the generator panel and are powered via the generator 24VDC system.

2.4.2. RTU INTERFACE

The RTU interface is via a hard wired loom or multicore cable and terminals.
The Loom cable is numbered with the terminal RTU IO numbers.
The RTU connections are different for each site and may also have different polarities for each site according to the site hardware.

All signals received from the RTU are arranged to switch a relay powered from the RTU 24VDC system. IE Remote Exercise Generator only.
All signals to the RTU are via clean contacts. Both sides of the contact are issued to the RTU system. These contacts switch directly into the RTU Input cards. The voltage on these signal cables is 24VDC supplied from the RTU power supply.

2.4.3. ATS AND CONTROL

The transfer switch is a Terasaki Basic Transfer switch.
The control of this switch is only achieved from the generator PLC. The PLC controls the relays CTSN and CTSG within the ATS panel.

Energising CTSN if the Mains Volts are available will open the Generator CB and Close the Mains CB.

Energising CTSG if the Generator Volts are available will open the Mains CB and Close the Generator CB.

If volts are not available the motors in the BTS will not operate. (IE stay in the last condition.
If the BTS does not operate the PLC will remove the transfer signal and assume a fault condition. This condition required manual operator intervention.

Manual Operation:
If manual operation is desired then the following steps must be carried out. Please note that it is not necessary to remove any covers when manually operating the CB's.

If the PLC is issuing an undesirable status then the operation of the CB motors must first be isolated. This is best achieved by switching the CB's QM1 and QG1 to the off position. This removes the motor charge and open close commands to the operators. If the PLC is not affecting the transfer switch these CB's may be left in the ON state.

Manual Open:
To open a CB press the trip button on the motor operator "OR" toggle the spring wind mechanism until the CB opens and the open state shows in the window.

Manual Close:
To close a CB wind the motor spring wind mechanism until the CB closes and the Closed state shows in the window.

Mains Fail detection:
The mains fail relay detects the condition of the mains and issues a mains fail start signal to the PLC.
The mains fail relay also operates the mains available indicator on the MCC common control panel.
The mains fail signal also issues a condition to the RTU to indicate mains failed when the relay is de-energised.

3.0 DRAWINGS

IF IN DOUBT, ASK.

ROOF SIDE VIEW

J

2 ROOF TYPE

H

I

FALL OF ROOF OVER 450mm

FRONT

450

SIDE VIEW

F

SIDE O/HANG

1200

EXISTING SW/BD

NEW COVER

FRONT VIEW

EXISTING BOARD DEPTH

MINIMUM SPACE FOR ANTENNA

A

EXISTING SW/BD

NEW EXTENSION

FRONT

E

FRONT O/HANG

TOP VIEW

50

50

75

100

250

350

600

(FRONT OF BOARD)

CONFIRM ALL HOLES ARE CLEAR INTERNALLY (i.e.no angles, welds, brakets etc)

75

TEMPLATE SIDE ADJACENT TO EXIST. SW/BD

PIONEER BIRKIN

PAINT COLOUR MIST GREEN

MATERIAL ALLUMINIUM

1/9/06	B	AS MODIFIED	FWN LWN SWN FTN LTN STN
2/10/03	A	ISSUED FOR APPROVAL	

COMMON LOGIC PTY. LTD.
PO. BOX 2008
Mansfield QLD. 4122
Tele: 07 3849 7449

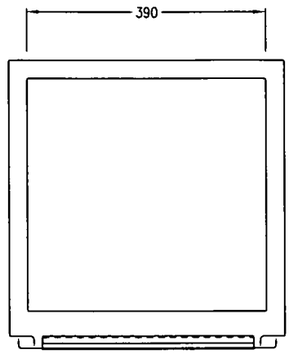
DATE	25/08/03
DRAWN	GCK
SCALE	NTS
APPROVED	

BRISBANE WATER
RHS Mounting No Base

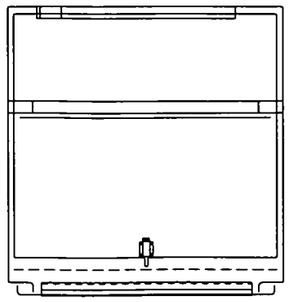
JH06DR01 | A3 sheet 1/1 | ISSUE B

AS BUILT

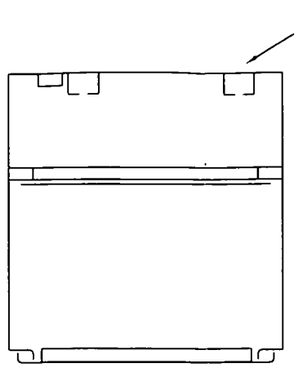
IF IN DOUBT, ASK.



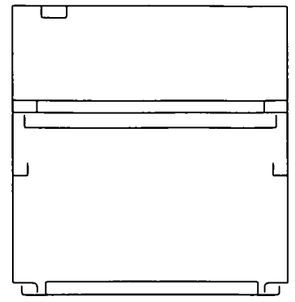
BOTTOM VIEW



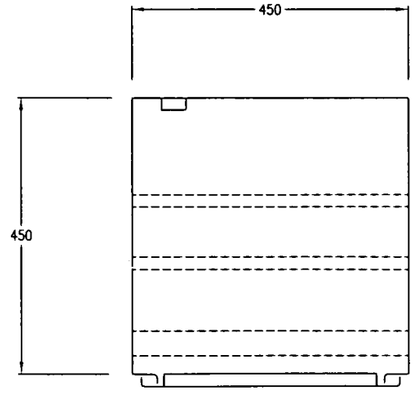
SECTION D-D



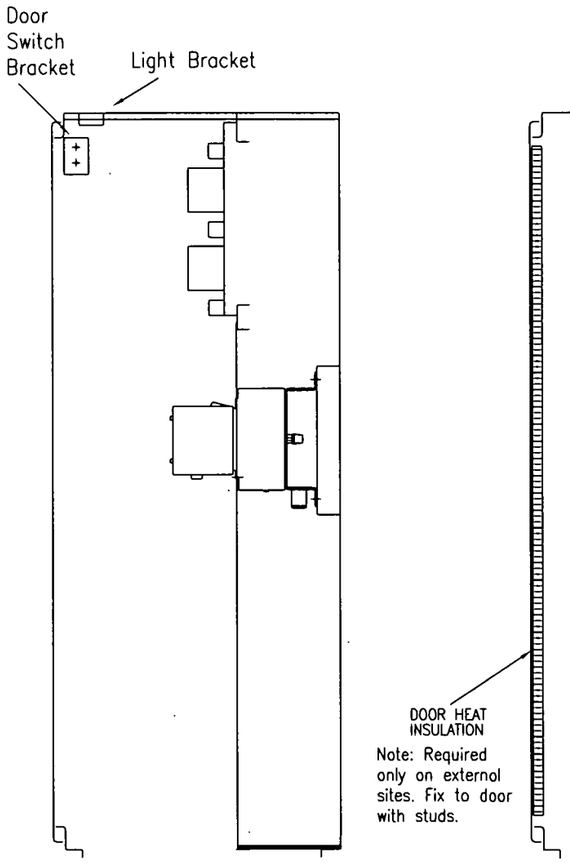
SECTION C-C



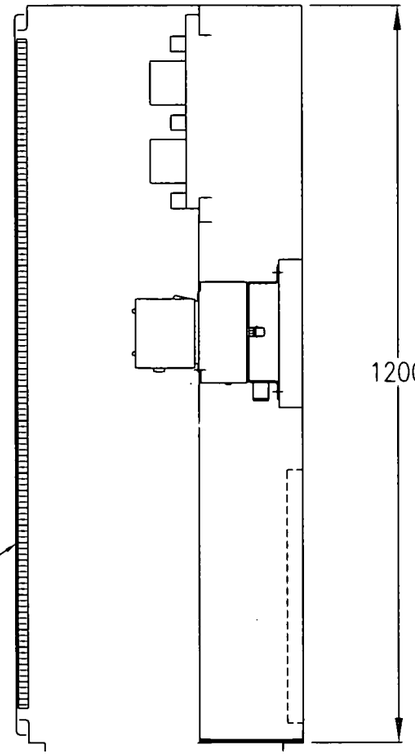
SECTION B-B

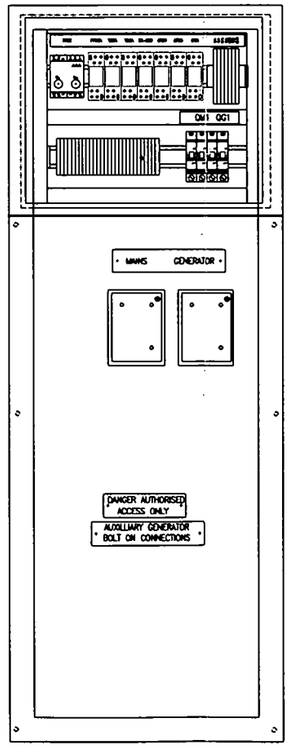


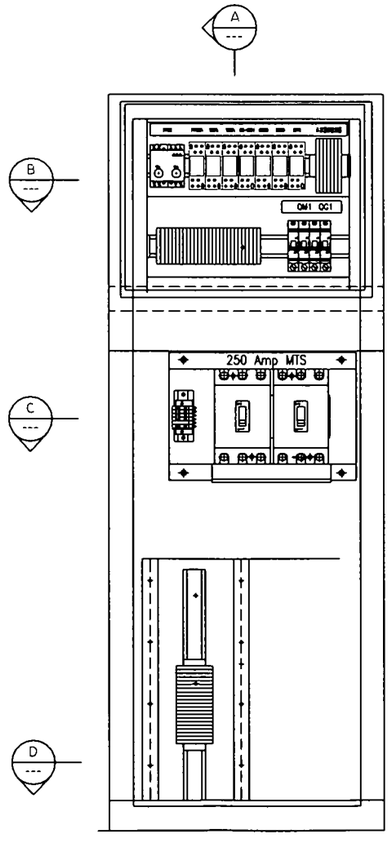
TOP VIEW



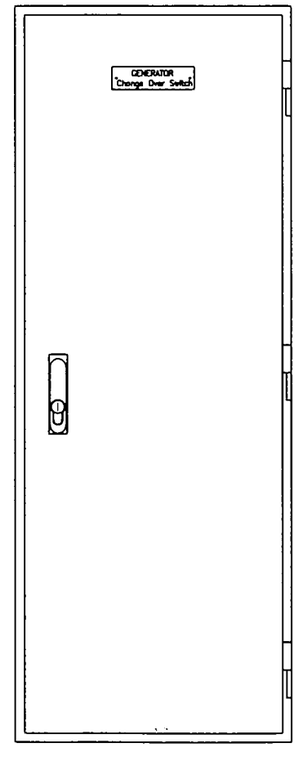
SECTION A-A







FRONT VIEW
(DOOR RMEOVED)



FRONT VIEW

Door to hinge left or right depending on order.

			FWN		
			LWN		
			SWN		
1/9/06	C	MODIFIED TO INCLUDE AUTO TRANSFER	FTN		
1/2/04	B	AS BUILT	LTN		
2/10/03	A	ISSUED FOR APPROVAL	STN		

COMMON LOGIC PTY. LTD.
P.O. BOX 2008
Mansfield QLD. 4122
Tele: 07 3849 7449

DATE	25/08/03
DRAWN	GCK
SCALE	NTS
APPROVED	

BRISBANE WATER
125 Amp Semi Permanent sites

JH86DD01 | A3 sheet 1/1 | ISSUE C

AS BUILT

SEWAGE SYSTEM IMPROVEMENT 2005
MOTORISED TRANSFER SWITCH INSTALLATION
SP235 - PIONEER CRESCENT, BELLBOWRIE
ELECTRICAL DRAWING INDEX

ELECTRICAL DRAWINGS INDEX									
DWG N°.	TITLE	ISSUE	REVISIONS						
	MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - SITE SPECIFIC INSTALLATION								
486/5/7-FD135	PIONEER CRESCENT, BELLBOWRIE - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	06.2006	A	B	C	D	E	#	= ISSUED FOR:- EMERGY, GENERATOR TRANSFER SWITCH INSTALLATION
486/5/7-FD136	EQUIPMENT LEGEND	03.2006	A	B	C	D	E	#	
486/5/7-FD137	PUMP No.1, PUMP No.2 & INCOMER POWER SCHEMATIC WIRING DIAGRAM	03.2006	A	B	C			#	
486/5/7-FD138	MISCELLANEOUS LIGHT & POWER SCHEMATIC WIRING DIAGRAM	03.2006	A	B	C			#	
486/5/7-FD139	PUMP No.1 & PUMP No.2 CONTROL SCHEMATIC WIRING DIAGRAM	05.1998	A	B	C				
486/5/7-FD140	COMMON CONTROL, WELL LEVEL, DELIVERY PRESSURE & SURCHARGE IMMINENT ALARM SCHEMATIC	06.2006	A	B	C	D		#	
486/5/7-FD141	PLC/RTU SCHEMATIC WIRING DIAGRAM	06.2006	A	B	C	D	E	#	
486/5/7-FD142	RTU TERMINATION DIAGRAM	06.2006	A	B	C	D		#	
486/5/7-FD143	CABLE SCHEDULE	03.2006	A	B	C			#	
486/5/7-FD144	SWITCHBOARD GENERAL ARRANGEMENT	03.2006	A	B	C			#	
486/5/7-FD145	SWITCHBOARD CONSTRUCTION NOTES	03.2006	A	B	C			#	
486/5/7-FD146	SWITCHBOARD SECTIONAL DETAILS	05.1998	A						
486/5/7-FD147	SWITCHBOARD SPECIFIC DETAILS	05.1998	A						
486/5/7-FD148	SWITCHBOARD LABEL LIST	05.1998	A						
486/5/7-FD149	SITE LAYOUT	03.2006	A	B	C			#	
486/5/7-PS000	DRAWING INDEX - ELECTRICAL INSTALLATION	05.2006	0	1	2			#	
486/5/7-PS003	TYPICAL MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - WIRING SCHEMATIC DIAGRAM	05.2006	0	1	2			#	
486/5/7-PS004	TYPICAL MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - CUBICLE ARRANGEMENT	05.2006	0	1	2			#	
486/5/7-PS006	TYPICAL MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - INTERCONNECTION DIAGRAM	05.2006	0	1				#	
486/5/7-PS007	AUTOMATIC TRANSFER SWITCH - ATS EXTENSION CUBICLE - TYPICAL CONCRETE BASE ARRANGEMENT	05.2006	0	1				#	

FOR CONSTRUCTION

No	DATE	AMENDMENT	DRN.	APD.
E	06.06	NEW BORDER, RE-DRAWN & RE-ISSUED FOR CONSTRN	MJL	
D	03.06	APPROVED FOR CONSTRUCTION	MJL	
C	11.05	SWBD GENSET UPGRADE 2005		

Reference Drawings

DRAFTED	K.M. 20/9/97	A.H. 20/9/97	
DRAFTING CHECK	A.H. 30/9/97	DESIGN R.P.E.Q. No. DATE	PRINCIPAL DESIGN MANAGER DATE
CAD FILE	57FD135_E		
B.C.C. FILE No.		DESIGN CHECK R.P.E.Q. No. DATE	CLIENT DELEGATE DATE

BRISBANE WATER

PROJECT
SUBMERSIBLE SEWAGE PUMP STATION
SP235 - PIONEER CRES., BELLBOWRIE
SEWAGE SYSTEM IMPROVEMENT 2005

TITLE
MOTORISED TRANSFER SWITCH
ELECTRICAL INSTALLATION
ELECTRICAL DRAWING INDEX

SHEET No. 18
BRISBANE WATER DRAWING No. 486/5/7-FD135
AMEND. E

ITEM No	QTY	DESCRIPTION	SUPPLIER	MANUFACTURER	CATALOGUE No	SENT TO KILPATRICK GREEN DATE	SENT TO POWER ELECTRIC DATE	CORRECTLY INSTALLED INIT.	CORRECTLY INSTALLED DATE
00	3	SURGE DIVERTER	POWER ELECTRIC	CRITEC	SA70KA				
01	1	MAIN CIRCUIT BREAKER + SHROUD	POWER ELECTRIC	TERASAKI	XS125CJ/63+ UXPD				
02	2	PUMP CIRCUIT BREAKER + SHROUD	POWER ELECTRIC	TERASAKI	XH125NJ/32 +UXPD				
03	1	AUTO. MOTORISED TRANSFER SW	NHP	TERASAKI	BHN233 _ I 79A - 125A]	NEW WORK			
04	1	SUB-DISTRIBUTION BOARD CFS	POWER ELECTRIC	STROMBERG	QESA63G1				
04.1	1	CFS FUSE COVER	POWER ELECTRIC	STROMBERG	QESAZX172				
04.2	3	FUSE CARTRIDGE	POWER ELECTRIC	GEC	TIA 32				
05	1	SUB-DISTRIBUTION BOARD CHASSIS	POWER ELECTRIC	TERASAKI	ND250A1BU				
06	2	AUTO-TRANSFORMER	POWER ELECTRIC	GEC GAYRAD	3AT11				
06.1	6	MICROTHERMS	POWER ELECTRIC	GEC GAYRAD	(INCLUDED IN TRANSFORMER)				
07		AUTO-TRANSFORMER CONTACTORS							
07.1	2	LINE CONTACTOR + AUX.	POWER ELECTRIC	SPRECHER & SCHUH	CA3-37N-11 + CA3-P-S10				
07.2	2	TRANSFORMER CONTACTOR	POWER ELECTRIC	SPRECHER & SCHUH	CA3-37N-11				
07.3	2	STAR CONTACTOR + AUX.	POWER ELECTRIC	SPRECHER & SCHUH	CA3-12-11 + CA3-P-01				
08	2	THERMAL OVERLOADS	POWER ELECTRIC	SPRECHER & SCHUH	CTA3-17				
09									
10									
11									
12									
13	2	PUMP INSTRUMENT CT	POWER ELECTRIC	CROMPTON INSTRUMENTS	701-943T 50/5 2 PRIMARY TURNS				
14	6	INSTRUMENT FUSES	POWER ELECTRIC	GEC	HS20H				
14.1	6	FUSE CARTRIDGES	POWER ELECTRIC	GEC	HIT2				
15	4	CT TEST LINKS	POWER ELECTRIC	KLIPPON	SAKT2/35 (010592)				
15.1	1	END PLATE	POWER ELECTRIC	KLIPPON	AP (032912)				
15.2	2	SLIDE LINK 2 WAY	POWER ELECTRIC	KLIPPON	QVS2 (030730)				
15.3	4	SLEEVE	POWER ELECTRIC	KLIPPON	VH19 (031800)				
15.4	4	SCREW	POWER ELECTRIC	KLIPPON	BS (033470)				
16	2	PUMP AMMETER	POWER ELECTRIC	CROMPTON INSTRUMENTS	243-026G 0-25/150A				
17	2	KILOWATT TRANSDUCER	HUNTER WATERTECH	MULTITEK	M100-WA2				
18	2	CURRENT TRANSDUCER	HUNTER WATERTECH	MULTITEK	M100-AL1				
19	1	PHASE FAILURE RELAY	POWER ELECTRIC	CROMPTON INSTRUMENTS	252-PSGW				
20	1	PHASE FAILURE CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DINT6-306				
21	1	3 PHASE OUTLET CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DINT6-320				
22	1	1 PHASE OUTLET CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DINT6-110				
23	1	1 PHASE OUTLET RCD C/B	POWER ELECTRIC	TERASAKI	DSRCBH11030A	NEW WORK			
24	1	RTU LAP-TOP GPO CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DINT6-102				
25	1	SW/BD FLURO CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DINT6-106				
26	1	CATHODIC PROTECTION CIRCUIT BKR.	POWER ELECTRIC	TERASAKI	DINT6-106				
27	1	24VDC POWER SUPPLY CIRCUIT BKR.	POWER ELECTRIC	TERASAKI	DINT6-106				
28	1	TRANDUCERS CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DINT6-106				
29	1	RTU CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DINT6-110				
30									
31	4	SPARE CIRCUIT BREAKERS	POWER ELECTRIC	TERASAKI	DINT6-106				
32	2	SW/BD DOOR MICRO SWITCHES	POWER ELECTRIC	CAMSCO	SM202				
33	2	SW/BD 8W INTERNAL FLURO LIGHTS	POWER ELECTRIC	THORN	BB0108				
34	1	WELL LEVEL INDICATOR	POWER ELECTRIC	CROMPTON INSTRUMENTS	244-08KG 4-20mA 0-100% + RED POINTER				
35	1	PRESSURE TRANSMITTER RELAY	HUNTER WATERTECH	PLATYPUS	AP-WT227				
35.1	1	PRESSURE TRANSDUCER	HUNTER WATERTECH	PLATYPUS	PL-25GSW				
36	1	WELL LEVEL TRANSDUCER	HUNTER WATERTECH	VEGA	E25-8				
36.1	1	WELL LEVEL PRESSURE SENSOR	HUNTER WATERTECH	VEGA	D77				
36.2	1	RAG REDUCTION TUBE	KILPATRICK GREEN	KILPATRICK GREEN					
37	2	PUMP CONTROL CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DINT6-106				
38	2	PUMP HOURS RUN METER	POWER ELECTRIC	NATIONAL	TH639				
39	2	THERMISTOR RELAYS	POWER ELECTRIC	SPRECHER & SCHUH	RT3-A-240VAC				
40									
41	2	CONTROL CIRCUIT ON RELAY	POWER ELECTRIC	IZUMI	RH2B-U-240VAC				
42	2	Tx CONTACTOR CONTROL RELAY	POWER ELECTRIC	KLIPPON	RS30 (11016.2)				
43	2	STAR CONTACTOR CONTROL RELAY	POWER ELECTRIC	KLIPPON	RS30 (11016.2)				
44	2	LINE CONTACTOR CONTROL RELAY	POWER ELECTRIC	KLIPPON	RS36 (11016.2)				
45	1	RADIO COAX. SURGE PROTECTION	HUNTER WATERTECH	POLYPHASER CORPORATION.	IS-50NX-C2				
46	2	PUMP STATUS INDICATOR	POWER ELECTRIC	SPRECHER & SCHUH	DSP-P430LO				
47	2	PUMP START PUSH BUTTON	POWER ELECTRIC	SPRECHER & SCHUH	DSP-F33LX10				
48	2	PUMP STOP PUSH BUTTON	POWER ELECTRIC	SPRECHER & SCHUH	DSP-MTS343LX01/01				
49	2	PUMP RESET PUSH BUTTON	POWER ELECTRIC	SPRECHER & SCHUH	DSP-F63LX10				
50									
51									
52	1	SURCHARGE ALARM RELAY	HUNTER WATERTECH	MULTITRODE	MTR-2				
53									
54									
55	1	STATION CONTROL SELECTOR SW.	POWER ELECTRIC	KRAUS & NAIMER	CAD11-A200-M01356/001				
56	1	SITE ATTENTION RESET	POWER ELECTRIC	SPRECHER & SCHUH	DSP-F63LX10				
57									
58									
59	1	SITE ATTENTION ALARM	POWER ELECTRIC	SPRECHER & SCHUH	DSP-P530LO				
60									
61	1	3 PHASE OUTLET	POWER ELECTRIC	CLIPSAL	56S432RLE				
62	1	1 PHASE OUTLET	POWER ELECTRIC	CLIPSAL	15V90B				
63	1	NEUTRAL LINK	POWER ELECTRIC	CLIPSAL	BP165D18				
64	1	EARTH LINK	POWER ELECTRIC	CLIPSAL	BP165D18				
65		SWITCHBOARD TERMINALS	POWER ELECTRIC	KLIPPON					
65.1	69	FUSE/LINK TERMINALS	POWER ELECTRIC	KLIPPON	KDKS 1/35 (950331)				
65.2	22	END PLATE	POWER ELECTRIC	KLIPPON	AP (950333)				
65.3	16	FEED THROUGH TERMINALS	POWER ELECTRIC	KLIPPON	SAK4/35 (044366)				
65.4	2	END PLATE	POWER ELECTRIC	KLIPPON	AP (011796)				
65.5	74	FUSE CARTRIDGE	POWER ELECTRIC	KLIPPON	FUSE 20x#5mm				
65.6	9	END STOP	POWER ELECTRIC	KLIPPON	EW35 (038356)				
65.7	5	FUSE TERMINAL	POWER ELECTRIC	KLIPPON	ASK1/35 (047456)				
65.8	2	DISCONNECT TERMINAL	POWER ELECTRIC	KLIPPON	SAKR/35 (017216)				
66	1	MAIN NEUTRAL LINK	POWER ELECTRIC	CLIPSAL	2DLAE6				
67	1	MAIN EARTH LINK	POWER ELECTRIC	CLIPSAL	2DLAE6				
68	1	INSTRUMENTATION EARTH LINK	POWER ELECTRIC	CLIPSAL	BP165C18				
69									
70									
71									
72									
73	1	24VDC 3A LINEAR POWER SUPPLY	POWER ELECTRIC	POWER BOX	IE 24/03 GP				
74	1	24VDC CIRCUIT BREAKER	POWER ELECTRIC	TERASAKI	DINT6-106				
75	1	RTU SURGE REDUCTION FILTER	HUNTER WATERTECH	CRITEC	SRF1100C-SF				
76	1	CATHODIC PROTECTION UNIT	FREE ISSUE		FUTURE				
77	1	BATTERY ENCLOSURE	POWER ELECTRIC	METWORK	DWG 1101-23 DETAIL J				
78	1	BATTERY VENT	POWER ELECTRIC	FIBOX	MB19544				
79	1	RTU LAPTOP G.P.O.	POWER ELECTRIC	CLIPSAL	15 / 449 / 449A				
80	2	DECONTACTOR	POWER ELECTRIC	MARECHAL	31-34013-172				
81	2	ANGLE ADAPTOR	POWER ELECTRIC	MARECHAL	31-30000-427				
82	2	PLUG TOP	POWER ELECTRIC	MARECHAL	31-31013-172				
83	1	RTU POWER FAIL RELAY	POWER ELECTRIC	IZUMI	RH2B-U-240VAC				
84	1	RTU BATERY DISCHARGE RELAY	POWER ELECTRIC	IZUMI	RH2B-U-12VDC				
85	1	RTU POWER SUPPLY 13.8VDC	HUNTER WATERTECH	POWERBOX	PSBE-15				
86	1	RTU 12V/24VDC CONVERTER	HUNTER WATERTECH	POWERBOX	VTA2S4SC12				
87	2	BATTERY	HUNTER WATERTECH	APOLLO	HD02				
88	1	GSM	HUNTER WATERTECH	FALCOM	A2D-1				
89	4	EXPANSION BASE	HUNTER WATERTECH	SYMAX	800SEBU1				
90	1	TELEMETRY UNIT	HUNTER WATERTECH	HUNTER WATERTECH	POS500				
91	2	DIGITAL INPUT MODULE	HUNTER WATERTECH	SYMAX	800SDI16				
92	1	DUMMY MODULE	HUNTER WATERTECH	SYMAX	800SDMU1				
93	2	DIGITAL OUTPUT MODULES	HUNTER WATERTECH	SYMAX	800SRT08				
94	2	ANALOGUE INPUT MODULE	HUNTER WATERTECH	HUNTER WATERTECH	POS8AI				
95									
96									
97	1	ANTENNA	HUNTER WATERTECH	R.F. INDUSTRIES	CD1625 (WMP)				
97.1	1	ANTENNA MAST	POWER ELECTRIC	POWER ELECTRIC					
98	1	MAINS AVAILABLE IND'R. (YELLOW)	NHP	SPRECHER & SCHUH	DSP-P530LO				
99	1	GENERATOR RUNNING IND'R. (RED)	NHP	SPRECHER & SCHUH	DSP-P430LO				

E NEW WORK

E NEW WORK

NOTES

As Builts

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
E	03.2006	APPROVED FOR CONSTRUCTION	
D	11.2005	SWBD GenSet Upgrade 2005	
C	26/10/00	CHANGED ITEMS 88 & 97	
B	8/10/98	AS BUILT	R.L.
A	13/5/98	REVISED DRAWING	A.H.

AMENDMENT & ISSUE REGISTER

MANAGER		DIRECTOR OF TECHNOLOGY SERVICES	
DATE:		DATE:	
DIRECTOR OF PLANNING & DESIGN		DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION
DATE:		DATE:	DATE:
DESIGN	A.H.	9/9/97	ENGINEER IN CHARGE
DRAWN	K.M.	20/9/97	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	8/10/97	A2 REDUCED

REFERENCES

CADD FILE No.

THIS DRAWING WAS PRODUCED USING AUTOCAD

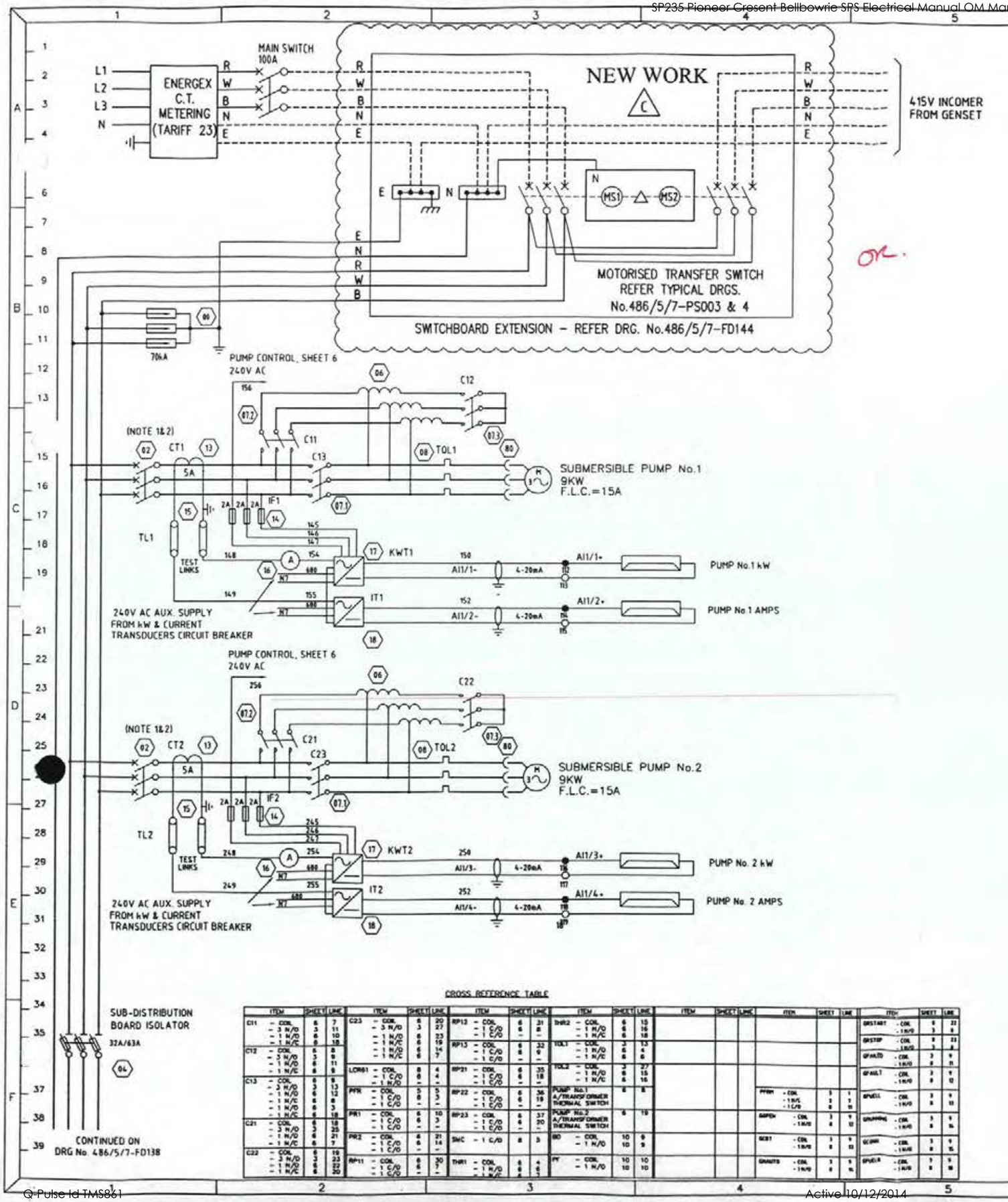
Brisbane City — Brisbane Water — ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT
IDTS
PIONEER CRESCENT (SP235)
SUBMERSIBLE SEWAGE PUMP STATION

TITLE
EQUIPMENT LEGEND

SCALE: | No. OF SHEETS

DRAWING No. 486/5/7-FD136 | AMEND. E



NOTES

1. INCOMING & PUMP CIRCUIT BREAKERS ARE LINE SIDE SHROUDED.
2. CIRCUIT BREAKERS RATINGS TO SUIT LOAD & ENSURE TYPE 2 COORDINATION WITH CONTACTORS & OVERLOADS TO IEC 947-4-1.
3. TERMINAL NUMBER SHOWN EITHER IMMEDIATELY BELOW, RIGHT OR LEFT OF TERMINAL.
4. FUSE TERMINALS ARE TO BE FITTED WITH 100mA FUSE-LINKS UNLESS OTHERWISE SHOWN.
5. FAULT LEVEL 15.7kA.
6. CIRCUIT BREAKER SETTINGS 100%.
7. THERMAL OVERLOAD SETTINGS 15A.

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
C	03.2006	Approved for Construction	
B	11.2005	SWBD GenSet Upgrade 2005	
A	8/10/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES
DATE:	DATE:

DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION
DATE:	DATE:	DATE:

DESIGN	A.H.	9/9/97	ENGINEER IN CHARGE
DRAWN	K.M.	20/9/97	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	25/9/97	A2 REDUCED

REFERENCES

CADD FILE No.

THIS DRAWING WAS PRODUCED USING AUTOCAD

Brisbane City — Brisbane Water — ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT
IDTS
PIONEER CRESCENT (SP235)
SUBMERSIBLE SEWAGE PUMP STATION

TITLE
PUMP No. 1, PUMP No. 2 & INCOMER POWER SCHEMATIC WIRING DIAGRAM

SCALE | No. OF SHEETS

DRAWING No. 486/5/7-FD137 | WAS 1321-03 | AMEND C

NOTES

1. INCOMING & PUMP CIRCUIT BREAKERS ARE LINE SIDE SHROUDED.
2. CIRCUIT BREAKERS RATINGS TO SUIT LOAD & ENSURE TYPE 2 COORDINATION WITH CONTACTORS & OVERLOADS TO IEC 947-4-1.
3. TERMINAL NUMBER SHOWN EITHER IMMEDIATELY BELOW, RIGHT OR LEFT OF TERMINAL.
4. FUSE TERMINALS ARE TO BE FITTED WITH 100mA FUSE-LINKS UNLESS OTHERWISE SHOWN.

AUTOTRANSFORMER NOTES

1. WITH PUMP OFF ALL CONTACTORS ARE OPEN.
2. UPON RECEIVING START SIGNAL, STAR & TRANSFORMER CONTACTORS CLOSE.
3. AFTER A PRE-DETERMINED DELAY THE STAR CONTACTOR OPENS & THE LINE CONTACTOR CLOSES.
4. THE TRANSFORMER CONTACTOR THEN OPENS IMMEDIATELY.
5. THE PUMP IS NOW ON LINE AT RATED VOLTAGE & SPEED.

LEGEND:

- RELAY OR CONTACTOR COIL
- FIELD DEVICE
- (NOTE 3) R.T.U. FUSE TERMINAL
- (NOTE 3) R.T.U. LINK TERMINAL
- SWITCHBOARD TERMINAL
- CATHODIC PROTECTION TERMINAL
- RTU DIGITAL INPUT
- RTU DIGITAL OUTPUT
- RTU ANALOG INPUT
- (00) EQUIPMENT ITEM No.

CROSS REFERENCE TABLE

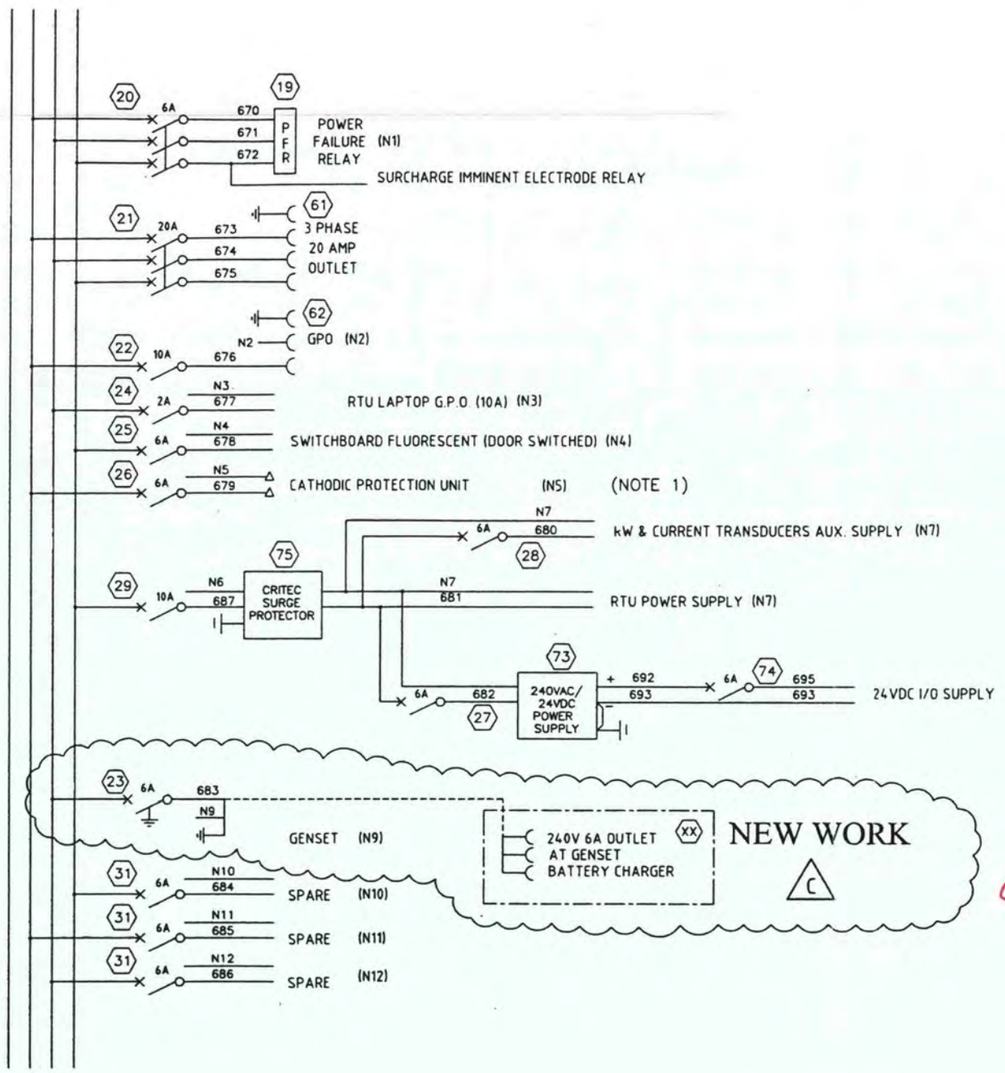
ITEM	SHEET	LINE
C11 - COIL	6	7
- 3 N/O	3	11
- 1 N/O	6	10
- 1 N/C	6	10
C12 - COIL	6	8
- 3 N/O	3	9
- 1 N/O	6	11
- 1 N/C	6	9
C13 - COIL	6	9
- 3 N/O	3	13
- 1 N/O	6	12
- 1 N/C	6	8
- 1 N/C	6	3
- 1 N/C	6	18
C21 - COIL	6	18
- 3 N/O	3	23
- 1 N/O	6	21
- 1 N/C	6	7
C22 - COIL	6	19
- 3 N/O	3	22
- 1 N/O	6	22
- 1 N/C	6	20
C23 - COIL	6	20
- 3 N/O	3	27
- 1 N/O	6	23
- 1 N/C	6	19
- 1 N/C	6	14
- 1 N/C	6	7
LCR61 - COIL	8	4
- 1 C/O	8	4
- 1 N/C	-	-
PFR - COIL	5	3
- 1 C/O	8	3
- 1 C/O	-	-
PR1 - COIL	6	10
- 1 C/O	6	3
- 1 C/O	-	-
PR2 - COIL	6	21
- 1 C/O	6	14
- 1 C/O	-	-
RP11 - COIL	6	30
- 1 C/O	6	5
- 1 C/O	-	-
RP12 - COIL	6	31
- 1 C/O	6	8
- 1 C/O	-	-
RP13 - COIL	6	32
- 1 C/O	6	9
- 1 C/O	-	-
RP21 - COIL	6	35
- 1 C/O	6	18
- 1 C/O	-	-
RP22 - COIL	6	36
- 1 C/O	6	19
- 1 C/O	-	-
RP23 - COIL	6	37
- 1 C/O	6	20
- 1 C/O	-	-
SWC - 1 C/O	8	5
THR1 - COIL	8	4
- 1 N/O	8	4
- 1 N/C	8	4
THR2 - COIL	6	15
- 1 N/O	6	16
- 1 N/C	6	18
TOL1 - COIL	3	13
- 1 N/O	6	6
- 1 N/C	6	6
TOL2 - COIL	3	27
- 1 N/O	6	15
- 1 N/C	6	16
PUMP No.1 A/TRANSFORMER THERMAL SWITCH	6	8
PUMP No.2 A/TRANSFORMER THERMAL SWITCH	6	19
80 - COIL	10	9
- 1 N/O	10	9
PY - COIL	10	10
- 1 N/O	10	10

ITEM	SHEET	LINE
PFRH - COIL	5	1
- 1 N/C	8	1
- 1 C/O	8	11
GXPEN - COIL	3	9
- 1 N/O	8	12
XCBT - COIL	3	9
- 1 N/O	8	13
GXAUTS - COIL	3	9
- 1 N/O	8	14

ITEM	SHEET	LINE
QRSTART - COIL	8	22
- 1 N/O	3	6
QRSTOP - COIL	8	23
- 1 N/O	3	8
QFAULTD - COIL	3	9
- 1 N/O	8	11
QFAULT - COIL	3	9
- 1 N/O	8	12
QPWELL - COIL	3	9
- 1 N/O	8	13
QRUNNING - COIL	3	9
- 1 N/O	8	14
QCOMM - COIL	3	9
- 1 N/O	8	15
QPWELR - COIL	3	9
- 1 N/O	8	16

AS BUILT AR

CONTINUED FROM SHEET 03



ok.

CROSS REFERENCE TABLE

ITEM	SHEET	LINE	ITEM	SHEET	LINE	ITEM	SHEET	LINE	ITEM	SHEET	LINE	ITEM	SHEET	LINE
C11 - COIL	6	7	C23 - 1 N/O	6	23	RP13 - COIL	6	32	TOL1 - COIL	3	13			
- 3 N/O	3	11	(CONT) - 1 N/C	6	19	- 1 C/O	6	9	- 1 N/O	6	4			
- 1 N/O	6	18	- 1 N/O	6	24	- 1 C/O	-	-	- 1 N/C	6	6			
C12 - COIL	6	8	LCR61 - COIL	8	4	RP21 - COIL	6	35	TOL2 - COIL	3	27			
- 3 N/O	3	9	- 1 C/O	8	4	- 1 C/O	6	18	- 1 N/O	6	15			
- 1 N/O	6	15	- 1 N/O	-	-	- 1 C/O	-	-	- 1 N/C	6	16			
- 1 N/C	6	9	PPR - COIL	5	5	RP22 - COIL	6	36	PUMP No.1 A/TRANSFORMER THERMAL SWITCH	6	8			
C13 - COIL	6	9	- 1 C/O	6	3	- 1 C/O	6	19						
- 3 N/O	3	13	- 1 C/O	-	-	- 1 C/O	-	-						
- 1 N/O	6	12	PR1 - COIL	6	18	RP23 - COIL	6	37	PUMP No.2 A/TRANSFORMER THERMAL SWITCH	6	19			
- 1 N/C	6	6	- 1 C/O	6	3	- 1 C/O	6	20						
- 1 N/O	6	3	- 1 C/O	-	-	- 1 C/O	-	-						
C21 - COIL	6	18	PR2 - COIL	6	21	SMC - 1 C/O	8	5	SO - COIL	10	9			
- 3 N/O	3	25	- 1 C/O	6	14				- 1 N/O	10	8			
- 1 N/O	6	21	- 1 C/O	-	-									
C22 - COIL	6	19	RP11 - COIL	6	34	THR1 - COIL	6	4	PF - COIL	10	10			
- 3 N/O	3	23	- 1 C/O	6	7	- 1 N/O	6	6	- 1 N/O	10	10			
- 1 N/O	6	22	- 1 C/O	-	-	- 1 N/C	6	7						
- 1 N/C	6	20	RP12 - COIL	6	31	THR2 - COIL	6	15						
C23 - COIL	6	26	- 1 C/O	6	8	- 1 N/O	6	16						
- 3 N/O	3	27	- 1 C/O	-	-	- 1 N/C	6	14						

LEGEND:

- RELAY OR CONTACTOR COIL
- FIELD DEVICE
- R.T.U. FUSE TERMINAL (NOTE 2)
- R.T.U. LINK TERMINAL (NOTE 2)
- SWITCHBOARD TERMINAL
- CATHODIC PROTECTION TERMINAL
- RTU DIGITAL INPUT
- RTU DIGITAL OUTPUT
- RTU ANALOG INPUT
- EQUIPMENT ITEM No

NOTES

1. CATHODIC PROTECTION – FUTURE. THIS UNIT TO BE SUPPLIED BY OTHERS. A 240VAC CABLE IS INSTALLED TO PROPOSED CATHODIC PROTECTION AREA TERMINAL STRIP FOR CONNECTION BY OTHERS
2. TERMINAL NUMBER SHOWN EITHER IMMEDIATELY BELOW, RIGHT OR LEFT OF TERMINAL.

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
C	03.2006	Approved for Construction	
B	11.2005	SWBD GenSet Upgrade 2005	
A	8/10/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES
DATE:	DATE:

DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION
DATE:	DATE:	DATE:

DESIGN	A.H.	9/9/97	ENGINEER IN CHARGE
DRAWN	K.M.	20/9/97	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	25/9/97	A2 REDUCED

REFERENCES

CADD FILE No.

THIS DRAWING WAS PRODUCED USING AUTOCAD

Brisbane City — Brisbane Water — ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT
IDTS
PIONEER CRESCENT (SP235)
SUBMERSIBLE SEWAGE PUMP STATION

TITLE
MISCELLANEOUS LIGHT & POWER SCHEMATIC WIRING DIAGRAM

SCALE:

No. OF SHEETS

DRAWING No 486/5/7-FD138

WAS 1321-05

AMEND C

AS BUILT

ELV CONTROL

RTU INPUTS — COMMON CONTROL

- PFR-1 (42 / 43) → 11/15 — SITE POWER ON
- LCR61-1 (40 / 41) → 11/14 — SURCHARGE IMMINENT ALARM
- SMC (55; 38 L / 39 R; 56) → 11/13 — LOCAL REMOTE
- 6951 (36 / 37) → 11/12 — SITE ATTENTION ALARM RESET PUSHBUTTON
- (34 / 35) → 11/11 — SPARE
- (32 / 33) → 11/10 — SPARE

FROM DRG. No. 486/5/7-FD142

240V AC CONTROL

240V AC FROM SUB-DISTRIBUTION BOARD → LCR61 (52) 672 L1 C HI LO L2 → N1 — SURCHARGE IMMINENT ALARM
653 — SURCHARGE IMMINENT ELECTRODE

240V AC FROM SUB-DISTRIBUTION BOARD → (76) 679 CATHODIC PROTECTION UNIT (NOTE 2) → N5

NOTES

1. ALL WIRES & CABLE CORES ARE FERRULED WITH GRAFOPLAST COMPATIBLE LABELLING. THE FOLLOWING PREFIXES ARE USED: MAIN PUMP No. 1 = 1; MAIN PUMP No. 2 = 2; COMMON WIRING = 6 (i.e. FLOW, LEVEL, PRESSURE)
2. CATHODIC PROTECTION – FUTURE. THIS UNIT IS SUPPLIED BY OTHERS. RTU I/O CABLING IS INSTALLED TO PROPOSED CATHODIC PROTECTION TERMINAL STRIP FOR CONNECTION BY OTHERS.
3. ITEMS SHOWN AS DOTTED ARE FOR FUTURE ONLY.
4. TERMINAL NUMBER SHOWN EITHER IMMEDIATELY BELOW, RIGHT OR LEFT OF TERMINAL.
5. FUSE TERMINALS ARE TO BE FITTED WITH 100mA FUSE TERMINALS UNLESS OTHERWISE SHOWN

APPROVED FOR CONSTRUCTION

D NEW WORK

GENERATOR ATS — RTU INPUTS — REFER DWGS:- 486/5/7-PS003 & PS006

- -XG 6953 TSNA 13/00 -XG (147 :37 / :38 148) → 13/00 — ATS - NORMAL MODE
- 6953 GFR 13/01 (149 :39 / :40 150) → 13/01 — GENERATOR FAULT
- 6953 GWR 13/02 (151 :41 / :42 152) → 13/02 — GENERATOR WARNING
- 6953 GLFR 13/03 (153 :43 / :44 154) → 13/03 — GENERATOR LOW FUEL
- 6953 GMFR 13/04 (155 :45 / :46 156) → 13/04 — GENERATOR MEDIUM FUEL [REFUEL NEEDED]

24VDC+

24V DC+ — GENERATOR ATS — RTU INPUTS — REFER DWGS:- 486/5/7-PS003 & PS006

- -XG 6953 GRR 13/05 -XG (157 :47 / :48 158) → 13/05 — GENERATOR RUNNING
- 6953 GDR 13/06 (159 :49 / :50 160) → 13/06 — GENERATOR CANOPY OPEN
- 6953 GCBT 13/07 (161 :51 / :52 162) → 13/07 — GENERATOR CB STATUS
- 6953 GMR 13/08 (163 :53 / :54 164) → 13/08 — GENERATOR MODE
- 6953 PFREA 13/09 (165 :55 / :56 166) → 13/09 — ENERGEX MAINS POWER
- 6953 (167 :57) 13/10 (:58 / 168) → 13/10 — GENERATOR ON SITE
- 13/10 :24 — G24 :24 — GENERATOR ON SITE [AT GENERATOR]
- 6953 :23 — G23 :23

OK.

- 121 AI1/5- / 120 AI1/5+ — SPARE
- 123 AI1/6- / 122 AI1/6+ — SPARE
- 125 AI1/7- / 124 AI1/7+ — SPARE
- 127 AI1/8- / 126 AI1/8+ — SPARE

RTU ANALOG INPUTS FOR INSTRUMENTS

RTU 24VDC J6 (141 +, -)

- (35) DELIVERY LINE PRESSURE TRANSDUCER (PLATYPUS) — 628 4-20mA — J7 (142 / 143 AI2/7+) — DELIVERY PRESSURE
- DELIVERY LINE PRESSURE SENSOR (PLATYPUS) (35.1)

- (36) WELL LEVEL TRANSDUCER (VEGA) — 624A — L & N INPUT/OUTPUT BOARD (102 / 101) — 624 — ANALOG LEVEL METER (34) — 626 — RTU 24VDC J6 (138 +, -) — J7 (139 / 140 AI2/6+) — WELL LEVEL
- WELL LEVEL PROBE (VEGA) (36.1)

RTU 24V DC- (SHT 10)

RTU OUTPUTS

- 02/04 (104 / 105 A) J7 — ATTENTION INDICATOR (SWITCHBOARD) (59)

GENERATOR ATS — 24V DC- (SHT 5)

- 02/05 -XG (106 :28) — GEN-EX — 02/05 693 -XG (:29 107) — EXERCISE GENERATOR
- 02/06 (108 :30 / :31 109) — SPARE

SWITCHBOARD INDR'S

- +24VDC 500mA (:64) PFREA 623 (:60) — MAINS AVAILABLE
- GRR 624 (:61) — GENERATOR RUNNING
- 24VDC BATTERY BACKED SUPPLY FROM SWITCHBOARD
- REFER DWGS:- 486/5/7-PS003 & PS006
- 0VDC (:57 / :62 / :63)

02/07 (110 / 111) 693 — CATHODIC PROTECTION ALARM

NEW WORK

D

- 117 AI1/3- / 116 AI1/3+ — SPARE
- 119 AI1/4- / 118 AI1/4+ — SPARE

- 4-20 mA (617) → 129 AI2/1- / AI2/1+ — RECTIFIER CURRENT
- 4-20 mA (619) → 131 AI2/2+ — RECTIFIER VOLTAGE
- 4-20 mA (621) → 133 AI2/3- / AI2/3+ — REFERENCE ELECTRODE PUMP No.1
- 4-20 mA (623) → 135 AI2/4- / AI2/4+ — REFERENCE ELECTRODE PUMP No.2
- 134 AI2/5- / 137 AI2/5+ — SPARE
- 136 AI2/8- / 145 AI2/8+ — SPARE

CATHODIC PROTECTION UNIT (144)

CROSS REFERENCE TABLE

ITEM	SHEET	LINE
C11 - COIL	6	7
- 3 N/O	3	13
- 1 N/O	6	10
C12 - COIL	6	8
- 3 N/O	3	12
- 1 N/O	6	11
- 1 N/C	6	9
C13 - COIL	6	9
- 3 N/O	3	14
- 1 N/O	6	12
- 1 N/C	6	8
- 1 N/O	6	3
C21 - COIL	6	18
- 3 N/O	3	22
- 1 N/O	6	21
C22 - COIL	6	19
- 3 N/O	3	21
- 1 N/O	6	22
- 1 N/C	6	20
C23 - COIL	6	20
- 3 N/O	3	23
C23 (CONT) - 1 N/O	6	23
- 1 N/C	6	19
- 1 N/O	6	14
LCR61 - COIL	8	4
- 1 C/O	8	4
- 1 N/O	-	-
PFR - COIL	5	5
- 1 C/O	8	3
- 1 C/O	-	-
PR1 - COIL	6	10
- 1 C/O	6	3
- 1 C/O	-	-
PR2 - COIL	6	21
- 1 C/O	6	14
- 1 C/O	-	-
RP11 - COIL	6	30
- 1 C/O	6	7
- 1 C/O	-	-
RP12 - COIL	6	31
- 1 C/O	6	8
- 1 C/O	-	-
RP13 - COIL	6	32
- 1 C/O	6	9
- 1 C/O	-	-
RP21 - COIL	6	35
- 1 C/O	6	10
- 1 C/O	-	-
RP22 - COIL	6	36
- 1 C/O	6	19
- 1 C/O	-	-
RP23 - COIL	6	37
- 1 C/O	6	39
- 1 C/O	-	-
SMC - 1 C/O	8	5
THR1 - COIL	6	6
- 1 N/O	6	6
- 1 N/C	6	7
THR2 - COIL	6	15
- 1 N/O	6	16
- 1 N/C	6	18
TOL1 - COIL	3	14
- 1 N/O	6	4
- 1 N/C	6	6
TOL2 - COIL	3	23
- 1 N/O	6	15
- 1 N/C	6	16
PUMP No.1 A/TRANSFORMER THERMAL SWITCH	6	8
PUMP No.2 A/TRANSFORMER THERMAL SWITCH	6	19
PUMP No.3 A/TRANSFORMER THERMAL SWITCH	7	8
BD - COIL	10	9
- 1 N/O	10	9
PF - COIL	10	18
- 1 N/O	10	18

LEGEND:

- RELAY OR CONTACTOR COIL
- FIELD DEVICE
- (NOTE 4) R.T.U. FUSE TERMINAL
- (NOTE 4) R.T.U. LINK TERMINAL
- SWITCHBOARD TERMINAL
- A.T.S. PANEL FUSED TERMINAL
- CATHODIC PROTECTION TERMINAL
- RTU DIGITAL INPUT
- RTU DIGITAL OUTPUT
- RTU ANALOG INPUT
- (00) EQUIPMENT ITEM No.

No	DATE	AMENDMENT	INITIALS
D	06.2006	Re-Issued for Construction	MJL
C	03.2006	Approved for Construction	M.J.L.
B	11.2005	SWBD GenSet Upgrade 2005	
A	27/5/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES
DATE:	DATE:

DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION
DATE:	DATE:	DATE:

DESIGN	A.H.	9/9/97	ENGINEER IN CHARGE	
DRAWN	K.M.	20/9/97	SUPERVISING ENGINEER	
TRACED				
CHECKED	A.H.	8/10/97	A2	REDUCED

REFERENCES

CADD FILE No.

THIS DRAWING WAS PRODUCED USING AUTOCAD

Brisbane City — Brisbane Water — ASSET MANAGEMENT PROFESSIONAL SERVICES

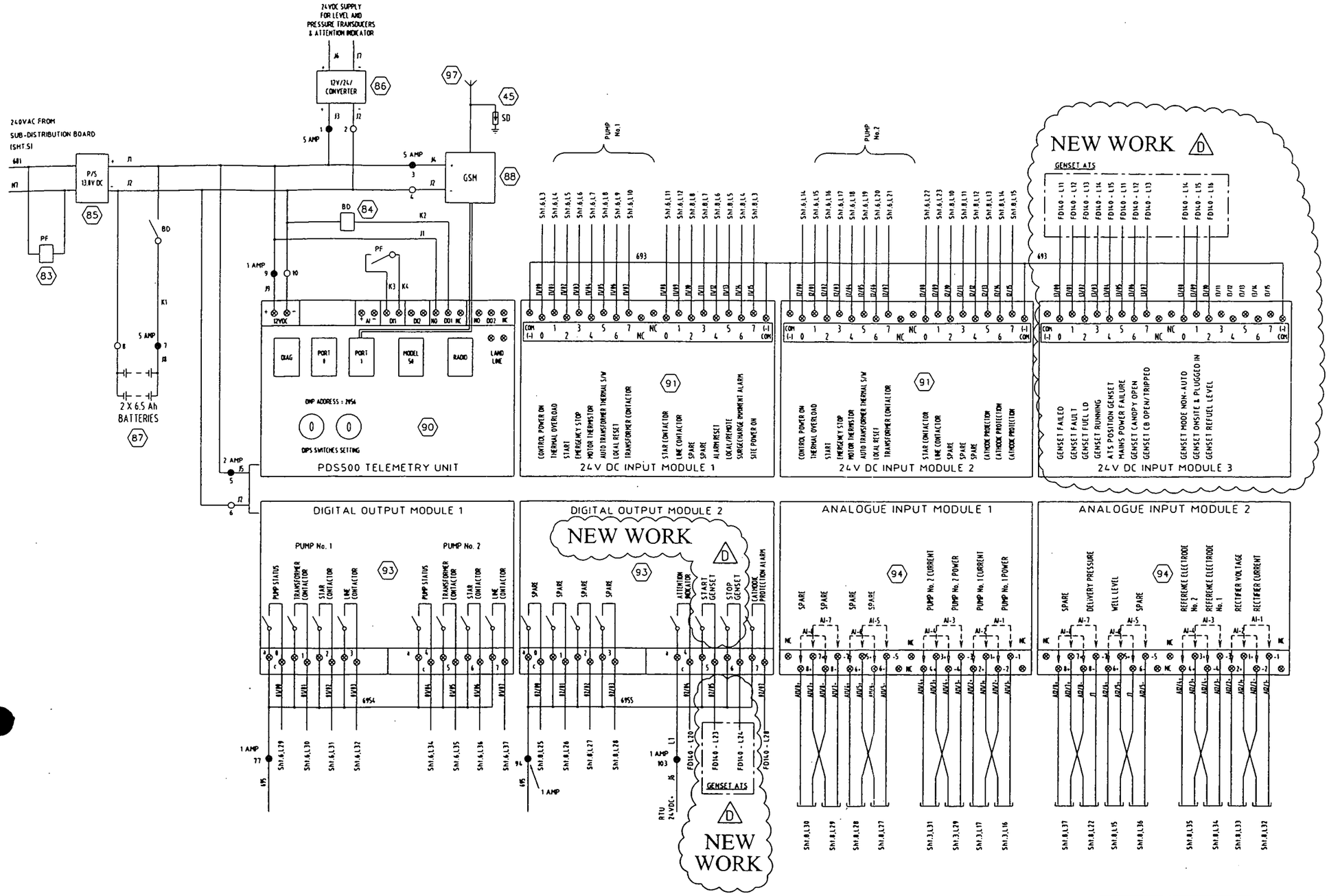
PROJECT
IDTS
PIONEER CRESCENT (SP235)
SUBMERSIBLE SEWAGE PUMP STATION

TITLE
COMMON CONTROL, WELL LEVEL, DELIVERY PRESSURE & SURCHARGE IMMINENT ALARM SCHEMATIC WIRING DIAGRAM

SCALE: — No. OF SHEETS

DRAWING No. 486/5/7-FD140 — WAS 1321-08 — AMEND. D

AS BUILT JM



NOTES

1. TERMINAL NUMBER SHOWN EITHER IMMEDIATELY BELOW, RIGHT OR LEFT OF TERMINAL.

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
D	03.2006	APPROVED FOR CONSTRUCTION	
C	05.05	SWBD GenSet Upgrade 2005	
B	26/10/00	CHANGED RADIO TO GSM	
A	8/10/98	AS BUILT	R.L.

AMENDMENT & ISSUE REGISTER

MANAGER		DIRECTOR OF TECHNOLOGY SERVICES	
DATE:		DATE:	
DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION	
DATE:	DATE:	DATE:	
DESIGN	A.H.	9/9/97	ENGINEER IN CHARGE
DRAWN	K.M.	20/9/97	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	25/9/97	A2 REDUCED

REFERENCES

CADD FILE No.

THIS DRAWING WAS PRODUCED USING AUTOCAD

Brisbane City — Brisbane Water — ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT
IDTS
PIONEER CRESCENT (SP235)
SUBMERSIBLE SEWAGE PUMP STATION

TITLE
PLC/RTU SCHEMATIC WIRING DIAGRAM

SCALE: | No. OF SHEETS

DRAWING No. 486/5/7-FD141 | WAS 1321-10 | AMEND D

CROSS REFERENCE TABLE

ITEM	SHEET	LINE
CR1 - COIL	4	3
- 3 N/O	3	11
- 1 N/O	6	16
CR2 - COIL	4	8
- 3 N/O	4	10
- 1 N/O	6	11
- 1 N/C	6	9
CR3 - COIL	4	9
- 3 N/O	4	13
- 1 N/O	6	12
- 1 N/C	6	8
- 1 N/O	6	3
CR1 - COIL	4	18
- 3 N/O	4	15
- 1 N/O	6	21
CR2 - COIL	4	19
- 3 N/O	3	23
- 1 N/O	6	22
- 1 N/C	6	20
CR3 - COIL	4	29
- 3 N/O	3	27

ITEM	SHEET	LINE
C23 - 1 N/O	6	23
ICONT1 - 1 N/C	6	19
- 1 N/O	6	14
LCR61 - COIL	8	4
- 1 C/O	8	4
- 1 N/O	-	-
- 1 N/C	-	-
PFR - COIL	5	5
- 1 C/O	8	3
- 1 C/O	-	-
PR1 - COIL	6	18
- 1 C/O	6	3
- 1 C/O	-	-
PR2 - COIL	6	21
- 1 C/O	6	24
- 1 C/O	-	-
RP11 - COIL	6	30
- 1 C/O	6	7
- 1 C/O	-	-
RP12 - COIL	6	31
- 1 C/O	6	8
- 1 C/O	-	-

ITEM	SHEET	LINE
RP13 - COIL	6	32
- 1 C/O	6	9
- 1 C/O	-	-
RP21 - COIL	6	35
- 1 C/O	6	18
- 1 C/O	-	-
RP22 - COIL	6	36
- 1 C/O	6	19
- 1 C/O	-	-
RP23 - COIL	6	37
- 1 C/O	6	20
- 1 C/O	-	-
SMC - 1 C/O	8	5
THR1 - COIL	6	4
- 1 N/O	6	6
- 1 N/C	6	7
THR2 - COIL	6	15
- 1 N/O	6	16
- 1 N/C	6	18

ITEM	SHEET	LINE
TOL1 - COIL	3	13
- 1 N/O	6	4
- 1 N/C	6	6
TOL2 - COIL	3	27
- 1 N/O	6	15
- 1 N/C	6	16
PUMP No.1 A/TRANS/ORMER THERMAL SWITCH	6	8
PUMP No.2 A/TRANS/ORMER THERMAL SWITCH	6	19
BD - COIL	10	9
- 1 N/O	10	9
PF - COIL	10	10
- 1 N/O	10	10

ITEM	SHEET	LINE

LEGEND:

- RELAY OR CONTACTOR COIL
- FIELD DEVICE
- R.T.U. FUSE TERMINAL
- R.T.U. LINK TERMINAL (NOTE 1)
- SWITCHBOARD TERMINAL (NOTE 1)
- CATHODIC PROTECTION TERMINAL
- RTU DIGITAL INPUT
- RTU DIGITAL OUTPUT
- RTU ANALOG INPUT
- EQUIPMENT ITEM No

AS BUILT RL

RTU TERMINAL STRIP

12V/24V CONVERTER SUPPLY — J3, J2 — 1, 2 — J1, J2 — 13.8 V DC POWER SUPPLY
RADIO SUPPLY — J4, J2 — 3, 4
EXPANSION BASE I/O SUPPLY — J5, J2 — 5, 6
SUPPLY FROM BATTERY — J8, J2 — 7, 8 — K1 — TO BATTERY DISCHARGE RELAY
POS500 SUPPLY — J9, J2 — 9, 10
24V DC+ — 695 — 11

POWER ON RELAY PR1	11/00	12	I1/00
THERMAL OVERLOAD TOL1	11/01	14	I1/01
START PUSHBUTTON	11/02	16	I1/02
EMERGENCY STOP P/B	11/03	18	I1/03
MOTOR THERMISTOR THR1	11/04	20	I1/04
AUTOTRANSFORMER THERMAL SW.	11/05	22	I1/05
LOCAL RESET P/B	11/06	24	I1/06
TRANSFORMER CONTACTOR C11	11/07	26	I1/07
STAR CONTACTOR C12	11/08	28	I1/08
LINE CONTACTOR C13	11/09	30	I1/09
SPARE		32	I1/10
SPARE		34	I1/11
SITE ATTENTION ALARM RESET P/B	11/12	36	I1/12
LOCAL REMOTE SELECTOR	11/13	38	I1/13
SURCHARGE IMMINENT RELAY LCR61	11/14	40	I1/14
SITE POWER ON RELAY PFR	11/15	42	I1/15

24V DC INPUT MODULE 1

24V DC+ — 695 — 44

POWER ON RELAY PR2	12/00	45	I2/00
THERMAL OVERLOAD TOL2	12/01	47	I2/01
START PUSHBUTTON	12/02	49	I2/02
EMERGENCY STOP P/B	12/03	51	I2/03
MOTOR THERMISTOR THR2	12/04	53	I2/04
AUTOTRANSFORMER THERMAL SW.	12/05	55	I2/05
LOCAL RESET P/B	12/06	57	I2/06
TRANSFORMER CONTACTOR C21	12/07	59	I2/07
STAR CONTACTOR C22	12/08	61	I2/08
LINE CONTACTOR C23	12/09	63	I2/09
SPARE		65	I2/10
SPARE		67	I2/11
SPARE		69	I2/12
CATHODIC PROTECTION (FUTURE)		71	I2/13
CATHODIC PROTECTION (FUTURE)		73	I2/14
CATHODIC PROTECTION (FUTURE)		75	I2/15

24V DC INPUT MODULE 2

RTU TERMINAL STRIP

PUMP 1 STATUS	01/00	77	01/00
PUMP 1 TRANSFORMER CONTACTOR INTERFACE RELAY RP11	01/01	80	01/01
PUMP 1 STAR CONTACTOR INTERFACE RELAY RP12	01/02	82	01/02
PUMP 1 LINE CONTACTOR INTERFACE RELAY RP13	01/03	85	01/03
PUMP 2 STATUS	01/04	86	01/04
PUMP 2 TRANSFORMER CONTACTOR INTERFACE RELAY RP21	01/05	88	01/05
PUMP 2 STAR CONTACTOR INTERFACE RELAY RP22	01/06	90	01/06
PUMP 2 LINE CONTACTOR INTERFACE RELAY RP23	01/07	92	01/07

24V DC+ — 695 — 94

SPARE — 95
SPARE — 97
SPARE — 99
SPARE — 101
24V DC+ — 695 — 102
ATTENTION INDICATOR (SWITCHBOARD) — J6 — 02/04 — 103
02/05 — 105
EXERCISE GENSET — 693 — 02/06 — 107
SPARE — 109
623 — 0VDC — 02/07 — 110
CATHODE PROT'N ALARM (FUTURE) — 693 — 111
MAINS AVAILABLE — 624 — 0VDC — 112
PUMP 1 POWER TRANSDUCER KWT1 — AI1/1- — 113
GENERATOR RUNNING — SHIELD — 114
PUMP 1 CURRENT TRANSDUCER IT1 — 252 — AI1/2- — 115
SHIELD — 116
PUMP 2 POWER TRANSDUCER KWT2 — 254 — AI1/3- — 117
SHIELD — 118
PUMP 2 CURRENT TRANSDUCER IT2 — 253 — AI1/4- — 119
SHIELD — 120
SPARE — 121
SHIELD — 122
SPARE — 123
SHIELD — 124
SPARE — 125
SHIELD — 126
SPARE — 127
SHIELD

NEW WORK
GENSET A.T.S.
GEN-EX — -XG — 70
EXERCISE GENSET — 693 — 71
SPARE — 72, 73, 74
623 — 0VDC — 75
624 — 0VDC — 76
(REFER DWG FD140)
D
OK.

24V DC+ — 695 — 6954

	01/00	01/00
	01/01	01/01
	01/02	01/02
	01/03	01/03
	01/04	01/04
	01/05	01/05
	01/06	01/06
	01/07	01/07

24V DC+ — 695 — 6955

	02/00	02/00
	02/01	02/01
	02/02	02/02
	02/03	02/03
	L1	02/04
	J7 — 24V DC-	02/05
		02/06
		02/07
	693 — 24V DC-	
	AI1/1+	
	AI1/1-	
	AI1/2+	
	AI1/2-	
	AI1/3+	
	AI1/3-	
	AI1/4+	
	AI1/4-	
	AI1/5+	
	AI1/5-	
	AI1/6+	
	AI1/6-	
	AI1/7+	
	AI1/7-	
	AI1/8+	
	AI1/8-	

DIGITAL OUTPUT MODULE 1
DIGITAL OUTPUT MODULE 2
ANALOGUE INPUT MODULE 1

RTU TERMINAL STRIP

RECTIFIER CURRENT (FUTURE)	617 — AI2/1-	128		AI2/1+
		129		AI2/1-
RECTIFIER VOLTAGE (FUTURE)	619 — AI2/2-	SHIELD		
		130		AI2/2+
		131		AI2/2-
CONNECT REFERENCE ELECTRODES (FUTURE)	621 — AI2/3-	SHIELD		
		132		AI2/3+
		133		AI2/3-
CATHODIC PROTECTION ALARM (FUTURE)	623 — AI2/4-	SHIELD		
		134		AI2/4+
		135		AI2/4-
SPARE		SHIELD		
		136		AI2/5+
		137		AI2/5-
WELL LEVEL TRANSMITTER	626 — J7 — AI2/6-	SHIELD	J6 — 24V DC+	
		138	J7	
		139		AI2/6+
		140		AI2/6-
DELIVERY LINE PRESSURE TRANSMITTER	628 — J7 — AI2/7-	SHIELD	J6 — 24V DC+	
		141	J7	
		142		AI2/7+
		143		AI2/7-
SPARE		SHIELD		
		144		AI2/8+
		145		AI2/8-
		SHIELD		
		146		
		147		
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ANALOGUE INPUT MODULE 2
24V DC INPUT MODULE 3

GENERATOR A.T.S.
24V DC+ — 695 — 6953

GENERATOR		-XG	6953	
TRANSFER SW NORMAL MODE	TSNA	13/00	37	13/00
FAULT	GFR	13/01	39	13/01
WARNING	GWR	13/02	41	13/02
LOW FUEL	GLFR	13/03	43	13/03
MEDIUM FUEL	GMFR	13/04	45	13/04
RUNNING	GRR	13/05	47	13/05
CANOPY OPEN	GDR	13/06	49	13/06
C/B STATUS	GCBT	13/07	51	13/07
CONTROL MODE	GMR	13/08	53	13/08
ENERGEX MAINS FAILURE	PFREA	13/09	55	13/09
ON SITE		13/10	57	13/10
			59	
			61	

(REFER DWG FD140)

NEW WORK
D
OK.

NOTES

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
D	06.2006	Re-Issued for Construction	
C	03.2006	Approved for Construction	M.J.L.
B	11.2005	SWBD GenSet Upgrade 2005	
A	27/5/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER — DATE:		DIRECTOR OF TECHNOLOGY SERVICES — DATE:	
DIRECTOR OF PLANNING & DESIGN — DATE:	DIRECTOR OF WATER SUPPLY — DATE:	DIRECTOR OF CONSTRUCTION — DATE:	
DESIGN	A.H.	9/9/97	ENGINEER IN CHARGE
DRAWN	K.M.	20/9/97	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	25/9/97	A2 — REDUCED

REFERENCES

CADD FILE No.

THIS DRAWING WAS PRODUCED USING AUTOCAD

Brisbane City — Brisbane Water
ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT
IDTS
PIONEER CRESCENT (SP235)
SUBMERSIBLE SEWAGE PUMP STATION

TITLE
RTU TERMINATION DIAGRAM

SCALE: — No. OF SHEETS

DRAWING No. 486/5/7-FD142 — WAS 1321-15 — AMEND. D

AS BUILT

CABLE No.	SIZE mm²	CORES	TYPE	LENGTH (m)	FROM – TO – VIA ROUTE	CABLE FUNCTION	CORRECTLY INSTALLED	
							INITIAL	DATE
P01	25	4	Circular	Existing	SEQEB Pillar Box to new switchboard (Extend existing mains)	Incoming Mains		
P02	10		Building wire	2	New switchboard to earth stake	Main Earth		
P03	2.5	6 + earth	Flexible	Existing	Rerun in new 150mm conduit to new switchboard	Pump 1 Motor		
P04	2.5	6 + earth	Flexible	Existing	Rerun in new 150mm conduit to new switchboard	Pump 2 Motor		
X01			Coax	1.5	New switchboard radio to coax surge protector	Radio Communications		
X02			Coax	7	Coax surge protector in new switchboard to aerial	Radio Communications		
C01			Special	10	Reflux valve pressure probe to new switchboard	Delivery Pressure Signal		
C02			Special	10	Wet well level probe to new switchboard	Wet Well Level Signal		
C03			Special	10	Wet well level probe to new switchboard	Surcharge Level Signal		
P04	10	4C+E	Circular	PVC/PVC	GENSET TO SWITCHBOARD – ATS	GENSET POWER – FREE ISSUED		
P05	2.5	2C+E	Circular	PVC/PVC	GENSET TO SWITCHBOARD – DISTRIBUTION BD.	GENSET ANCILLARIES SUPPLY		
C04	1.0	~~24~~ 25C+E	Circular	PVC/PVC	GENSET TO SWITCHBOARD – ATS CONTROL TERMINALS	24VDC CONTROL		

NEW WORK
C
GENSET CABLES TO BE INSTALLED

NOTES

APPROVED FOR CONSTRUCTION

As Builts

No	DATE	AMENDMENT	INITIALS
C	03.2006	Approved for Construction	
B	11.2005	SWBD GenSet Upgrade 2005	
A	27/5/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES	
DATE:	DATE:	
DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION
DATE:	DATE:	DATE:

DESIGN	A.H.	9/9/97	ENGINEER IN CHARGE
DRAWN	K.M.	20/9/97	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	8/10/97	A2 REDUCED

REFERENCES

CADD FILE No.

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Brisbane City
Brisbane Water
ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT
IDTS
PIONEER CRESCENT (SP235)
SUBMERSIBLE SEWAGE PUMP STATION

TITLE
CABLE SCHEDULE

SCALE:

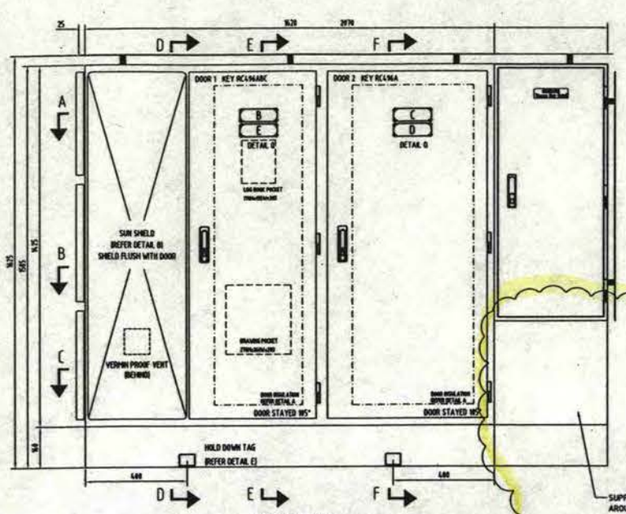
No. OF SHEETS

DRAWING No. 486/5/7-FD143

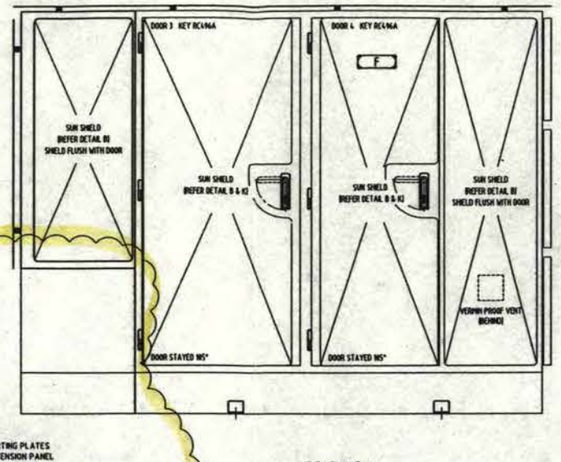
WAS 1321-16

AMEND. C

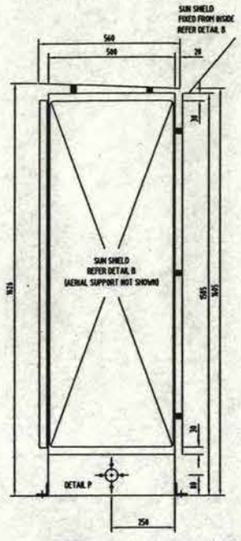
LEFT HAND VIEW



FRONT VIEW



REAR VIEW



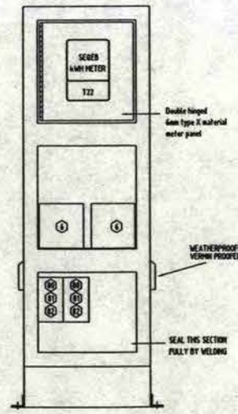
RIGHT HAND VIEW

SUPPLY AND INSTALL SKIRTING PLATES AROUND THE EXISTING EXTENSION PANEL

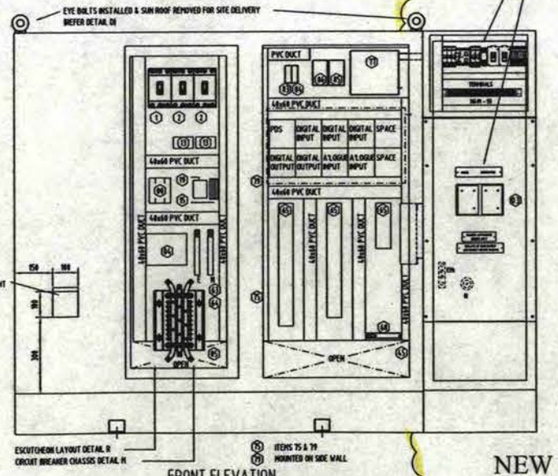
NEW WORK

C

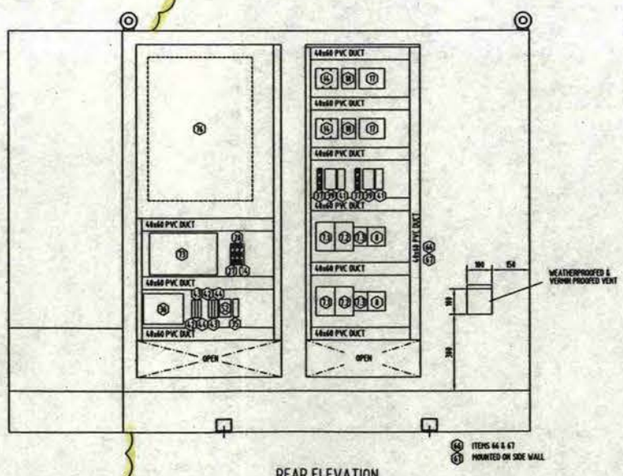
THE NEW WORK FOR THIS PUMPSTATION INCLUDES THE REMOVAL OF THE MANUAL TRANSFER SWITCH CURRENTLY IN SERVICE AND THE INSTALLATION OF A NEW MOTOR OPERATED AUTOMATIC TRANSFER SWITCH & CONTROL EQUIPMENT INTO THE EXISTING EXTENSION PANEL.



LEFT HAND ELEVATION
DOORS & SHIELDS REMOVED



FRONT ELEVATION
DOORS & SHIELDS REMOVED



REAR ELEVATION
DOORS & SHIELDS REMOVED

NEW WORK

NOTE

C

THE MOTOR OPERATED AUTOMATIC TRANSFER SWITCH INSTALLATION MUST BE READ IN CONJUNCTION WITH THE TYPICAL DRAWINGS FOR A MOTOR OPERATED ATS UNIT CUBICLE: 486/S/7-PS003 & PS004.

As Builts, Refer to C.C. Dwg's JH86D001, JH86D001.

NOTES

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
C	03.2006	APPROVED FOR CONSTRUCTION	
B	11.2005	GENSET PROJECT REVISIONS	
A	27/5/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER DATE:	DIRECTOR OF TECHNOLOGY SERVICES DATE:

DIRECTOR OF PLANNING & DESIGN DATE:	DIRECTOR OF WATER SUPPLY DATE:	DIRECTOR OF CONSTRUCTION DATE:

DESIGN	A.H.	9/9/97	ENGINEER IN CHARGE	
DRAWN	K.M.	20/9/97	SUPERVISING ENGINEER	
TRACED				
CHECKED	A.H.	8/10/97	A2	REDUCED

REFERENCES

CADD FILE No.

THIS DRAWING WAS PRODUCED USING AUTOCAD

Brisbane City

Brisbane Water

ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT
IDTS
PIONEER CRESCENT (SP235)
SUBMERSIBLE SEWAGE PUMP STATION

TITLE
SWITCHBOARD GENERAL ARRANGEMENT

SCALE:

No. OF SHEETS

DRAWING No.
486/5/7-FD144

AMEND.
C

CONSTRUCTION

Cubicle construction 3mm Marine grade Aluminium (5251).
Plants construction 40x40 channel 6061 T6 Grade Aluminium.
Folded, "Pulse MIG" & "TIG" welded with all visible seams and joints fully welded, free from splatter and ground smooth where needed.
External doors and covers fitted with Enka 1011-287 self grip seal.
"D" Handles fitted where indicated on the drawings.
M6 Earth studs fixed to the exterior of all doors and hinged escutcheons and on adjacent cubicle exterior surfaces.
Door stiffeners, door stays, cable straps, and document holders etc fitted where shown on the drawings.
Lift-off covers and mounting panels fixed with M8 studs & chrome acorn nuts.

Gland plates manufactured from 6mm Bakelite.
Gland plate openings reinforced with 25x6mm flat aluminium bar.
Gland plate seals attached to cubicle not gland plate.
Gland plate fixings are NOT more than 150 mm apart (refer Detail F).

Hinges Selectrix HI-8650.
Star washers fitted under all hinge screws.

Locks Doors 1-4 & 6
Selectrix 1107 - PSC01 handle
Selectrix 1107-1123 3pt cam
Lockwood 71 Barrel Lock
Enka 1049-123 roller rod
Key Codes: RC496A & RC496ABC refer to each door for clarification.

Lock Door 5
Selectrix 1107-PSC01 handle
Selectrix 1107-1123 3pt cam
Enka 1049-123 roller rod
SCIDES Lockwood No2340 brass pin tumbler padlock.

Lock Door 7
Selectrix 1107-SENUT handle
Selectrix 1000-1129 3pt cam
Lockwood 71 Barrel Lock
Enka SS1049-1172 roller rod
Enka 1001-1172 PVC rod guide
Key Code RC496AB
Hinged escutcheons fixed with Enka 5/4 turn 1000-1142

OPERATING PARAMETERS

Standard	AS 3439.1
Current & Frequency	AC 50Hz
Rated Operational Voltage Ue	415 VAC
Rated Insulation Voltage Ui	660 V
Rated Auxiliary Voltage	24 VDC / 240 VAC
Rated Current (Main Bus)	63 AMPS
Short Circuit Current Icw	10 kA
Duration of Icw	1 sec
Degree of Protection	IP 55 to AS 1939
Measure of Protection by barriers and enclosures	
Service Conditions	Outdoors
Mass	Not exceeding 2000kg
Forms of Segregation	Form 1
Earthing System	TN-S

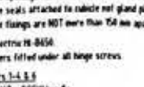
PAINTING

Aluminium Surface Preparation.
Finish smooth all exposed welds, clean, descale, and degrease all surfaces.
Surfaces pretreatment in accordance with AS 1580 & AS 3715 using
Henes LF acid etch cleaner, Heracoat 12 conversion coating, & clean water rinses.

Apply DULUX ALPHATECH 3000 powder coat to manufacturer's recommendations.
CUBICLE & EXTERNAL COMPONENTS – DULUX Mist Green (34440) matt finish.
INTERNAL ITEMS (mounting panels, escutcheons, etc.) – DULUX Bright White (32784)
Minimum Dry Film Thickness all surfaces 50 microns.

WIRING

All wiring to be PVC V90 HT 0.6/1kv Grade with tinned conductor.
Control and instrumentation wiring has flexible copper conductors, and is colour coded as detailed below, numbered each end, and terminated by the use of appropriate pre-insulated crimp lugs.
Power wiring to be minimum 2.5sqmm stranded copper conductors, phase colour coded as detailed below.
Low level instrumentation signals & 4-20mA signals wired in shielded pair minimum size 0.5sqmm. Earthed at one end only.
Earth cables minimum 2.5sqmm flexible.
Doors and hinged escutcheons bonded with 4sqmm flexible earth strap.
Wire numbering will be equal to Grafoplast TRASP system.
Wire numbers are readable left to right, top to bottom as shown.



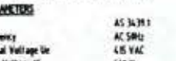
COLOUR CODE		
Phase wiring (A,B &C)	Red, White, Blue	2.5sqmm braid
Potential Metering (240/415 VAC)	Red, White, Blue, Black	1.5sqmm
Current Metering (Secondary)	Red, White, Blue, Grey	2.5sqmm
240 VAC Control Active	Red	1.5sqmm
240 VAC Neutral	Black	1.5sqmm
24 V ELV Positive	Grey	1.5sqmm
24 V ELV Negative	Grey	1.5sqmm
24 V RTU Positive	Grey	0.5sqmm
24 V RTU Negative	Grey	0.5sqmm
Intrinsically safe wiring	Blue	1.5sqmm
Earth	Green/Yellow	2.5sqmm braid
Door & Escutcheon Earth Bonds	Green/Yellow	4 sqmm

LABELS

Internal labels W/B/W engraved traffolyte to Label schedule.
Warning labels R/W/R engraved traffolyte.

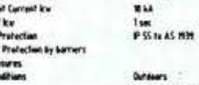
Main switch labels — Material R/W/R

Compartment labels — Material W/B/W

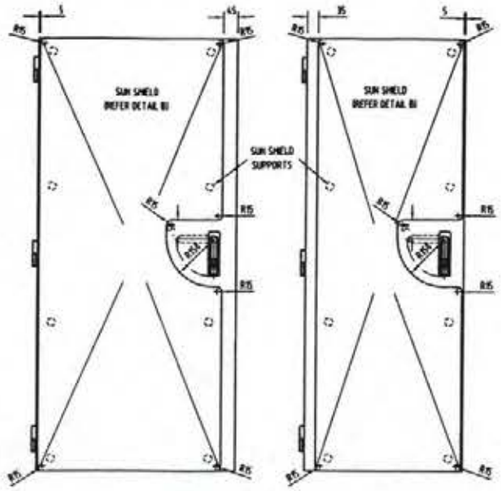


Warning labels — Material R/W/R

Other labels — Material W/B/W



Internal labels secured by M3 chrome plated metal threads.
Labels obstructed by switchboard wiring are relocated to adjacent duct lid.
The duct lid is secured by a single cable tie at one corner.
External labels secured by M3 316 stainless steel metal threads.

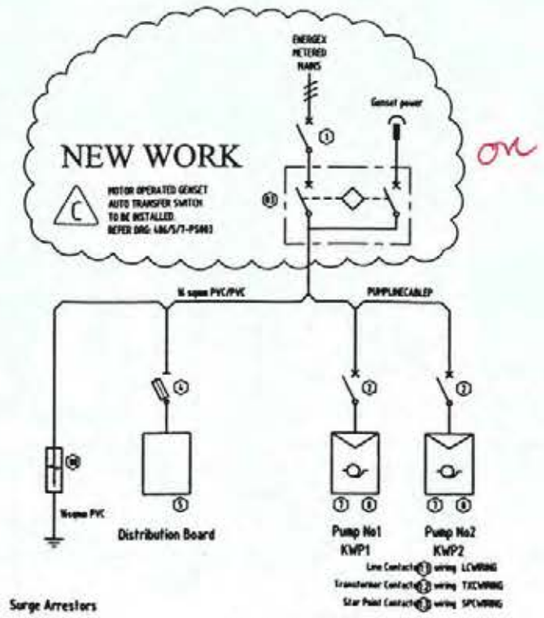


DETAIL K
(DOOR SUN SHIELD DETAIL)

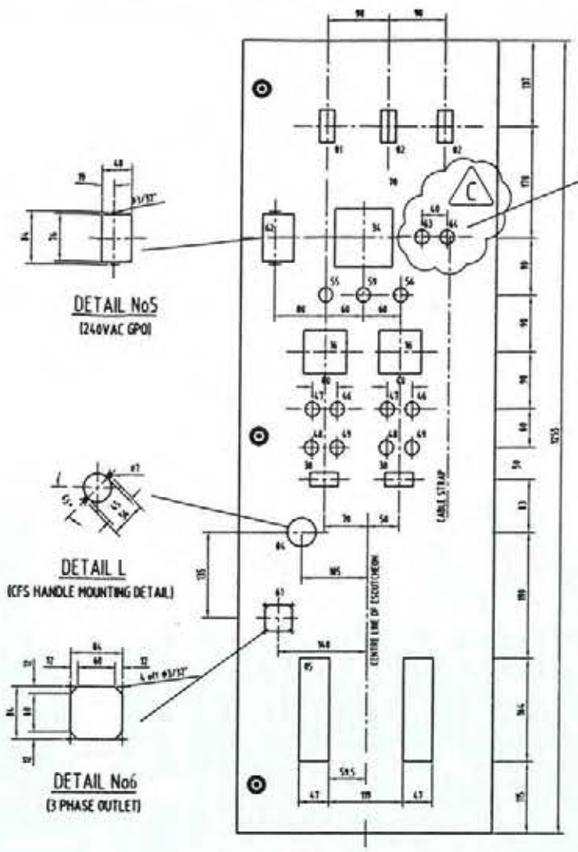
LABEL	TEXT	TEXT HEIGHT	PAINT FILL LETTERING	DIMENSIONS	QUANTITY
A	SUPPLY AUTHORITY METER PANEL	10mm	Black	300x20	1
B	SP235	20mm	Black	150x35	1
C	WARNING THIS SITE IS MONITORED BY THE NEWSTEAD OPERATOR PLEASE INFORM THE OPERATOR BEFORE ISOLATING PUMPS OR STATION	6mm	Black	250x100	1
D	PLEASE CHECK THAT THE STATION IS IN REMOTE MODE BEFORE LEAVING SITE	8mm	Black	210x60	1
E	DANGER 415V	8mm	Red	120x35	1
F	DANGER HIGH FAULT LEVELS, OPEN BOTH PUMP CIRCUIT BREAKERS	8mm	Red	250x60	1

External labels 1mm thk. 316 grade stainless steel.
Fixed with M3 316 stainless steel metal threads.

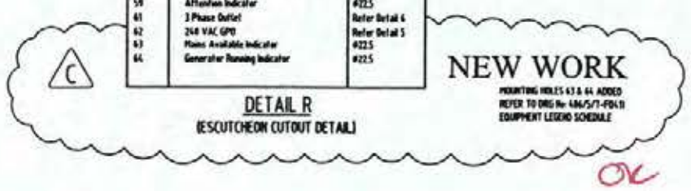
DETAIL Q
(EXTERNAL STAINLESS STEEL LABEL DETAIL)



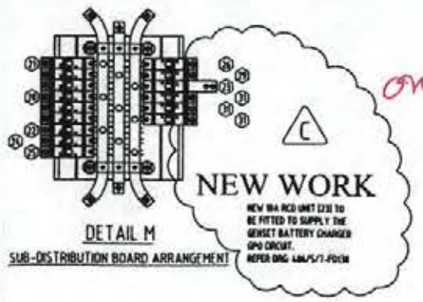
POWER WIRING DETAIL



ITEM	DESCRIPTION	CUT OUT
01	Main Circuit Breaker	52x214
02	Pump Circuit Breaker	52x214
04	Sub-distribution Board CFS	#45 (Refer Detail L)
05	Sub-distribution Board Chassis	364x67
16	Pump Ammeter	68dia
34	Analogue Level Meter	92x92
38	Pump Hours Run Meter	45x22.5
46	Pump Status Indicator	#22.5
47	Pump Start Push-button	#22.5
48	Emergency Stop Push-button	#22.5
49	Pump Local Reset Push-button	#22.5
55	Local/Remote Selector Switch	#22.5
56	Site Attention Alarm Reset Push-button	#22.5
59	Attention Indicator	#22.5
61	3 Phase Outlet	Refer Detail 6
62	240 VAC GPO	Refer Detail 5
63	Mains Available Indicator	#22.5
64	Generator Running Indicator	#22.5



DETAIL R
(ESCUTCHEON CUTOUT DETAIL)



DETAIL M
SUB-DISTRIBUTION BOARD ARRANGEMENT

NOTES

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
C	03.2006	APPROVED FOR CONSTRUCTION	
B	11.2005	GENSET PROJECT REVISIONS	
A	27/5/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER	DIRECTOR OF TECHNOLOGY SERVICES
DATE:	DATE:

DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION
DATE:	DATE:	DATE:

DESIGN	A.H.	9/9/97	ENGINEER IN CHARGE
DRAWN	K.M.	20/9/97	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	8/10/97	A2 REDUCED

REFERENCES

CADD FILE No.

THIS DRAWING WAS PRODUCED USING AUTOCAD

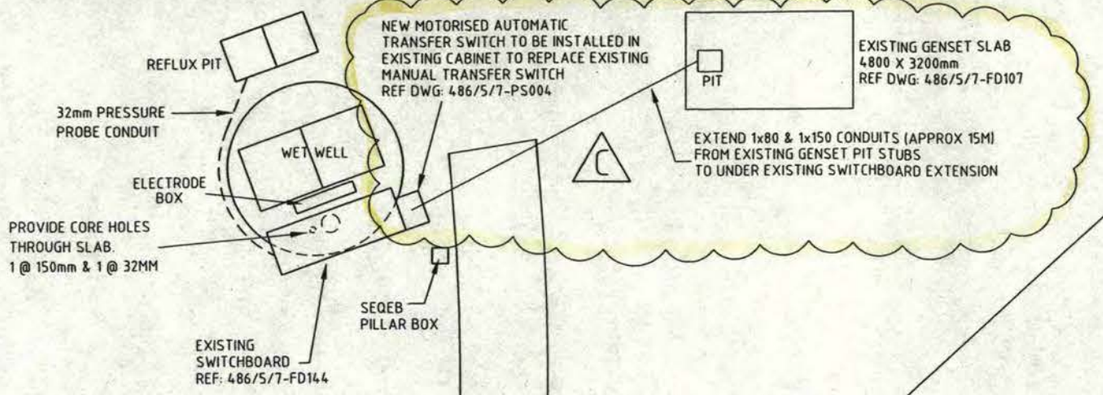
Brisbane City — Brisbane Water — ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT
IDTS
PIONEER CRESCENT (SP235)
SUBMERSIBLE SEWAGE PUMP STATION

TITLE
SWITCHBOARD CONSTRUCTION NOTES

SCALE: | No. OF SHEETS:

DRAWING No. 486/5/7-FD145 | AMEND C



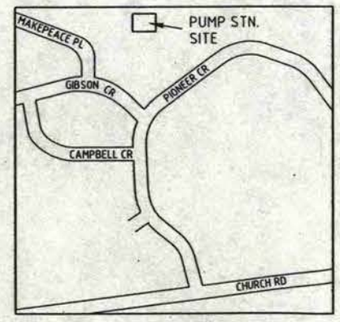
PARK LANDS

nO.103

PARK

GIBSON CRESCENT

PIONEER CRESCENT



LOCALITY MAP

NOTES

As Builts

APPROVED FOR CONSTRUCTION

No	DATE	AMENDMENT	INITIALS
C	03.2006	APPROVED FOR CONSTRUCTION	
B	11.2005	2005 GENSET PROJECT	
A	27/5/98	AS BUILT	

AMENDMENT & ISSUE REGISTER

MANAGER DATE:	DIRECTOR OF TECHNOLOGY SERVICES DATE:

DIRECTOR OF PLANNING & DESIGN	DIRECTOR OF WATER SUPPLY	DIRECTOR OF CONSTRUCTION
DATE:	DATE:	DATE:

DESIGN	A.H.	20/10/97	ENGINEER IN CHARGE
DRAWN	K.M.	20/10/97	SUPERVISING ENGINEER
TRACED			
CHECKED	A.H.	30/10/97	A2 REDUCED

REFERENCES

CADD FILE No.

THIS DRAWING WAS PRODUCED USING AUTOCAD

Brisbane City

Brisbane Water

ASSET MANAGEMENT PROFESSIONAL SERVICES

PROJECT
IDTS
PIONEER CRESCENT (SP235)
SUBMERSIBLE SEWAGE PUMP STATION

TITLE
SITE LAYOUT

SCALE:

No. OF SHEETS

DRAWING No. 486/5/7-FD149

WAS 1321-30

AMEND. C

SEWAGE SYSTEM IMPROVEMENT 2005
GENERATOR EMERGENCY POWER
AUTOMATIC TRANSFER SWITCHES

ELECTRICAL DRAWING INDEX

ELECTRICAL DRAWINGS INDEX

DWG N°.	TITLE	ISSUE	REVISIONS
486/5/7-PS000	DRAWING INDEX - ELECTRICAL INSTALLATION	05.2006	0 1 2 3
486/5/7-PS001	TYPICAL SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - WIRING SCHEMATIC DIAGRAM	05.2006	0 1 2
486/5/7-PS002	TYPICAL SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - CUBICLE ARRANGEMENT	05.2006	0 1 2
486/5/7-PS003	TYPICAL MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - WIRING SCHEMATIC DIAGRAM	05.2006	0 1 2
486/5/7-PS004	TYPICAL MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - CUBICLE ARRANGEMENT	05.2006	0 1 2
486/5/7-PS005	TYPICAL SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - INTERCONNECTION DIAGRAM	05.2006	0 1
486/5/7-PS006	TYPICAL MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - INTERCONNECTION DIAGRAM	05.2006	0 1
486/5/7-PS007	AUTOMATIC TRANSFER SWITCH - ATS EXTENSION CUBICLE - TYPICAL CONCRETE BASE ARRANGEMENT	05.2006	0 1
	SOLENOID OPERATED - AUTOMATIC TRANSFER SWITCH - SITE SPECIFIC INSTALLATIONS		
486/5/7-KI440	RADNOR STREET INDOOROOPILLY - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	A B C D
486/7/85-KJT070	BRISBANE STREET TOOWONG - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	A B C
486/5/7-QT200	RAUBERS ROAD NORTHGATE - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	A B C
486/5/7-TQ035	SUGARMILL ROAD MEEANDAH - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	A B C D E
486/5/7-FD015	LAGOON CRESCENT BELLBOWRIE - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	A B C
	MOTOR OPERATED - AUTOMATIC TRANSFER SWITCH - SITE SPECIFIC INSTALLATIONS		
486/5/7-FD410	BIRKIN ROAD BELLBOWRIE - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	C D E F G
486/5/7-FD135	PIONEER CRESCENT BELLBOWRIE - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	A B C D E
486/5/7-FK700	WIRRIBOOT COURT KARANA DOWNS - GENSET A.T.S. INSTALLATION - ELECTRICAL DRAWING INDEX	03.2006	A B C D E

A. Burns

FOR CONSTRUCTION

No	DATE	AMENDMENT	DRN.	APD.
3	06.06	RE-ISSUED FOR CONSTRUCTION. REVISION UPDATES	MJL	
2	05.06	NEW BORDER. RE-ISSUED FOR CONSTRUCTION	MJL	
1	04.06	DRAWINGS PS005, 6 AND 7 ADDED	MJL	

Reference Drawings

DRAFTED M.J. LIGHTBODY
DRAFTING CHECK
CAD FILE 57PS000_3
B.C.C. FILE No.

DESIGN R.P.E.Q. No. DATE
DESIGN CHECK R.P.E.Q. No. DATE
PRINCIPAL DESIGN MANAGER DATE
CLIENT DELEGATE DATE

BRISBANE WATER

PROJECT
SEWAGE SYSTEM IMPROVEMENT 2005
STANDBY GENERATORS

TITLE
AUTOMATIC TRANSFER SWITCH
ELECTRICAL INSTALLATION
ELECTRICAL DRAWING INDEX

SHEET No. 18
BRISBANE WATER DRAWING No. 486/5/7-PS000
AMEND. 3

ENERGEX SUPPLY FROM 3 PHASE 415VAC SUPPLY

E N R W B

Q1 MAIN ISOLATOR [IF REQ'D]

ENERGEX METERING

3 PHASE 415VAC SUPPLY FROM EMERGENCY GENERATOR

REMOTE GENERATOR CONNECTION SOCKET

E N R W B

MAIN SWITCHBOARD ATS EXTENSION PANEL

Q2 NORMAL SUPPLY MAIN SWITCH

Q3 GENSET SUPPLY MAIN SWITCH

[REF -H13] ENERGEX MAINS POWER FAILURE RELAY

QM1 600A GEN-EX 600 601 602 PFRE

6A

N E

[REF -02, -03] SR

QG1 6A

[REF -C3] SR 609 610

CTSN 603 [REF -A9]

CTSG 603 [REF -B9]

MEN LINK

N1

604 614 N1 614 604

ON OFF A N ON OFF

MS1 MS2

MOTORISED TRANSFER SWITCH

E N R W B

415V TO MAIN SWBD CCTS

NOTES

1. ALL FUSES ARE 500mA UNLESS NOTED OTHERWISE.
2. REFER DWG: 486/5/7-PS006 FOR INTERCONNECTION DIAGRAM.
3. R.T.U. DIGITAL I/O ADDRESSES TO BE DERIVED FROM SITE SPECIFIC DRAWING REFERENCE TABLE.
4. GENERATOR STARTED & STOPPED
   (a) AUTOMATICALLY UNDER POWER FAILURE CONDITIONS VIA PFRE PHASE FAILURE RELAY.
   (b) SIMULATED PHASE FAILURE VIA R.T.U. AND GEN-EX RELAY.
5. R.T.U. PRESENTATION IS GENERIC. WIRE NUMBERS AND I/O ADDRESSES SHALL BE DERIVED FROM THE SITE SPECIFIC DRAWINGS LISTED IN THE REFERENCE TABLE AS SHOWN BELOW.
6. CONTACT/COIL LOCATION REFS:
   REF -C3 = REFER THIS DWG., GRID REF C3
   REF 06-H11 = REFER DWG. PS006, GRID REF H11

240VAC FROM SWBD. DB

A — DOOR SW — 8W FLUORESCENT — N

SWITCHBOARD INTERNAL LIGHT CCT.

SITE SPECIFIC DRAWING REFERENCES:

SEWAGE PUMP STATION SITE:	SITE DWG INDEX:	RTU I/O REF DWG:
BIRKIN ROAD - BELLBOWRIE	486/5/7-FD410	486/5/7-FD415
PIONEER CRESCENT - BELLBOWRIE	486/5/7-FD135	486/5/7-FD140
WIRRIBOOT COURT - KARANA DOWNS	486/5/7-FK700	486/5/7-FK704

EMERGENCY GENERATOR

GENERATOR DISCONNECT PLUG (AT GENERATOR)

GENERATOR A.T.S. PANEL

24V DC OUTPUTS

[17] 1	G01N	1	-XG :1 G01N	CLOSE T/S - NORMAL MODE [REF -E2, -B8]
[18] 2	G02	2	G02 :2 CTSG G02A CTSN	
[19] 3	G03	3	G03 :3 CTSN G03A CTSG	CLOSE T/S - GENSET MODE [REF -E4, -A8]
[20] 4	G04	4	G04 :4 GFR	GENERATOR FAULT [REF -B13]
[21] 5	G05	5	G05 :5 GWR	GENERATOR WARNING [REF -B13]
[22] 6	G06	6	G06 :6 GLFR	GENERATOR LOW FUEL [REF -B13]
[23] 7	G07	7	G07 :7 GRR	GENERATOR RUNNING [REF -C13]
8	G08	8	:8	
[41] 20	G20	20	G20 :20 GDR	GENERATOR CANOPY - DOOR OPEN [REF -C13]
[43] 21	G21	21	G21 :21 GCBT	GENERATOR CB STATUS [REF -C13]
[42] 22	G22	22	G22 :22 GMR	GENERATOR MODE [REF -C13]
23	G23	23	G23 :23 -XG :57	GENERATOR ON SITE [REF -D13]
24	G24	24	G24 :24 :58	
[44] 25	G25	25	G25 :25 GMFR	GENERATOR MEDIUM FUEL [REF -B13]
[12] 9	G09	9	G09 :9 PFRE	ENERGEX MAINS POWER FAILURE [REF -C3]
[17] 10	G10	10	G10 :10	
[13] 11	G11	11	G11 :11 TSNA	TRANSFER SWITCH NORMAL MODE [REF -H14]
[17] 12	G12	12	G12 :12	
[14] 13	G13	13	G13 :13 TSGA	TRANSFER SWITCH GENERATOR MODE [REF -H14]
[17] 14	G14	14	G14 :14	
[15] 15	G15	15	:15	
[17] 16	G16	16	:16	
[16] 17	G17	17	:17	
[17] 18	G18	18	:18	
19	G19	19	:19	
26	G26	26	:26	
27	G27	27	:27	

SPARE

24V DC INPUTS

EMERGENCY GENERATOR R.T.U. DIGITAL INPUTS

+ 24VDC POWER SUPPLY -

2A J6- 2 CM

GENERATOR A.T.S. PANEL

[REF -H14]	795a	-XG :37	TSNA IX/Y	-XG :38 IX/Y 0	ATS - NORMAL MODE
[REF -B9]	795a	:39	GFR IX/Y	:40 IX/Y 1	GENERATOR FAULT
[REF -B9]	795a	:41	GWR IX/Y	:42 IX/Y 2	GENERATOR WARNING
[REF -B9]	795a	:43	GLFR IX/Y	:44 IX/Y 3	GENERATOR LOW FUEL
[REF -D9]	795a	:45	GMFR IX/Y	:46 IX/Y 4	GENERATOR MEDIUM LEVEL [REFUEL NEEDED]
[REF -C9]	795a	:47	GRR IX/Y	:48 IX/Y 5	GENERATOR RUNNING
[REF -D9]	795a	:49	GDR IX/Y	:50 IX/Y 6	GENERATOR CANOPY OPEN
[REF -D9]	795a	:51	GCBT IX/Y	:52 IX/Y 7	GENERATOR CB STATUS
[REF -D9]	795a	:53	GMR IX/Y	:54 IX/Y 0	GENERATOR MODE
[REF -H14]	795a	:55	PFREA IX/Y	:56 IX/Y 1	ENERGEX MAINS POWER
	795a	:57	G23 G24 :24	:58 2	GENERATOR ON SITE
	795a	:59		:60 3	
				4	
				5	
				6	
				7	

CONT'D

R.T.U. DIGITAL OUTPUTS

+24V

QX/Y	-XG :28	QX/Y	GEN-EX 693a	:29 693a -COM	EXERCISE GENERATOR
QX/Y	:30			:31 693a	
QX/Y	:32			:33 693a	
QX/Y	:34			:35 693a	

CONT'D

+ 24VDC POWER SUPPLY - [BATTERY BACKED] FROM MAIN SWITCHBOARD

+24VDC 0VDC

TRANSFER SWITCH AUXILIARIES

-XG :66	TSN [REF -E2]	620	TSNA 0VDC :69	T/S IN NORMAL POSITION AUXILIARY RELAY [REF 05-C11, 05-E11, -B13, -F8]
	TSG [REF -E5]	621	TSGA	T/S IN GENSET POSITION AUXILIARY RELAY [REF 05-C11, -F8]
-XG :65	PFRE [REF -C3]	622	PFREA 0VDC :68	ENERGEX PHASE FAILURE AUXILIARY RELAY [REF -D13, -I12]
-XG :64 PFREA		623	-XG :60 Y -XG :62 :67	MAINS AVAILABLE
	GRR	624	:61 R :63	GENERATOR RUNNING

INDICATORS ON SWITCHBOARD

FOR CONSTRUCTION

No	DATE	AMENDMENT	DRN.	APD.
2	05.06	REDRAWN. SCHEMATIC UPGRADED.		
1	03.06	APPROVED FOR CONSTRUCTION	MJL	
0	11.05	REDRAWN FROM GHD DRAWING		

Reference Drawings

DRAFTED M.J. LIGHTBODY

DRAFTING CHECK

CAD FILE S7PS003_2

B.C.C. FILE No.

DESIGN R.P.E.Q. No. DATE

DESIGN CHECK R.P.E.Q. No. DATE

PRINCIPAL DESIGN MANAGER DATE

CLIENT DELEGATE DATE

BRISBANE WATER

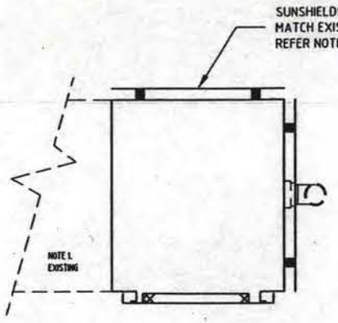
PROJECT: SEWAGE SYSTEM IMPROVEMENT 2005 STANDBY GENERATORS

TITLE: TYPICAL MOTOR OPERATED AUTOMATIC TRANSFER SWITCH WIRING SCHEMATIC DIAGRAM

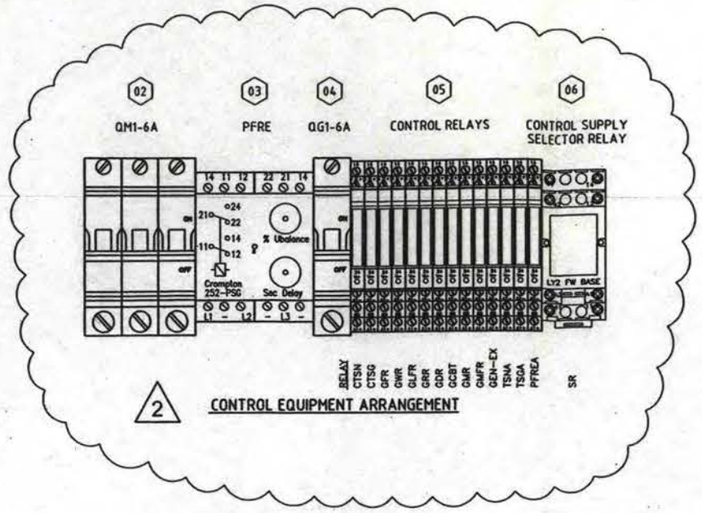
SHEET No. 03

BRISBANE WATER DRAWING No. 486/5/7-PS003

AMEND. 2



PLAN VIEW



2 CONTROL EQUIPMENT ARRANGEMENT

EQUIPMENT LIST

2

No	QTY	DESCRIPTION	SUPPLIER	MANFACTURER	CATALOGUE No
~~01~~	~~1~~	~~SOLENOID AUTO TRANSFER SWITCH~~	~~NHP~~	~~AICHI~~	~~02WN3FD240VAC~~
02	1	MAINS VOLTS DETECTION C/B	NHP	TERASAKI	DTCB6306C
03	1	MAINS VOLTS PHASE FAILURE RELAY		CROMPTON	252-PSG
04	1	GENSET VOLTS DETECTION C/B	NHP	TERASAKI	DTCB6406C
05	15	GENSET CONTROL & INDICATION RELAYS		FINDER OR IZUMI	-
06	1	CONTROL SUPPLY SELECTOR RELAY		FINDER OR IZUMI	LY2 WITH BASE

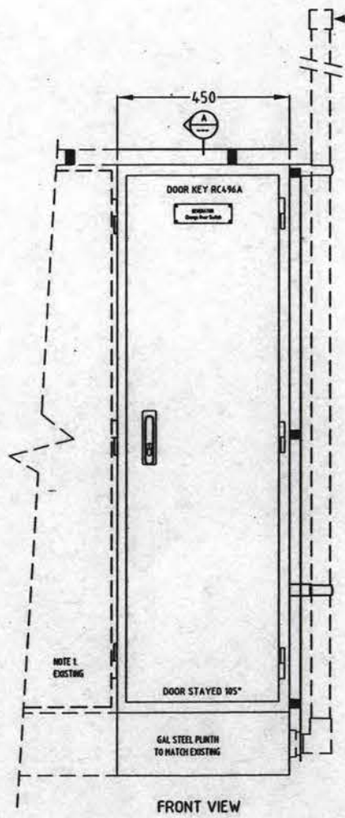
SITE SPECIFIC REFERENCE DRAWINGS

SEWAGE PUMP STATION SITE:	EX. GENERAL ARRGT.	EX. CONSTR. NOTES:	REMARKS
BIRKIN ROAD - BELLBOWRIE	486/5/7-FD419	486/5/7-FD420	REFER NOTES 1, 2, 5 & 6
PIONEER CRESCENT - BELLBOWRIE	486/5/7-FD144	486/5/7-FD145	REFER NOTES 1, 2, 5 & 6
WIRRIBOOT COURT - KARANA DOWNS	486/5/7-FK710	486/5/7-FK711	REFER NOTES 3 & 4

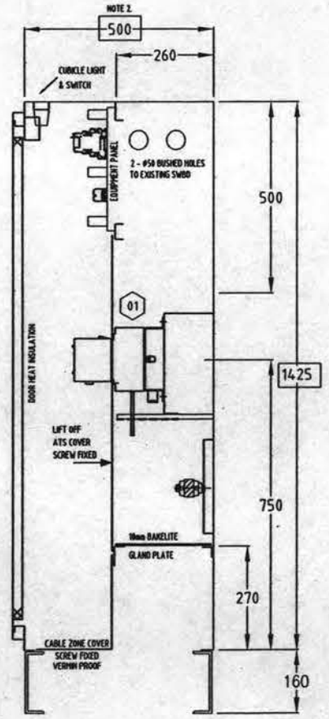
NOTES

1. CUBICLE MATERIAL, CONSTRUCTION, SUN SHIELDS AND FINISH TO MATCH EXISTING SWITCHBOARDS. CONSTRUCTION TO BE VERIFIED AGAINST EXISTING REFERENCE DRG. CONSTRUCTION NOTES.
2. CHECK DIMENSIONS OF EXISTING SWITCHBOARD AND VERIFY AGAINST EXISTING GENERAL ARRANGEMENT DRAWING. ATTACH A.T.S. PANEL TO EXISTING SWITCHBOARD THROUGH SIDE WALL WITH 4-M10 BOLTS.
3. FOR WIRING DETAILS REFER DRG 486/5/7-PS003.
4. WIRRIBOOT COURT SITE:
   THIS SITE DOES NOT REQUIRE AN ADDITIONAL CUBICLE. A 250 AMP (CAT No BH2N233) A.T.S. & ASSOCIATED CONTROL EQUIPMENT SHALL BE INSTALLED WITHIN THE EXISTING SWITCHBOARD.
5. BIRKIN ROAD AND PIONEER CRESCENT SITES:
   HAVE EXISTING EXTENSION CUBICLES FINISHING WELL ABOVE GROUND, COMPLETE WITH MANUAL TRANSFER SWITCHES.
6. THE NEW WORK FOR BOTH BIRKIN ROAD AND PIONEER CRESCENT INCLUDES THE REMOVAL OF THE EXISTING MTS EQUIPMENT AND THE INSTALLATION OF A 125 AMP (CAT No BH1N233) MOTOR OPERATED AUTOMATIC TRANSFER SWITCH AND CONTROL EQUIPMENT IN THE EXISTING EXTENSION PANEL AT EACH SITE.

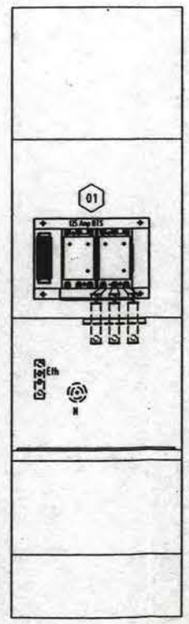
As Builts, Refer to C.L. DWG's JH86DD01, JH86DR01,



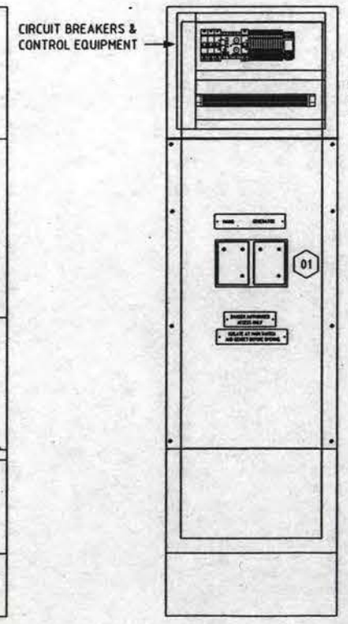
FRONT VIEW



SECTION A-A



FRONT VIEW (EQUIPMENT LAYOUT)



FRONT VIEW (DOOR REMOVED)

FOR CONSTRUCTION

No	DATE	AMENDMENT	DRN.	APD.
2	05.06	REDRAWN. NEW BORDER. CONTROL EQUIPT UPDATED.	MJL	
1	03.06	APPROVED FOR CONSTRUCTION	MJL	
0	11.05	REDRAWN FROM C.L. DRG JH05DD01		

Reference Drawings

DRAFTED	M.J. LIGHTBODY		
DRAFTING CHECK			
CAD FILE	57PS004_2		
B.C.C. FILE No.			
DESIGN	R.P.E.Q. No.	DATE	
DESIGN CHECK	R.P.E.Q. No.	DATE	
PRINCIPAL DESIGN MANAGER		DATE	
CLIENT DELEGATE		DATE	

BRISBANE WATER

PROJECT: SEWAGE SYSTEM IMPROVEMENT 2005 STANDBY GENERATORS

TITLE: TYPICAL MOTOR OPERATED AUTOMATIC TRANSFER SWITCH EXTENSION PANEL ARRANGEMENT

SHEET No. 18

BRISBANE WATER DRAWING No. 486/5/7-PS004

AMEND. 2

GENERATOR

GENERATOR 24VDC INPUTS/OUTPUTS [FROM DWG: 05.15016-600]

NEG. -24VDC SUPPLY		17
CLOSE MAINS ATS		18
CLOSE GENSET ATS		19
GENSET FAULT		20
GENSET WARNING ALARM		21
LOW FUEL		22
GENSET RUNNING		23
GENSET CONNECTED		24
PHASE FAILURE		12, 17
MAINS ON LINE		13, 17
GENSET ON LINE		14, 17
REMOTE START GENSET		15, 17
REMOTE STOP GENSET		16, 17
[NO CONNECTION]		
GENSET CANOPY DOORS OPEN		41
GENSET C/B - OFF / TRIPPED		43
GENSET IN AUTO		42
GENSET CONTROLS CONNECTED		
REFUEL NEEDED		44
[NO CONNECTION]		
[NO CONNECTION]		

GENERATOR P.L.C.

24V DC OUTPUTS: [17] 1, [18] 2, [19] 3, [20] 4, [21] 5, [22] 6, [23] 7
NOT USED 8
24V DC INPUTS: [12] 9, [17] 10, [13] 11, [17] 12, [14] 13, [17] 14
NOT USED 15, NOT USED 16, NOT USED 17, NOT USED 18, NO CONN 19
24V DC OUTPUTS: [41] 20, [43] 21, [42] 22, 23, 24, [40] 25
SPARE 26, SPARE 27

GENERATOR DIS-CONNECT PLUG

1	G01N	1
2	G02	2
3	G03	3
4	G04	4
5	G05	5
6	G06	6
7	G07	7
8	SP	8
9	G09	9
10	G10	10
11	G11	11
12	G12	12
13	G13	13
14	G14	14
15	G15	15
16	G16	16
17	G17	17
18	G18	18
19	SP - G19	19
20	G20	20
21	G21	21
22	G22	22
23	G23	23
24	G24	24
25	G25	25
26	SP	26
27	SP	27

C04

24VDC DIGITAL OUTPUT MODULE

7960

[GEN-EX]	EXERCISE GENSET	OX/00
[STRG]	START GENSET	OX/01
[STPG]	STOP GENSET	OX/02
	SPARE OUTPUT	OX/03
		OX/04
		OX/05
		OX/06
		OX/07
0V DC		693x

OX/Y 693x W Bk 1
OX/Y 693x W Bk 2
OX/Y 693x W Bk 3
OX/Y 693x W Bk 4

XXX

24VDC DIGITAL INPUT MODULE

[TSNA]	T/S AT NORMAL POS'N.	IX/00
[GFR]	GENSET FAULT	IX/01
[GWR]	GENSET WARNING	IX/02
[GLFR]	GENSET LOW FUEL	IX/03
[GMFR]	GENSET MEDIUM FUEL	IX/04
[GRR]	GENSET RUNNING	IX/05
[GDR]	GENSET CANOPY OPEN	IX/06
[GCBT]	GENSET C/B STATUS	IX/07
[GMR]	GENSET CONTROL MODE	IX/08
[PFRE]	ENERGEX MAINS POWER	IX/09
[GOS]	GENSET ON SITE	IX/10
	SPARE INPUT	IX/11
		IX/12
		IX/13
		IX/14
		IX/15

795x 24V DC+ W Bk 1
795x IX/Y W Bk 2
795x IX/Y W Bk 3
795x IX/Y W Bk 4
795x IX/Y W Bk 5
795x IX/Y W Bk 6
795x IX/Y W Bk 7
795x IX/Y W Bk 8
795x IX/Y W Bk 9
795x IX/Y W Bk 10
795x IX/Y W Bk 11
795x IX/Y W Bk 12

XXX

MAIN SWITCHBOARD R.T.U. - SECTION

NOTE:-
R.T.U. WIRE NUMBERING VARIES FROM SITE TO SITE. WIRE Nos: *OX/Y & IX/Y* AND *795x & 693x* SHALL BE REPLACED BY SITE SPECIFIC WIRE NUMBERS. [REFER TO NOTE 5]

MAIN SWITCHBOARD

CONTROL PANEL STATUS INDICATORS

MAINS AVAILABLE — Y 623 0VDC — R B
GENERATOR RUNNING — R 624 0VDC — W Bk

XXX

R.T.U. SECTION - POWER SUPPLY

BATTERY BACKED 24VDC SUPPLY — +24VDC 0VDC — R Bk
POINT OF SUPPLY TO BE DETERMINED ON SITE

XXX

MAIN SWITCHBOARD (EXISTING) - EXTENSION PANEL
GENERATOR A.T.S. PANEL

NOTE:- T/S = TRANSFER SWITCH

-XG

1	G01N	1	G01N	COMMON
2	G02	2	G02A	CTSN
3	G03	3	G03A	CTSG
4	G04	4	G04	GFR
5	G05	5	G05	GWR
6	G06	6	G06	GLFR
7	G07	7	G07	GRR
8	G08	8		
9	G09	9	G09	PFRE
10	G10	10	G10	
11	G11	11	G11	TSNA
12	G12	12	G12	
13	G13	13	G13	TSGA
14	G14	14	G14	
15	G15	15		
16	G16	16		
17	G17	17		
18	G18	18		
19	G19	19	G19	
20	G20	20	G20	GDR
21	G21	21	G21	GCBT
22	G22	22	G22	GMR
23	G23	23	G23	
24	G24	24	G24	
25	G25	25	G25	GMFR
26	G26	26		
27	G27	27		
1	OX/Y 693x W Bk	28	OX/Y 693x	GEN-EX
2	OX/Y 693x W Bk	29		
3	OX/Y 693x W Bk	30		
4	OX/Y 693x W Bk	31		
5	795x IX/Y W Bk	32	795x IX/Y	TSNA
6	795x IX/Y W Bk	33	795x IX/Y	GFR
7	795x IX/Y W Bk	34	795x IX/Y	GWR
8	795x IX/Y W Bk	35	795x IX/Y	GLFR
9	795x IX/Y W Bk	36	795x IX/Y	GMFR
10	795x IX/Y W Bk	37	795x IX/Y	GRR
11	795x IX/Y W Bk	38	795x IX/Y	GDR
12	795x IX/Y W Bk	39	795x IX/Y	GCBT
R	623	40	795x IX/Y	GMR
W	624	41	795x IX/Y	PFREA
B	0VDC	42	G23	
Bk	0VDC	43	G24	
R	+24VDC	44		
		45		
		46		
		47		
		48		
		49		
		50		
		51		
		52		
		53		
		54		
		55		
		56		
		57		
		58		
		59		
		60	623	PFREA
		61	624	GRR
		62	0VDC	
		63		
		64	+24VDC	
		65	+24VDC	
		66	+24VDC	
		67	0VDC	
		68	0VDC	
		69	0VDC	
		70		

COMMON
CLOSE T/S TO NORMAL [REF -:B12, 03:E2]
CLOSE T/S TO GENERATOR [REF -:B11, 03:E3]
GENERATOR FAULT [REF -:F11]
GENERATOR WARNING [REF -:F11]
GENERATOR LOW FUEL [REF -:F11]
GENERATOR RUNNING [REF -:F11, -:H11]

ENERGEX MAINS POWER FAILURE [REF 03:C3]
T/S AT NORMAL POSITION [REF 03:H14]
T/S AT GENERATOR POSITION [REF 03:H14]

GENERATOR CANOPY OPEN [REF -:G11]
GENERATOR CB STATUS [REF -:G11]
CONTROL MODE [REF -:G11]
GENERATOR MEDIUM FUEL [REF -:F11]

EXERCISE GENERATOR [REF 01:C3]

SPARE OUTPUTS

TSNA [REF 01:H14]
GFR [REF -:B13]
GWR [REF -:B13]
GLFR [REF -:B13]
GMFR [REF -:D13]
GRR [REF -:B13]
GDR [REF -:D13]
GCBT [REF -:D13]
GMR [REF -:D13]
PFREA [REF -:H12]

SPARE INPUT

PFREA [REF -:H12]
GRR [REF -:B13]

PFRE [REF 03:C3] — 622 — PFREA
ENERGEX PHASE FAILURE AUXILIARY RELAY [REF -:G11, -:H11]

TSN — 620 — TSNA
TSG — 621 — TSGA

TRANSFER SWITCH
IN NORMAL POSITION [REF -:G11, -:H11]
IN GENSET POSITION [REF -:G11, -:H11]

LEGEND:
- C?? CABLE IDENTIFIER
- DISCONNECT PLUG
- 5 FUSE TERMINAL
- 5 DISCONNECT LINK TERMINAL

NOTES

1. ALL WIRES & CABLE CORES ARE FERRULED WITH GRAFOPLAST SI2000 COMPATIBLE LABELLING.
2. ALL FUSES ARE 500mA UNLESS NOTED OTHERWISE.
3. REFER DWG: 486/5/7-PS001 FOR SCHEMATIC PRESENTATION.
4. GENERATOR STARTED & STOPPED
   (a) AUTOMATICALLY UNDER POWER FAILURE CONDITIONS VIA PFRE PHASE FAILURE RELAY.
   (b) SIMULATED PHASE FAILURE VIA R.T.U. AND GEN-EX RELAY.
5. R.T.U. PRESENTATION IS GENERIC. WIRE NUMBERS SHALL BE DERIVED FROM THE SITE SPECIFIC DRAWINGS AS LISTED IN THE REFERENCE TABLE ON DWG No: 486/5/7-PS003.
6. CONTACT/COIL LOCATION REFS:
   REF 03:E2 = REFER DWG. PS003, GRID REF E2
   REF -:H11 = REFER THIS DWG., GRID REF H11
7. MOTOR OPERATED ATS PANEL HAS ONE ADDITIONAL RELAY, 'SR' TO AUTOMATICALLY SWITCH CONTROL FOR THE A.T.S. TO EITHER ENERGEX OR THE GENERATOR.

OK.

FOR CONSTRUCTION

No	DATE	AMENDMENT	DRN.	APD.
1	05.06	REDRAWN. NEW BORDER. RELAY CONFIG. UPGRADED.	MJL	
0	04.06	CONSTRUCTION ISSUE.	MJL	

Reference Drawings

DRAFTED	M.J. LIGHTBODY		
DRAFTING CHECK		DESIGN R.P.E.Q. No. DATE	PRINCIPAL DESIGN MANAGER DATE
CAD FILE	57PS006_1	DESIGN CHECK R.P.E.Q. No. DATE	CLIENT DELEGATE DATE
B.C.C. FILE No.			

BRISBANE WATER

PROJECT: SEWAGE SYSTEM IMPROVEMENT 2005 STANDBY GENERATORS

TITLE: TYPICAL MOTOR OPERATED AUTOMATIC TRANSFER SWITCH INTERCONNECTION DIAGRAM

SHEET No. 18
BRISBANE WATER DRAWING No. 486/5/7-PS006
AMEND. 1

COMMON LOGIC Pty Ltd Specialist Electrical Contractors	Electrical Manual	
Subject: Pioneer Cres SP235	Sheet: 7 Of: 9	Section 4
Page Revision No: Date: 17/11/06	Manual Issue No: 1 Date: 17/11/06	

4.0 PART LIST

Authorised By: Grant Kerr

Electrical Manual

17/11/2006

Supplier Name	Part No	Item Description	Quant
ABK Electrical Wholesale	CLIWIPM27	27 CONTROL PIN W/P INSUL PLUG HI-IMPACT	1
Crompton Instruments	252-PSGW	415V NOMINAL VOLTAGE SENSING RELAY	1
NHP Electrical Engineering	96.72	2P 12AMP RELAY BASE FOR 56.32 RLY	2
NHP Electrical Engineering	2H1952BAA	2 C/OVER AUX SWITCH XS250NJA MCCB	2
NHP Electrical Engineering	38.51 24VDC	24V DC RELAY 1CO 6A	8
NHP Electrical Engineering	56.32 0074 24VI	RELAY FPIN 2CO 12A 24VDC	2
NHP Electrical Engineering	D5PP43NL3R	KIT D5 INT LED RED IND 24VAC/DC	1
NHP Electrical Engineering	D5PP53DLO	YELLOW PILOT LIGHT ROUND MAX 130V	1
NHP Electrical Engineering	D5PP53NL3A	KIT D5 INT LED YELLOW IND 24VAC/DC	1
NHP Electrical Engineering	DSRCBH1030A	DINT MCB/RCD 1P 10A 30MA 10KA	1
NHP Electrical Engineering	DTCB6106C	DINT 6KA 1P 6A CB	1
NHP Electrical Engineering	DTCB6306C	DINT 6KA 3P 6A CB	1
NHP Electrical Engineering	UXMB0058B	XH160-XH250 MOTOR OPERATORS 240V	2
Phoenix Contact Pty Ltd	PH0441504	USLKG5 EARTH TERMINAL 4MM	2
Phoenix Contact Pty Ltd	PH3004100	UK5-HESI FUSE TERMINAL M205	4
Phoenix Contact Pty Ltd	PH3004362	UK5N 4MM FEEDTHRU TERMINAL GREY	40
Ramelec Pty Ltd	017216-0000	SAKR/35 LINK TERMINAL	32
Ramelec Pty Ltd	047456-0000	ASK1 FUSE TERMINAL	2

5.0 TEST SHEETS

COMMON LOGIC Pty Ltd

A.C.N. 011 029 262

ELECTRICAL CONTRACTORS LICENCE No: 9564

Job Card Number: 0444

Variation To Fixed Price Proj	
Cost Plus Labour Proj.	
Call Out	
Service	

CUSTOMER: Brisbane Water | Project No: SP235

Representative Name: RALPH BERRY

Position: SUPERVINTENDENT | Date: 22/09/06

Signature on Completion:

Power Authority Forms	
Pre-Start Safety Mtg.	
Risk Assessment	

C/L Representative: Jeff Allan

Position: Electrician | Date: 22/09/06

Mobile Phone No: 0419 585 660

START	FINISH	DETAILS	Hrs.	No MEN	TOTAL	RATE	CHARGED
		TRAVEL TO SITE					
		Pioneer Crescent					
		Mounted extra ATS Panel					
		Cut in Submains to ATS					
		Connected Generator &					
		Control Cabling					
		Installed RTO fuses					
		& wiring					

PLEASE SEE ATTACHED FORM FOR ADDITIONAL ☐ TOTAL LABOUR CHARGED:

ITEM No:	PART No:	ITEM DESCRIPTION.	No. ITEM	COST ITEM	TOTAL COST	%	CHARGED
1.		Switchboard Kit as					
2.		supplied					
3.							
4.							
5.							
6.							
7.							
8.							
9.							

PLEASE SEE ATTACHED FORM FOR ADDITIONAL ☐ TOTAL MATERIALS:

PROGRESS CLAIM WORKS NOT COMPLETED AND NOT TESTED ☐

FURTHER WORK REQUIRED TO COMPLETE PROJECT. ☑

PROJECT COMPLETED NO FURTHER ACTION REQUIRED ☐

WHITE COPY -- CUSTOMER *YELLOW COPY -- OFFICE*

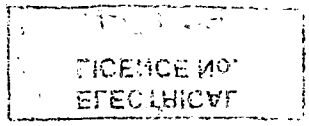
I Certify that the Electrical work listed above has been tested in accordance with the prescribed procedure and that such work complies with the requirements of the State Electricity Act.

ELECTRICAL LICENCE No. 40134

Signature: .....

	POLARITY TEST.
	INSULATION RES. TEST.
	ETH CONTINUITY TEST
	FUNCTIONAL TEST

Common Logic Pty Ltd Unit 9/58 Wecker Road, Mansfield 4122 • Ph: (07) **3849 7449** • Fax: (07) 3343 5210


LICENCE NO
ELECTRICAL

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Site Acceptance Tests

Subject: SAT for BW Generator Change Over Panels | Sheet: 1 Of: 7 | Section

Page Revision No: 0 Date: 29/08/06 Manual Issue No: 0 Date: 29/08/06

Test Carried out by..... Grant Kerr Signed... Date... 22/9/06

Test witnessed by..... Signed... Date...

Authorised By:

COMMON LOGIC Pty Ltd **Specialist Electrical Contractors**	Site Acceptance Tests	
Subject: SAT for BW Generator Change Over Panels	Sheet: 2 Of: 7	Section
Page Revision No: 0 Date: 29/08/06	Manual Issue No: 0 Date: 29/08/06	

1.0 SITE ACCEPTANCE TEST

1.1 Introduction

Complete EVERY box below; if items are not applicable indicate by a N/A in the check box, any comments can be completed at the end of the checklist.
Aim: This Commissioning list is to be completed by the person/s who are undertaking the commissioning and testing of the switchboard in question. The commissioning list is designed to check the fundamental wiring of the switchboard.
Scope: This Commissioning list is designed to test the operation of the MSB and Controls only. Building wiring is subject to test by building services qualified personnel.

Legend of Symbols

☐ Check Box, ⊗ Setting to be recorded, → and Action to take

1.2 Production Unit Information

Job Number	JH86	**Site Name**	SP235 PIONEER CRES.
	Name	**Signature**	**Date**
Testing Officer	Grant Kerr		22/09/06
Witness			

1.3 Safety precautions

Outlined below are some common safety procedures and First Aid Instruction.

SAFETY FIRST

1) Never test live boards alone. Always inform others of your actions and intentions.
2) Isolate mains or REMOVE TEST PLUG and locate close to testing area under your control.
3) Isolate the switchboard main switch and all circuitbreakers and fuses to completely remove all possibility of switching a live conductor when not deliberately required.
4) Tag all Distribution as DO NOT OPERATE removing only after tested and safe.
5) Insure NO LIVE WIRES are exposed at any time and a CLEAR TESTING AREA and escape route at all times.
6) PROTECTIVE CLOTHING and eyewear should be worn at all times when working within Live board or when appropriate.

Test Carried out by..... Grant Kerr Signed... Date... 22/09/06

Test witnessed by..... Signed... Date...

Authorised By:

COMMON LOGIC Pty Ltd **Specialist Electrical Contractors**	Site Acceptance Tests		
Subject: SAT for BW Generator Change Over Panels		Sheet: 3 Of: 7	Section
Page Revision No: 0 Date: 29/08/06	Manual Issue No: 0 Date: 29/08/06		

2.0 ELECTRICAL EARTHING SYSTEM

2.1 Electrical continuity and resistance of earthing system

☐ Maximum resistance of the Earthing system within the switchboard is 0.5 ohms (AS/NZS 3000:2000)

⊗ Test resistance of the Earthing system <0.5Ω ohms

2.2 Continuity Test Sheet

ITEM	DETAIL	COMPARTMENT DESIGNATION AND TEST RESULT		
	Test resistance of Earthing system to compartment Answer in Ohms	Extension	Main Eth Bar	Generator
1	All Earth's wired and continuous	.1	—	—
2	All metal work earthed where required	.1	—	—
3	Isolate Individual Earth Systems and check continuity.	.1	—	—

3.0 INSULATION RESISTANCE/ HIGH POT TEST

3.1 Insulation Resistance Test

Insulation resistance of whole or part of an installation must be a minimum of 1 Meg/ohm (AS/NZS 3000:2000)

☑ Insulation test conducted on all internal circuits GENERATOR LEADS

→ All Selector Switches, Isolators and CB's are in the off position

→ All electronic equipment susceptible to high voltage damage to be isolated.

3.2 Low Voltage Switchboards Insulation Test

MEGGAR VOLTAGE 1000 VOLTS

INSTRUMENT DETAILS _____

ACROSS	RESULT (M.OHM)	High Pot
Join Red, White & Blue Phases and Neutral, Test to Earth	>200 mΩ	
Red Phase to White, Blue & N	>200 mΩ	
White Phase to Red, Blue and N	>200 mΩ	
Blue Phase to Red, White & N	>200 mΩ	
N to Red, White & Blue	>200 mΩ	

Test Carried out by.... Grant Kerr Signed... Date... 22/09/06

Test witnessed by..... Signed... Date...

Authorised By:

4.0 GENERAL WIRING AND VISUAL INSPECTION

4.1 General Wiring and Visual Inspection

☐ Electrical Construction Coversheet Completed and correct.

4.2 Switchgear Visual Checklist

→ Carry out visual and mechanical checks to Switchgear

ITEM NO:	DETAIL	Switchboard compartments		
		Transfer switch compartment	Main switch area	Generator in general
1	Main Switch totally isolates SWBD	✓	✓	—
	Mains transfer switch device isolates mains from load. (IE switchboard)	✓	—	—
2	Generator transfer switch operates and isolates generator from the load. And mechanical interlock works	✓	—	—
3	Cables tight and correct phase rotation. Colour match.	✓	✓	—
4	Main Switch Correct Rating/Label	✓	—	—
5	Neutral cable connected and continuous and tight.	✓	—	—

ITEM	DETAIL	COMPARTMENT DESIGNATION AND TEST RESULT	
		Switchboard extension	Existing Switchboard. Where modified.
1	All CBs operate correctly	✓	—
2	All incoming terminal numbers as per drawings	✓	✓
3	Check wire numbers to core numbers. Random selection.	✓	✓
4	All wires numbered as per drawings (random inspection)	✓	✓
5	Cables loomed and bushed correctly to all compartments.	✓	✓
6			
7			

Test Carried out by..... Grant Kerr Signed... Date... 22/09/06

Test witnessed by..... Signed... Date...

Authorised By:

COMMON LOGIC Pty Ltd
Specialist Electrical Contractors

Site Acceptance Tests

Subject: SAT for BW Generator Change Over Panels | Sheet: 5 Of: 7 | Section

Page Revision No: 0 Date: 29/08/06 Manual Issue No: 0 Date: 29/08/06

4.3 Terminal Visual Checklist

→ Carry out visual and mechanical checks on Site terminals

ITEM	DETAIL	COMPARTMENT AND TEST RESULT	
		Switchboard extension	Existing Board
1	All Terminals tight (Randomly check)	✓	✓
2	Secure by End Clamps (Check All)	✓	✓
3	Labelled correctly	✓	✓
4			

4.4 Relay Visual Checklist

→ Carry out visual and mechanical checks on Relays

ITEM	DETAIL	COMPARTMENT AND TEST RESULT
1	Relays labelled correctly as per Drns	✓
2	All relay coils correct voltage	✓
3	Does relay require Diode fitted?	NA
4	Common Bus Link on relays fitted	✓
5	All numbering correct	✓

Test Carried out by.... Grant Kerr Signed... Date... 22/09/06

Test witnessed by..... Signed... Date...

Authorised By:

COMMON LOGIC Pty Ltd **Specialist Electrical Contractors**	Site Acceptance Tests	
Subject: SAT for BW Generator Change Over Panels	Sheet: 6 Of: 7	Section
Page Revision No: 0 Date: 29/08/06	Manual Issue No: 0 Date: 29/08/06	

5.0 CONTINUITY & PRE-COMMISSIONING TEST

5.1 Continuity Test

☑ Wiring of circuits and connections are correct to constructed wiring schematics.
☑ Random Continuity Test using Buzzer.
☑ Visual Check of all wiring.

→ Open all Circuit breakers and remove all fuse links
→ Bridge each interface and test each output.
→ Install RTU terminal Plugs into terminals
→ By bridging the relevant pins and observing the relevant RTU IO feedback all circuits will be checked.
→ Test each circuit in turn with corresponding drawings

ITEM NO:	Test description	Action	Observation	Result of test
1	Transfer to Mains	Bridge	Observe Relay GTSM	✓
2	Transfer to Gen		Observe Relay GTSG	✓
3	Generator Failed		Observe Relay GF	✓
4	Generator Fault		Observe Relay GFR	✓
5	Gen Running		Observe Relay GRUN	✓
			Check Door Indicator is on when relay is ON	✓
6	Generator Connected		Observe Relay GCONN	✓
7	Doors Opened		Observe Relay GOPEN	✓
8	CB Tripped		Observe Relay GCBT	✓
9	Not in Auto		Observe Relay GNAUTO	✓
10	Generator Not On Site		Observe Indicator	✓
11	Spare			
15	Remote Start		Observe Relay GSTART (Exercise Gen)	✓
16	Remote Stop		Observe Relay GSTOP	
1	Mains Failed	Close QM1	Indicator ON when PFR is ON	✓
			Check Door Indicator is ON when PFR is ON	✓
2	ATS to Mains	Manual Change to Mains	Indicator ON when TXS in Mains	✓
3	ATS To Gen	Manual change to Gen	Indicator ON when TSX in GEN	✓
4	Remote Start		Indicator is on when PB is ON	NA
5	Remote Stop		Indicator is on When PB is ON	NA
6	Generator is missing		Indicator is on when PB is ON	✓

Test Carried out by..... Grant Kerr Signed... Date... 22/09/06

Test witnessed by..... Signed... Date...

Authorised By:

COMMON LOGIC Pty Ltd **Specialist Electrical Contractors**	Site Acceptance Tests	
Subject: SAT for BW Generator Change Over Panels	Sheet: 7 Of: 7	Section
Page Revision No: 0 Date: 29/08/06	Manual Issue No: 0 Date: 29/08/06	

6.0 COMPONENT OPERATIONAL TEST

6.1 Component Operation Test

☑ Correct Operation and Voltages
☑ All set points and parameters set to test values if required.

6.2 AC Control Systems

→ Open all circuit breakers and remove all fuse links
→ Test each circuit individually, replacing fuses and closing circuit breakers in turn.

AFTER VOLTAGE APPLIED

→ Apply mains supply
→ Carry out voltage and operational checks (ie switch operation etc)
→ Bridge control points to check operation as per BW generator commissioning Sheet
→ Apply generator voltage and check operation
→ Return to normal and fail the mains
→ Return the mains
→ Carry out a manual transfer

ITEM NO:	DETAIL	New Extension Test Result
1	Mains Incoming Voltage Measured OK	OK
2	Unplug set and check alarm	OK
3	Open doors	OK
4	Trip CB	OK
5	Engine temperature/Alarm	NA
6	Turn set to Auto and Manual	OK
7	Low fuel alarm	OK
8	Fuel empty alarm	OK
9		
10	Manually initiate generator start	OK
11	Manually restore to mains	OK
12	Remote start	OK
13	Remote stop	OK
14	Mains fail Start	OK
15	Return to mains	OK
16	Mains fail and then fail generator	OK
17	Check return to to mains if gen fails	OK
18		
19		
20		

Test Carried out by.... Grant Kerr Signed... Date... 22/09/06.

Test witnessed by..... Signed... Date...

Authorised By:

BRISBANE WATER

Network Control Systems

IDTS POINT COMMISSIONING SHEET AND GENERATOR SUPPLY OPERATIONAL CHECKS

Pump Station Generator Connection

SITE TYPE & NO: **PIONEER CRESENT**

Site Name. **SP235**

NOTE: *Some (or all) of the Generator associated IDTS points may be Scan Inhibited in the IDTS system. Remove the Scan Inhibit from these points before proceeding with these tests*

IDTS Point : Generator Offsite

Action	Observation	Result
Connect the Control interface lead to the station	Confirm that GENERATOR OFFSITE alarm is returned to normal by IDTS	✓ Yes
Disconnect the Control interface lead to the station	Confirm that GENERATOR OFFSITE alarm is received by IDTS	✓ Yes
Reconnect the Control interface lead to the station		✓ Yes

IDTS Point : Generator Unsecured

Action	Observation	Result
Open a canopy door on the Generator	Confirm that GENERATOR UNSECURED alarm is received by IDTS	✓ Yes
Close the canopy door	Confirm that GENERATOR UNSECURED alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Generator Low_fuel

Action	Observation	Result
Make the Generator low fuel warning alarm active	Confirm that GENERATOR LOW_FUEL alarm is received by IDTS	✓ Yes
Deactivate the Generator low fuel warning alarm	Confirm that GENERATOR LOW_FUEL alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Generator Med_fuel

Action	Observation	Result
Make the Generator medium fuel warning alarm active	Confirm that GENERATOR MED_FUEL alarm is received by IDTS	✓ Yes
Deactivate the Generator medium fuel warning alarm	Confirm that GENERATOR MED_FUEL alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Generator Warning

Action	Observation	Result
Make the Generator warning alarm active (except by low fuel)	Confirm that GENERATOR WARNING alarm is received by IDTS	✓ Yes
Deactivate the Generator warning alarm	Confirm that GENERATOR WARNING alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Generator Common_fault

Action	Observation	Result
Make the Generator common fault alarm active	Confirm that GENERATOR COMMON_FAULT alarm is received by IDTS	✓ Yes
Deactivate the Generator common fault alarm	Confirm that GENERATOR COMMON_FAULT alarm return to normal is received by IDTS	✓ Yes

Brisbane Water – Network Control Systems Section

IDTS Point : Generator Automatic

Action	Observation	Result
Turn the generator to local mode	Confirm that GENERATOR AUTOMATIC alarm is RETURNED TO NORMAL by IDTS	✓ Yes
Return the generator to automatic mode	Confirm that GENERATOR AUTOMATIC alarm is received by IDTS	✓ Yes

IDTS Point : Generator CB_tripped

Action	Observation	Result
Trip the Generator circuit breaker	Confirm that GENERATOR CB_TRIPPED alarm is received by IDTS	✓ Yes
Reset the Generator circuit breaker	Confirm that GENERATOR CB_TRIPPED alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Generator Running

Action	Observation	Result
Start the Generator	Confirm that GENERATOR RUNNING alarm is received by IDTS	✓ Yes
Stop the Generator	Confirm that GENERATOR RUNNING alarm return to normal is received by IDTS	✓ Yes

IDTS Control Points : Generator Exercise

Action	Observation	Result
Confirm the Generator is available to run, but not running		
Set the IDTS control point GENERATOR START EXERCISE and send to the site	Confirm that the Generator starts and runs off-line	✓ Yes
	Confirm that GENERATOR RUNNING alarm is received by IDTS	✓ Yes
Set the IDTS control point GENERATOR STOP EXERCISE and send to the site	Confirm that the Generator stops	✓ Yes
	Confirm that GENERATOR RUNNING alarm return to normal is received by IDTS	✓ Yes

IDTS Point : Power_supply Energex_power

Action	Observation	Result
Turn the generator to local mode		
Fail the Energex power	Confirm that POWER_SUPPLY ENERGEX POWER alarm is received by IDTS	✓ Yes
Restore the Energex power	Confirm that POWER_SUPPLY ENERGEX POWER alarm return to normal is received by IDTS	✓ Yes

IDTS Point : ATS Energex , and Generator supply operational checks

NOTE: The purpose of these operational checks is;

- *To confirm the pumps are interlocked under Generator supply (where required)*
- *To confirm the code changes have not interfered with the operation of the Surcharge Imminent probe.*

Action	Observation	Result
Ensure the Generator is in Automatic mode		
Ensure the pumps are selected for local mode		
Ensure there is enough sewage in the well for the pumps to run continuously for one minute		
Fail the Energex power to the Generator	Confirm that the Generator starts and supplies power to the station	✓ Yes
	Confirm that ATS ENERGEX alarm is received by IDTS	✓ Yes
Generator Capacity	Confirm the Generator will run both pumps under generator supply.	✓ Yes
Site: BirkinRd.	Confirm the RTU will run a maximum of two pumps under generator supply.	NA
Restore Energex power and record the time taken for the Generator controller to return the station power to Energex supply	Time for station power to return to Energex supply	...300..... Secs
	Confirm that ATS CLOSED alarm return to normal is received by IDTS	✓ Yes
Record time taken for the Generator to stop after station power to returns to Energex supply	Time for Generator to stop after station power to returns to Energex supply	.....300..... Secs

Brisbane Water – Network Control Systems Section

Pump Automatic operation, and

Surcharge Imminent operation under Generator supply

Action	Observation	Result
Fail the Energex power to the Generator	Confirm that the Generator starts and supplies power to the station	✓ Yes
Ensure the pumps are selected for remote mode	Fixed speed pump sites: Confirm that the duty pump lowers the well to the Duty A stop level and stops	NA
	Variable speed pump sites: Confirm that the duty pump operates on variable speed control satisfactorily	✓ Yes
Ensure the well level is below the Duty A start level using pump local control as required		✓ OK
Ensure the pumps are selected for remote mode and are stopped		✓ OK
Activate the surcharge imminent probe for at least 10 sec	Confirm that WET_WELL SURCHARGE_IMMINENT alarm is received by IDTS	✓ Yes
	Confirm that all pumps (available under Generator supply) start	✓ Yes
Return the surcharge imminent probe to normal	Confirm that WET_WELL SURCHARGE_IMMINENT alarm return to normal is received by IDTS	✓ Yes
Restore Energex power indication to the Generator and allow the Generator controller to return the station power to Energex supply		✓ OK

IDTS Points and Generator Supply

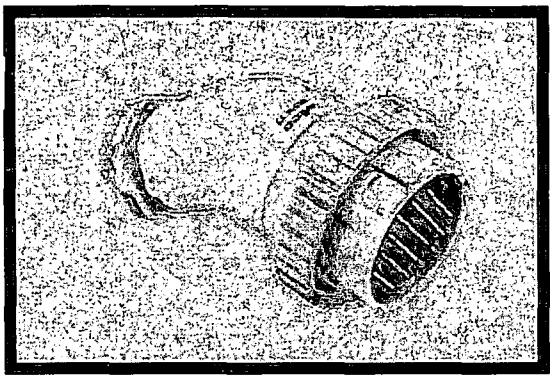
Operational Checks commissioned by .....Dan Vowles..... Date ...21/09/06.....

COMMON LOGIC Pty Ltd Specialist Electrical Contractors	Electrical Manual	
Subject: Pioneer Cres SP235	Sheet: 9 Of: 9	Section 6
Page Revision No: Date: 17/11/06	Manual Issue No: 1 Date: 17/11/06	

6.0 TECHNICAL INFORMATION

Authorised By: Grant Kerr

Catalogue No. WIPM27



Colour Options

	No colour options
TR	Transparent

More colour options may be available. Please check with your nearest Clipsal office.

Description:

Low Voltage Multipin - 27 Pin Maximum. Wilco Industrial Hi-Impact Insulated Angle Plug. Wilco Industrial Hi-Impact Insulated Plugs One Piece Angle With Screw Ring - IP56

Item Type
02 Industrial Products

Business Area
40 Industrial Switchgear

Product Group
403 Wilco Hi-Impact Industrial Switchgear

Item Group
40303 Plugs & Extension Sockets

Brochures Available:

A Specifiers guide to Clipsal Industrial

A Specifiers guide to Clipsal Industrial

A Specifiers guide to Clipsal Industrial

tyco Electronics / Energy Division **INSTALLATION INSTRUCTIONS**

Ref: IW250PMSH – Rev 6 – Sept 02

Protector Trip Relays DIN Rail & Wall Mounted 250 Series Thermistor Trip, Speed Sensing & Phase Angle

Models Covered

252-PMM	252-PMT	252-PSF	252-PSG
253-PH3	252-PMM	252-PMT	

Introduction

Thermistor Trip Relay (252-PMM & 252-PMT).

The trip inputs are monitored within settable limits. In the event of the input moving outside these limits, the unit will initiate a trip signal via a double pole changeover relay. An illuminated green LED indicates when the thermistor temperature is within normal working limits. The unit is designed such that the alarm relay is energised when normal temperatures are reached.

Model 252-PMM has the facility for manual resetting, so that the trip condition remains after normal operating temperature is reached, until manual intervention occurs.

Phase Balance Relay (252-PSF & 252-PSG)

Trip inputs are monitored within settable limits. In the event of the input moving outside these limits, the unit will initiate a trip signal via a double pole changeover relay. An illuminated red LED indicates that the supply is within limits.

Speed Sensing Relay (253-PH3)

Trip inputs are monitored within settable limits. In the event of the input moving outside these limits, the unit will initiate a trip signal. The illuminated red LED's indicates that the single pole output relays are in an energised state and at normal running speed all three relays should be energised. Units are factory adjusted for normal running speed = 0.75mA output. The meter adjust pot on the product front is used for this requirement, which also ensures the trip levels are set to the calibrated values. Terminal 8 is connected to terminal 5 internally. Terminals 15 and 16 give a 0/1mA signal proportional to speed.

No.1 Relay energises on rising speed
No.2 Relay energises on rising speed
No.3 Relay de-energises on rising speed

This product is designed for use only with magnetic coil inductive sensors.

Warning

- During normal operation, voltages hazardous to life may be present at some of the terminals of this unit. Installation and servicing should be performed only by qualified, properly trained personnel abiding by local regulations. Ensure all supplies are de-energised before attempting connection or other procedures.
- It is recommended adjustments be made with the supplies de-energised, but if this is not possible, then extreme caution should be exercised.
- Terminals should not be user accessible after installation and external installation provisions must be sufficient to prevent hazards under fault conditions.
- This unit is not intended to function as part of a system providing the sole means of fault protection - good engineering practice dictates that any critical function be protected by at least two independent and diverse means.

Never open circuit the secondary winding of an energised current transformer.

Installation

The Protector should be installed in a dry position, not in direct sunlight and where the ambient temperature is reasonably stable and will not be outside the range 0 to 60 degrees Celsius. Mounting will normally be on a vertical surface but other positions will not affect the operation. Vibration should be kept to a minimum. The Protectors are designed for mounting on a 35mm rail to DIN 46277. Alternatively they may be screw fixed; a special adaptor is supplied to mount 252 types.

To mount a protector on a DIN rail, the top edge of the cutout on the back is hooked over one edge of the rail and the bottom edge carrying the release clip clicked into place. Check that the unit is firmly fixed. Removal or repositioning may be achieved by levering down the release clip and lifting the unit up and off the rail.

Connection diagrams should be carefully followed to ensure correct polarity and phase rotation where applicable. External voltage transformers may be used on 252-PSF and 252-PSG to extend the range.

252-PMM, 252-PMT & 253-PH3

Pick up, input and output leads should be kept separate from any other wiring.

Setting Controls (252-PSF, 252-PSG)

These products have two calibration facilities that can be set to suit operating requirements and they are factory calibrated as follows:-

1. % unbalance set points
   Voltages of and below 380 volts L-L are calibrated to 1.0% class index of rated voltage. Voltages above 380 volts L-L are calibrated to 1.5% class index of rated voltage.
2. Time Delay
   For all voltage ranges 10% maximum delay.
3. Voltage Withstand
   Continuous overload = 1.35 x rated voltage

Setting Up (all other models)

The calibration marks around the controls are provided as a guide if the installer does not have access to accurate equipment. The maximum error of the calibration marks is typically 10% of the span of the control concerned.

Maintenance

The unit should be inspected to normal standards for this class of equipment. For example remove accumulations of dust and check all connections for tightness and corrosion. In the unlikely event of a repair being necessary it is recommended that the unit be returned to the factory or to the nearest Crompton Instruments Service Centre

Electromagnetic Compatibility

This unit has been designed to provide protection against EM (electro-magnetic) interference in line with requirements of EU and other regulations. Precautions necessary to provide proper operation of this and adjacent equipment will be installation dependent and so the following can only be general guidance:-

- Avoid routing wiring to this unit alongside cables and products that are, or could be, a source of interference.

Crompton INSTRUMENTS

INSTALLATION INSTRUCTIONS

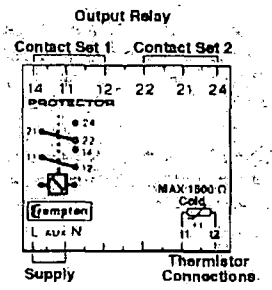
Ref: IW250PMSH – Rev 6 – Sept 02

Protector Trip Relays
DIN Rail & Wall Mounted 250 Series
Thermistor Trip, Speed Sensing & Phase Angle

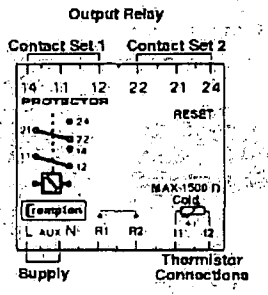
- The auxiliary supply to the unit should not be subject to excessive interference. In some cases, a supply line filter may be required.
- To protect the product against incorrect operation or permanent damage, surge transients must be controlled. It is good EMC practice to suppress differential surges to 2kV or less at the source. The unit has been designed to automatically recover from typical transients, however in extreme circumstances it may be necessary to temporarily disconnect the auxiliary supply for a period of greater than 5 seconds to restore correct operation.
- Screened communication and small signal leads are recommended and may be required. These and other connecting leads may require the fitting of RF suppression components, such as ferrite absorbers, line filters etc., if RF fields cause problems.

It is good practice to install sensitive electronic instruments that are performing critical functions in EMC enclosures that protect against electrical interference causing a disturbance in function.

252-PMT

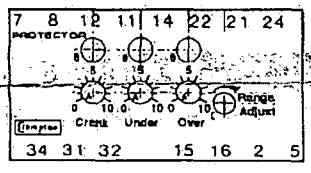


252-PMM

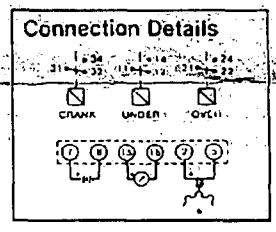


252-PMM can operate in either an automatic or a manual reset mode.
For automatic the reset link R1-R2 is to be disconnected.
For manual the reset link R1-R2 must be inserted.

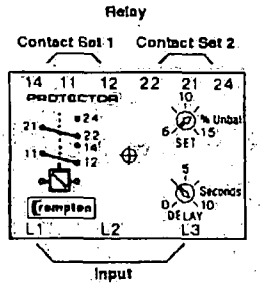
253-PH3



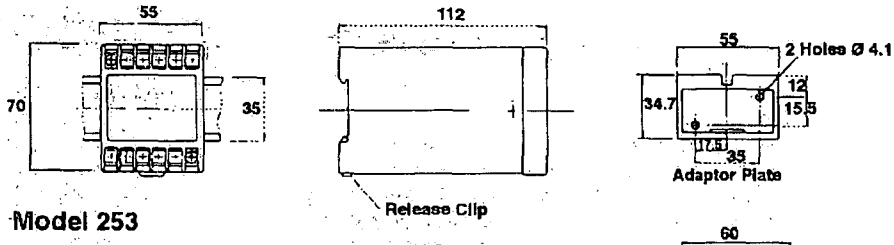
253-PH3



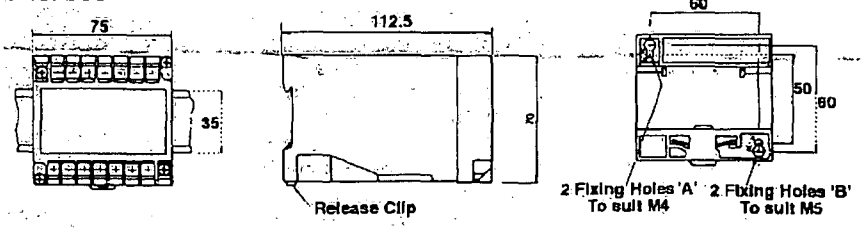
252-PSF
252-PSG



Model 252

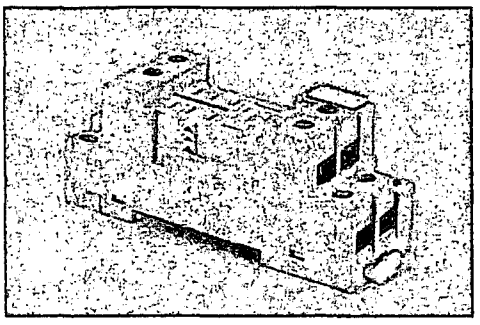


Model 253



Tyco Electronics UK Limited
Crompton Instruments
Freebournes Road, Witham, Essex, CM8 3AH, UK
Phone: +44 1376 509 509 Fax: +44 1376 509 511
http://energy.tycoelectronics.com

finder



Representative Image Only

Catalogue Number:	96.72
Description:	SKT FOR 56.32 RLY + LED MOD
List Price:	S1 Refer to our eCatalogue
Unit Of Measure:	EA
Price Schedule:	B2

All prices are exclusive of GST

Relays / Accessories

Brand: Finder
Accessory type: Plug-in base

Features

- DIN rail mounting socket with open terminals, to suit miniature power relays, flat pin 2 C/O (8 pin), eg 56.32.
- This socket also accepts the 99 series LED modules.

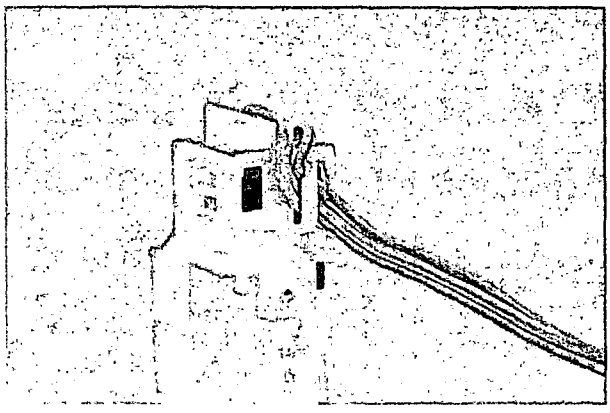
Benefits

- The 96.72 series sockets are designed for DIN rail mounting, with the added benefit of incorporating an LED indicator in the same socket as the relay.
- Provides a space saving relay / indicator combination.
- Relay retaining clips also available.

NHP **Item Info**

NHP E-Cat online website
Friday, November 17, 2006 9:49:38 AM
User: Not logged in

TERASAKI



Catalogue Number:

2H1952BAA

Description:

SW AUX 2C RH X2

List Price $ (Not including GST):

Unit of Measure:

EA

Price Schedule:

T2

Circuit breakers-Moulded Case (MCCB)

Accessories-Alarm and auxiliary switches

Frame size

250A

Position

Right hand

Features

- Auxiliary switch 2 circuit (2C) RH to suit Tembreak X250 series circuit breakers.
- Factory fitted - internally mounted (right hand side) signalling device.

Benefits

- Auxiliary switch electrically indicates on / off status of the breaker.
- The auxiliary switch is mounted within the breaker and as such does not take up any extra pole space.

Ordering Information

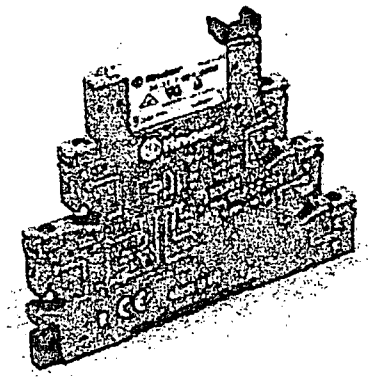
- This is a factory fitted accessory.

All prices are exclusive of GST.

NHP Item Info

NHP E-Cat online website
Tuesday, November 14, 2006 1:48:00 PM
User: skerr

finder



Catalogue Number:

38.51 24VDC

Description:

PLEASE ORDER 385124VACDC

List Price $ (Not including GST):

46.55

Unit of Measure:

EA

Price Schedule:

B2

Relays Interface Module

Relays Interface Module

Contact arrangement

1 C/O 6A AC1 250VAC

Voltage

24V DC

Number of pins

3

Features

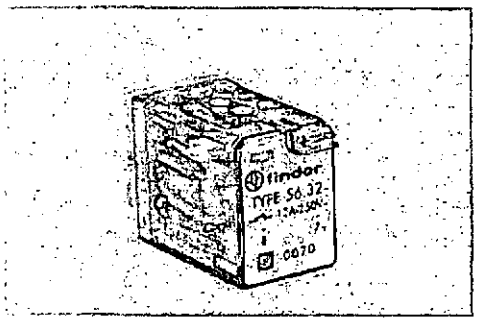
- Miniature Din rail mounting type Relay interface module
- Supply voltage: 24V DC
- 1 C/O contact, 6A, 250V AC 1

Benefits

- Compact Din mount presentation
- Low coil consumption

All prices are exclusive of GST.

finder



Representative Image Only

Catalogue Number:	56.32.0074 24VDC
Description:	RLY W/PB+LED+FLG FPIN 2CO 12A
List Price:	Refer to our eCatalogue
Unit Of Measure:	EA
Price Schedule:	B2

All prices are exclusive of GST

Relays-plug-in type / Flat pin

Brand: Finder
Contact arrangement: 2 C/O
Voltage: 24V.DC
Number of pins: 8

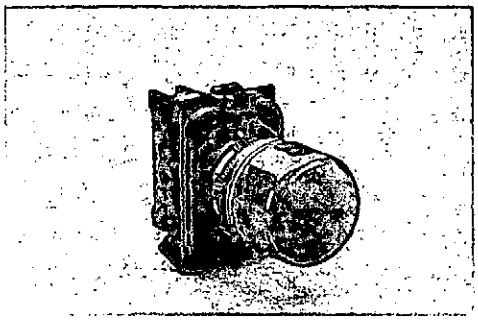
Features

- 24VDC, 12A.
- 2 C/O contacts.
- Flat pins.

Benefits

- Lockable test button.
- Mechanical flag indicator and LED.

sprecher+schuh



Representative Image Only

Catalogue Number:	D5P-P43NL3R
Description:	KIT D5 INT LED RED IND 24VAC
List Price:	Refer to our eCatalogue
Unit Of Measure:	EA
Price Schedule:	A2

All prices are exclusive of GST

Pushbutton Products / Pilot Light and Buzer

Brand: Sprecher + Schuh
Mounting Size: 22.5mm
Specification: Complete
Shape: Round
Style / Frame: Standard
Colour: Red
Lamp Block: Full Voltage

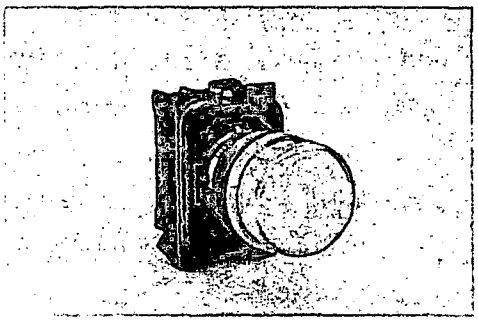
Features

- Part of the vast D5 range of matching 22.5 mm. control and signalling units providing IP 66 front protection.
- Assembled round plastic pilot light fitted with coupling plate and clip-on LED.
- Easy to mount.
- Wide range of legends available to complete the assembly.
- Individually packaged component.

Benefits

- The D5 range combines aesthetic appeal with robust flexibility to suit heavy-duty industrial control applications.
- Readily visible.
- Pre-assembly saves time.
- When fixing pliot light it will hold in place without a notched panel hole.
- Saves time and allows fitting by one person only.
- Simplified ordering and spares holding.

sprecher+schuh



Representative Image Only

Catalogue Number:	D5P-P53NL3A
Description:	KIT D5 INT LED YLW IND 24VAC
List Price:	Refer to our eCatalogue
Unit Of Measure:	EA
Price Schedule:	A2

All prices are exclusive of GST

Pushbutton Products / Pilot Light and Buzer

Brand: Sprecher + Schuh
Mounting Size: 22.5mm
Specification: Complete
Shape: Round
Style / Frame: Standard
Colour: Yellow
Lamp Block: Full Voltage

Features

- Part of the vast D5 range of matching 22.5 mm. control and signalling units providing IP 66 front protection.
- Assembled round plastic pilot light fitted with coupling plate and clip-on LED.
- Easy to mount.
- Wide range of legends available to complete the assembly.
- Individually packaged component.

Benefits

- The D5 range combines aesthetic appeal with robust flexibility to suit heavy-duty industrial control applications.
- Readily visible.
- Pre-assembly saves time.
- When fixing pliot light it will hold in place without a notched panel hole.
- Saves time and allows fitting by one person only.
- Simplified ordering and spares holding.

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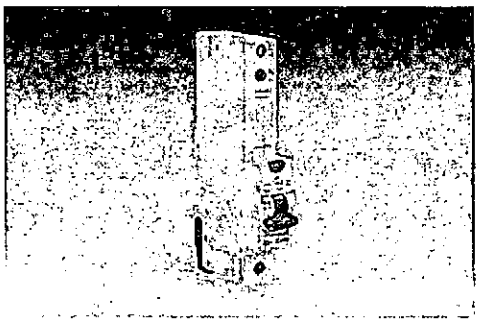


Representative Image Only

Catalogue Number:	DSRCBH1030A
Description:	MCB/RCD 1P 10A 30MA 10KA DIN-T
List Price:	Refer to our eCatalogue
Unit Of Measure:	EA
Price Schedule:	T3

All prices are exclusive of GST

Circuit breakers - Earth Leakage / ELCB Din

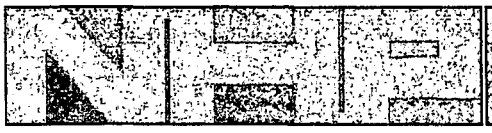
Brand: Terasaki
Current rating: 10A
Number of poles: 1P + N
Modules: 1 (18)
Trip sensitivity: 30mA
Voltage: 240V AC

Features

- Short circuit protection 10kA.
- 50kA and 65kA fuse back up.
- Sensitivities 10mA and 30mA.
- 6A, 10A, 16A, 20A, 25A, 32A & 40A Current ratings.
- Type A RCD.
- On and Off indication with colour coding.
- Handle can be sealed and locked in "on" or "off" position.
- IP20 finger protection.
- Wide range of accessories.
- Information clearly labeled on front of RCD.
- Flexible 1.2m long neutral pigtail.

Benefits

- Space saving, same width Din-T MCB.
- Can be directly retrofitted replacing a Din-T MCB.
- High level of short circuit protection.
- Wide range of current settings.
- Approved for use in Australia and New Zealand.
- Conforms to international standards.
- Terminals clearly labeled for easy connection.



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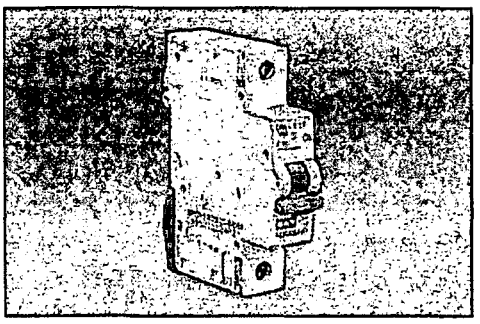


Representative Image Only

Catalogue Number:	DTCB6106C
Description:	MCB 6KA 1P 6A C CURVE DIN
List Price:	Refer to our eCatalogue
Unit Of Measure:	EA
Price Schedule:	T1

All prices are exclusive of GST

Circuit breakers-miniature / MCB DIN 6 kA

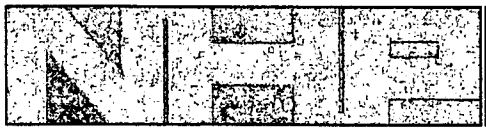
Brand: Terasaki
Current rating: 6A
Number of poles: 1 Pole
Curve type: C Curve

Features

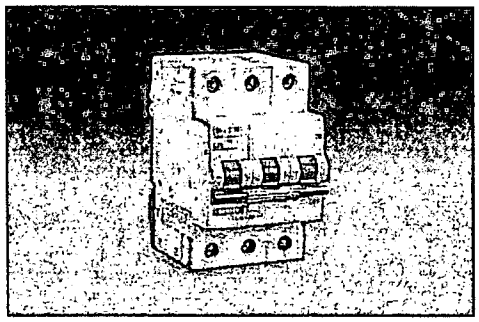
- 6kA, 10kA & 15kA short circuit breaking capacities available.
- 50kA and 65kA fuse backup.
- On and Off indication with colour coding.
- Handle can be sealed and locked in "on" or "off" position.
- High speed operation and rapid arc quenching.
- Consistant line and load terminal height for Din-T 6, 10 & 15 MCB's.
- IP20 finger protection.
- 35mm2 capacity terminals.
- Wide range of accessories.
- Conformity to Australian and International standards.
- Versatility in mounting, distribution boards, switchgear panels and consumer units.
- High selectivity figures.
- Information clearly labeled on front of breaker.

Benefits

- Elimates confusion regarding the operating state of the MCB.
- Increased protection as contacts open through overload or short circuit even when handle is sealed in the "on" position.
- Saves cost, allows for a fuseless system and confines power outages to the effected circuit preventing wide spread loss of power.
- Can fit larger cables.
- Provides greater flexibilty of use.
- Security on conformitiy.
- Special data very accessible.



TERASAKI



Representative Image Only

Catalogue Number:	DTCB6306C
Description:	MCB 6KA 3P 6A C CURVE DIN
List Price:	Refer to our eCatalogue
Unit Of Measure:	EA
Price Schedule:	T1

All prices are exclusive of GST

Circuit breakers-miniature / MCB DIN 6 kA

Brand: Terasaki
Current rating: 6A
Number of poles: 3 Pole
Curve type: C Curve

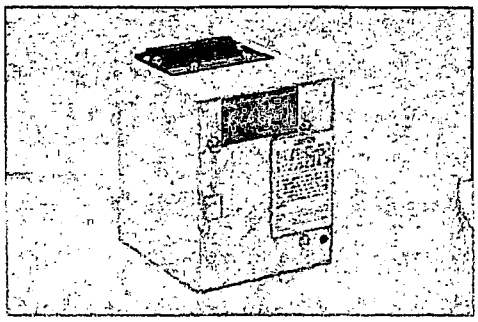
Features

- 6kA, 10kA & 15kA short circuit breaking capacities available
- 50kA and 65kA fuse backup
- On and Off indication with colour coding
- Handle can be sealed and locked in "on" or "off" position
- High speed operation and rapid arc quenching
- Consistant line and load terminal height for Din-T 6, 10 & 15 MCB's
- IP20 finger protection
- 35mm2 capacity terminals
- Wide range of accessories
- Conformity to Australian and International standards
- Versatility in mounting, distribution boards, switchgear panels and consumer units
- High selectivity figures
- Information clearly labeled on front of breaker

Benefits

- Elimates confusion regarding the operating state of the MCB
- Increased protection as contacts open through overload or short circuit even when handle is sealed in the "on" position
- Saves cost, allows for a fuseless system and confines power outages to the effected circuit preventing wide spread loss of power
- Can fit larger cables
- Provides greater flexibilty of use
- Security on conformitiy
- Special data very accessible

TERASAKI



Representative Image Only

Catalogue Number:	UXMB0058B
Description:	MOTOR XMB 240VA X2
List Price:	Refer to our eCatalogue
Unit Of Measure:	EA
Price Schedule:	T2

All prices are exclusive of GST

Circuit breakers-Moulded Case (MCCB) / Accessories-Remote operators

Brand: Terasaki
Voltage: 240V AC
Frame size: 250A

Features

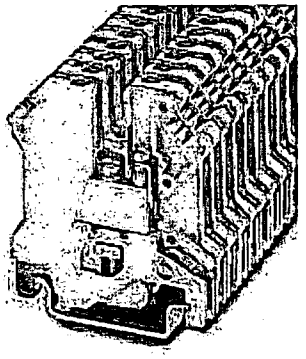
- Motor operator 240V AC to suit Tembreak X250 series circuit breakers.
- The UXMB motor operator is a factory fitted item.

Benefits

- Motor operator, for remote switching / operation of circuit breaker / circuit breaker functions.

PHOENIX CONTACT
INNOVATION IN INTERFACE

Universal Ground Terminal Block USLKG



Article description	USLKG 5
Order No.	0441504 USLKG 5 0441517 USLKG 5-1
EC Prototype certificate no.	KEMA 99ATEX4487U
Assembly on mounting rails	NS 32 acc. to EN 60715-G 32 NS 35 acc. to EN 60715-TH 35
Assembly instructions	See page 2
Temperature range of use	-40 °C to +90 °C

Technical data according to EN 50019 (Increased Safety "e")

Connection capacity

Rated cross section	4 mm²	AWG 12
Max. conductor cross section	4 mm²	AWG 12
Connectable conductor cross sections	0.2 - 4 mm² rigid and flexible	AWG 24 - 12

Explosion protection data

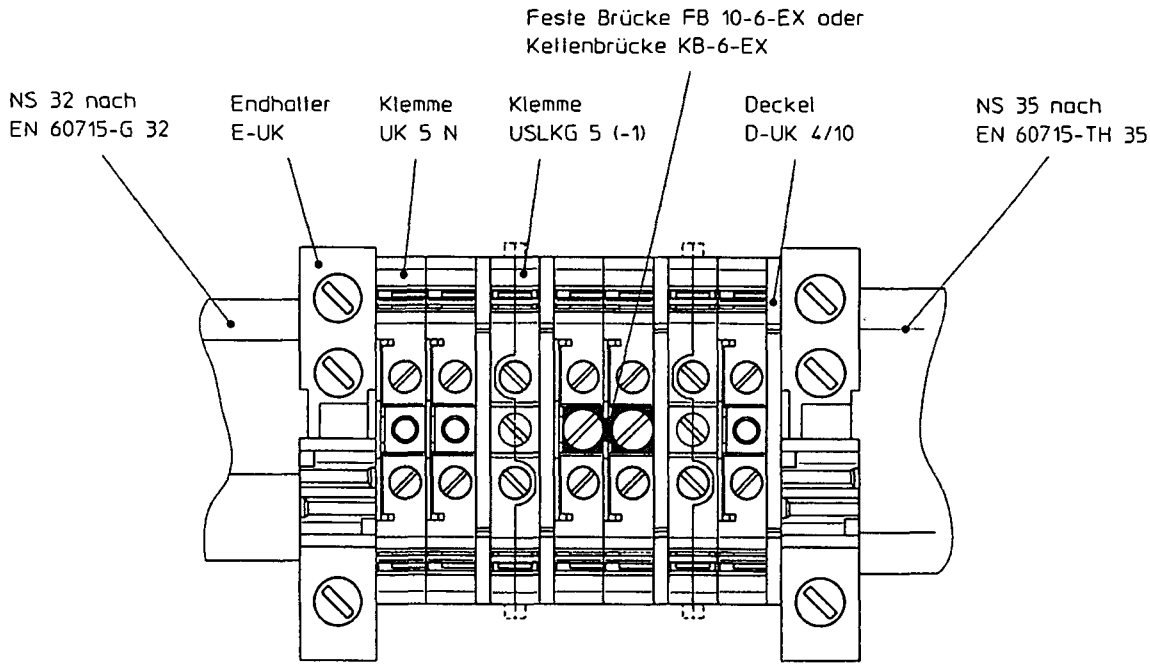
Max. operating voltage	550 V on NS 32 750 V on NS 35	Mounted in rows with UK 5 N

Data of insulation material

Description	PA 6.6	
Creep resistance acc. to IEC 60112 / material group	CTI 600 / I	

Important assembly instructions – increased safety "e"

When adding other series and sizes of terminal blocks and using additional accessories, the required air and creepage distances have to be observed.



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UK 5-HESI

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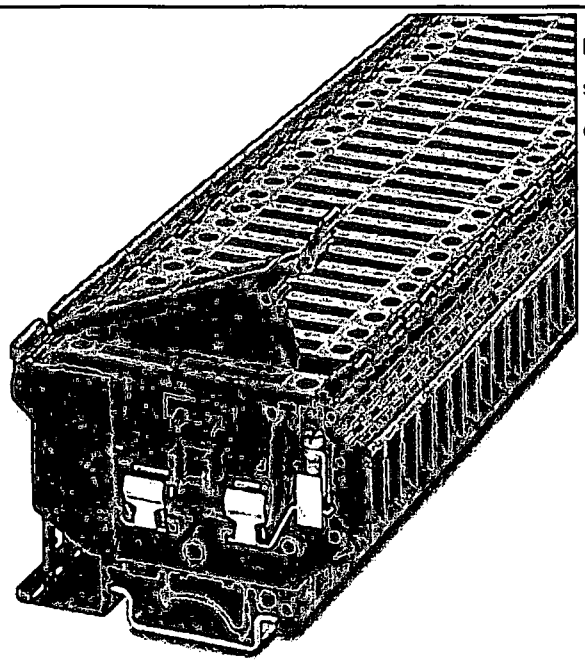
Extract from the online catalog



Fuse terminal block for cartridge fuse insert, cross section: 0.2 - 4 mm², AWG: 26 - 10, width: 8.2 mm, color: black

Order No.	3004100
Ord designation	UK 5-HESI
EAN	4017918090623
Pack	50 Pcs.
Customs tariff	85363010
Weight/Piece	0,018509 KG
Catalog page information	Page 266 (CL-2005)

Product notes

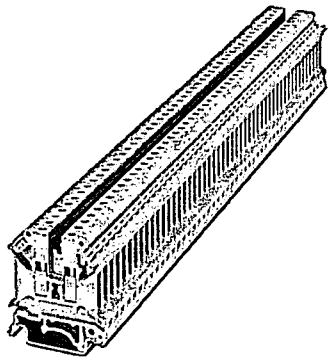
WEEE/RoHS-compliant since:	01/01/2003

IMPORTANT : This date is valid for Customers in Germany only. Date Format is MM/DD/YYYY.Please contact your local in-country Phoenix Contact location or designated business partner for a Logistics Compliant date in your area.In order to guarantee delivery of RoHS-Compliant product, please purchase Phoenix Contact parts from authorized Phoenix Contact representatives and distributors.

PHOENIX CONTACT
INNOVATION IN INTERFACE

Feed-Through Modular Terminal Block

Article description	UK 5 N
Order No.	3004362
EC Prototype certificate no.	**KEMA 98ATEX1651U**
Identification	0344 ⟨Ex⟩ II 2 GD EEx e II KEMA 98ATEX1651U
Assembly on mounting rails	NS 32 acc. to EN 60715-G 32 NS 35 acc. to EN 60715-TH 35
Assembly instructions	See page 2
Temperature range of use	-40 °C to +80 °C



Technical data according to EN 50019 / EN 50020

Max. operating voltage Increased safety "e" Intrinsic safety "i"	750 V 60 V	550 V on NS 32
Nominal current	30 A	
Max. load current	38 A	

Connection capacity

Rated cross section	4 mm²	AWG 12
Max. conductor cross section	6 mm²	AWG 10
Connectable conductor cross sections	0.2 – 6 mm² V	AWG 24 – 10

Multi-conductor connection (two conductors with same cross section)

Rigid / flexible	0.2 – 1.5 mm² V	AWG 24 – 16

Data of insulation material

Description	PA 6.6
Creep resistance acc. to IEC 60112 / material group	CTI 600 / I

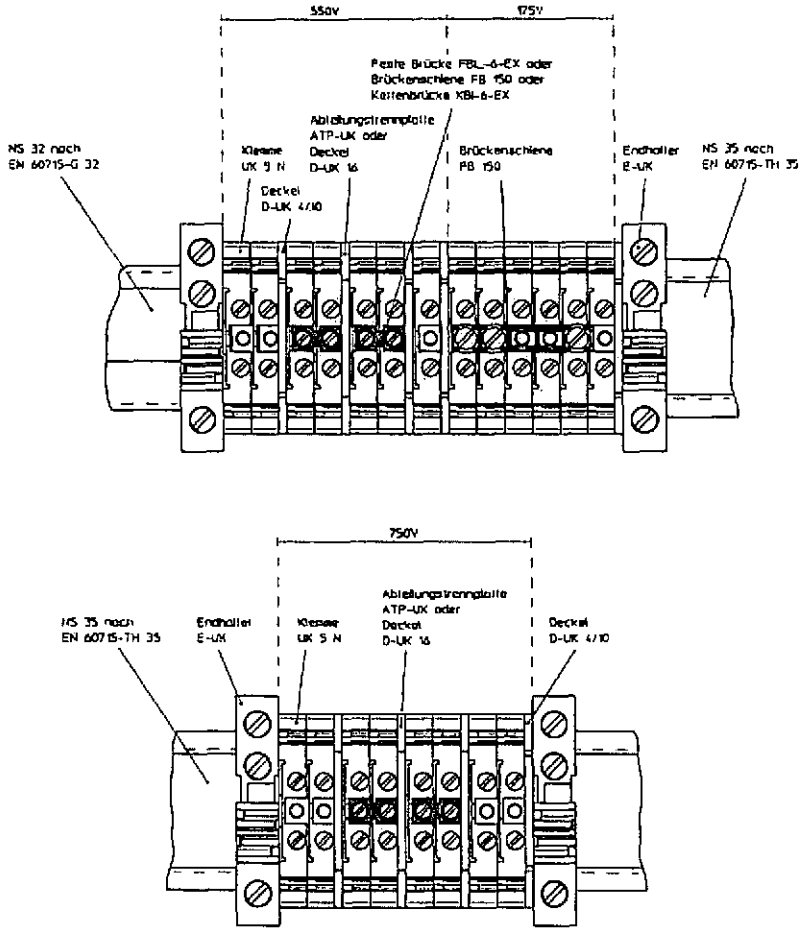
Accessories	Description	Order No.	
Cover	D-UK 4/10	3003020	
Cover	D-UK 16	3006027	
Partition plate	ATP-UK	3003224	
Fixed bridge	FBI 10-6-EX	0203519	Max. 37 A acc. to EN 50019
Chain bridge	KBI-6-EX	0711849	Max. 37 A acc. to EN 50019
Bridge rail	FB 150	0201595	Max. 27 A acc. to EN 50019

Important assembly instructions – increased safety "e"

When adding other series and sizes of terminal blocks and using additional accessories, the required air and creepage distances have to be observed.

If fixed bridges and chain bridges are used, a cover is necessary between bridges which make direct contact, as well as at the beginning and end of each bridge, in order to maintain the insulation distances.

If the fixed bridges are used for creating bridging between non-adjacent terminals, the max. working voltage is reduced to 175 V.



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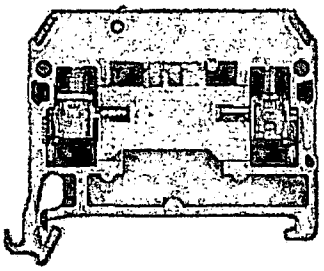
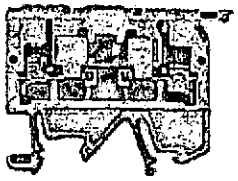


General ordering data	
Order No.	0172160000
Short text for material	SAKR/35
EAN	4008190030445
Qty	100
Product notes	
Note, ordering data	SAKR/35 2 StB order No. 0183360000
Note, technical data	Tightening torque for the test sockets 0.5 -0.7 Nm
Additional technical data	
Type of connection	screwed
No. of identical terminals	1
Version	Disconnect terminal
Type of mouting	clipped
UL 94 flammability rating of insulation material	V2
Installation advice	TS 35
Colour of insulating material	beige
Insulating material	PA 66
Open sides	right
Operating temperature range	- 50 °C, + 100 °C
Connection direction	on side
Product range	SAK Series
No. of levels	1
Levels cross-connected internally	No
No. of terminal strips per level	2
End plate required	Yes
CSA rating data	
Max. cross-section (CSA)	AWG 12
Min. cross-section (CSA)	AWG 22
Voltage CSA	300 V
CSA current	10 A
Conductors for clamping (rated connection)	
Stripping length	8 mm
Type of connection	Screw connection

No. of connections	2
Torque level with DMS electric screwdriver	2
Tightening torque range	0.5...1.0 Nm
Solid, max.	4 mm²
Flexible, max.	4 mm²
flexible w. ferrule AEH, max. DIN 46228-1	2.5 mm²
flexible w. ferrule AEH, min. DIN 46228-1	0.5 mm²
Clamping range, max.	4 mm²
Clamping range, min.	0.13 mm²
Clamping screw	M 3
Blade size	0.6 x 3.5 mm
Gauge to IEC 60947-1	A3
AWG conductor size, max.	3.31 mm²
AWG conductor size, max.	AWG 12
Stranded, max.	4 mm²
Stranded, min.	1.5 mm²
AWG conductor size, min.	0.13 mm²
AWG conductor size, min.	AWG 26
Connection direction	on side
Flexible, min.	0.5 mm²
2nd type of connection	screwed
Solid, min.	0.5 mm²
Twin wire-end ferrule, min.	0.50 mm²
Zwillings-AEH, max.	1.50 mm²
Dimensions	
Width	6.5 mm
Height of lowest version	40.5 mm
Length	42 mm
TS 32 offset	4 mm
Disconnect terminals	
Torque level with DMS electric screwdriver	2
Slitting	pivoting
Integral test socket	No
EN 60079-7 rating data	
Current Ex e	10 A
Rating data	
Rated cross-section	4 mm²
Rated voltage	400 V
Rated impulse withstand voltage	6 kV
Rated current	10 A



General ordering data	
Order No.	0474560000
Short text for material	ASK 1/EN
EAN	4008190020880
Qty	100
Product notes	
Note, technical data	The rated cross-section is reduced to max. 2.5 mm² when using cross-connection bridges.
Additional technical data	
Type of connection	screwed
No. of identical terminals	1
Version	Fuse terminal
Type of mouting	clipped
UL 94 flammability rating of insulation material	V2
Installation advice	TS 35 + TS 32
olour of insulating material	beige
Insulating material	PA 66
Open sides	right
Operating temperature range	- 50 °C, + 100 °C
Connection direction	on side
Product range	SAK Series
No. of levels	1
Levels cross-connected internally	No
No. of terminal strips per level	2
End plate required	Yes
CSA rating data	
Max. cross-section (CSA)	AWG 12
Min. cross-section (CSA)	AWG 26
Voltage CSA	300 V
CSA current	6.3 A
:onductors for clamping (rated connection)	
Stripping length	9 mm
Type of connection	Screw connection
No. of connections	2
Torque level with DMS electric screwdriver	2

Tightening torque range	0.6...0.8 Nm
Solid, max.	4 mm²
Flexible, max.	4 mm²
flexible w. ferrule AEH, max. DIN 46228-1	4 mm²
Flexible, max., ferrule with plastic collar (DIN 46228 pt 4)	2.5 mm²
flexible w. ferrule AEH, min. DIN 46228-1	0.5 mm²
Flexible, min., ferrule with plastic collar (DIN 46228 pt 4)	0.5 mm²
Clamping range, max.	4 mm²
Clamping range, min.	0.13 mm²
Clamping screw	M 3
Blade size	0.6 x 3.5 mm
Gauge to IEC 60947-1	A3
AWG conductor size, max.	3.31 mm²
AWG conductor size, max.	AWG 12
Stranded, max.	4 mm²
Stranded, min.	0.5 mm²
AWG conductor size, min.	0.13 mm²
AWG conductor size, min.	AWG 26
Connection direction	on side
Flexible, min.	0.5 mm²
2nd type of connection	screwed
Solid, min.	0.5 mm²
Twin wire-end ferrule, min.	0.50 mm²
Zwillings-AEH, max.	1.50 mm²

Dimensions

Width	8 mm
Height of lowest version	34 mm
Length	58 mm
TS 32 offset	11 mm
TS 35 offset	9 mm

Disconnect terminals

Torque level with DMS electric screwdriver	2

Display element

Type of voltage for indicator	AC/DC
Operating voltage for indicator, max.	500 V

Fuse terminals

Display	without LED
Operating voltage, max.	500
Fuse holder (cartridge holder)	detachable