AS2941-08
Digital Electric Fire Pump Controller

Compliant with AS2941-2008
Section 8.1 – 8.3

OPERATION MANUAL

Victoria: Head Office
59 Export Drive
Brooklyn VIC 3012
Ph: +61 3 9316 9700
Fax: +61 3 9314 0909
Email: sales@wellcross.com.au

New South Wales
Unit 2/1040 Canley Vale Road
Wetherill Park NSW 2164
Ph: +61 2 9757 5800
Fax: +61 2 9757 5899
Email: nsw@wellcross.com.au

Queensland
Unit 2/55 Christensen Rd
Stapylton QLD 4207
Ph: +61 7 3386 2400
Fax: +61 7 3386 1241
Email: qld@wellcross.com.au

Western Australia
Unit 8/235 Camboon Road
Malaga WA 6090
Ph: +61 8 9248 2955
Fax: +61 8 9248 2933
Email: wa@wellcross.com.au

TABLE OF CONTENTS


WELLING & CROSSLEY
AS2941
ELECTRIC FIREPUMP CONTROLLER
DANGER
PUMP STARTS
AUTOMATICALLY
TO START: PRESS MAIN PUMP START
TO STOP: PRESS MAIN PUMP STOP
MANUFACTURED BY
WELLING & CROSSLEY PTY LTD
ABN 61 005 690 273
IN THE EVENT OF FIRE
DO NOT TURN OFF

Section 1

INTRODUCTION

W&C is a leading provider of Diesel and Electric Fire Pump Controllers and components to the fire protection industry. Using only the finest quality components, we design and engineer fire pump controllers that promote fire-safe performance every time. Supplying products for automated fixed fire sprinklers and hydrant installations, all of our fire pump controllers are fully compliant with strict internationally recognised Australian standards. What's more, our fire pump controllers are completely factory wired, assembled and operation tested prior to shipment.

All W&C fire controllers feature easy to read indicators, cabinets and instruments that are designed for easy access, maintenance and protection. Our range of Electric Fire pump Controllers and control systems are manufactured to meet a wide variety of industrial, rural, civil and domestic applications. They have been developed to operate efficiently and reliably with minimum maintenance and attention. It is our wish that you obtain the best possible service from your Electric Fire Pump Controller and therefore suggest the following are carefully adhered to.

(1) Probably the most important factor contributing to satisfactory and trouble-free operation is correct installation. Ensure that the Electric Fire Pump Controller is installed in accordance with the following instructions.

(2) Take time to learn and understand the operation of the controller and its load capacity. This will enable maximum usage of appliances without overloading.

(3) If any doubts exist, contact us for additional information.

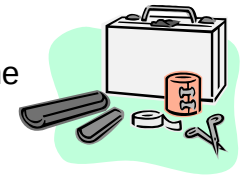
AS2941 REQUIREMENTS

A fire pump controller must ‘start’ the electric motor driving a fire pump in response to an external ‘start’ signal, usually a pressure switch that is plumbed into the fire service ring main. Once started the electric motor must continue to run until it is manually stopped.

FIRST AID IN CASE OF ELECTRIC SHOCK

DO NOT TOUCH THE PERSON with your bare hands until the circuit is broken. SWITCH OFF. If this not possible, protect yourself with dry insulating material and pull the victim clear of the conductor. If more than one person is present, it is best to immediately seek medical advice and possibly send for an ambulance.

EXPIRED AIR RESUSCITATION (E.A.R.)



The air we breathe out contains ample oxygen to sustain life. Lay the patient on his back. If this cannot be done easily, commence resuscitation.

1. Quickly clear his mouth and throat.

2. Tilt his head well back. This opens the air passage and can now enter his lungs.

3. Pinch patient's nose, open your mouth wide, and take a deep breath.

4. Breathe into patient. Ensure that air does not escape.

5. Turn your head away, take another deep breath while patient exhales. Then breathe into patient again and continue.

MAKE THE FIRST 10 BREATHS FAST - THEN 10-15 BREATHS A MINUTE. A patient who is not breathing may NOT require heart massage but in ALL cases where the heart is not beating BOTH artificial respiration and heart massage will be required. Artificial respiration and heart massage can be carried out at the same time by giving two breaths followed by 15 chest compression and continuing.

EXTERNAL CARDIAC MASSAGE (E.C.M.)
Absence of pulse and enlarged pupils, indicate that the heart is not beating. Apply E.C.M. together with E.A.R. until patient recovers.

A. Feel for pulse between Adam's apple and neck muscle.

B. Lift eye-lid and look for enlarged pupil. (CAUTION use of drugs can also cause this condition.)

C. If his heart is not beating,depress lower half of breast bone sharply and firmly using heel or hand.

The above is only a general recommendation. Please refer to Approved First Aid Practices.

Section 2

GENERAL CONSTRUCTION

Welling & Crossley Electric Fire Control Panels boxes are made from robust steel plates, folded and seam welded. It has a customised lock with double grip for easy opening of the door and for added security and protection. Body, door and gland plates are all finished to RAL 7035 polyester powder structure paint.

INSTALLATION

The controller should be mounted in a position away from vibration, heat and hot exhaust pipes and potential diesel fuel and water spills. If located outdoors considerations must be given to a sun shade. Direct sunlight combined with high ambient temperatures will cause controller failure.

Note: PVC insulated motor and control wiring will also fail if continually subjected to UV radiation (i.e. sunlight).

The controller is certified to IP54 AS 1939 and has a “Lexan” membrane fascia. Continual UV radiation on fascia will cause permanent damage and possibly controller failure. External start signal and alarm circuits are wired using the schematic drawings and termination diagrams supplied with the controller.

Note: Even though the controller has a DC fuse, various components of the controller can suffer permanent damage if incorrectly connected.

The battery should be installed as close to the Controller as practicable and connected using the leads provided. Ensure battery is filled with battery acid and charged ready prior to operation. The frame should be electrically bonded to an approved earth. Before connecting AC supply, double check all wiring and stated voltage rating which will be on a Silver or White /Black ID Sticker located on inside of controller door.

FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and on your machine safety signs. Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

If you do not understand any part of this manual and need assistance, fell free to contact Welling & Crossley.

Section 3

TECHNICAL SPECIFICATIONS

This controller is a dedicated microprocessor that operates in a similar fashion to an IBM or Macintosh Computer. It has specific input, output and display capabilities that have been designed to meet all the requirements of AS2941-2008 (The Australian Fire Pump Standard).

FUNCTION

The Electric Fire pump Controller is designed to automatically operate an electric fire pump motor when contacts of a remote water pressure switch close.

POWER SUPPLY

415 volt, 3 phase neutral and earth and 12V DC.

INDICATORS

- **Power available** (Green) indicates that local electricity supply is present.
- **Temp High** (Red), if connected, indicates motor has exceeded its temperature rating.
- **Alarm Muted** (Red) indicates that alarm mute button has been pushed silencing external alarm(s) and bell(s).
- **Battery Fault** (Red) indicates that DC battery has failed.
- **Mains Failure** (Red) indicates that local electricity supply has failed.
- **Motor Over Current** (Red) indicates that electric motor exceeded its maximum running current.
- **Pump Run** (Red) indicates that the electric pump motor is running and up to speed.
- **General warning** (Red) indicate a common fault i.e. battery fault, motor over current, mains failure, high temperature, etc.
- **Jockey Pump** (Red), if fitted, indicates Jockey pump is running.

PUSH BUTTONS

- **Alarm Mute** - silences all external alarms (see alarm mute indicator).
- **Mode** – changes display LCD screen.
- **Select** – when in Jockey pump display, settings can be changed from Auto, Off & Manual and Star / Delta delay time (sec).
- **Clear & Indicator test** – to clear any alarm indicators and to test all indicator lights.

- **Pump Start / Stop** – push manually to start pump, push to stop pump manually.
- **Jockey pump** (if fitted) – manually start and stop Jockey pump.

FUSES

A fuse has been fitted to protect the controller components from abnormal load conditions and unusual transients. If the fuse “blows”, replace only with size and rating specified. Fitting a larger fuse than that specified will eventually lead to permanent irreplaceable damage to controller and/or components. Before replacing the fuse or removing plug in cards, turn off AC supply and disconnect batteries.

(a) VOLT FREE SUPPLIED PCB CONNECTIONS

— Pump Star	C / NC / NO
— Pump Delta	C / NC / NO
— Alarm Muted	C / NC / NO
— General warning	C / NC / NO
— Jacking Pump 1 (If fitted)	C / NC / NO
— Jacking Pump 2 (If fitted)	C / NC / NO
— Jacking Pump 3 (If fitted)	C / NC / NO
— Over Current	C / NC / NO
— Mains Fail	C / NC / NO
— Battery Fail	C / NC / NO

(b) EXTERNAL CONNECTIONS FOR BELL & FLASHING LIGHT

— PCB Connections

± } Bell 12V DC

± } Alarm 12V DC (Flashing Light)

Section 3

CONTROLLER SETUP

STAR / DELTA TIME DELAY SETUP

- Depress **Select** + **Clear / Indicator Test** buttons together.
- Screen will display “Setup”.
- Depress **Select** button to change time (sec).
- Depress **Mode** button to return to main screen.

OVER CURRENT DISPLAY

- Depress **Alarm Mute** and **Mode** button together.
- Screen will display “Registered startup max current and time”.
- Depress **Mode** button to return to main screen.

MODE DISPLAY

- Depressing **Mode** button will display the following screens

  - Mains power FAIL / OK
  - Main pump ON / OFF
  - Battery OK / FAIL
  - JP 1 M/O/A 2 M/O/A 3 M/O/A
  - Main pump current
  - Battery Volts / Amps
  - Software version
  - Serial Number
  - Ready

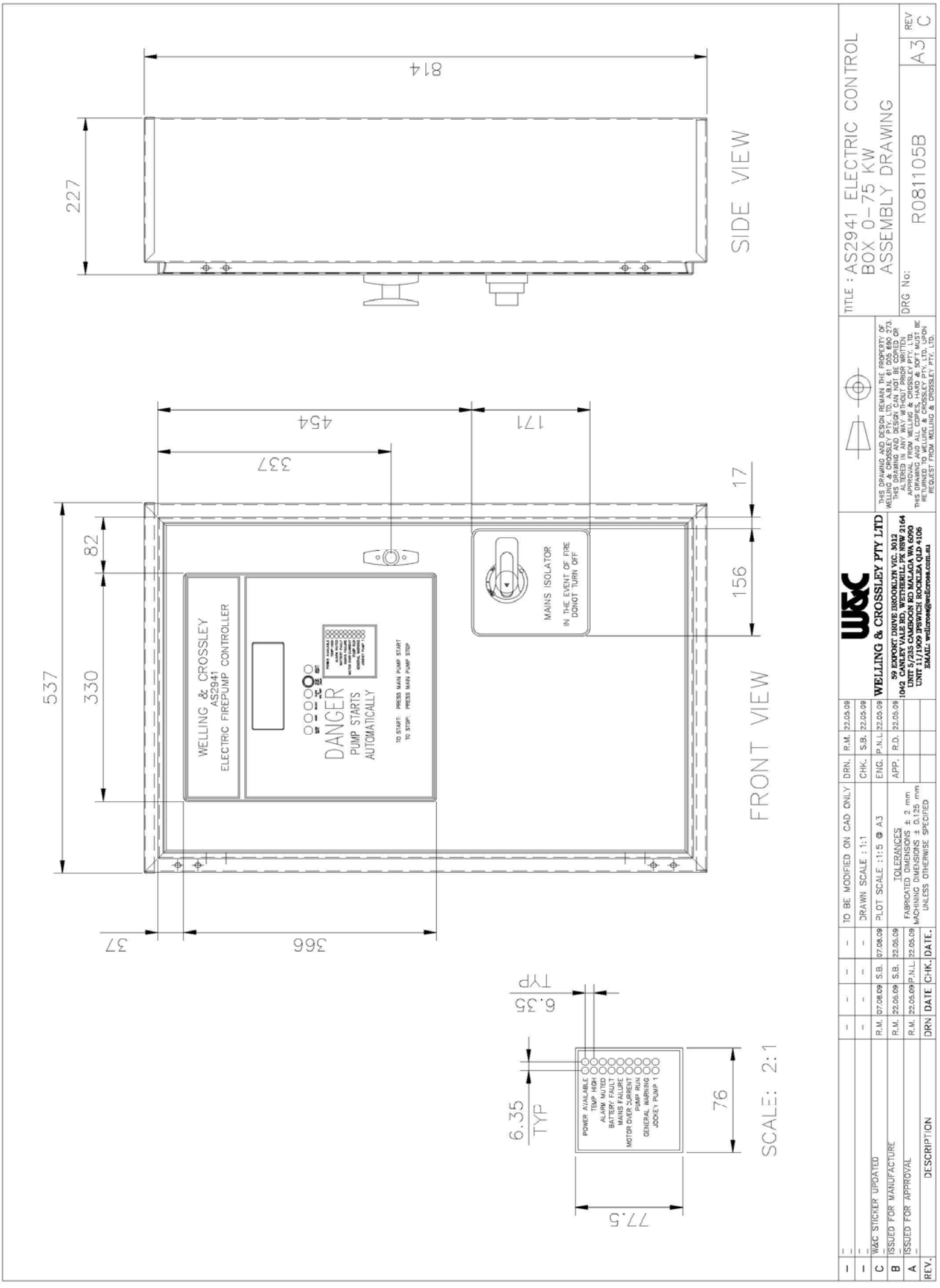
JACKING PUMP SETUP (If fitted)

- Depress **Mode** button until Jacking pump 1 is displayed.
- Pump No: 1 status display will flash.
- Depress **Select** button to change status from Manual / Off / Auto.
- Depress **Mode** button to change from Jacking pump 1 / 2 / 3.
- To change status same as above.
- Depress **Mode** button to return to main screen.

Section 4

ELECTRICAL

DRAWINGS



REV.	DESCRIPTION	DRN	DATE	CHK.	DATE.
–	–	–	–	–	–
–	–	–	–	–	–
C	W&C STICKER UPDATED	R.M.	07.08.09	S.B.	07.08.09
B	ISSUED FOR MANUFACTURE	R.M.	22.05.09	S.B.	22.05.09
A	ISSUED FOR APPROVAL	R.M.	22.05.09	P.N.L.	22.05.09

TO BE MODIFIED ON CAD ONLY
DRAWN SCALE : 1:1
PLOT SCALE : 1:5 @ A3

	DRN.	R.M.	22.05.09
	CHK.	S.B.	22.05.09
	ENG.	P.N.L.	22.05.09
	APP.	R.D.	22.05.09

TOLERANCES
FABRICATED DIMENSIONS ± 2 mm
MACHINING DIMENSIONS ± 0.125 mm
UNLESS OTHERWISE SPECIFIED

WELLING & CROSSLEY PTY LTD
59 EXPORT DRIVE BROOKLYN VIC. 3012
1042 CANLEY VALE RD, WETHERILL PK NSW 2164
UNIT 5/235 CAMBOON RD MALAGA WA 6090
UNIT 11/1909 IPSWICH ROCKLEA QLD 4106
EMAIL: wellcross@wellcross.com.au

TITLE : AS2941 ELECTRIC CONTROL BOX 0–75 KW ASSEMBLY DRAWING

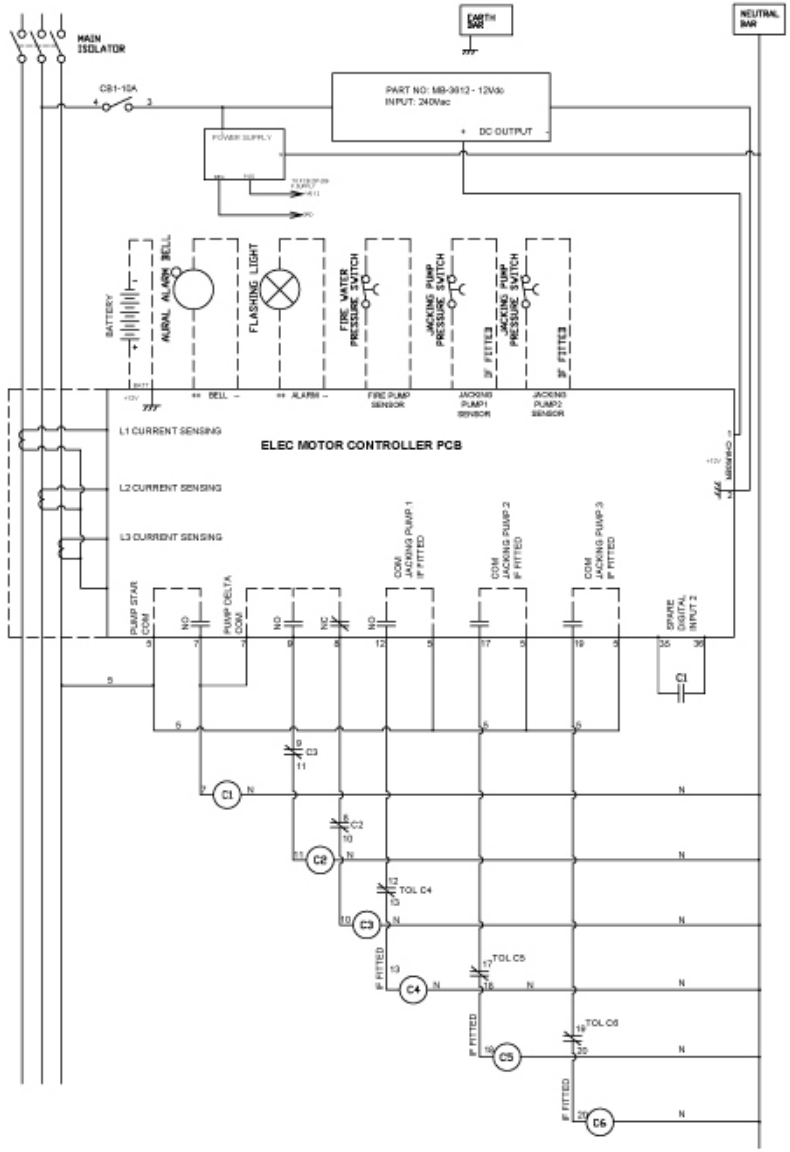
DRG No: R081105B

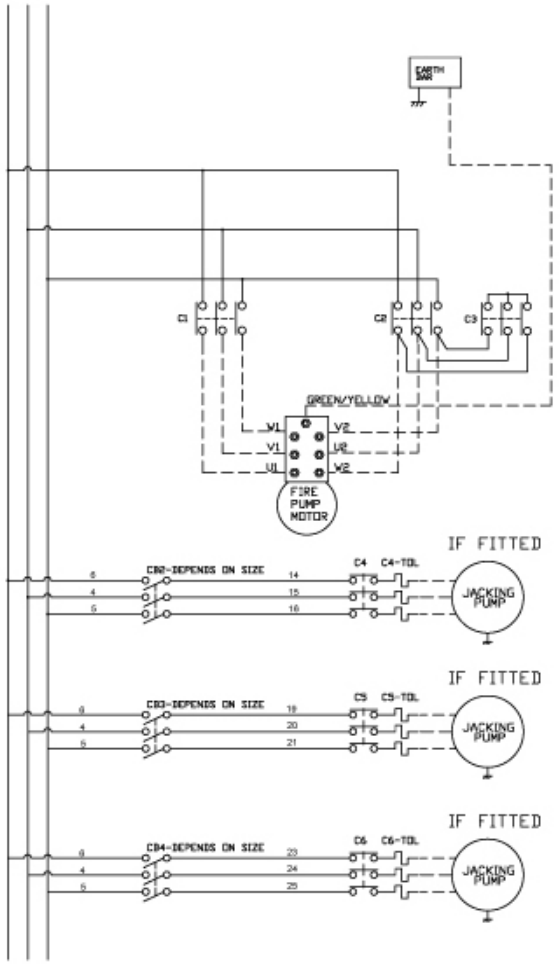
A3 REV C

WELLING & CROSSLEY
59 EXPORT DR BROOKLYN VIC 3012
2/6-8 ALLEN PLACE WETHERILL PK NSW 2164
5/235 CAMBOON ROAD MALAGA WA 6090
11/16 COLLINSVALE ST ROCKLEA QLD 4106
EMAIL: wellcross@wellcross.com.au

DRG. No. 090130A				CLIENT DRG. No.
SHEETS/ZE: A1				SHEET 1 OF 1 SCALE: NTS
DATE:	REV:	DRN:	CKD:	COMMENTS:
30.01.09	A	DR	SB	INITIAL
03.02.09	B	DR	SB	TERMINATION @ PCB BOARD
11.05.11	C	RM	SB	ADD JOCKEY PUMP 3
29.08.13	D	SB	SB	ADD POWER SUPPLY

TITLE: DIGITAL STAR-DELTA FIRE PUMP CONTROLLER
CLIENT:
JOB:

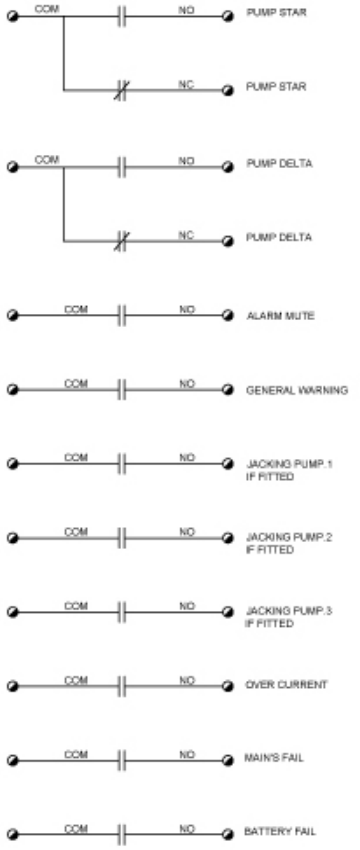




TERMINATION @ PCB BOARD

FIRE PUMP PRESSURE SWITCH SIGNAL (CLOSE RUN-LATCH)
JACKING PUMP PRESSURE SWITCH SIGNAL (CLOSE RUN-OPEN STOP)
CONTROL BATTERY (POSITIVE & NEGATIVE)
FLASHING LIGHT
AURAL ALARM BELL

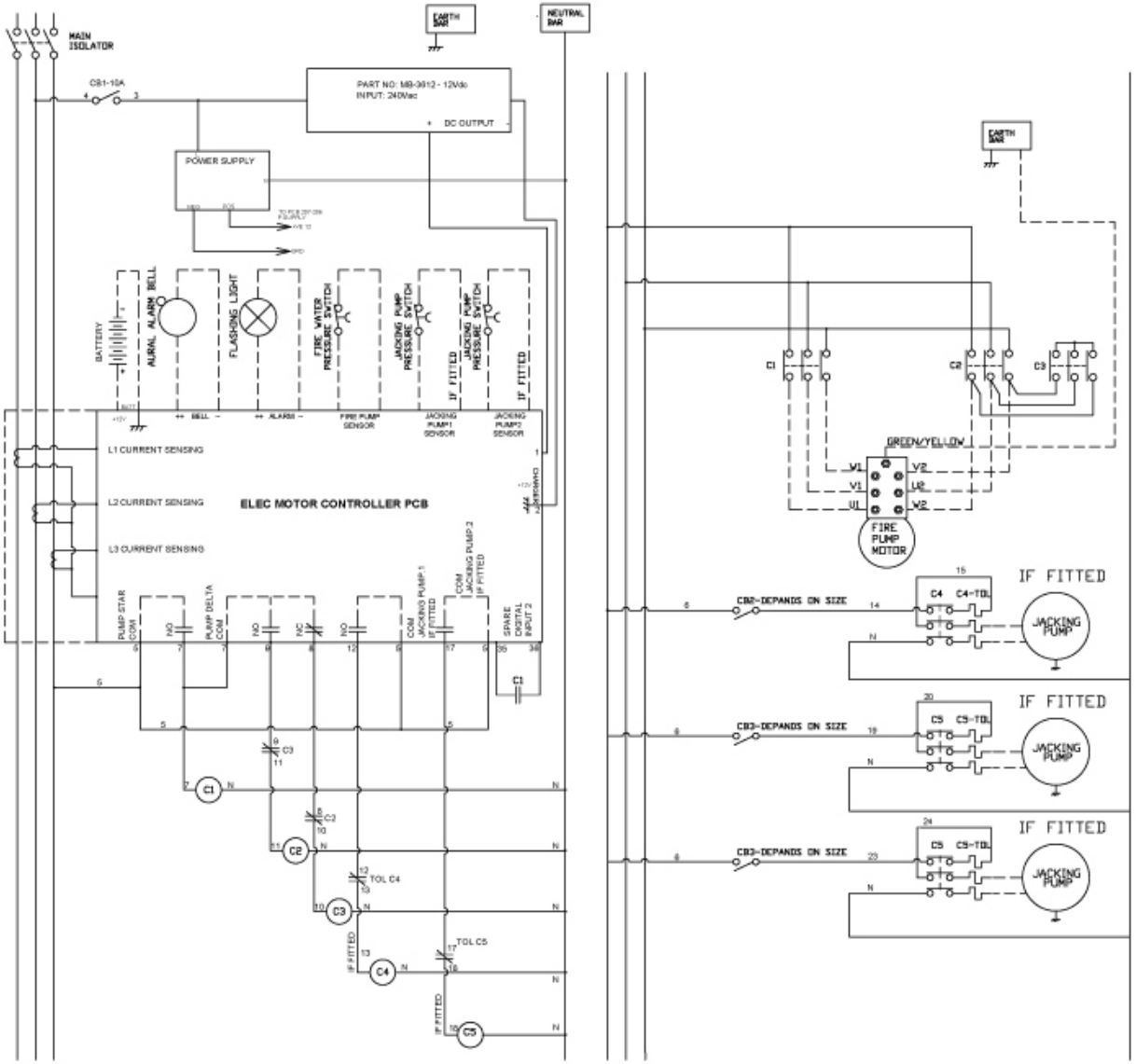
VOLTS FREE CONTACTS @ PCB BOARD
ENERGISED ON CONDITION



WELLING & CROSSLEY
59 EXPORT DR BROOKLYN VIC 3012
2/6-8 ALLEN PLACE WETHERILL PK NSW 2164
5/235 CAMBOON ROAD MALAGA WA 6090
11/16 COLLINSVALE ST ROCKLEA QLD 4106
EMAIL: wellcross@wellcross.com.au

DRG. No.	090130DA			CLIENT DRG. No.
SHEETSIZE:	A1			SHEET 1 OF 1 SCALE: NTS
DATE:	REV.:	DRN:	CKD:	COMMENTS:
30.01.09	A	DR	SB	INITIAL
03.02.09	B	DR	SB	TERMINATION @ PCB BOARD
	C	–	–	
	D	–	–	

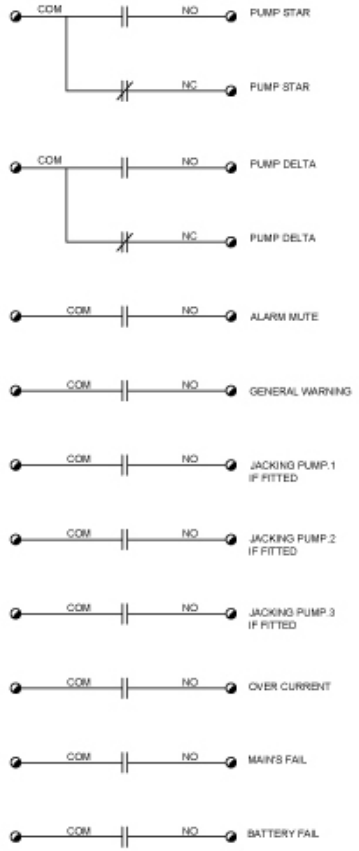
TITLE: DIGITAL STAR-DELTA FIRE PUMP CONTROLLER
CLIENT:
JOB:



TERMINATION @ PCB BOARD

FIRE PUMP PRESSURE SWITCH SIGNAL (CLOSE RUN-LATCH)
JACKING PUMP PRESSURE SWITCH SIGNAL (CLOSE RUN-OPEN STOP)
CONTROL BATTERY (POSITIVE & NEGATIVE)
FLASHING LIGHT
AURAL ALARM BELL

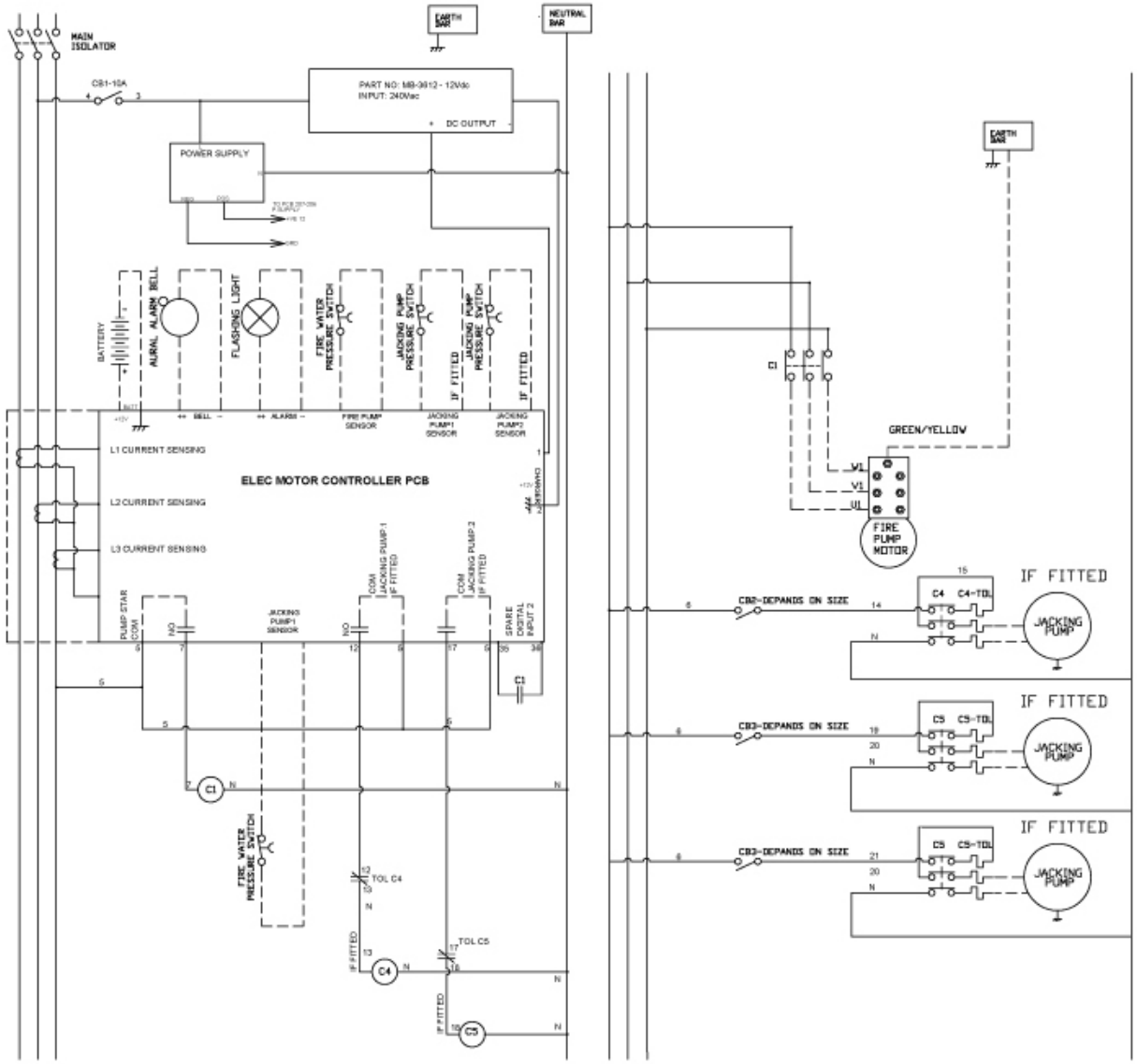
VOLTS FREE CONTACTS @ PCB BOARD
ENERGISED ON CONDITION



WELLING & CROSSLEY
59 EXPORT DR BROOKLYN VIC 3012
2/6-8 ALLEN PLACE WETHERILL PK NSW 2164
5/235 CAMBOON ROAD MALAGA WA 6090
11/16 COLLINSVALE ST ROCKLEA QLD 4106
EMAIL: wellcross@wellcross.com.au

DRG. No. 090130G1				CLIENT DRG. No.
SHEETS/ZE: A1				SHEET 1 OF 1 SCALE: NTS
DATE:	REV.:	DRN:	CKD:	COMMENTS:
30.01.09	A	DR	SB	INITIAL
03.02.09	B	DR	SB	TERMINATION @ PCB BOARD
29.08.13	C	SB	SB	ADD POWER SUPPLY
	D	–	–	

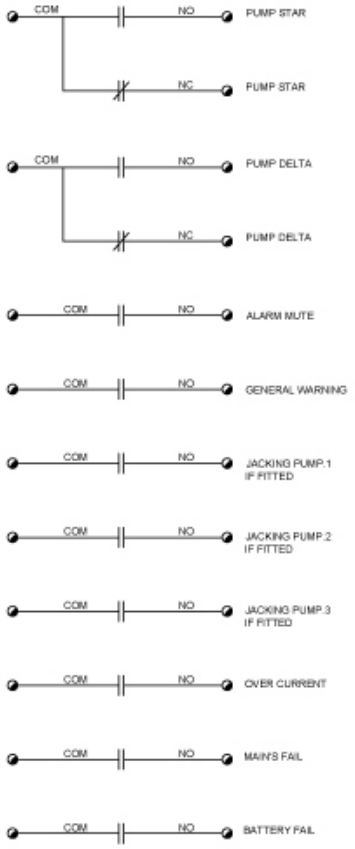
TITLE: DIGITAL DOL FIRE PUMP CONTROLLER
CLIENT:
JOB:



TERMINATION @ PCB BOARD

FIRE PUMP PRESSURE SWITCH SIGNAL (CLOSE RUN-LATCH)
JACKING PUMP PRESSURE SWITCH SIGNAL (CLOSE RUN-OPEN STOP)
CONTROL BATTERY (POSITIVE & NEGATIVE)
FLASHING LIGHT
AURAL ALARM BELL

VOLTS FREE CONTACTS @ PCB BOARD
ENERGISED ON CONDITION



Section 5

TROUBLE SHOOTING GUIDE

Problem	Probable Cause	Remedy
Control panel is not switching on.	No AC supply.	Check AC supply.
LCD screen is not switching on.	No DC supply to panel.	Check connections to controller.
Pump will not stop.	Pressure switch signal closed.	Isolate pressure switch.
Pump will not start.	AC supply not present.	Check isolator is in ON position.
Jacking pump will not start in Auto.	Program mode not setup.	Reset Jacking pump as per Instruction manual.

If you require further assistance, please call Welling & Crossley Head Office.

Victoria: Head Office
59 Export Drive
Brooklyn VIC 3012
Ph: +61 3 9316 9700
Fax: +61 3 9314 0909
Email: sales@wellcross.com.au

New South Wales
Unit 2/1040 Canley Vale Road
Wetherill Park NSW 2164
Ph: +61 2 9757 5800
Fax: +61 2 9757 5899
Email: nsw@wellcross.com.au

Queensland
Unit 2/55 Christensen Rd
Stapylton QLD 4207
Ph: +61 7 3386 2400
Fax: +61 7 3386 1241
Email: qld@wellcross.com.au

Western Australia
Unit 8/235 Camboon Road
Malaga WA 6090
Ph: +61 8 9248 2955
Fax: +61 8 9248 2933
Email: wa@wellcross.com.au

Section 6

ELECTRIC FIREPUMP CONTROLLER WARRANTY

Welling & Crossley Electric Fire pump Controllers are warranted against defects in material and workmanship for a period of 12 months. This warranty coverage is applicable to the first end user of the Controller only.

Our Responsibility

If a defect in material or workmanship arises during the warranty period the company will:

- Replace or at the company's discretion repair the defective parts.

Users Responsibility

The user is responsible for:

- Installing and operating the control panel in accordance to the manufacturer's instructions.
- Accepting the company's sole judgement as to whether the faulty part is defective in material or workmanship.
- The costs and risks for transportation/shipping and other changes associated with the replacement of the controller and/or the repair parts.
- Other miscellaneous costs including but not limited to travel, mileage, lodging, taxes, telephone calls, overtime, etc.

Limitations

This warranty does not cover:

- Defects due to the user's improper installation, maintenance or use.
- Alterations or repairs by the owner or any third party that are not authorized by Welling & Crossley P/L in writing.
- Any operation in excess of the company's rating or outside the stated site conditions.
- Normal wear and tear.
- Supply of, or payment for any replacement equipment while repairs or replacement are taking place.

****

AS2941-08
Digital Electric Fire Pump Controller

INSPECTION & TEST SHEETS

Victoria: Head Office
59 Export Drive
Brooklyn VIC 3012
Ph: +61 3 9316 9700
Fax: +61 3 9314 0909
Email: sales@wellcross.com.au

New South Wales
Unit 2/1040 Canley Vale Road
Wetherill Park NSW 2164
Ph: +61 2 9757 5800
Fax: +61 2 9757 5899
Email: nsw@wellcross.com.au

Queensland
Unit 2/55 Christensen Rd
Stapylton QLD 4207
Ph: +61 7 3386 2400
Fax: +61 7 3386 1241
Email: qld@wellcross.com.au

Western Australia
Unit 8/235 Camboon Road
Malaga WA 6090
Ph: +61 8 9248 2955
Fax: +61 8 9248 2933
Email: wa@wellcross.com.au

DIGITAL ELECTRIC FIRE PUMP PANEL
INSPECTION & TEST SHEET

DESCRIPTION:	AS2941 DIGITAL ELECTRIC PANEL
DATE:	_____
TYPE: (090130 / 090130D)	_____
S/N:	_____
CUSTOMER:	_____
CUSTOMER O/ N:	_____
LOCATION:	_____
TESTED BY:	_____
SOFTWARE REVISION:	_____
12V DC:	_____
PAINT:	SIGNAL RED
KEY NO:	003

DESCRIPTION / MODIFICATION:

PROCEDURE	TASK COMPLETED DATE	SIGN	INDEPENDENT INSPECTION CHECK
Inspect Components			
Assembly			
Programming			
Bench Test			
Field Test			

Victoria: Head Office
59 Export Drive
Brooklyn VIC 3012
Ph: +61 3 9316 9700
Fax: +61 3 9314 0909
Email: sales@wellcross.com.au

New South Wales
Unit 2/1040 Canley Vale Road
Wetherill Park NSW 2164
Ph: +61 2 9757 5800
Fax: +61 2 9757 5899
Email: nsw@wellcross.com.au

Queensland
Unit 2/55 Christensen Rd
Stapylton QLD 4207
Ph: +61 7 3386 2400
Fax: +61 7 3386 1241
Email: qld@wellcross.com.au

Western Australia
Unit 8/235 Camboon Road
Malaga WA 6090
Ph: +61 8 9248 2955
Fax: +61 8 9248 2933
Email: wa@wellcross.com.au