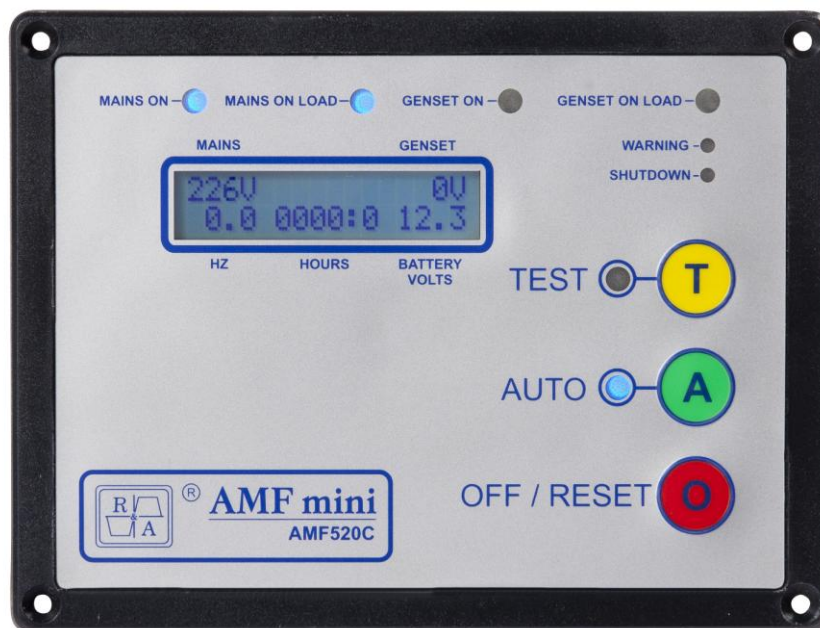


# AMF mini

## Installation Manual

Model: AMF520C-2 with low water & no fuel inputs



## TIPS & TRAPS

### TIP # 1      **Solid State Outputs – DC only.**

The Solid State Outputs switch to battery negative and must be connected to slave relays. The other side of these relays is connected to battery positive.

### TIP # 2      **Engine OFF alarms.**

To give advance warning of faults and assist with fault finding, engine alarms are displayed when the engine is OFF as a 'Start Inhibit' alarm.

**The exception is 'High Temperature' which will NOT alarm when the engine is OFF.**

### TIP # 3      **Checking the Mains sensing.**

To check the Mains sensing, engage the Emergency Stop before selecting AUTO.

Use the 'MAINS ON' led to check if the mains voltage is above the 'Low Mains' setting and also if the wiring is correct. This is a simple way of avoiding repeated engine starts while fault finding.

### TRAP # 1      Mains ON Load output **ENERGISES to DISCONNECT** the mains.

To ensure the mains is kept on load when the AMF mini is turned OFF or if the Genset battery is disconnected, the Mains ON Load output Energises to Disconnect the mains.

Use **Normally Closed** Mains ON Load slave relay contacts to control the switchgear.

### TIP # 4      **Mains Return voltage = Mains Trip + 5 volts.**

### TRAP # 2      The Low Battery alarm is only indicated on the optional Remote Alarms RA500.

### TIP # 5      **Use an external voltage monitor module for 3 phase mains sensing.**

# Typical AMF (Automatic Mains Failure) Genset Operation



## NORMAL

1	2	3	4	5	6	7	8	9
MAINS OK	MAINS FAIL					MAINS OK		
	START DELAY	CRANK	ENGINE STARTED	RUN UP DELAY - 10 seconds		MAINS RETURN DELAY - 30 seconds	COOL DOWN TIME - 2 minutes	ENGINE STOPPED
← MAINS ON LOAD →					← GENSET ON LOAD →		← MAINS ON LOAD →	

1. Mains OK
2. The Mains Fails and the 'Start Delay' (settable 5, 10, 30 or 90 seconds) begins.
3. At the end of the 'Start Delay', the engine is cranked until it starts.
4. Engine started.
5. The 'Run up Delay' is typically 10 seconds and allows the engine to reach normal operating RPM and warm up before the Genset is ON Load.
6. The Genset is ON Load and supplying power.
7. The 'Mains Return Delay' of typically 30 seconds ensures the mains has returned and is stable before the Mains is ON Load.
8. Mains is ON Load and the 'Cool Down Time' of typically 60 seconds allows the engine to cool down.
9. The engine is stopped.

## START FAIL – after 3 start attempts

1	2	3	4	5	6	7	8
MAINS OK	MAINS FAIL						
	START DELAY	1 <sup>st</sup> CRANK	1 <sup>st</sup> REST	2 <sup>nd</sup> CRANK	2 <sup>nd</sup> REST	3 <sup>rd</sup> CRANK	START FAIL

1. Mains OK.
2. The Mains Fails and the 'Start Delay' begins.
3. At the end of the 'Start Delay', the engine is cranked until it starts **OR** 10 seconds elapses.
4. If the engine has not started at the end of the '1<sup>st</sup> Crank' time, there is a rest time of 10 seconds to allow the battery to recover.
5. The engine is cranked for a second time until it starts **OR** 10 seconds elapses.
6. If the engine has not started at the end of the '2<sup>nd</sup> Crank' time, there is a rest time of 10 seconds to allow the battery to recover.
7. The engine is cranked for a third time until it starts **OR** 10 seconds elapses.
8. If the engine still has not started at the end of the '3<sup>rd</sup> Crank' time the 'Start Fail' alarm is activated and no further start attempts will occur.

# SETUP - AMF mini (Model AMF520C-2)

The front panel Setup mode is a simple and quick way of viewing and changing the AMF mini parameters.

The Setup mode is entered as follows:

1. Press and **HOLD** the OFF / RESET button.
2. Press and **HOLD** both the AUTO **AND** TEST buttons.
3. Release the OFF / RESET button.
4. After 5 seconds the software version number is displayed.
5. Release the AUTO **AND** TEST buttons.

The AMF mini AMF520C-2 is now in the Setup mode and displaying the software version number. Press AUTO to advance to the first parameter.

**TEST** – each press of this button changes the value of the current parameter.

**AUTO** – each press of this button skips to the next parameter.

AUTO can be pressed repeatedly to view the Setup for each parameter, or to skip to the parameter which needs to be changed.

Once the last parameter U-SPD has been viewed or changed and AUTO is pressed the message “Setup complete.. Press OFF/ RESET” is displayed. Press the OFF / RESET button for the changes to be updated.

## - Factory Default Settings

MENU#	FUNCTION	VALUE
1	Set Fuel Solenoid	ON=RUN (Normal) ON=STOP (Catepillar)
2	Set Remote Stop <b>Uses Low Water input so Low Water alarm is no longer available</b>	No Yes
3	Set Low Battery Volts  <b>Setting for Low Battery indication on the Remote Alarms RA500. The AMF mini 520C has NO Low Battery indication.</b>	8.0V 9.0V 10.0V 16.0V 18.0V 20.0V
4	Set Low Mains Volts & Start Delay  <b>Select EXTERNAL if using an external 3 phase mains voltage monitor.</b>	EXTERNAL / 5 secs EXTERNAL / 10 secs EXTERNAL / 30 secs EXTERNAL / 90 secs 175V / 5 secs 175V / 10 secs 175V / 30 secs 175V / 90 secs 200V / 5 secs 200V / 10 secs 200V / 30 secs 200V / 90 secs

5	Set Low Generator Volts & Start Detect Frequency	180V / 10.0Hz
		180V / 11.6Hz
		180V / 13,3Hz
		180V / 15,0Hz
		180V / 16,6Hz

**NORMAL = SET RUNNING WITH NO ALARMS. (NO=NORMALLY OPEN & NC=NORMALLY CLOSED)**

6	Set High Temp. NO/NC & Choke OR Pre-Heat	N/O / Pre-Heat
		N/C / Pre-Heat
		N/O / Choke
		N/C / Choke

7	Set E-STOP NO/NC & Remote Alarms - RA500	N/O / RA = OFF
		N/C / RA = OFF
		N/O / RA = ON
		N/C / RA = ON

8	Set Low Oil NO/NC	N/O
		N/C

9	Set Charge NO/NC OR Spare N/O <b>CHARGE is a Start Detect NO D+ ON CHARGING ALT. -&gt;</b>	<b>CHARGE -N/O</b>
		<b>CHARGE -N/C</b>
		<b>SPARE - N/O</b>

10	Set High Generator Frequency	55.0Hz
		57.5Hz
		60.0Hz

11	Set Low Generator Frequency	40.0Hz
		42.5Hz
		45.0Hz

**PRE-SET TIMERS**

CRANK TIME	10 seconds
RUN UP TIME	10 seconds
LOAD TRANSFER TIME	02 seconds
MAINS RETURN TIME	30 seconds
COOL DOWN TIME	2 minutes

**RATED ENGINE RPM**

FREQUENCY	RATED ENGINE RPM	
	1500RPM	3000RPM
10.0Hz	300RPM	600RPM
11.6Hz	350RPM	700RPM
13.3Hz	400RPM	800RPM
15.0Hz	450RPM	900RPM
16.6Hz	500RPM	1000RPM

# AMF mini AMF520C-2 WIRING INFORMATION

## P1

Inputs switched to battery negative. Outputs switch to battery negative, **slave relay** common's to battery positive.

- 1 - **INPUT** – NO FUEL (Contacts are normally open and **close** for Low Fuel alarm)
- 2 - **INPUT** - LOW WATER (Contacts are normally open and **close** for Low Water alarm)  
**alternate function** - REMOTE STOP (Contacts are open for RUN and **close** for REMOTE STOP)
- 3 - **INPUT** - LOW OIL PRESSURE
- 4 - **INPUT** - HIGH TEMPERATURE
- 5 - **INPUT** - EMERGENCY STOP (NORMALLY CLOSED - OPEN TO STOP ENGINE - FAIL SAFE).  
Second pole also normally closed in series with the Fuel Solenoid.
- 6 - **INPUT** - CHARGING ALTERNATOR D+
- 7 - **OUTPUT** - AUDIBLE ALARM
- 8 - **OUTPUT** - CHOKE / PREHEAT
- 9 - **OUTPUT** - CRANK
- 10 - **OUTPUT** - FUEL SOLENOID
- 11 - **OUTPUT** - MAINS ON LOAD (**Energise to DISCONNECT Mains** – FAIL SAFE).
- 12 - **OUTPUT** - ALTERNATOR ON LOAD

**MAINS AND ALTERNATOR SWITCHGEAR MUST BE ELECTRICALLY AND MECHANICALLY INTERLOCKED !**

## P2

Outputs switch to battery negative, **slave relay** common's to battery positive.

- 1 - ALTERNATOR NEUTRAL
- 2 - ALTERNATOR LIVE
- 3 - NO CONNECTION
- 4 - NO CONNECTION

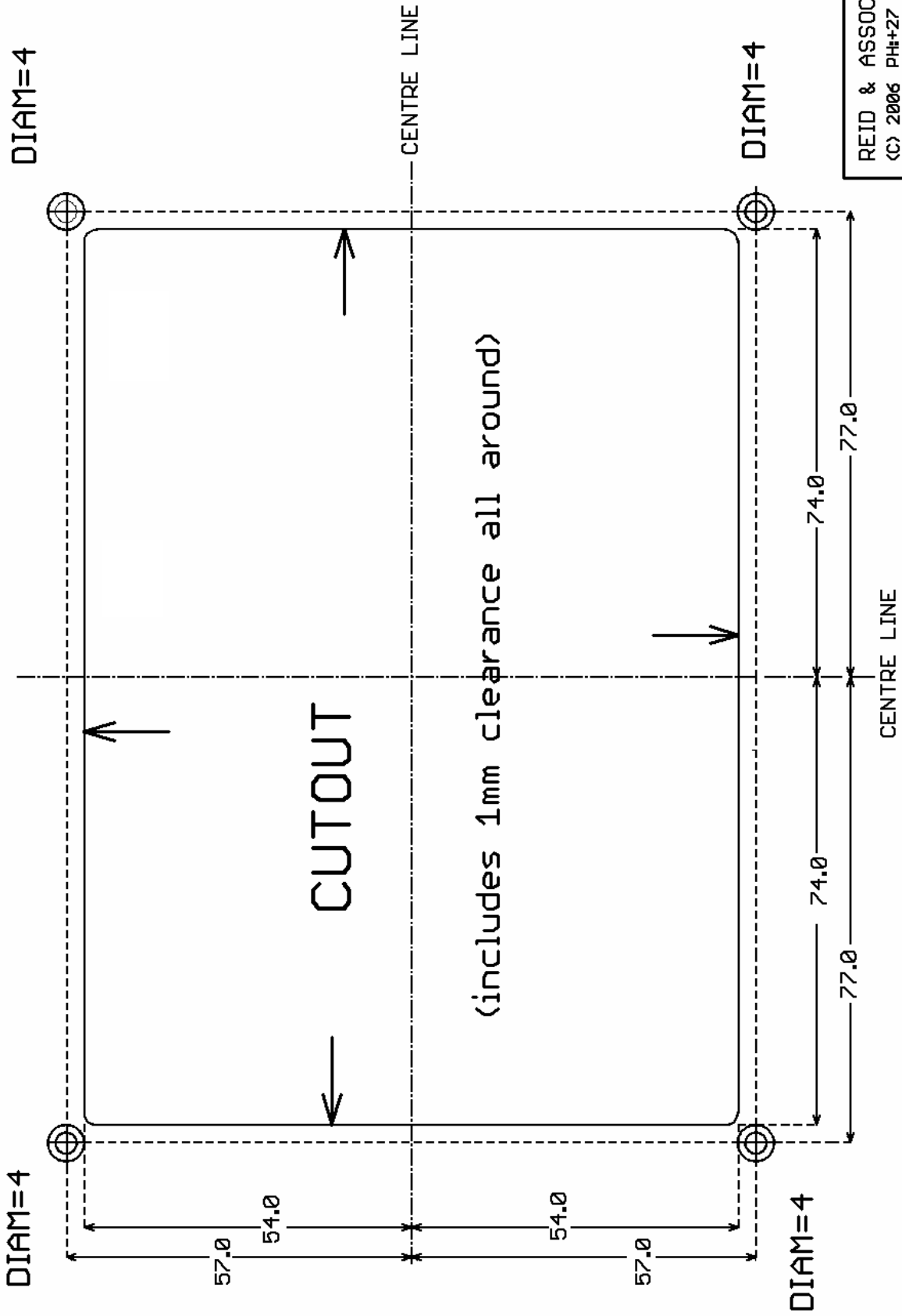
**A 1 PHASE TRANSIENT SUPPRESSOR - Type SUPP1 - MUST BE CONNECTED ACROSS THE MAINS LIVE & NEUTRAL AT THE CONTROLLER. THE LIVE FEED MUST BE IN SERIES WITH IT'S OWN 5A MCB.**

- 5 - MAINS NEUTRAL
- 6 - MAINS LIVE

## P3

- 1 - BATTERY POSITIVE
- 2 - BATTERY NEGATIVE





REID & ASSOCIATES CC  
 (C) 2006 PH#27 31 205 3329  
 DIMENSIONS IN MM SCALE: 1:1

AMF mini & BL525 BASE LOAD  
 PANEL CUTOUT  
 Rev: 0 DATE: 30/05/2006

M3 SCREWS USED SO DIAM=4 ALLOWS CLEARANCE FOR  
 POWDER COATING

## WARRANTY

Reid & Associates CC warrants each new product manufactured and sold to be free from defects in material, workmanship and construction and that when installed in accordance with this Installation Manual and used in accordance with the Operation Manual will perform to applicable specifications for a period of one year after original delivery.

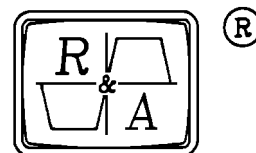
If examination by Reid & Associates CC discloses that the product has been defective, then our obligation is limited to repair or replacement, at our option, of the defective unit or its components.

Reid & Associates CC is not responsible for products which have been subject to misuse, alteration, accident or repairs not performed by Reid & Associates CC.

Products must be returned to Reid & Associates CC properly packed with transport charges prepaid to Reid & Associates CC, return transport charges will be F.O.B. Reid & Associates CC.

The foregoing warranty constitutes Reid & Associates CC sole liability, and is in lieu of any other warranty, of merchantability or fitness. Reid & Associates CC shall not be responsible for any incidental or consequential damages arising from any breach of warranty.

## ***Reid & Associates CC***



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