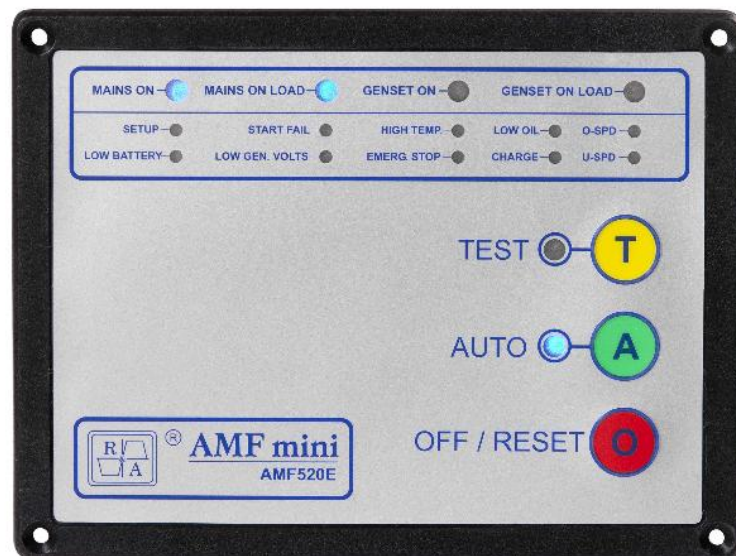


AMF mini Installation Manual

Model: AMF520E



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 - 30 seconds	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 30 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 st CRANK	1 st REST	2 nd CRANK	2 nd REST	3 rd 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 '1st 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 '2nd 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 '3rd Crank' time the 'Start Fail' alarm is activated and no further start attempts will occur.

SETUP - AMF mini (Model AMF520E)

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 SETUP and LOW BATTERY LEDs will turn on.
5. Release the AUTO **AND** TEST buttons.

The AMF mini is now in the Setup mode and the first parameter, LOW BATTERY, is selected and can be changed.

The top row of 4 blue LEDs display the value via the code and the red LEDs the parameter as shown in the table.

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 all the red LEDs turn on to show the Setup is complete. Press the OFF / RESET button for the changes to be updated.

- Factory Default Settings

MENU#	FUNCTION	LED	VALUE	CODE			
				4	3	2	1
1	Set Low Battery Volts	Low Battery	8.0V	.	.	.	o
			9.0V	.	.	o	.
			10.0V	.	.	o	o
			16.0V	.	o	.	.
			18.0V	.	o	.	o
			20.0V	.	o	o	.
2	Set Low Mains Volts & Start Delay	Start Fail	EXTERNAL / 5 secs	.	.	.	o
			EXTERNAL / 10 secs	.	.	o	.
			EXTERNAL / 30 secs	.	.	o	o
			EXTERNAL / 90 secs	.	o	.	.
			175V / 5 secs	.	o	.	o
			175V / 10 secs	.	o	o	.
			175V / 30 secs	.	o	o	o
			175V / 90 secs	o	.	.	.
			200V / 5 secs	o	.	.	o
			200V / 10 secs	o	.	o	.
			200V / 30 secs	o	.	o	o
			200V / 90 secs	o	o	.	.
			3	Set Low Gen. Volts & Start Detect Frequency	Low Gen. Volts	180-200V / 10.0Hz	.
180-200V / 11.6Hz	.	.				o	.
180-200V / 13,3Hz	.	.				o	o
180-200V / 15,0Hz	.	o				.	.
180-200V / 16,6Hz	.	o				.	o

Select EXTERNAL if using an external 3 phase mains voltage monitor.

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

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

5	Set E-STOP NO/NC & Remote Alarms	E-STOP	N/O / RA = OFF	.	.	.	o
			N/C / RA = OFF	.	.	o	.
			N/O / RA = ON	.	.	o	o
			N/C / RA = ON	.	o	.	.

6	Set Low Oil NO/NC	Low Oil	N/O	.	.	.	o
			N/C	.	.	o	.

7	Set Charge NO/NC CHARGE is a Start Detect NO D+ ON CHARGING ALT. ->	Charge	N/O	.	.	.	o
			N/C	.	.	o	.
			DISABLED - no connection	.	.	o	o

8	Set High Gen. Freq.	O-SPD	55.0Hz	.	.	.	o
			57.5Hz	.	.	o	.
			60.0Hz	.	.	o	o

9	Set Low Gen. Freq.	U-SPD	40.0Hz	.	.	.	o
			42.5Hz	.	.	o	.
			45.0Hz	.	.	o	o

PRE-SET TIMERS

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

RATED ENGINE RPM

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

Pre-Heat – energises 5 seconds before Crank & Fuel are energised and is released when the engine starts. The Run-up delay is 10 seconds.

Choke – energises when Crank & Fuel are energized, is released 3 seconds after the engine starts. The Run-up delay is 15 seconds.

AMF mini AMF520E / AMF520C WIRING INFORMATION

P1

Inputs switched to battery negative.

- 1 - BATTERY POSITIVE
- 2 - BATTERY NEGATIVE
- 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 !

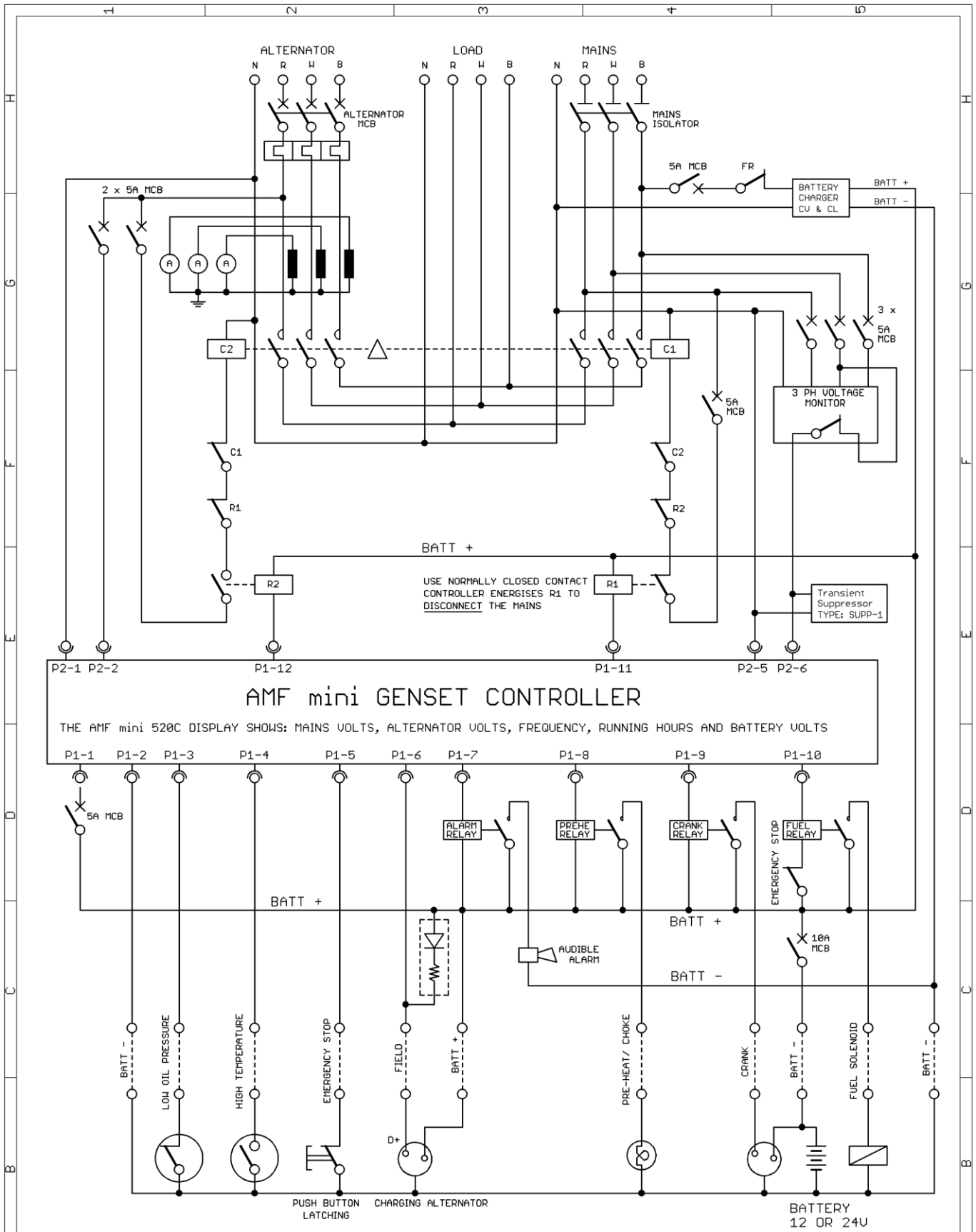
P2

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.

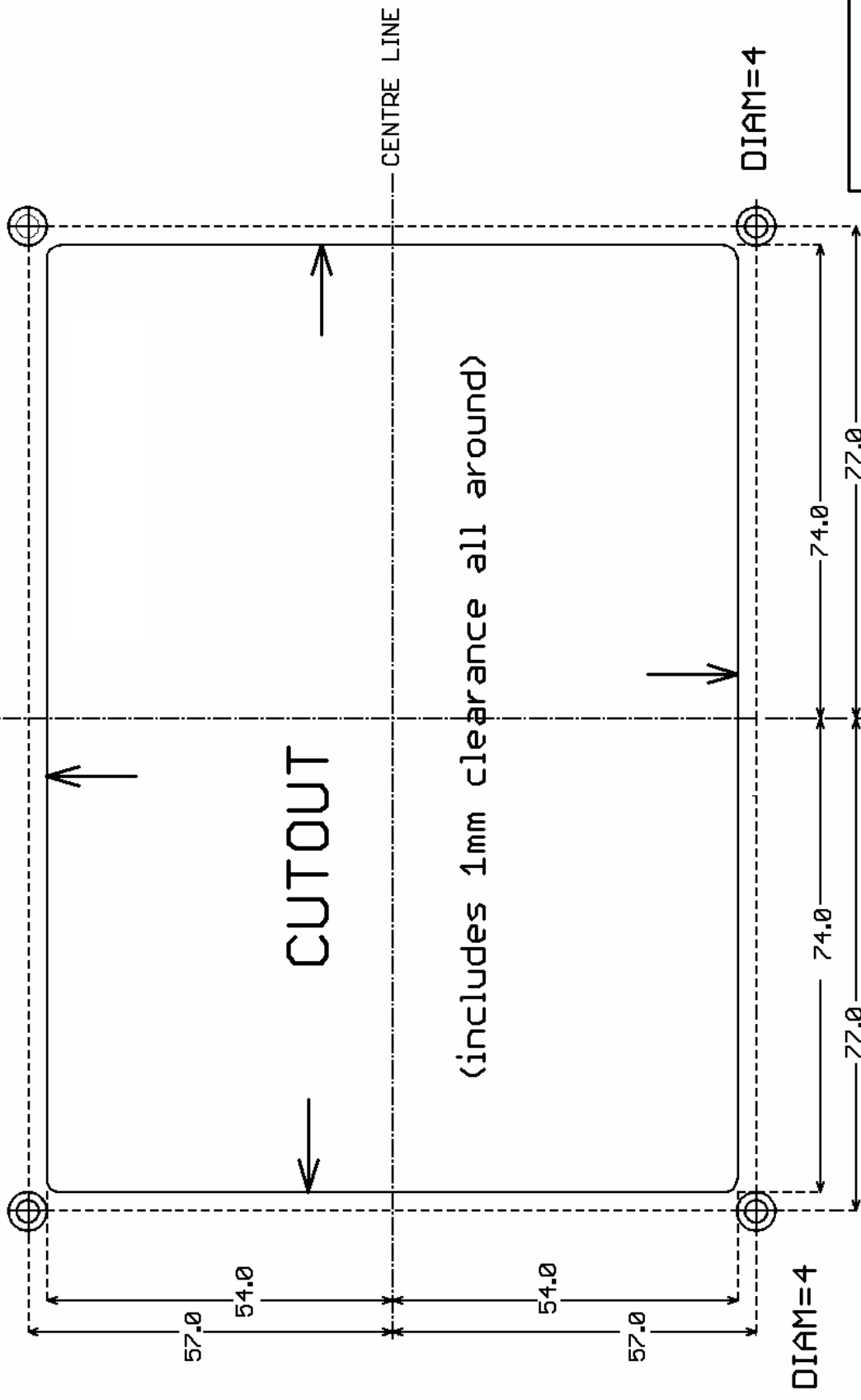
- 5 - MAINS NEUTRAL
- 6 - MAINS LIVE



TYPICAL WIRING DIAGRAM FOR REFERENCE PURPOSES ONLY
 WIRING AND INSTALLATION TO BE DONE BY SUITABLY QUALIFIED PERSONS IN ACCORDANCE WITH APPLICABLE WIRING REGULATIONS.

DIAM=4

DIAM=4



CENTRE LINE

DIAM=4

DIAM=4

CENTRE LINE

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

REID & ASSOCIATES CC
(C) 2006 PH#27 31 206 3329
DIMENSIONS IN MM SCALE: 1:1
AMF mini & BL525 BASE LOAD
PANEL CUTOUT
Rev: 0
DATE: 30/05/2006

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.

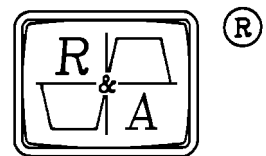
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