AIRGROUP Australia

COOL BREEZE air conditioning

AUSTRALIA

COOLBREEZE
TECHNICAL SERVICE MANUAL

INCLUDES MAXIMA INVERTER MOTOR

JUNE 2024

Models: D095 / D125 / D160 / D195 / D230 / D255
C125 / C160 / C205 / C240

Model: D500 TWIN FAN

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COOLBREEZE TECHNICAL SERVICE MANUAL

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AUSTRALIA
FM392/0624

PLEASE READ THIS INSTRUCTION MANUAL CAREFULLY PRIOR TO COMMENCING SERVICE WORK

LEGAL AND STATUTORY OBLIGATIONS

Installation and servicing of CoolBreeze air conditioners must conform to:

* Building rules and regulations
* Electrical code
* Plumbing code
* Environmental Protection Authority (EPA) rules and regulations
* and all applicable standards

SAFETY AND O.H.& S. REQUIREMENTS

The safety requirements for each installation/service will be different. Before commencing with the installation or service work, do a full assessment of all factors which maybe hazardous to the installation team, occupants of the building and people in the immediate vicinity.

Installation and servicing usually involves working at heights, therefore particular attention must be given to the following:

* Footwear suitable for type of roof (metal or tile)

* Protective clothing to suit environmental conditions

* Access to roof conforms to safety standards
  Ensure roof has access footings and platforms where the roof pitch is greater than acceptable standards

* Harness anchorage points and/or safety guard-rails are provided where the roof pitch/ height is greater than acceptable standards

IMPORTANT!

The main electrical supply to the unit must be disconnected before installation work commences.
If the main electrical supply cable is damaged in any way, it must be replaced by the electrician

ATTENTION: IMPORTANT PRODUCT INFORMATION

It is the policy of AirGroup Australia to continuously review the reliability and safety functions of CoolBreeze air conditioners.

In view of changes introduced in recent years, your attention is drawn to the recommendations listed below.

CAPACITOR:

Capacitors with Plastic casing to be replaced with "NEW LONG-LIFE" P2 Metal cased capacitors
see page 9

SAFETY ANCHOR:

Motor Anchor Kit to be fitted to units not previously fitted with anchor system.
see page 10

FAN BLADE:

Pre-2013 models with a 1000 Watt fan motor will require the fan and collet to be replaced with a Powerflow high performance fan and collet.
see page 8

COOLBREEZE SERVICE FORM

CUSTOMER		DATE
ADDRESS		TECHNICIAN
UNIT IDENTIFICATION / LOCATION		
UNIT MODEL		CONTROLLER TYPE
SERIAL NO.		
	ELECTRICAL READING	CONDITION
SOLENOID		
PUMP		
FAN MOTOR		
FILTER PADS		
CABINET		
DRAIN VALVE		
NEXT SERVICE DUE		
COMMENTS		

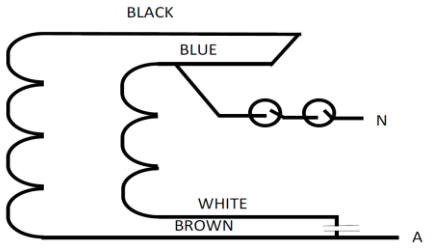
SERVICE PROCEDURE CHECK LIST

- ☐ Confirm unit operation before commencing service
- ☐ Isolate Main Electrical Supply
- ☐ Remove Lid, Manifold, Louvres & Filter pads
- ☐ Disconnect 6 pin motor cable & anchor cable. Remove Motor & Fan assembly
- ☐ Disconnect water riser pipe and remove pump
- ☐ Clean sump - use only mild soap & water - Do not use harsh cleaners or solvents
- ☐ Remove Pump strainer basket and clean thoroughly. Ensure shaft spins freely.
- ☐ Test pump coil resistance - should be 40Ω
- ☐ Disconnect & remove solenoid. Remove & clean inlet filter
- ☐ Test solenoid coil resistance - should be 38Ω
- ☐ Re-install solenoid using Service Kit SP2117 - replace hoses, clips and Blue O ring on Drain valve

Before re-installing fan & motor assembly, check following items:

- ☐ Replace Powerflow Fan & Collet set - pre-2013 models only
- ☐ Ensure fan location is correct with 5mm of motor shaft exposed
- ☐ Check motor body for indications of excessive temperature e.g.: discolouration etc
- ☐ Check motor cable - check rubber boot where cable enters motor - check for decolourisation of connector - replace if damaged or discoloured
- ☐ Perform Resistance check of motor
- ☐ Place Motor & Fan assembly back into sump. Reconnect 6 pin plug and anchor cable
- ☐ Spin motor by hand to ensure it spins freely - listen for bearing noises indicating potential issues
- ☐ Restore power to unit and using test controller check motor current draw
- ☐ Check Motor minimum and maximum fan speeds

Motor can be tested by connecting to mains 240VAC power supply. Connect as shown …



SERVICE PROCEDURE

PUMP SP2380

Note: pre-2015 JRM pump (SP2127) replaced by Super Pump (SP2380) - SP2127 no longer available

- [ ] Check pump resistance = 40Ω / operating 240vac
- [ ] Run pump - visual check for vibration / correct operation
- [ ] Listen for abnormal sounds - damaged bearings etc
- [ ] Check hoses and clips for damage

- [ ] Remove basket and clear debris
- [ ] Super Pump only - clear impeller

MAGNASENSOR (MS) - WATER LEVEL CONTROL SYSTEM SP2212

BALL FLOAT SP2200

- [ ] Check Magnasensor operation - controlling pump on/off
- [ ] Check Float level

adjust ball float - turn ball clockwise to decrease level

- turn ball anti-clockwise to increase level

SOLENOID SP2134

- [ ] Check solenoid resistance = 38Ω / operating 24 vac
- [ ] Turn unit to COOL - water entering unit
- [ ] Check solenoid operation - controlling pump on/off

COUNTER-WEIGHT DRAIN VALVE SP2040

- [ ] Turn unit to COOL - check drain valve closes completely
- [ ] Replace hoses
- [ ] Replace clips
- [ ] Replace Blue O-ring

[ ] SP2117 -INCLUDED IN SERVICE KIT

SERVICE MAINTENANCE KIT SP2117

contains:

1 x Blue O-ring
2 x Hoses
4 x Hose Clips


WATER DISTRIBUTION MANIFOLD SP2009

- [ ] Check manifold to ensure all holes are clear

NOTE: poor water quality can cause scale build-up on holes

- [ ] Check Riser pipe for splits - replace in necessary

SUMP SP1009B

Twin Fan - SP1530

- [ ] Remove any debris from sump including under pads etc
- [ ] Wipe out sump - only use mild soap & water

DO NOT USE HARSH DETERGENTS OR SOLVENTS ON CABINET

POWERFLOW FAN BLADE SP6072

COLLET SET (NEW) SP6073

- [ ] Spin Fan by hand to ensure it is not catching on sump
- [ ] Rock fan to ensure it is not loose on shaft
- [ ] Run fan motor - check fan is running true

NOTE: if any fan issues are evident - replace fan with NEW fan & collet set.


FAN COLLET SET SP6073

- [ ] Check if collet has moved down shaft
- [ ] Maximum 5mm of shaft visible above collet plate

NOTE: if more than 5mm of shaft visible, collet has moved down shaft - COLLET MUST BE REPLACED (+ fan for pre-2013 models)

NOTE: Circlip fits above collet plate

MOTOR - 1000W SP6015

RUN MOTOR AT 100%

- [ ] Visual: Check motor running true & straight / no vibration
- [ ] Audio: Check for normal blade / air noise

Investigate any vibration / unusual noise

- [ ] Check Fan Speed with Tachometer - approx. 1350RPM @ 100%
- [ ] Tong test motor - should be 5.5-6 Amps @ 100%

If higher, check bearings or motor windings

- [ ] Test Voltage of terminals - should be xxx @ 100%
- [ ] Check rubber motor mounts - replace if deformed
- [ ] Check motor for discoloured paint indicating overheating
- [ ] Check if 6 pin plug (also MRU plug) replace if discoloured
- [ ] Check rubber boot where cable enters motor

SERVICE PROCEDURE

ELECTRICAL BOX (WITH CAPACITOR COVER) SP3045

☐ Plastic Cased Capacitor MUST be replaced with P2 Metal cased capacitor

MRU - MODULAR ROOF UNIT PCB SP3000

☐ Check for condensation and water marks
☐ Check for discoloration on PCB and components
☐ Check fuse holder - firm fit / no flash or carbon marks
☐ Check fan speed setting is correct
☐ Check all terminal connections are firm fit
☐ Ensure cables / wires are not kinked
☐ Check bolts are tight

Check MUCS board (Multi Unit Control System) if fitted

☐ Check for condensation and water marks
☐ Check for discoloration on PCB and components
☐ Check all terminal connections are firm fit

FILTER PADS

☐ Remove Filter Pads and wash with clean water
☐ Replace pads if there is a build up of scale or pads are split

NOTE: Poor water quality will reduce service life of filter pads

☐ Check that no fragments of filter pad material are lodged under the drain valve seal.

Filter Pad Debris may prevent the valve from sealing completely resulting in dripping from the overflow pipe

WEATHERSEAL (IF FITTED) UA040

☐ Check that weatherseal opens and closes correctly without catching on cables etc

NOTE: When installing weatherseal, tie a safety cord to prevent it falling down

BOLT SET SP4049B

☐ Check condition of cabinet bolts - replace if necessary
☐ Ensure Bolts are fastened correctly

NOTE: THE BOLTS MUST BE FULLY TIGHTENED

MOTOR SPECIFICATIONS - TAC INDUCTION MOTOR

MOTOR SPECIFICATIONS - COLD MOTOR		600 WATT MOTOR	750 WATT MOTOR	1000WATT MOTOR
Motor Winding Resistance ± 10%				
Black & White Wire (Start Winding)		6.5 Ω	5.5 Ω	4.5 Ω
Brown & Blue Wire (Run Winding)		5.0 Ω	4.0 Ω	2.5 Ω
Fan Blade Revolutions Per Minute (RPM)				
Minimum Fan Speed		750 RPM	750 RPM	850 RPM
Maximum Fan Speed		1350 RPM	1350 RPM	1350 RPM
Motor Current Draw				
Minimum Fan Speed		2.0 amps	3.3 amps	5.0 amps
Maximum Fan Speed		4.0 amps	4.1 amps	6.0 amps
Operating Voltage				
Minimum Fan Speed:	Orange & White Wire	100 v	100 v	100 v
	Orange & Brown Wire	110 v	110 v	110 v
Maximum Fan Speed:	Orange & White Wire	300 vac	300 vac	300 vac
	Orange & Brown Wire	240 vac	240 vac	240 vac

MOTOR ANCHOR KIT - **RECOMMEND FITTING TO ALL UNITS**

MOTOR ANCHOR KIT SP6048

SECURING MOTOR ANCHOR CABLE TO SUMP (IF NOT ALREADY FITTED)

STEP 1
The Motor Anchor Cable is fitted to the base of the motor

STEP 2
Attach anchor cable to motor extension cable with cable ties
Push the anchor cable and motor extension cable through the hole in the sump casing

STEP 3
Secure the anchor cable to the sump using a Tek screw and the large washer supplied.

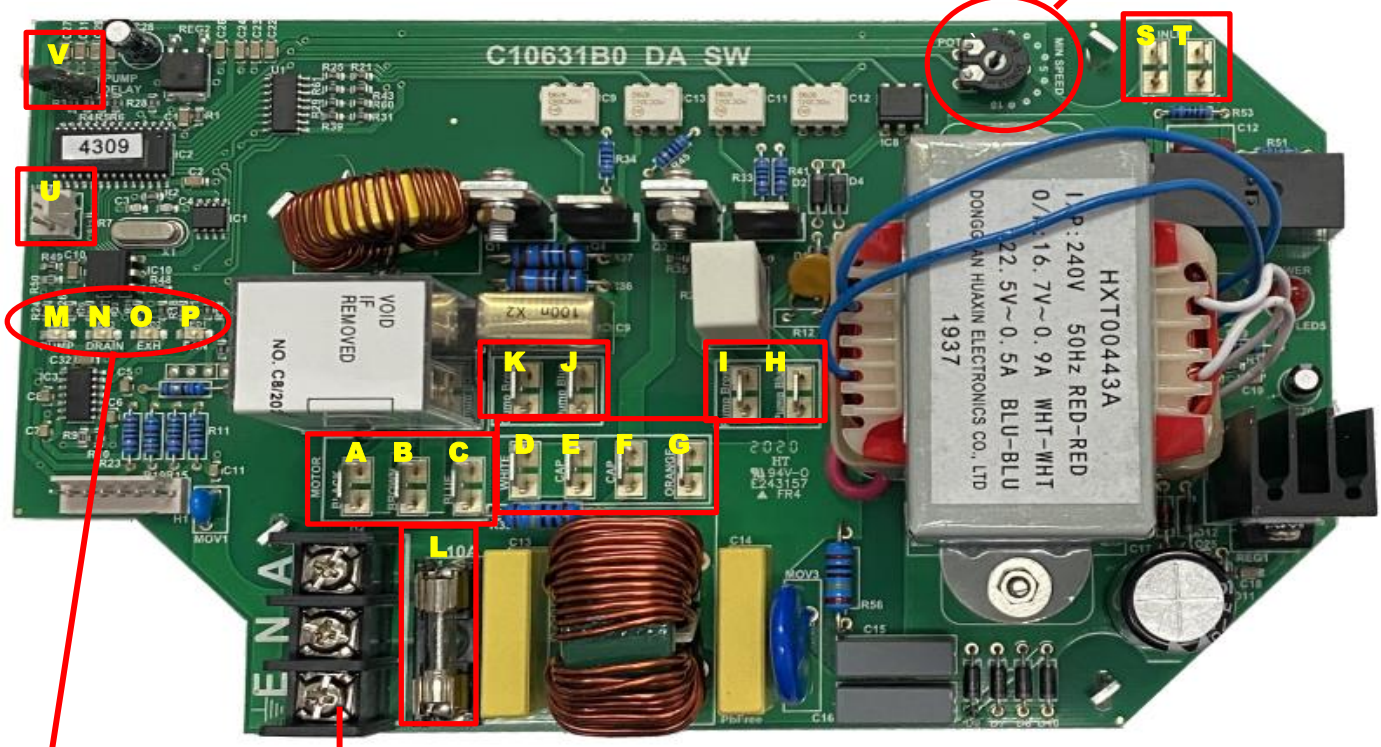
SPEED ADJUSTMENT

Adjust speed setting on hot motor.

WARNING: FAILURE TO SET SPEED AS PER MINIMUM RPM TABLE WILL OVERHEAT & DAMAGE MOTOR.
DO NOT OPERATE MOTOR AT LESS THAN THE MINIMUM SPEED INDICATED IN TABLE

Use tacho to correctly set minimum speed. Pot Settings are indicative only.

				SPEED POT SETTING	
MOTOR	**SIZE**	**FAN COLOUR**	**MIN. RPM**	**240v**	**220v**
TECO	1000W	BLACK	850	7.5 - 8.5	10
TECO	750W	GREY/GREY HUB	600-750	3 - 5	8
TECO	600W	GREY/GREEN HUB	600-751	3 - 5	5 - 6
TECO	600W	GREY/RED HUB	600-752	7	



SYSTEM STATUS LEDs

LEDs are illuminated when the appropriate mode signal is received from the keypad.

i.e.: If the Pump LED is illuminated COOL has been pressed on the keypad.

- **M:** PUMP
- **N:** DRAIN
- **O:** EXH
- **P:** FAN

MAINS POWER CONNECTION:

- **A:** Switch-Link Cable (Brown)
- **N:** Mains Neutral (Blue)
- **E:** Motor & Pump Earth - (Yellow/Green)

TERMINALS:

- **A:** Motor Black
- **B:** Motor Brown
- **C:** Motor Blue
- **D:** Motor White
- **E:** Motor Capacitor
- **F:** Motor Capacitor
- **G:** Motor Orange
- **H:** Pump Neutral Blue
- **I:** Pump Active Brown
- **J:** Drain Neutral Blue
- **K:** Drain Active Brown
- **L:** Fuse - 15A
- **S:** Solenoid
- **T:** Solenoid
- **U:** Magna-Sensor - Water Level
- **V:** Pump Delay Jumper

CHANGE OLD (pre-2020) MRU TO NEW MRU - SP3000:

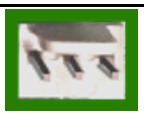
ISOLATE MAINS POWER AT METER-BOX BEFORE OPENING ELECTRICAL BOX

Remove the old MRU board and fit new MRU (marked MRU/2018/3). Connect Pump and Motor Earth to the Earth-Link Cable provided and connect to the Earth terminal together with the Mains Earth cable. Ensure the Mains Earth cable is firmly connected to the MRU board Earth terminal. Connect the Switch-Link cable to the switch terminal and the forked end to the Active terminal on the MRU board. Connect all other cables to the board at the locations marked on the board.

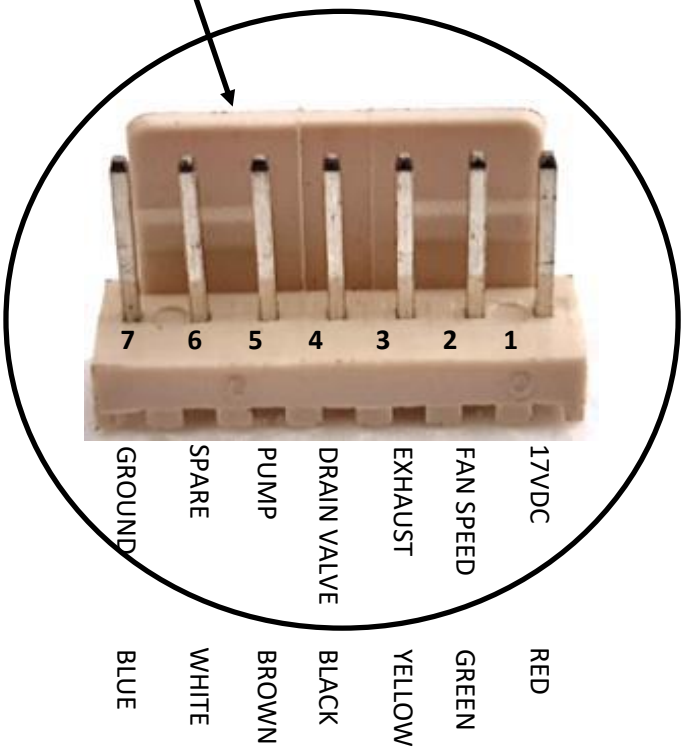
FAULT FINDING - TAC INDUCTION MOTOR (not inverter motor)

ELECTRICAL FAULTS			
FAULT	**Ref**	**CAUSE**	**ACTION**
1. NO DISPLAY AT KEYPAD	1.1	Display illumination level set too low.	Whilst in 'OFF' mode adjust illumination with speed > (increase) button.
	1.2	240v mains supply isolated.	Check mains fuse, circuit breaker, unit isolation switch or MRU.
	1.3	Keypad not connected.	Check 7-pin cable connection and continuity.
	1.4	Keypad locked up.	Push 'RESET' button on keypad. (refer to Owners Manual)
	1.5	MRU failure. 	Check voltage between pins 1 and 7 - if not 17vdc replace MRU
	1.6	Keypad failure.	Verify control signal from keypad with indicator LED's on MRU. Check using substitute keypad.
2. NO RESPONSE FROM KEYPAD	2.1	Keypad failure.	Check appropriate LED on MRU.
	2.2	MagnaSensor (MS) board failure. 	Remove 3 pin MS cable from MRU & check unit operation. : Pump & Solenoid should operate together.
	2.3	No output to selected components.	Replace MRU.
FAN FAULTS			
FAULT	**Ref**	**CAUSE**	**ACTION**
3. FAN NOT OPERATING *Select 'FAN' at keypad and fault find as follows*	3.1	Keypad failure, no signal to MRU.	If speed LED not lit on MRU suspect keypad cable.
	3.2	MS board failure. Refer 2.2	Remove 3-pin MS cable and confirm motor operation.
	3.3	Capacitor failure (motor will buzz but not rotate).	Replace capacitor.
	3.4	Motor not powered.	Check motor power cable is connected properly - check connections at both ends of the cable - motor & MRU
	3.5	Motor seized.	Replace motor.
	3.6	Fan jammed in cowling.	Centralise fan in cowling.
	3.7	MRU failure.	Verify output with voltmeter between orange & brown, and orange & white motor terminals.
	3.8	Motor failure or shutdown due to internal (motor) thermal protection (thermal overload).	Check run current, if running at more than 120% of value on motor name plate – replace motor.
4. FAN WILL NOT OPERATE IN EXHAUST *Select 'EXHAUST' at keypad and fault find as follows*	4.1	Any of the above FAN faults.	Check 3.1 to 3.7 above.
	4.2	Keypad has no signal to roof unit.	If exhaust & speed LED's are not lit on MRU check for faulty keypad cable or controller.
	4.3	MRU failed or locked up.	If exhaust & speed LED's are lit yet motor direction has not reversed replace MRU.
5. FAN CONSTANTLY RUNNING	5.1	MRU triac shorted.	If fan runs with keypad 'OFF' or unplugged replace MRU.
6. FAN TURNS ON BY ITSELF (AND CANNOT BE TURNED OFF AT KEYPAD)	6.1	Unit has sustained an electrical spike on supply cable.	Confirm unit is wired on its own dedicated supply.
	6.2	Unit has sustained an electrical spike on the low voltage keypad cable.	Fit a spike filter (SP3242) on both ends of the low voltage keypad cable.
7. FAN CUTS OFF	7.1	Loss of power to air conditioner.	Check display on keypad, if keypad illuminated - suspect thermal overload.
	7.2	Loss of power to motor.	Confirm keypad is in 'ON' position.
	7.3	Motor failure due to internal (motor) thermal overload protection	Check run current, if running at more than 120% of value on motor name plate – replace motor.

FAULT FINDING - TAC INDUCTION MOTOR (not inverter motor)

WATER FAULTS			
FAULT	**Ref**	**CAUSE**	**ACTION**
8. WATER NOT ENTERING UNIT *Select 'COOL' at key-pad and fault find as follows*	8.1	Isolation tap closed or filter blocked.	Open tap and/or clean filter.
	8.2	Solenoid time delay active.	Wait 1 min for drain valve to close & delay to end.
	8.3	Keypad not signalling roof unit.	Confirm drain is lit, if not suspect faulty keypad or control cable.
	8.4	No 24vac output Water Inlet on MRU.	Replace MRU.
	8.5	MS board failure. 	Remove 3-pin MS cable, Test solenoid coil resistance - should be 38Ω
	8.6	Solenoid mesh strainer blocked.	Remove solenoid, clean mesh strainer & check water quality. Recommend replace solenoid.
	8.7	Solenoid coil open circuit or failed.	Replace solenoid.
	8.8	Pressure lock between solenoid & non-return type isolation valve.	Relieve pressure & fit standard isolation tap.
9. WATER CONTINUALLY RUNNING FROM UNIT *Select 'COOL' at key-pad and fault find as follows*	9.1	Keypad failure.	If drain LED not lit suspect 7-pin cable or keypad.
	9.2	MS board failure. refer 2.2	Remove 3-pin MS cable from MRU.
	9.3	Solenoid passing water continuously.	Strip & clean solenoid diaphragm and seating. Recommend replace solenoid.
	9.4	Water level set too high.	Adjust MS float. Check for water in float.
	9.5	Counterweight Drain Valve: a) Leaking from hoses or plastic clips.	Replace plastic clips (SP2041) or hoses kit (SP2042). Do not re-use clips.
		b) Hoses incorrectly connected.	Replace hoses kit (SP2042).
		c) Physical or mechanical damage to counter-weight drain valve body.	Replace drain valve (SP2040).
	9.6	Square section blue 'O' ring faulty.	Replace 'O' ring (SP2043).
10. WATER NOT DRAINING FROM UNIT	10.1	Unit may be in AUTO mode.	Check system mode at keypad.
	10.2	Counterweight Drain Valve: a) Stuck in closed position.	Replace drain valve (SP2040).
		b) Blockage in components.	Replace drain valve (SP2040).
11. WATER NOT CIRCULATING *Select 'COOL' at key-pad and fault find as follows*	11.1	Keypad failure – display reading "C".	If pump LED on MRU not lit suspect keypad cable.
	11.2	Pump time delay is active, normal operation.	Wait 1 min after solenoid operation for pump to start.
	11.3	Roof unit failure – no 240v supply to pump.	If pump LED on MRU lit and 240v not present at terminals replace MRU.
	11.4	MS failure.	Remove 3 pin MS cable from MRU & check unit operation. : Pump & Solenoid should operate together. : Replace MS MagnaSensor Unit
	11.5	Pump seized, impeller stripped or base cracked.	Replace pump.
	11.6	Pump strainer basket clogged.	Remove & clean strainer basket.
	11.7	Water distribution manifold blocked.	Remove and flush manifold of any blockages.

MRU KEYPAD LINKS



KEYPAD LINKS

FAN
Grey Tape

WATER
Black Tape

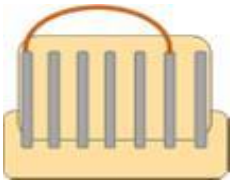
REMOVE 7 PIN CABLE AND USING A KEYPAD LINK ABOVE / BRIDGING WIRE FOLLOW THE INSTRUCTION BELOW

7-2 = FAN - GREY KEYPAD LINK

7-4 = DRAIN(ELECTRIC)

7-5 = PUMP/SOLENOID - BLACK KEYPAD LINK

7-3 = EXHAUST



Example: copper bridging 7 & 2

MAXIMA INVERTER MOTOR - ECRU BOARD

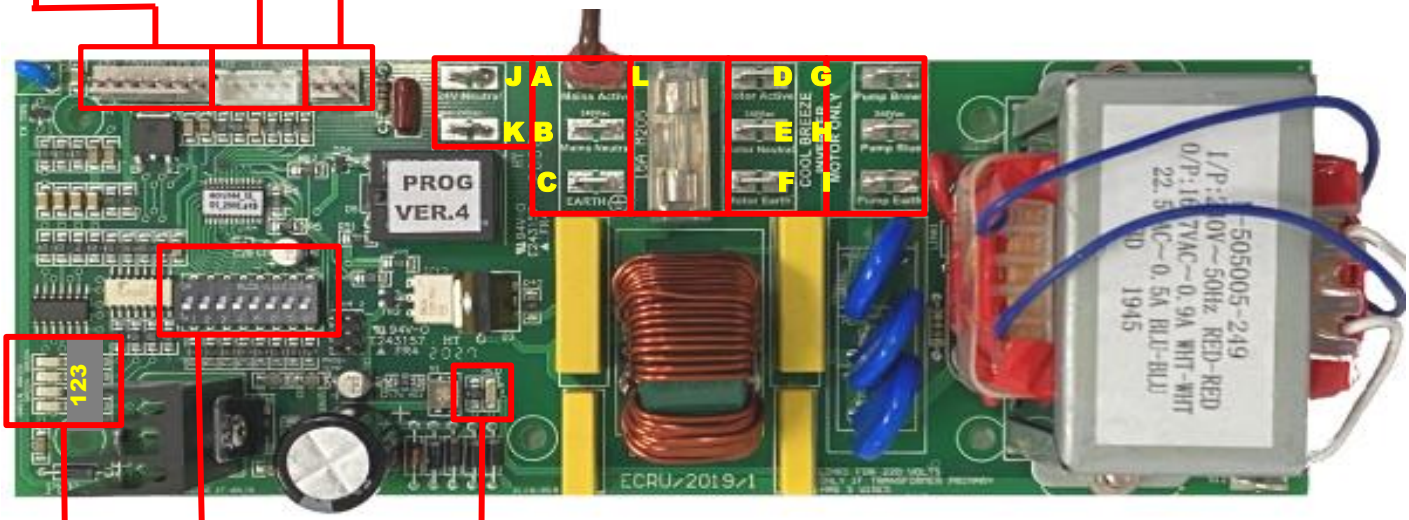
ECRU to Keypad/
Controller Cable

ECRU to Motor Controller
Communication Cable

Magna Sensor Cable

TERMINALS:

A: Mains Active Brown
B: Mains Neutral Blue
C: Mains Earth Yellow/Green
D: Motor Active Brown
E: Motor Neutral Blue
F: Motor Earth Yellow/Green
G: Pump Active Brown
H: Pump Neutral Blue
I: Pump Earth Yellow/Green
J: Solenoid
K: Solenoid
L: Fuse - 15A Slow Blow



DIP SWITCHES*

MAIN POWER LED

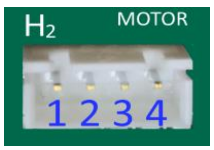
SYSTEM STATUS LEDs
LEDs are illuminated when the appropriate mode signal is received from the keypad.

1: PUMP
2: DRAIN
3: EXH
4: FAN

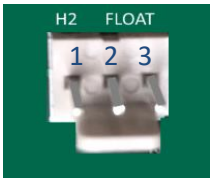
***DIP SWITCH SPEED SETTING CHART**

MODEL	FAN	DIP SWITCH	1	2	3	4	5	6	7	8
MD095	Grey / Green		OFF	OFF	ON	OFF	ON	ON	ON	OFF
MD125/C125	Grey / Green		OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
MD160/C160	Grey / Grey		OFF	OFF	ON	OFF	OFF	OFF	ON	ON
MD195/C205	Black Powerflow		OFF	OFF	ON	ON	OFF	OFF	OFF	ON
MD230/C240	Black Powerflow		OFF	OFF	OFF	ON	OFF	ON	OFF	ON
MD255/MD500	Black Powerflow		OFF	OFF	ON	OFF	OFF	OFF	ON	ON

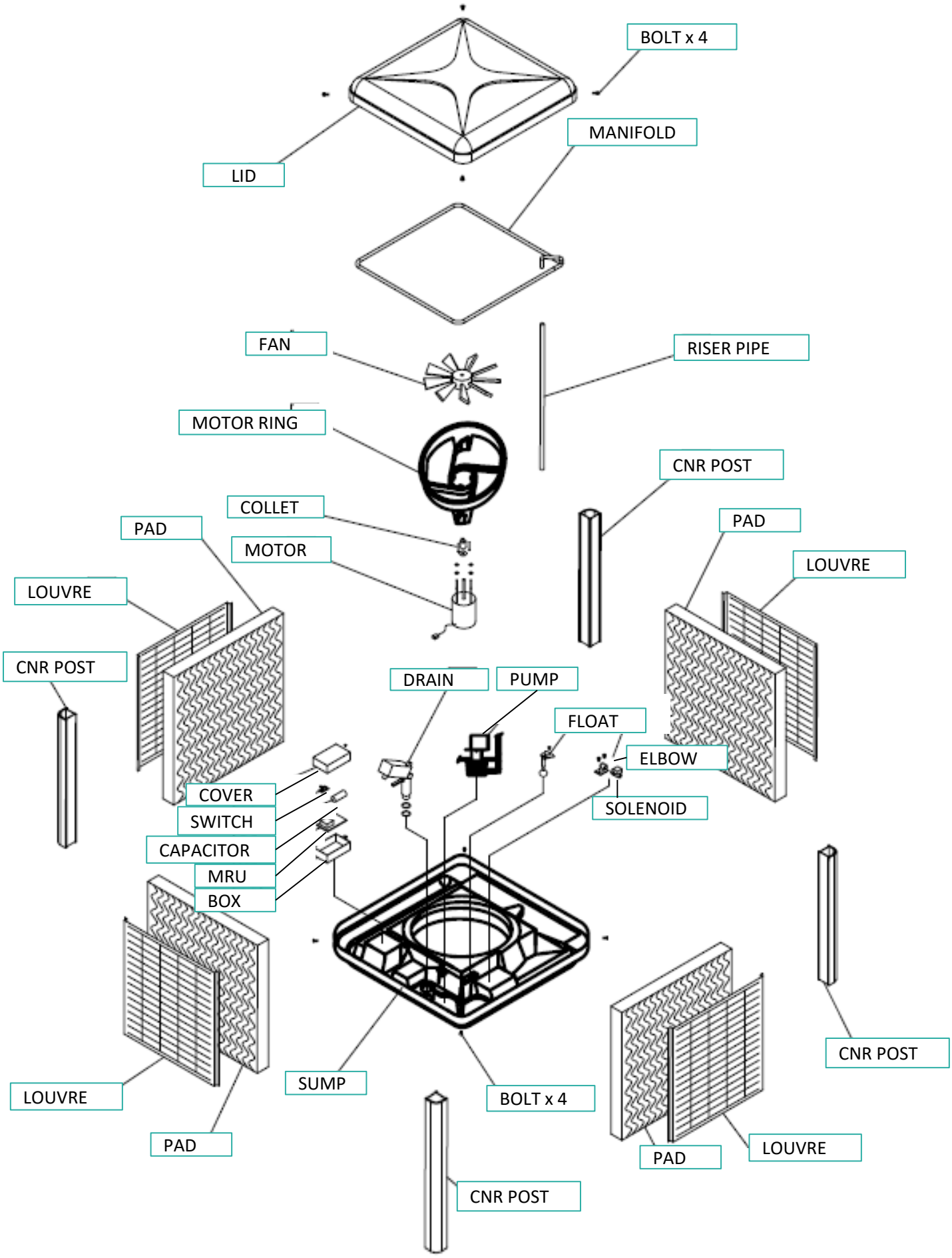
FAULT FINDING - MAXIMA INVERTER MOTOR

ELECTRICAL FAULTS			
FAULT	**Ref**	**CAUSE**	**ACTION**
1. NO DISPLAY AT KEYPAD	1.1	Display illumination level set too low.	Whilst in 'OFF' mode adjust illumination with speed > (increase) button.
	1.2	240v mains supply isolated.	Check mains fuse, circuit breaker, unit isolation switch and red LED on ECRU.
	1.3	Keypad not connected.	Check 7-pin cable connection and continuity.
	1.4	ECRU failure. 	If 17 vdc not present between pins 1 and 7 replace ECRU.
	1.5	ECRU failure.	Verify control signal from keypad with indicator LED's on ECRU. Check using substitute keypad.
2. NO RESPONSE FROM KEYPAD	2.1	Keypad failure.	Select desired function and confirm the appropriate LED is illuminated. If no LED's suspect faulty keypad or control cable
3. KEYPAD SHOWS UNIT IS OPERATING BUT THERE IS NO AIRFLOW	3.2	The Current Limit protection on the motor has been activated	Check to see if there is any obvious causes. Reset the unit by turning off the mains supply then re-start unit. If the motor stops again within 10 seconds - Thermal overload switch has activated - replace motor
FAN FAULTS ATTENTION: Be advised that the Maxima Inverter Motor has a delay time period before starting and incorporates a ramp up / ramp down operation			
FAULT	**Ref**	**CAUSE**	**ACTION**
3. FAN NOT OPERATING Select 'FAN' at keypad and fault find as follows	3.1	Keypad failure, no signal to ECRU.	If fan LED not lit on ECRU check for faulty keypad cable.
	3.2	Motor not powered	Check multi pin jack plug between the motor and the ECRU.
	3.3	Motor not powered	With the unit in standby function, confirm 240vac present at motor power cable. If no voltage present replace ECRU.
	3.4	Motor seized.	Replace motor.
	3.5	Fan jammed in cowling.	Centralise fan in cowling.
	3.6	ECRU failure. 	Confirm 5 vdc between terminal 1 & 2 . Select "FAN" confirm 1.2/2.6vdc present between terminals 2 & 3 depending on fan speed selected. If no voltage present replace ECRU.
4. FAN WILL NOT OPERATE IN EX-HAUST	4.1	Any of the above FAN faults.	Check 3.1 to 3.6 above.
	4.2	Keypad has no signal to roof unit.	If EXH & FAN LED's are not lit on ECRU check for faulty keypad cable or controller.
	4.3	ECRU failure 	If EXH & FAN LED's are lit confirm voltage between terminals 1 & 2 is 5vdc, voltage between terminals 2 & 3 is 1.1/1.7vdc depending on fan speed selected, and the voltage between terminals 2 & 4 is 5vdc. If these volt- ages are present replace the motor, if these voltages are not present replace the ECRU.
5. FAN CUTS OFF	5.1	Loss of power to air conditioner.	Check display on keypad, if keypad illuminated check for possible thermal overload. Refer to 3.2

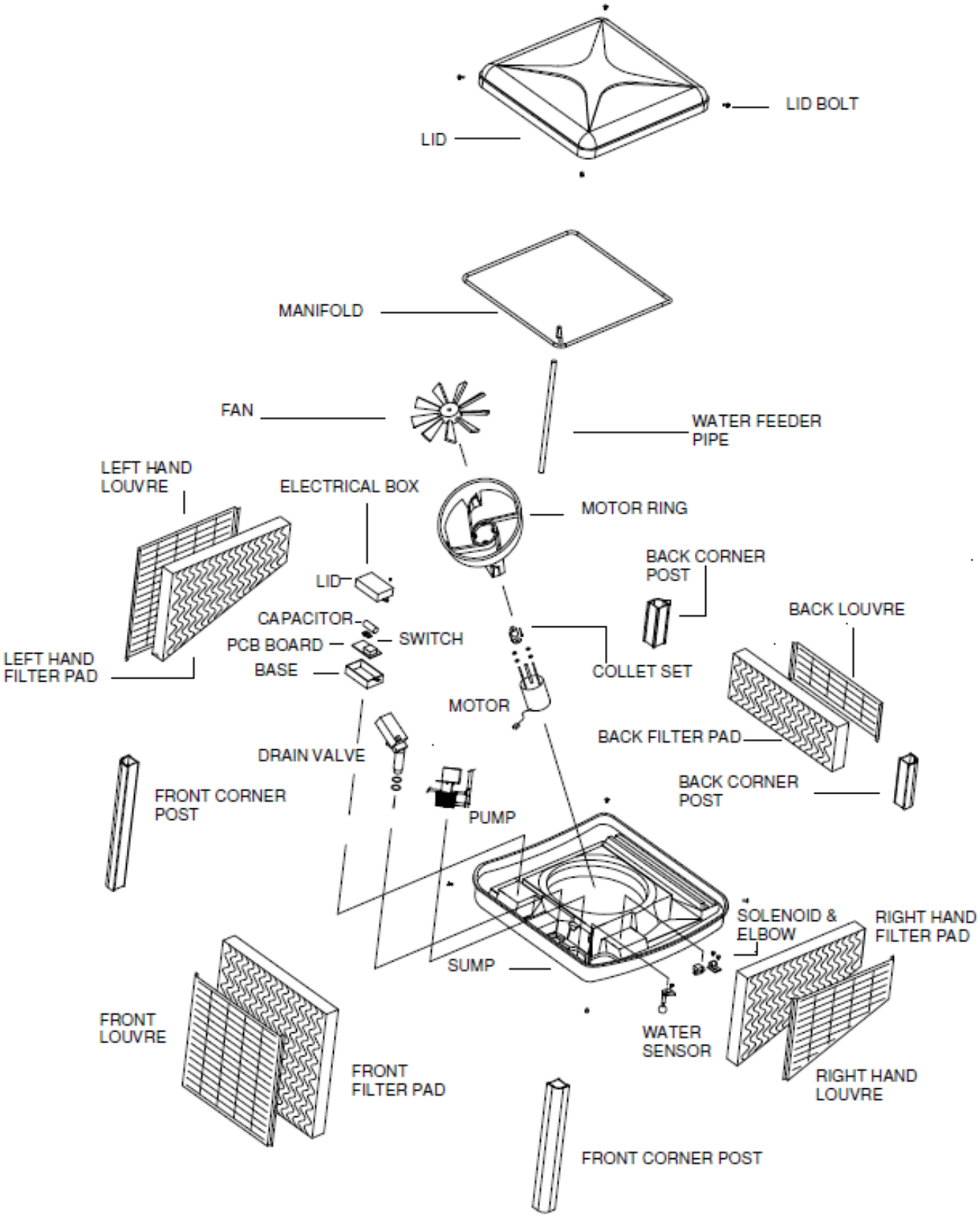
FAULT FINDING - MAXIMA INVERTER MOTOR

WATER FAULTS **ATTENTION: Be advised that the MS control unit does NOT switch power to the pump and solenoid when removed from the ECRU.**			
FAULT	**Ref**	**CAUSE**	**ACTION**
6. WATER NOT ENTERING UNIT Select 'COOL' at key- pad and fault find as follows:	6.1	Isolation tap closed or filter blocked	Open tap and/or clean filter.
	6.2	Keypad is not signalling ECRU.	Confirm RX and H2O LED is illuminated, if not check for faulty keypad or control cable.
	6.3	MS failure 	With keypad OFF Voltage between terminal 1 & 3 should be 5vdc With keypad ON Voltage between terminals 2 & 3 should be 5vdc If these voltages are not present replace ECRU.
	6.4	No 24vac output to solenoid	Replace MS to confirm either MS or ECRU fault
	6.6	Solenoid mesh strainer blocked.	Remove solenoid, clean mesh strainer & check water quality. Recommend replace solenoid.
	6.7	Solenoid coil open circuit or failed.	Coil resistance should be 38Ω
	6.8	Pressure lock between solenoid & non-return type isolation valve.	Relieve pressure & fit standard isolation tap.
7. WATER CONTINUALLY RUNNING FROM UNIT Select 'COOL' at key- pad and fault find as follows	7.1	Keypad failure.	If RX and /or H2O LED are not lit check for faulty 7-pin cable or keypad.
	7.2	MS board failure. refer 2.2	Remove 3-pin MS cable from ECRU.
	7.3	Solenoid passing water continuously.	Strip & clean solenoid diaphragm and seating. Recommend replace solenoid.
	7.4	Water level set too high.	Adjust MS float. Check for water in float.
	7.5	Counterweight Drain Valve a) Leaking from hoses or plastic clips.	Replace O ring, hoses & clips from Service Kit (SP2117) Do not re-use clips.
		b) Hoses incorrectly connected.	Replace O ring, hoses & clips from Service Kit (SP2117) Do not re-use clips.
		c) Damage to body of Counter-weight drain valve counterweight drain valve body.	Replace drain valve (SP2040).
	7.6	Square section blue 'O' ring faulty.	Replace O ring, hoses & clips from Service Kit (SP2117) Do not re-use clips.
8. WATER NOT DRAINING FROM UNIT	8.1	Unit may be in AUTO mode.	Check system mode at keypad.
	8.2	Counterweight Drain Valve a) Stuck in closed position.	Replace drain valve (SP2040).
		b) Blockage in components.	Replace drain valve (SP2040).
9. WATER NOT CIRCULATING Select 'COOL' at key- pad and fault find as follows	9.1 9.2	Keypad failure. ECRU failure	If RX and/or H2O LED are not lit check for faulty 7 pin cable or keypad - Refer 6.3/6.4
	9.3	Pump seized, impellor stripped or base cracked.	Replace pump.
	9.4	Pump strainer basket clogged.	Remove & clean strainer basket.

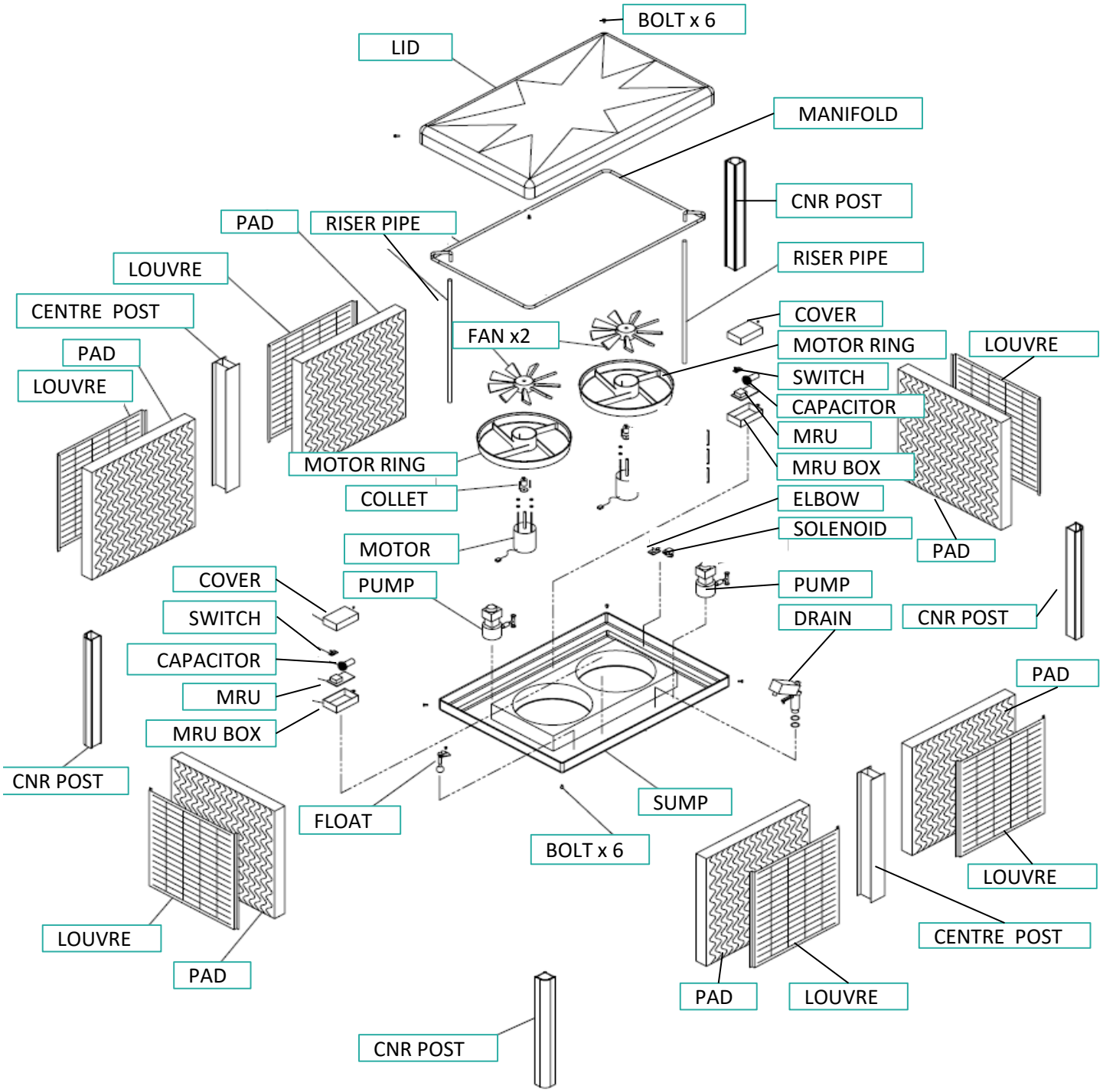
EXPLODED VIEW - Heritage D series 095 - 255



EXPLODED VIEW - CASCADE C series 125 - 240



EXPLODED VIEW - D500 TWIN FAN UNIT



When fault finding on the D500 Twin Fan model, first identify the Primary and Secondary Modular Roof Unit (MRU).

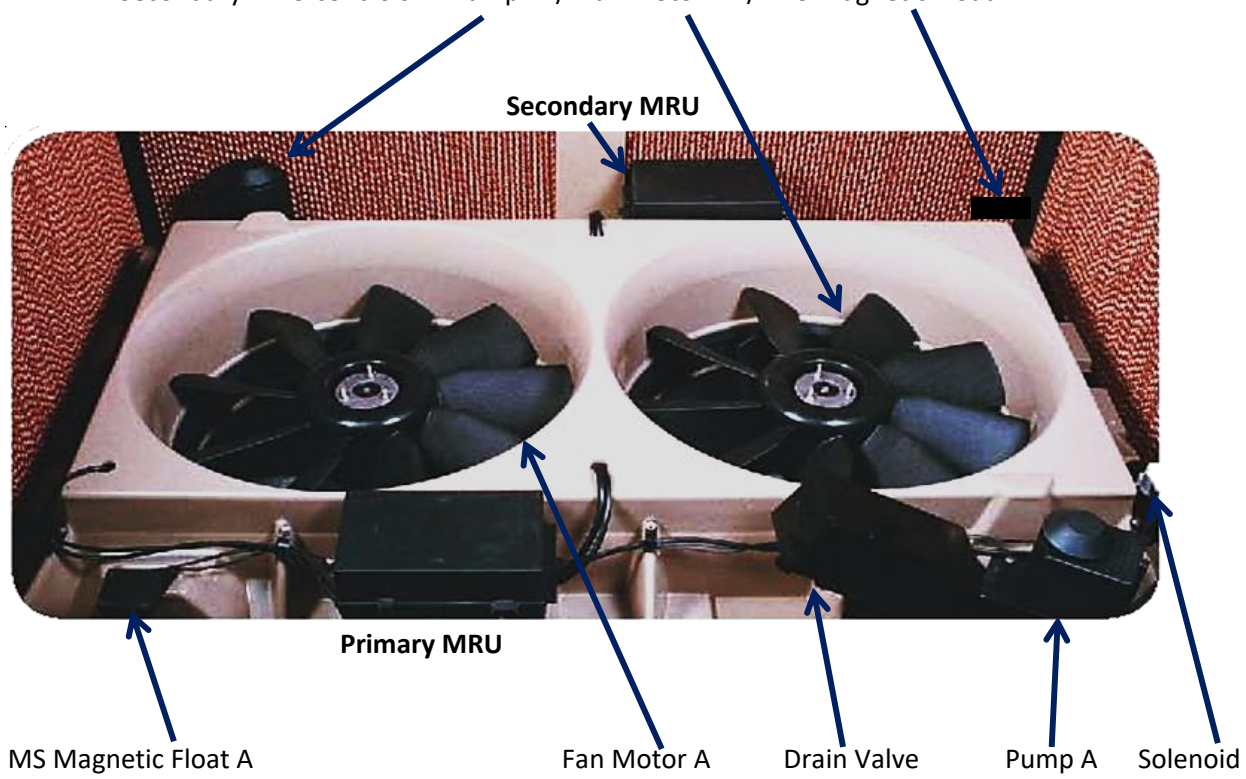
Open each Electrical Control Box:

The Primary MRU Box has an additional circuit board inside >

The Primary MRU is on the side of the unit with the Counter-weight Drain Valve fitted.

Primary MRU controls MS Float / Fan Motor A / Drain Valve / Pump A / Solenoid

Secondary MRU controls: Pump B / Fan motor B / MS Magnetic Float B



MOTOR INDENTIFICATION

TAC INDUCTION MOTOR SILVER LABEL

TAC INDUCTION MOTOR GOLD LABEL

MANUAL RESET THERMISTOR

MAXIMA INVERTER MOTOR

MULTI UNIT CONTROL SYSTEM (MUCS) – PART # UAKSKT

WIRING MULTIPLE SINGLE FAN UNITS USING ONE CONTROLLER (eg. Connecting three (3) single fan coolers to one controller)

The MUCS you require (UAKSKT) includes a printed circuit board and two wires, as the MUCS is wired in a series with the 7-pin 17vdc control cable. You MUST order one less kit (UAKSKT) than there are units (in this case two (2) x UAKSKT are required)

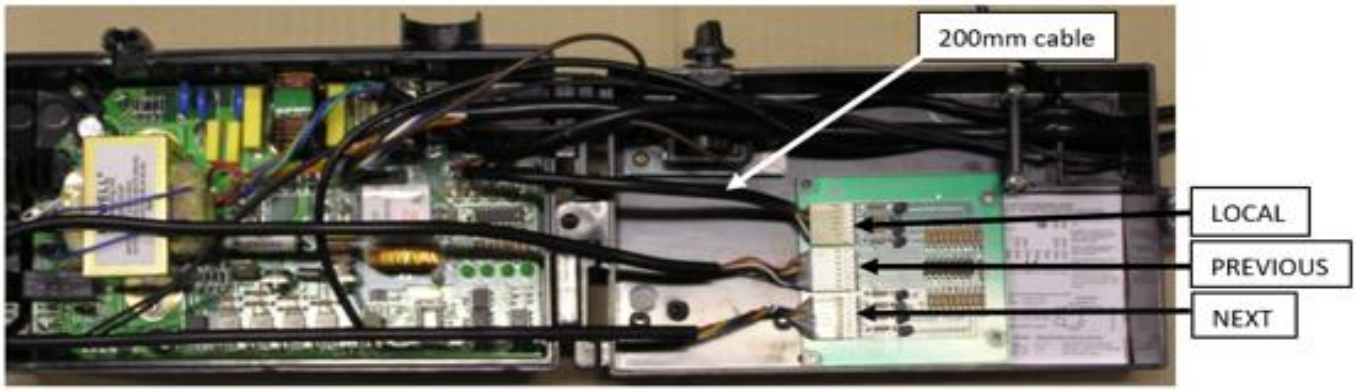


Diagram 1

Diagram 2

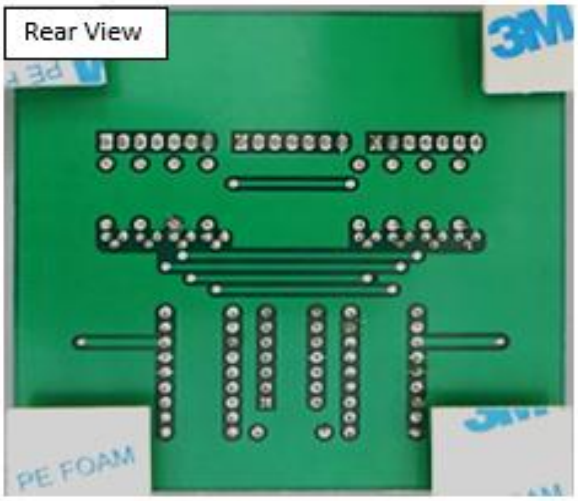


Diagram 3

INSTALLATION

Disconnect mains power and open the electrical box.

Using the double-sided tape supplied, stick the MUCS in the base of the electrical box as per *diagram 1*.

Using the 200mm 7-pin cable supplied, plug this into the MRU and the local connection on the MUCS as per *diagram 1*.

Connect the cable from the wall controller to the PREVIOUS connection on the MUCS *see diagram 1*.

Using the 15 metre 7-pin cable supplied, plug this into the NEXT connection on the MUCS and run this to the next Coolbreeze Cooler and repeat this process *see diagram 4*.

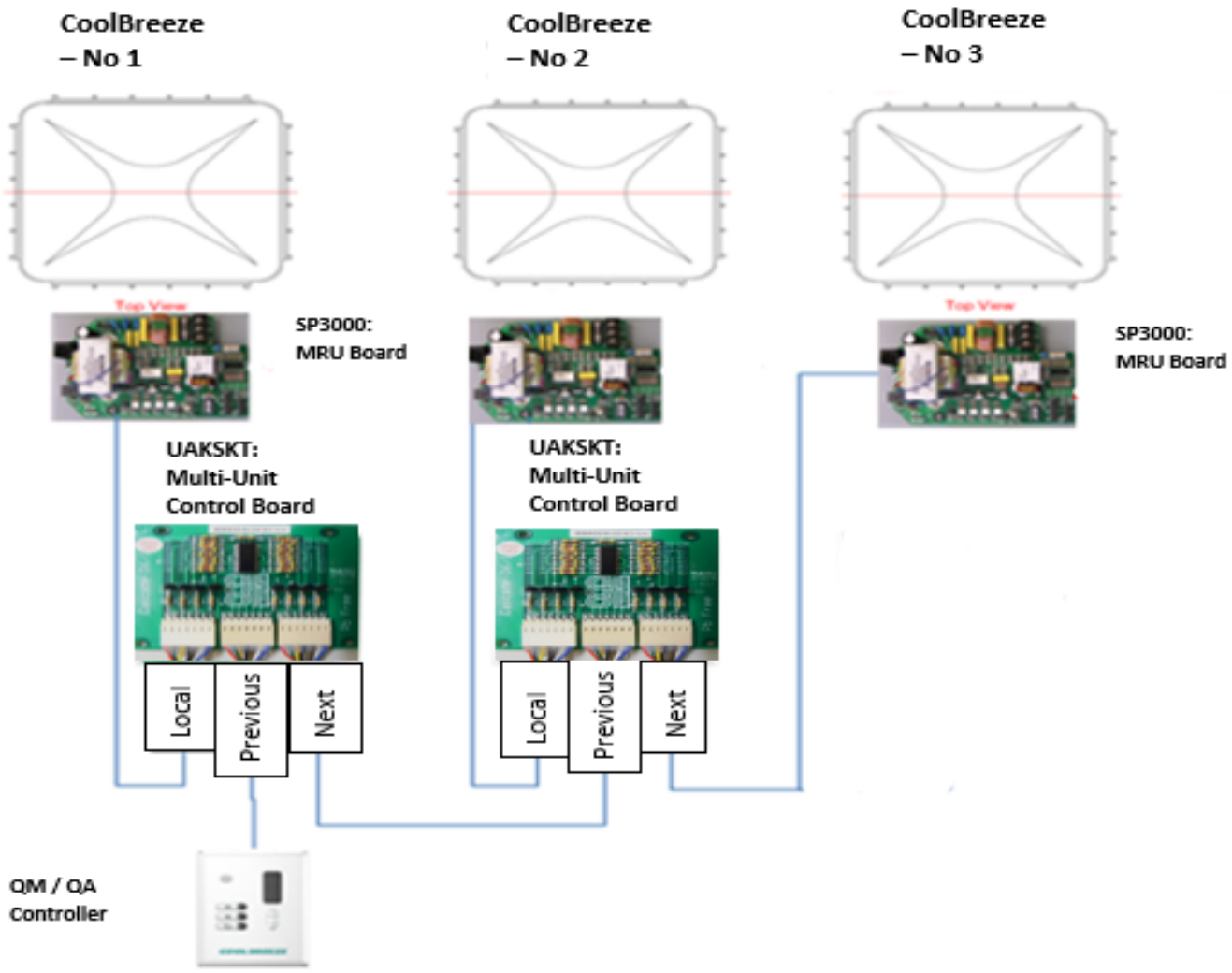


Diagram 4

MULTI UNIT CONTROL SYSTEM (MUCS) – PART # UAKSKT

WIRING MULTIPLE TWIN FAN UNITS USING ONE CONTROLLER (eg. Connecting three (3) twin fan coolers to one controller)

The MUCS you require (UAKSKT) includes a printed circuit board and two wires, as the MUCS is wired in a series with the 7-pin 17vdc control cable. You MUST order one less kit (UAKSKT) than there are units (in this case two (2) x UAKSKT are required)

Be aware that a twin fan cooler has two (2) electrical boxes (primary & secondary) and the primary control box already has a MUCS installed. This is because the two (2) fans copy each other, therefore, the new MUCS gets fitted into what is the secondary electrical box *diagram 4*.

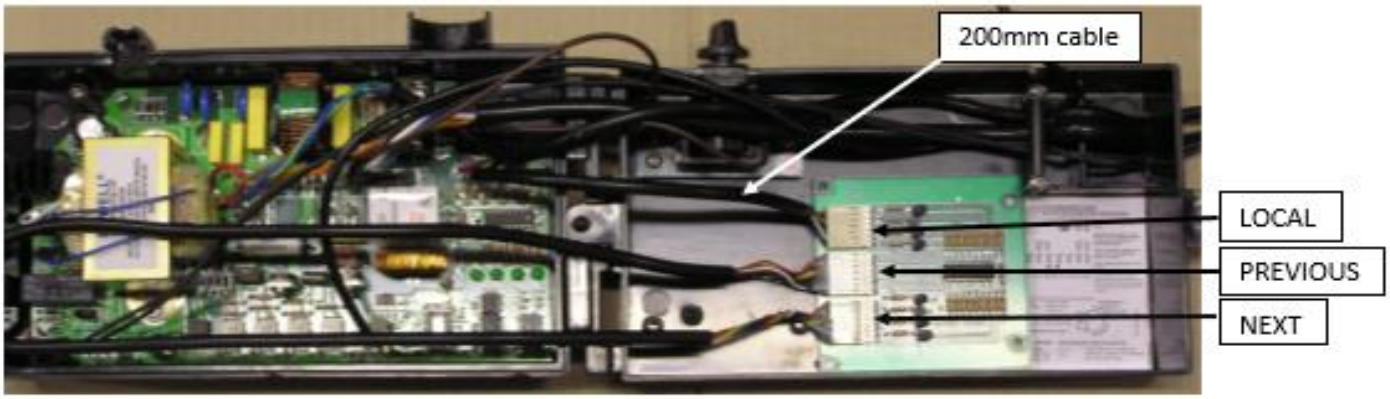


Diagram 1

Diagram 2

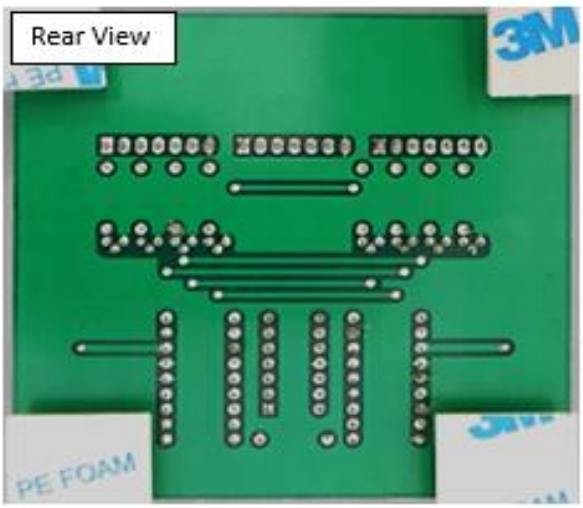


Diagram 3

INSTALLATION

Disconnect mains power to the secondary electrical box.

Using the double-sided tape supplied, stick the MUCS in the base of the electrical box as per *diagram 1*.

Remove the existing 7-pin control cable from the MRU and connect this to the PREVIOUS connection on the MUCS *see diagram 1*.

Using the 200mm 7-pin cable supplied, connect this to the LOCAL connection on the MUCS and plug this into the 7-pin connection on the MRU *see diagram 1*.

Using the 15 metre 7-pin cable supplied, connect this to the NEXT connection on the MUCS and run this cable to the next Coolbreeze unit *see diagram 4*.

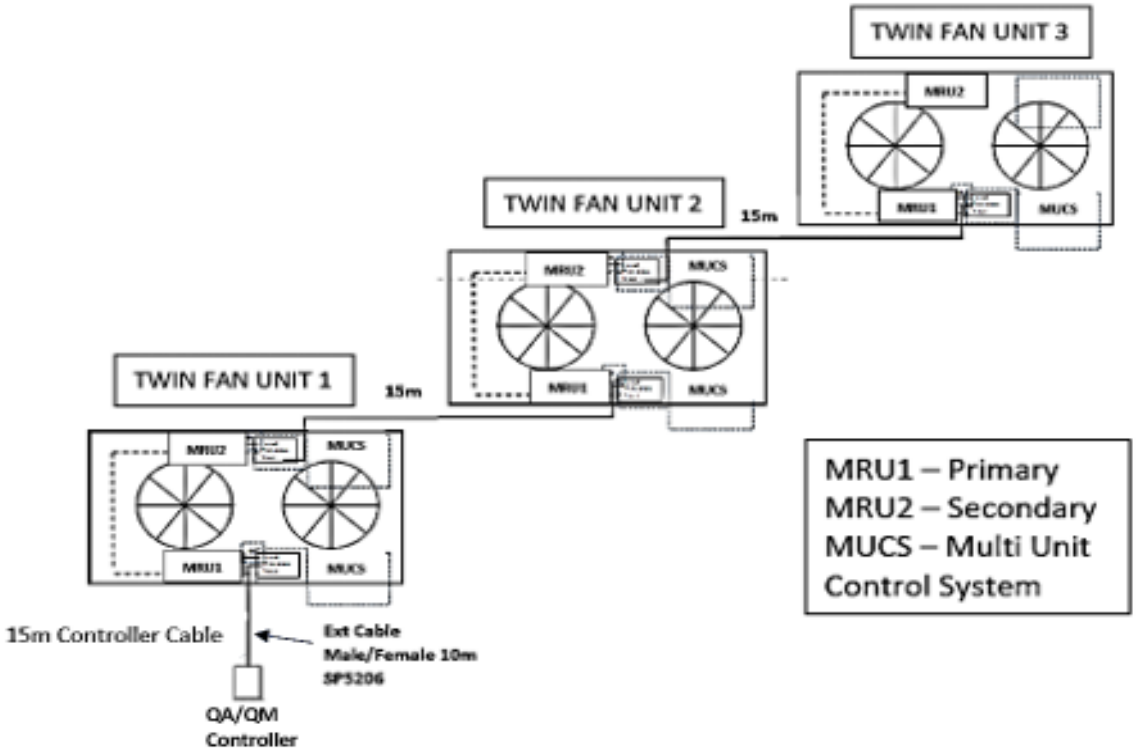


Diagram 4

FAULT FINDING ON 1 OR MORE MRU CONTROLLED MULTIPLE TWIN FAN COOLERS

Understanding the operation/function of a Multi Unit Control System (MUCS)

The function of the MUCS is to receive the control signal from either the previous unit or the wall controller, then direct this to both the local MRU (modular roof unit) and the next cooler.

A twin fan unit is simply two individual units that share the same cabinet. Because an evaporative cooler requires both a water entry point and a water exit point, in the case of a twin fan unit only one of each are required and this function is controlled by the PRIMARY MRU.

The twin fan unit has two electrical boxes (PRIMARY & SECONDARY) and each contains a MRU. The PRIMARY electrical box will be identified because it contains both a MRU located in the lid of the electrical box and the MUCS printed circuit board located in the base of the electrical box.

TWIN FAN UNIT CONSISTS OF

* Two main power leads each with a three pin plug. These MUST be wired in accordance with AS3000:2000 Wiring Rules, and should be undertaken by a licensed electrical contractor. The unit is to be supplied from a dedicated circuit with the appropriate fuse or circuit breaker.
* Two MRU'S which each power one fan motor, one pump and one magnetic MS water level sensors.
* The primary MRU which has the MUCS pcb installed will control the solenoid and ultimately the water management system.

FAULT FINDING- see page 12

Isolate the power to each electrical box at the rotary isolation switch

Open the electrical box within the twin fan unit and remove the 7-pin cable that is located on the MRU and plug in a test controller.

TEST CONTROLLER

Restore mains power at the rotary isolation switch and fault find as per page 12 of this document.

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