

## OPA 178RKT

# Packaged Reverse Cycle R410A Air Cooled Air Conditioner

# Installation & Maintenance

### GENERAL

This OPA 178 unit must be installed in accordance with all national and local safety codes.

### OPTION (Field Fitted)

Electric heat kit.

### INSTALLATION

#### Positioning

Refer to dimension diagram for minimum clearances. If multiple units are to be placed side-by-side then allow at least 2 m between coil faces.

#### Mounting

Fasten the unit down to a firm flat horizontal base using the four holes provided in the mounting rails.

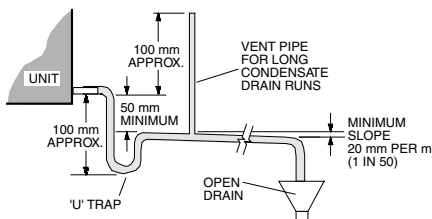
When the unit is being installed on a roof it is recommended that the unit is installed on a substantial structure with vibration isolating springs beneath the unit. These springs are not supplied with the unit.

Flexible duct connections are recommended between the supply and return ducts and the unit.

#### Condensate Drain

The condensate drain should be 'U' trapped outside the unit. The trap should have a vertical height of at least 50 mm. The drain should have a slope of at least 1 in 50 and must not be piped to a level above the unit drain pipe.

For long condensate pipe runs, fit a vent pipe near the drain trap. The top of the vent pipe must be at least 100 mm above the OPA unit's drain tray.



### REFRIGERATION SYSTEM

#### General

The refrigeration system has been charged with 3.6 kg of R410A refrigerant. Tapping points are provided to measure discharge and suction operating pressures. Beware of high system pressures; use correct gauges.

### Compressor

The compressor is directional scroll type. The compressor lubricant is polyol ester oil (POE). Note, this oil absorbs moisture quickly if exposed to open air. On commissioning, the compressor must be checked for correct rotation (refer Start Up Procedure).

### ELECTRICAL REQUIREMENTS

Electrical work must be done by a qualified electrician. The outdoor unit must be wired directly from a distribution board by means of a circuit breaker or H.R.C. fuse, and a mains isolator provided - preferably close to the unit.

**Note:** DO NOT USE REWIRABLE FUSES.

Standard units are suitable for use with thermostats with either manual Heat/Cool selection or automatic changeover subject to the contact ratings of the thermostats.

Refer to separate pamphlet for approved thermostats, or contact the manufacturer's nearest sales office.

A 24 hour power supply to the crankcase heaters is required, otherwise the warranty is void.

### CHECK TESTS

1. Leave the remote switch in the off position and close the mains isolating switch. A four hour delay period is required to allow the crankcase heater to drive any liquid refrigerant out of the compressor oil.
2. Check that all fan motors are free running.
3. Check that the thermostat is correctly wired to the unit and is set at the desired temperature.
4. Check that the air filters, if any, have been correctly installed.
5. Check any supply air diffuser dampers are open.

### START UP PROCEDURE

Use the supplied Commissioning Sheet to help you complete the following procedure:

1. Switch on the unit after the four hour delay period for the crankcase heater has expired.
2. Check for correct rotation of the compressor. If rotation is incorrect the compressor will not pump, be noisy, and will draw minimal current. To correct motor rotation, change the phasing at the main power terminal.
3. Check the supply voltage.

4. Measure the current draw on the compressor motor and on each fan motor. Check all readings against the specified values - particularly the indoor fan amps if the unit is installed in a free blow application.
5. Fit R410A compatible gauges and measure the suction and discharge pressures.
6. Test the operation of the high pressure safety control by switching off the outdoor air fan.
7. Test the operation of the reversing valve by running the unit in both the heating and cooling mode.
8. Check that the motors are running smoothly.
9. Check the supply air flow at each outlet.
10. Touch up any outdoor unit paintwork damage to prevent corrosion.

### OUTDOOR UNIT CONTROLLER (OUC)

The Outdoor Unit Controller (OUC) includes a temperature sensing head pressure control which enables the system to compensate for outdoor ambient temperatures below 20°C on cooling cycle, and above 15°C on heating cycle. The OUC also has features which protect against icing or overheating of coils, rapid cycling of the compressor and loss of refrigerant charge.

If the outdoor unit fans take some time to begin rotating when the system is powered on, or they don't appear to be rotating appropriately while the compressor is running, consult the OUC label on the electrical box. If necessary, refer to **temperzone** for further diagnostic information.

### MAINTENANCE

#### Weekly For First Four Weeks

1. Check indoor air filters (if fitted) and vacuum or wash clean as necessary.
2. Check condensate drain for free drainage.
3. Check compressor compartment for oil stains indicating refrigerant leaks.
4. Check tightness of electrical connections.

#### Six Monthly

1. Check the tightness of all fan and motor mountings.
2. Check tightness of electrical connections.
3. Check suction and discharge operating pressures.
4. Replace indoor unit air filters (if fitted).
5. Check condensate drain for free drainage.

**Yearly**

1. Check all refrigerant piping for chafing and vibration.
2. Check the operation of electric heaters, if fitted.
3. Check air supply at all diffusers.
4. Check for excessive noise and vibration and correct as necessary.
5. Check for insulation and duct damage and repair as necessary.
6. Remove lint and dust accumulation from outdoor coil fins.
7. Touch up any outdoor unit paintwork damage to prevent corrosion.

**NOTE**

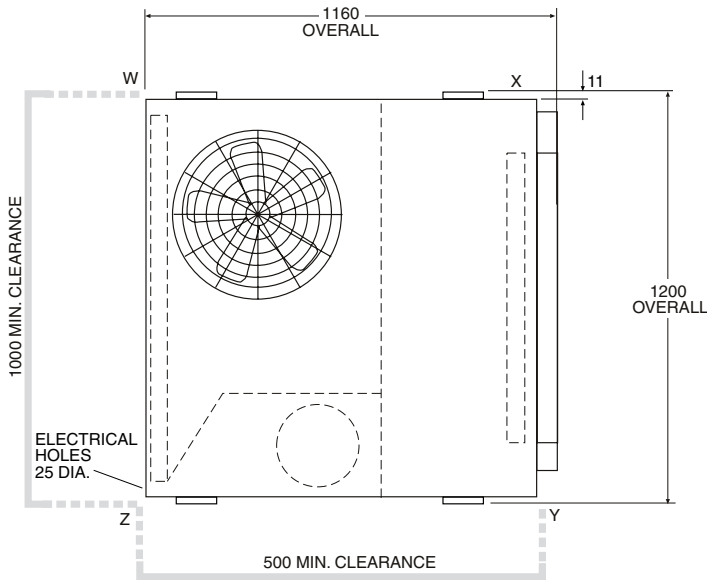
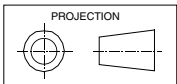
The manufacturer reserves the right to change specifications at any time without notice or obligation. Certified dimensions available on request.

This pamphlet replaces the previous issue no. 2812 dated 12/07. Wiring revision B.

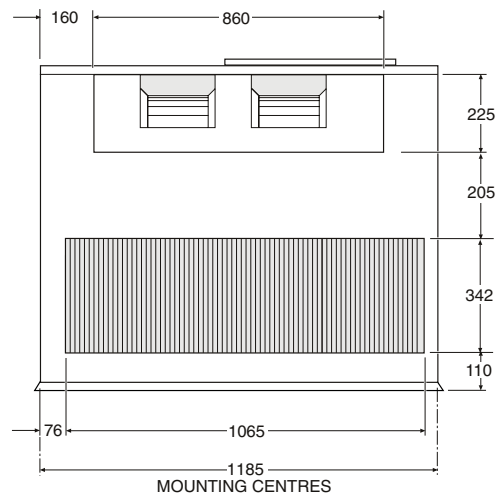
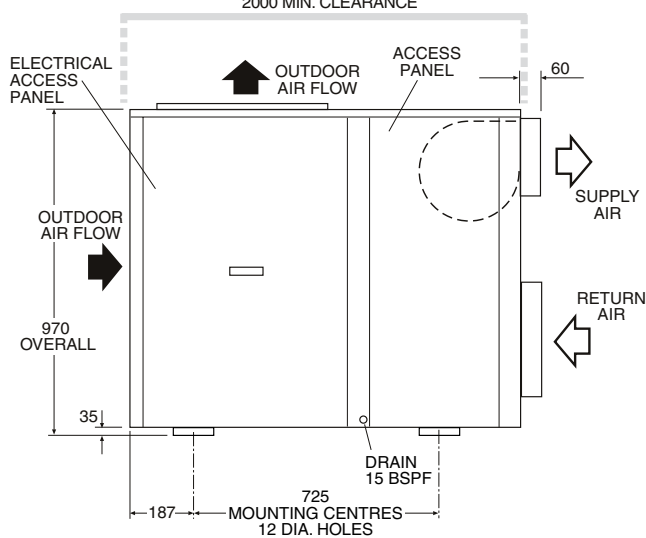
**Dimensions (mm)**

**OPA 178RKT**

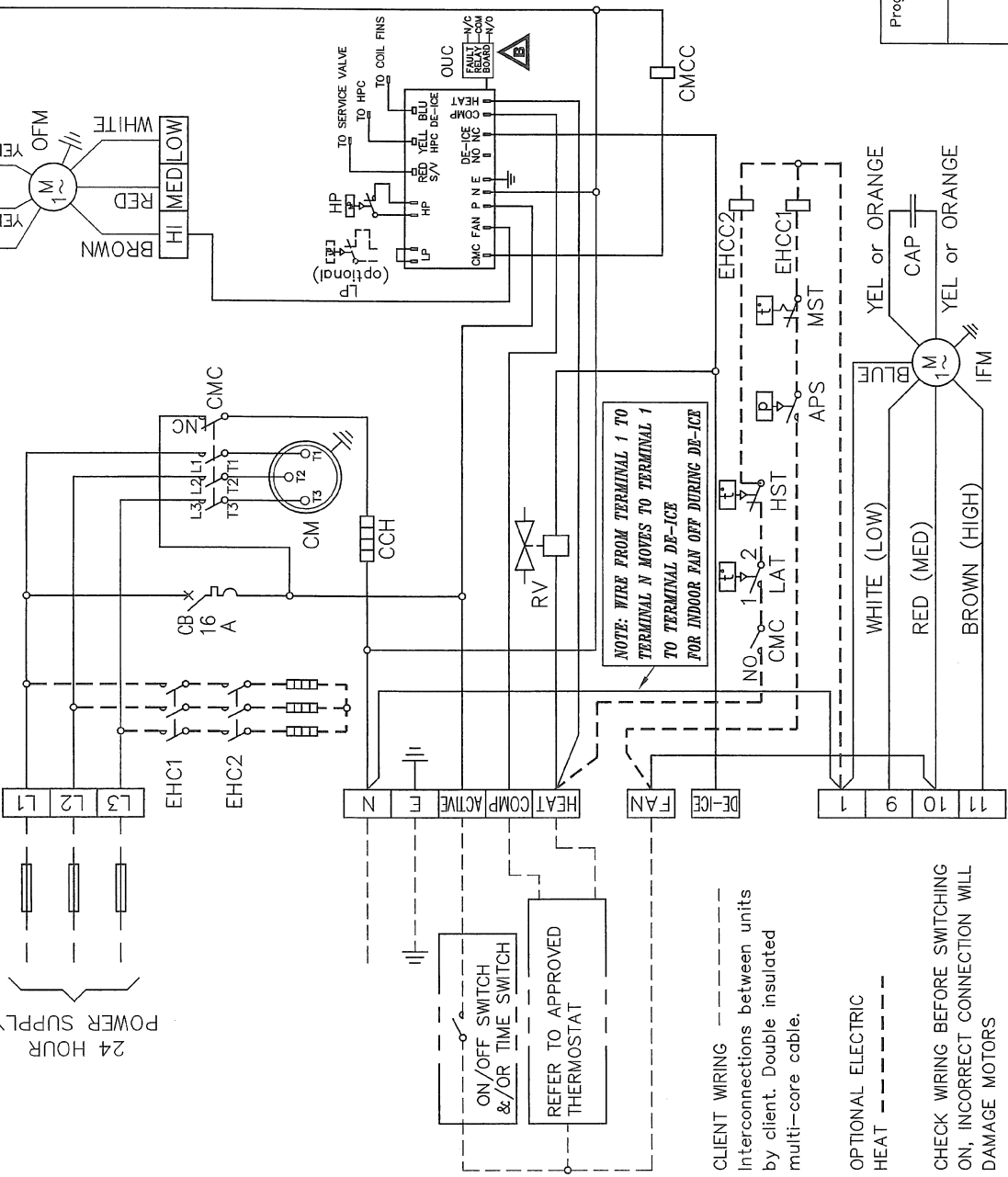
Not to Scale



POINT LOADS (kg)				WEIGHT (kg)
W	X	Y	Z	
40	47	61	54	202



**IMPORTANT NOTE:**  
 THIS COMPRESSOR IS DIRECTIONAL.  
 ENSURE COMPRESSOR IS ROTATING IN CORRECT DIRECTION.  
 WRONG DIRECTION WILL CAUSE NOISY OPERATION  
 AND WILL NOT PUMP.  
 REVERSE TWO PHASES TO CHANGE DIRECTION.



**CLIENT WIRING**  
 Interconnections between units by client. Double insulated multi-core cable.

**OPTIONAL ELECTRIC HEAT**  
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CHECK WIRING BEFORE SWITCHING ON, INCORRECT CONNECTION WILL DAMAGE MOTORS

CAPACITIES — NET to AS/NZS 3823

COOLING —	kW	17.40
HEATING — REVERSE CYCLE	kW	18.00
OPTIONAL ELECTRIC BOOST HEAT	kW	4.5
ELECTRICAL INPUT @ 3PH 400V ~ 50Hz		
COOLING —	kW	5.660
HEATING — REVERSE CYCLE	kW	4.900
E.E.R. (COOLING)	kW/kW	3.074

ELECTRICAL

SUPPLY REQUIRED 3PH 342-436V ~ 50Hz INCLUDING VOLTAGE FLUCTUATION LIMITS

COMPRESSOR (3PH) RUN AMPS / RATED CONDITIONS

A	8.3
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INDOOR FAN MOTOR (1PH) FULL LOAD AMPS

A	6.3
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INDOOR FAN MOTOR CAPACITOR

MFD	18
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OUTDOOR FAN MOTOR (1PH) FULL LOAD AMPS

A	1.45
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OUTDOOR FAN MOTOR CAPACITOR

MFD	5
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RUNNING AMPS (TOTAL)

12.2/8.35/6.26	
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RECOMMENDED EXTERNAL FUSE SIZE

A	2.5
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RECOMMENDED EXTERNAL FUSE SIZE C/W OPTION ELECTRIC HEAT

A	2.5
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WEIGHT — NETT

kg	2.02
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REFRIGERANT — R410A

kg	3.6
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COMPRESSOR TYPE : SCROLL

OIL TYPE : POLYESTER (P.O.E.)

APS	AIR PRESSURE SWITCH	EHCC2	ELECTRIC HEAT CONTACTOR COIL 2
CAP	CAPACITOR	HP	HIGH PRESSURE SWITCH
CB	CIRCUIT BREAKER	HST	AUTO HIGH TEMP SAFETY T/STAT
CCH	CRANK CASE HEATER	IFM	INDOOR FAN MOTOR
CM	COMPRESSOR MOTOR	LAT	LOW AMBIENT T/STAT
CMC	COMPRESSOR CONTACTOR	LP	LOW PRESSURE SWITCH
CMCC	COMPRESSOR CONTACTOR COIL	MST	MANUAL HIGH TEMP SAFETY T/STAT
EHC1	ELECTRIC HEAT CONTACTOR 1	OFM	OUTDOOR FAN MOTOR
EHC2	ELECTRIC HEAT CONTACTOR 2	RV	REVERSING VALVE
EHCC1	ELECTRIC HEAT CONTACTOR COIL 1		

Consult Outdoor Unit Controller label for further details, or refer to Temperzone for fault diagnosis information.

Sensor Locations  
 Red to service valve pipe pocket.  
 Yellow to coil return bend pocket.  
 Blue to bottom of coil in fins.

**R410A**

Title		OPA 178RKT WIRING SCHEMATIC	
Programmed by			
PLOTTED		08-07-08	
©Temperzone Ltd		2002	
Drawn S.D.H	Date 10-07-06	Drawing No.	556-104-002
Scale	As per B.L.	Revision	B



ISSUE	MODIFICATION	EC/N	DATE	APRVD	DRG SIZE	No.	DESCRIPTION	Mat.L	FINISH	ASSY No.
B	FAULT RELAY BOARD ADDED	N1832	08-07-08	KTT						
A	L1,L2,L3,T1,T2 & T3 ADDED	N1628	08-11-07	CMW						

