

EcoTel™ Split Case Telecoms Unit Fan in a Box

Installation and Maintenance Manual



Customer Services

Warranty, Commissioning & Maintenance

As standard, Airedale guarantees all non consumable parts only for a period of 12 months, variations tailored to suit product and application are also available; please contact Airedale for full terms and details.

To further protect your investment in Airedale products, Airedale can provide full commissioning services, comprehensive maintenance packages and service cover 24 hours a day, 365 days a year (UK mainland). For a free quotation contact Airedale or your local Sales Engineer.

All Airedale products are designed in accordance with EU Directives regarding prevention of build up of water, associated with the risk of contaminants such as legionella.

For effective prevention of such risk it is necessary that the equipment is maintained in accordance with Airedale recommendations.

SafeCool™

In addition to commissioning, a 24 hour, 7 days a week on-call service is available throughout the year to UK mainland sites. This service will enable customers to contact a duty engineer outside normal working hours and receive assistance over the telephone. The duty engineer can, if necessary, attend site, usually within 24 hours or less. Full details will be forwarded on acceptance of the maintenance agreement.

CAUTION

Warranty cover is not a substitute for maintenance. Warranty cover is conditional to maintenance being carried out in accordance with the recommendations provided during the warranty period. Failure to have the maintenance procedures carried out will invalidate the warranty and any liabilities by Airedale International Air Conditioning Ltd.

Spares

A spares list for 1, 3 and 5 years will be supplied with every unit and is also available from our Spares department on request.

Training

As well as our comprehensive range of products, Airedale offers a modular range of Refrigeration and Air Conditioning Training courses, for further information please contact Airedale.

Customer Services

For further assistance, please e-mail: enquiries@airedale.com or telephone:

UK Sales Enquiries	+ 44 (0) 113 239 1000	enquiries@airedale.com
International Enquiries	+ 44 (0) 113 239 1000	enquiries@airedale.com
Spares Hot Line	+ 44 (0) 113 238 7878	spares@airedale.com
Airedale Service	+ 44 (0) 113 239 1000	service@airedale.com
Technical Support	+ 44 (0) 113 239 1000	tech.support@airedale.com
Training Enquiries	+ 44 (0) 113 239 1000	marketing@airedale.com

For information, visit us at our web site: www.airedale.com

Airedale Ltd endeavours to ensure that the information in this document is correct and fairly stated, but none of the statements are to be relied upon as a statement or representation of fact. Airedale Ltd does not accept liability for any error or omission, or for any reliance placed on the information contained in this document. The development of Airedale products and services is continuous and the information in this document may not be up to date. It is important to check the current position with Airedale Ltd at the address stated. This document is not part of a contract or licence unless expressly agreed. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or information storage and retrieval systems, for any purpose other than the purchaser's personal use, without the express written permission of Airedale Ltd. ©2015 Airedale International Air Conditioning Limited. All rights reserved. Printed in the UK.

Commissioning

3

Health and Safety

IMPORTANT

The information contained in this manual is critical to the correct operation and maintenance of the unit and should be read by all persons responsible for the installation, commissioning and maintenance of this Airedale unit.

Safety

The equipment has been designed and manufactured to meet international safety standards but, like any mechanical/ electrical equipment, care must be taken if you are to obtain the best results.

CAUTION

When working with any air conditioning units ensure that the electrical isolator is switched off prior to servicing or repair work and that there is no power to any part of the equipment.

Also ensure that there are no other power feeds to the unit such as fire alarm circuits, BMS circuits etc.

Electrical installation commissioning and maintenance work on this equipment should be undertaken by competent and trained personnel in accordance with local relevant standards and codes of practice.

A full hazard data sheet in accordance with COSHH regulations is available should this be required.

Personal Protective Equipment

Airedale recommends that personal protective equipment is used whilst installing, maintaining and commissioning equipment.

Manual Handling

Some operations when servicing or maintaining the unit may require additional assistance with regard to manual handling. This requirement is down to the discretion of the engineer.

Remember do not perform a lift that exceeds your ability.

Refrigerant Warning

The Airedale unit uses R407C refrigerant which requires careful attention to proper storage and handling procedures. Use only manifold gauge sets designed for use with R470C refrigerant. Use only refrigerant recovery units and cylinders designed for high pressure refrigerants.

R407C must only be charged in the liquid state to ensure correct blend makeup.

The refrigerant must be stored in a clean, dry area away from sunlight. The refrigerant must never be stored above 50°C.

Maximum and Minimum Operation Temperature (Ts) and Pressure (Ps)

Operating Temperature (Ts), Ts = Maximum Operating Pressure (Ps) Ps =

Min -20°C to Max 120°C * High Side 27.0 Barg

*Based upon the maximum machine running temperatures.

Environmental

Units with supply water temperatures below +5°C

• Glycol is recommended when a supply water temperature of +5°C or below is required or when static water can be exposed to freezing temperatures.

Units subject to ambient temperatures lower than 0°C

- Glycol of an appropriate concentration ⁽¹⁾ must be used within the system to ensure adequate freeze protection. Please ensure that the concentration is capable of protection to at least 3°C lower than ambient.
- Water / glycol solution should be constantly circulated through all waterside pipework and coils to avoid static water from freezing.
- Ensure that pumps are started and running even during shut down periods, when the ambient is within 3°C of the solution freeze point ⁽¹⁾ (i.e. if the solution freezes at 0°C, the pump must be operating at 3°C ambient).
- Additional trace heating is provided for interconnecting pipework.

⁽¹⁾ Refer to your glycol supplier for details.

Environmental Policy

It is our policy to:

- Take a proactive approach to resolve environmental issues and ensure compliance with regulatory requirements.
- Train personnel in sound environmental practices.
- Pursue opportunities to conserve resources, prevent pollution and eliminate waste.
- Manufacture products in a responsible manner with minimum impact on the environment.
- Reduce our use of chemicals and minimise their release to the environment.
- · Measure, control and verify environmental performance through internal and external audits.
- Continually improve our environmental performance.

CE Directive

Airedale certify that the equipment detailed in this manual conforms with the following EC Directives:

Electromagnetic Compatibility Directive (EMC) Low Voltage Directive (LVD) Machinery Directive (MD) Pressure Equipment Directive (PED) 2004/108/EC 2006/95/EC 89/392/EEC version 2006/42/EC 97/23/EC

To comply with these directives appropriate national & harmonised standards have been applied. These are listed on the Declaration of Conformity, supplied with each product.

Contents

Customer Services	2
Nomenclature	6
Introduction	6
Construction	6
Evap Fan Section And Dx Compressor / Condenser Section	6
Intoduction to Standard and Optional Features	7
Airflow Options	7
Controls Options	8
Electrical Options	9
Refrigerant Options	10
Mechanical Options	11
General Installation Data	12
LIFTING/POSITIONING	12
INSTALLATION	12
ELECTRICAL	12
Installation	13
Conversion From Fan Only Section to Full Function DX Unit	13
Installation Data	15
Interconnecting Wiring	18
pLAN Termination	18
Exhaust Fitting Instructions	19
Performance Data	21
Mechnical Data	22
Electrical Data	23
Controls	24
Controls	26
Navigation	28
Start Up Data	29
Troubleshooting	30
Maintenance	36
DX Section	37
Control Scheme	38
Parts Identification	39
Parts Identification	40

Nomenclature

	ECOTEL OUTDOOR UNIT
тси	Telecommunications Unit
15	Model Sizes (Nominal kW)
D	Dual Circuit
SPLIT	Split Case Unit
EF or DX	Evaporator Fan & Filter section or DX cooling section
Example	TCU15D-SPLIT-EF Free cooling fan & filter box section (free cooling Only)
	TCU15D-SPLIT-DX Bolt on DX section to replace the filter box (DX & Free Cooling)

Introduction

The first stage system is externally mounted, the evaporator fan & filter box section which provides free cooling. When the load increases over the evaporator fan & filter section free cooling capability the filter box is removed & the DX compressor/condenser section is added. when combined the unit utilises a dual circuit refrigeration system to provide 3 stages of mechanical cooling. The TCU15D double circuit unit will provide 15kW cooling, 5kW plus 10kW interlaced circuits and 1 free cooling stage. The system is configured for upflow applications.

Each DX compressor/condenser section is pre-charged with R407C and factory piped. All equipment is wired to current EU standards.

Construction

Unit cabinets are manufactured from galvanised sheet steel coated with epoxy baked powder paint to provide a durable and weatherproof finish.

Standard unit colour is Grey (RAL 7038).

Evap Fan Section And Dx Compressor / Condenser Section

Vandal proof fixings are employed to all externally removable service panels and the unit has a pitched roof detail to prevent water and snow fall collecting.

Intoduction to Standard and Optional Features

Airflow Options

Airflow Features	EF	DX	EF SIMPLE	EF AC/DC	DX AC/DC
High efficiency filter	•	•	-	•	•
Pre & High Efficiency Main Filters	•	•	•	•	•
Backward curved centrifugal fans	•	•	•	•	•
Sickle bladed axial flow condenser fans	-	•	-	-	•
Air flow switch	•	-	-	_	-
Double Deflection Discharge Air Grille	0	-	-	•	-
48V DC emergency power operation (1 x AC & 1 x DC fan)	_	_	_	•	•

Standard Optional – N/A

High Efficiency Filters

Synthetic disposable panel filters in a rigid frame to BS EN 779 - F5.

Filtration

Synthetic disposable panel filters in a rigid frame to BS EN 779 - G4. Wire framed synthetic cleanable pre filters to BS EN 779 - G2.

Double Deflection Grille

Anodised aluminium construction, to manually adjust direction of airflow, supplied loose for on Discharge Air Grille site fitting

Controls Options

Controls	EF	DX	EF SIMPLE	EF AC/DC	DX AC/DC
Microprocessor control	•	•	-	-	•
Remote room sensor	•	-	-	-	-
Real Time Clock	0	0	-	0	0
Head Pressure Control	-	•	-	-	-
Attend/Occupancy Function	0	0	_	-	-
Alarms	•	•	•	•	•
Micro control & modulating speed control	•	_	_	٠	_
Remote Display	0	0	0	0	0

• Standard o Optional – N/A

Controls

Microprocessor controlled:

- TCU 5,8,11 & 15 operating 1 stage of DX cooling and 0-100% Free Cooling
- TCU 15D & TCU19D operating 3 stages of DX cooling and 0-100% free cooling
- Monitoring and Alarm Indication via optional Display.

For full details, please refer to the Controls section.

Real Time Clock

A real time clock plug-in card is available for energy savings and will time / date stamp any alarms.

Head Pressure Control

Head pressure is maintained by a factory fitted, pressure actuated, head pressure controller which varies the speed of the condenser fan(s) to provide optimum control under varying ambient conditions.

Attend/Occupancy Mode

To allow reduction of evaporator fan speed during 'Attend Mode' and to allow reduction of airflow during low temperature conditions (< 10°C conditioned space temperature).

User Display

Remote display can be installed inside the conditioned space or loose for hand held use, which can monitor temperatures, alarms, hours run and adjust setpoints.

Electrical Options

Electrical	EF	DX	EF SIMPLE	EF AC/DC	DX AC/DC
Isolator	•	•	•	•	•
Panel mounted Isolator	-	•	-	-	-
Fan Speed Controller	•	-	•	-	-
Compressor electronic soft start (Per Circuit)	-	0	-	-	•
Single Phase Unit	•	•	•	•	•
Terminals for fire shutdown	0	0	0	0	0
Alarm VFC for airflow fail, filter change and fan trip	0	0	0	0	0
AC & DC Fans (1 off 230VAC & 1 off 48VDC fan)	-	-	-	•	•
Control Panel Interlock Switch	0	0	0	0	0

Standard
 Optional
 – N/A

Electrical

The control panel is situated on the front of the unit behind the access panel. The access panel is hinged and supported by lockable door stays to provide a weather hood during servicing.

Electronic Soft Start

An electronic soft starter can be fitted to each compressor. Soft starting a compressor motor reduces the effects of high starting torque surges. Available in single and 3 phase.

Single Phase Unit

(Except Model TCU15)

If required, units can be supplied as 230V/1PH+N/50Hz.

48V dc Emergency Power Operating System

This option utilises a 48Vdc control circuit. If power should fail to the mains circuits the clients own UPS or battery system will maintain the 48Vdc control Circuit, enabling the 48Vdc evaporator fans and damper to provide 'Free Cooling

Panel Interlock

Factory fitted, the unit will de-activate upon the control panel door being opened.

Refrigerant Options

Refrigerant Features	EF	DX	EF SIMPLE	EF AC/DC	DX AC/DC
Evaporator coil	–	•	_	–	•
Hermetic scroll compressors	-	•	-	-	•
Externally equalised thermostatic expansion valves	_	•	-	-	•
High pressure switch - automatic	-	•	-	-	•
Operating charge (R407C)	-	•	-	-	•
Low pressure switch - automatic	-	•	-	-	•
Condenser coiL	-	•	-	-	•
Filter drier	-	•	-	-	•
Sight glass	_	•	-	-	•
Epoxy coated coils	-	0	-	-	0
Pressure relief	-	•	_	-	•

Standard
 Optional
 – N/A

Refrigeration

Evaporator

Large surface area coil(s) ideally positioned to optimise airflow and heat transfer, manufactured from refrigeration quality copper tubes with mechanically bonded aluminium fins. Backward curved centrifugal fans, statically and dynamically balanced for efficient and quiet operation.

Each fan motor has in-built thermal overload protection.

Fan speed is microprocessor controlled.

Compressor

Hermetic scroll compressors fitted as standard with:

- Compressor(s) are mounted to the base via the use of vibration isolators.
- Internal thermal motor protection.

Epoxy Coated Coils

In atmospheres where high corrosion is anticipated epoxy coated aluminium finned coils can be supplied for the evaporator and condenser sections.

Indoor Air Pressure Relief

This is achieved when the unit is in free cooling mode by exhausting air over the condenser coil and through the condenser section.

Head Pressure Control

Head pressure is maintained by a factory fitted, pressure actuated, head pressure controller which varies the speed of the condenser fan(s) to provide optimum control under varying ambient conditions.

- Each refrigeration circuit features as standard: • Externally equalised thermostatic expansion valve
 - High pressure switch automatic
 - Low pressure switch automatic
 - Operating R407C Refrigerant charge
 - Filter drier
 - Sight glass

Mechanical Options

Mechanical	EF	DX	EF SIMPLE	EF AC/DC	DX AC/DC
Hinged access panel	•	•	_	•	•
External mounting brackets	0	0	0	0	0
Fixing tool	•	•	•	•	•
Filter change switch	•	•	•	•	•
Roof Flashing strip	0	0	0	0	0
Attenuation Section (Can be Supplied Factory Fitted)	0	0	0	0	0
Alternative Colour Olive Green BS4800-12-B-27	0	0	0	0	0
Shut off Damper	-	0	-	-	-
Fire Damper	-	0	-	-	-
Low Noise Kit	0	0	0	0	0
Mounting rails	0	0	0	0	0
Lift off panel	-	•	-	-	•
Outside air damper	-	•	-	-	•
Single deflection (discharge air) grille	•	•	•	•	•
Non Vision (return air) Grille(s)	0	0	0	0	0

Standard
 Optional
 – N/A

External Mounting Rails

As standard units are supplied with internal fixings, optional external mountings can be factory fitted if required.

Fixing Tool

As standard each unit is supplied with a tamperproof fixing tool, additional tools are available.

Roof Flashing Strip

Supplied loose for on site fitment to provide further weatherproofing.

Shut off Damper

Additional damper assembly to close off return and supply air openings to the conditioned space in the event of smoke or fire being detected. (Not fire/smoke rated)

Extra Quiet

Extra quite unit for low noise applications, incorporates staged condenser and evaporator fan speeds with head pressure control and compressor acoustic jackets to minimise noise.

Outside Air Damper

The unit is fitted with an electrically controlled, modulating damper capable of supplying 100% fresh air into the room as "free cooling". The damper may be automatically modulated to any position to allow mixing of the return air and outside air before being supplied to the conditioned space. The damper has a manual operation facility. The minimum set point for the fresh air damper is fully adjustable via the optional remote display keypad.

Non Vision Grilles

Anodised aluminium construction, supplied loose for on site fitting.

General Installation Data

LIFTING/POSITIONING

- Remove packing and check that the unit is exactly as ordered. Any discrepancy to order, or transit damage, should be reported to Airedale immediately.
- Airedale recommends that whenever possible, the packaging is left covering the unit, to protect it from damage and general site debris.
- This small footprint unit is relatively tall and heavy. Care should be taken during handling and lifting, that the unit is well supported and properly balanced.
- Care should be taken that there are no obstructions to free airflow, particularly in the vicinity of the condenser fan discharge (outdoor) and also the return / discharge air (indoor).

Min 600mm Service Area	TOP	Min 600mm Service Area
	Service Area	

Airedale will accept no responsibility for mishandling during the positioning of the equipment.



DRAINAGE (DX SECTION ONLY)

Each module has 2 condensate drains exiting from the base of the unit which should be clear of obstructions.

INSTALLATION

- · Check all services are present and accessible.
- Unpack the fan section and remove securing straps, leaving unit on its pallet.
- Using appropriate lifting equipment, lift the fan section on its pallet and ease into position (local codes and regulations should be observed).
- External fixing: Once the fan section is flush with the wall, secure the unit with M10 plated bolts (4 off per Evap fan section), with a washer on the interior and exterior of the wall.
- The discharge air opening has a foam surround to provide a seal between the wall and the fan section. A bead of sealant should be used to provide a air and water tight seal.*
- Seal evenly around the seam between the fan section and wall, achieving a water tight seal.*
- The flashing strip should be fixed to the wall using screws (not provided). Seal to the wall and unit top using silicon sealant to prevent moisture ingress.*
- Where a cavity wall exists between AHU and wall, a wall sleeve will be required. (Not Supplied).
- •
- *Airedale recommend the use of Dow Corning 794 or equivalent.

ELECTRICAL

- A fused and isolated electrical supply of the appropriate phase, frequency and voltage should be installed.
- NOTE: Each unit requires an independently fused and isolated power supply.
- Install the remote room sensor in an appropriate position and run the interconnecting wire back to the unit control panel refer to Interconnecting Wiring.
- Install mains supply refer to Interconnecting Wiring (and optional 48Vdc. NOTE: Connect the poles correctly).
- Pass through the set holes located on the back of the fan section, feed through the into the electrical control panel.
- · Route via trunking and terminate in supplied terminals, refer to supplied wiring diagram.

Installation





Fan in Box, local exhaust.

Conversion From Fan Only Section to Full Function DX Unit

FILTER SECTION REMOVAL

- Check all services are isolated and the unit is safe to work on.
- Remove the tamper proof fixings from the sides of the front panel and remove.
- Uncouple the fan plugs and disconnect the mains cable from the control panel.
- Remove the securing bolts from within the evaporator fan section with a Hex-nut runner (retaining the fixings).
- Support the filter section and remove the 4 remaining tamper proof fixings from the sides.
- · Lower the filter section away and dispose of accordingly. (local codes and regulations should be observed).

Conversion From Fan Only Section to Full Function DX Unit

DX SECTION INSTALLATION

- · Unpack the DX section and remove securing straps, leaving unit on its pallet
- Using appropriate lifting equipment, lift the unit on its pallet and ease into position using the fan section rails to guide the unit into position (local codes and regulations should be observed)
- Once the unit is flush with the wall, secure the unit with M10 plated bolts
- Replace the securing bolts within the evaporator fan section with a Hex-nut runner and tighten
- A bead of sealant should be applied to the split line to provide an air and water tight seal *
- · Re-couple the fan plugs and feed the air flow tubes and mains cables through the appropriate holes
- Terminate the mains in to the panel mounted isolator
- Slide the top access panel into position and secure with tamper proof fixings retained from the filter section
- Seal evenly around the seam between the unit and wall, achieving a water tight seal*
- · Where a cavity wall exists between AHU and wall, a wall sleeve will be required. (Not Supplied)

*Airedale recommend the use of Dow Corning 794 or equivalent.



Installation Data

DIMENSIONS EF Section



TCU15D FAN SECTION		A	В	С	D	E	F	G	Н	J	К	L	М	N	Р	R	S
	mm	648	330	316	1365	55	100	155	296	800	429	94	53	313	1395	565	250
		Mair	Iains Incoming Hole Positions					Cabin/Wall Apertures*						Ur	nit Apertu	ures	
		L		К		J		Disch	arge	Retu	m Air		Dis	charge		Retu	n Air
Packaged TCU15D	mm	155		55		1883		800 x	263	800 >	480		800) x 263		800 >	325

*the cabin/wall apertures are to be cut central to the unit apertures.

Weights (KG)

Installation Data

DIMENSIONS (MM) Combined Fan and DX Section

Installation

		Machine	Operating
Split DX Section	kg	242	246
Split Evap Fan Section	kg	70	70
Split Fan Attenuation	kg	20	20
Combined Package	kg	292	296



TCU15D-SPLIT-DX		Α	В	С	D	E	F	G	Н	М	Ν
TCU15D DX Section	mm	2038	1365	600	1722	430	325	633	1395	283	300 x 3

SOUND MEASUREMENT

All sound data quoted has been measured in the third-octave band, limited values using a Real Time Analyser calibrated sound intensity meter in accordance with BS ISO9614 (Part 1) : 2009.

- 1 Sound Power Levels calculated from measured sound intensity according to BS EN ISO9614 Part 1 : 2009.
- 2 dB(A) is the overall sound level, measured on the A scale.
- 3 Sound Pressure Levels calculated from sound power using the semi-hemispherical method according to BS EN ISO11203 : 2009. If the equipment is placed adjacent to a reflective wall, values may vary to those stated in our Performance Data section, typically you can add 3dB(A) for each side added.
- 4 The above data is based on unit typical running conditions.



SOUND DATA

	Sound Measurement	Nominal Operation (dBA)	XQ Unit (dBA) (1)	
		Free Cooling	DX	DX
TCU15	Power	70	81	73
	Pressure @ 1m	65	75	69
	Pressure @ 3m	55	66	59
	Pressure @ 10m	45	55	49
TCU15D	Power	70	81	73
	Pressure @ 1m	65	75	69
	Pressure @ 3m	55	66	59
	Pressure @ 10m	45	55	49

Interconnecting Wiring

DX SECTION - INTERCONNECTING WIRING



Mains Incoming Supply 400V/3PH+N/50Hz \pm 10% or 230V/1PH+N/50Hz

Auxiliary Alarm

Alarm Return Air >40°C General Alarm Critical Alarm Indication

Network Connection used for Run/Standby or Master/Slave

EVAPORATOR FAN SECTION - INTERCONNECTING WIRING



pLAN Termination



Operational Modes

The unit will operate in 5 different modes to accomodate different installations.

1. Free Cooling- using outdoor air only remote Exhaust

Free Cooling- using outdoor air only remote Exhaust

- 2. Free Cooling- using outdoor air only local exhaust
- 3. Free Cooling and DX Cooling using outside air and DX Cooling
- 4. DX Cooling mechanical cooling with room air return with Electric Heating (optional extra)

Fan Filter Section (Free Cooling)



Free Cooling- using outdoor air only local Exhaust



The unit uses outdoor air only. When the outside ambient temperature is low enough the fresh air damper will modulate between 0-100% using full fresh air to cool the room.

Operational Modes

20





The unit cools by using outside air and DX Cooling.

The controller will call for free cooling when the outdoor air temperature sensor senses the temperature of the outside air 2*C below the return air temperature. The microprocessor will then command the fresh air damper to open and modulate to satisfy the cooling load in the exchange. Until the external ambient drops low enough, the fresh air may not be capable of satisfying the cooling requirement of the room and DX cooling may also be required on an intermittent basis.

When the ambient is low enough and free cooling can totally satisfy the cooling requirement of the cooling load, the damper will modulate to maintain the design room set point with just the supply fan operating. On low supply temperatures, the damper will modulate closed.

DX Cooling



The unit has mechanical air cooling with room air return

When free cooling is unable to provide 100% cooling, the DX cooling system will maintain the temperature in the room.

The unit also has a electrical heating optional extra.

Performance Data

CAPACITY DATA

DX Cooling Capacity	Ambient										
	Air On °C)									
	db/50%	RH	25	°C	30°C		35°C		40	40°C	
		TC) (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	
TCU15	22		16.0	15.1	15.2	14.8	14.4	14.0	13.7	13.3	
	24		16.7	15.4	15.9	15.1	15.0	14.9	14.2	14.1	
	27		17.8	15.9	16.9	15.6	16.0	15.2	15.0	14.9	
TCU15D	22		14.6	14.4	14.0	13.8	13.8	13.4	12.7	12.4	
	24		15.4	14.7	14.7	14.4	14.2	13.9	13.3	13.3	
	27		16.6	15.8	15.8	15.6	15.3	14.4	14.4	14.4	
Free Cool Capacity (ing (Gross)					Ambie	nt				
		Air On '	°C								
	db/50% RH		13.5°C	CTC (kW)	15.0°C TC	; (kW)	19.0°C TC (kV	V) 20.0°(C TC (kW)		
TCU15	24			12.9			6.1		2.4		
TCU15D	D 24		1	12.9 11.0			6.1		2.4		

TC = Total Cooling SC = Sensible Cooling

Mechnical Data

TCU			15D
Capacity - Nom Cooling			
Total	(-1)	kW	15.3
Sensible	(-1)	kW	14.4
EER			3.4
Capacity Steps		%	0, 30, 70 & 100
Dimensions			
HxWxD		mm	2038 x 1365 x 565
Weights			
Machine		kg	292
Operating		kg	296
Construction			
Material / Colour			Galvanised Sheet Steel, Epoxy Baked Powder
			Paint- Light Grey (RAL 7038)
Evaporator			
Quantity			1
Face Area		m²	0.73
Nominal Airflow		m³/s	1.2
Discharge			Copper Tubes / Aluminium Fins - Air Cooled
Condenser			
Quantity		_	1
Face Area		m²	0.6
Nominal Airflow		m³/s	2
Discharge			Copper Tubes / Aluminium Fins - Air Cooled
Fan - Evaporator			
Quantity			2
Diameter		mm	355
Maximum Speed		rpm	1430
Fan - Condenser			
Quantity			2
Diameter		mm	450
Maximum Speed		rpm	1400
Compressor			Hermetic – Scroll
Quantity			2
Oil Charge		I	1.00 & 1.10
Volume (Total)			
Oil Type			Axial
Refrigeration			
Refrigeration Control			I hermostatic Expansion Device
Refrigerant Type			Polyol Ester
Charge (Total)		kg	2.0 & 3.0
Filtration			
Quantity			2+2
Size H x W x D		mm	448 x 448 x 5 & 448 x 448 x 47
Optional Extras			_
Heating		kW	5
High Efficiency Filters			Disposable - BS EN 779 – G2 & BS EN 779 - G4

Electrical Data

DX Section (Inclusive of EF Fan Section)			TCU15D-SPLIT-DX
Electrical Supply Data			
Nominal Run Amps	(1)	А	10.9
Maximum Start Amps	(1)	А	56.1
Recommended Mains Fuse	(1)	А	16
Max Mains Incoming Cable Size	(1)	mm²	2.5
Mains Supply	()		400V / 3PH + N / 50Hz
Controls Circuit		Vac	24
Evaporator Fan - per Fan			As per evaporator section below
Condenser Fan - per Fan	(2)		
Quantity			2
Motor Rating		W	245
Full Load Amps		Α	1.1
Compressor 1 - per Compressor			
Motor Rating		kW	1.6
Nominal Run Amps		A	2.9
Locked Rotor Amps		A	21.9
Type of Start			Direct on Line
Compressor 2 - per Compressor			
Motor Rating		kW	2.9
Nominal Run Amps		A	5.2
Locked Rotor Amps		A	43.5
Type of Start			Direct on Line
OPTIONAL EXTRAS			
Single Phase Unit			
Mains Supply	())		230V/1PH+N/50Hz
Recommended Mains Fuse	(1)	A	40
Max Mains Incoming Cable Size	(1)	mm²	6
Nominal Run Amps	(1)	A	25.9
Maximum Start Amps	(1)	A	112.3
Controls Voltage		vac	Ζ4
Compressor 1 - per Compressor			10
Nominal Run Amna		KVV A	1.0
Nominal Run Amps		A	/.0 47
Type of Start		A	47 Direct on Line
Compressor 2 - per Compressor			Direct on Line
Motor Rating		k\\/	2.0
Nominal Run Amos		Δ	13.6
Locked Rotor Amps		Δ	10.0
Type of Start		A	NI/A
Evaporator Ean Section			
Electrical Supply Data			
Nominal Run Amps		Δ	3.2
Maximum Start Amps		Δ	5.2
Recommended Mains Fuse		Δ	10
Max Mains Incoming Cable Size		mm ²	15
Mains Supply			230V /1PH / 50Hz
Controls Circuit		Vac	2007/11/17/00/12
Evaporator Fan - per Fan	-2	140	LT
Quantity	2		2
Motor Rating		W	310
Full Load Amps		A	1.35
Locked Rotor Amps		A	2.7
Client's 48Vdc Emergency Power			TCU-SPLIT-ACDC
Nominal Run Amps (AC/DC Fv	ap Fan	А	1.9 (AC) / 3.0 (DC)
Unit)			

Controls

GENERAL

As standard the units are fitted with an **AIRET** microprocessor controller, with optional Real Time Clock (RTC), RS232 communication port, networking capability and BMS connection. An optional LCD remote display provides all the necessary functions for the wide range of features and options available. The LCD display provides audible and visual monitoring of the unit operation.

The LCD display is mounted remotely.

With use of optional communication plug-in cards, the microprocessor can also communicate with the following control protocols, Carel, ModBus / Jbus Echelon LONWorks, Johnson Metasys and Trend.

The microprocessor controller has been specifically designed to provide the control information necessary to operate the unit in an energy efficient manner.

The unit will operate in 1 of 4 modes:

- 1 Free Cooling using outside air only
- 2 Free Cooling and DX Cooling using outside air and DX cooling
- 3 DX Cooling mechanical cooling with room return air
- 4 Electric Heating (Optional Extra)

TEMPERATURE CONTROL

The microprocessor senses the Return Air condition and maintains this by controlling cooling and heating (Optional) outputs accordingly.

The microprocessor monitors and displays the following measured parameters:

- Return Air Temperature
- Exterior Air Temperature
- Evaporator Coil Temperature
- Compressor 1 (2) Liquid Line Pressure (Head Pressure Control Option)
- Alarms Reset
- Attend Mode or Remote On/OFF (Optional)
- Overheat Cut-Out (Electric Heat Option)
- Airflow Switch
- Filter Switch
- Compressor 1 (Compressor 2) MCB
- Condenser Fan MCB
- Evaporator Fan MCB
- Compressor 1 (Compressor 2) Low Pressure Switch
- Compressor 1 (Compressor 2) High Pressure Switch
- Auxiliary Alarm (Smoke/Fire/Panel Interlock)

24

Technical

STANDARD FEATURES

Compressor Anti-Cycle Control

Automatic compressor protection via the microprocessor.

Evaporator Fan Speeds

Varying speeds can be configured for heating, 1, 2 or 3 DX stages, free cooling and speed at temperature setpoint. **Hours Run**

Calculates hours run of major components.

Maintenance Overrides

Allows testing of major components.

OPTIONAL FEATURES

- User Display
- Real Time Clock
- Password Protection
- Remote On/Off
- Head Pressure Control
- Master/Slave Networking
- Run/Standby Networking
- Attend/occupancy Mode
- Duty Rotation Networking

ALARMS

Outlined below is a selection of Common Alarms:

- Room Air Temperature out of limits or faulty probe
- Exterior Air Temperature out of limits or faulty probe
- Frost Protection or faulty probe
- Compressor 1(2) Liquid Line Pressure out of limits or faulty probe (Head Pressure Control option)
- Overheat Cut-out tripped (Electric Heat option)
- Air Flow Switch tripped
- Filter Dirty Switch tripped
- Compressor 1(2) MCB tripped
- Condenser Fan MCB tripped
- Evaporator Fan MCB tripped
- Compressor 1(2) Low Pressure Switch tripped
- Compressor 1(2) High Pressure Switch tripped
- Auxiliary Alarm tripped (Smoke/Fire/Panel Interlock)

An Audio-Visual alarm will be triggered at the optional display keypad.

ALARMS LOG

The controller logs and allows viewing of the last 100 conditions recorded in descending chronological order through the optional keypad display.

Controls

CONTROLLER CONNECTION (PCO)



The diagram shows the rear view of the User Display. The User display Dip Switches are factory set as indicated.

Telecoms

Controls



A	1 — ALARM	When one or more alarm is active the ALARM button will iluminate red. Presing the ALARM button once will indicate information regarding any active alarms. Pressing the ALARM button twice will rest any active alarms.
Prg	2 — PRG	Pressing the PRG button will select the main navigation menu.
Esc	3 — ESC	Presing the ESC button will return the user to the main display screen showing unit status
1	4 — UP	 Pressing the UP button can either: 1 Scroll through the various display screens, providing the cursor is in the top left position 2. Increase the value of a set point adjustment
4	5 — ENTER	Pressing the ENTER button will confirm any set point adjustments and move the cursor to the next available set point.
4	6 — DOWN	 Pressing the DOWN button can either: 1 Scroll through the various display screens, providing the cursor is in the top left position 2. Decrease the value of a set point adjustment

to select

Navigation

The display is used for Viewing Unit Operating Status and Adjusting Customer Control Settings by allowing the operator access to a series of Menus & sub-menus. Each screen has a code in the top right hand corner for navigation and diagnostics reference. Viewing information is unrestricted, however set up and adjustment requires password entry, refer to Password Protection.

button to access the main navigation menu, the cursor will appear in the top right hand corner Initially, use the with the first menu UNIT ON/OFF selected.



Standard Operating Screen

The Operating Screen will appear and remain present following start up of the controller as illustrated:



The date and time will only display correctly when the optional clock card is fitted.

Password Protection

To guard against unauthorised adjustments, a password is required to gain access to certain menus as defined below.

FACTORY SET PASSWORD PIN NUMBER: 4648 (or Customer chosen number).

buttons to enter the number and When a password PIN number is requested use the and and enter the number. This process will be repeated until all 4 digits of the PIN have been entered.

Ecotel Fan in a Box Technical Manual 6258925 V1.1.0_04_2015

Start Up Data

Tcu15d-Split-Ef - Evaporator Fan/Filter Section

Pre-start checks

General Once the whole system has been installed it is most important that the following pre-start checks are made:

- The equipment is exactly as ordered.
- All electrical terminals are tight and all plugs are securely connected.
- Power is available to the unit, via customers isolator and is at the correct voltage.
- Filters are of the correct grade and size.
- The thin pre-filter is under the main filter.

Electrical

Once the above installation and pre-start checks have been carried out satisfactorily, the main electrical checks can commence.

- Measure voltage 230 Vac 1 phase L1 & N.
- · Check operation of auxiliary fire shutdown alarms on volt free contacts (if appropriate).

Note: - A test procedure and training is available on request.

Tcu-Split-ACDC Unit Only

48Vdc voltage.

Note: - tolerance + / - 10%

• Check operation of auxiliary fire shutdown alarms on volt free contacts (if appropriate).

Note: - A test procedure and training is available on request.

Tcu15d-Split-DX - DX

GENERAL

Each Ecotel Outdoor unit leaves Airedale's manufacturing facility fully charged and pre commissioned.

Pre-Start Checks

General

Once the whole system has been installed it is most important that the following pre-start checks are made:

- The equipment is exactly as ordered.
- All electrical terminals are tight and all plugs are securely connected.
- Power is available to the unit, via customers isolator and is at the correct voltage.
- Filters are of the correct grade and size.
- The thin pre-filter is under the main filter.
- Check that the condensate drain lines are precharged, not obstructed in any way and water flows away freely.

Electrical

Once the above installation and pre-start checks have been carried out satisfactorily, the main electrical checks can commence.

- Measure voltage (400 Vac 3 phase) L1 / L2, L2 / L3, L1 / L3.
- Measure voltage (230 Vac 1 phase) L1 & N (where applicable).
- Measure control transformer secondary voltage (24 Vac) \pm 10%
- Optional Extra 48Vdc primary and secondary (24Vdc) voltages.± 10%
- Check phase rotation before switching supply to the unit. Failure to do so will cause damage to the Scroll Compressor(s).
- Check operation of auxiliary fire shutdown alarms on volt free contacts (if appropriate).

Note: - A test procedure and training is available on request.

FAULT	POSSIBLE CAUSE	REMEDY/ACTION
Unit not operating - Power Off.	Main/local isolator off	Check all isolators from mains to unit.
	Mains Fuse(s) failed.	Check all mains fuses. Replace after correcting fault. Check for loose wire.
Unit not operating - Power On.	Unit not switched on.	Check panel interlock switch is made (optional).
	Fault Alarm	Check volt free contacts, investigate and clear fault.
	Fire detection or external interlock fault no feed on wire.	Investigate and correct.
	Control MCB tripped.	Re-set after investigating and correcting fault.
	Loose wire in control circuit	Investigate and tighten connector.
	Motor/Fan Assembly jammed.	Isolate unit and check free rotation of motor/ fan assembly. If faulty - replace.
	Fan internal protection tripped.	Investigate internal protection, which is self- resetting. Check fan for correct operation. Replace if faulty.
	Faulty motor windings/capacitor.	Motor humming would indicate fault in motor or capacitor.
	Safety device or internal relay switch open circuit.	Check through circuitry starting at control MCB - action faults. Check primary and secondary voltage.
	Anti cycling timer.	Wait until timer times out and try again. Limited to 10 starts/hour.
Unit operating - No Cooling/ Heating	Frost Protection DX Lockout	Unit in frost protection mode – No Action
	Overheat cut-out operation (optional)	If auto reset has tripped – heaters will reset automatically – Check fan and filters for sufficient airflow.
		If manual reset has tripped – heaters can only be reset manually - Check fan and filters for sufficient airflow.
	Loose connection in control circuit.	Check and tighten connections.

30

Technical

FAULT	POSSIBLE CAUSE	REMEDY/ACTION
High room temperature	Damper not operating correctly	Damper jammed in free cooling position during high ambient conditions.
	Compressor(s) not operating.	See unit not operating power off - power on.
	Compressor(s) not operating efficiently.	Important: Check electrical phase rotation. Fit gauges and investigate.
	Load too great for system.	High ambient affecting condenser performance. Investigate design and loads - clean coil fins.
	Low airflow	Dirty filters - replace.
	Control malfunction.	Check transformer/secondary supply - replace if faulty.
		Re calibrate controls if necessary.
		Check motor and wiring from controller. Check sensor not short-circuited - repair/ replace.

FAULT	POSSIBLE CAUSE	REMEDY/ACTION
Low Room Temperature.	Damper not operating correctly.	Damper jammed in full free cooling position during low ambient conditions.
	Compressor operating too long	Check sensors.
	Sensors incorrectly set or faulty.	Reset, repair or replace.
	Low airflow.	Dirty filters - replace.
	Heaters fail to operate	Check MCB/Contactor. Check wiring.
	Heater cut-out.	Check heater cut-out, reset if tripped.
	Control Malfunction.	Check transformer/secondary supply - replace if faulty.
		Re calibrate controls if necessary.
		Check fan motor and wiring from controller. Check detector not short-circuited - repair/replace.
Compressor not operating.	No power to compressor.	Check electrical connectors, isolator, MPCBs, contactor and control circuit wiring action. Always investigate fuse/ contactor problem before replacements.
	Compressor discharge gas temperature protection device open.	Allow time to reset. Internal device, change compressor if it does not reset.
	Defective compressor motor.	Check windings resistance. If burnt out follow burn out procedure using drier in suction line. Always replace the contactor.
	Klixon tripped and does not reset.	Sometimes it takes up to 4 hours to reset. Replace compressor if necessary.
	Low pressure switch operated (large or complete loss of refrigerant charge).	Repair leak and recharge system. Evacuate before charging using good refrigeration practice.
Fan tripped.	Fan motor seized.	Free motor or replace.
	Fan jammed.	Remove obstruction.

FAULT	POSSIBLE CAUSE	REMEDY/ACTION
Low evaporating temperature.	Low refrigerant charge.	Recharge refrigerant. (R407C)
	Expansion valve faulty or incorrectly set.	Replace or adjust expansion valve.
	Insufficient airflow through evaporator coil.	Check filter for clogging and fan speed.
Excessively high evaporating temperature.	Expansion valve faulty.	Replace valve.
Noisy compressor.	Start-up: Brief period of mechanical noise may be noticed on start up due to initial contacting of the spirals. This will quickly disappear.	No detrimental effect - no action necessary.
	Shut down: Compressor reverses momentarily as internal pressure equalises.	No detrimental effect - no action necessary.
	Check refrigeration charge.	If low, locate and repair leak and charge to correct design conditions adding Ester oil if necessary.
	Lack of oil.	Repair leaks if any, add oil if required but not too much - remember too much is as bad as too little.
	Expansion valve stuck in open position (abnormally cold suction line).	Ensure temperature bulb is tight on suction. Replace power assembly or valve if necessary.
	Broken or scored compressor bearings.	Replace compressor.
	Compressor (3 phase) rotation incorrect	Check electrical supply for correct phase rotation (R Y B)
	Low superheat allowing liquid into compressor.	Check superheat.

FAULT	POSSIBLE CAUSE	REMEDY/ACTION
Loss of duty.	Low refrigerant charge.	Check for leaks, rectify and recharge.
	Expansion valve faulty.	Replace valve.
HP switch tripped.	Fan failed.	Replace faulty item.
	Condenser clogged or dirty.	Clean condenser. Refer to Maintenance.
Head pressure too high.	Condenser clogged or dirty.	Clean condenser. Refer to Maintenance.
	Re-circulating warm air.	Check for obstruction to external louvre.
Head pressure too low (often coupled with low pressure).	Fan operating too fast in low ambient conditions.	Check fan speed controller, adjust set points if necessary.
Compressor short cycles or LP cut-out operated.	Dirty air filters.	Clean or replace.
	LP switch operating too high.	Check operation, replace if necessary.
	Faulty TEV.	Replace expansion valve
	Lack of refrigerant (bubbles in sight glass only as indication).	Repair leak and recharge system.
	Low head pressure fan - over condensing in Winter.	Check fan speed controller, adjust set points if necessary.
Suction pressure too low.	Low evaporator airflow.	Check filters - clean or replace. Check inlet louvre for blockage.
	Flash gas (bubbles in sight glass) at expansion valve.	Investigate for leaks and top up system.
	Clogged Filter drier (pressure/temperature drop across it)	Replace
	Clogged or icing coil.	Defrost/clean, check filter.
	Faulty expansion valve.	Inspect, clean and replace.
	Erratic expansion valve (hunting).	Check bulb operation -replace.

FAULT	POSSIBLE CAUSE	REMEDY/ACTION
	Head pressure control malfunction.	Check - reset or replace.
	Superheat too high.	Check superheat.
Suction pressure too high.	Expansion valve passing too much.	Check bulb securely fastened, check superheat.
	Head pressure too high.	High ambient - check against design.
		Reduce head pressure. Check/repair controller.

Maintenance

GENERAL

Inspect last maintenance report and any intervening service reports. Pay particular attention to items mentioned.

SAFETY WARNING :

The equipment contains live electrical and moving parts, isolate all electrical equipment before any work is carried out.

ACCESS

Access to the compressor/condenser is achieved by removing the side panels. The control panel, evaporator coil and filter section are accessed by opening the hinged front door. Entry to the other side of the condenser coil and damper actuator is possible by removing the condenser fan panel and unplugging the condenser fan lead. (Please note a special tool is required to remove the securing bolts, Airedale part no. 515-596).

Access to the filters driers can be gained following removal of the condenser fan plate and side maintenance panel.

Service Checks -

3 Monthly

At every service visit the following checks should be carried out:

Free Cooling Damper

1. Clean surface of damper blade.

2. Check operation manually. This can be done by depressing the slide switch (to be found on the damper actuator body, housed in the condenser section). With the gears disengaged, check that the damper travels freely in both directions, to the limits of its travel.

Fan & Motor Assembles

- 1. Examine the fan and motor assembly for lateral and end play in the bearings.
- 2. Check the electrical connections.
- 3. Examine the fan blades for damage and signs of wear.

Refrigeration Circuits

- 1. Check pipework and insulation including capillary lines. Tighten clamps if loosened.
- 2. Inspect pipework for any damage and oil patches. If oil patches are found undertake leak check.

3. Check the liquid line sight glass for a full liquid seal with compressor running. If bubbles are present undertake leak check.

Note: If gauges are used do not forget to replace the security caps on the schraeder valves.

тси		15D
Compressor		Single Stage Fully Hermetic Compliant Scroll
Quantity		2
Oil Charge Volume (Total)	Ι	1.00 / 1.10
Oil Type		Polyol Ester
Refrigeration		Dual Circuit
Refrigeration Control		Thermostatic Expansion Device
Refrigerant Type		R407C
Charge (Total)	kg	2.0 / 3.0

36

DX Section

Condenser Coil

Clean the condenser coil with a stiff bristled hand brush.

If dirt has accumulated over a long period, or tends to be greasy or sticky, then it may be necessary to use a water hose (NOT High Pressure) or chemical pressure hose. Take care not to damage the fins and comb out if they have become damaged in any way.

IMPORTANT

Do not use steam for cleaning coils otherwise damage or danger may result from excessive internal pressures.

Evaporator Coil

- 1. Evaporator coil filters check condition and replace if appropriate.
- 2. Inspect coils and clean as appropriate.

Maintenance – DX Section

ELECTRIC HEATING (OPTIONAL EXTRA)

- 1. Check electrical connections are secure.
- 2. Check operation of electrical heaters.
- 3. Check operation of manual reset overheat cut-out.
- 4. Check operation of automatic reset overheat cut-out.

Note: Manual switch cuts out at $120^{\circ}C (\pm 8.4^{\circ}C)$. Automatic switch cuts out at $90^{\circ}C (\pm 8.4^{\circ}C)$ and resets at $60^{\circ}C$.

Cabinet

Wash down cabinet using a mild detergent. Treat any paint damage or rust as necessary.

Electrical

- 1. Check all electrical connections for signs of overheating or arcing.
- 2. Check all cables for signs of chafing or physical damage.
- 3. Check all electrical connections for tightness.

Controls

- 1. Visually inspect sensors and wiring.
- 2. Check operation and sequencing of controls via remote display.
- 3. Ensure that all relevant set-points are recorded.

Service Checks - Yearly

As 3 monthly plus the following:-

- 1. Check all electrical connections for tightness.
- 2. Check all refrigeration connections with leak detector.

Control Scheme

Outdoor Package

38



Parts Identification



Parts Identification

- 1 Transformer 230/24 Vac
- 2 Miniature Circuit Breakers
- 3 Evaporator Fan Speed Controller
- 4 Condenser Fan Speed Controller
- 5 Airflow Fail and Filter Dirty Airflow Switches
- 6 Panel Interlock Switch (optional)
- 7 Combined Packaged DX Unit
- 8 Side Access / Maintenance Panels
- 9 Condenser Fans
- 10 Thermostatic Expansion Device
- 11 Sight Glass
- 12 First Stage Compressor
- 13 Filter Drier
- 14 Head Pressure Transducers
- 15 Incoming Customer Terminals
- 16 Microprocessor Controller
- 17 Fan Capacitors
- 18 Evaporator Coil
- 19 Pre and Main Filter
- 20 Serial Plate
- 21 Evaporator Fan Section
- 22 Front Hinged Access Panel
- 23 Ambient Sensor
- 24 Free Cool / Damper Section
- 25 High Pressure Switch
- 26 Schraeder Point
- 27 Low Pressure Switch
- 28 Condenser Coil
- 29 Second Stage Compressor
- 30 Condensate Tube

SPARES

For ease of identification when ordering spares or contacting Airedale about your unit, please quote the unit type, unit serial number and the date of manufacture, which can be found on the unit serial plate.

The serial plate can be located at point 20.

After Sales

Warranty

All Airedale products or parts (non consumable) supplied for installation within the UK mainland and commissioned by an Airedale engineer, carry a full Parts & Labour warranty for a period of 12 months from the date of commissioning or 18 months from the date of despatch, whichever is the sooner.

Parts or Equipment supplied by Airedale for installation within the UK or for Export that are properly commissioned in accordance with Airedale standards and specification, not commissioned by an Airedale engineer; carry a 12 month warranty on non consumable Parts only from the date of commissioning or 18 months from the date of despatch, whichever is the sooner.

Parts or equipment installed or commissioned not to acceptable Airedale standards or specification invalidate all warranty.

Warranty is only valid in the event that

In the period between delivery and commissioning the equipment: is properly protected & serviced as per the Airedale installation & maintenance manual provided where applicable the glycol content is maintained to the correct level. In the event of a problem being reported and once warranty is confirmed as valid under the given installation and operating conditions, the Company will provide the appropriate warranty coverage (as detailed above) attributable to the rectification of any affected Airedale equipment supplied (excluding costs for any specialist access or lifting equipment that must be ordered by the customer).

Any spare part supplied by Airedale under warranty shall be warranted for the unexpired period of the warranty or 3 months from delivery, whichever period is the longer.

To be read in conjunction with the Airedale Conditions of Sale - Warranty and Warranty Procedure, available upon request.

Procedure

When a component part fails, a replacement part should be obtained through our Spares department. If the part is considered to be under warranty, the following details are required to process this requirement. Full description of part required, including Airedale's part number, if known. The original equipment serial number. An appropriate purchase order number.

A spares order will be raised under our warranty system and the replacement part will be despatched, usually within 24 hours should they be in stock. When replaced, the faulty part must be returned to Airedale with a suitably completed and securely attached "Faulty Component Return" (FCR) tag. FCR tags are available from Airedale and supplied with each Warranty order.

On receipt of the faulty part, suitably tagged, Airedale will pass to its Warranty department, where it will be fully inspected and tested in order to identify the reason for failure, identifying at the same time whether warranty is justified or not.

On completion of the investigation of the returned part, a full "Report on Goods Returned" will be issued. On occasion the release of this complete report may be delayed as component manufacturers become involved in the investigation. When warranty is allowed, a credit against the Warranty invoice will be raised. Should warranty be refused the Warranty invoice becomes payable on normal terms.

Exclusions

Warranty may be refused for the following reasons.

- Misapplication of product or component
- Incorrect site installation
- Incomplete commissioning documentation
- Inadequate site installation
- Inadequate site maintenance
- Damage caused by mishandling
- Replaced part being returned damaged without explanation
- Unnecessary delays incurred in return of defective component

Returns analysis

All faulty components returned under warranty are analysed on a monthly basis as a means of verifying component and product reliability as well as supplier performance. It is important that all component failures are reported correctly.



Head Office Airedale International Air Conditioning Ltd Leeds Road Rawdon Leeds LS19 6JY Tel: +44 (0) 113 2391000 Fax:+44 (0) 113 2507219 E-mail enquiries@airedale.com Web www.airedale.com

A MODINE Company



SYSTEMY HVAC Sp. z o.o. ul.Rydygiera 8, 01-793 Warszawa

tel.: +48 22 101 74 00 fax: +48 22 101 74 01 e-mail: biuro@systemy-hvac.pl www.systemy-hvac.pl

TM_Ecotel_split_EF_6258925_V1.1.0_04_2015