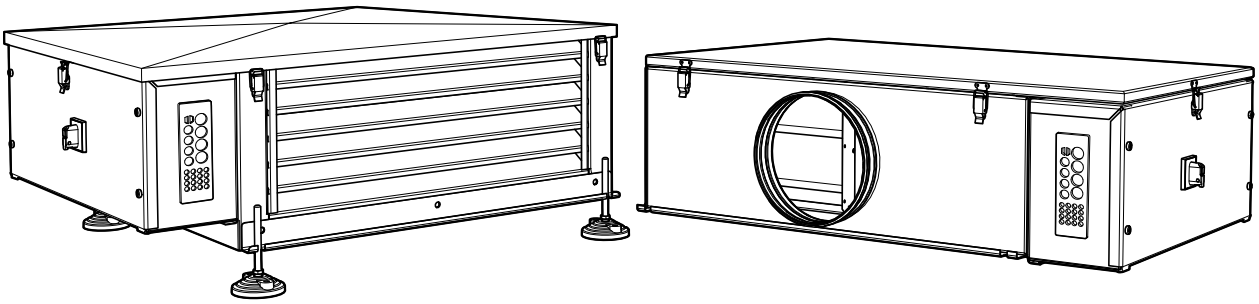
VES Andover Ltd Eagle Close Chandlers Ford Ind. Est Eastleigh Hampshire SO53 4NF
Tel: 08448 156060 Fax: 02380 261204 E-mail: vesltd@ves.co.uk Web: www.ves.co.uk

ORIGINAL INSTRUCTIONS
VES Ref. ID.938B
November 2010

colourfan Twinfan Unit

Installation, Operation and Maintenance Manual



Important **This manual must be read in full before Installation, Operation and Maintenance of the units supplied**

Please ensure that this document is passed to the end user. This manual forms an integral part of the product and should be kept for the working life of the product. Additional copies of this and supporting documents are available by contacting VES or by visiting **www.ves.co.uk** and following the 'Information Centre' link.

The following symbols used within this document refer to potential dangers, advice for safe operation or important points of reference

Warning Indicates hazards associated with electric current and high voltages

Caution Indicates hazards that require safety advice for personnel or potential unit/property damage

Important Indicates important information

Contents

Introduction 1

The **colourfan** twinfan series is a range of compact twin fan extract units, utilising direct driven centrifugal fans with duties up to 0.95m³/s. Suitable for plant-room, ceiling void and external locations. As standard, each unit will have been supplied pre-wired to an auto-changeover panel or fitted isolator. The standard operating temperature of the unit is -20 to +35°C.

For further technical details regarding dimensions and weights, contact VES on **08448 15 60 60**, quoting the sales order (SO) number and the unit type as found on the unit nameplate, or alternatively visit **www.ves.co.uk**.

Nomenclature 2

Part Number Coding

	Point Description	Point Variants	Details (as appropriate)
1	Product	**CLT**	**colourfan** twin fan units
2	Unit Size	**0...9**	Sequential see unit outline for details
3	Fan Type	**2**	Backward curve centrifugal fan
4	Fan Size	**1...10**	Sequential
5	Phase	**-1**	230V 50Hz Single Phase
		-3	400V 50Hz Three Phase
6	Unit Configuration	**/P**	Plantroom (flat)
		/W	Weatherproof (flat)
7	Main Heating	**Null**	No Heating
8	Infill	**/AL**	acoustic liner
		/DS	double skinned, mineral wool infill
9	Handing	**/RT**	Right/Top Access
		/RB	Right/Bottom Access
		/LT	Left/Top Access
		/LB	Left/Bottom Access
10	Main Filter	**Null**	No filter
11	Control Panel Section	**Null**	No fitted controls
		/I	Pre-wired isolator
		/ISC	Pre-wired isolator & speed controller
		/CP	Fitted control panel
		/CPSC	Fitted control panel & speed controller
12	Inlet/outlet	**/L**	weather louvre outlet
		/C	weather cowl outlet
		/SP	rectangular spigot
		/CS	circular spigot
13	Colour	**Null**	Galvanised finish
		/R7004	Powdercoated finish, RAL7004 etc...
14	Powder Coat Type	**Null**	As colour
		/IT	Internal powdercoated only
		/BT	Internal/External powdercoated
15	Special	**/S**	Special (non-standard) Unit

Typical Example CLT031-1/P/AL/RT/I/CS/S

CLT	0	3	1	-1	/P		/AL	/RT		/I	/CS			/S
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)

colourfan Twinfan Unit

Installation, Operation and Maintenance Manual

Receipt of Goods & Handling 3

Immediately upon receipt of goods, check for possible damage in transit paying particular attention to fan impellors, coil connections and unit casing. Prior to installation please check to ensure alignment and smooth rotation of the impellor after transit. Also check to ensure that any ancillary items are included. These will normally be supplied fitted or, in the case of small items, taped to the unit.
In the event of any damage having occurred or if any item is found to be missing, it is essential to inform VES Andover Ltd. within **7 days** of delivery quoting sales order number and the unit type, as found on the unit nameplate. After this period, VES would be unable to accept any claim for damaged or missing goods.

Installation 4

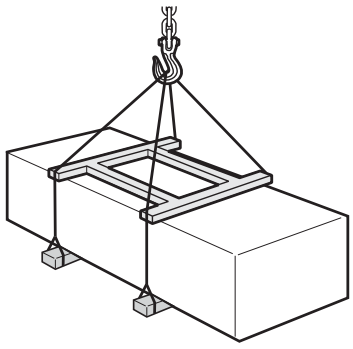
The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all of the equipment is installed in compliance with the manufacturer's recommendations, with due regard to the current HEALTH AND SAFETY AT WORK ACT and conforms to all relevant statutory regulations.
Where a unit is installed so that a failure of components could result in injury to personnel, precautions should be taken to prevent such an injury. If the unit is installed where there is a reasonable possibility of persons or objects coming into contact with the impellor whilst operational, a guard should be fitted or steps taken to prevent this. It is the installer's responsibility to ensure that access panels are not obstructed in any way and safe working access for maintenance must be provided in accordance with Health and Safety and Building Regulations. For confirmation of required access please see the appropriate unit outline drawing.
For optimum unit performance, careful consideration must be paid to the location of the unit in relation to the ductwork and associated items; placing the unit directly adjacent to a bend in ductwork will impede airflow and reduce performance. Consideration must also be given by the installer for adequate illumination of the unit location in order for safe maintenance. Further consideration should be given to the unit's position and secured into place as appropriate; this is especially important with external mounting as the wind and elements may effect the overall stability of the unit.

Caution ⚠ Handles, lids, housings and coil connections must NOT be used as lifting points

Lifting Detail

Fig. 1

When moving the unit, handle with care and in such a manner as to avoid damaging the external finish as this may reduce the ability to resist corrosion.
Units are to be rigged and lifted using spreaders, taking into account the weight of the unit, and lifting gear should be arranged so as not to bear on the casework see right.



1

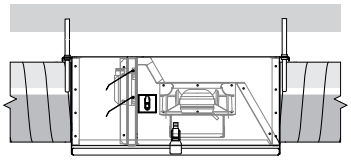
Caution ⚠ Units should only be supported using the support feet as provided by VES with the unit. Contact VES before attempting to support the unit using alternative methods.
Only experienced fitters should undertake this work. Take necessary safety precautions when working in elevated positions.

Important ! For associated components (speed controllers, controls) please refer to the relevant accompanying O&M

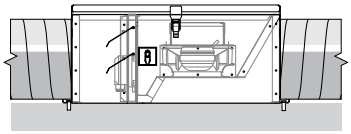
Installation 4 Continued

colourfan twin fan units are supplied with feet suitable for floor or ceiling-void mounting, either by use of drop-rod mounting, in either top or bottom access orientation, with outlet airflow in the horizontal plane only. For alternative mounting please consult your outline drawing as supplied with the unit, or refer to VES Customer Services for further information.

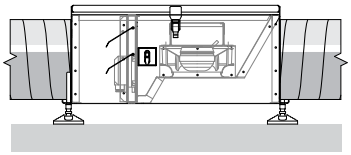
Unit mounting options
Fig. 2 3 4 5 6



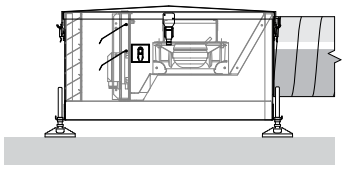
2 Plantroom ceiling mounted



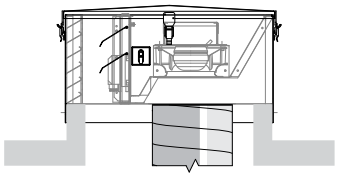
3 Plantroom floor mounted



4 Plantroom floor mounted
(optional adjustable foot)

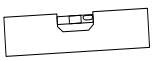


5 Weatherproof roof mounted (WH)

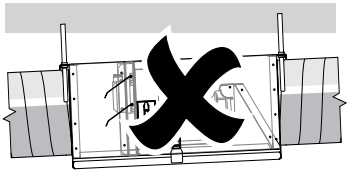


6 Weatherproof curb mounted (WL)

Important ! It is important that the unit is level to ensure all components operate correctly.



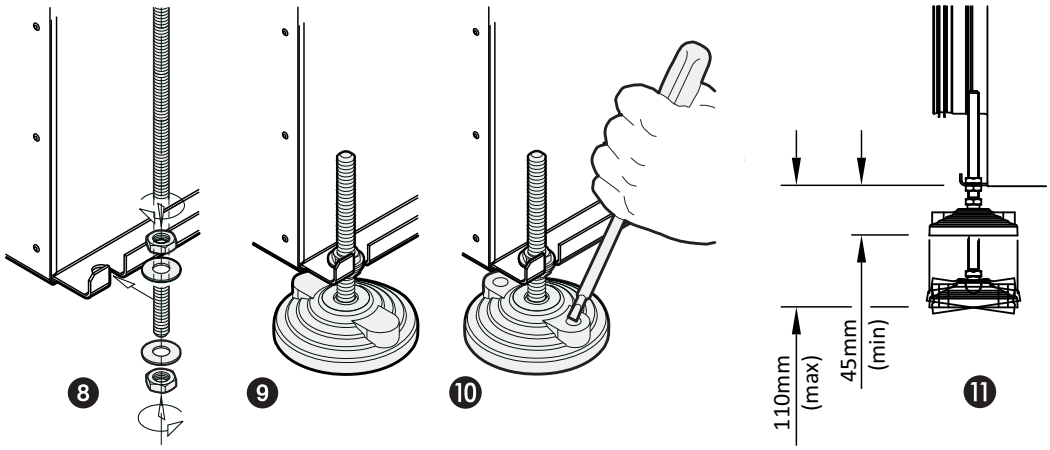
Incorrect mounting (example)
Fig. 7



Installation 4 Continued

Secure drop rods/unit with M10 fixings as shown below ❽.
Self-levelling feet are available for floor mounting, with M10 fixings as per drop rods ❾. If required the unit can be further secured to the floor via knockout fixings holes on the feet, fixings to be supplied by others ❿. Note: max/min dimensions for foot height ⓫ .

Unit mounting detail
Fig. ❽❾❿⓫

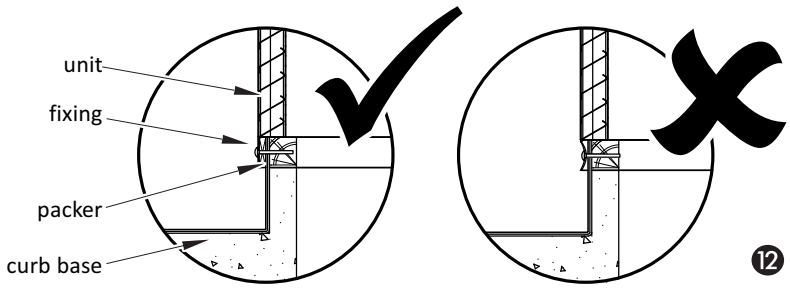


Where provided, flanges and spigots should not be used to support the ductwork and used solely as a means of ductwork connection.

Curb base mounting

colourfan WL units are designed to sit horizontally on top of a prepared roof upstand; for further dimensional details refer to the unit outline drawing. It is recommended that the unit be fixed to the upstand with coach screws or similar, through the side of curb base into the timber upstand. This is especially important as strong winds could be encountered in exposed locations. Fixing holes have been provided through the base of the unit for ease of installation; if required, pack the gap between the unit and curb to avoid overtightening the fixings and deforming the casework.

Curb mounting detail
Fig. ⓬



In the unlikely event that water should enter the joining ductwork, it is recommended that a suitable drain should be incorporated to reduce the risks of water contamination.

Important ! **colourfan** WL units are not suitable for pitched or corrugated/profiled roofs.

Standard Wiring & Fan Installation 5

Warning The electrical supply **must be fully isolated** before attempting to affect any work on this unit. All electrical connections to any unit must be carried out in accordance with the current edition of the I.E.E Regulations, only competent Electricians should be allowed to affect any electrical work to our units.

Important It is the customer's responsibility to supply earth fault protection through the building installation device and a dedicated, isolated power supply with overload protection, to account for motor start up currents. See below for specific fan details Fig. 13 14.

Warning Do not connect any unit to an electrical supply voltage outside of the specification.

For Three Phase Fans, a trial connection of the three phase supply should be made to check that the fan rotates in the correct direction as indicated on the fan. If the rotation is incorrect, interchange any two phases of the incoming supply at the isolator.
For incorrect rotation of single phase fans, check with the VES Service department for advice, on **08448 15 60 60**.

The following wiring diagrams (*page 7 -10*) are a guide to installing the standard fan options found on **colourfan** units. If in any doubt, for units with fitted VES controls or for special versions of the units, consult the wiring diagram in your document pack or contact VES Customer Services Department on **08448 15 60 60**, quoting the sales order (SO) number and unit type as found on the unit name plate.

Important For associated components (speed controllers, controls) please refer to the relevant accompanying O&M

A factory set airflow pressure switch (APS) is fitted as standard, should the APS need adjustment contact VES Customer Services Department on **08448 15 60 60**.

Standard fan details
230VAC 50Hz
Fig. 13

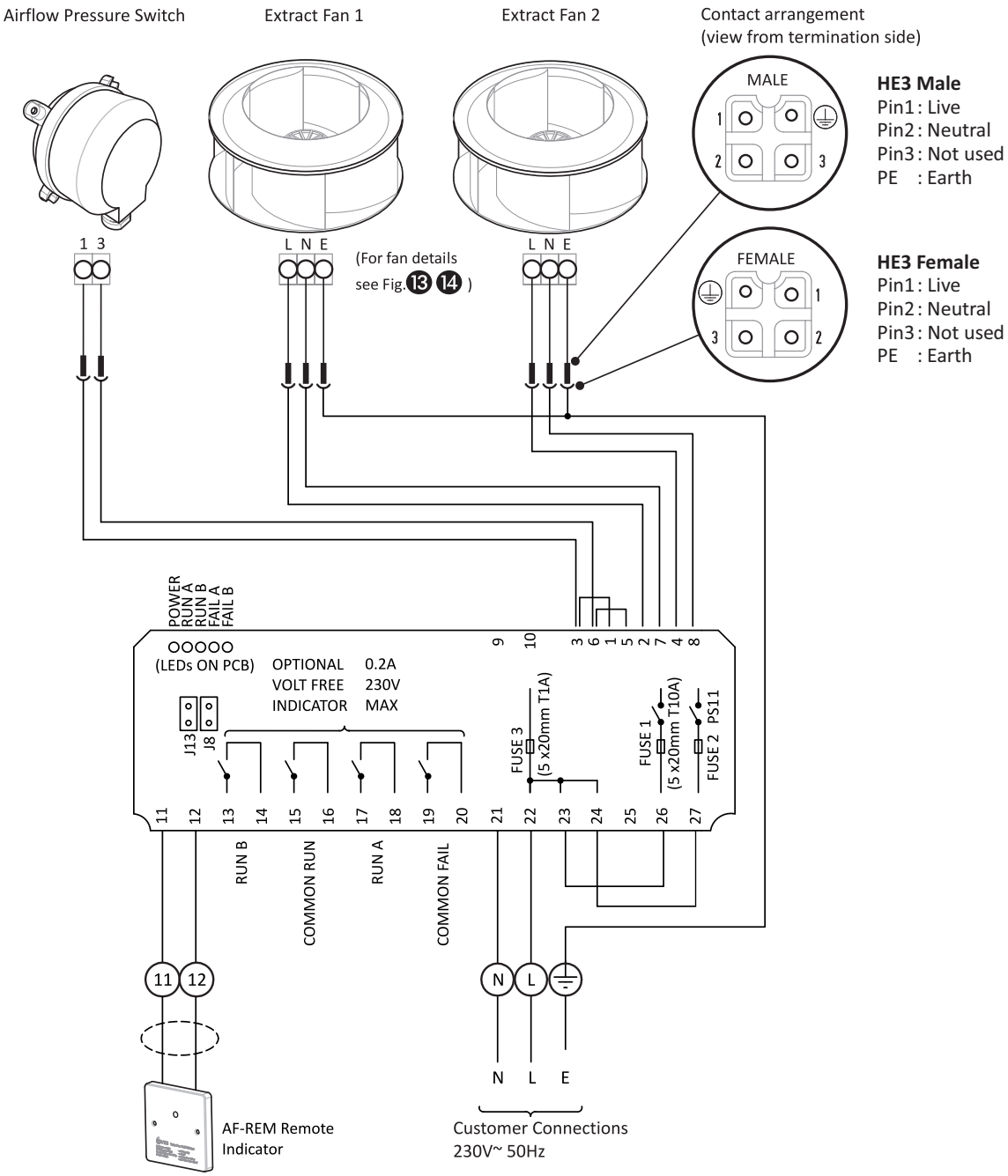
Model		230V 1PH 50Hz			
colourfan Unit	Fan	Motor Power (kW)	FLC (A)	SC (A)	C400V (µF)
031-1	ZC0101	0.06	0.26	0.48	2
132-1	ZC0201	0.10	0.45	0.82	2.5
233-1	ZC0301	0.20	0.86	1.70	6
334-1	ZC0401	0.11	0.53	1.20	4
435-1	ZC0501	0.14	0.62	1.20	4
536-1	ZC0601	0.27	1.30	3.90	6
637-1	ZC0701	0.43	1.90	5.00	10

Standard fan details
400V Three Phase
Fig. 14

Model		400V 3PH 50Hz		
colourfan Unit	Fan	Motor Power (kW)	FLC (A)	SC (A)
637-3	ZC0703	0.44	0.8	2.7

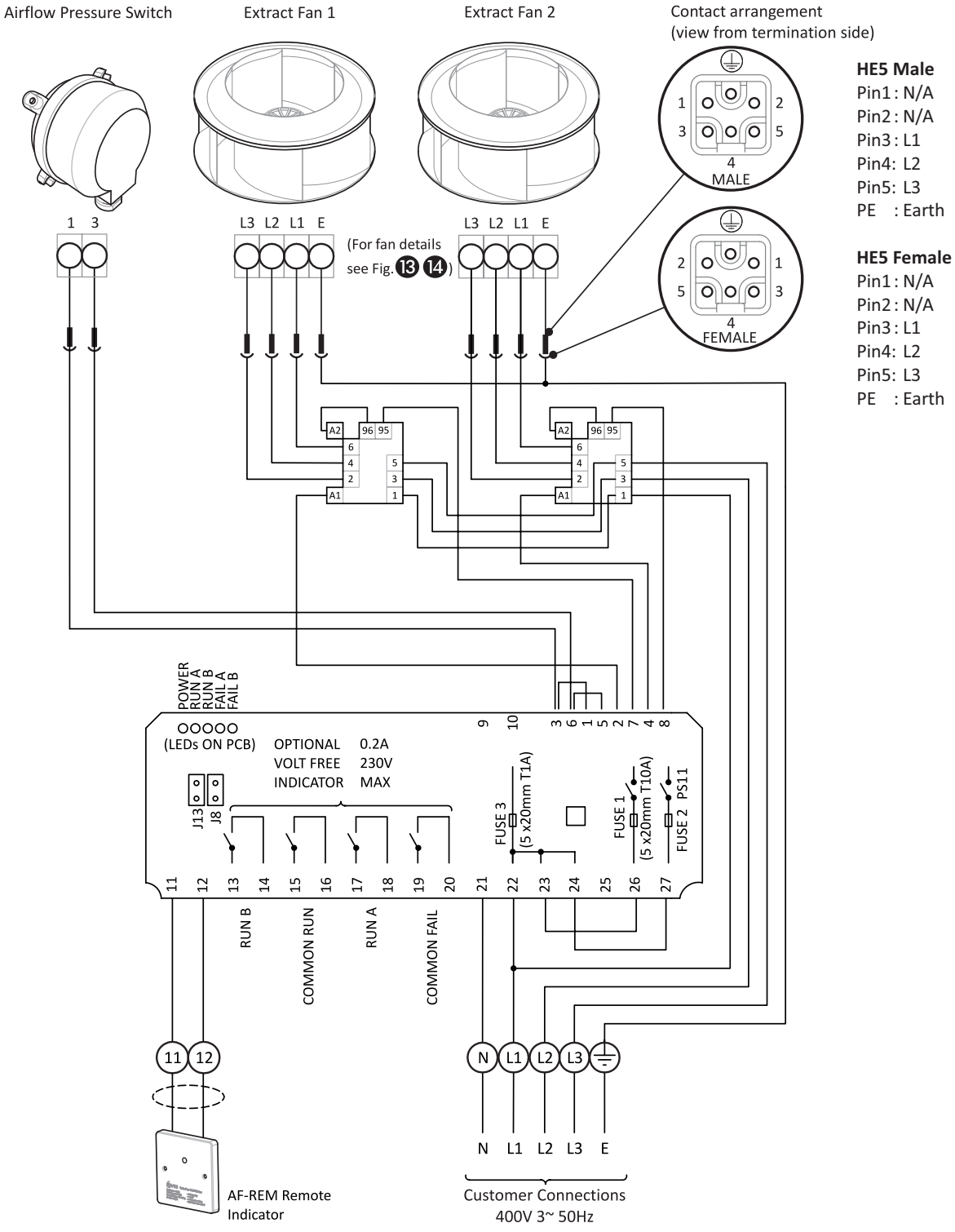
Standard Wiring & Fan Installation 5 Continued

Standard wiring arrangement controls termination
230VAC 50Hz
Fig. 15



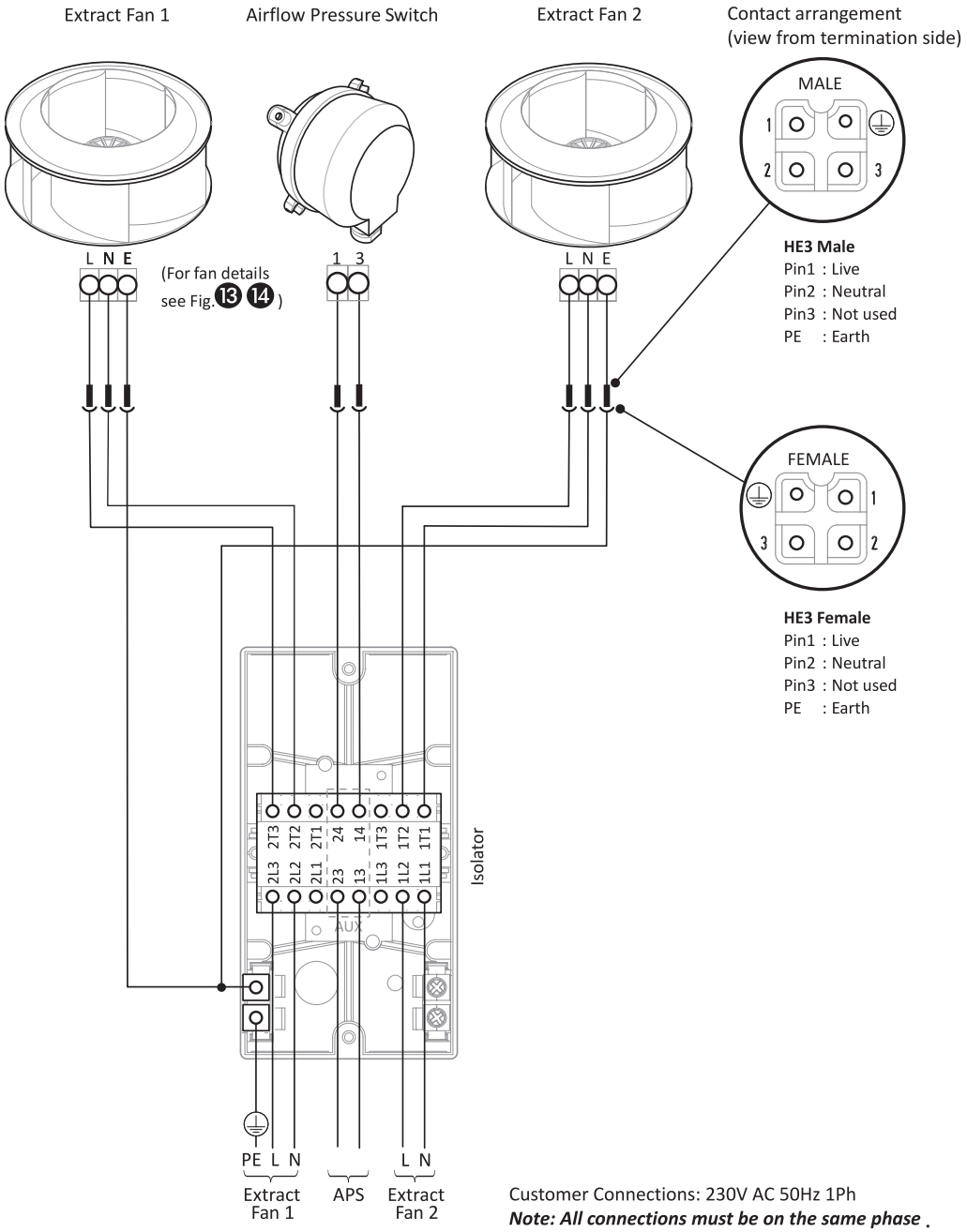
Standard Wiring & Fan Installation 5 Continued

Standard wiring arrangement controls termination
400V Three Phase
Fig. 16



Standard Wiring & Fan Installation 5 Continued

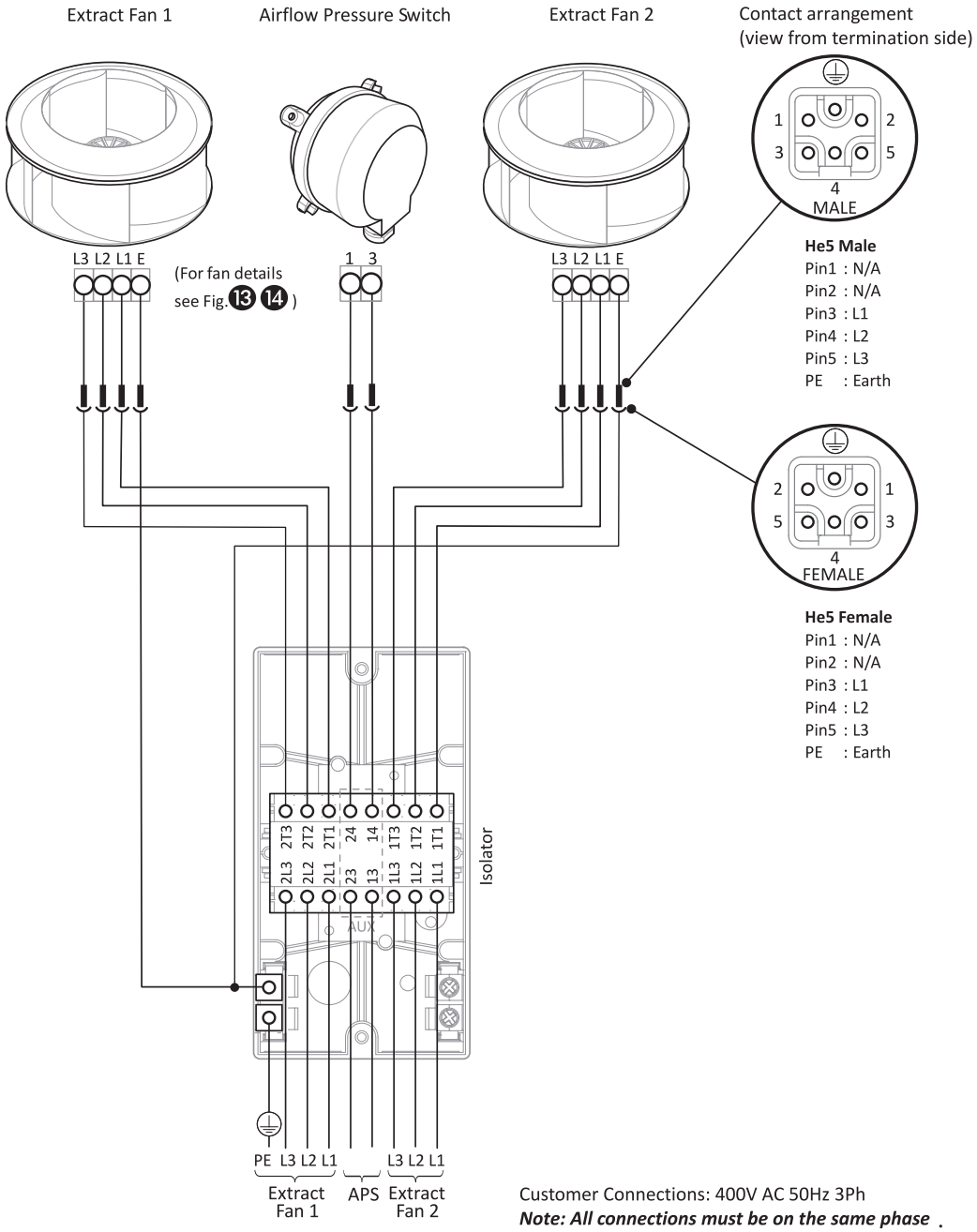
Standard wiring arrangement isolator termination
230VAC 50Hz
Fig. 17



Customer Connections: 230V AC 50Hz 1Ph
Note: All connections must be on the same phase .
Airflow pressure switch (APS) rated Max 1.5A/230VAC

Standard Wiring & Fan Installation 5 Continued

Standard wiring arrangement isolator termination
400V Three Phase
Fig. 18



Customer Connections: 400V AC 50Hz 3Ph
Note: All connections must be on the same phase .
Airflow pressure switch (APS) rated Max 1.5A/230VAC

Standard Wiring & Fan Installation

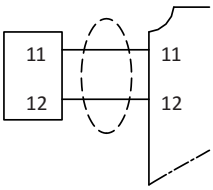
5 Continued

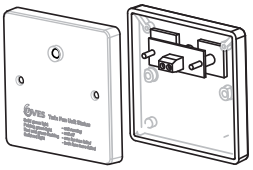
Remote status indicator

Fig. 19

Remote single multi coloured LED indicator informs the operator of the current status of the **colourfan** unit. Fits standard single gang switch box. 2-core screened cable connection, maximum length 50 metres. Below is a list of the LED states and what they indicate:

Solid green	Unit running
Pulsing green	Unit standby
Alternate green/red	One fan failed - One fan run
Solid red	Both fans failed

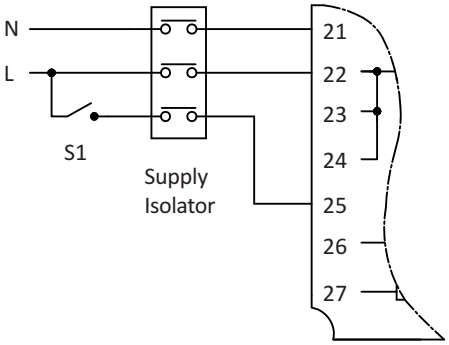




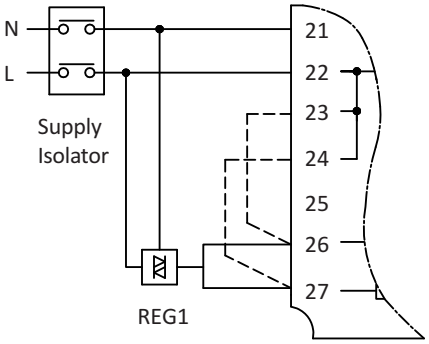
Remote on/off (230V)

Fig. 20

Remote wiring options: For remote switching
S1 = Switch timeclock/PIR etc.
Remove link J8



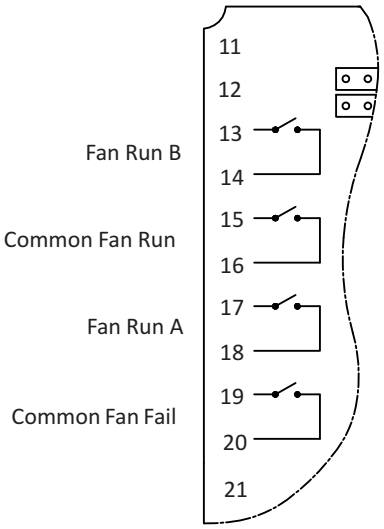
Remote wiring options: For speed control, 1 phase colourfan



Remote on/off (230V)

Fig. 21

Volt free status indicator

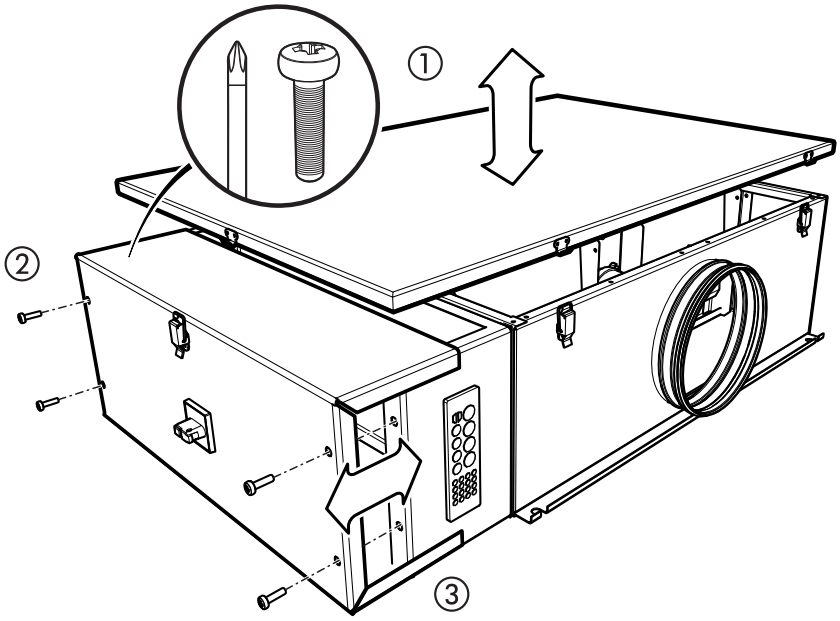


Standard Wiring & Fan Installation

5 Continued

For units with fitted controls, access to the controls section can be achieved as follows: Remove the unit lid by unfastening the sde catches. Remove/retain the control cover fixings and then carefully slide back the control panel front cover Fig. 22. Ensure that all fixings/fasteners are correctly returned when replacing the cover and lid.

Autochangeover panel customer connection
Fig. 22



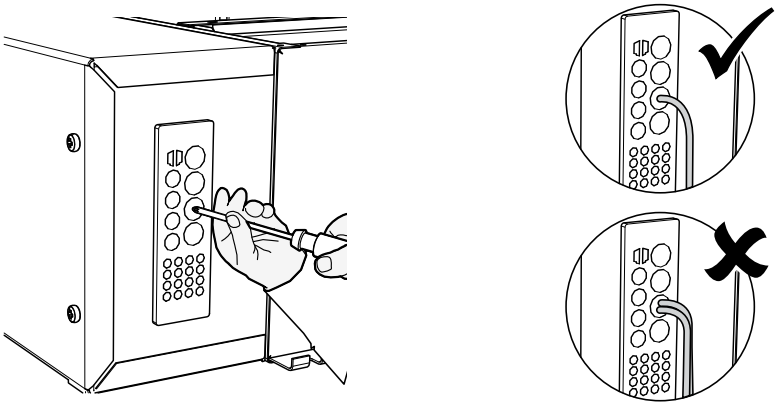
Caution

When accessing the unit ensure the access panels are handled/opened in a controlled manner so as to avoid damage to the unit or injury to personnel. This is particularly important with bottom access units. Care should be taken with larger unit lid removal as this may need to be undertaken by more than one person.

Control panel connection

Where a colourfan unit has been supplied with fitted controls, a gland plate is provided for ease of installation. To ensure that this gland plate is effective, carefully pierce the desired entry point in the plate with a small screw driver or similar Fig. 23. Note: when piercing the gland plate take care not to damage the contents of the control panel. Feed the cable through the gland plate, connect and provide appropriate cable restraint (wiring diagrams *page 6-10*). A new entry point should be used for each additional cable entry

Control panel gland plate detail
Fig. 23



Important

This gland plate is not suitable for use with traditional cable/armoured cable glands.
Should the installation require the use of such glands please make alternative provisions for the cable entry to suit.

Maintainance 6

Important

Before attempting to carry out any work on our units, all accompanying documentation including warning labels on the unit must be referenced.
Should it be necessary to remove any component ,ensure that these are resecured into position once reinstalled. It is critical that after any maintenance work has been conducted that all components removed/replaced be refitted correctly by a competent engineer.

Warning

Before attempting to carry out any maintenance work, investigative or repair work on our units, the unit **MUST BE COMPLETELY ISOLATED** from its electrical supply. Ensure a minimum of two minutes after electrical disconnection before removing access panels. This will allow any moving parts to come to a rest. When used in conjunction with an Inverter for speed control, a minimum of **Five minutes** should be given to allow for the capacitors to discharge before starting work.
Care should also be taken when accessing external units as the wind and elements may cause moving parts to 'windmill'.

colourfan units feature plug & socket connections to allow easy fan assembly removal should it be required. Follow the instruction below.

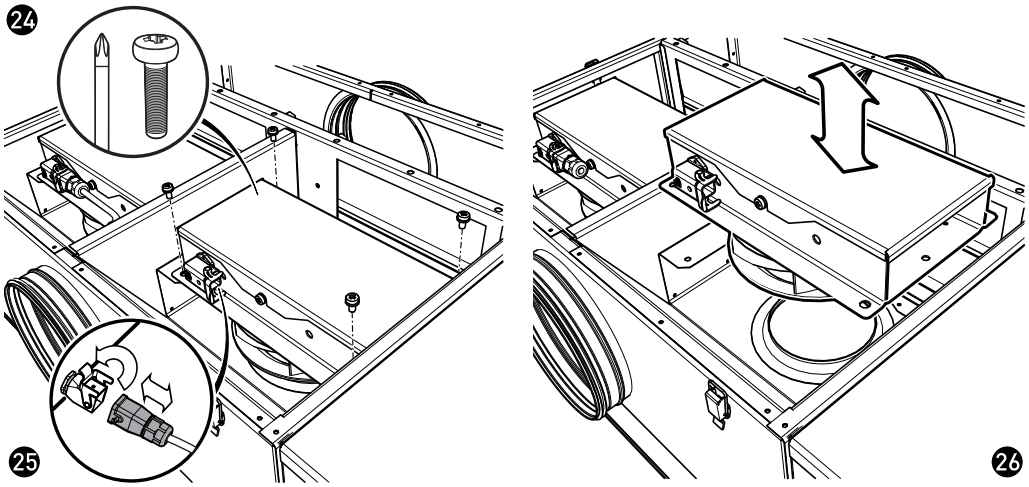
Fan assembly removal

Ensure the unit is fully isolated from the electrical supply. Carefully remove the lid by unfastening the side catches around the casework. Separate the plug connection by hand (tools not required) by lifting the locking lever and pulling the plug/socket apart 25 . **DO NOT** pull the cable to separate the assembly. Remove and retain the four fan plate fixings 24 . Carefully lift out the fan assembly; removal of the fan plate cover is not normally required 26.

Fan assembly removal/ installation Fig. 24

Plug removal/installation Fig. 25

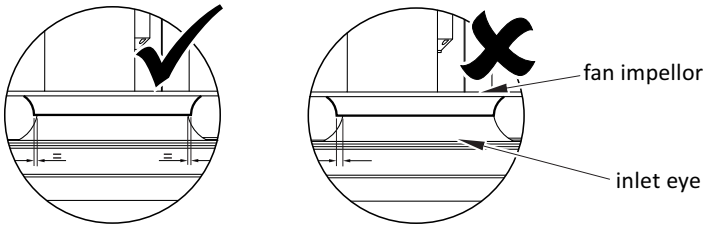
Fan assembly removal/ installation continued Fig. 26



Fan assembly installation

Replace the fan assembly onto the fan bulkhead; a small stud has been included to assist with correct location. When returning the fan assembly to the case take care not to drop the fan impellor on the inlet eye as incorrect alignment may damage the impellor. Secure the fan plate with the appropriate fixings, ensuring correct fan aligment with the inlet eye, adjusting as necessary 27 . A trial spin by hand should indicate if the fan is rubbing. To align, losen the fan plate fixings, adjust and retighten. It is important that the loom is secured away from the fan impeller (coil excess cable and zip tie loom to fan plate as appropriate), allow enough slack for loom connection/removal to fan socket. On reconnection, the plug assembly features a locating lug to ensure correct orientation. Once rejoined, lock the connection together again using the locking lever as shown 25 . Carefully replace the lid and ensure all fixings are safely refastened.

Fan alignment Fig. 27



Maintainance 6 Continued

In order to keep the unit in good order the following maintenance routine is recommended:

Three Monthly Checks

Check inside the unit for accumulation of dust, grease etc. If the fan impeller is heavily soiled, clean out carefully (ensure the unit is properly isolated). Failure to do this periodically could lead to a loss of performance or the fan to become out of balance, leading ultimately to bearing failure. If the fans are stationary for long periods in a humid atmosphere, the unit should be switched ON for minimum of two hours every month to remove any moisture that may have condensed within the motor.
Check the backdraught flaps are free moving and undamaged.

Six Monthly Checks

The security of fastenings and the integrity of components should be checked regularly as part of the routine maintenance operation.
colourfan units are supplied with both unpainted galvanised sheet steel cases and powder coat paint finish. Check all painted items to ensure that they have not deteriorated, particularly where adverse environmental conditions prevail. Re-paint as necessary. Matching paint can be supplied upon request.

Fault Finding

Please note the **colourfan** units and controllers are factory run tested prior to dispatch.
If the LED on the remote twin fan status indicator is flashing red and green check:
- Flaps not opening (possibly due to excessive resistance in the system)
- Check fan connections
- Fan fuse has blown
- Motor failure
- Very dirty fan
- Airflow pressure switch not operating
- Correct speed controller is fitted
- Correct fan rotation
- If used, check the overloads are correctly set

If the LED on the remote is solid red, both fans have failed, check:
- Fan fuses
- Electrical connections
- Controls PCB failure
- Condensation

Spares & Repairs

When enquiring after or ordering spares contact VES Spares Department, quoting the sales order (SO) number and unit type as found on the unit nameplate.

Tel: 08448 15 60 60 • Fax: 02380 26 12 04

WEEE Directive

At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre. Do not dispose of with normal household waste. Do not burn.

PLEASE ENSURE THAT THIS DOCUMENT IS PASSED ON TO THE END USER

CE

Declaration of Conformity

Date: 1st November 2010

Product: colourfan Twinfan Unit

Type: C L T

Manufacturer: VES Andover Limited

The product above is produced in accordance with EC Council Directives:

2004/108/EC (Electromagnetic Compatibility Directive)

2006/42/EC (Machine Directive)

The European Harmonised Standards applied are:

BS EN ISO 12100, BS EN ISO 13857:2008, EN61000, EN 60204-1, BS EN 60950-1:2002

Basis of Self attestation:

Quality Assurance to ISO 9001-2000, BSI Reg. Firm Cert. No. Q5375

Signature of Manufacturer:

Position of Signatory: Director

Warranty

All VES Andover Products come with a one year guarantee from date of dispatch, which covers parts and labour.
You can now extend this with the following options:

Option 1. **FREE extended Warranty**

We can offer you a maintenance agreement that keeps this equipment in tip-top condition. If you take out this agreement, we will extend the warranty **free of charge for up to 5 years**, providing the regular maintenance agreement remains in place.

Option 2. **12-24 Month Extended Warranty**

12-24 months from the date of dispatch. This can be covered at a cost of just 3% of order value. (minimum charge £50.00).

Option 3. **12-36 Month Extended Warranty**

12-36 months from date of dispatch. For this cover, the charge is 6% of order value (Minimum charge £80)

Please State which option you require when you place your order. A transferable certificate will then be issued to you.
Please note, this offer excludes condensing units. We would be happy to quote you for these separately.

Register for separate spares reminders and get a 10% discount

Register for this free service and we will automatically send you a regular reminder detailing the consumable spares for this unit, together with their current list prices.

You will then be entitled to a 10% discount off any spares.

To arrange any of these options

Phone: 08448 15 60 60
or Email: spares@ves.co.uk

Stating the sales order and reference number from the unit.