

dome

Roof Extract Units

Operation & Maintenance Manual



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Original Instructions


Conventions


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 'Download O & M's' 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

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Introduction **1** The **DOMÉ** series is a range of EC centrifugal roof extract units, with duties upto 3.5 m³/s. Suitable for curb and profile sheet mounting, available in low silhouette side extract configurations. As standard, each unit will have been supplied pre-wired to an external isolator. A roof terminal unit without fan is also available. The standard operating temperature of the unit is -15 to +50°C.

For further technical details regarding dimensions and weights, contact VES on **02380 46 11 50**, 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	Point Description	Point Variants	Details (as appropriate)
Part Number Coding	1	Product	DME	DOME Roof Extract Units
	2	Fan Size	133...630	Sequential
	3	Phase	-1 -3	230V 50Hz Single Phase 400V 50Hz Three Phase
	4	Wiring	Null	Not appropriate
	5	Motor	/Null /EC	AC motor EC motor
	6	Framework	/BM	Birdmesh
	7	Connection	/I	Pre-wired isolator/s
	8	Option	/SC	Speed Controller option
	9	Colour	Null /BS14C40	Standard finish, RAL7004 (Signal grey) Special finish, to BS14C40 etc..
	10	Special	/S	Special (non-standard) Unit

Typical Example **DME315-1/BM/I**

DME 315 -1 /EC/BM /I /R9010
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Receipt of Goods & Handling **3** Immediately upon receipt of goods, check for possible damage in transit paying particular attention to fan impeller and unit GRP. Prior to installation please check to ensure alignment and smooth rotation of the impeller 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. 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 should be given by the installer to ensure 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 units as the wind and elements may effect the overall stability of the unit.

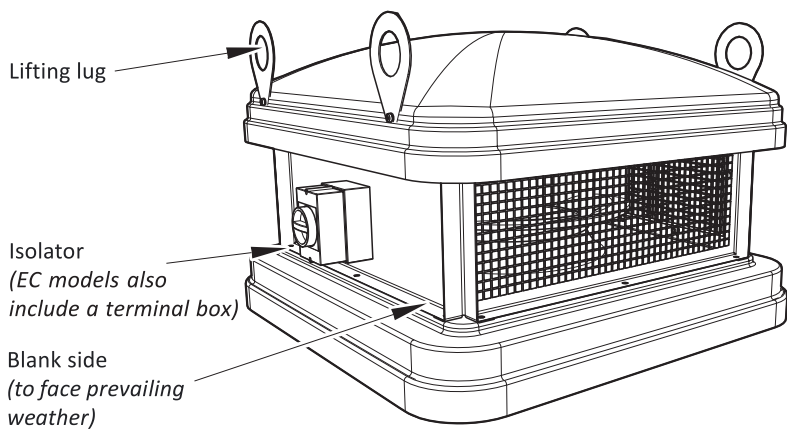
DOME units feature a blank side to the support assembly. When positioning the unit, this side should face the prevailing weather to help prevent possible water ingress. It is recommended that a suitable drain should be incorporated into the adjoining ductwork to reduce the likelihood of water contamination in the event of rainwater entering the ductwork.

Important 

If the unit is installed where there is a reasonable possibility of persons or objects coming into contact with the impeller whilst operational, a guard should be fitted or steps taken to prevent this. It is the installer’s responsibility to ensure that access is not obstructed in any way and safe working access is provided.

Installation 4 Continued

Warning  Only experienced fitters should undertake this work. Take necessary safety precautions when working in elevated positions.



Lifting Detail

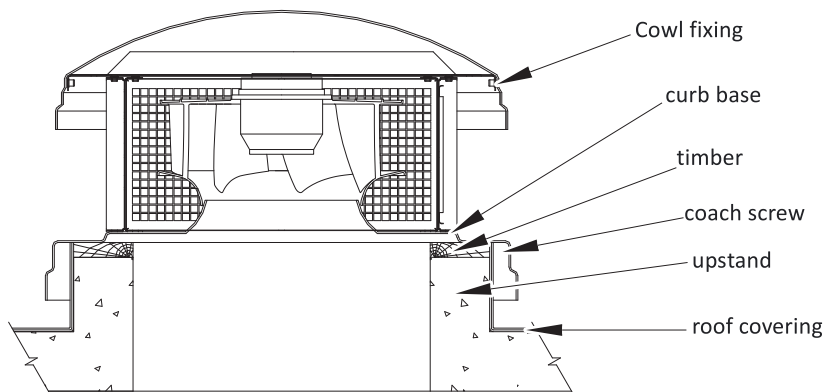
Showing unit with lifting lugs

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. The appropriate lifting lugs should be used and lifted using spreaders, taking into account the weight of the unit. The lifting gear should be arranged so as not to bear on the casework. For aesthetic reasons the lifting lugs should be removed after installation. Ensure that all fixings removed are replaced correctly **1**.

Units with curb base mounting

The Dome unit is designed to sit on top of a prepared roof upstand, for further dimensional details refer to the unit outline drawing. We recommend that each unit be fixed to the upstand with coach screws or similar, through the side of curb base into the timber upstand see *fig.* . This is especially important as strong winds could be encountered in exposed locations. Again when positioning the unit, the isolator side of the unit should face the prevailing weather to help prevent possible water ingress.




Typical Curb Base Detail

Fig. 2

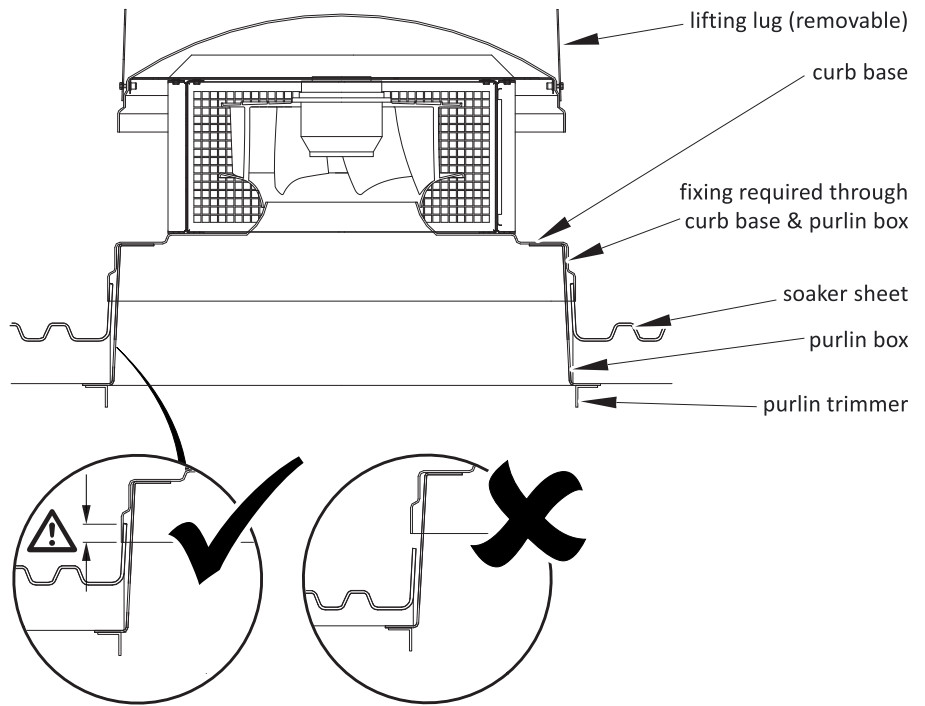
Units with soaker sheet base mounting

Before cutting into the roof ensure that the correct profile base has been purchased. All roof apertures must be independently supported by structural trimmers in accordance with local building regulations, in order to protect plant weight, and to support any service personnel. The DOME unit complete with soaker sheet is designed for sloping roofs only, to a maximum pitch of 30°. (see *fig.* **3** & **4** for more details). This installation may require more than one engineer as access to both the roof and the ventilated area may be required.

Caution  For soaker sheet installations it is essential that each fan unit be supported by and fixed to a purlin box. The soaker sheet acts as a flashing to ensure weatherproofing and is **not suitable** for load-bearing applications.

Installation 4 Continued

Typical Curb Base Detail
Fig. 3

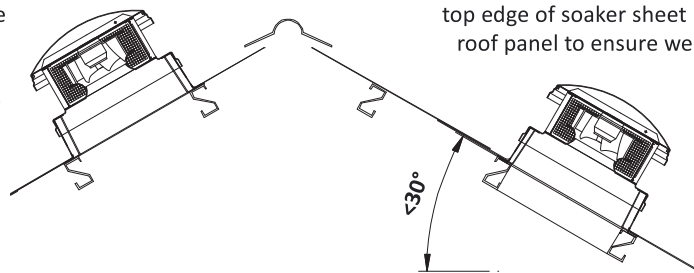


Caution ⚠ It is important that the height of the purlin box support be adjusted to ensure that the curb base overlaps the soaker sheet correctly (see above). This can be achieved by adjusting the position of the purlin trimmer. Failure to set this correctly will compromise the integrity of the roof and may lead to leakage.

It may not always be possible to install the unit in its optimum position, however the following should be considered when positioning the unit: If locating roof units in roof lights, trimmer supports are essential. Care should be taken to avoid siting units directly above tie bars or purlins as this may obstruct the fan and impede ductwork.

Recommended soaker sheet installation
Fig. 4

Ideal location
Where possible site the roof unit with the top edge of the soaker sheet placed under the ridge capping



On existing roofs we recommend that the top edge of the soaker sheet be installed under the ridge capping, however good weather proofing can also be achieved further down the roof provided the soaker sheet top edge tucks under the existing roof panel. For structural support a purlin box should be used, and trimmers fitted between the purlins to support the assembly.

Important ! When the unit is fitted to corrugated roofs, the unit must sit central to any one sheet and not where two sheets join together to ensure there is adequate support for the unit.

For tiled roofs, the soaker sheet should be appropriately flashed as you would a chimney so as to ensure good weatherproofing. On metal decking roofs it is often impractical and unwise to attempt to lift the roofing sheets and install the roof unit as described above. In these circumstances we recommend that a sufficiently sized hole be cut in the required location for the roof unit and the unit be supported and fixed into position as above. Once in position a cover sheet can be run from the apex (under the ridge capping), down to and just overlapping the edge of the unit soaker sheet, to ensure weatherproofing (see fig. 4).

Standard Wiring 5 & Fan Installation

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.T 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 the accompanying fan wiring diagram for specific fan details.

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 **02380 46 11 50**.

The following wiring diagrams are a guide to installing the standard fan options found on **DOME** 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 **02380 46 11 50**, 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

Warning



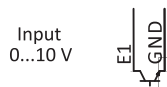
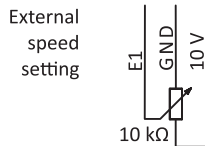
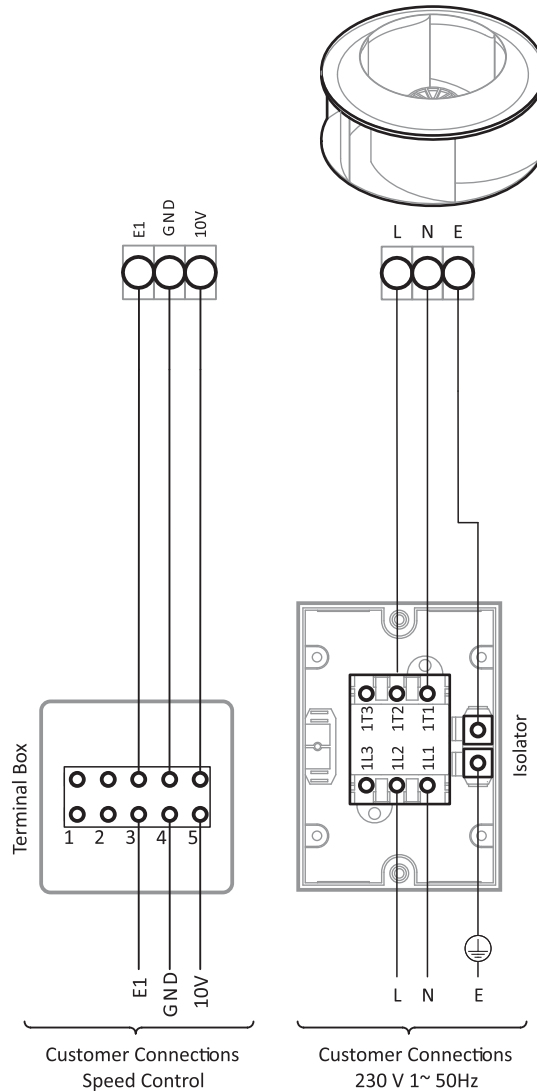
Only experienced fitters should undertake this work. Take necessary safety precautions when working in elevated positions.

Standard Wiring 5 Continued
& Fan Installation

Standard fan details
230 V 1PH 50Hz
(EC Model)
Fig. 5

Model		230 V 1PH 50Hz	
Dome EC Unit	Fan	Motor Power (KW)	F.L.C (A)
DME 133-1/EC	ZE0101	0.43	0.32

Standard wiring arrangement
230 V 1PH 50Hz
(EC Model)
Fig. 6

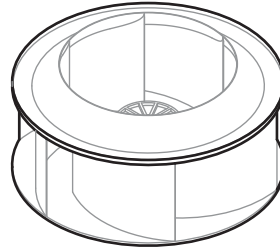


Caution When running this fan on "full speed- only" **DO NOT link GND (4) and 10v(5)**

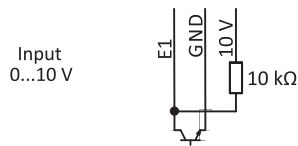
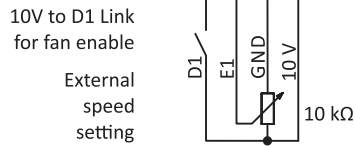
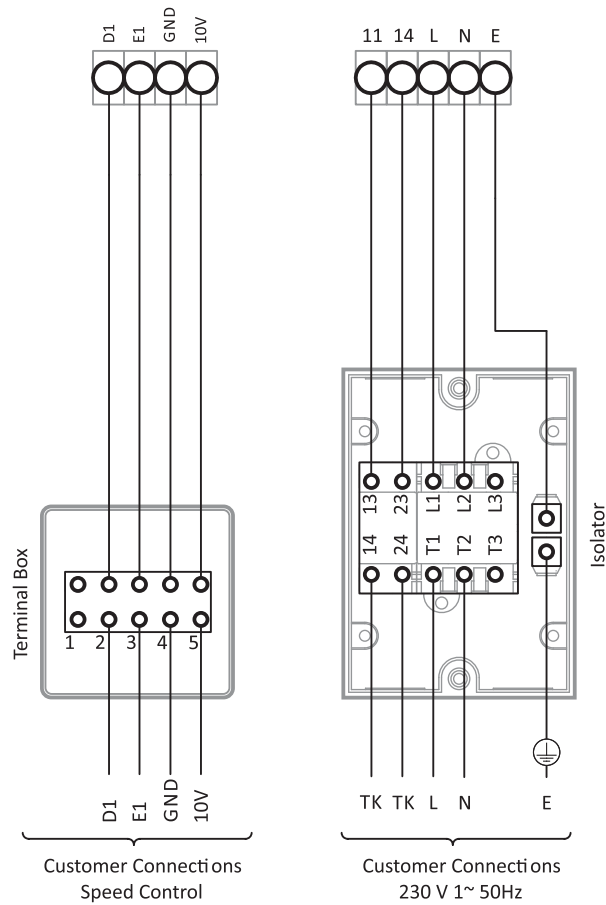
Standard Wiring 5 Continued
& Fan Installation

Standard fan details
230 V 50Hz
(EC Model)
Fig. 7

Model		230 V 1PH 50Hz	
Dome EC Unit	Fan	Motor Power (KW)	F.L.C (A)
DME 315-1/EC	ZD0501	0.4	1.5
DME 355-1/EC	ZD0601	0.35	1.3



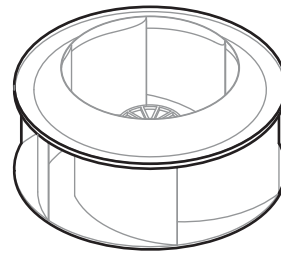
Standard Wiring arrangement
230 V 50Hz
(EC Model)
Fig. 8



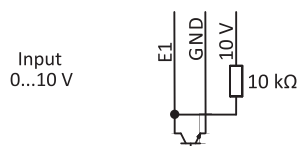
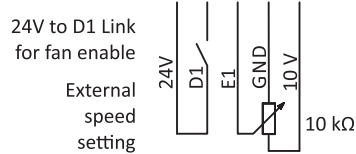
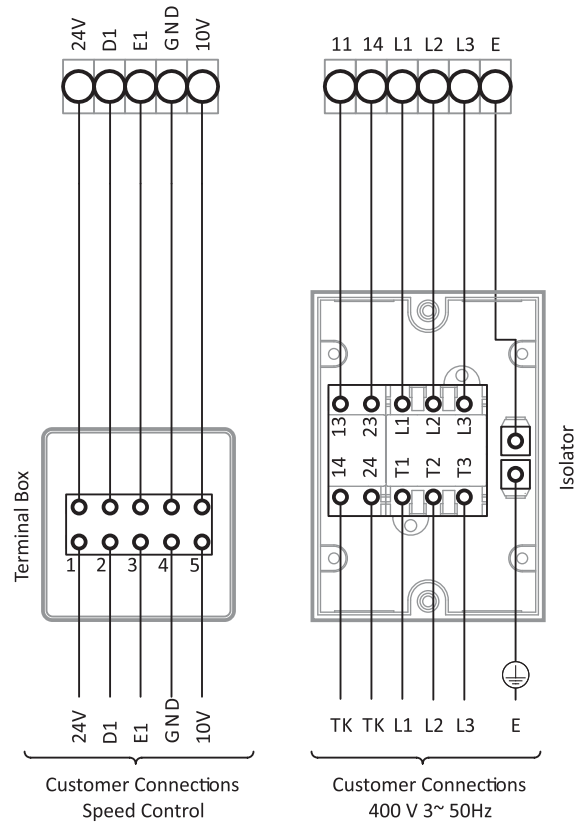
Standard Wiring 5 Continued
& Fan Installation

Standard fan details
400 V 3PH 50Hz
(EC Model)
Fig. 9

Model		400 V 3PH 50Hz	
Dome EC Unit	Fan	Motor Power (KW)	F.L.C (A)
DME 400-3/EC	ZD0703	1.4	1.9
DME 450-3/EC	ZD0803	1.45	2
DME 500-3/EC	ZD0903	1.25	1.65
DME 560-3/EC	ZD1003	1.5	2.1
DME 630-3/EC	ZD1103	2.8	3.5



Standard wiring arrangement
400 V 3PH 50Hz
(EC Model)
Fig. 10



Maintenance 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'.

Warning 

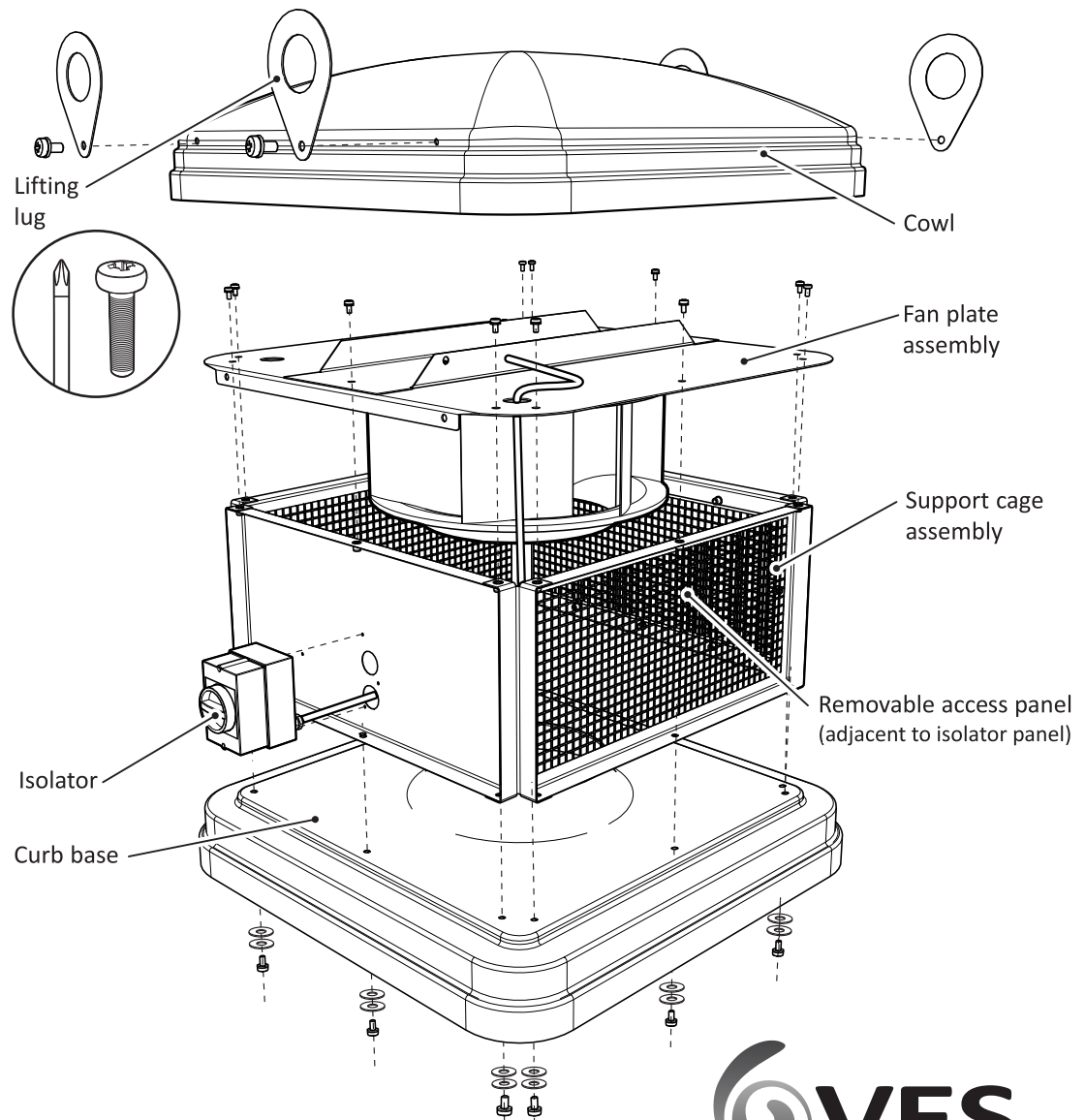
Take **ALL** necessary precautions when working in elevated positions

Fan assembly removal

Carefully remove the cowl, retaining all fixings. Disconnect the fan wiring from the isolator and carefully pull back through the fan plate. Remove and retain the fan plate fixings. Carefully lift off the fan assembly plate. Remove/replace the necessary components. To replace see page 12.

Fan assembly removal/installation

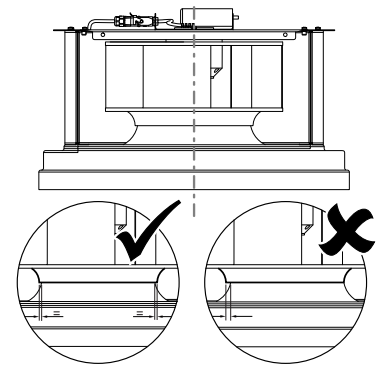
Fig. **11**



Maintenance 6 Continued

Fan assembly installation

Place the fan plate assembly onto the support cage. Feed the isolator loom through the hole provided and back through the gland in the back of the isolator. Fix the fan assembly on to the support cage and secure with the appropriate fixings. If required, remove the access panel from the fan support cage to allow better access to the fan for alignment. 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 to the isolator. Reconnect the fan to the isolator as per the wiring diagram provided. Carefully replace the cowl, ensuring all fixings are safely reinstated.



Correct Fan alignment
Fig. 12

In general, this series of units require very little maintenance. All fan and motor bearings are supplied fully greased and lubricated and are sealed for life. In the unlikely event of component failure, spares are available from stock at VES Andover Ltd.

Recommended Checks

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

Three Monthly Checks

The support cage mesh should be inspected every three months. If it is found to be heavily soiled it should be cleaned, or if damaged in any way the support cage should be replaced.

Six Monthly Checks

The fan impeller should be cleaned every 6 months. Failure to clean the fan on a regular basis could result in loss of fan performance, or cause it to fall out of balance. If a fan is stationary for long periods in a humid atmosphere, it should be switched ON for minimum of two hours every month to remove any moisture that may have condensed within the motor.

Twelve Monthly Checks

DOMES units are supplied with a 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.

Check GRP for signs of cracking or the possibility of water leakage, paying particular attention to the curb mounting base fixings. Replace as necessary.

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: 02380 46 11 50

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



dome

Roof Extract Units

Operation & Maintenance Manual

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VES is a trading name of VES Andover Ltd.
Registered in England No. 02303719.
Registered Office as above.



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Tel: +44 (0) 2380 46 11 50 email: info@ves.co.uk web: www.ves.co.uk



UK Declaration of Conformity

This declaration is issued under the sole responsibility of the product manufacturer.

Product: Dome Extract Units
Type: DME
Manufacturer: VES Andover Ltd.
Date: 6th December 2022

The object of the declaration described above is in conformity with the relevant UK Statutory Instruments and their amendments:

2016 No. 1091	The Electromagnetic Compatibility Regulations
2008 No. 1597	The Supply of Machinery (Safety) Regulations 2008
2010 No. 2617	The ECODESIGN for Energy-Related Products Regulations 2010

We hereby declare that the product described above, to which this declaration of conformity refers to, is in conformity with the essential requirements of the following standards:

BS EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
BS EN ISO 13857:2019	Safety of machinery. Safety distances to prevent hazard zones being reached by upper and lower limbs
BS EN IEC 61000-6-4:2019	Electromagnetic compatibility (EMC) - Generic standards
BS EN 61000-3-3:2013+A2:2021	Electromagnetic compatibility (EMC)-Limits
BS EN 61000-6-2:2005	Electromagnetic compatibility (EMC). Generic standards - Immunity for industrial environments
BS EN 60204-1:2018	Safety of machinery — Electrical equipment of machines

Name:

A. Reade

J. Atack

Signature

Position of Signatory:

Director

Head of Design



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