

TRANSAIRVAC INTERNATIONAL

**Installation, Operation
& Maintenance Guide
For the
Bi-lobe (SR) & (VR)
Range of Blowers**

CONTENTS

BLOWER

1.	UNPACKING AND EXAMINATION.....	3
2.	INSTALLATION.....	3
2.1	DIRECTION OF ROTATION	3
2.2	MOUNTING THE BLOWER	3
2.3	RECOMMENDED LUBRICANTS	3
2.4	DRIVING THE BLOWER	5
2.5	CONNECTING PIPE-WORK TO THE BLOWER	6
3.	HEALTH AND SAFETY.....	11
4.	COMMISSIONING	11
5.	ROUTINE MAINTENANCE	11
5.1	LUBRICATION	11
5.2	INLET FILTER/RESTRICTION INDICATOR	11
5.3	DRIVE	11
5.4	GENERAL	11
5.5	MAINTENANCE SCHEDULE	12
6.	STORAGE	13
6.1	PREPARATION FOR STORAGE	13
6.2	STORAGE REQUIREMENTS	13
6.3	PREPARATION FOR RUNNING AFTER STORAGE	13
7.	TROUBLESHOOTING CHECKLIST	14
8.	WARRANTY	15
8.1	CLAIM CONDITIONS	15
8.2	CLAIM FORM	15

Note: All comments to blowers apply equally to exhausters unless otherwise stated;
in case of doubt always refer to Transairvac

The SR& VR range of bi-lobe blowers were formerly produced, firstly by Wade Engineering Limited and then by Adams Ricardo Limited.



WARNING ROTATING MACHINERY

Read the installation and maintenance information before commencing work on this equipment. Your attention is drawn to the safety information on page 11. Until the equipment into which the blower or air package has been incorporated and the said equipment declared to be in conformity with the Machinery Directive (89/392 EEC AMMENDED BY 91/368/EEC 93/44/EEC AND 93/68/EEC), they must not be put into service.

BLOWER

1. Unpacking and examination



WARNING:
Do not place hands in open blower ports.



Caution:
Do not use a wrench to turn the drive shaft as this will invalidate the warranty.

Bare-shaft blowers are palletised and shrink-wrapped for general protection. When unpacking do not remove outlet covers. If internal inspection is required for any reason proceed as follows:- **(To avoid dirt ingress).**

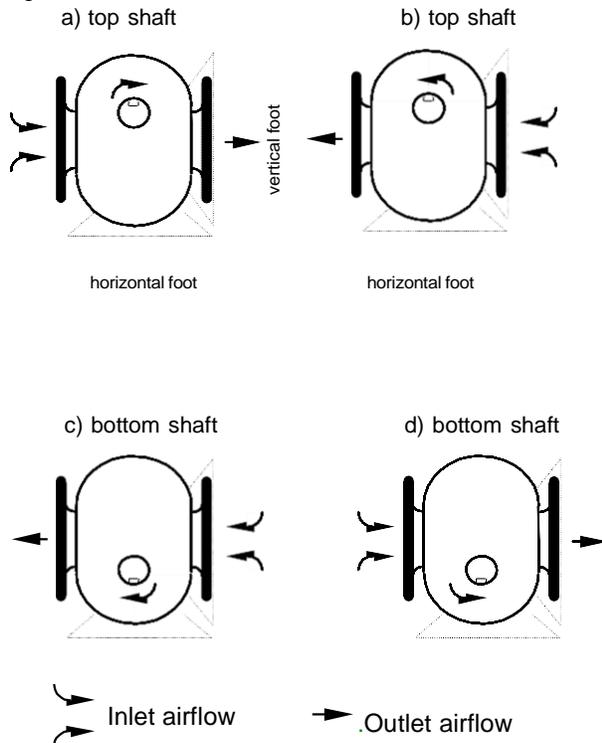
- I) clean blower and workplace,
- II) remove covers and inspect,
- III) if needed, turn the drive shaft by hand slowly,
- IV) after inspection replace covers securely,
- V) any damage or shortages found must be notified to us within three days, followed by a written claim within seven days of the goods being delivered.

2. Installation

2.1 Direction of rotation

All models in the SR & VR range of blowers are bi-rotational and are ordered from the factory in either the horizontal or vertical airflow position. Inlet/outlet airflow is determined by the position of its shaft (top or bottom) and the direction of rotation, see Figure 1. If the model you have is in the wrong orientation then contact **T r a n s a i r v a c** for an alternative mounting kit.

Figure 1 - Airflow, relative to the direction of rotation.



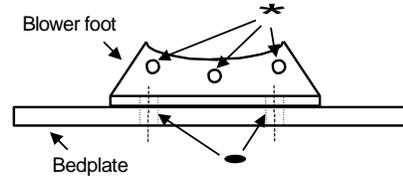
2.2 Mounting the blower



Caution:
Mounting points on the blower must be aligned and seated correctly to the bed-plate.

Some machines are fitted with bolt on feet when the following procedures must be adhered to.

Figure 2 - mounting the blower



- I) Loosen foot mounting bolts on blower.
- II) Tighten all four foot holding down bolts to bed-plate.
- III) Re-tighten foot mounting bolts on blower.
- IV) If necessary, use shims to take up any further unevenness between bedplate and foot.

2.3 Recommended lubricants

SR& HR range.

The blower is lubricated using oil and grease. Oil contained within the gear cover is used by the timing gears and gear end rotor bearings which are splash lubricated. The rotor bearings at the drive shaft end use grease.

OIL

For a guide to volumes and specification refer to Table 1 and Table 2. To fill the unit with oil, refer to Figure 3 and follow the procedure below



Caution:
All blowers are drained of oil before despatch from our factory. The gear cover must be filled before attempting to run the unit. Do not overfill as bearing and/or gear failure may occur. (VR is filled for horizontal air flow)

Table 1 – Approximate volumes of oil to fill gear cover.

Model	Volumes in litres		
	SR& VR :-	HORIZONTAL	VERTICAL
O17, 023		0.340	0.375
O15, 035, 044, 052		0.369	0.426
O60, 069, 091, 124		1.150	1.150
113, 142, 170		2.250	2.750
160, 220, 295		1.950	2.750
272, 363, 500		4.300	4.900

Table 2 – Recommended Mineral oils(6000 hours)

	Ambient temperature °C		
	-30°to 0°	0°to +35	+35°to +49°
AR HE	AR 220	AR 220	AR 220
Castrol	Hyspin AWS68	Alpha SP220	Alpha SP460
Esso	Univis N46	GX85W/140	GX85W/140
Gulf	Multipurpose grade 68AW	Gear lubricant grade 90	Gear lubricant grade 85W/140
Mobil	Mobilgear 626	Mobilgear 630	Mobilgear 634
Texaco	Rando HDCZ 58	Multi-gear EP90	Multi-gear EP140

**Table 3 – Recommended synthetic oils
(9000 hours)**

	Ambient temperature °C		
	-30° to 0°	0° to +35°	+35° to +49°
Castrol		Alphasyn EP220	Alphasyn T460
Shell	Omala HD 220	Omala HD 320	Omala HD 460
BP	Energyn-HTX68	Energyn-HTX220	Energyn-HTX460
Esso	SHC525	Mobil lub 80W40	Mobil lub 80W40
Mobil	Mob SHC 626	Mob SHC 630	Mob SHC 634
Texaco		Multi-gear S75-90	



Caution:
Equivalent oil types may not be compatible and must never be mixed. If you intend to change to different oil then the gear cover and bearings should be completely drained and flushed first. If in doubt of oil compatibility please consult your oil manufacturer.

Figure 4 - Drive-end bearing caps

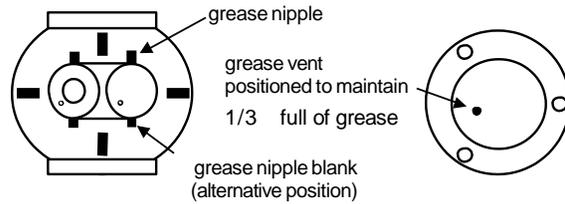
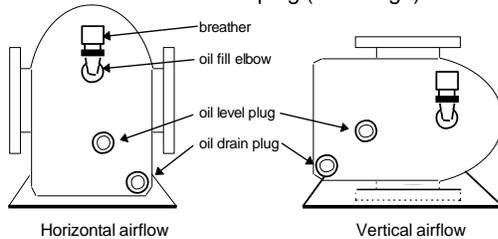


Table 4 - recommended greases

Suppliers Name	Grease specification	Temperature range °C
Hadron Eng.	HE Special	-30 to +160
BP	Energrease LS EP2	-25 to +130
Castrol	Spheerol EPL2	-20 to +120
Castrol	SLX grease	-40 to +200
Esso	Beacon EP2	-25 to +125
Esso	Unirex EP2	-30 to +150
Mobil	Mobilux EP2	-20 to +130
Shell	Albida EP2	-20 to +150

Figure 3 - Mounting positions to show oil fill, oil level and drain plug.(VR range)



- I) remove breather from filler elbow and the oil level plug,
- II) place a drip tray under the level plug hole to catch excess oil,
- III) pour lubricant into the filler elbow until it flows freely from the oil level hole,
- IV) allow the surplus oil to escape,
- V) when no more oil escapes replace oil level plug and breather.
- VI) Ensure the drain plug; level plug and breather are securely tightened before running.

GREASE

The two caps and roller bearings at the drive-end are pre-packed one third with grease before despatch from the factory. They will not require further grease until scheduled maintenance is due.

Each head-plate is provided with a grease nipple for replenishment, which may be fitted to the opposite side if required. A drilled vent for excess grease to escape is located in the end cap (see Figure 4).

Note: all blowers are assembled at our factory pre greased. For an alternative grease see Table 4.



Caution:
Equivalent grease types may not be compatible and must never be mixed. If you intend to change to a different grease then the bearing and bearing cap should be completely cleaned and repacked with the new product in accordance with the procedure detailed in section 13.1.



Caution:
Do not over grease the bearings. Latest research shows that too much grease as well as a lack of grease will result in premature bearing failure.

2.4 Driving the blower

The recommended method for driving a blower is by using a wedge belt and pulley arrangement; or if the unit is to be driven directly, a flexible coupling can be used. When a variable speed drive (e.g inverter control) is to be used, care must be taken to ensure that the blower does not run below its minimum speed or overheating and seizure may result. This is particularly important when the speed is controlled automatically by feedback from a process monitoring device. Similarly, the machine should not be allowed to exceed its maximum operating speed. Please consult the appropriate data sheet for information on min/max blower parameters. VR blowers are designed for cardan shaft drive directly onto blower input shaft.

WEDGE BELT PROCEDURE

Ensure shafts are parallel and the end caps are in line, see Figure 5 (a),

- I) fit the pulley on to the shaft close to the blower. The pulley must be a light tap fit. Do not drive on with hammer. **(Note: the blower pulley must not overhang the end of the drive shaft),**
- II) hand tighten the pulley onto shaft and check for alignment using a straight edge,
- III) make any necessary adjustments and secure pulley, **re-check pulley alignment is OK then fit belts and tension them according to Figure 6. Tensioning values are given in Table 5.**



Caution:
In all cases the static and dynamic bearing load limits (found on blower data sheet) must not be exceeded. When using multi-belt drives, ensure that belts are matched.

Figure 5 - pulley alignment

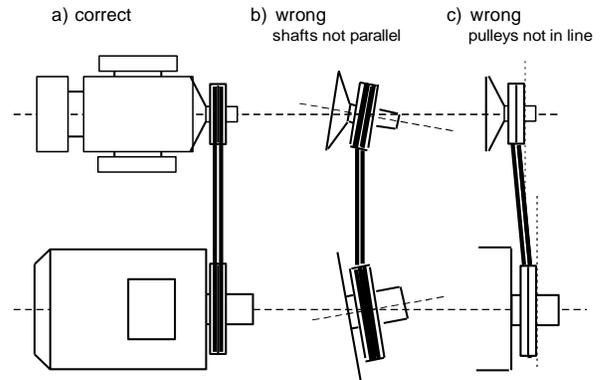
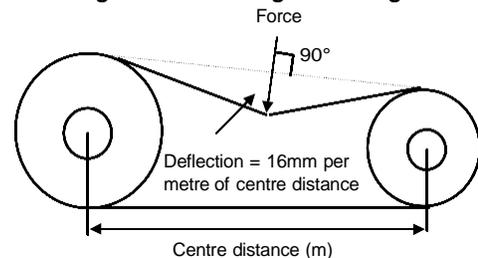


Figure 6 - Wedge belt tensioning – SR Range.



A force must be applied at right angles to the belt in the centre of the span. When correctly tensioned the belt should deflect by 16mm for each metre of span. **Note:** a belt tension indicator providing fast and accurate belt tension adjustment, is available through most belt suppliers.



Caution:
Over tightening the belts can cause bearing failure.

Table 5 - A guide for wedge belt tensioning

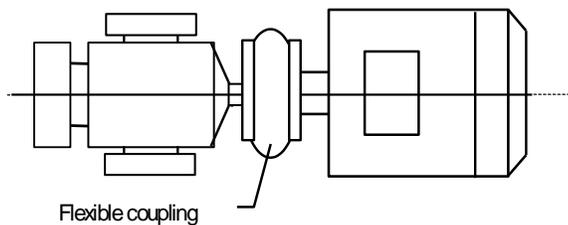
Belt Section	Force required to deflect belt 16mm (per metre of span)		
	Small Pulley Diameter(mm)	Newton (N)	Kilogram force (kgf)
SPZ	67 to 95	10 to 15	1.0 to 1.5
	100 to 140	15 to 20	1.5 to 2.0
SPA	100 to 132	20 to 27	2.0 to 2.7
	140 to 200	28 to 35	2.8 to 3.5
SPB	160 to 224	35 to 50	3.5 to 5.1
	236 to 315	50 to 65	5.1 to 6.6
SPC	224 to 355	60 to 90	6.1 to 9.2
	375 to 560	90 to 120	9.2 to 12.2

DIRECT DRIVE

For direct drive a flexible coupling must be used (see **Figure 7**). When fitting a coupling follow the manufacturer's instructions for alignment.

IMPORTANT: accurate alignment is essential to prolong life of coupling and to avoid premature seizure of blower/motor bearings.

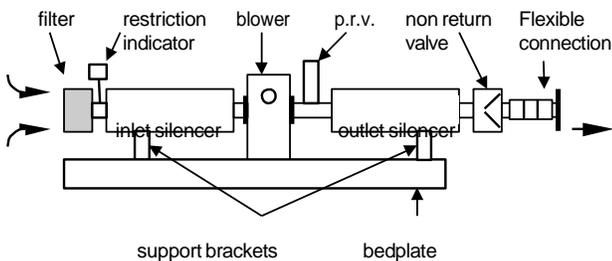
Figure 7 - Direct drive using a flexible coupling



2.5 Connecting pipe-work to the blower

Figure 8 and Figure 9 show the general layout for connecting pipe-work to a blower for a typical blowing and exhauster application.

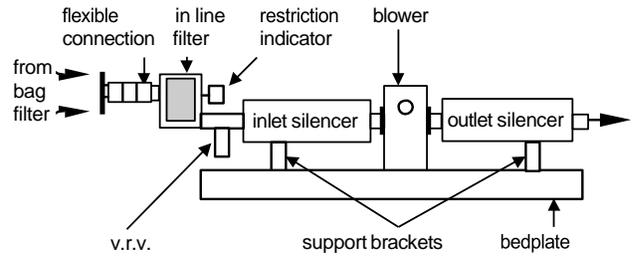
Figure 8 - pipe-work layout for a typical blower



A flexible connection **must** be used to isolate the blower and frame from

system the

Figure 9 - pipe-work layout for typical exhauster



GENERAL

It is essential that any pipe-work connected to the blower is thoroughly cleaned from any residual scale, dirt, etc. before fitting. Unless the blower is to be connected to the pipe-work immediately, seal off the ends of the pipe-work. When fitting pipe-work to a blower, take care to ensure that:

- I) The sealing medium is removed completely from the blower ports.
- II) Blower flange mounting bolts are not too long.
- III) No strain is transferred to the blower case,
- IV) Ensure that adequate support is given to any pipe-work attached directly to the blower.
- V) Pipe-work support brackets should not be evenly spaced in order to ensure that any resonant frequencies are not amplified.
- VI) The pipe-work diameters should not be less than the nominal inside diameters of the blower flanges.
- VII) The recommended flow speed in the pipe-work should not exceed 22 m/sec.
- VIII) Where possible you should consider the use of large radius bends in order to reduce pressure loss.
- IX) When pipe-work has to pass through openings in walls, it must be sealed using a flexible sealant and not cemented as this will transmit noise.
- X) After fitting, rotate blower by hand to check that clearances have been maintained.



Caution:
Failure to comply with the above may lead to excessive wear/premature seizure.

SILENCERS

When fitting silencers, advice should be taken on the most suitable unit for the application. Suitable brackets must also be used to prevent any stress on the blower. **Note: With an exhauster, an outlet silencer must be included and in some cases a secondary silencer will also be required.**

INLET AIR FILTER / RESTRICTION INDICATOR

It is essential that a suitable air filter is fitted as close to the blower inlet as possible. If a silencer is being used, then the filter can be fitted at its inlet. **Note: The element must remain accessible for removal and periodic cleaning/replacement.**

A suitable restriction indicator must also be fitted between the inlet filter and blower to warn of a clogged filter. Max. filter restriction is to be no greater than 380mm (15") H₂O.

NON RETURN VALVE / FLEXIBLE CONNECTION

If the machine is on a pressure (blower) duty, A non return valve **must** be fitted after the silencer and before the system line, to protect against any ingress of product back into the blower. Ensure that the valve is fitted in the correct way according to manufacturer's instructions,

and that the direction of flow is correct, see Figure 8 system pipe-work, see Figure 8. If the connection is of the silicon rubber hose type, it is essential that there is a gap

between the ends of the two steel pipes (See section 8 below).

PRESSURE/VACUUM RELIEF VALVE

A relief valve **must** be fitted downstream of the blower or upstream of an exhauster. The positioning should be kept as close to the blower port as possible and must always be before any NRV or isolating valve. **Note: The relief valve must only be used to cater for a sudden pressure rise.**

They are **not** to be used as part of a pressure control system. It is recommended that a pressure/vacuum switch be used for system control, if required.



Caution:

Failure to fit a pressure/vacuum relief valve will invalidate the warranty.

FURTHER INFORMATION

11. Health and safety

- I) Always isolate & lock off the electrical supply prior to working on blower,
- II) Do not run blower with belt guard removed. Please note that some blower sets, when enclosed in an acoustic enclosure, may not be fitted with a separate internal belt guard, in which case a warning label will be attached to the enclosure door.
- III) Ensure that there is no pressure in the system prior to working on it,
- IV) Do not reach inside the blower. If blower ports are exposed, cover them at once to prevent dirt ingress and personal injury,
- V) Ensure blower casing and associated pipe-work and ancillary equipment has cooled down prior to touching it,
- VI) Be aware that when the blower is running, the pressure/vacuum relief valve may operate. If so, then air vented through the valve may be extremely hot and could cause dust to be agitated under some conditions,
- VII) Read the Installation and Operating Instructions carefully,
- VIII) Blowers can exceed safe noise levels. Do not work in an area of excessive noise without ear defenders,
- IX) Observe lifting points and apply care when handling the equipment,
- X) Do not use blowers on explosive or hazardous gases,
- XI) Other potential hazards to safety and health may also be associated with the operation of this equipment. All personnel working in or passing through the area should be adequately warned by signs and trained to exercise appropriate safety precautions.

12. Commissioning

Before commissioning:-

- I) Refer to section 11 - Health and safety,
- II) Carry out the Pre-start-up checks given in section 10,
- III) Start up against no load and run until satisfied that the unit runs correctly,
- IV) Allow pressure to build up to operational level,
- V) Apply the air load to working duty.

For blowing applications check relief valve by shutting off air supply downstream of blower. For exhauster applications restrict the airflow at the machine inlet..

WARNING. Full airflow must be restored as quickly as possible (maximum 30 secs) in order to avoid overheating

13. Routine maintenance



WARNING:
Before carrying out routine maintenance refer to section 11 on Health and Safety.

13.1 Lubrication

Oil

The oil level must be checked every week (see section 2.3 for procedure) and always prior to starting up, following long periods of inactivity.

Grease (SR range only)

Drive end bearings should be greased sparingly after every 1000 hours of operation (see section 2.3). However, it should be noted that **excessive grease will cause overheating**. The escape vent **must not** be allowed to become blocked by solidified grease.

The periods given for oil and grease replenishment are for medium duty operation in a moderate ambient temperature and with good ventilation. More frequent replenishment and renewal will be necessary under more arduous conditions.

Oil life will be considerably shortened if the machine operates at high temperature. For every 10 °C above 100 °C, the oil life span is halved.

Renewing the oil and grease

It is recommended that the oil and grease be changed completely after each year of continuous running. To do this, the gear cover should be drained, flushed out and re-filled with oil. Both end caps and roller bearings should be cleaned out and re-packed one third full with grease.

13.2 Inlet filter/restriction indicator

The inlet filter should be removed and inspected regularly (every week) to see that it is not dirty or clogged. If it is clogged, the restriction indicator (fitted to the inlet silencer) will be showing a red disk. In this event a new filter should be fitted and the indicator re-set.

If cleaning is required, an airline can be used to reverse blow the medium. If a replacement filter is required, contact Hadron Engineering.



Caution:
A filter used in a clogged state will place an additional load on the blower causing it to overheat and if left for an indefinite period, may well cause a complete seizure.

13.3 Drive

New belts must be re-tensioned and re-aligned after the 1st, few hours in service. Wedge-belts, must be regularly examined for deterioration and checked for correct tensioning in accordance with table 5. Direct drive couplings, should be checked periodically for wear on the rubber components and for tightness of flanges and bolts.

13.4 General

Routine inspection should be carried out periodically to check the general integrity of the system's pipe-work and ancillary equipment.

14. Storage

This section is concerned with the long-term storage of blower bedsets. This applies to both new units that have undergone a standard production test or used units.

14.1 Preparation for storage

Oil lubrication

The unit should be filled to the correct operating level with the appropriate oil (See section 2 & 3) and operated to distribute the oil round the gearbox.

Grease lubrication

The bearing cavities should be filled completely with the correct grade of grease (See table 4).

Oils seals

No action is necessary if the storage period is to be under 4 years. For longer periods, they will need to be replaced before the machine is put back into service.

Both the blower and motor shafts should be rotated by hand at 3 to 6 monthly intervals coming to rest in a different position each time. A reference mark painted on the shaft will assist in achieving this objective.

V-belts

The belt tension must be completely relaxed or removed completely.

Packing

The complete unit should be wrapped in polythene. Silica gel should be used to ensure that there is no excessive moisture. Packing should be done in conjunction with a professional packer.

14.2 Storage requirements

The package should be stored indoors, within a temperature range not less than 5 °C and not more than 35 °C. Any variation in temperature should be kept to an absolute minimum to avoid condensation. It must be stored on a solid floor at ground level, such that there is no vibration transmitted from any neighbouring machinery etc. If there is any possibility of vibration, then the complete package must be mounted on AV mounts.

14.3 Preparation for running after storage

- I) Remove from packing and check over generally to ensure that there is no marked deterioration due to corrosion etc.

Please note: Items II), III), IV) & V) apply to the SR range only.

- II) Remove the belt guard, blower pulley and roller bearing endcaps. Scrape out as much of the old grease as possible,
- III) Turn the blower by hand to free the oil seals and to re-distribute the oil seal shaft lubricant,
- IV) Continue to remove as much roller bearing grease as possible,
- V) Re-charge the roller bearings with your standard grease, see section 2.3. Make sure that the bearings are not overfilled. This means - push grease into the open side of the bearing until it is completely full; Charge the space in each bearing cap to no more than 1/3rd full.
- VI) Drain the oil and refill the gear chamber to the correct level as shown in section 2.3, Rotate the blower by hand in order to distribute the oil around the bearings and gears before running.
- VII) Strip the motor to expose the bearings,
- VIII) If the storage time has been about 2 years, examine the motor bearings and grease to ensure that both are in a satisfactory condition and free from deterioration,
- IX) If the storage time has been about 4 years or more, then remove the motor bearings and wash them out completely. Remove all traces of the old grease and examine the bearings. If there are any signs of deterioration, replace them. Otherwise, recharge the bearings with motor manufacturers recommended make & grade of grease,
- X) Check that the insulation resistance of the motor windings to earth exceeds 1 Megohm. If this is not the case, then the rotor and stator must be both dried out until a resistance of 1 Megohm is achieved,
- XI) Ensure that all motor ventilation slots are clear,
- XII) Reassemble the motor. The manufacturer's instructions must be followed in detail during any work on the motor,
- XIII) Inspect the drive belts and replace if there is any sign of deterioration. Tension in accordance with section 2.4,
- XIV) Complete the full installation, and proceed in accordance with sections 2 to 10.

15. Troubleshooting Checklist

TROUBLE	ITEM	POSSIBLE CAUSE	REMEDY
No airflow	1	Speed too low	Check by tachometer and compare with speed shown on Order Acknowledgement
	2	Wrong rotation	Compare actual rotation. Change driver if wrong, see section 2.1
	3	Obstruction in piping	Check piping, valves, silencers, to assure an open flow path
Low capacity	4	Speed too low	See item 1. If belt drive, check for slippage and readjust tension. If inverter driven, ensure that the inverter is adjusted to give the correct speed.
	5	Excessive pressure	Check inlet vacuum and discharge pressure. Compare these figures with specified operating conditions on Order
	6	Obstruction in piping	See item 3
	7	Excessive slip	Check inside of casing for worn or eroded surfaces causing excessive clearances
	8	Dirty inlet filter	Clean or replace filter element
Excessive absorbed power	9	Speed too high	Check speed and compare with Order Acknowledgement
	10	Pressure too high	See item 5
	11	Impellers rubbing	Inspect outside of cylinder and head plates for high temperature areas; then check for impeller contacts at these points. Correct blower mounting, drive alignment
	12	Dirty inlet filter	Clean or replace filter element
Overheating of bearings and gears	13	Inadequate lubrication	Restore correct oil levels in gearbox and lubricate drive end bearings, see section 2.3
	14	Excessive lubrication	Check gear oil level. If correct, drain and refill with clean oil of recommended grade. Check bearing caps for excess grease. Remove bearing caps and reduce to $\frac{1}{3}$ full only, see section 2.3
	15	Excessive pressure rise	See item 5
	16	Coupling misalignment	Check carefully. Realign if questionable, see section 2.4
	17	Excessive belt tension	Readjust for correct tension, see section 2.4
	18	Speed too low	Speeds lower than the minimum recommended will overheat the entire blower
	19	Dirty inlet filter	Clean or replace filter element
Blower runs hot	20		Please refer to points 1 to 8, 11 & 12 above.
Vibration	21	Misalignment	See item 16
	22	Impellers rubbing	See item 11
	23	Worn bearings/gears	Check gear backlash and condition of bearings
	24	Unbalanced or rubbing impellers	Scale or process material may build up on the casing and impellers, or inside impellers. Remove build-up to restore original clearances and impeller balance
	25	Driver or blower loose	Tighten mounting bolts securely
	26	Piping resonances	Determine whether standing wave pressure pulsations are present in the piping.

16. Warranty

16.1 Claim conditions

Warranty. All Company products are guaranteed against faulty materials and workmanship for a period of 1 year from the date of first application of driving power or 18 months after delivery, whichever is earlier, unless otherwise agreed by us in writing. Bought in items included in any contract will be limited to our supplier's terms of warranty. Regardless of the commencement date of the warranty period, you will not be entitled to the benefits of any warranty until title for the goods has passed to you. Claims must be notified in writing as soon as a fault is observed and carriage of the alleged faulty item to and from our premises will be at your cost and risk. We reserve the right to repair or replace the item as we see fit. Your statutory rights are not affected by these terms.

16.2 Claim form

These will be sent from the office details below;-

PLEASE NOTE: The Company is not liable for any claim where:-

- I) Damages or delay or any other consequential costs associated with the alleged defect, are incurred,
- II) Malfunction caused by fair wear and tear, abnormal conditions of use, accident, neglect or misuse of equipment, or improper storage,
- III) Deviation from operating specifications or other special terms of sale,
- IV) Improper operation, maintenance or repair,
- V) Damage resulting during shipment or installation by other than Company authorised personnel,
- VI) Freight charges for goods returned to the Company's premises,

No allowances will be made for repairs or alterations carried out without the Company's written consent or approval.

EU DECLARATION OF INCORPORATION



We, Transairvac International Ltd, located at Unit 28 Croft Road Industrial Estate, Croft Road, Newcastle, Staffordshire, ST5 0TW, United Kingdom declare:

- In exclusive responsibility that the **VR113,142,160 & 170** meets the essential health and safety requirements of the directive(s) detailed below.
- This partly completed machinery must not be out into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this directive, where appropriate.
- The relevant technical documentation is compiled in accordance with Annex VII part B and, where appropriate, a sentence declaring the conformity of the partly completed machinery with other relevant Directives.
- We undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery.

Directive	Requirements and / or Standards applied
Machinery Directive 2006/42/EC	EN 60204-1: 2018
Pressure Equipment Directive 2014/68/EU	Group II Gases, Article 4, Para 3 Category SEP,

Product type	Oil free contactless air Blower (bi lobe roots type)
Part number	VR113,142,160 & 170
Manufacturer's representative	Transairvac International Limited
Flow	700 to 2800 m3/hr of air
Pressure	1.2barg for 113,1 barg for 142&160 , 0.7 barg for 170 , -0.5 barg vacuum for all
Temperature	max working ambient 40°C
Drive method	Various , direct propshaft , diesel engine and hydraulic drive
Speed range	1500 to 3000 rpm
Application	Pneumatic conveying for bulk road transport with rotary valve
Marketplace	Transportation of bulk material

TCF reference no: TCF2023/AAC

Name: Mitchell Hill, BEng

Date: 30th September 2024

Title: Technical Director

Signature: *M. Hill*

UK DECLARATION OF INCORPORATION



We, Transairvac International Ltd, located at Unit 28 Croft Road Industrial Estate, Croft Road, Newcastle, Staffordshire, ST5 0TW, United Kingdom declare:

- In exclusive responsibility that the **VR113,142,160 & 170** meets the essential health and safety requirements of the directive(s) detailed below.
- This partly completed machinery must not be out into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this directive, where appropriate.
- The relevant technical documentation is compiled in accordance with and, where appropriate, a sentence declaring the conformity of the partly completed machinery with other relevant Directives.
- We undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery.

Directive	Requirements and / or Standards applied
Supply of Machinery (Safety) Regulations 2008	BS EN 60204-1: 2018
Pressure Equipment (Safety) Regulations S.I. 2016:1105	Sound Engineering Principles Cat 1, Module

Product type	Oil free contactless air Blower (bi lobe roots type)
Part number	VR113,142,160 & 170
Manufacturer's representative	Transairvac International Limited
Flow	700 to 2800 m3/hr of air
Pressure	1.2barg for 113,1 barg for 142&160 , 0.7 barg for 170 , -0.5 barg vacuum for all
Temperature	max working ambient 40°C
Drive method	Various , direct propshaft , diesel engine and hydraulic drive
Speed range	1500 to 3000 rpm
Application	Pneumatic conveying for bulk road transport with rotary valve
Marketplace	Transportation of bulk material

TCF reference no: TCF2023/AAC

Name: Mitchell Hill, BEng

Date: 30th September 2024

Title: Technical Director

Signature: *M. Hill*