

## Vacuum Pump Fault

A vacuum pump was found to have a faulty relay causing potential for a fire.

### BACKGROUND

An Edwards RV5 pump stopped working. It was noticed that there was burn damage on the casing (see picture). No smoke alarms were triggered in the lab as the unit was located underneath a fume cupboard which probably sucked up the smoke, bypassing the detectors. When the casing was opened up it was obvious that the main damage was on the starter relay.

The distributor indicated that there had been an issue with pumps dating from 2002 and earlier with faulty starter relays.



### WHAT WAS DONE WELL

- The area contacted the Edwards distributor (AVT), to get their expert opinion.
- It was found that Edwards had issued an alert regarding faulty starter relays.
- The local area has had all pumps older than 2002 taken to their workshop to be checked to see if there is a problem.
- A second pump was found to have signs of burning around the starter relay; the serial number indicated it is one with known faulty parts. It was purchased around the same time as the other faulty pump (mid-1990's). However, there was no record of the purchase of these pumps.
- Steps have been taken to replace the faulty starter relays.

### ACTION FOR LOCAL AREAS TO TAKE

- Carefully read the Edwards alert (BELOW) regarding RV3, RV5, RV8, RV12 pumps with potentially faulty starter relays. This relates to single-phase motors on pumps manufactured prior to 1998.
- Complete a visual inspection of Edwards pumps and, where necessary, replace the RV motor relay.
- If a replacement is needed contact the supplier with photo of the pump name plate and of the relays, showing the part numbers.

**Further information:**

Contact your Faculty Health and Safety Coordinator  
[www.safety.unsw.edu.au](http://www.safety.unsw.edu.au)

Corresponding author for this alert:  
[l.islip@unsw.edu.au](mailto:l.islip@unsw.edu.au)



## RV Series Rotary Vane Pumps Motor Relay Upgrade



Important information. Please read carefully. If you require assistance please refer to the back page of this leaflet.

Informations importantes. Lisez-les attentivement. Si vous avez besoin d'aide, consultez le verso de cette brochure.

Informazioni importanti. Si prega di leggere attentamente. Per richiedere assistenza, fare riferimento all'ultima di copertina di questo opuscolo.

Wichtige Informationen. Bitte sorgfältig durchlesen. Falls Sie Unterstützung benötigen, schauen Sie bitte auf die Rückseite dieses Heftes.

Información importante. Lea este texto con atención. Si necesita ayuda, consulte la página posterior de este folleto.

중요 정보. 주의 깊게 읽으십시오. 도움이 필요하면 이 광고지 뒷면을참조하십시오.

重要情報よく読んでください。サポートが必要な場合には、このリーフレットの最終ページを参照してください。

重要信息。请仔细阅读。若需帮助请参阅本册子的反面。

重要資訊。請仔細閱讀。如果您需要協助，請參考本單背面。

### RV Series Rotary Vane Pump Motor Relay Upgrade

Edwards has become aware that a small number of RV pump motor start relays have failed in service causing damage to the pump. This notice applies to all models in the range; RV3, RV5, RV8 and RV12. The potential failure is limited to single-phase motors on pumps that were manufactured before 1998.

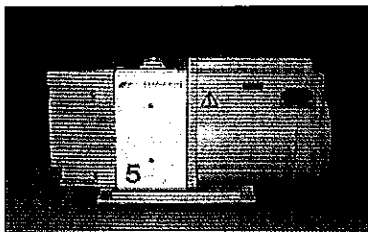
If you have one of these pumps a relay upgrade may be required. It is important that you carry out the simple checks described overleaf and replace the relay if this is found to be necessary. This is a simple visual check that can be made after using a standard 3mm hexagonal key to open the motor terminal box. If required, a replacement RV motor relay is available free of charge from Edwards.

To establish whether you need to upgrade any relays please take a few moments to answer the following questions for every RV pump under your responsibility.



## 1. Does the RV pump have a single-phase motor? (Yes/No)

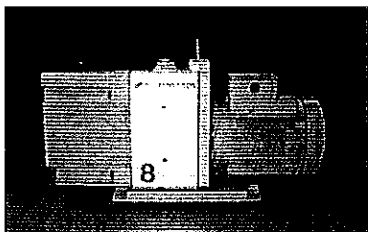
Fig 1 - Single Phase Motor



The single-phase motor is identified by the large, plastic terminal box and the 3-pin IEC mains cable connector (Fig 1). The three phase motor is identified by the small, metal terminal box (Fig 2).

If in doubt consult a qualified electrician or look at the motor rating label. Single-phase motors are marked 1PH.

Fig 2 - Three Phase Motor



If your pump has a three phase motor it does not have a start relay, and the answer is "No". No further action is required and you can disregard the remainder of this notice.

If your pump has a single phase motor the answer is "Yes", please continue reading.

## 2. Was your RV pump manufactured before 1998? (Yes/No)

Fig 3 - CE Mark

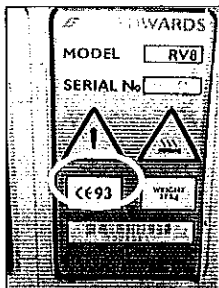
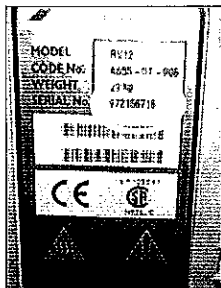


Fig 4 - Serial No.



The year of manufacture can be found in one of two places:

- 1) The number next to the CE mark (ringed in Fig 3)
- 2) The first two digits of the 9-digit product serial number (ringed in Fig 4).

Both of these are displayed on the product label on the pump oil box.

If your pump was manufactured in 1998 or later the answer is "No". There is no risk of failure of the start relay. No further action is required and you can disregard the remainder of this notice.

If your pump was manufactured in 1997 or earlier the answer is "Yes". You now need to check the serial number of the start relay inside the terminal box.

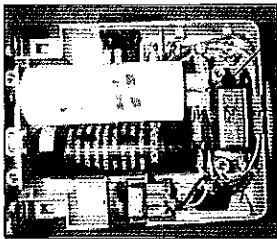
## Check the serial number of the motor start relay

If you answered "Yes" to both questions 1 & 2 you need to check the serial number of the start relay. To view the relay a standard 3mm hexagonal key will be needed to remove the motor terminal box cover.



**Ensure that the electrical supply is disconnected before removing the motor cover.**

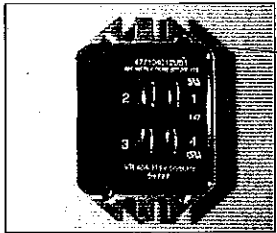
Fig 5 - Inside Terminal Box



Relay in terminal box

Unscrew the four hexagonal head screws on top of the motor terminal box. Remove the cover. The relay is found to the side of the capacitor as shown in Fig 5. The serial number can be read without removing the relay. If however the view is obscured, lift the relay upward to release it from the mounting. Do not disconnect any wires.

Fig 6 - Relay Serial Number



Relay serial number

If the relay has a serial number starting 4771 and ending UB1 (4771xxxxxUB1 where x is any number) there is no risk of failure of the relay on your pump.

Replace relay (if removed) and the lid. Fasten the four screws. No further action is required. Thank you for your time.



**If the relay has any other serial number, or the serial number cannot be clearly read, a new relay should be fitted to remove the risk of failure. You are strongly advised not to operate the pump until a replacement relay has been fitted.**

Edwards will be pleased to supply you, free of charge, with a relay upgrade kit Part Number A505 74 000. This part is simple to fit and is supplied with full instructions. To request this relay upgrade kit please ask any of your usual Edwards contacts or use any of the contacts listed overleaf.

If you are in any doubt about carrying out this procedure please consult a qualified electrician or contact Edwards for assistance.