

Instructions

RV Pump Motor Kits

Description	Item Number
RV3/5 Pump Motor Kit, 200-240 and 380-460 V 50/60 Hz, 3-phase	A652-97-000
RV8/12 Pump Motor Kit, 200-240 and 380-460 V 50/60 Hz, 3-phase	A654-97-000
RV3/5 Pump Motor Kit, 100-105 and 200-210 V 50/60 Hz, 1-phase	A652-98-000
RV8/12 Pump Motor Kit, 100-105 and 200-210 V 50/60 Hz, 1-phase	A654-98-000
RV3/5 Pump Motor Kit, 110-120 and 200-240 V 50/60 Hz, 1-phase	A652-99-000
RV8/12 Pump Motor Kit, 110-120 and 200-240 V 50/60 Hz, 1-phase	A654-99-000



Important safety Information

- Vacuum pumps are potentially dangerous if incorrectly used, repaired or maintained, so please approach the repair or maintenance with caution.
- Any incorrectly fitted spare parts could damage your pump and could be potentially dangerous.
- Never allow unqualified personnel to attempt to remove or replace any part of the pump.
- If you have any doubts about the servicing procedures or the products capabilities please contact Edwards.
- Before returning any equipment to Edwards for repair please follow the Edwards HS1 procedure and complete an HS2 declaration form to warn of any substances used or produced in the equipment that can be dangerous. The procedure and forms are included with the pump instruction manuals and can be downloaded together with Edwards local contact details from www.edwardsvacuum.com
- Always conform to service schedules unless adverse conditions necessitate more frequent servicing.
- Report any defect before an accident or consequential damage can occur.
- Observe local and country specific regulations, norms and guidelines.
- Never allow anyone to remove large or heavy components without adequate lifting equipment.
- Before maintenance work is begun, ensure the pump is switched off and isolated from the mains.
- The pump may have been exposed to processes which use hazardous substances or produces by-products which are dangerous to human health and safety, for example, chemically active, biologically active or radioactive substances.
- Before working on a pump, ensure that the correct personal protective equipment is available and being used. Always wear safety goggles. Wear a breather mask with positive air pressure and take other precautions if you believe the pump may be contaminated with hazardous substances and dusts.
- When applying sealants and lubricants, prevent contact with the skin by wearing suitable gloves.
- Seals may contain fluoroelastomer, which when properly handled is not dangerous but which may produce a toxic and corrosive residue (hydrogen fluoride or hydrofluoric acid) in the event of excessive heat or fire depending on the circumstances of degradation and other materials involved.
- On completion of maintenance, check the pump functions correctly and that all guards and protection devices are fitted and working correctly and that the pump is electrically safe.
- If the pump is used for handling hazardous substances check the pump for leak-tightness before use.
- Dispose of waste oil and any process by-products in accordance with local and national safety and environmental requirements. It is usually illegal to dispose of waste oil into drains or water courses, or to bury it.

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Associated publications

Publication title	Publication number
RV3, RV5, RV8 and RV12 Rotary Vane Pumps	A652-01-880

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1 Introduction

1.1 Scope and definitions

This manual provides installation instructions for the RV Pump Motor Kits (abbreviated to Motor Kits in the remainder of this manual) for the Edwards RV Rotary Vane Pumps. You must use the Motor Kits as specified in this manual.

Read this manual before you use the Motor Kit. Important safety information is highlighted as WARNING and CAUTION instructions; you must obey these instructions. The use of WARNINGS and CAUTIONS is described below.



WARNING

Warnings are given where failure to observe the instruction could result in injury or death to people.

CAUTION

Cautions are given where failure to observe the instruction could result in damage to the equipment, associated equipment and process.

1.2 Description

Use a Motor Kit to replace the pump motor in an RV rotary pump. Different kits are available for 1- and 3-phase motors.

1.3 Safety



WARNING

Do not touch or inhale the thermal breakdown products of fluorinated materials which may be present if the RV pump has been heated to 210 °C and above. These breakdown products are very dangerous. Some of the seals in the pump are made from fluorinated materials.

The dynamic seals and O-rings used in the RV pump are made from fluorinated materials. Fluorinated materials are safe in normal use but can decompose into very dangerous materials (which may include hydrofluoric acid) if they are heated to 210 °C and above.

The pump may have overheated if it was misused or if it was in a fire. If the pump has overheated, take extreme care to avoid skin contact with any part of the pump and to avoid inhalation of vapours from the pump. Material Safety Data Sheets for the fluorinated materials used in the RV pump are available on request: contact your supplier or Edwards.

2 Unpack and Inspect

Remove all the packing materials and protective covers and check the Motor Kit.

If the Motor Kit is damaged, notify your supplier and the carrier in writing within three days; state the Item Number of the Motor Kit together with your order number and the supplier’s invoice number. Retain the packing materials for inspection. Do not use the Motor Kit if it is damaged.

Check that you have received the items listed in Table 1 or 2 as appropriate. If any item is missing, notify your supplier within three days.

If the Motor Kit is not to be used immediately, replace the protective covers and repack the Motor Kit in the packing materials. Store the Motor Kit in cool, dry conditions until it is required for use.

Table 1 - Checklist of kit components: 1-phase motors

Quantity	Description	Check (✓)
1	Pump motor	<input type="checkbox"/>
1	Ducting sheet	<input type="checkbox"/>
1	Coupling element	<input type="checkbox"/>

Table 2 - Checklist of kit components: 3-phase motors

Quantity	Description	Check (✓)
1	Pump motor	<input type="checkbox"/>
1	Key (fitted to motor shaft)	<input type="checkbox"/>
1	Ducting sheet	<input type="checkbox"/>
1	Coupling element	<input type="checkbox"/>

3 How to use the Motor Kit

Note: In the following procedures, refer to the RV pump Instruction Manual where necessary.

3.1 Remove the old motor from the pump

1. Switch off the RV pump, disconnect it from the electrical supply and allow the pump to cool to a safe temperature.
2. Refer to [Figure 1](#). If you have a 1-phase motor, undo the four screws (A) and remove the lid of the terminal-box (B).
3. Support the motor (C), while you undo and remove the four screws (421) which secure the motor to the pump, then remove the motor from the pump.
4. Loosen the screw (423) which secures the cooling fan (410).
5. Remove the fan ([Figure 1](#), 410, [Figure 2](#), 452) from the motor shaft.
6. Remove the coupling element (312) from the coupling hub (308).
7. Remove and dispose of the ducting sheet (409).
8. On RV3 and RV5 pumps, remove the handle (405). On RV8 and RV12 pumps with a 1-phase motor:
 - Remove the lifting plate cover (414).
 - Undo the two screws (422) and remove the lifting plate (413).
9. If you have a 3-phase motor, undo and remove the four screws (455) and remove the motor support (453) from the motor.

3.2 Fit the new motor to the pump

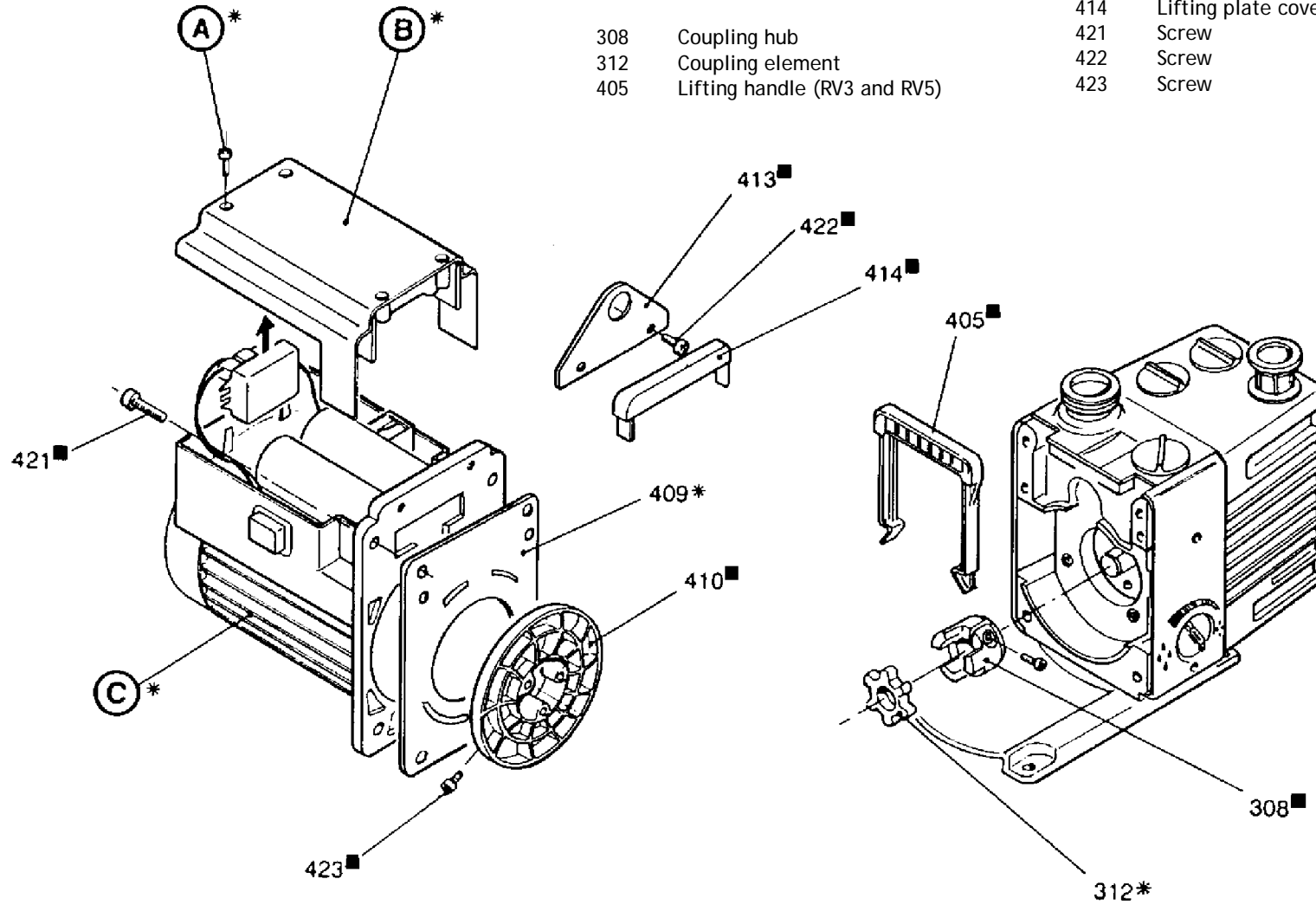
1. Refer to [Figure 1](#) or [2](#). If you have a 3-phase pump motor, use the four screws (455) to fit the motor support (453) to the new pump motor.
2. On RV3 and RV5 pumps, refit the handle (405). On RV8 and RV12 pumps with a 1-phase motor, use the two screws (422) to refit the lifting plate (413), then refit the lifting plate cover (414).
3. Fit the new ducting sheet (409) supplied with the Motor Kit.
4. If you have a 3-phase motor: Refer to [Figure 2](#). Ensure that the key (B) is in place on the motor shaft, then push the fan (452) onto the motor shaft. Ensure that the end of the motor shaft aligns with the bottom of the cavity in the fan (452) and that the back of the fan is 2.5 mm from the ducting sheet (409). Secure the fan to the shaft with the screw (423). Tighten the screw to a torque between 7 and 9 Nm.
5. If you have a 1-phase motor: Fit the fan ([Figure 1](#), 410) onto the shoulder of the motor shaft and secure with the screw (423). Tighten the screw to a torque between 10 and 12 Nm.
6. Use a suitable rubber lubricant to lubricate the coupling element (312), then fit the coupling element to the coupling hub (308).
7. Align the coupling element (312) on the fan with the coupling hub (308), then fit the new motor to the pump. The gap between the coupling on the fan (410 or 452) and the coupling hub (308) must be 2 mm or less; adjust the position of the coupling hub (308) on the pump shaft to adjust the gap.
8. Secure the motor with the four screws (421). Tighten the screws to a torque between 10 and 12 Nm.
9. If you have a 1-phase motor, refit the motor terminal-box cover ([Figure 1](#), B). Ensure that you do not trap any of the wires in the terminal-box.

How to use the Motor Kit

Figure 1 - Remove/fit a 1-phase pump motor

- * Supplied as part of the Motor Kit
- Shown for reference only

A	Screw	409	Ducting sheet
B	Motor terminal-box cover	410	Fan
C	Pump motor	413	Lifting plate (RV8 and RV12)
		414	Lifting plate cover (RV8 and RV12)
		421	Screw
308	Coupling hub	422	Screw
312	Coupling element	423	Screw
405	Lifting handle (RV3 and RV5)		



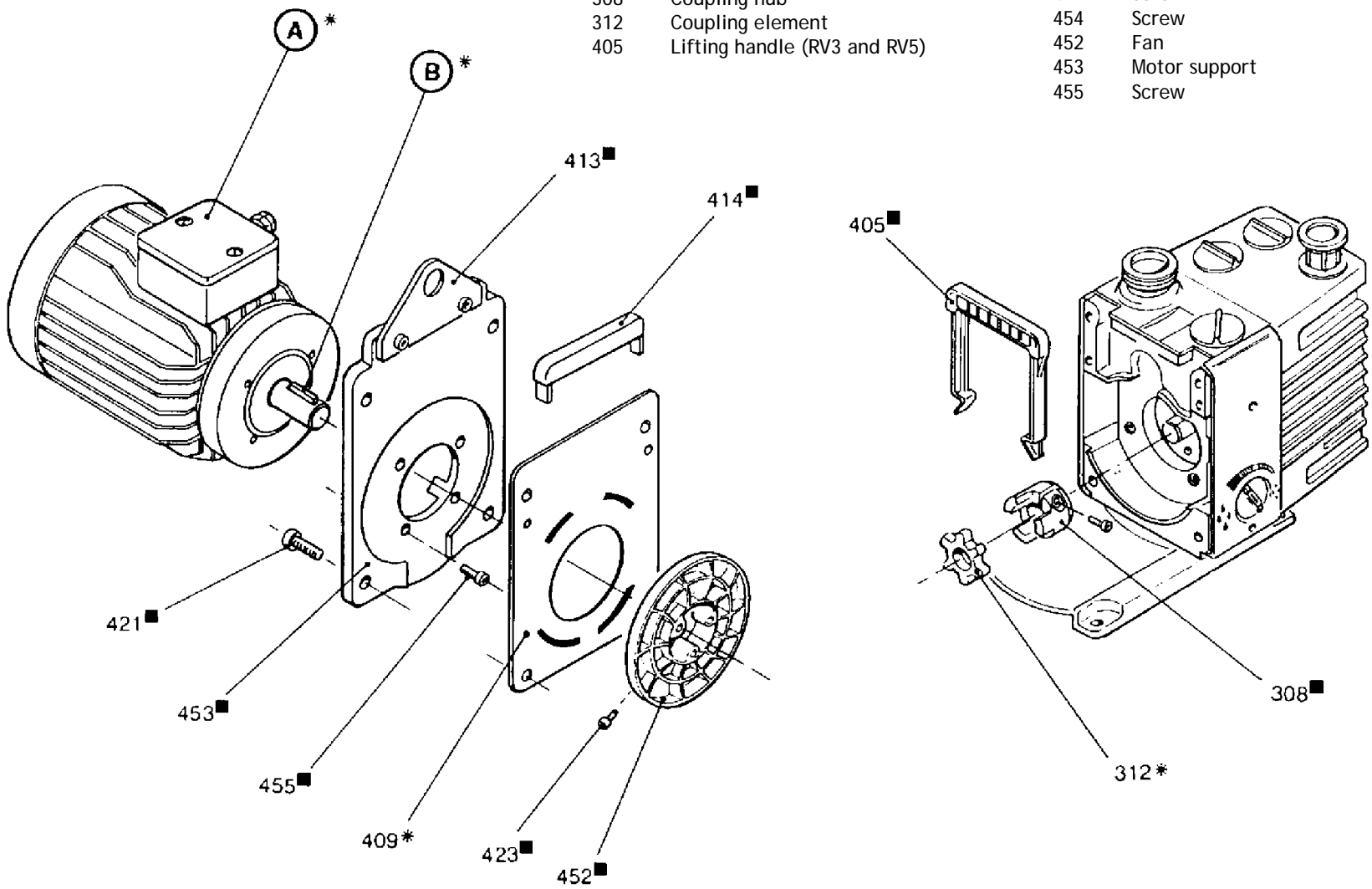
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Figure 2 - Remove/fit a 3-phase pump motor

- * Supplied as part of the Motor Kit
- Shown for reference only

- A Pump motor
- B Key (in shaft)
- 308 Coupling hub
- 312 Coupling element
- 405 Lifting handle (RV3 and RV5)

- 409 Ducting sheet
- 413 Lifting plate (RV8 and RV12)
- 414 Lifting plate cover (RV8 and RV12)
- 421 Screw
- 454 Screw
- 452 Fan
- 453 Motor support
- 455 Screw



3.3 Electrical installation

On pumps with 1-phase motors, check and configure the motor, connect the pump to your electrical supply and check the direction of rotation of the pump as described in the 'Electrical installation: single-phase pumps' section of the RV pump instruction manual.

On pumps with 3-phase motors, use the following procedure:

1. Remove the motor terminal-box cover from the old motor, then disconnect the wires in the electrical supply cable from the terminal connections.
2. Loosen the strain relief screws on the cable gland and remove the electrical supply cable from the old pump motor.
3. Refer to the 'Electrical installation: three-phase pumps' section of the RV pump instruction manual (A652-01-880 Issue F or later) and do the following:
 - Configure the new pump motor for your electrical supply.
 - Connect the electrical supply cable to the new motor.
 - Check the direction of rotation of the pump.