Service Manual

DOC. NO. 438 9038-25/US EDITION 2011.06.09

Tumble dryer

TD83

Wascomat provides efficient washers, dryers, flatwork ironers and wetcleaning systems in a size and model for every laundry and wetcleaning need!

WASCOMAT CUSTOMER SUPPORT

Whether you need spare parts or technical advice to guide you to the source of a malfunction, our nationwide network of authorized dealers are able and ready to serve your needs, or call the Wascomat Customer Service Hotlines listed below.

SPARE PARTS

516-371-2000

Before ordering parts, refer to the Wascomat spare parts manual (also available on www.wascomat.com) to determine the **part number(s)** for the item(s) you need.

For quick service, please have the following information available:

1. Part Number of the item(s) you need.
2. Model of the machine.
3. Serial number of the machine.
4. Electrical data for the machine:
   - 120 or 208-240 Volt?
   - Single or three phase?
   - 50 or 60 Cycle?

To insure parts order accuracy, only fax or email parts orders are accepted:

- **Fax: 516-371-4029**
- **email: parts@wascomat.com**

TECHNICAL SUPPORT

516-371-0700

For service information, first contact your local authorized Wascomat dealer.

Wascomat technical support can assist you or your technician to diagnose and repair your laundry machines over the phone. Please call from the location where the machines are installed (we suggest you use a cellular or cordless phone), and have the following information available:

1. Model of the machine.
2. Serial number of the machine.
3. Electrical data for the machine:
   - 120 or 208-240 Volt?
   - Single or three phase?
   - 50 or 60 Cycle?
4. An accurate description of the malfunction.

To expedite parts order shipment, please use your credit card.

We accept: American Express, Mastercard, Visa, Discover, Diner's Club.

WARRANTY CLAIMS

Wascomat's Technical Support staff will honor valid manufacturer's parts warranty claims providing your Wascomat machines are registered for warranty coverage upon installation. If they are not registered, you can validate your warranty claim by providing information about when and where you purchased the Wascomat machine(s), the model and serial number(s). Additional warranty proof may also be required.

461 Doughty Blvd., Inwood, N.Y. 11096-0338 | Sales and Administration – Tel: 516-371-4400 • Fax: 516-371-4204 • e-mail: sales@wascomat.com
Spare Parts – Tel: 516-371-2000 • Fax: 516-371-4029 • e-mail: parts@wascomat.com | Technical Support – Tel: 516-371-0700 • Fax: 516-371-4029
En Mexico: Llame gratis a este numero 001-800-010-1010

WARNING: ALL OPERATING AND MAINTENANCE PROCEDURES SHOWN ON THE NEXT PAGE OF THIS MANUAL MUST BE FOLLOWED DAILY FOR PROPER OPERATION OF YOUR MACHINE.

PLEASE ENTER THE FOLLOWING INFORMATION AS IT APPEARS ON THE MACHINE(S) DATA PLATE(S).

MACHINE TYPE OR MODEL	
MACHINE SERIAL NUMBER(S)	
ELECTRICAL CHARACTERISTICS:_____ VOLTS,_ _____ PHASE,_____ HZ.	

Warning: For your safety the information in this manual must be followed to minimize the risk of fire or explosion or to prevent property damage, personnel injury or death.

NOTICE TO: OWNERS, OPERATORS AND DEALERS

IMPROPER INSTALLATION AND INADEQUATE MAINTENANCE, POOR HOUSEKEEPING AND WILLFUL NEGLECT OR BYPASSING OF SAFETY DEVICES MAY RESULT IN SERIOUS ACCIDENTS OR INJURY. TO ASSURE THE SAFETY OF CUSTOMERS AND/OR OPERATORS OF YOUR MACHINE, THE FOLLOWING MAINTENANCE CHECKS MUST BE PERFORMED ON A DAILY BASIS.

FR NOTICE À L'ATTENTION DES PROPRIÉTAIRES, UTILISATEURS ET REVENDEURS DE MACHINES

UNE INSTALLATION INCORRECTE ET UN ENTRETIEN INADÉQUAT, DE MÊME QUE LA NÉGLIGENCE OU LA NEUTRALISATION DÉLIBÉRÉES DES DISPOSITIFS DE SÉCURITÉ, PEUVENT ÊTRE CAUSES DE BLESSURES OU D'ACCIDENTS SÉRIEUX. POUR ASSURER LA SÉCURITÉ DES CLIENTS ET/OU DES UTILISATEURS DE VOTRE MACHINE, IL EST INDISPENSABLE DE PROCÉDER CHAQUE JOUR AUX CONTRÔLES DE ROUTINE CI-APRÈS.

ES AVISO PARA LOS PROPIETARIOS, USUARIOS Y REVENDEDORES DE LAS MÁQUINAS

UNA MALA INSTALACIÓN Y UN MANTENIMIENTO POCO ADECUADO, ASÍ COMO UNA NEGLIGENCIA O NEUTRALIZACIÓN DELIBERADA DE LOS DISPOSITIVOS DE SEGURIDAD PUEDEN CAUSAR LESIONES U ACCIDENTES GRAVES. PARA GARANTIZAR LA SEGURIDAD DE LOS CLIENTES Y/O USUARIOS DE SU MÁ- QUINA, RESULTA INDISPENSABLE EFECTUAR A DIARIO LAS SIGUIENTES COMPROBACIONES RUTINARIAS

1. **Prior to operation of the machine**, check to make certain that all operating instructions and warning signs are affixed to the machine and legible. Missing or illegible ones must be replaced immediately. Be sure you have spare signs and labels available at all times. These can be obtained from your dealer.

2. **Check the door safety interlock, as follows:**

   a. OPEN THE DOOR of the machine and attempt to start in the normal manner:

      For coin-operated models, insert the proper coins to start the machine.

      For manually operated models, place the ON-OFF switch in the ON position and press the Start switch.

      THE MACHINE(S) MUST NOT START !

   b. CLOSE THE DOOR to start machine operation and, while it is operating, attempt to open the door without exerting extreme force on the door handle. The door should remain locked!

      If the machine can start with the door open, or can continue to operate with the door unlocked, the door interlock is no longer operating properly. The machine **must** be placed **out of order** and the interlock immediately replaced.

3. DO NOT UNDER ANY CIRCUMSTANCES ATTEMPT TO BYPASS OR REWIRE ANY OF THE MACHINE SAFETY DEVICES AS THIS CAN RESULT IN SERIOUS ACCIDENTS.

4. **Be sure to keep the machine(s) in proper working order:** Follow **all** maintenance and safety procedures. Further information regarding machine safety, service and parts can be obtained from your dealer.

   All requests for assistance must include the model, serial number and electrical characteristics as they appear on the machine identification plate. Insert this information in the space provided on the previous page of this manual.

5. **WARNING:** DO NOT OPERATE MACHINE(S) WITH SAFETY DEVICES BYPASSED, REWIRED OR INOPERATIVE! DO NOT OPEN MACHINE DOOR UNTIL DRUM HAS STOPPED ROTATING!

   FR **AVERTISSEMENT:** NE PAS FAIRE FONCTIONNER LA (LES) MACHINE(S) AVEC UN DISPOSITIF DE SÉCURITÉ NEUTRALISÉ, RECÂBLÉ OU NON OPÉRATIONNEL! NE PAS OUVRIR LA MACHINE TANT QUE LE TAMBOUR NE S'EST PAS IMMOBILISÉ!

   ES **ADVERTENCIA:** NO USAR NINGUNA MÁQUINA SI SE HA NEUTRALIZADO EL DISPOSITIVO DE SEGURIDAD, SE HAN CAMBIADO LOS CABLES O SI NO FUNCIONA CORRECTAMENTE. NO ABRIR LA MÁQUINA HASTA QUE EL TAMBOR SE HAYA DETENIDO POR COMPLETO.

NOTICE TO INSTALLER

Improper installation of this machine:

- May cause serious damage to the machine.
- May result in other property damage.
- May cause personal injury.
- Will void the manufacturer's warranty.

Improper fastening of this machine to its foundation, inferior foundation materials, an undersized foundation, the use of fabricated steel bases not provided by Wascomat or its approved supplier(s), the use of an improper type, number, or size of mounting bolts, or failure to use proper hardware on mounting bolts may result in damage to the machine that will not be covered by the manufacturer's warranty.

Use of a steel base beneath this machine DRAMATICALLY INCREASES the mechanical stress placed on the underlying concrete floor or foundation. This must be taken into consideration when employing a steel base to raise the height of the machine.

The use of steel bases more than six inches in height is NOT recommended. If installation requires a base higher than six inches, contact Wascomat Technical Support for advice.

Connection to line Voltage or over-current protection devices other than those specified on the data plate may result in severe damage to machine components, and will void the manufacturer's warranty.

Refer to complete installation instructions provided in manuals accompanying the machine.

Contact Wascomat Technical Support with any questions BEFORE installing this machine. Damage resulting from inadequate installation materials or improper installation techniques will void the manufacturer's warranty.


WARNING – Risk of fire

Clothes dryer installation must be performed by a qualified installer.

Install the clothes dryer according to the manufacturer's instructions and local codes.

Do not install a clothes dryer with flexible plastic venting materials. If flexible metal (foil type) duct is installed, use duct that has been investigated and found acceptable for use with clothes dryers. Flexible venting materials are known to collapse, be easily crushed, and trap lint. These conditions will obstruct clothes dryer airflow and increase the risk of fire.

To reduce the risk of severe injury or death follow all installation instructions.

Save these instructions.

Electrical Information

It is your responsibility to have **ALL** electrical connections (including grounding) made by a properly licensed and competent electrician to assure that the electrical installation is adequate and conforms with local and state regulations or codes.

In the absence of such codes, ALL electrical connections, material, and workmanship must **conform** to the applicable requirements of the NATIONAL ELECTRIC CODE ANSI/NFPA NO. 70 or the CANADIAN ELECTRICAL CODE, CSA C22.1 - both the latest edition.

IMPORTANT: Failure to comply with these codes or ordinances and/or the requirements stipulated in this manual can result in personal injury or component failure.

NOTE: Component failure due to improper installation will **VOID THE WARRANTY.**

IMPORTANT: A separate circuit serving each dryer must be provided. The dryer must be connected to copper wire only. **DO NOT** use aluminum wire which could cause a fire hazard.

NOTE: The use of aluminum wire will **VOID THE WARRANTY**

CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper operation or component failure.

Electrical Service

Steam and gas dryers ONLY

IMPORTANT: The dryer must be connected to the electrical supply shown on the data label affixed to the dryer. In the case of 208 VAC or 240 VAC, the supply voltage **must match** the electric service specifications of the data label **exactly.** Wire **must be** properly sized to handle the rated current.

WARNING: 120 VAC, 208 VAC and 240 VAC ARE NOT THE SAME. Any damage done to dryer components due to improper voltage connections will **VOID THE WARRANTY.**

Electric dryers ONLY

IMPORTANT: ALL electrically heated dryers must be connected to the electric supply service shown on the dryers data label which is affixed to the back side of the control (service) door. The connecting wires must be properly sized to handle the rated current.

NOTE: Component failure due to improper voltage application will **VOID THE WARRANTY.**

Gas Information

It is your responsibility to have **ALL** plumbing connections made by a qualified professional to insure that the installation is adequate and conforms with local and state regulations or codes. In the absence of such codes, **ALL** plumbing connections, material, and workmanship must conform to the applicable requirements of **the National Fuel Gas Code ANSI Z223.1** or the **CAN/CGA-B149, INSTALLATION CODES** - both the latest edition.

IMPORTANT: Failure to comply with these codes or ordinances, and/ or the requirements stipulated in this manual, can result in personal injury and improper operation of the dryer.

The dryer **must be** isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or greater than 1/2 psig (3.5 kPa).

IMPORTANT: Failure to comply with these codes or ordinances, and/ or the requirements stipulated in this manual, can result in personal injury and improper operation of the dryer.

WARNING: FIRES or EXPLOSION COULD RESULT.

Gas Supply

The gas dryer installation must meet the American National Standard, National Fuel Gas Code Z223.1-LATEST EDITION, as well as local codes and ordinances and **must be** done by a qualified professional,

NOTE: Undersized gas piping will result in ignition problems, slow drying, increased use of energy, and can create a safety hazard.

The dryer **must be** connected to the type of heat/ gas indicated on the dryer data label. If this information does not agree with the type of gas available, **do not** operate the dryer. Contact your local dealer or the Wascomat Sales Department.

IMPORTANT: Any burner changes or conversions must be made by a qualified licensed professional.

The input ratings shown on the dryer data label are for elevations of up to 1,999 feet. The adjustment or conversion of the dryer(s) in the field for elevations over 2,000 feet are made by changing each burner orifice. If these conversions are necessary, contact your local dealer or the Wascomat Sales Department.

Natural Gas

The natural gas supply pressure to the dryer **must be** between 6 and 10 inches water column. If the pressure is too low, ignition failure and/or slow drying times may result. Excessively high supply pressure will result in erratic operation of the gas valves internal pressure regulator. The pressure measured at the pressure tap on the body of the gas valve **must be** for TYPE 30: 4.2-inches water column, TYPE 50: 3.2 -inches water column and TYPE 75: 3.2 -inches water column

Propane Gas

Dryers made for use with propane gas have the gas valve pressure regulator blocked open, so that the gas pressure **must be** regulated upstream of the dryer. The pressure measured at the gas valve body pressure tap **must be** 11 inches water column. In accordance with American Gas Association (AGA) standards, a gas pressure regulator, when installed indoors, must be equipped with a vent limiter or a vent line must be installed from the gas pressure regulator vent to the outdoors. The water column pressure **must be** regulated at the source (propane tank), or an external regulator must be added to each dryer.

Piping/Connections

The dryer is provided with a 1/2" N.P.T. (the model TYPE 75 has a 3/4") inlet pipe connection extending out the rear area or through the top of the dryer. For ease of servicing, the gas supply line of each dryer should have its own shut-off valve.

The size of the gas supply line (header) will vary depending on the distance this supply line travels from the gas meter or, in the case of propane gas, the supply tank, the number of tees, other gas-operated appliances, etc. Specific information regarding supply line size should be determined by the gas supplier.

NOTE: Undersized gas supply piping can create a low or inconsistent gas pressure which will result in erratic operation of the burner ignition system.

Consistent gas pressure is essential at **ALL** gas connections. It is recommended that a 3/4-inch pipe gas loop be installed in the supply line serving the bank of dryers. An in-line pressure regulator **must be** installed in the gas supply line (header) if (natural) gas line pressure exceeds 12-inches water column pressure.

IMPORTANT: Water column pressure of TYPE: 30 4.2 -inches, TYPE: 50 3.2 -inches and TYPE: 75 3.2 -inches for natural gas dryers and 11.0 inches for Propane gas dryers is required at the gas valve pressure tap of each dryer for proper and safe operation.

A 1/8" N.P,T. plugged tap, accessible for test gauge connection, **must be** installed in the main gas supply line immediately upstream of each dryer.

IMPORTANT: Pipe joint compounds that resist the action of natural gas and propane gas **MUST BE** used.

WARNING: Test **ALL** connections for leaks by brushing on a soapy water solution (liquid detergent also works well). **NEVER TEST FOR GAS LEAKS WITH AN OPEN FLAME.**

ALL components / materials **must conform** to NATIONAL FUEL GAS CODE specifications. It is important that gas pressure regulators meet applicable pressure requirements and that gas meters are rated for the total amount of appliance BTU's being supplied.

Contents

Contents

1 Safety Precautions


The machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the machine.

The machine is not to be used if industrial chemicals have been used for cleaning.

Do not dry unwashed items in the machine.

Items that have been soiled with substances such as cooking oil, acetone, alcohol, petrol, kerosene, spot removers, turpentine, waxes and wax removers should be washed in hot water with an extra amount of detergent before being dried in the machine.

Items such as foam rubber (latex foam), shower caps, waterproof textiles, rubber backed articles and clothes or pillows fitted with foam rubber pads should not be dried in the machine.

Fabric softeners or similar products should be used as specified by the fabric softener instructions.

The final part of a drying cycle occurs without heat (cool down cycle) to ensure that the items are left at a temperature that ensures that the items will not be damaged.

Remove all objects from pockets such as lighters and matches.

WARNING. Never stop the machine before the end of the drying cycle unless all items are quickly removed and spread out so that the heat is dissipated.

Adequate ventilation has to be provided to avoid the back flow of gases into the room for appliances burning other fuels, including open fires.

Exhaust air must not be discharged into a flue which is used for exhausting fumes from appliances burning gas or other fuels.

The machine must not be installed behind a lockable door, a sliding door or a door with a hinge on the opposite side to that of the machine.

If the machine has a lint trap this has to be cleaned frequently.

The lint must not be accumulated around the machine.

Gas heated tumble dryer:

The machine is not to be installed in rooms containing cleaning machines with perchloroethylene, TRICHLOROETHYLENE or CHLOROFLUOROCONTAINING HYDROCARBONS as cleaning agents.

If you can smell gas:

- **Do not switch on any equipment**
- **Do not use electrical switches**
- **Do not use telephones in the building**
- **Evacuate the room, building or area**
- **Contact the person responsible for the machine**

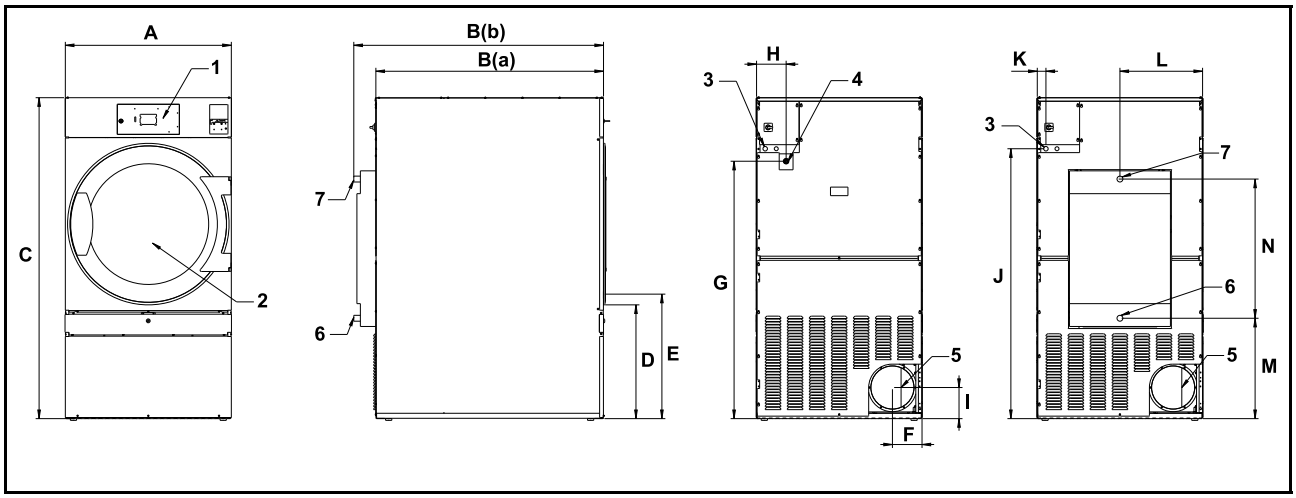

All external equipment which is connected to the machine must be CE/EMC-approved and connected using an approved shielded cable.

Safety Precautions

In order to prevent damage to the electronics (and other parts) that may occur as the result of condensation, the machine should be placed in room temperature for 24 hours before being used for the first time.

2 Technical data

2.1 Drawing



1	Operating panel
2	Door opening, ⌀ 810 mm / ⌀ 31 7/8 inch
3	Electrical connection
4	Gas connection
5	Exhaust connection
6	Steam: in
7	Steam: out

	A	B(a)	B(b)	C	D	E	F	G
mm inch	960 37 13/16	1510 59 7/16	1640 64 9/16	1855 73 1/16	660 26	720 28 3/8	170 6 11/16	1490 58 11/16

	H	I	J	K	L	M	N
mm inch	200 7 7/8	180 7 1/16	1560 61 7/16	50 1 15/16	480 18 7/8	580 22 13/16	805 31 11/16

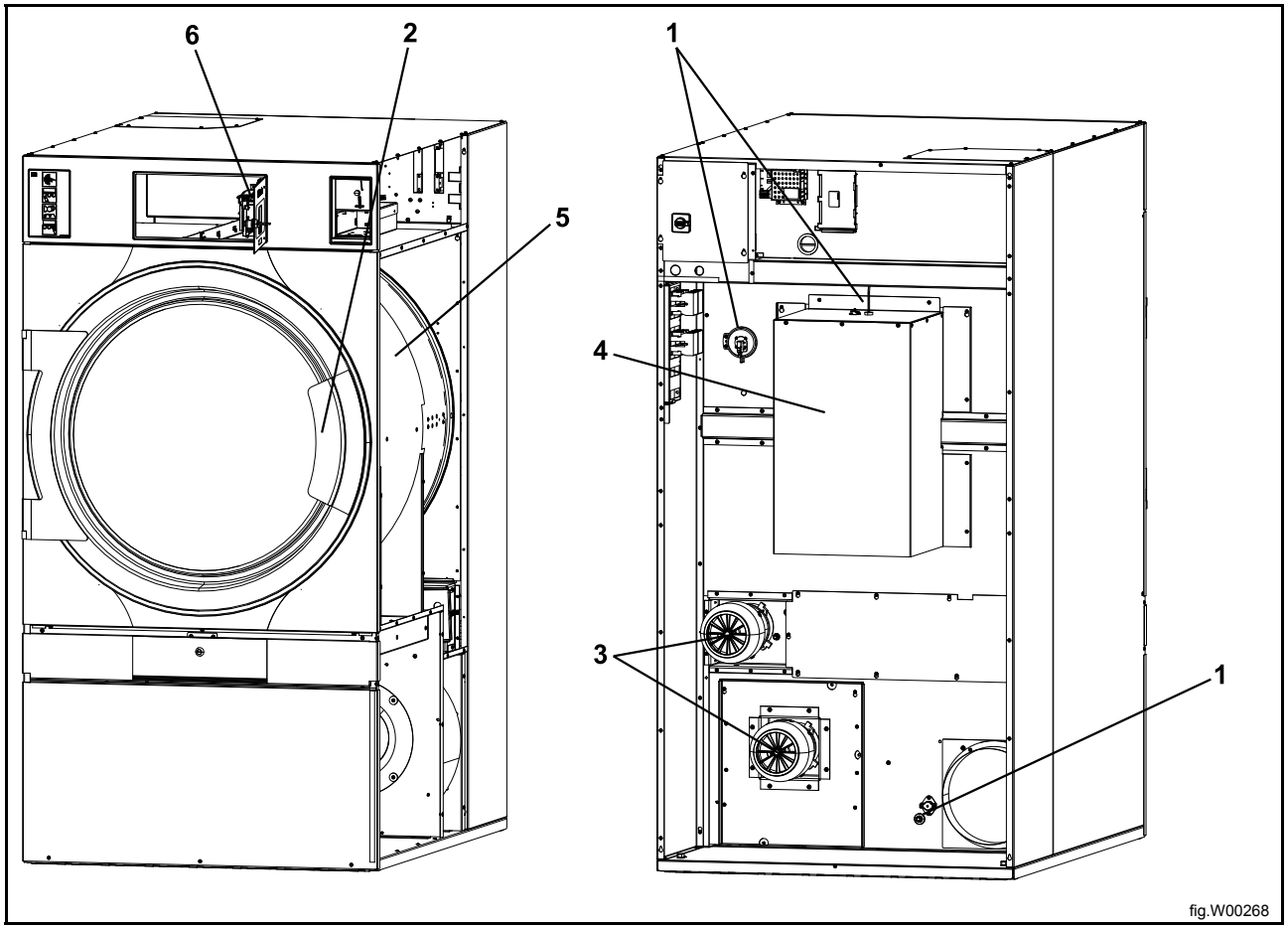
2.2 Technical data

Weight, net	kg lbs	340 750
Drum volume	litres ft³	675 23.8
Drum diameter	mm inch	913 35 15/16
Drum depth	mm inch	990 39
Drum speed	rpm	43
G-factor, max		0.94
Capacity, filling factor 1:18 (Max. load)	kg lbs	37.5 82.7
Capacity, filling factor 1:22 (Recommended load)	kg lbs	30.6 67.5
Heating: Electricity	kW	30
	kW	40
Heating: Gas	kW	50
Heating: Steam	kW	46
Air consumption, Electric heating, 30 kW	m³/h ft³/h	1000 35315
Air consumption, Electric heating, 40 kW	m³/h ft³/h	1150 40612
Air consumption, Gas heating	m³/h ft³/h	1000 35315
Air consumption, Steam heating	m³/h ft³/h	1300 45909
Airborne sound level	dB(A)	70
Pressure drop, Electric heating, 30 kW	Max. Pa Psi	200 0.029
Pressure drop, Electric heating, 40 kW	Max. Pa Psi	150 0.021
Pressure drop, Gas heating	Max. Pa Psi	150 0.021
Pressure drop, Steam heating	Max. Pa Psi	150 0.021

2.3 Connections

Air outlet	⌀ mm ⌀ inch	250 9 13/16
Steam outlet	1”	ISO 7/1–Rp1/2
Condensate outlet	-	ISO 7/1–Rp1/2
Gas connection	1”	ISO 7/1–R1/2

3 Machine presentation



1	Sensors and overheating thermostats
2	Door
3	Motor
4	Heating unit
5	Drum
6	Program unit

After a repair has been made

Whenever a repair has been made, a function check must be performed before the machine can be used again.

4 Function check

May only be carried out by qualified personnel.

A function check must be made when the installation is finished and before the machine can be used.

Check the automatic stop of the machine

- Start the machine.
- Check if the micro switches are working properly:
  The machine must stop if the door is opened.

Check the direction of rotation (only on machines with 3–phase power supply)

- Demount the lower back panel of the machine.
- Check that the direction of the fan wheel is correct.

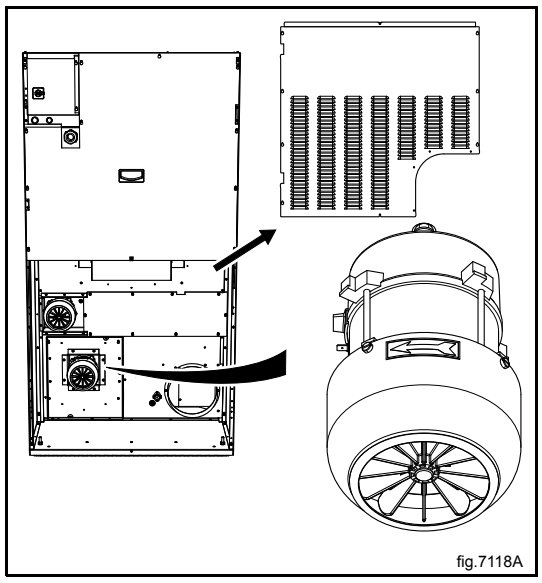


fig.7118A

If the direction is wrong, swop two of the three phases to the left on the connection terminal.

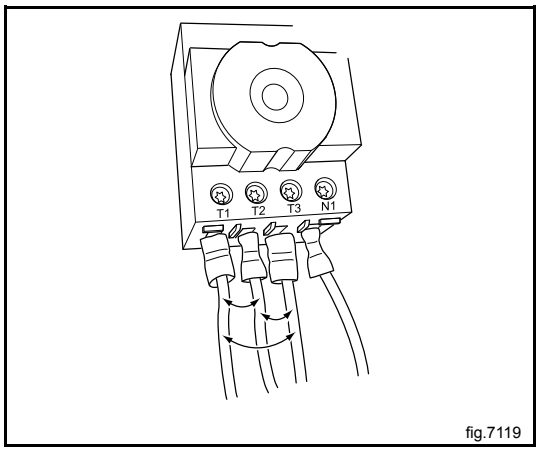


fig.7119

Check the heat

- Let the machine work for five minutes on a program with heat.
- Check that the heating is working by opening the door and feel if there is heat in the drum.

Ready to use

If all tests are OK the machine is now ready to be used.

If some of the tests failed, or deficiencies or errors are detected, please contact your local service organisation or dealer.

5 Sensors and overheating thermostats

5.1 Inlet air

5.1.1 Overheating thermostat

Function

The inlet overheating thermostat is placed on the heating module on the back of the machine.

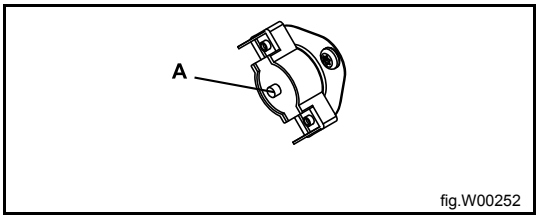
The inlet overheating thermostat opens in the event of overheating and shuts off the machine.

Resetting

Disconnect the power to the machine.

Demount the upper rear panel.

Press the reset button (A) on the overheating thermostat.



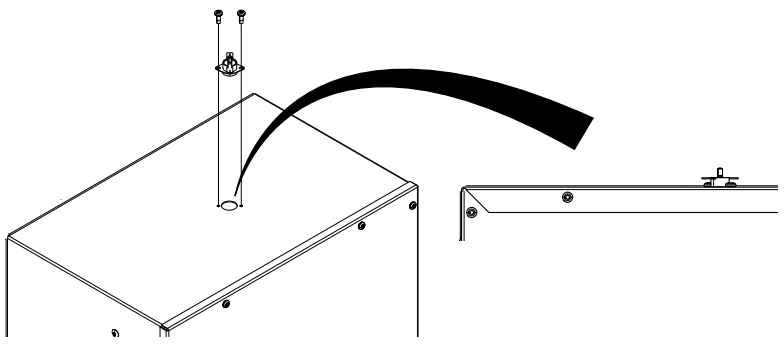
Remount the upper rear panel.

Replacement of overheating thermostat

Disconnect the power to the machine.

Demount the upper rear panel.

Disconnect the overheating thermostat and remove it. Connect the new overheating thermostat.

	El and Gas heated machine.

Remount the upper rear panel.

5.1.2 Heating sensor (PT100)

Function

The heating sensor is placed on the heating module on the back of the machine.

The heating sensor measures the temperature in the inlet air and the signal is returned to the PCB.

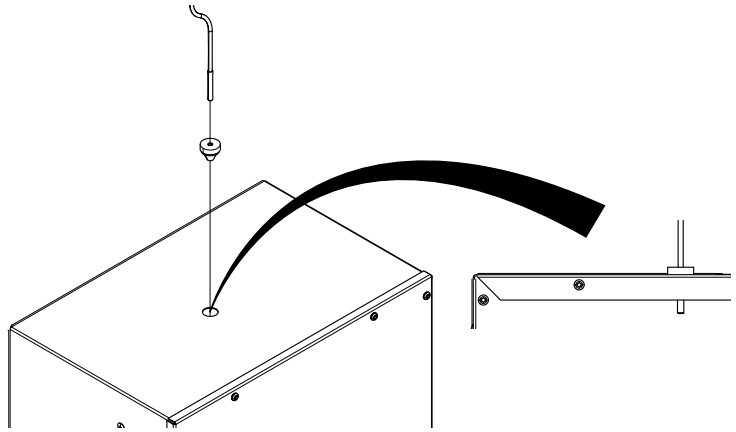
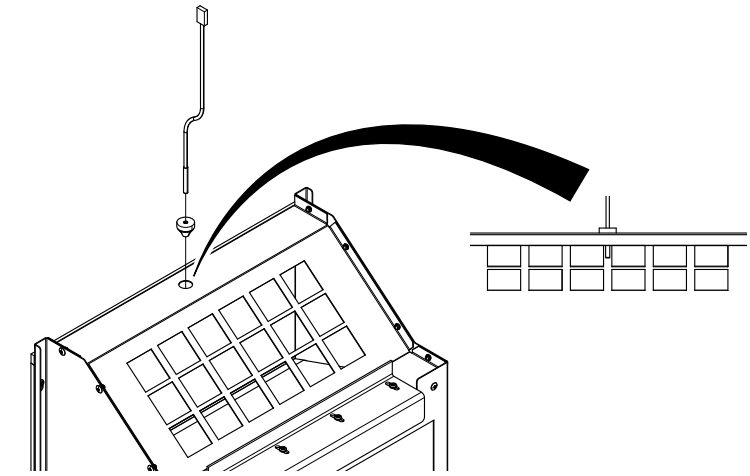
The PCB turns the heating unit off when the inlet air thermistor indicates that the required temperature has been reached.

Replacement of heating sensor (PT100)

Disconnect the power to the machine.

Demount the upper rear panel.

Disconnect the heating sensor and remove it. Connect the new heating sensor and put it in position. Make sure the sensor gets all the way down.

	El and Gas heated machine.
	Steam heated machine.

Remount the upper rear panel.

5.3 Outlet air

5.3.1 Overheating thermostat

Function

The overheating thermostat is placed next to the fan motor on the back of the machine.

The overheating thermostat ensures that the machine does not overheat during program operation.

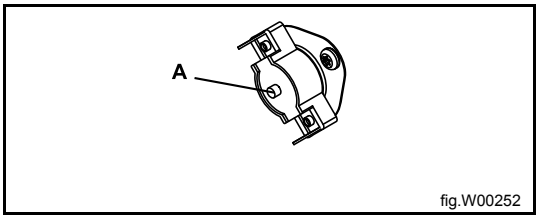
The overheating thermostat opens automatically and has to be reset manually.

Resetting

Disconnect the power to the machine.

Demount the lower rear panel.

Press the reset button (A) on the overheating thermostat.



Remount the lower rear panel.

Replacement of overheating thermostat

Disconnect the power to the machine.

Demount the lower rear panel.

Disconnect the overheating thermostat and remove it. Connect the new overheating thermostat.

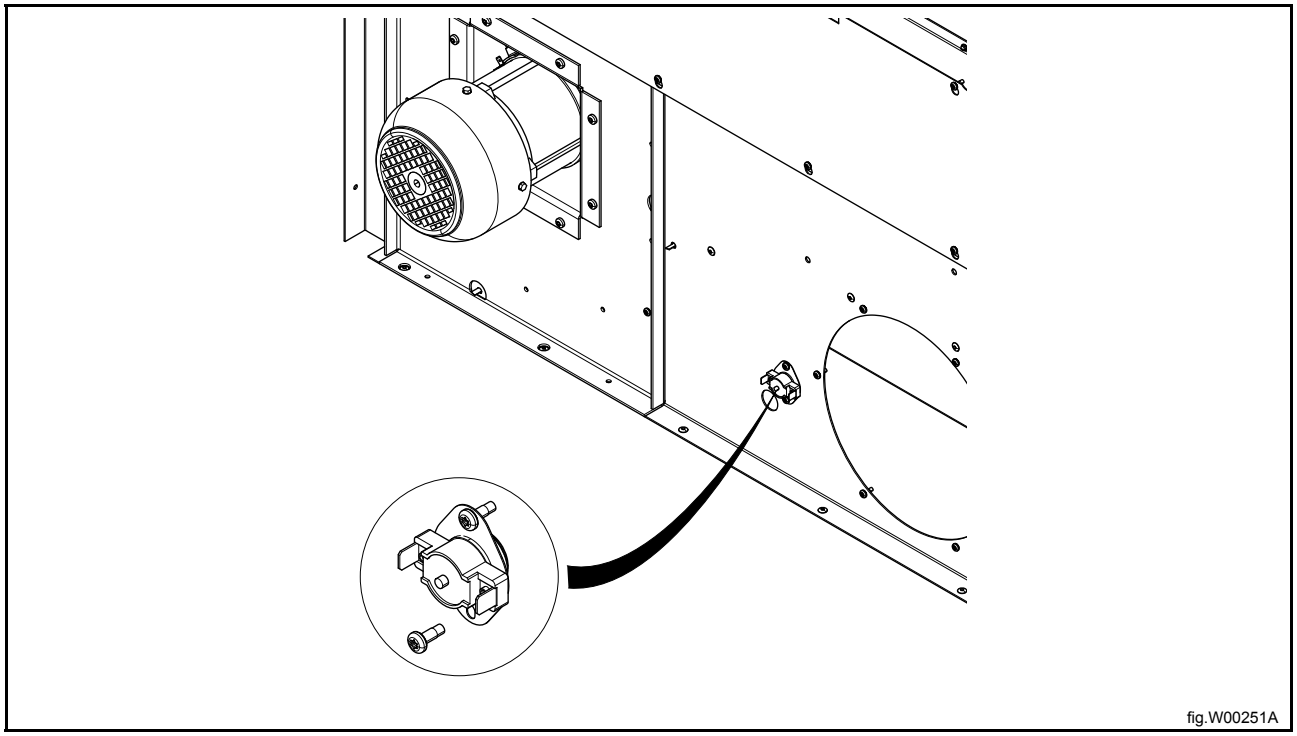


fig.W00251A

Remount the upper rear panel.

5.3.2 Heating sensor (NTC-sensor)

Function

The heating sensor is placed next to the fan motor on the back of the machine.

The heating sensor measures the temperature in the outlet air and the signal is returned to the PCB.

The PCB turns the heating unit off when the outlet air thermistor indicates that the required temperature has been reached.

Replacement of heating sensor (NTC-sensor)

Disconnect the power to the machine.

Demount the lower rear panel.

Disconnect the heating sensor and remove it. Connect the new heating sensor and put it in position. Make sure the sensor gets all the way in.

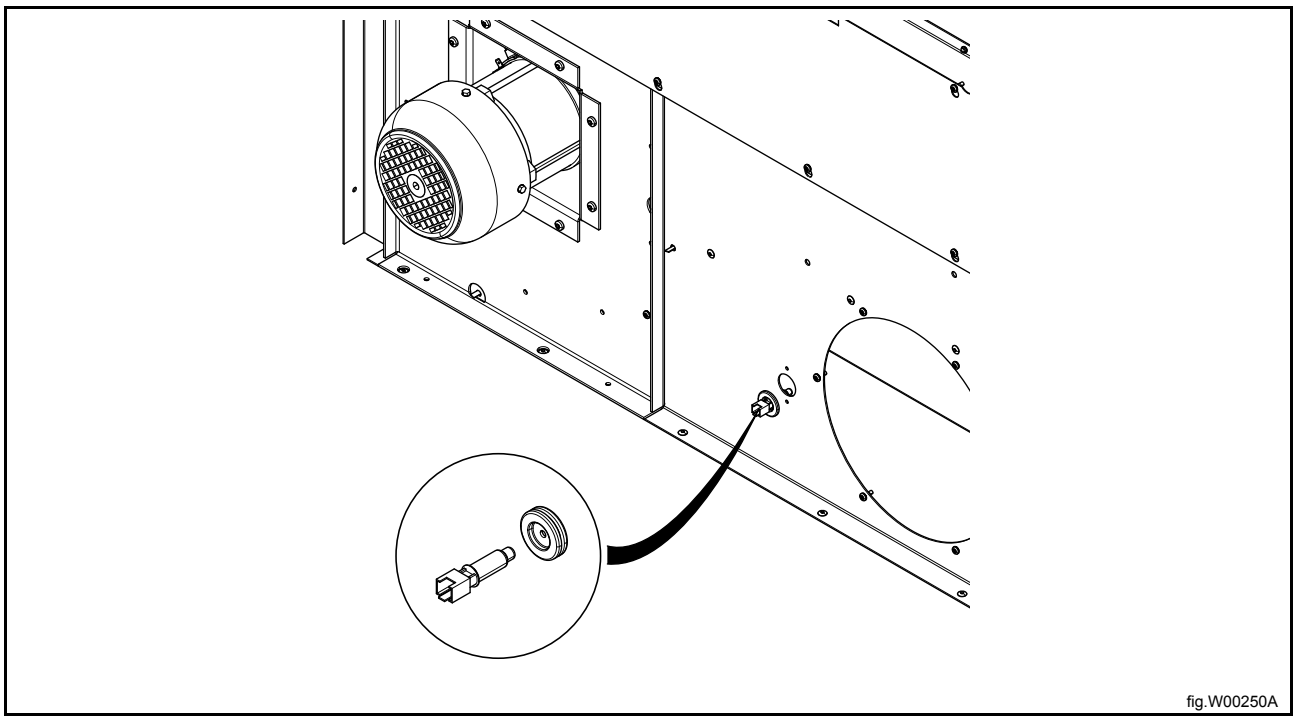


fig.W00250A

Remount the lower rear panel.

5.3 Vacuum switch

Function

The vacuum switch is placed next to the heating module on the back of the machine.

The vacuum switch ensures the necessary airflow in the machine.

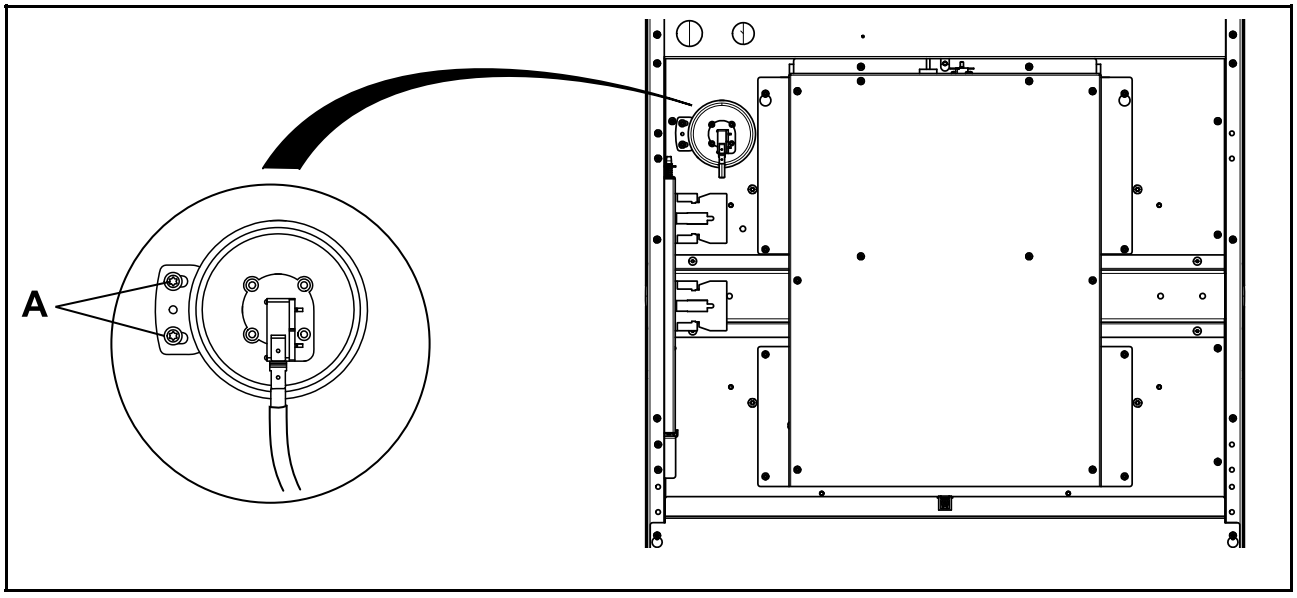
Replacement of vacuum switch

Disconnect the power to the machine.

Demount the upper rear panel.

Disconnect the wires to the vacuum switch. Disconnect the vacuum hose. **Note the position of the wires.**
Remove the screws (A) and disconnect the vacuum switch.

Connect the new vacuum switch. Connect the vacuum hose and the wires. **Make sure that the art. No. on the new vacuum switch is the same as the old one.**



Remount the upper rear panel.

6 Door

6.1 Door switch

The door switch (A) ensures that the machine stops automatically if the door is opened during operation.

If the machine does not stop when the door is opened or if the door is closed and the error code **DOOR IS OPEN** is displayed (and the machine is unable to start), for example, the door switch needs to be replaced.

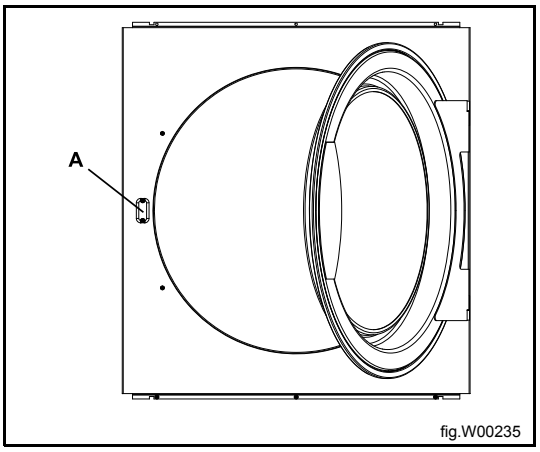


fig.W00235

Replacement of door switch

Disconnect the power to the machine.

Demount the hinges and remove the door. Remove the upper hinge first.

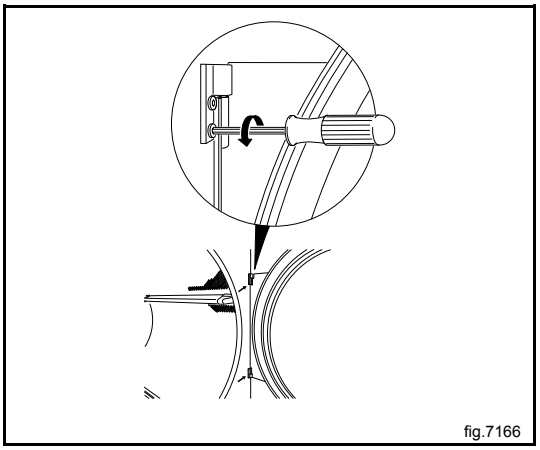
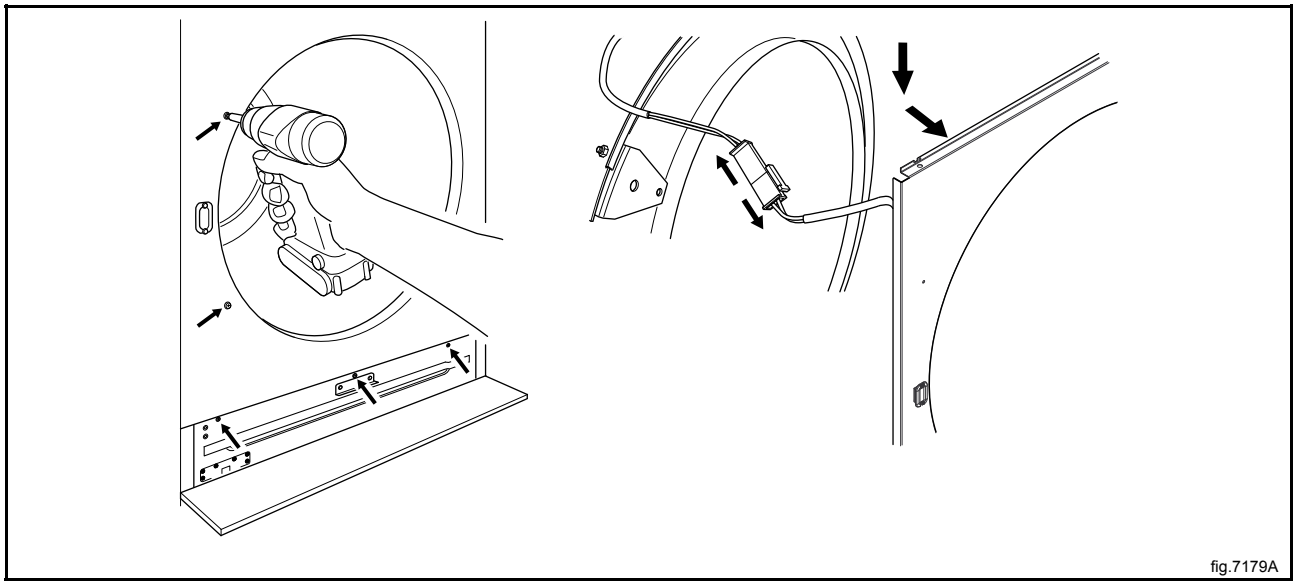
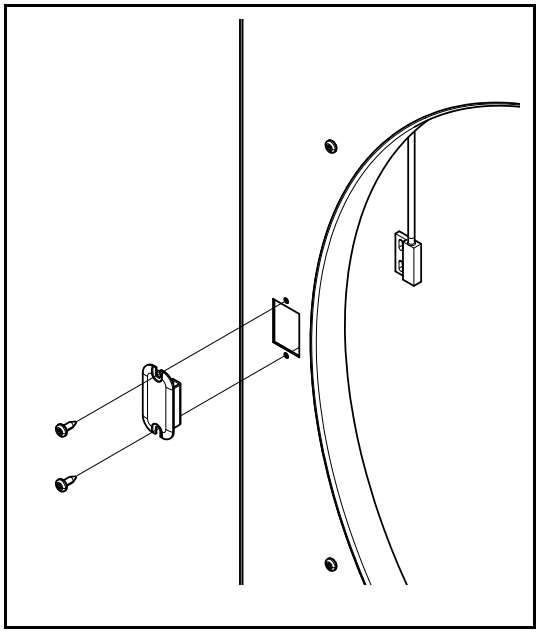


fig.7166

Remove the screws on the front panel and carefully loosen the panel. Disconnect the door switch cable and remove the panel.



Remove the door switch and door switch cable and mount the new one.



Connect the door switch cable and remount the front panel.

Remount the door.

Replacement of door magnets

Remove the magnet to be replaced and mount the new one.

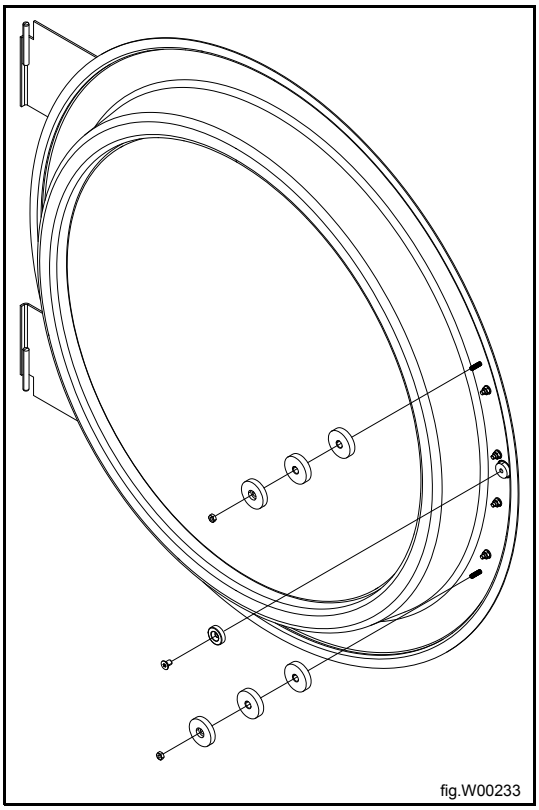


fig.W00233

6.2 Reversing the door

Disconnect the power to the machine.

Demount the hinges and remove the door. Remove the upper hinge first.

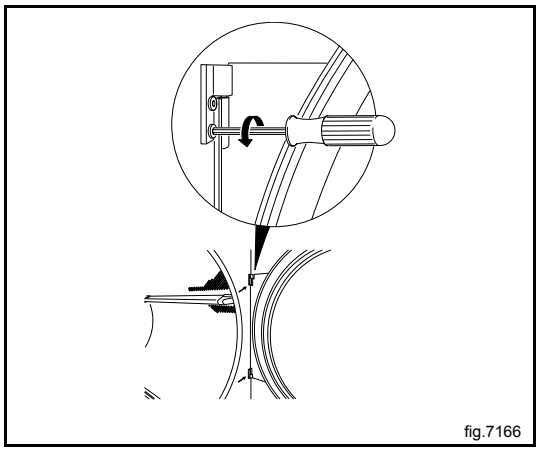


fig.7166

Remove the screws on the front panel and carefully loosen the panel. Disconnect the door switch cable and remove the panel.

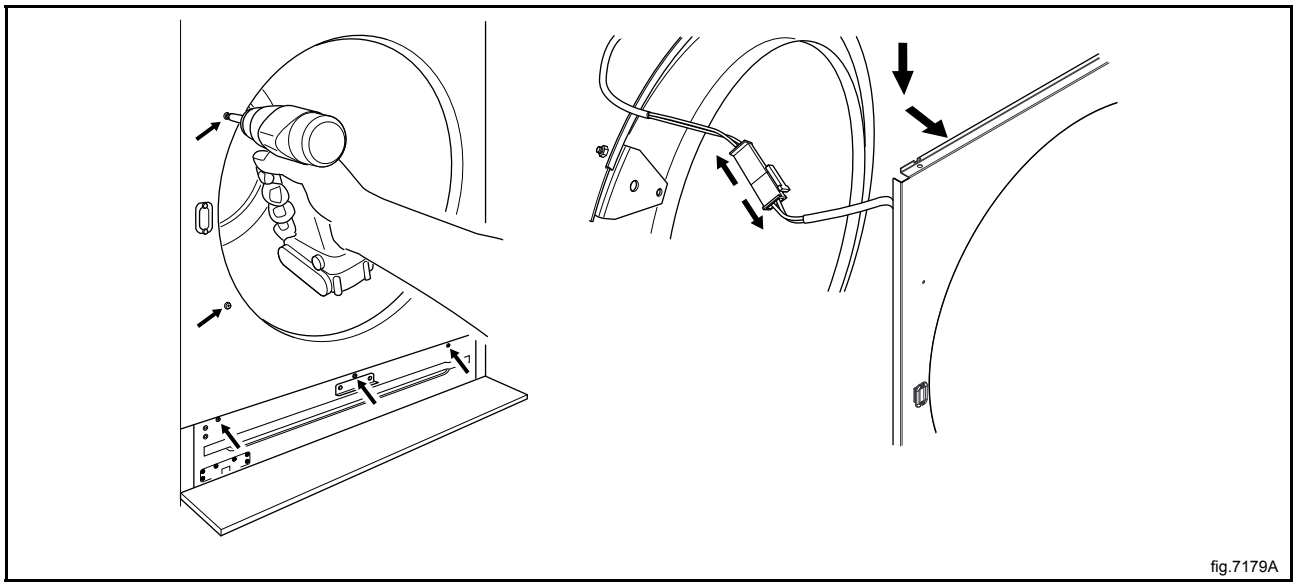


fig.7179A

Move the door switch cable to the opposite site.

Note!

The plastic plug MUST be placed in the hole where the door switch cable was before.

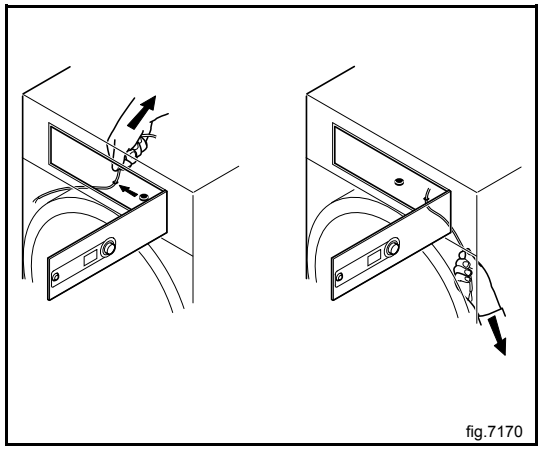


fig.7170

Loosen the nuts and move the two brackets to the opposite side.

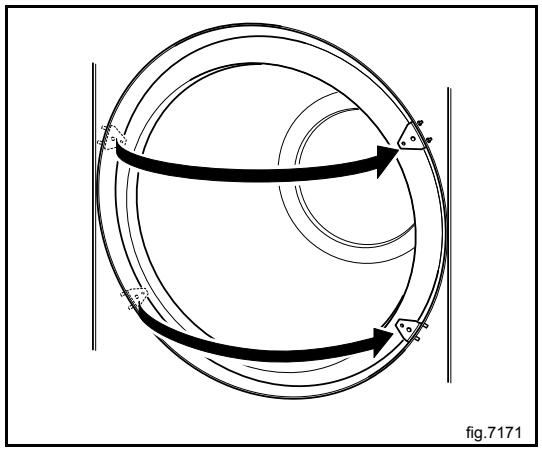


fig.7171

Move the door switch on the front panel.

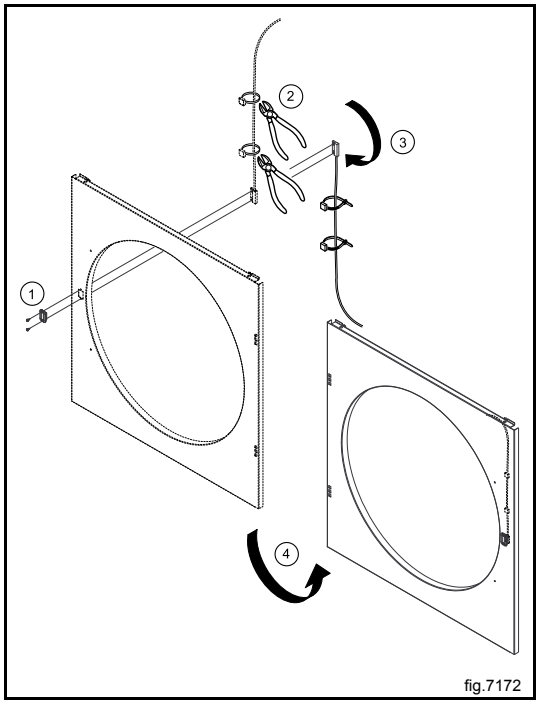


fig.7172

Move the four metal clips from the right side to the left side.

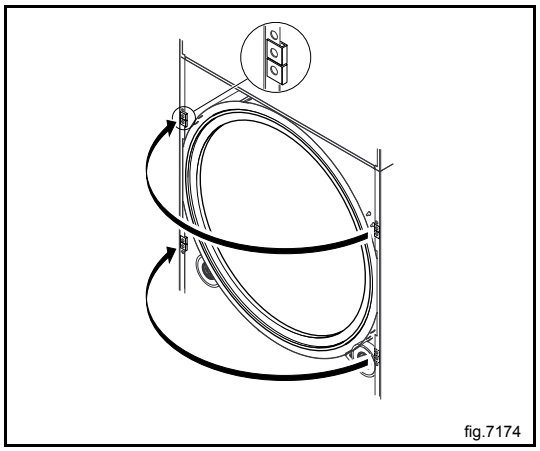


fig.7174

Connect the door switch cable and remount the front panel.

Fasten the hinges and mount the door on the opposite side than before.

Connect the power to the machine.

Test run the machine.

7 Motor

7.1 Replacement of drum motor

Disconnect the power to the machine.

Demount the two rear panels.

Cut necessary straps and disconnect the motor cable.

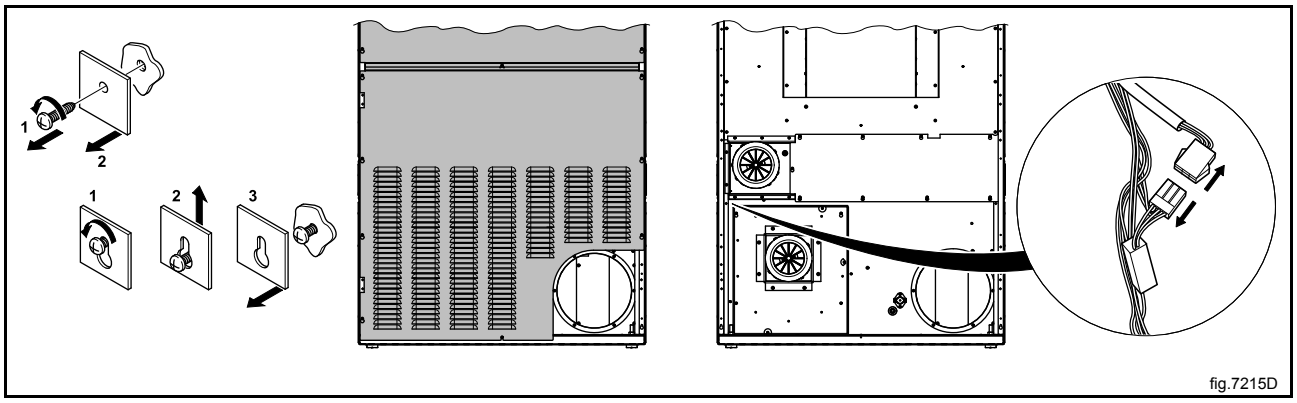


fig.7215D

Demount the cover plate to the belt tensioner.

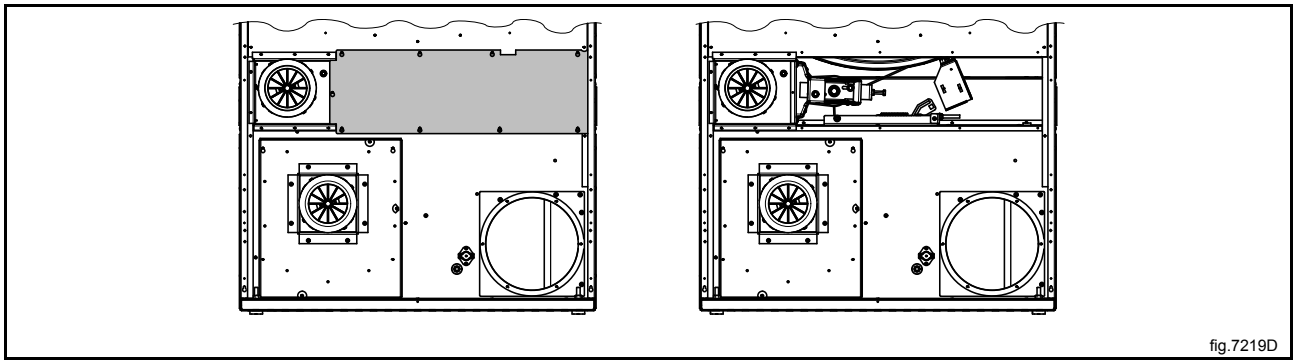


fig.7219D

Loosen the belt tensioner with a torque wrench by pulling the tension plate counter clockwise to the bottom.

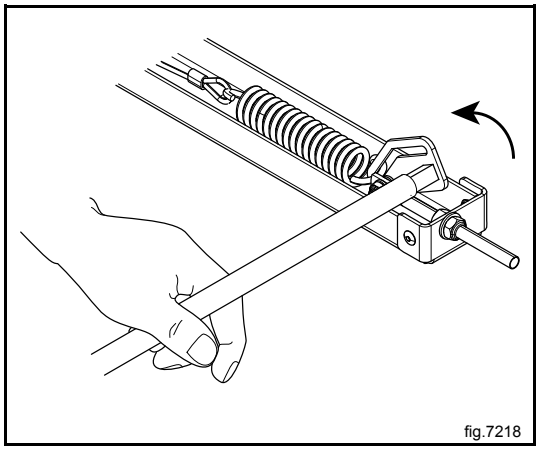


fig.7218

Loosen the wire (A) between the spring and the pulley.

Note!

The wire can be sharp so it is recommended to use gloves.

Loosen the belt around the drum (B).

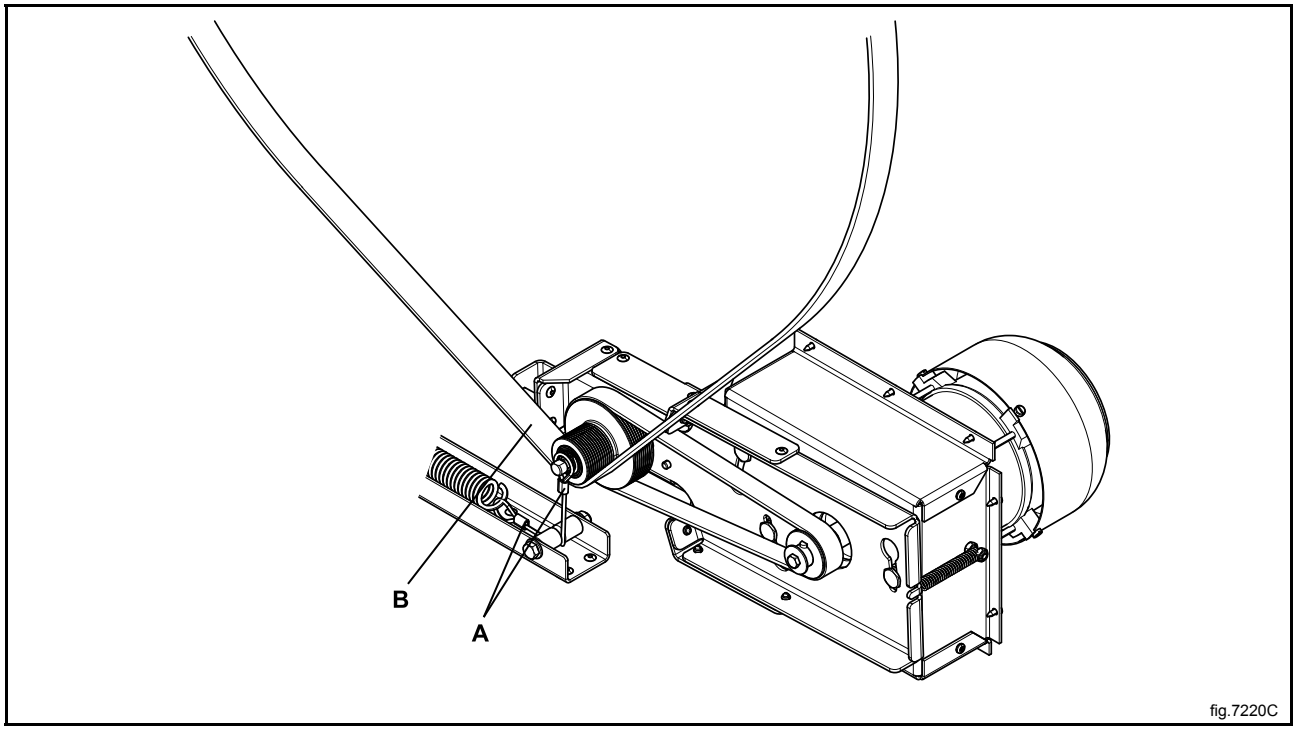


fig.7220C

Demount the motor module. Carefully lift out the motor module and put it down with the fan motor cover downwards.

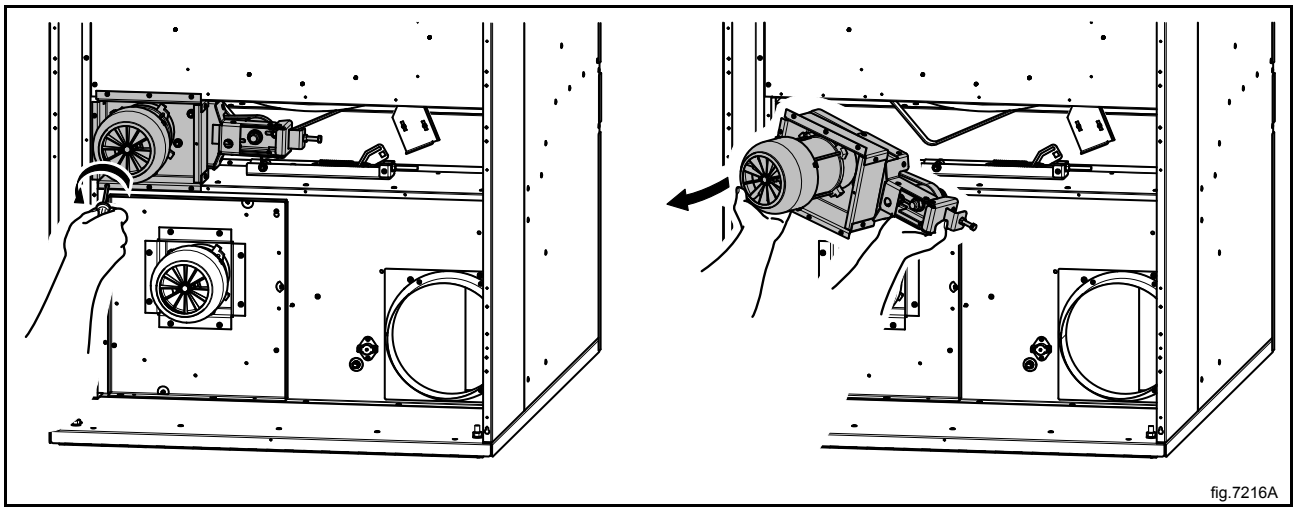


fig.7216A

Loosen the spring from the “motor arm”.

Loosen the belt (C) from the “motor arm”.

Turn the tension arm counter clockwise in the holes (D) to loosen it from the motor panel.

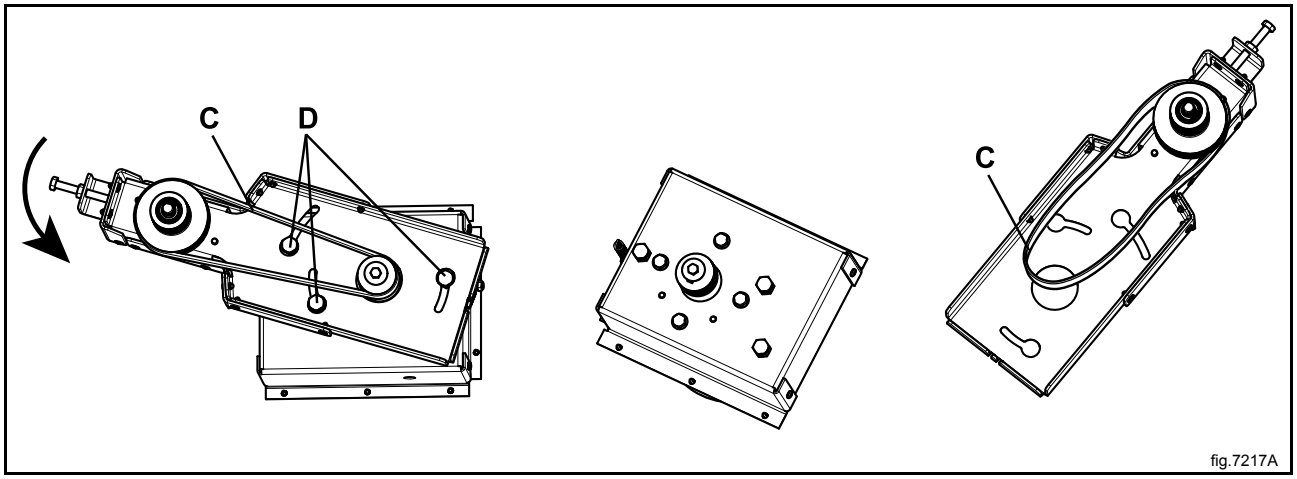


fig.7217A

Demount the motor by unscrewing the four screws.

Mount the new motor. Tighten the screws crosswise (1, 4, 2 and 3) with tightening torque 16.5 Nm ± 3.

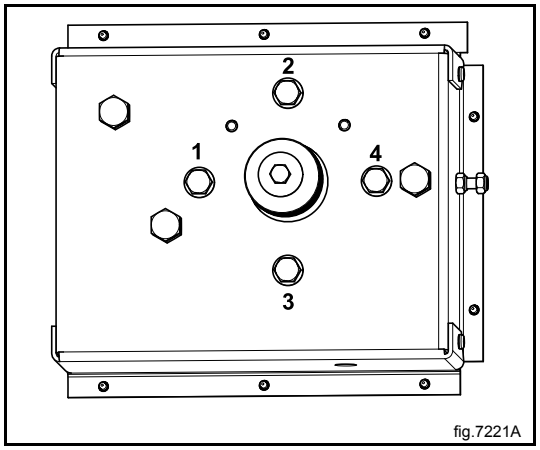


fig.7221A

In order to fasten the belt again, first loosen the four screws a bit.

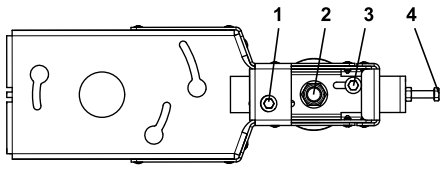


fig.490377800

Fasten the tension arm on the motor panel in the holes and turn it clockwise until it is in position.

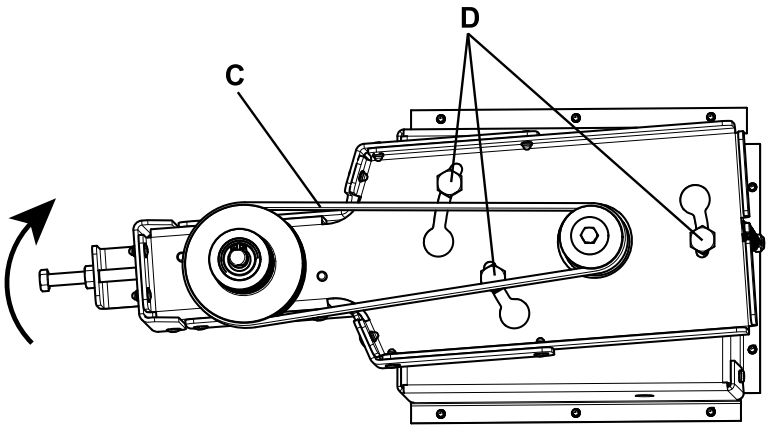


fig.7224A

Put the belt in position (C) and tighten the screws (1, 2, 3, 4 starting with 4).

Check the belt tension with a frequency meater or similar. The frequency shall be 80 Hz ± 5. Adjust if necessary.

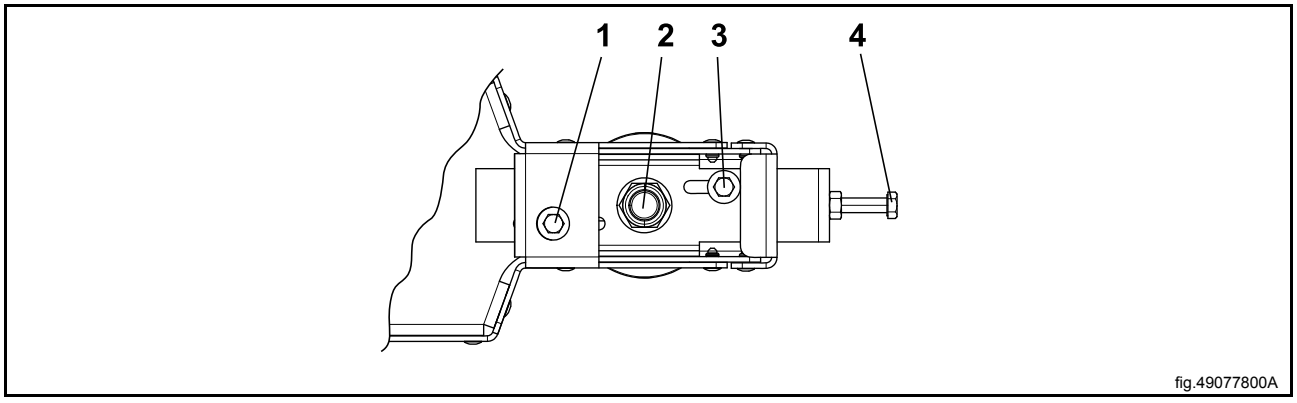


fig.49077800A

Remount the motor module in the machine.

Fasten the belt (B) and the wire (A). Make sure the belt is in position.

Tighten the belt tensioner with a torque wrench by pulling the tension plate (E) clockwise until it is in position.

Check the belt tension with a frequency meater or similar. The frequency shall be 75 Hz ± 5. Adjust if necessary.

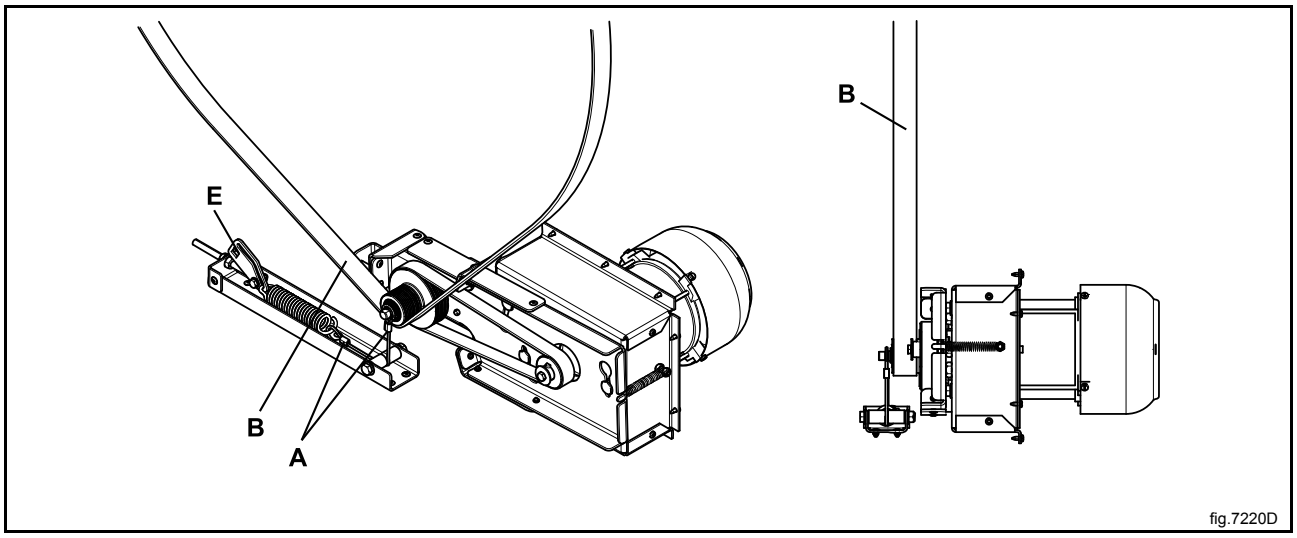


fig.7220D

Connect the motor cable.

Remount the cover plate and the rear panels.

Note!

The machine will NOT work without the cover plate.

7.2 Replacement of fan motor

Disconnect the power to the machine.

Demount the lower rear panel.

Cut necessary straps and disconnect the fan motor cable.

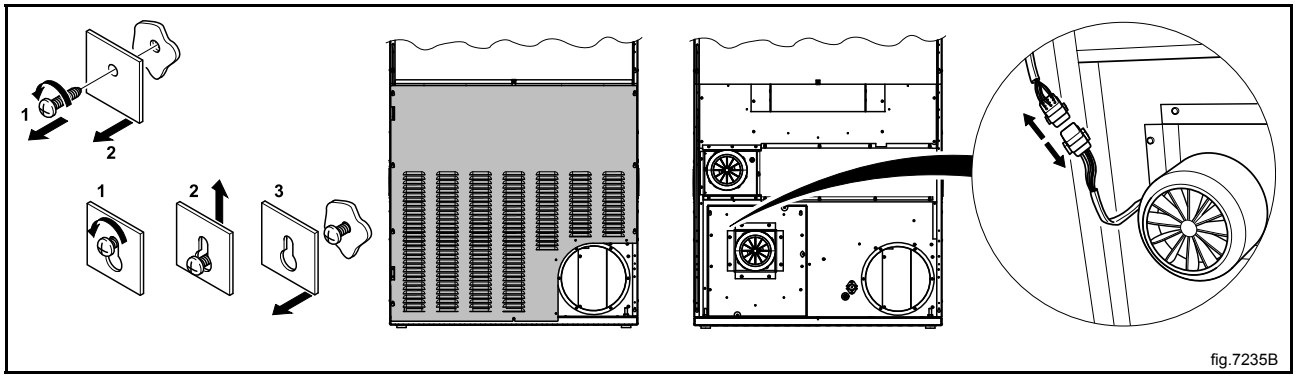


fig.7235B

Demount the fan motor module. Carefully lift out the fan motor module and put it down with the fan motor cover downwards.

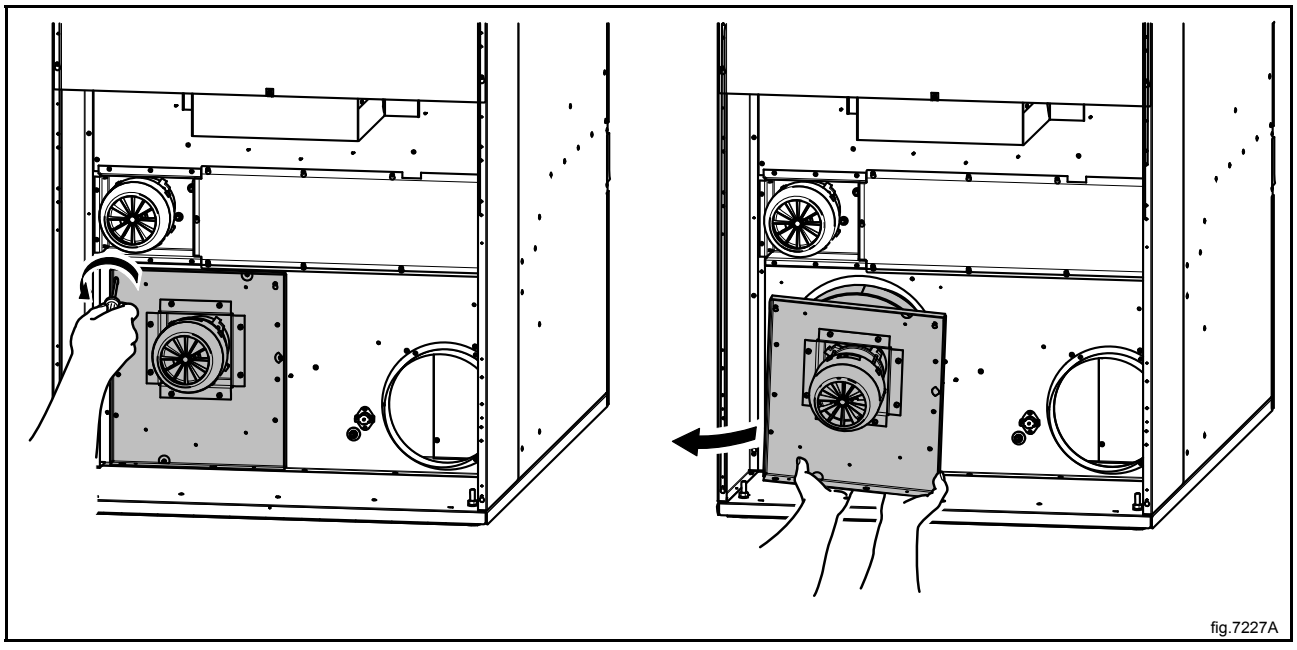


fig.7227A

Remove the screw and washer.

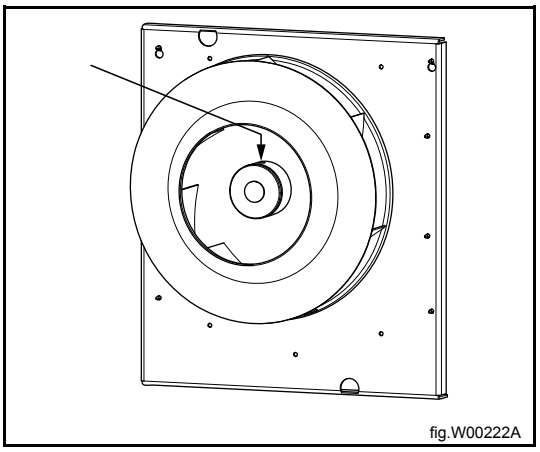


fig.W00222A

Use a puller to remove the fan from the fan motor.

Demount the fan motor by unscrewing the four screws (1–4).

Mount the new fan motor. Tighten the screws crosswise (1, 4, 2 and 3) with tightening torque 16.5 Nm ± 3.0 Nm.

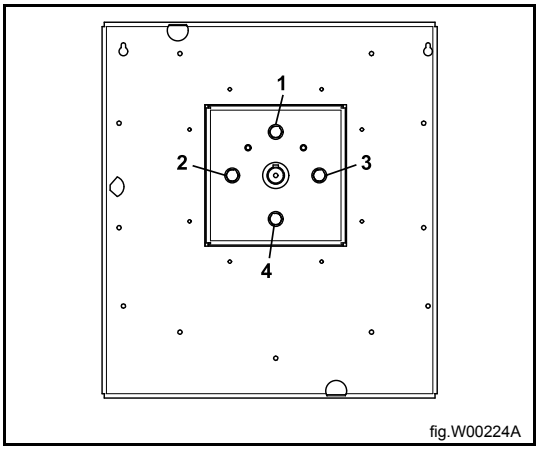
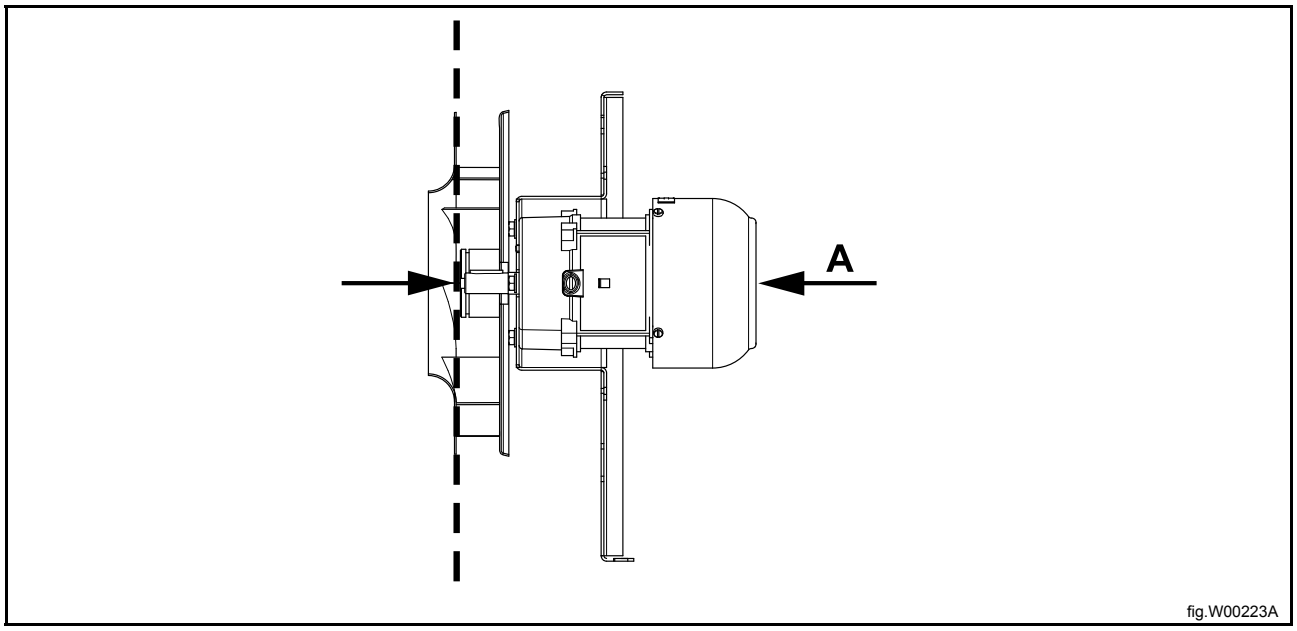


fig.W00224A

Remount the fan on the fan motor. Put loctite on the screw and tighten with tightening torque 10 Nm ± 1.0 Nm).

Make sure the shaft gets all the way to the bottom. Use a counterstay (A) in the center of the shaft so you do not damage the motor when remounting.



Remount the fan motor module in the machine.

Connect the fan motor cable.

Remount the lower rear panel.

7.3 Replacement of fan

Disconnect the power to the machine.

Demount the lower rear panel.

Cut necessary straps and disconnect the fan motor cable.

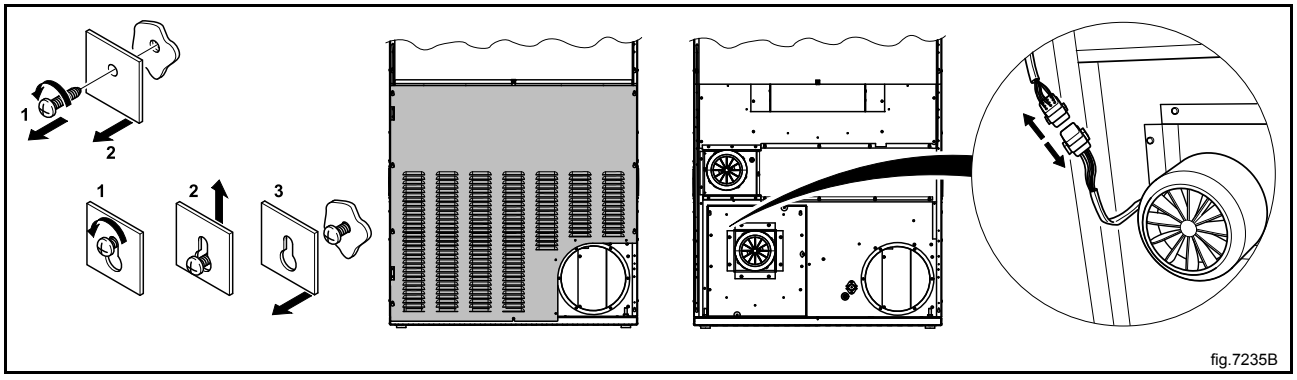


fig.7235B

Demount the fan motor module. Carefully lift out the fan motor module and put it down with the fan motor cover downwards.

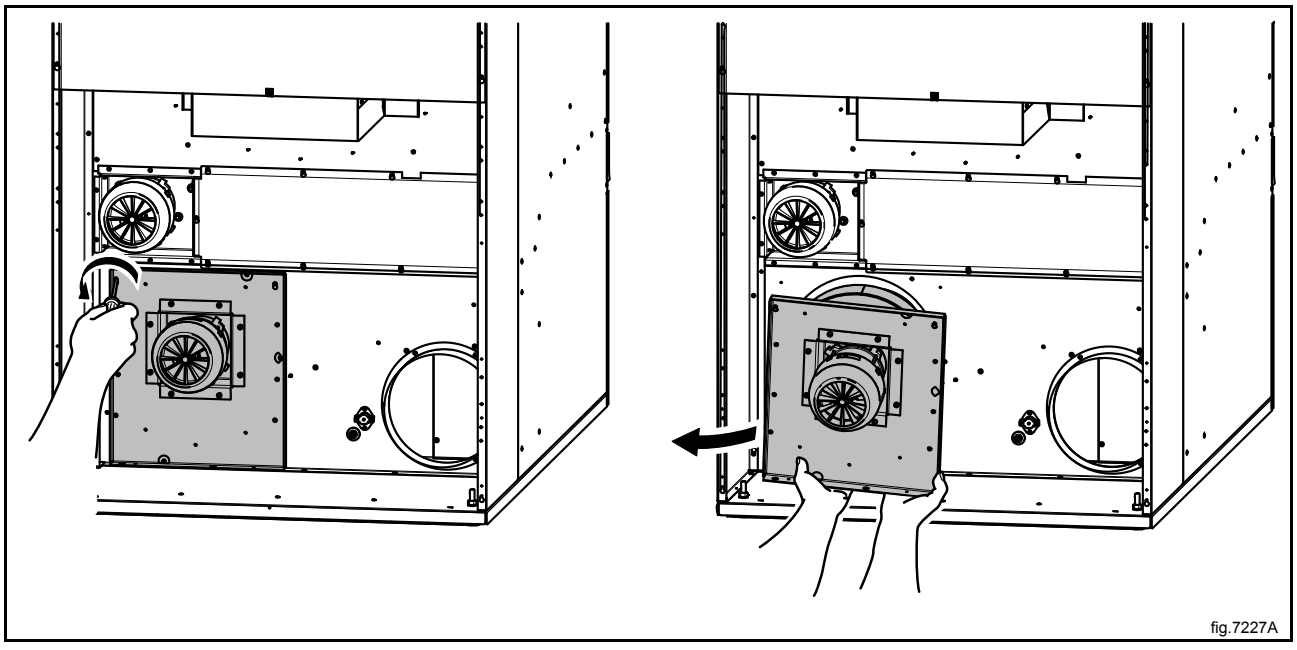


fig.7227A

Remove the screw and washer.

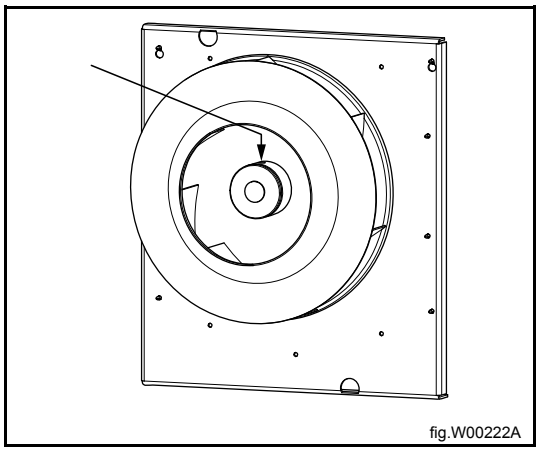


fig.W00222A

Use a puller to remove the fan from the fan motor.

Mount the new fan.

Remount the fan motor module in the machine.

Connect the fan motor cable.

Remount the lower rear panel.

8 Heating unit, electric

8.1 General

Spare part number, effect and voltage are printed on each heating element.

8.2 Replacement of heating element

Disconnect the power to the machine.

Demount the upper rear panel.

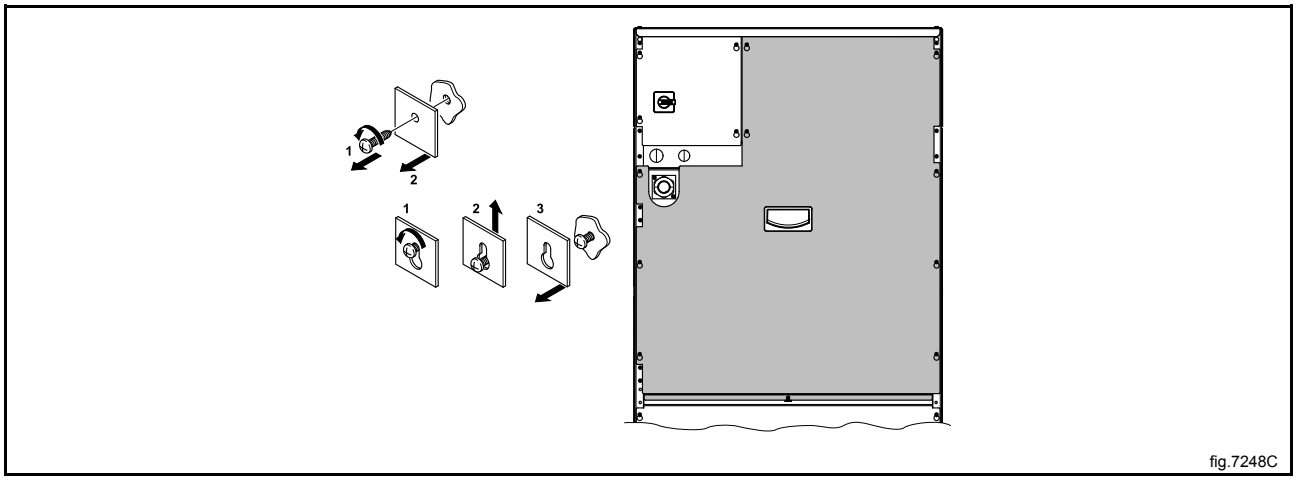
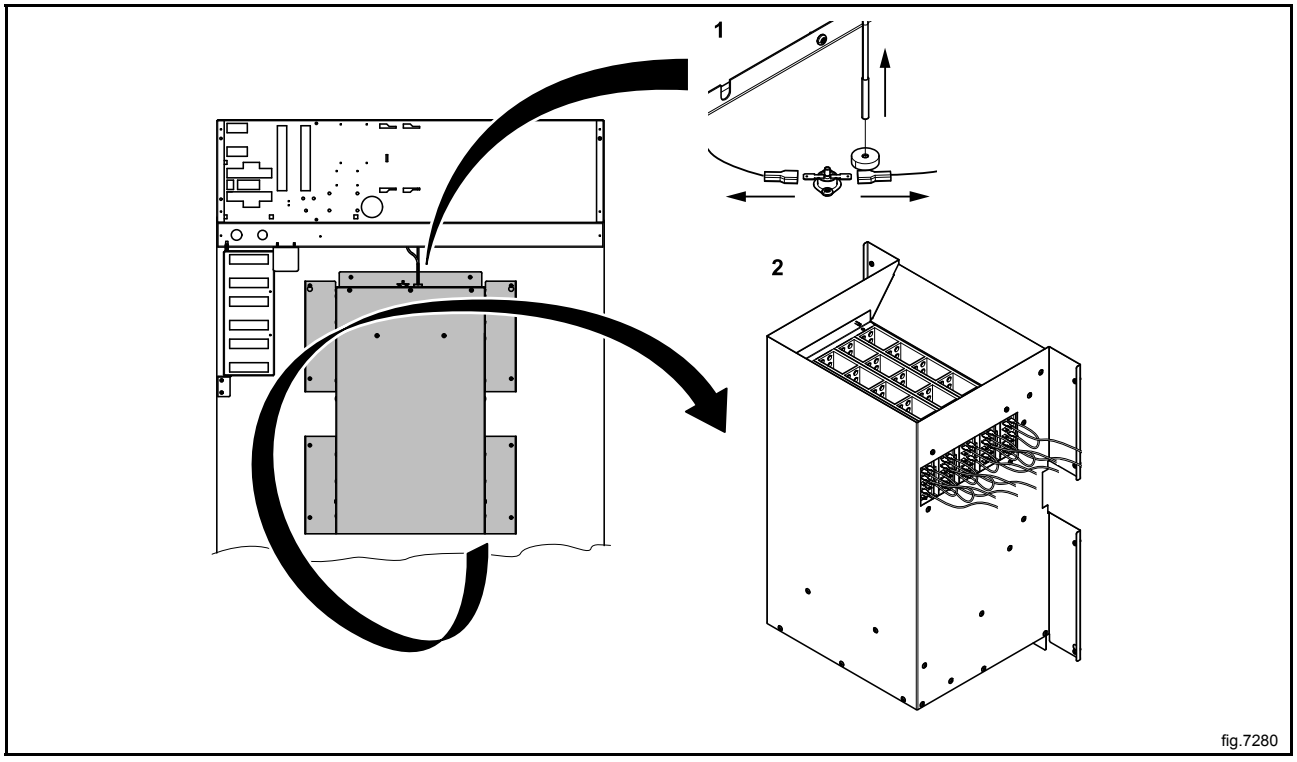


fig.7248C

Disconnect the heating sensor (PT100) and the overheat protection (1).

Demount the heating module (2).

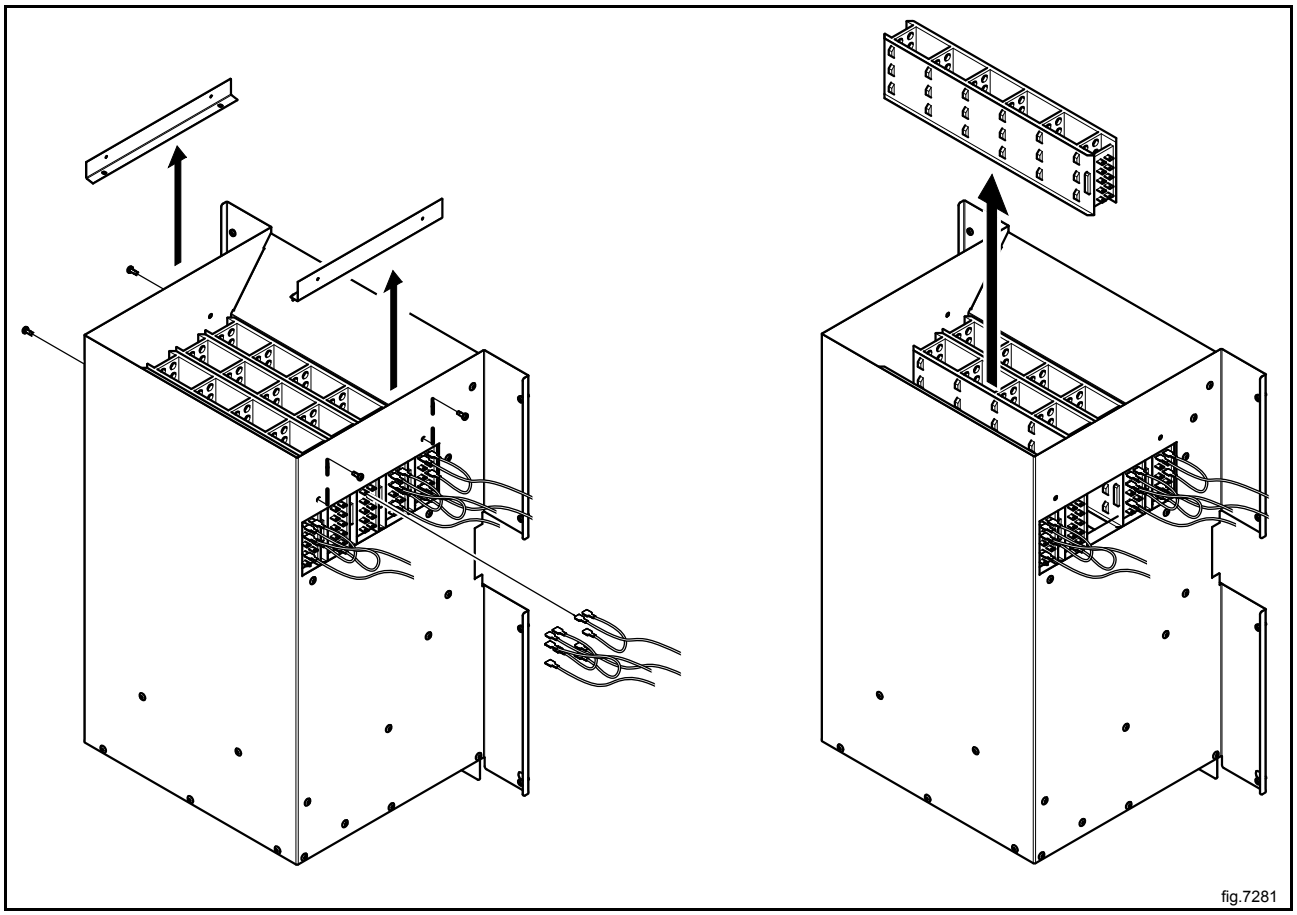
Carerfully lift out the heating module and put it upside down with the heating elements facing upwards.



Heating unit, electric

Demount the “locking plates” below the heating elements.

Disconnect the wires and remove the heating element.



Connect the new element. Reconnect the wires as before, use the electric schematic supplied with the machine.

9 Heating unit, gas

9.1 Replacement of gas burner

Shut off the manual gas valve.

Disconnect the power to the machine.

Demount the two rear panels.

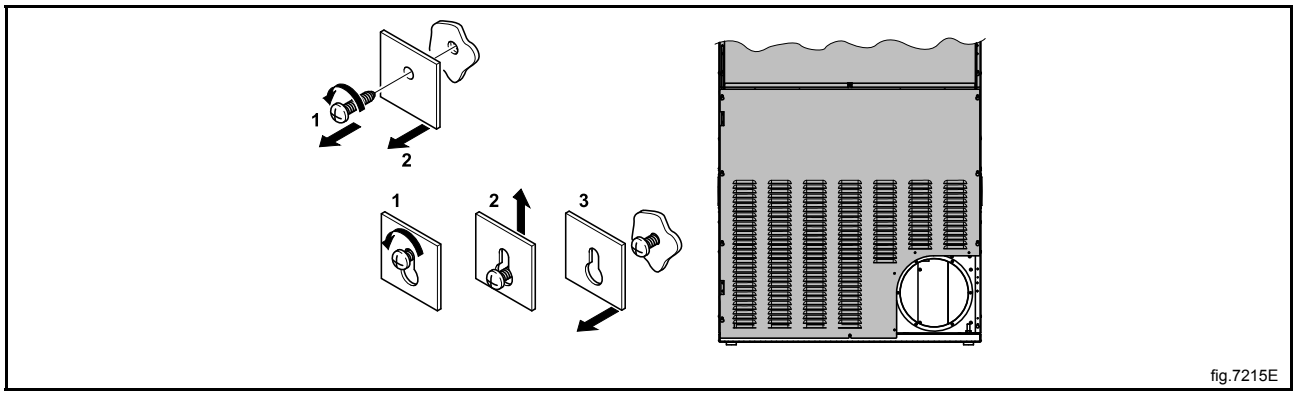


fig.7215E

Unscrew the two screws to the bracket (A) holding the gas valve.

Disconnect the heating sensor (PT100) and the overheat protection (B).

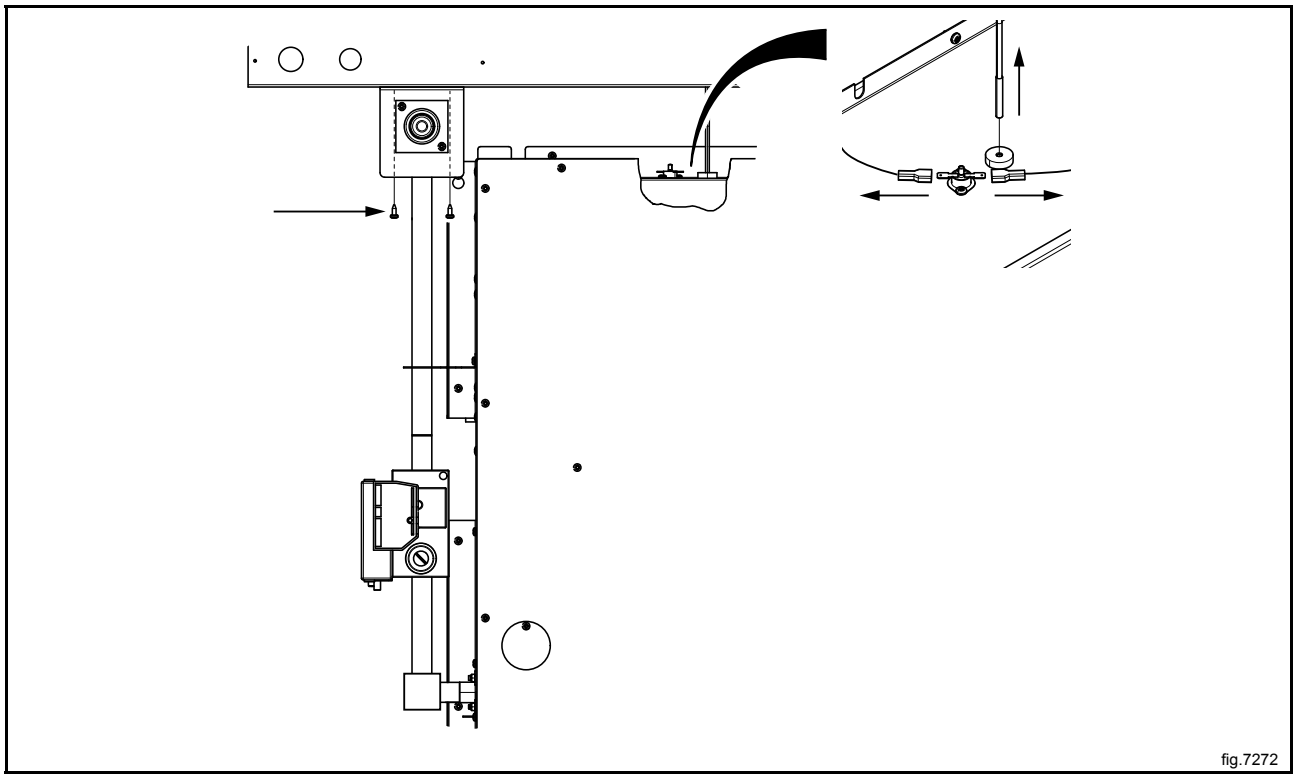


fig.7272

Heating unit, gas

Disconnect the earth cable.

Disconnect the flame sensor and the ignition cable from the control box.

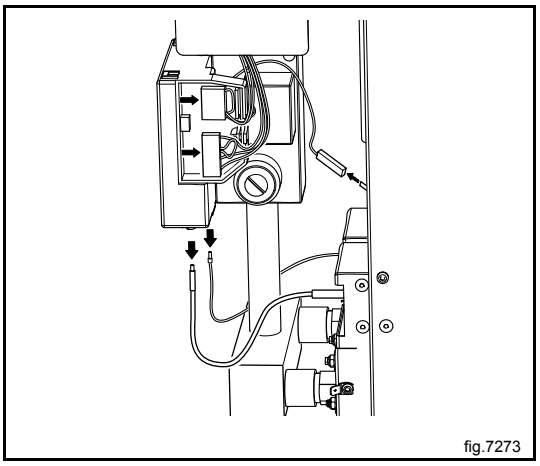


fig.7273

Demount the gas unit and carefully lift out the gas unit.

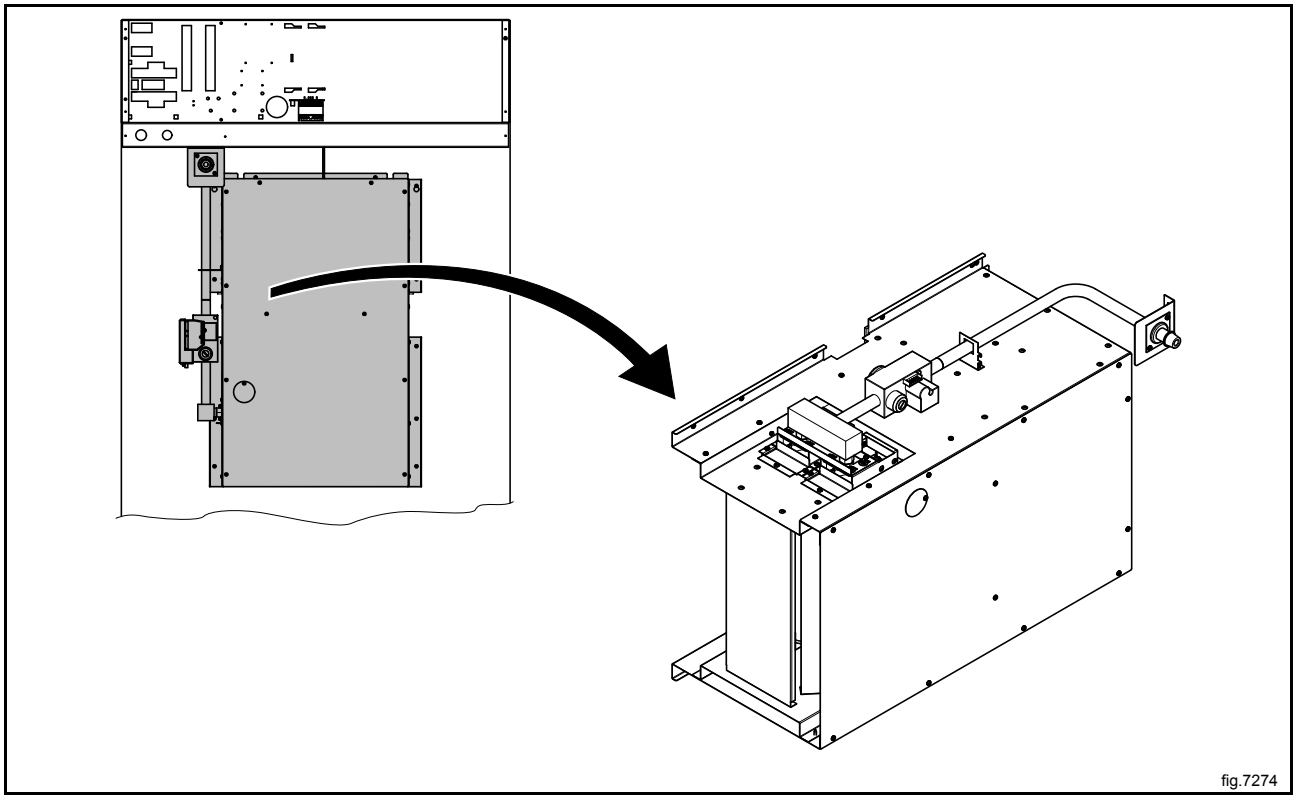


fig.7274

Demount the gas valve.

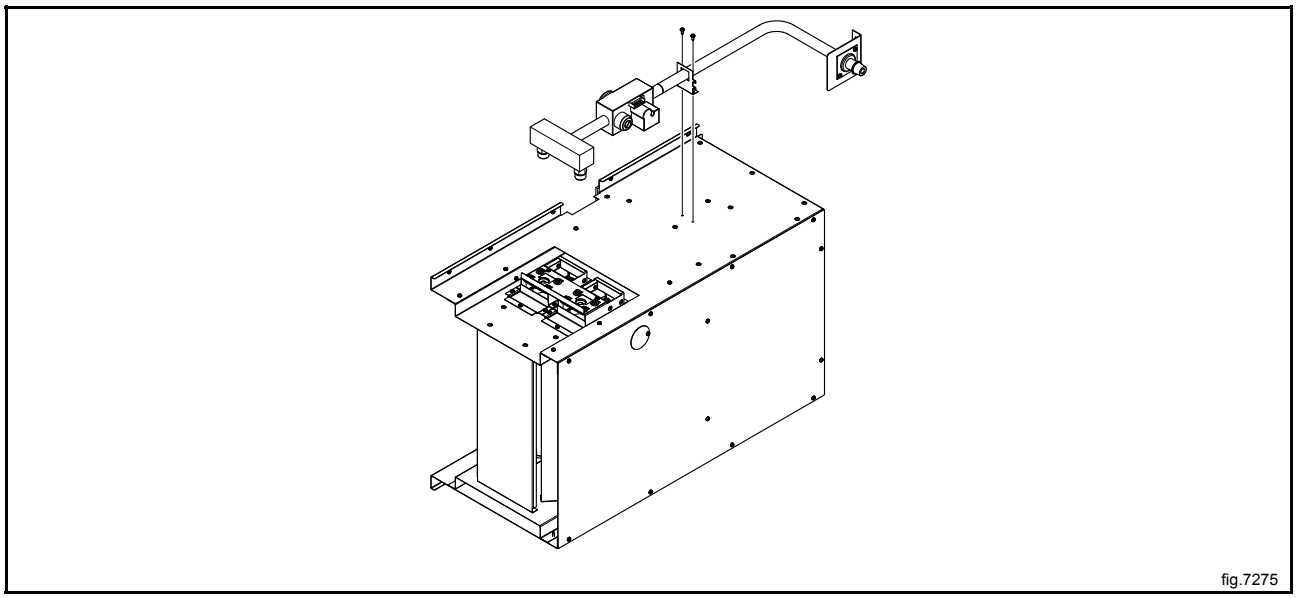


fig.7275

Demount the two lock plates (A). Demount the two air reducing plates (B). Demount the two brackets (C).

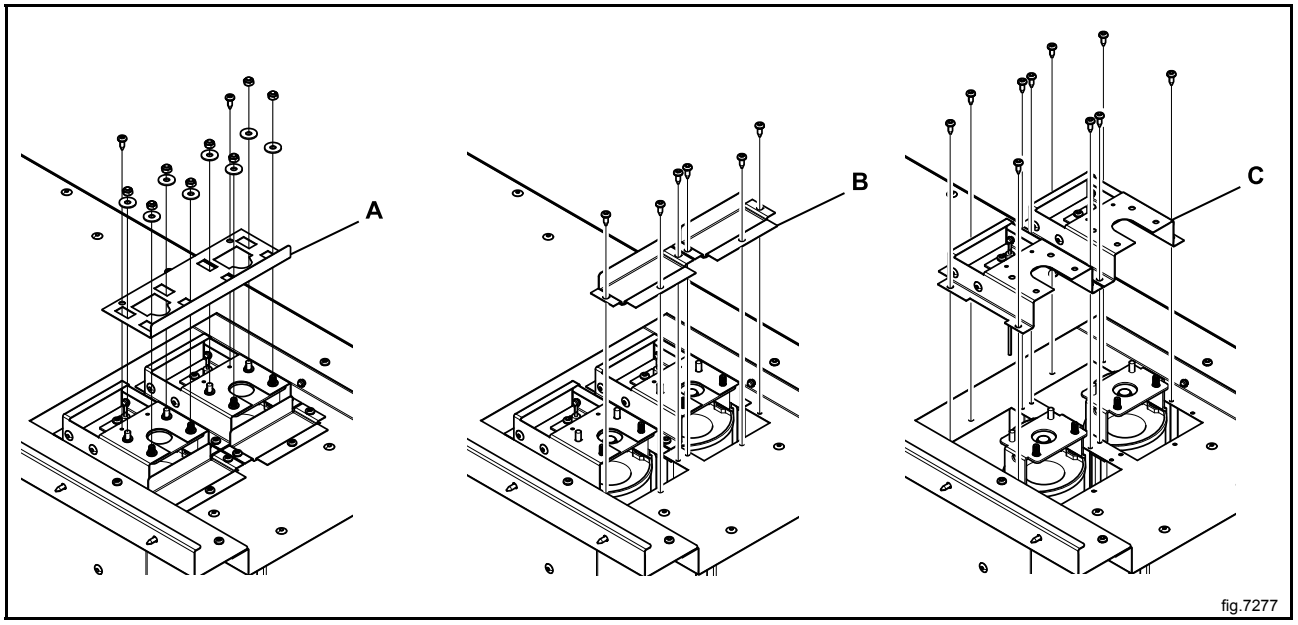
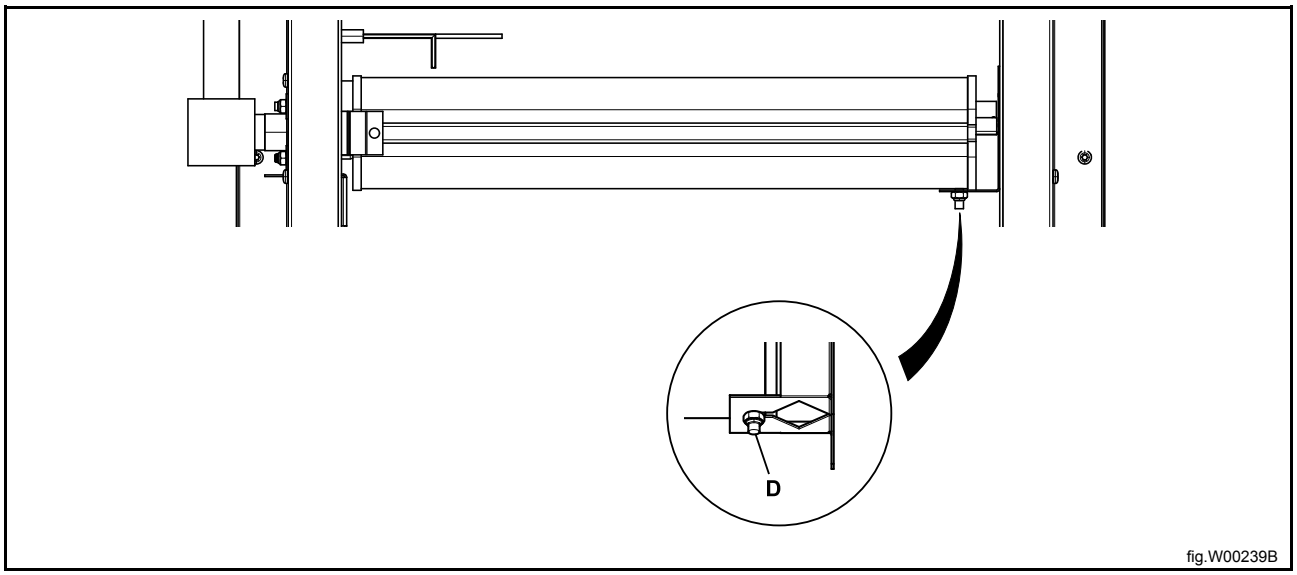


fig.7277

Loosen the screw and nut (D) holding the gas burner to remove the gas burner.



Mount the new gas burner with the nut and screw from the old one.

Remount the two brackets (C), the two air reducing plates (B) and the two lock plates (A). Fasten the gas burner to the gas valve.

Remount the gas unit.

Remount the two rear panels and connect the gas inlet.

9.2 Replacement of control box

Shut off the manual gas valve.

Disconnect the power to the machine.

Demount the two rear panels.

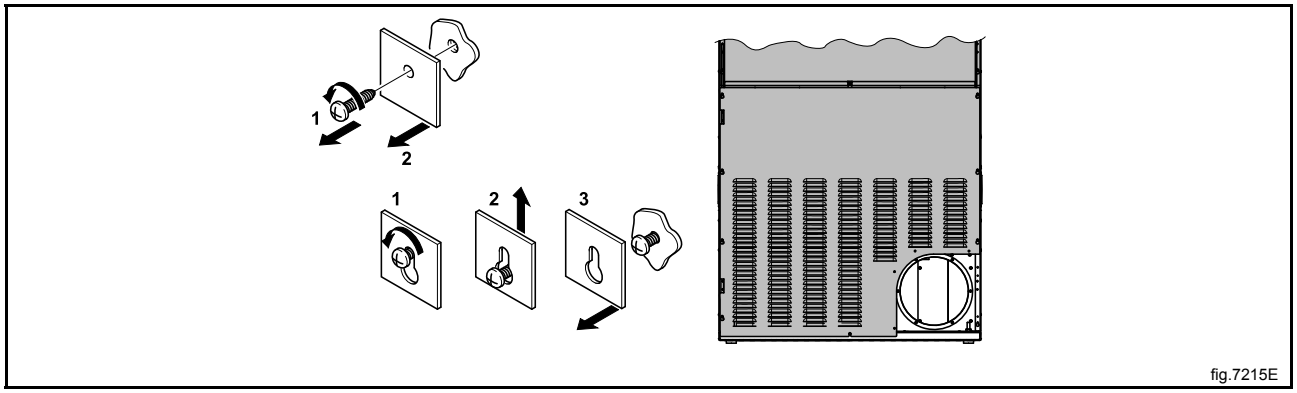


fig.7215E

Unscrew the screw to the control box.

Disconnect the wires from the control box.

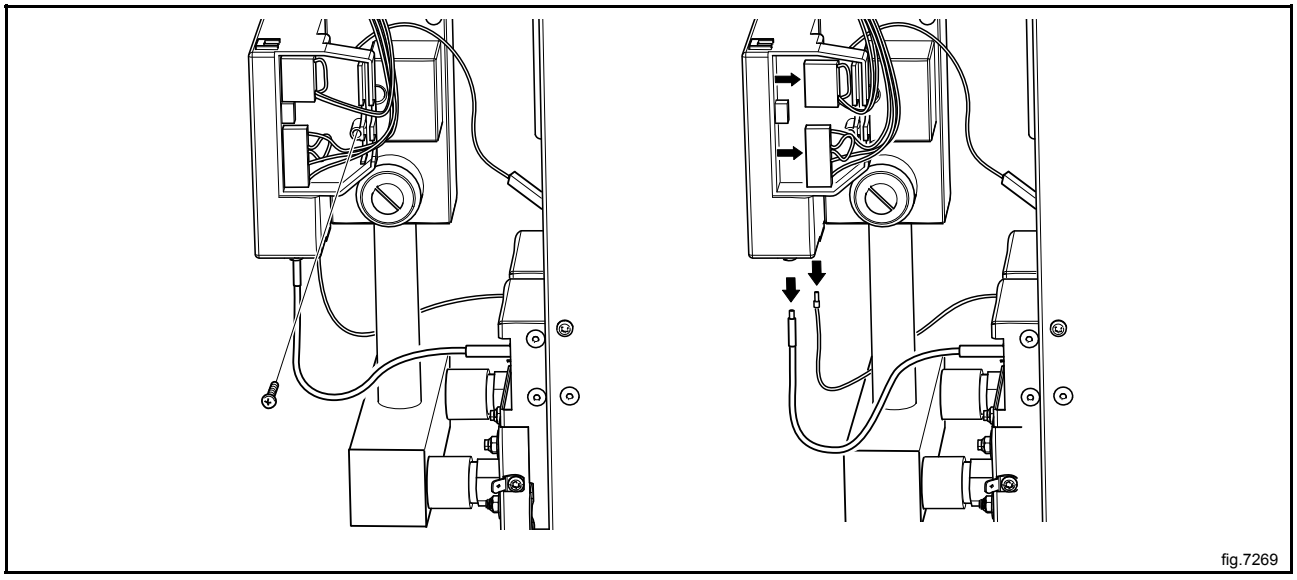


fig.7269

Remove the control box and mount the new one.

Connect the wires to the control box.

Fasten the screw to the control box.

Remount the two rear panels.

9.3 Replacement of gas valve

Shut off the manual gas valve and disconnect the gas inlet.

Disconnect the power to the machine.

Demount the two rear panels.

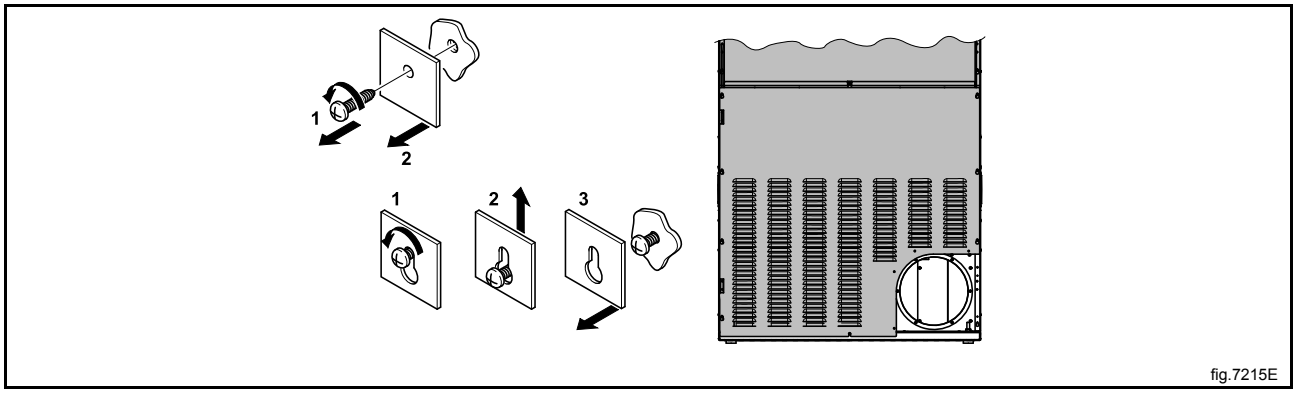


fig.7215E

Unscrew the two screws to the bracket (A) holding the gas valve.

Disconnect the heating sensor (PT100) and the overheat protection (B).

Unscrew the screw to the control box (C).

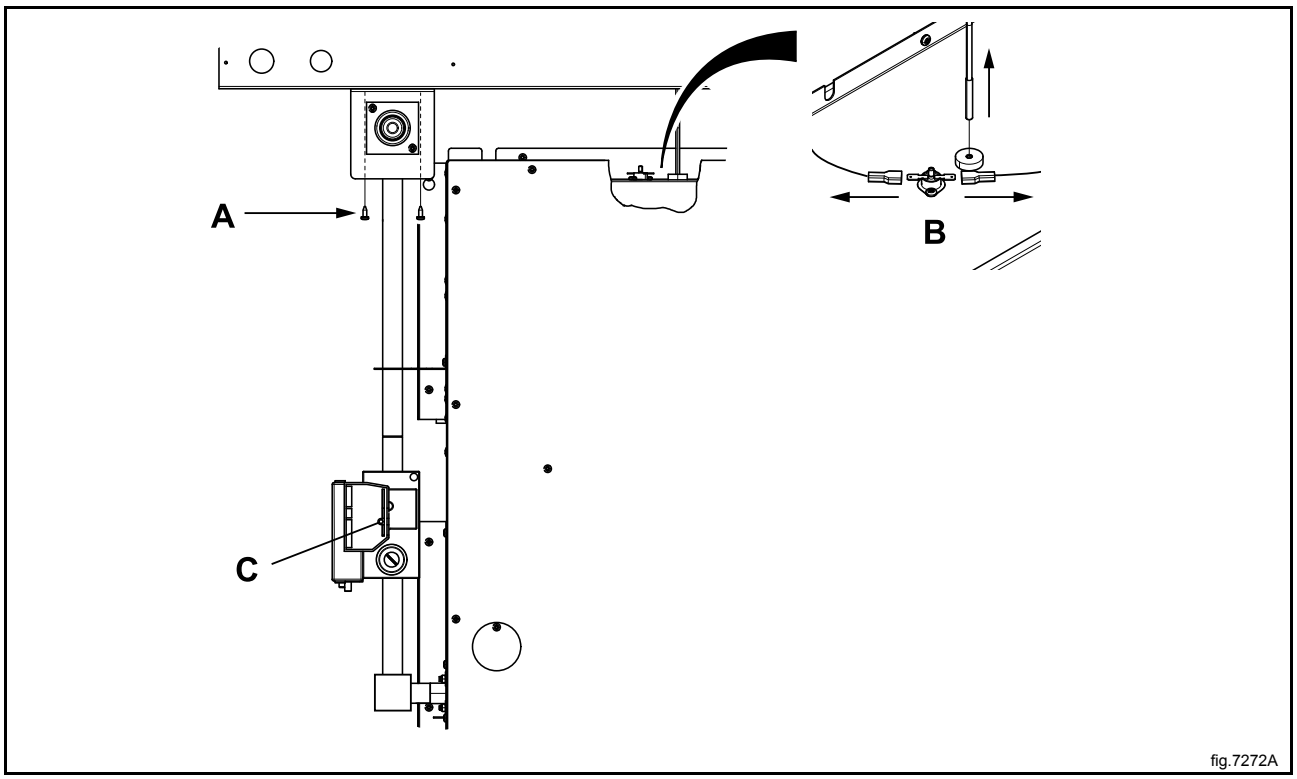


fig.7272A

Disconnect the earth cable (D).

Disconnect the flame sensor and the ignition cable from the control box (E).

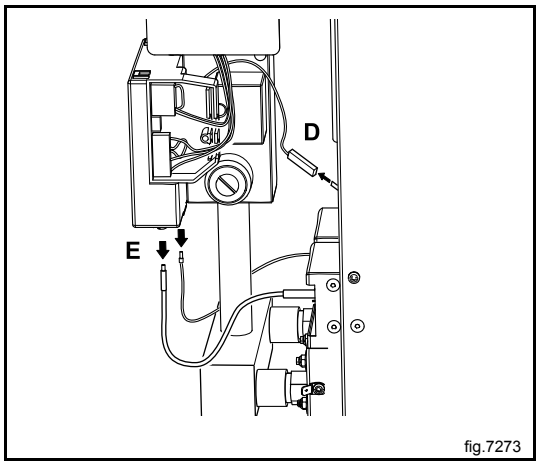


fig.7273

Demount the gas unit and carefully lift out the gas unit.

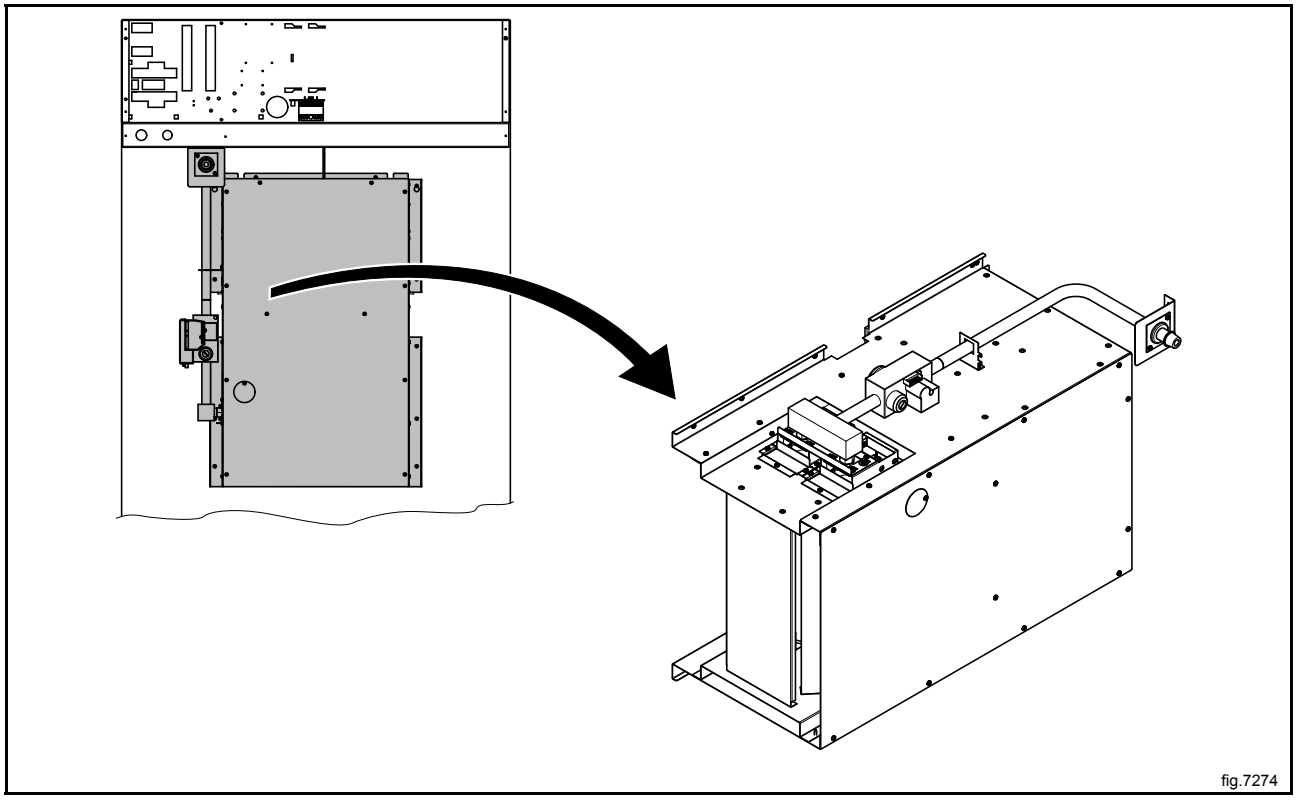


fig.7274

Heating unit, gas

Demount the gas valve from the gas unit.

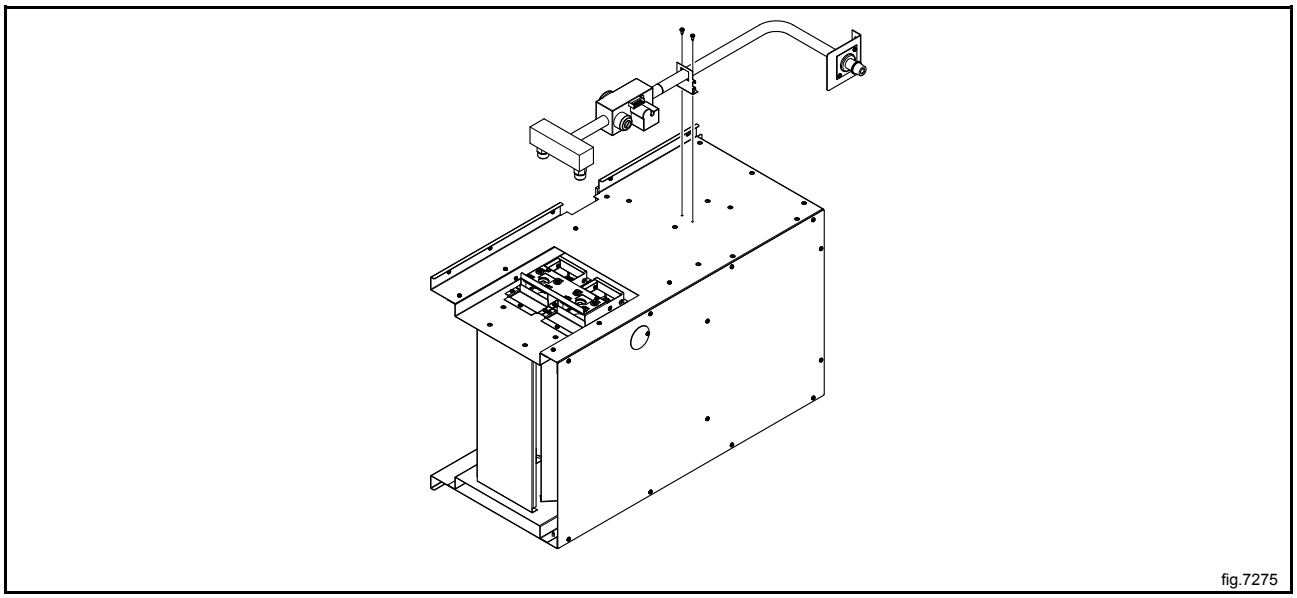


fig.7275

Mount the new gas valve on the gas unit.

Remount the gas unit in the machine.

Connect the earth cable.

Connect the flame sensor and the ignition cable on the control box.

Fasten the screw to the control box.

Connect the heating sensor (PT100) and the overheat protection.

Fasten the screws to the bracket holding the gas valve.

Remount the two rear panels and connect the gas inlet.

9.4 Replacement of flame sensor

Shut off the manual gas valve.

Disconnect the power to the machine.

Demount the two rear panels.

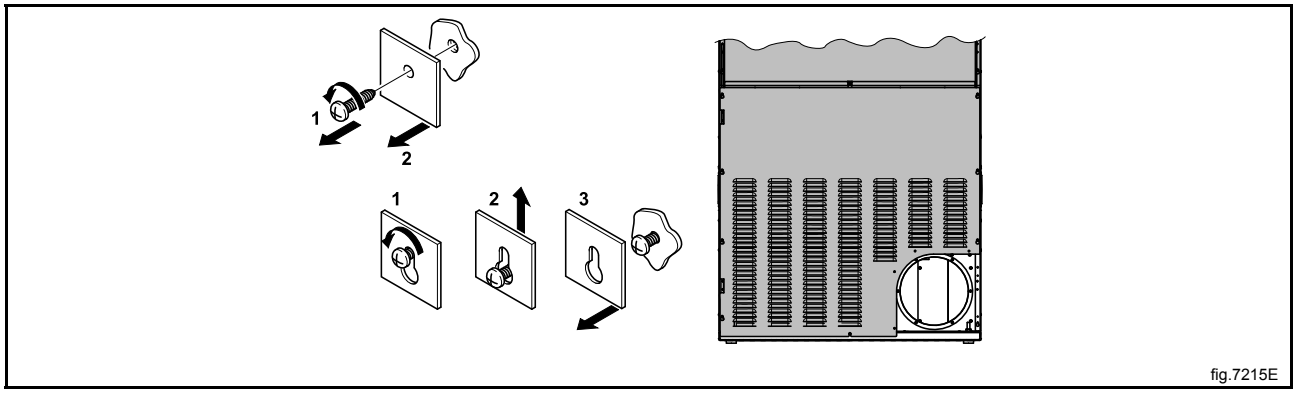


fig.7215E

Disconnect the wire to the flame sensor.

Demount the flame sensor.

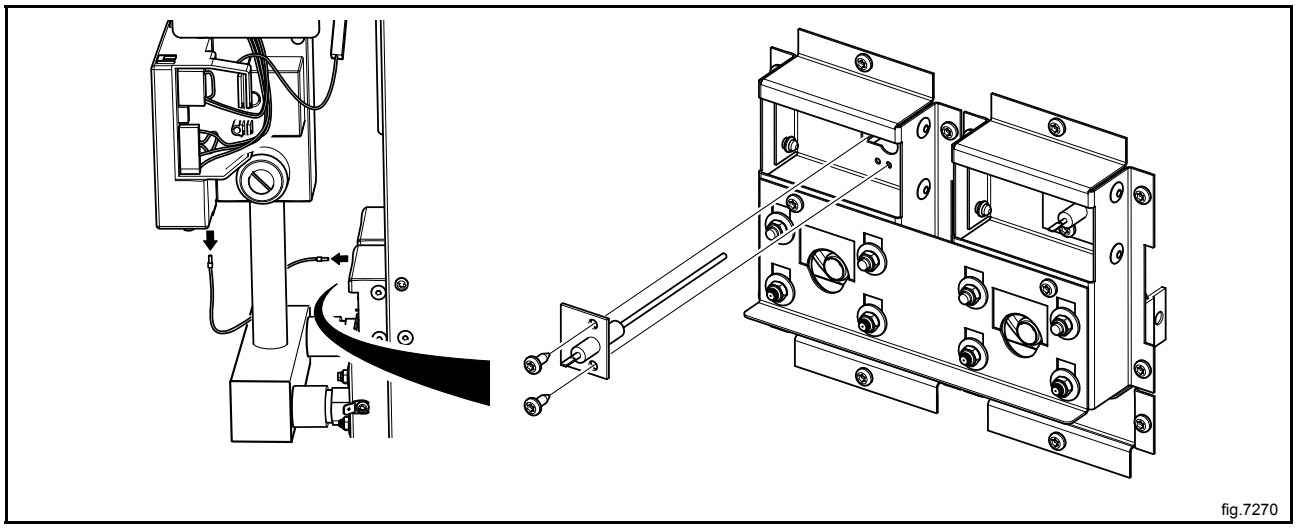


fig.7270

Mount the new flame sensor.

Control measuring the ionization current

Disconnect the wire to the flame sensor.

Measure the current between the quick connector (A) and the ionization connector (B). The current must be at least 0.9 µA DC.

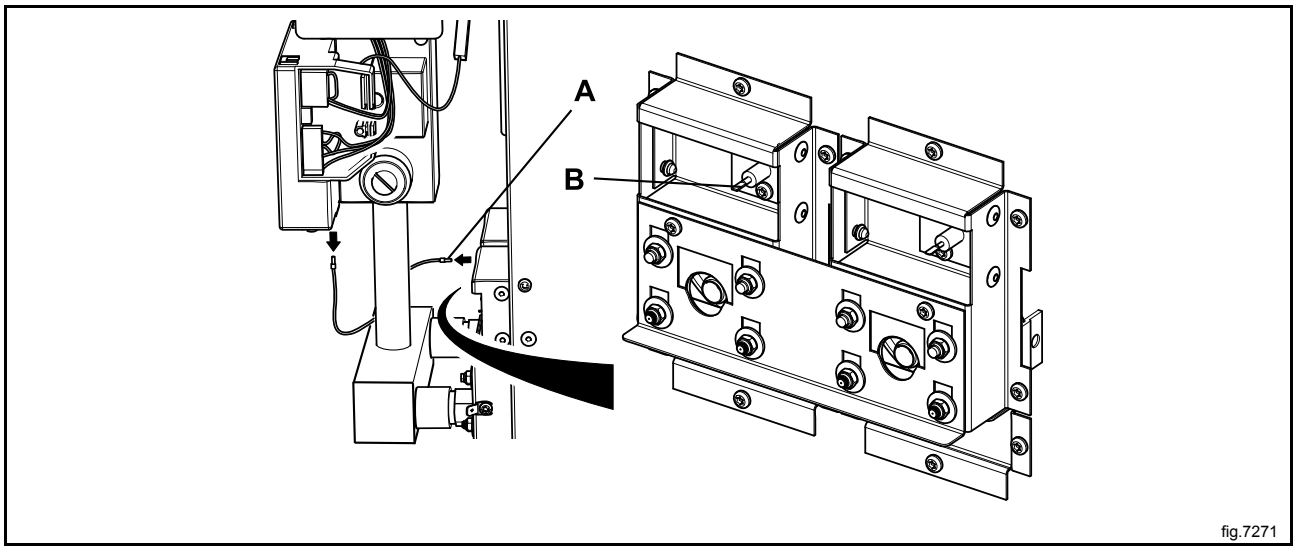


fig.7271

9.5 Replacement of ignition cable

Shut off the manual gas valve.

Disconnect the power to the machine.

Demount the two rear panels.

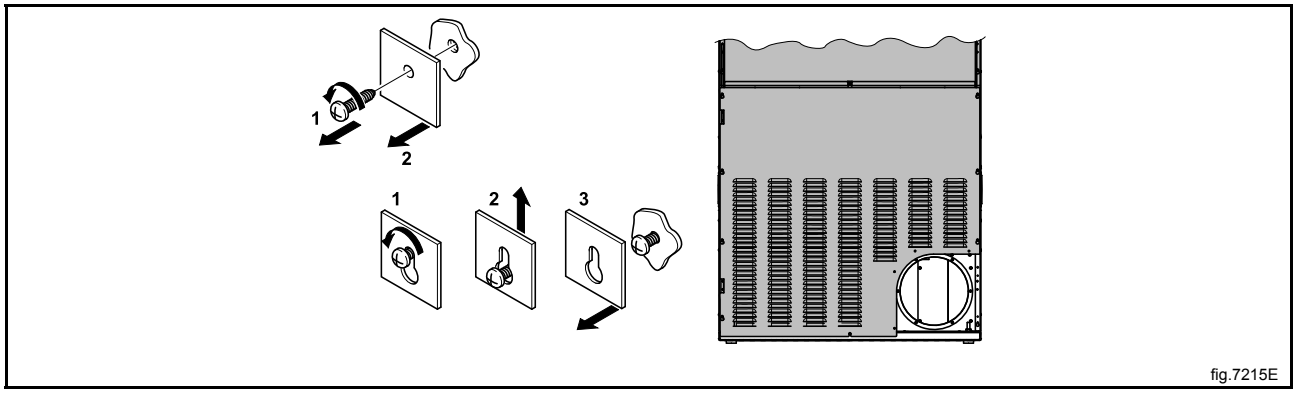


fig.7215E

Disconnect the ignition cable.

Demount the ignition electrode.

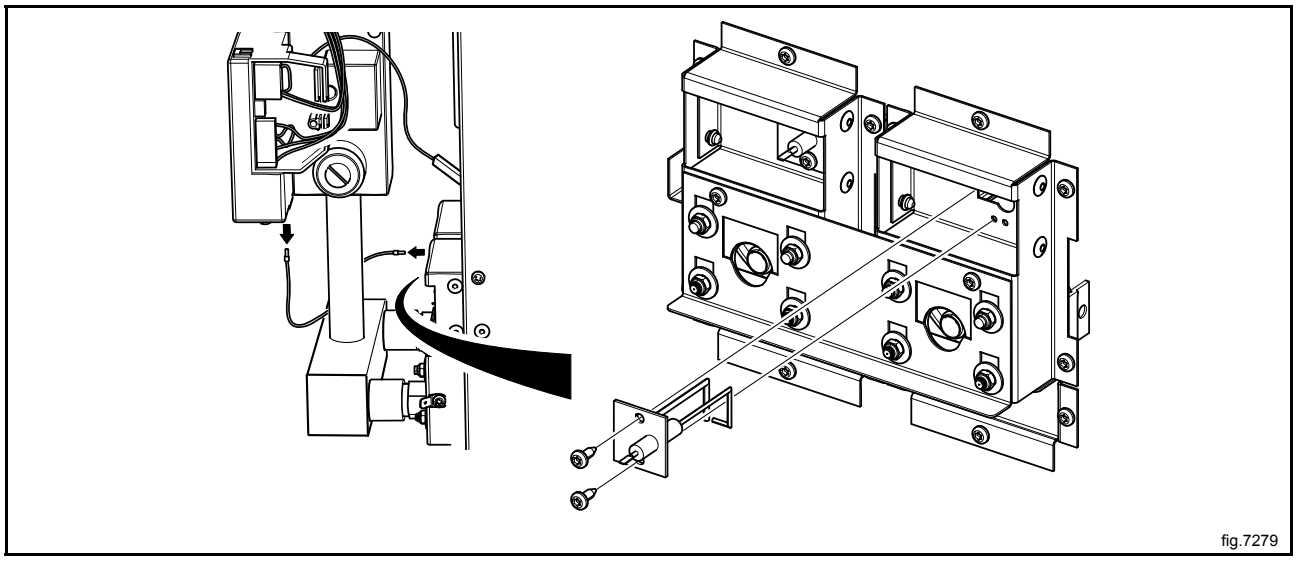
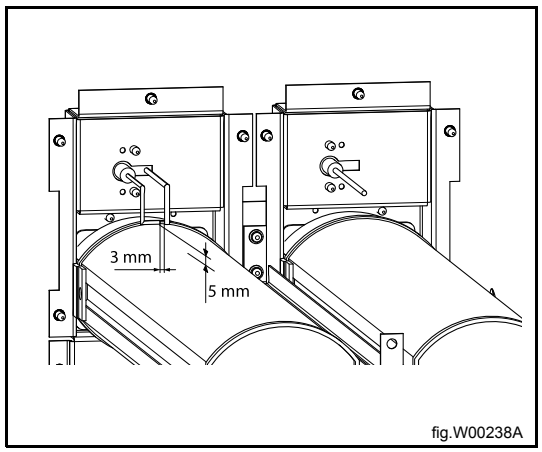


fig.7279

Mount the new ignition electrode and connect the ignition cable.

Adjusting ignition electrode

The distance from the ignition electrode to the gas burner must be 5 mm. The spark gap must be 3 mm.



9.6 Converting instructions

Not applicable for Japan.

Disconnect the power to the machine.

Demount the lower back panel.

Remove the air reducing plates.

Remove the nozzle (1).

Mount the new supplied nozzle.

Mount the new air reducing plates according to the table.

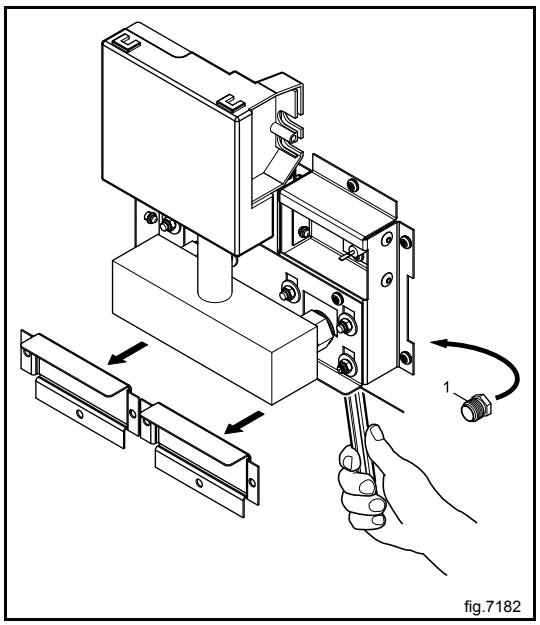


fig.7182

Loosen the measuring branch screw (2) 1/4 turn; connect a manometer to the measuring branch.

Connect the power to the machine and select a program with heat.

Start the machine.

Set the correct nozzle pressure according to the table on setting screw (4) under the cover screw (3).

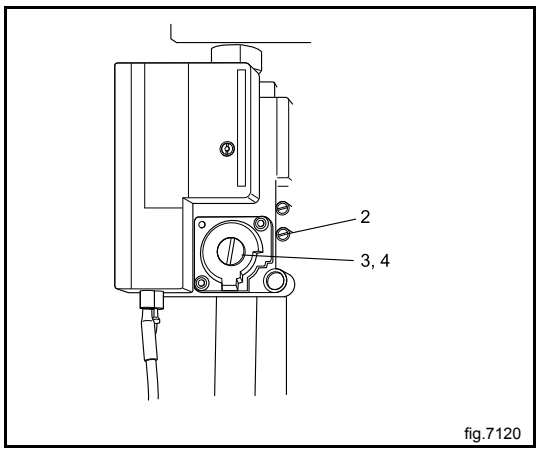


fig.7120

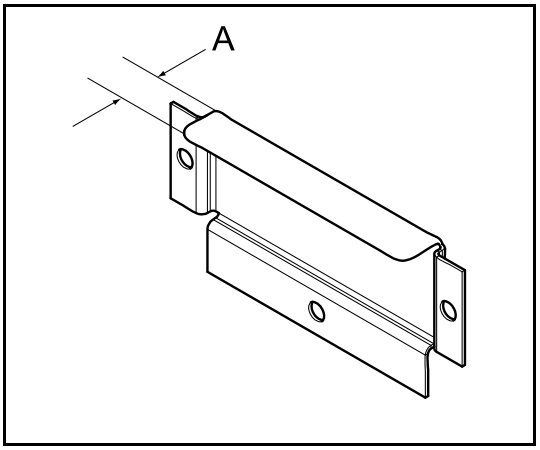
Check that the gas flame burns evenly.

Mount the cover screw (3).

Remount the lower back panel.

9.7 Table of pressure and adjustment

Gas category	Heating power (BTH/h)	Inlet pressure (Wa")	Burner pressure (Wa")	Injector size (mm)	Air reducing plate (mm)	Label number
LPG	143400	7	3.2	4.0	490359201 A = 18	Default
Propane	143400	11	11	2.4	490359202 A = 13	490355731



9.8 Test run

Loose the pressure measuring tap screw (2) 1/4 of a turn.

Connect a manometer to the measuring tap.

Select a program that uses heat.

Start the machine.

Check the nozzle pressure, see table.

If necessary adjust the regulator setting screw (4) behind the cover screw (3). Replace the cover screw (3) if removed.

Check that the gas is burning evenly.

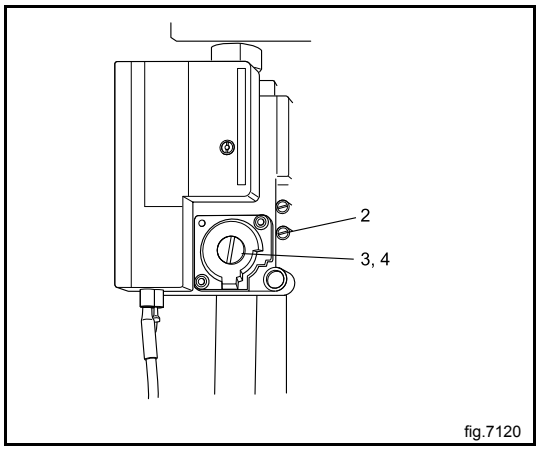


fig.7120

10 Heating unit, steam

10.1 Replacement of steam calorifier

Disconnect the power to the machine.

Shut off the steam and demount the steam inlet and outlet hose.

Demount the two rear panels.

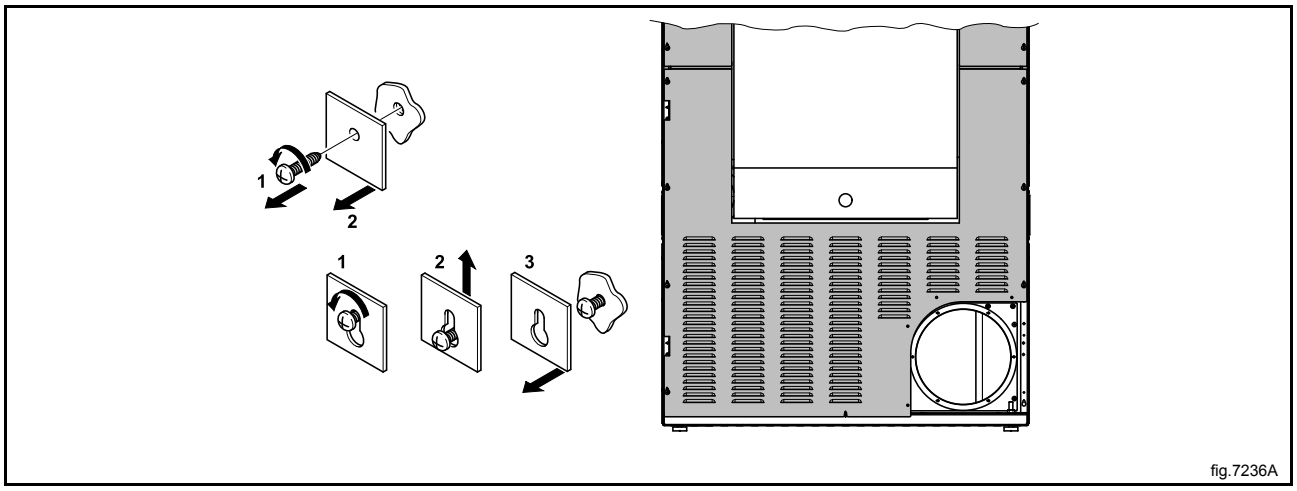


fig.7236A

Loosen the screws on the bracket that is holding the steam calorifier and push the bracket towards you. Carefully lift off the steam calorifier.

Note that the steam calorifier also needs to be loosened from the mounting rail at the bottom.

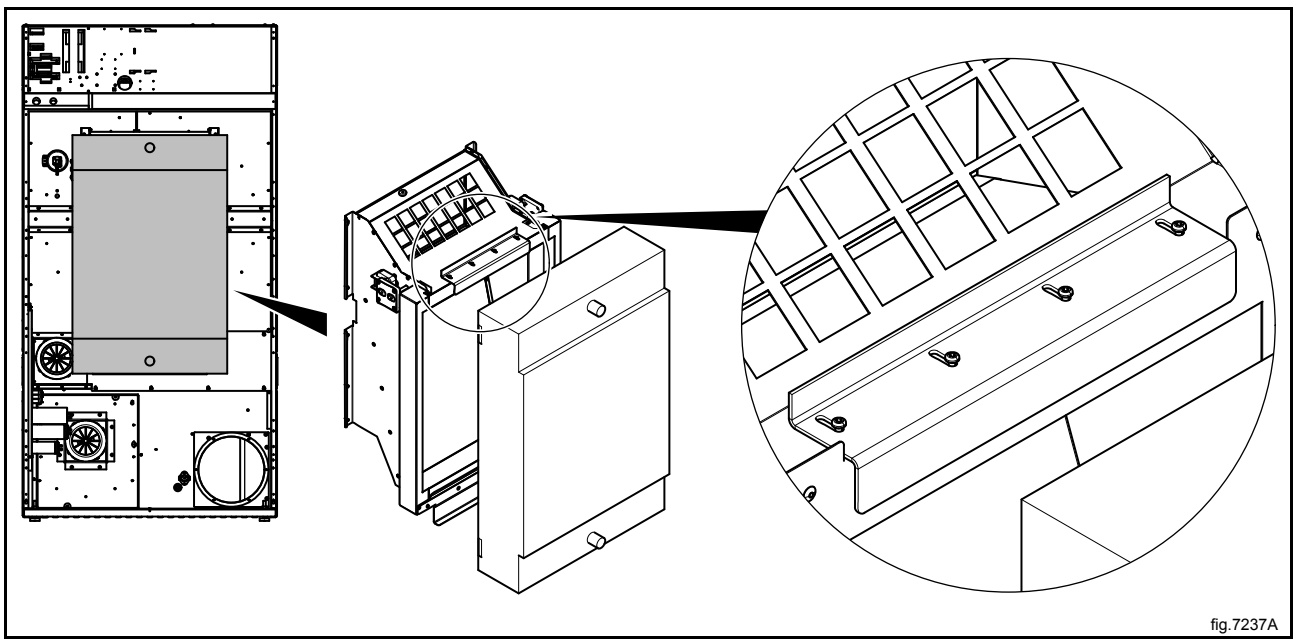


fig.7237A

Mount the new steam calorifier. Tighten the screws a bit first when putting the steam calorifier in position. Loosen the screws again and push the steam calorifier and bracket inwards as far as possible. Tighten the screws when it is in position.

Note!

To prevent heat leakage it is important to put back the steam calorifier in correct position.

10.2 Replacement of damper motor

Disconnect the power to the machine.

Demount the upper rear panel.

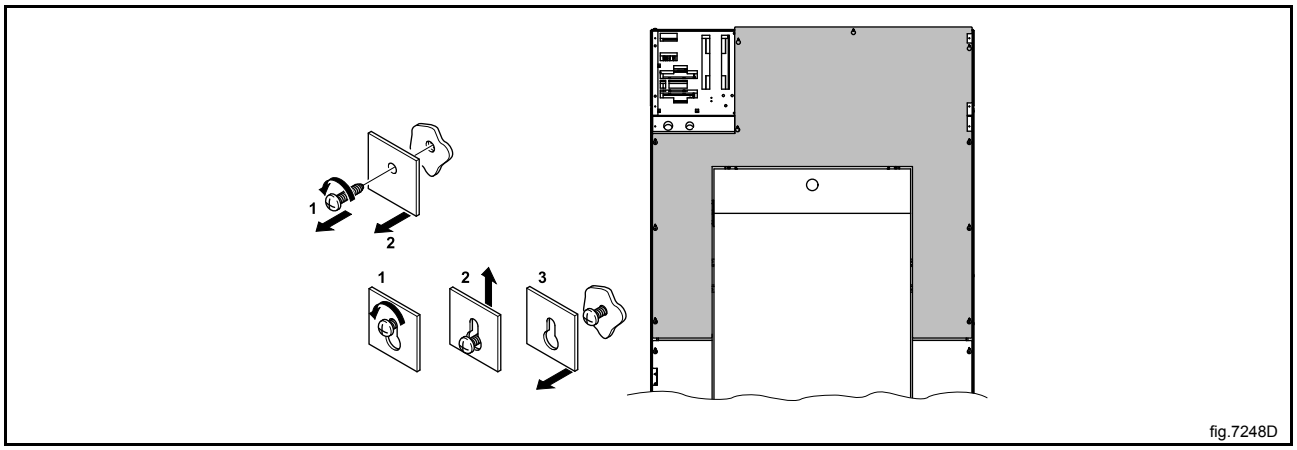


fig.7248D

Demount the bracket (A) from the machine and demount the damper motor (B) from the bracket.

Mount the new damper motor on the bracket and then remount the bracket on the machine.

Note!

If both of the damper motors is to be replaced. Make sure to mount the correct motor on each side. The rotation of the motors is different and if the motors are mounted on the wrong side they will not work properly.

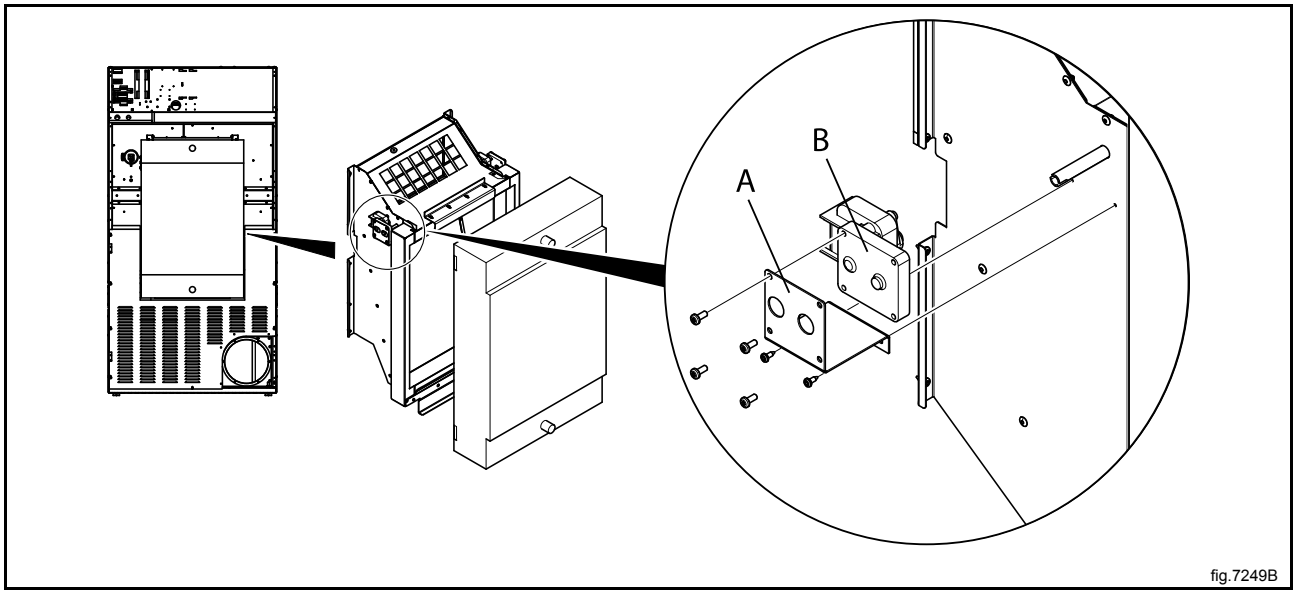


fig.7249B

Remount the upper rear panel.

11 Drum

11.1 Replacement of drum

Disconnect the power to the machine.

Demount the two rear panels.

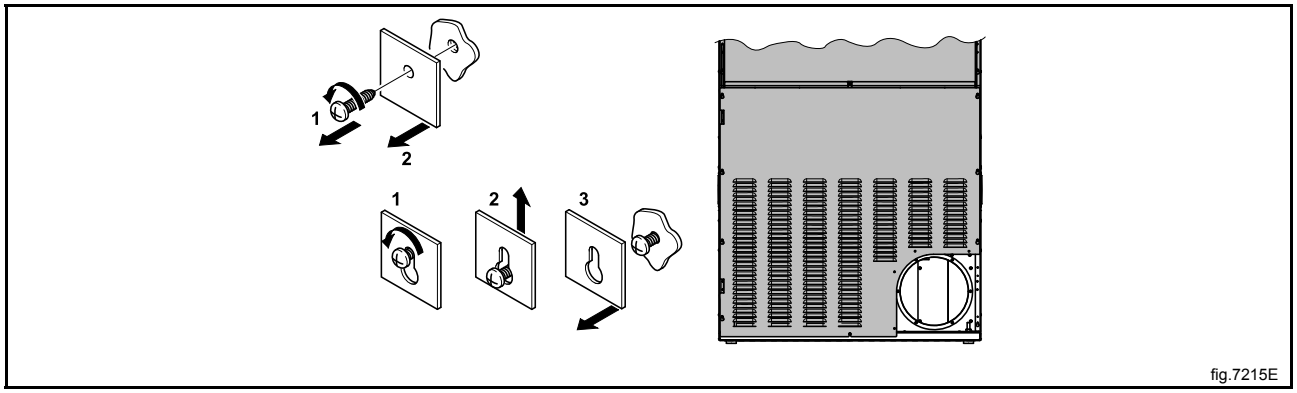


fig.7215E

Demount the cover plate to the belt tensioner.

If the machine is equipped with RMC, demount the RMC (A).

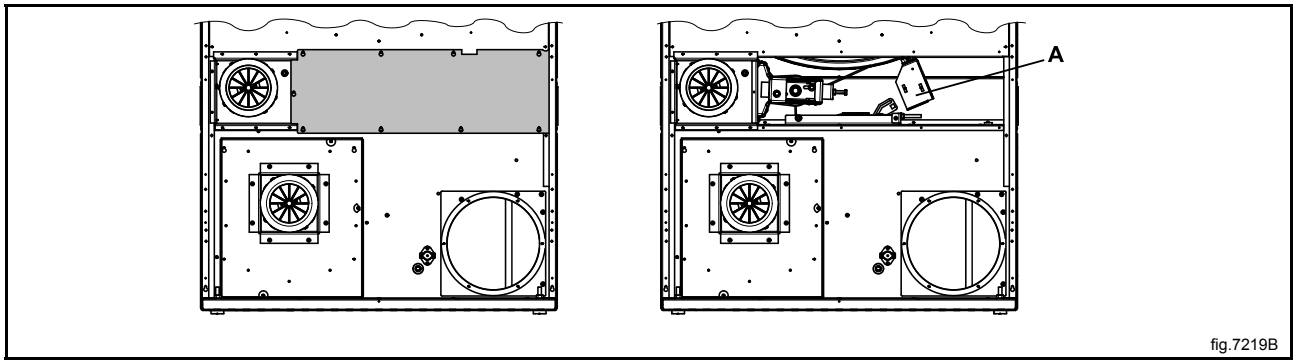


fig.7219B

Loosen the belt tensioner with a torque wrench by pulling the tension plate counter clockwise to the bottom.

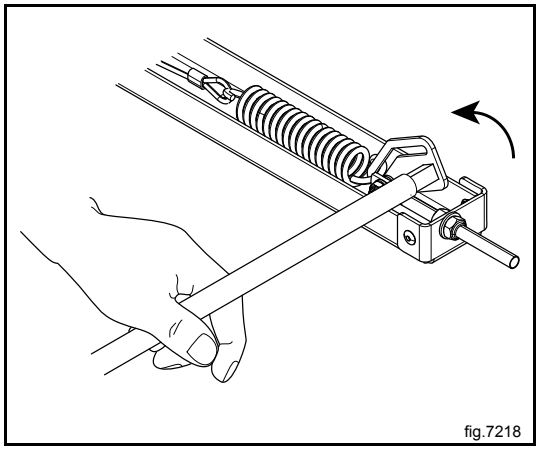


fig.7218

Loosen the wire (A) between the spring and the pulley.

Note!

The wire can be sharp so it is recommended to use gloves.

Loosen the belt around the drum (B).

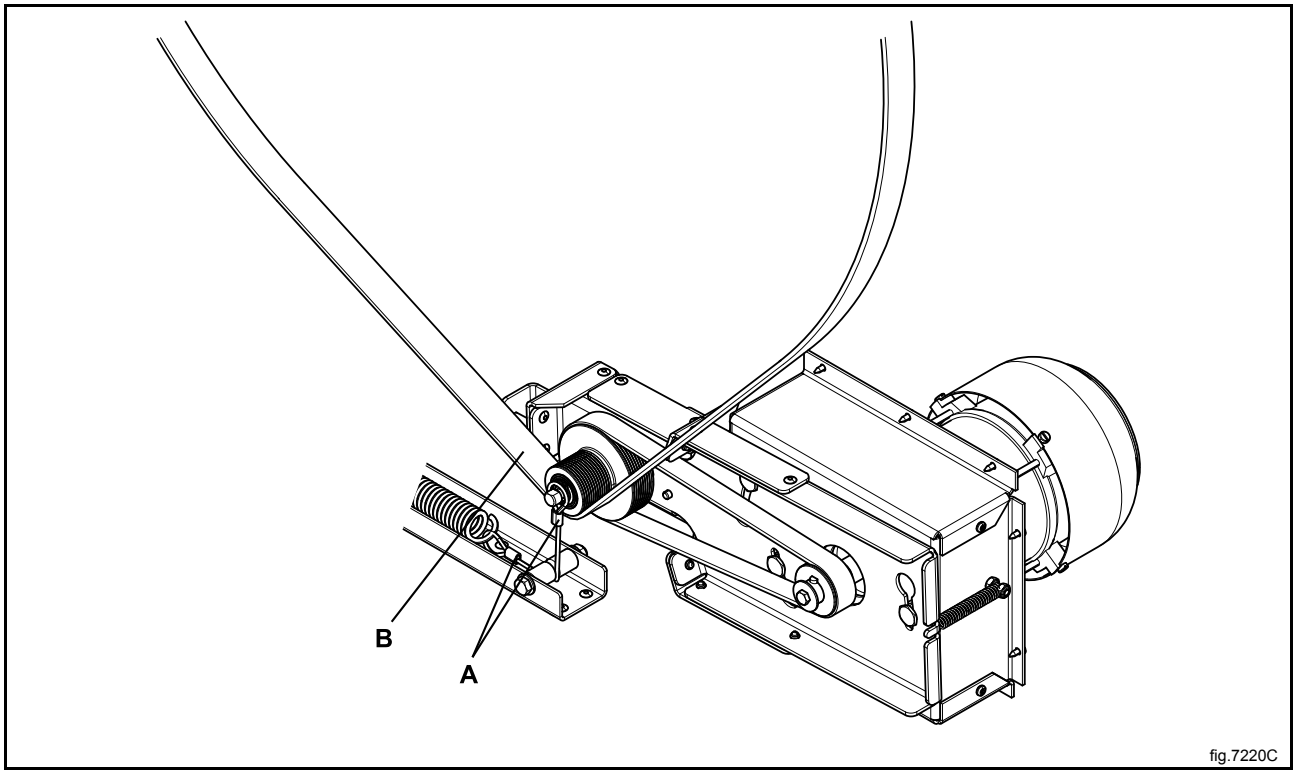


fig.7220C

Demount the hinges and remove the door. Remove the upper hinge first.

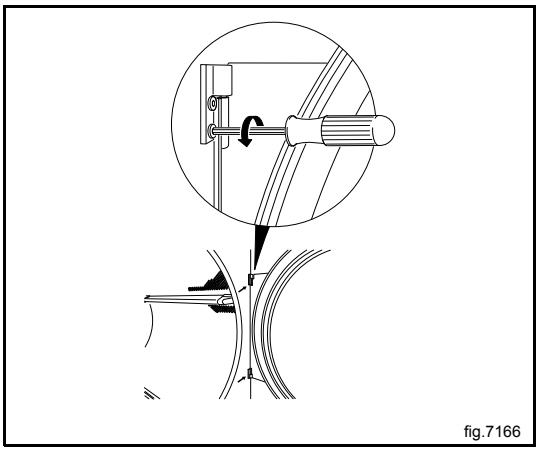


fig.7166

Remove the screws on the front panel and carefully loosen the panel. Disconnect the door switch cable and remove the panel.

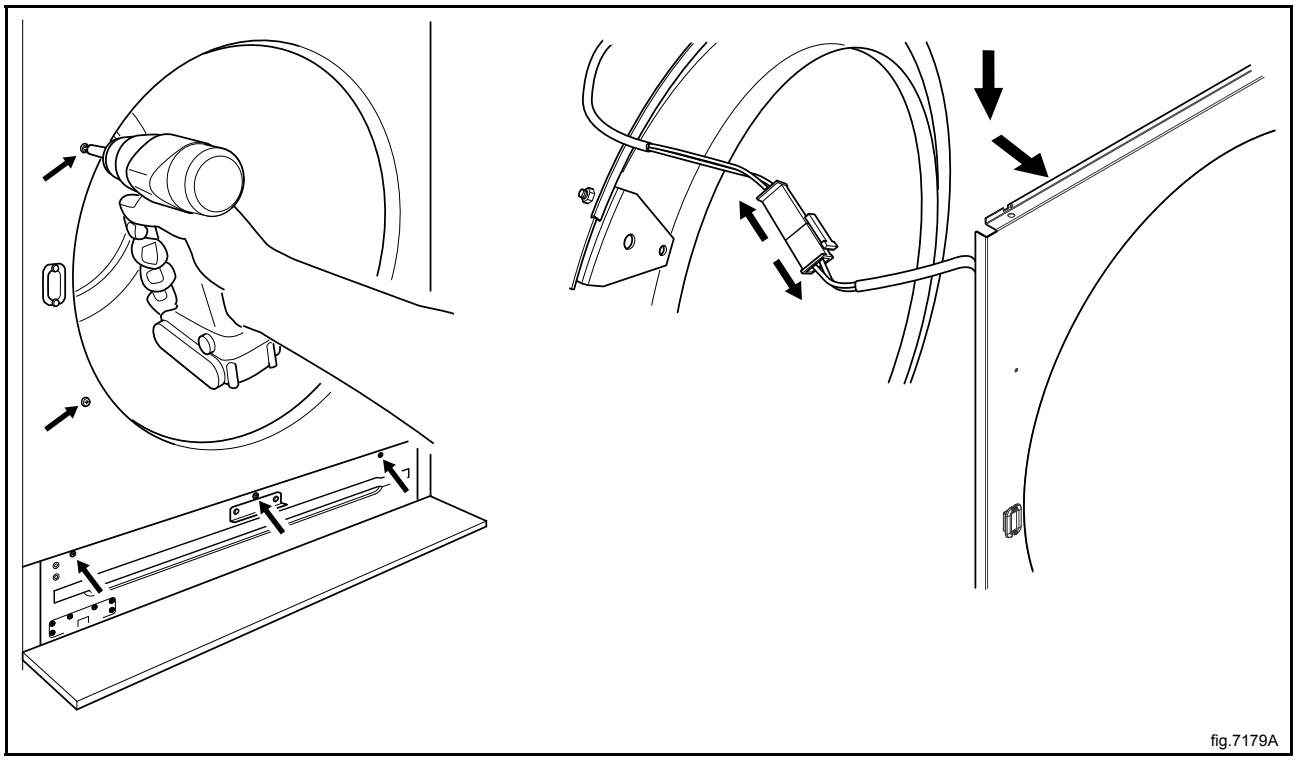


fig.7179A

Loosen the screws and remove the brackets.

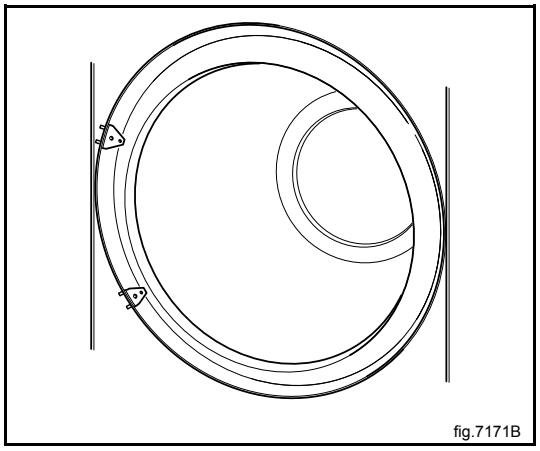


fig.7171B

Remove the screws and the bearing house (A).

1. Shows a machine without RMC. Remove the bolt (B) and the washer (C).
2. Shows a machine with RMC. Loosen the screw and pull the RMC flange to the side in order to remove the bolt (B) and the washer (C).

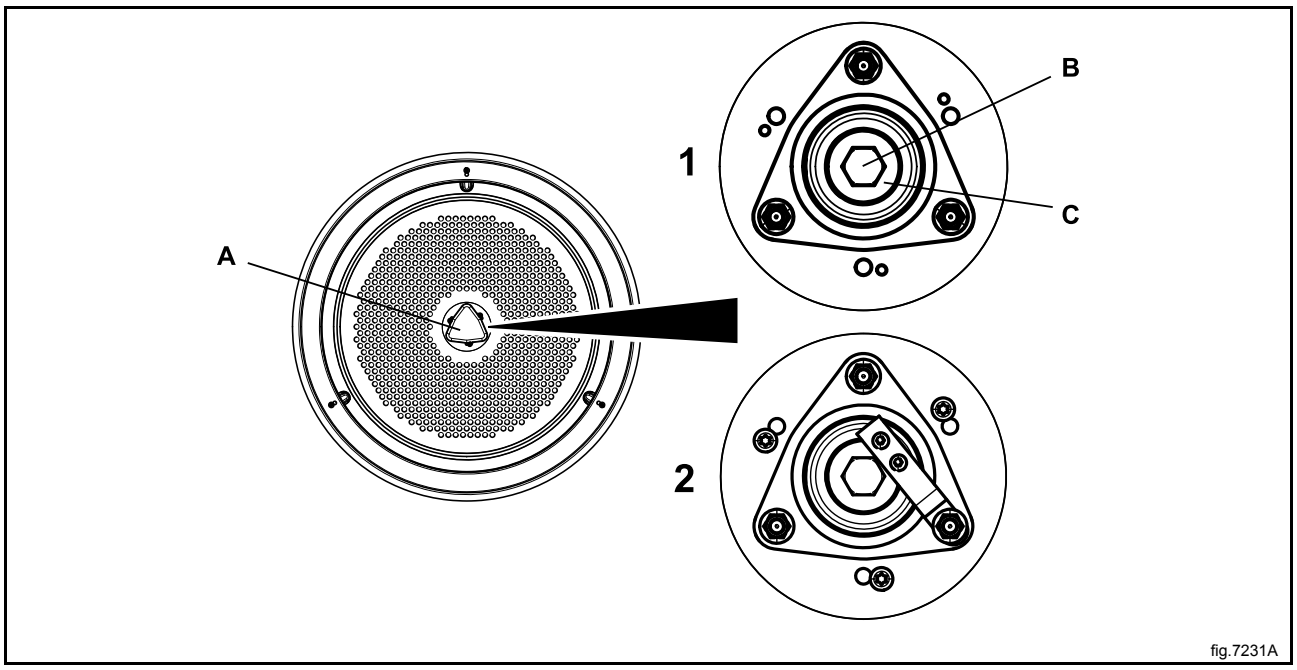


fig.7231A

Carefully lift out the drum. Be careful not to damage the belt.

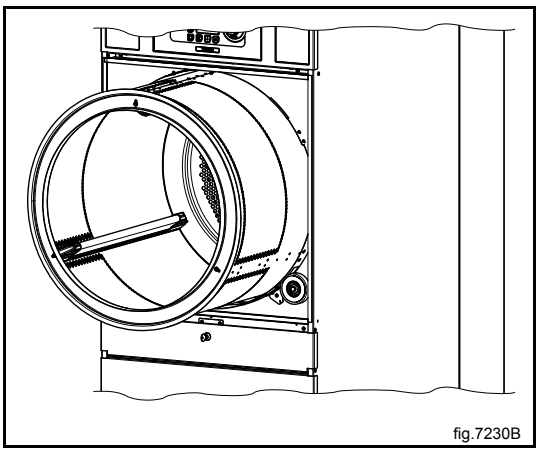


fig.7230B

When mounting the new drum, first fasten the belt temporarely on the outer drum in the machine, then put the drum in position.

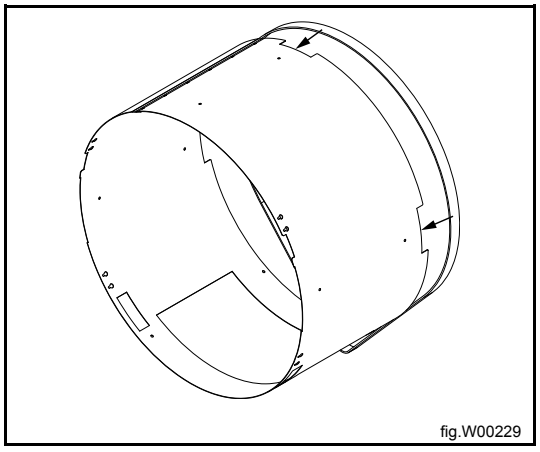


fig.W00229

Fasten the bolt and the washer and remount the bearing house. Use tightening torque 20 Nm ± 3 Nm.

Push the belt from the outer drum onto the inner drum and make sure it is in position.

Fasten the belt (B) and the wire (A). Rotate the drum to make sure that the belt is in position.

Tighten the belt tensioner with a torque wrench by pulling the tension plate (E) clockwise until it is in position.

Check the belt tension with a frequency meater or similar. The frequency shall be 75 Hz ± 5 Hz. Adjust if necessary.

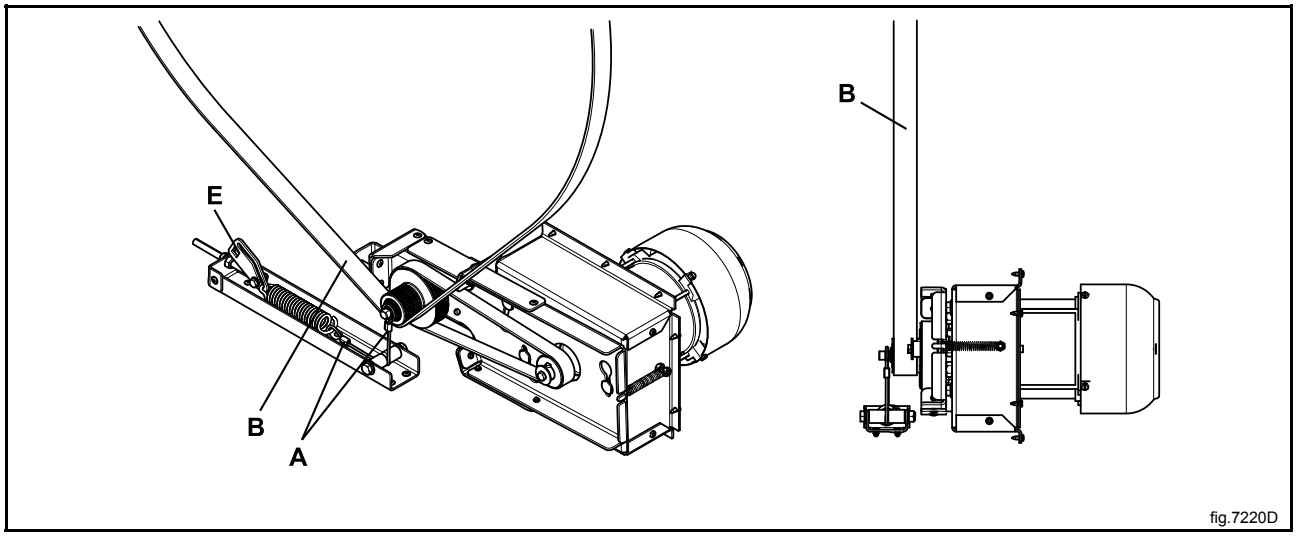


fig.7220D

Remount the cover plate and the rear panels.

Note!

The machine will NOT work without the cover plate.

Remount the front panel and the door.

11.2 Replacement of bearing

Disconnect the power to the machine.

Demount the two rear panels.

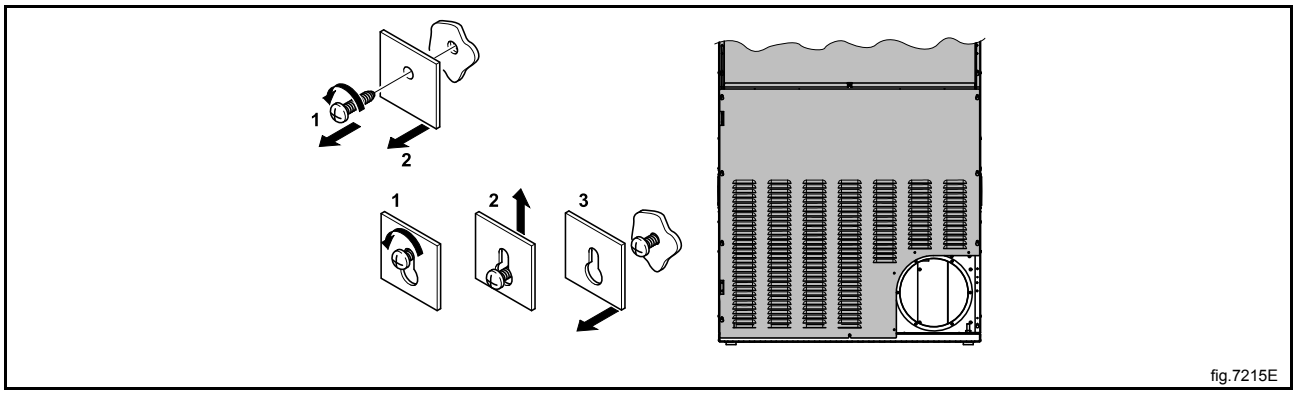


fig.7215E

Demount the cover plate to the belt tensioner.

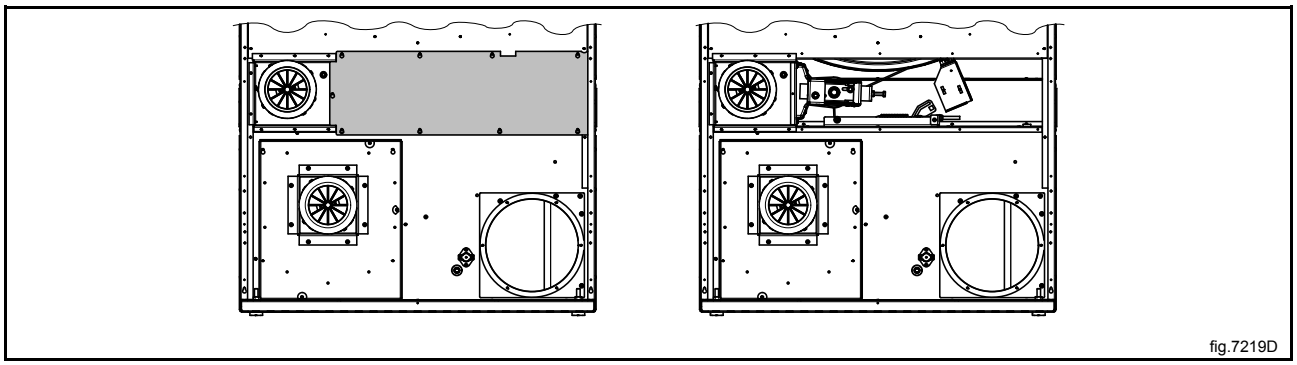


fig.7219D

Loosen the belt tensioner with a torque wrench by pulling the tension plate counter clockwise to the bottom.

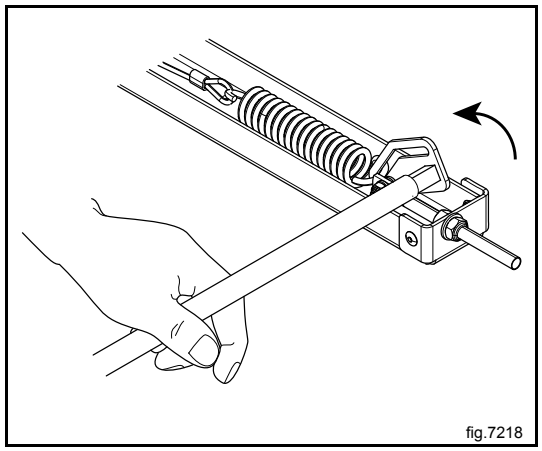


fig.7218

Loosen the wire (A) between the spring and the pulley.

Note!

The wire can be sharp so it is recommended to use gloves.

Loosen the belt around the drum (B).

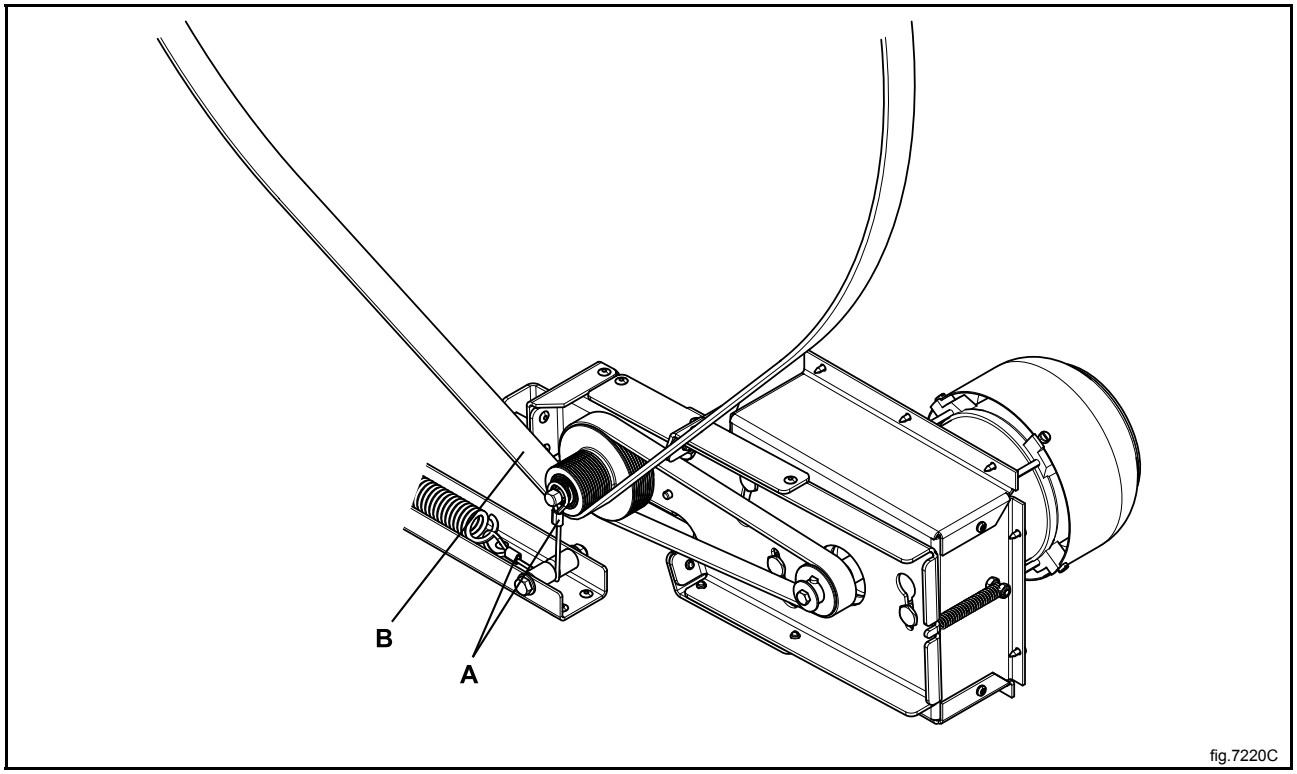


fig.7220C

Demount the hinges and remove the door. Remove the upper hinge first.

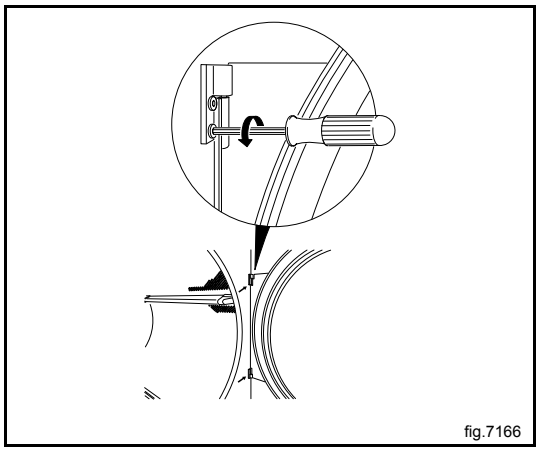


fig.7166

Remove the screws on the front panel and carefully loosen the panel. Disconnect the door switch cable and remove the panel.

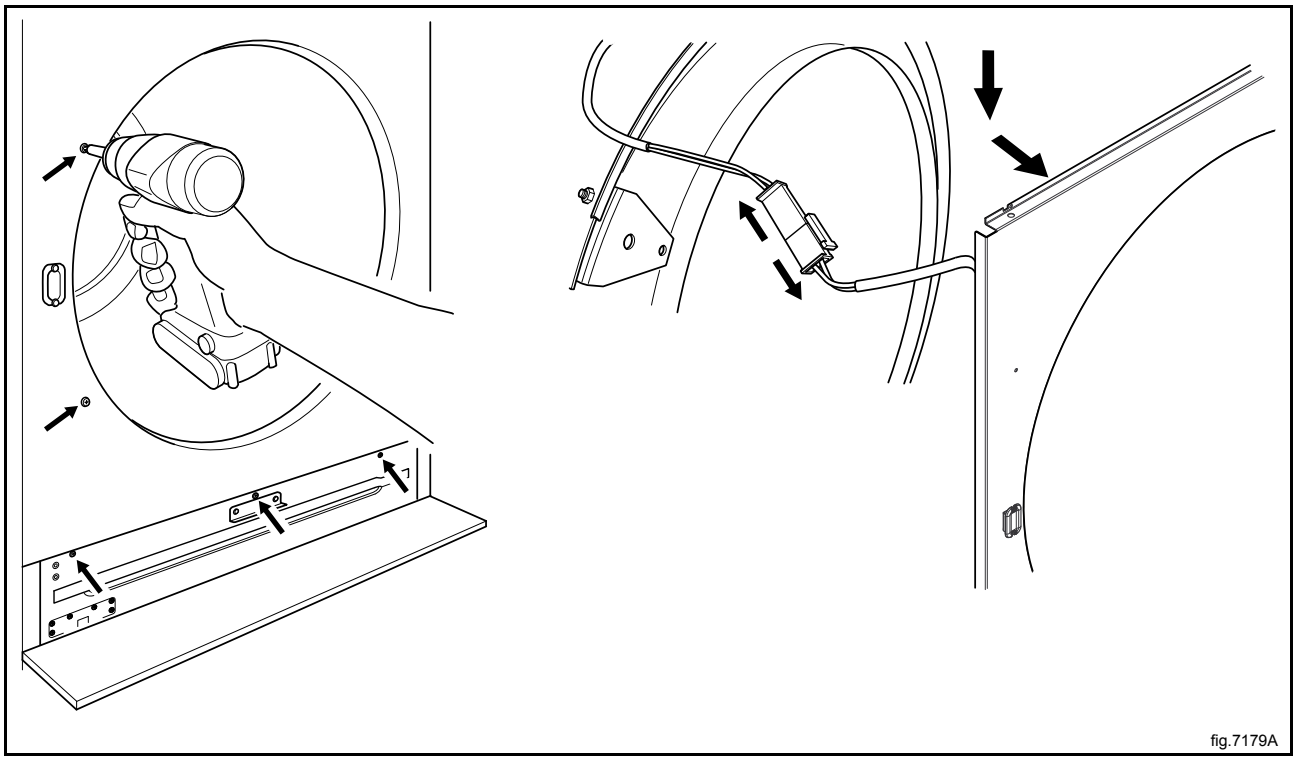


fig.7179A

Loosen the screws and remove the brackets.

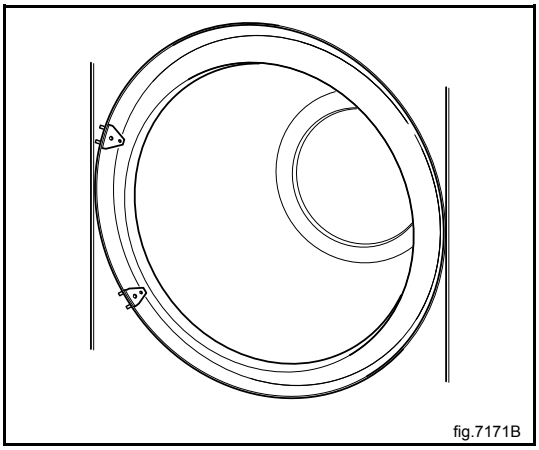
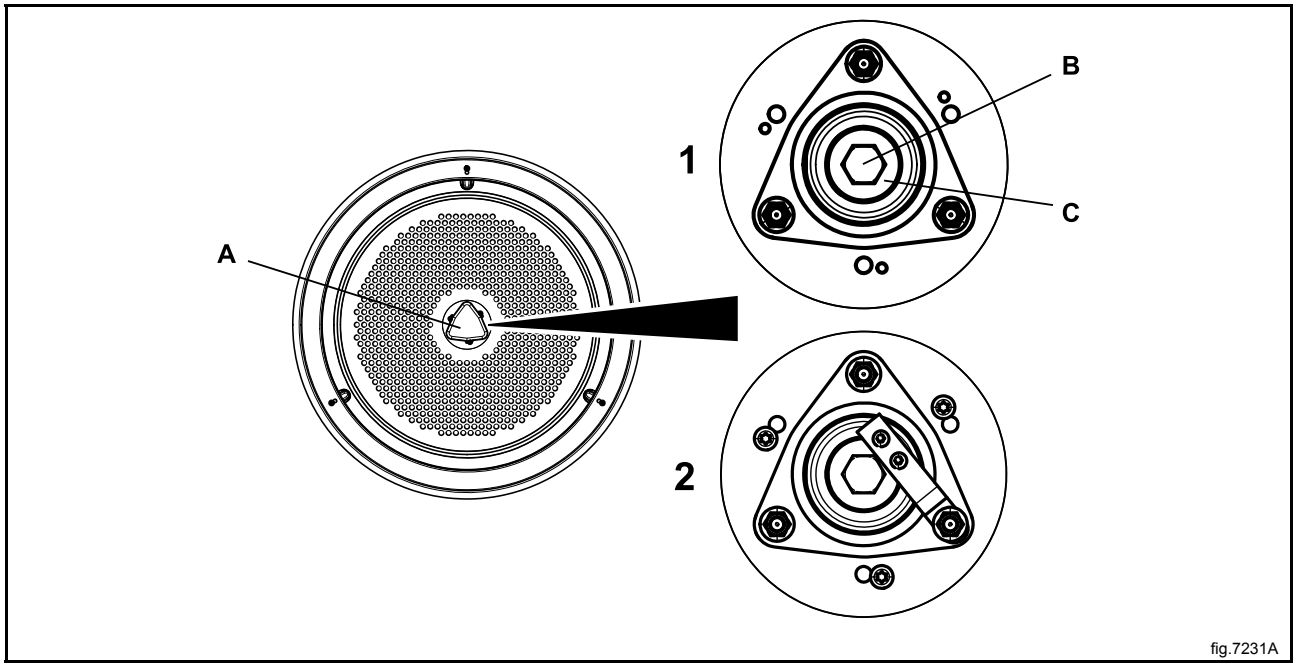


fig.7171B

Remove the screws and the bearing house (A).

1. Shows a machine without RMC. Remove the bolt (B) and the washer (C).
2. Shows a machine with RMC. Loosen the screw and pull the RMC flange to the side in order to remove the bolt (B) and the washer (C).



Carefully lift out the drum. Be careful not to damage the belt.

Put the drum on the floor.

1. Shows a machine without RMC. Remove the bolts and washers (D) and mount the new bearing. Use tightening torque 5 Nm.
2. Shows a machine with RMC.

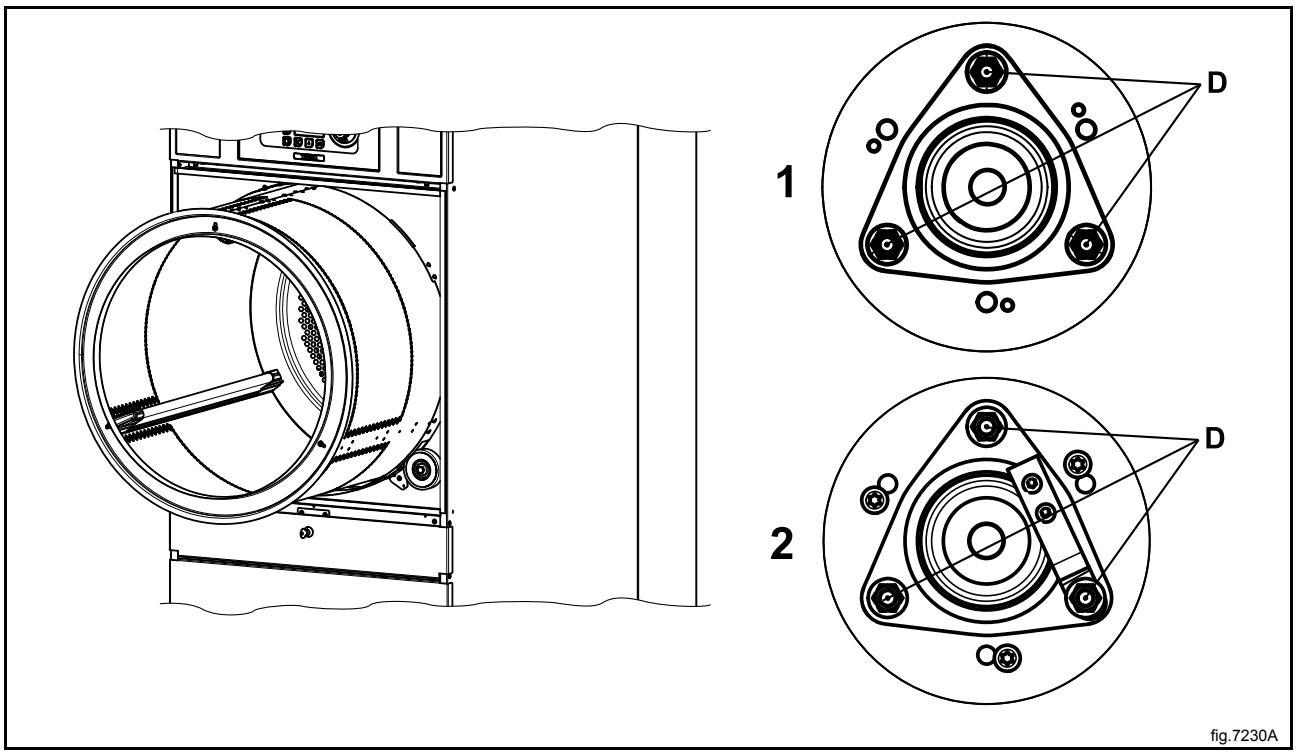


fig.7230A

When remounting the drum, first fasten the belt temporarely on the outer drum in the machine, then put the drum in position.

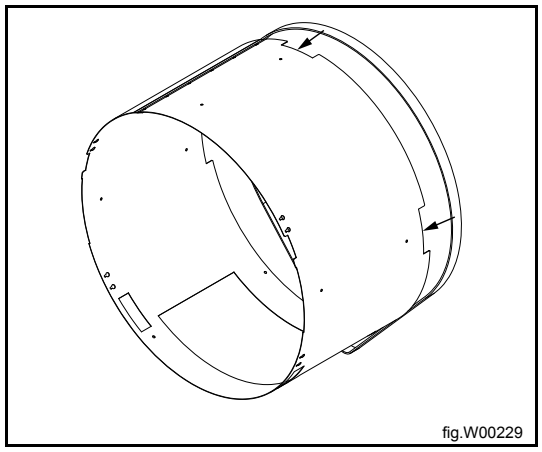


fig.W00229

Fasten the bolt and the washer and remount the bearing house. Use tightening torque 20 Nm ± 3 Nm.

Push the belt from the outer drum onto the inner drum and make sure it is in position.

Fasten the belt (B) and the wire (A). Rotate the drum to make sure that the belt is in position.

Tighten the belt tensioner with a torque wrench by pulling the tension plate (E) clockwise until it is in position.

Check the belt tension with a frequency meater or similar. The frequency shall be 75 Hz ± 5 Hz. Adjust if necessary.

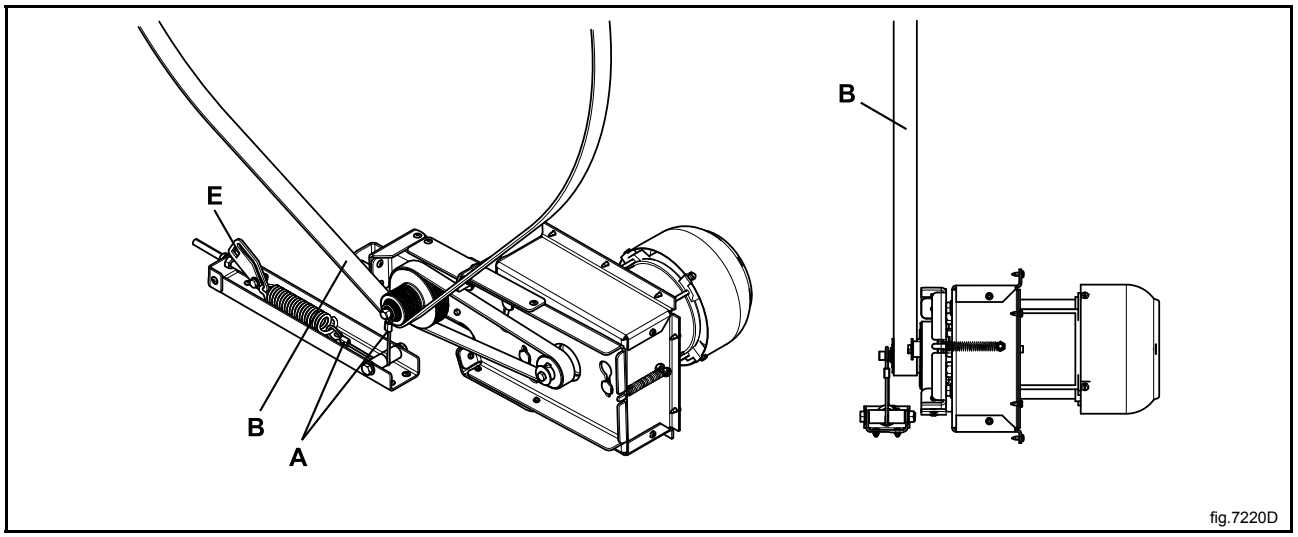


fig.7220D

Remount the cover plate and the rear panels.

Note!

The machine will NOT work without the cover plate.

Remount the front panel and the door.

11.3 Replacement of belt

11.3.1 Replacement of the belt around the drum

Disconnect the power to the machine.

Demount the two rear panels.

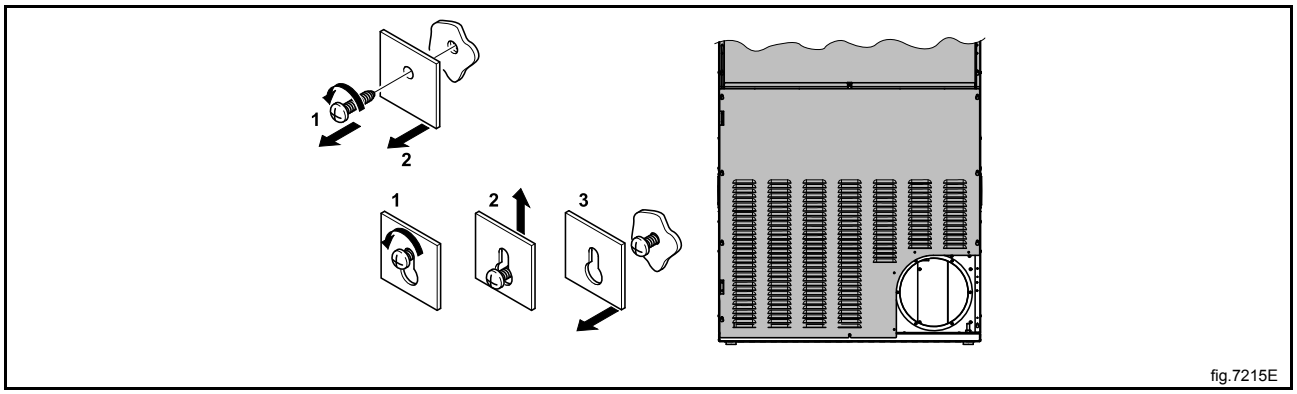


fig.7215E

Demount the cover plate to the belt tensioner.

On machines with RMC; demount the RMC (A).

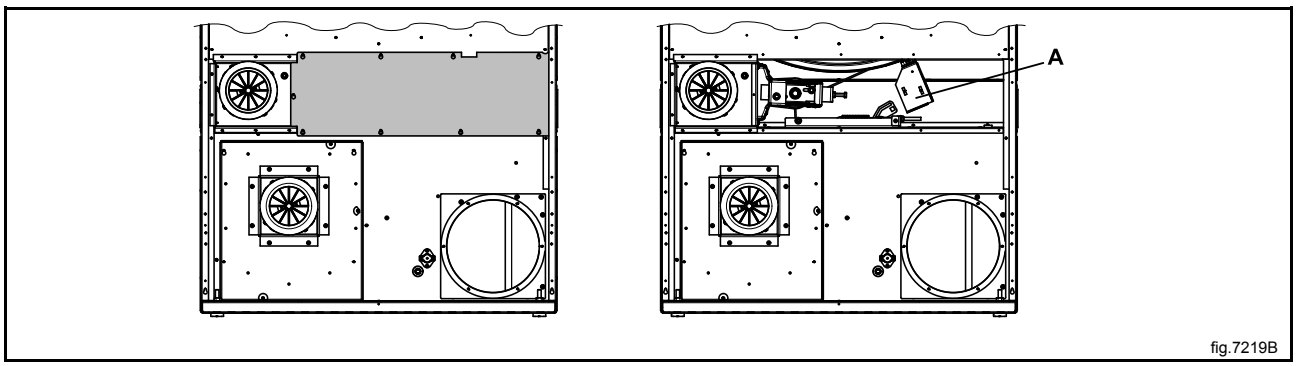


fig.7219B

Loosen the belt tensioner with a torque wrench by pulling the tension plate counter clockwise to the bottom.

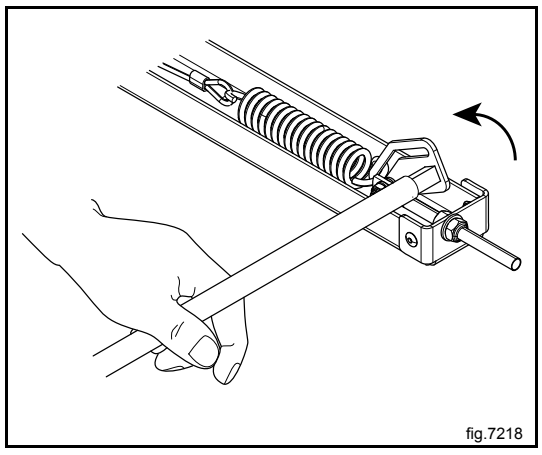


fig.7218

Loosen the wire (A) between the spring and the pulley.

Note!

The wire can be sharp so it is recommended to use gloves.

Loosen the belt around the pulley (B).

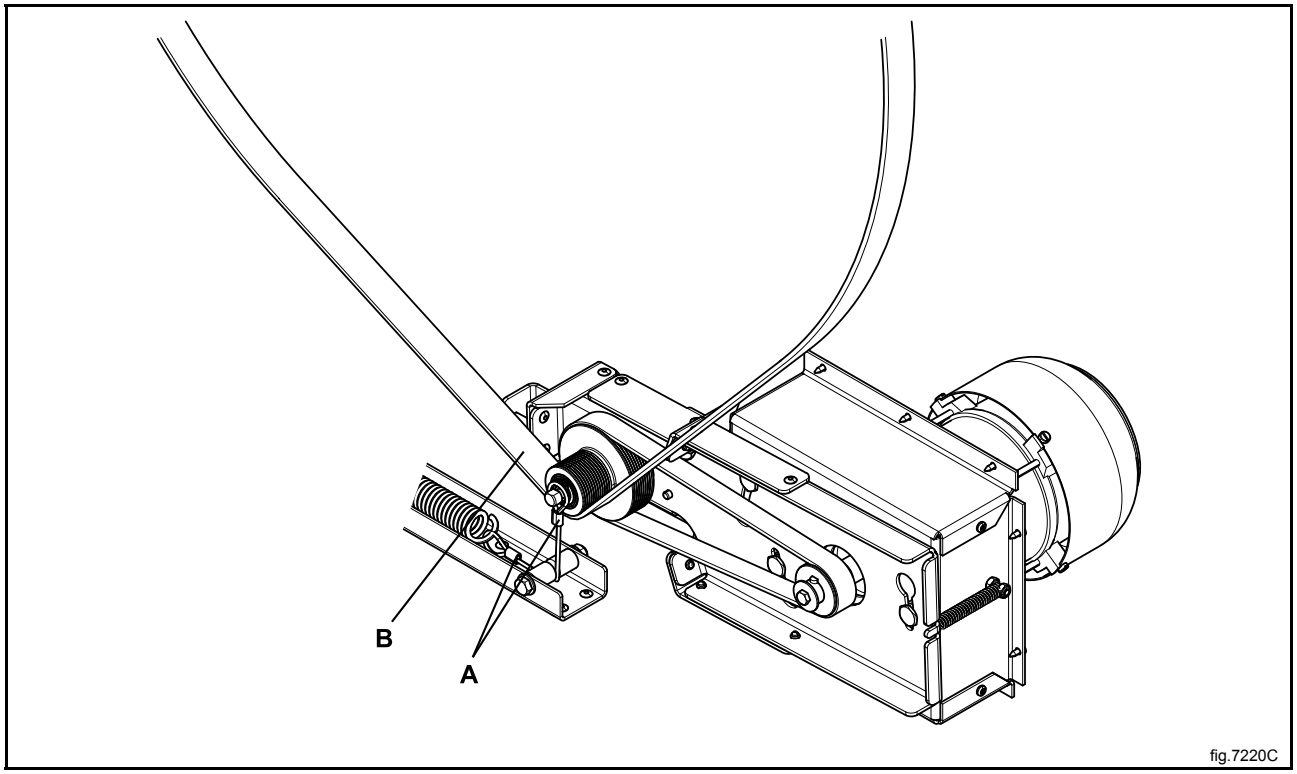


fig.7220C

Demount the hinges and remove the door. Remove the upper hinge first.

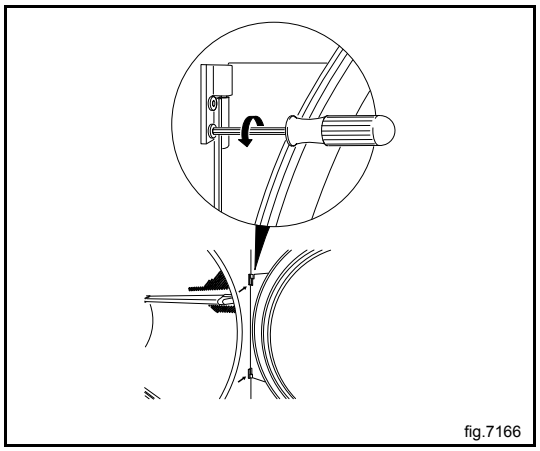


fig.7166

Remove the screws on the front panel and carefully loosen the panel. Disconnect the door switch cable and remove the panel.

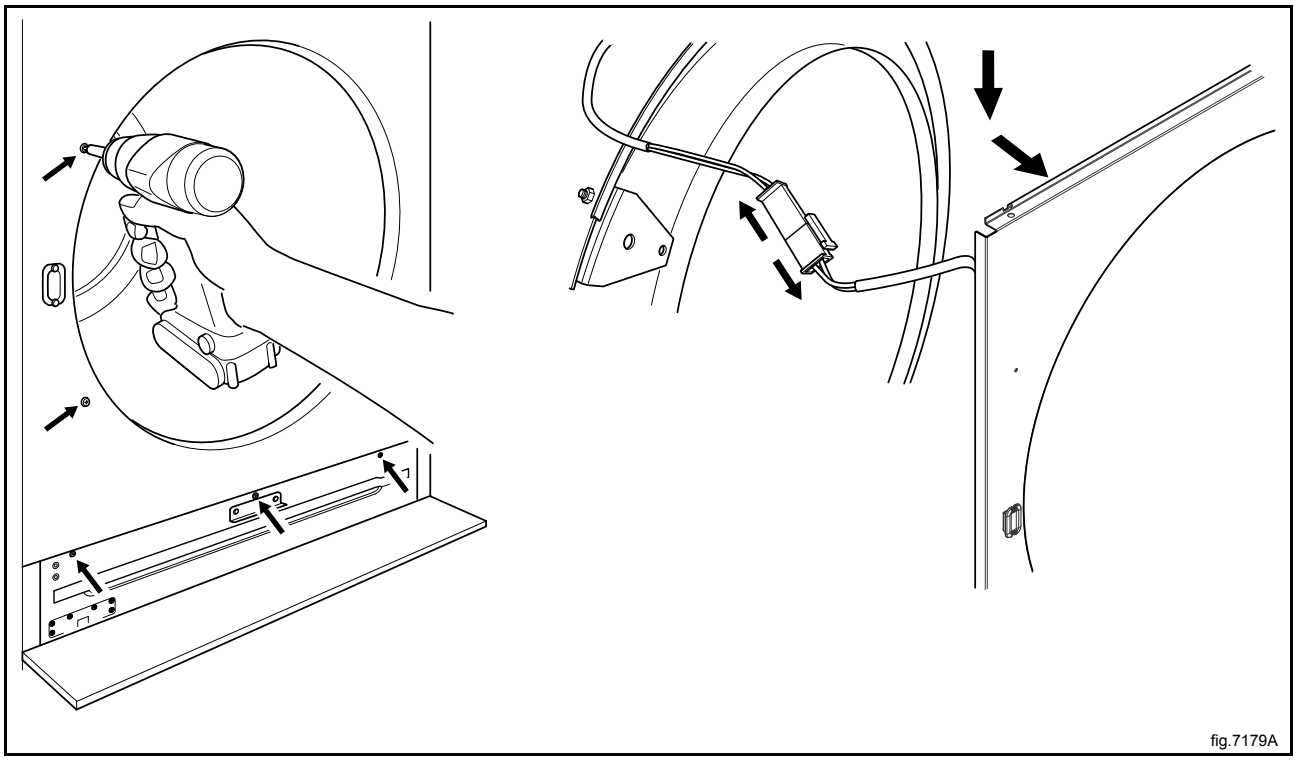


fig.7179A

Loosen the nuts and remove the brackets.

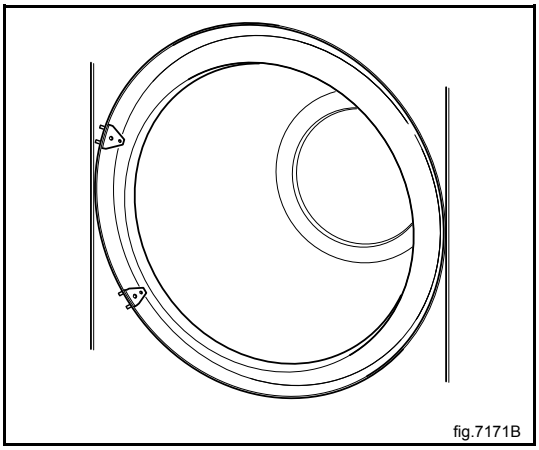
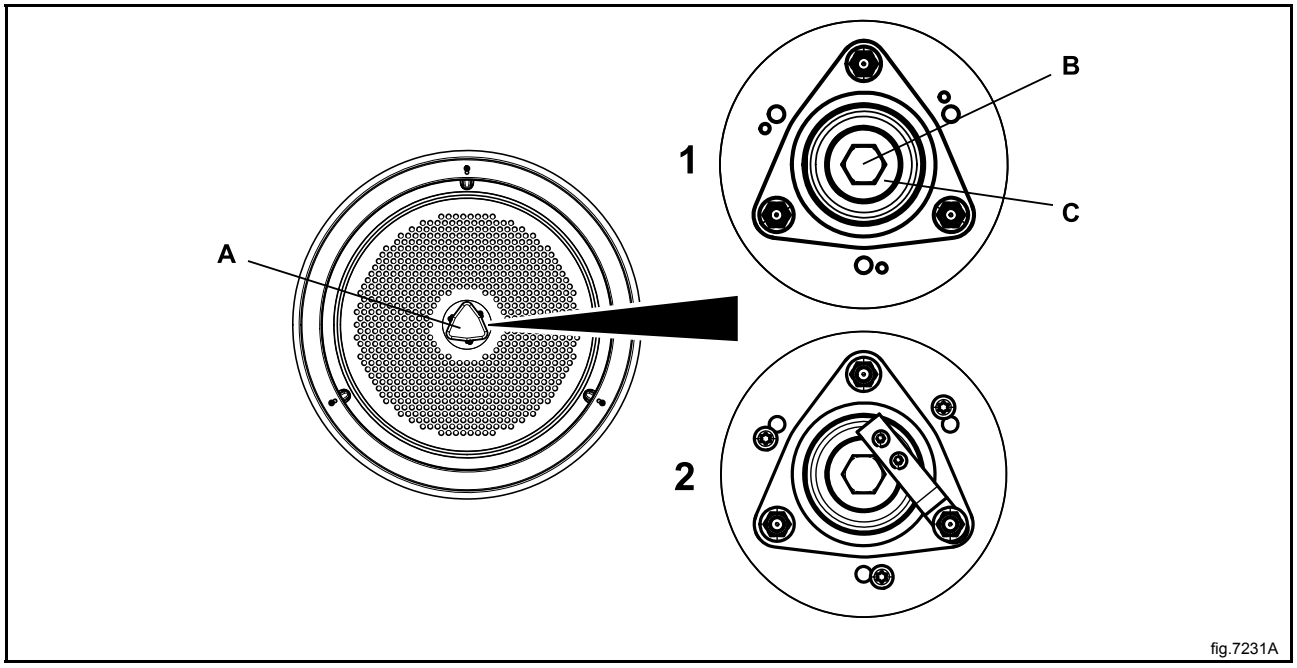


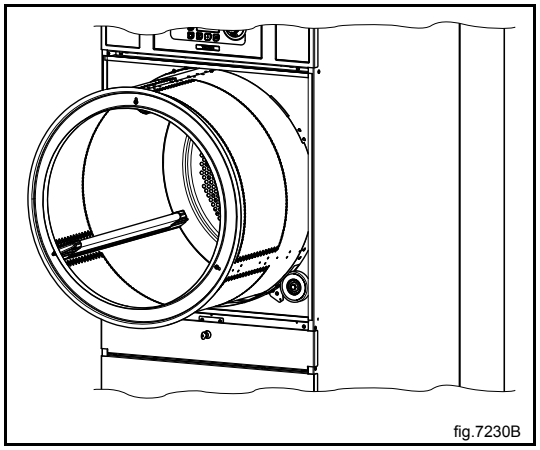
fig.7171B

Remove the screws and the bearing cover (A).

1. Shows a machine without RMC. Remove the bolt (B) and the washer (C).
2. Shows a machine with RMC. Loosen the screw and pull the RMC flange to the side in order to remove the bolt (B) and the washer (C).



Carefully lift out the drum and remove the belt.



When remounting the drum, first fasten the new belt temporarely on the outer drum in the machine, then put the drum in position.

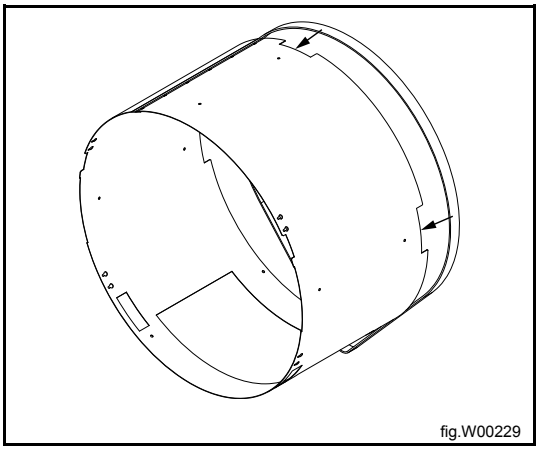


fig.W00229

Fasten the bolt and the washer and remount the bearing cover. Use tightening torque 20 Nm ± 3 Nm.

On machines with RMC; pull the RMC flange back in position and tighten the screw. Use tightening torque 5 Nm ± 0.5 Nm.

Push the belt from the outer drum onto the inner drum and make sure it is in position.

Fasten the belt (B) and the wire (A). Rotate the drum to make sure that the belt is in position.

Tighten the belt tensioner with a torque wrench by pulling the tension plate (E) clockwise until it is in position.

Check the belt tension with a frequency meater or similar. The frequency shall be 75 Hz ± 5 Hz. Adjust if necessary.

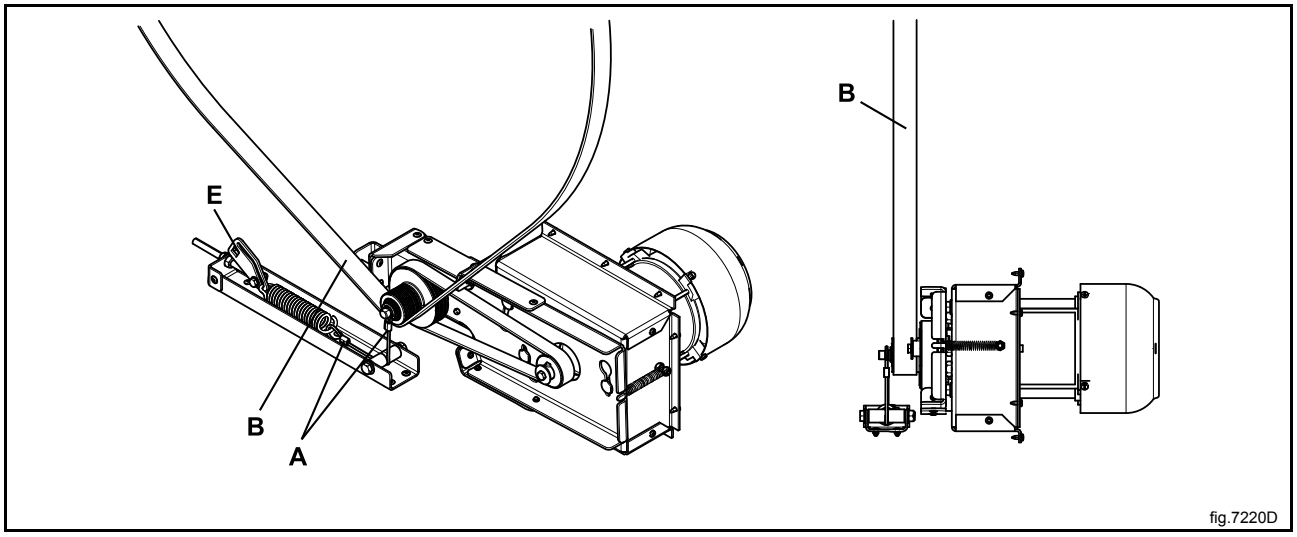


fig.7220D

On machines with RMC; remount the RMC.

Remount the cover plate and the rear panels.

Note!

The machine will NOT work without the cover plate.

Remount the front panel and the door.

11.3.2 Replacement of the belt around the motor pulley

Disconnect the power to the machine.

Demount the two rear panels.

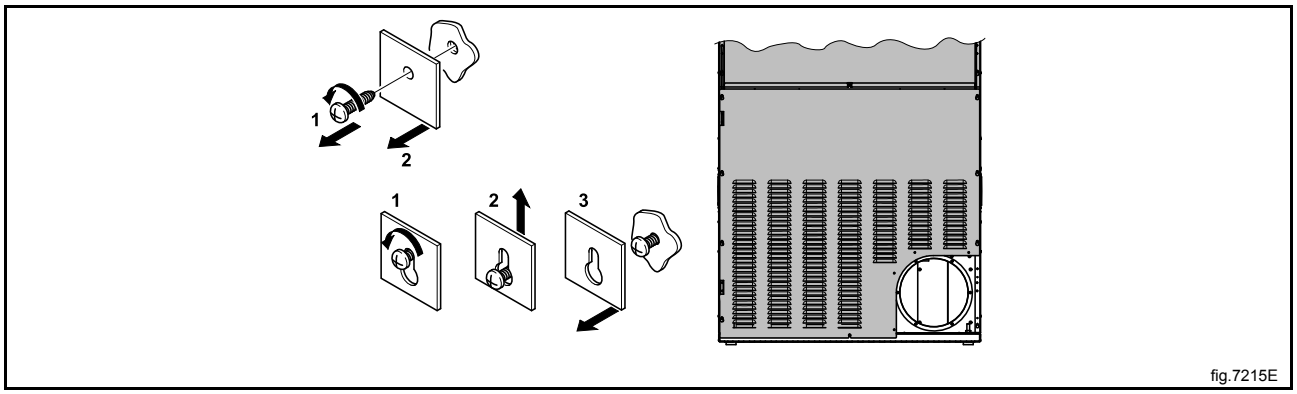


fig.7215E

Demount the cover plate to the belt tensioner.

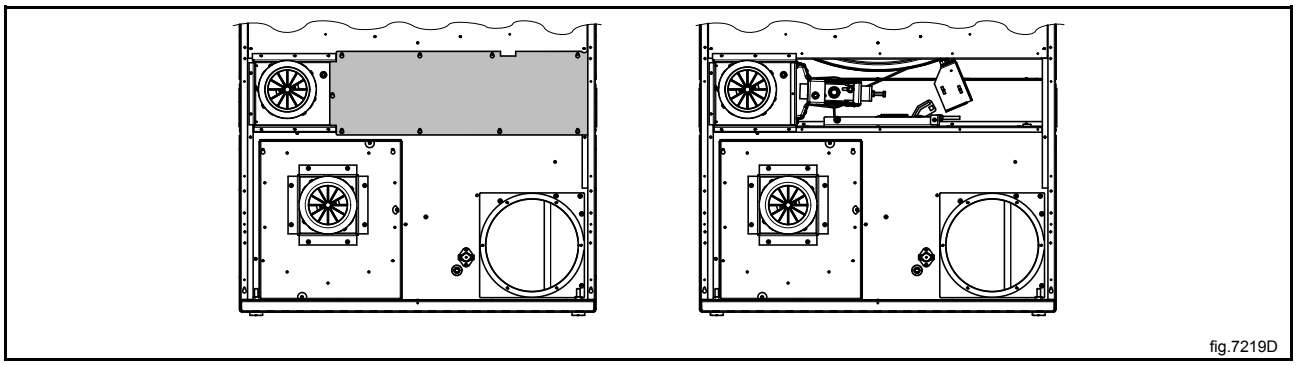


fig.7219D

Loosen the belt tensioner with a torque wrench by pulling the tension plate counter clockwise to the bottom.

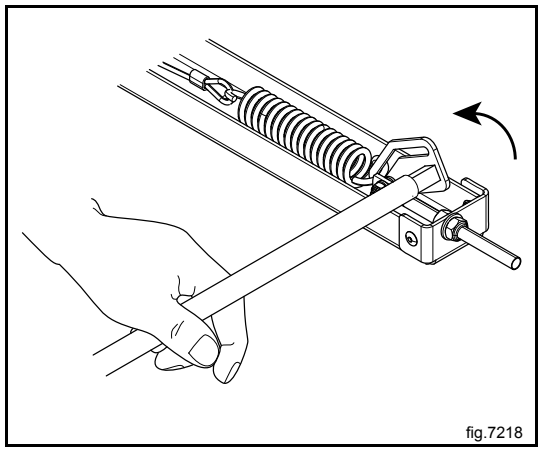


fig.7218

Loosen the wire (A) between the spring and the pulley.

Note!

The wire can be sharp so it is recommended to use gloves.

Loosen the belt around the pulley (B).

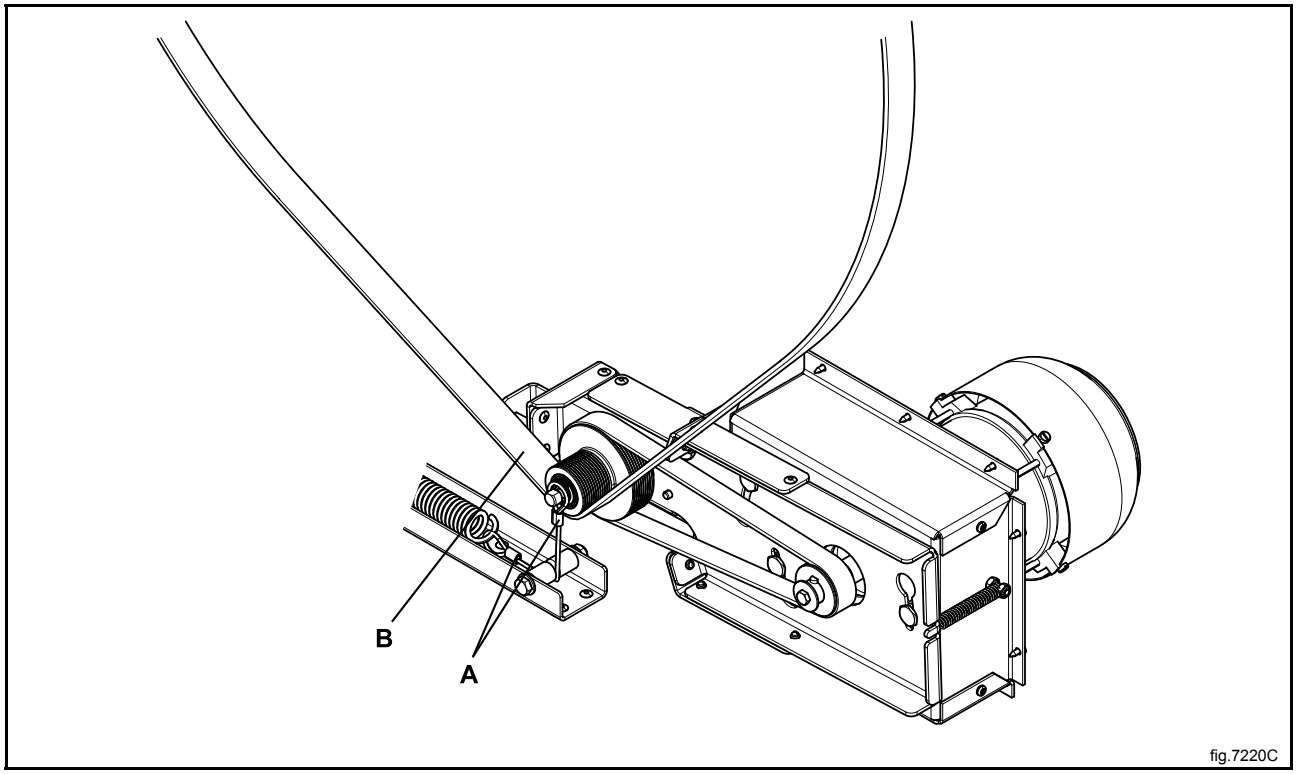


fig.7220C

Demount the motor module. Carefully lift out the motor module and put it down with the fan motor cover downwards.

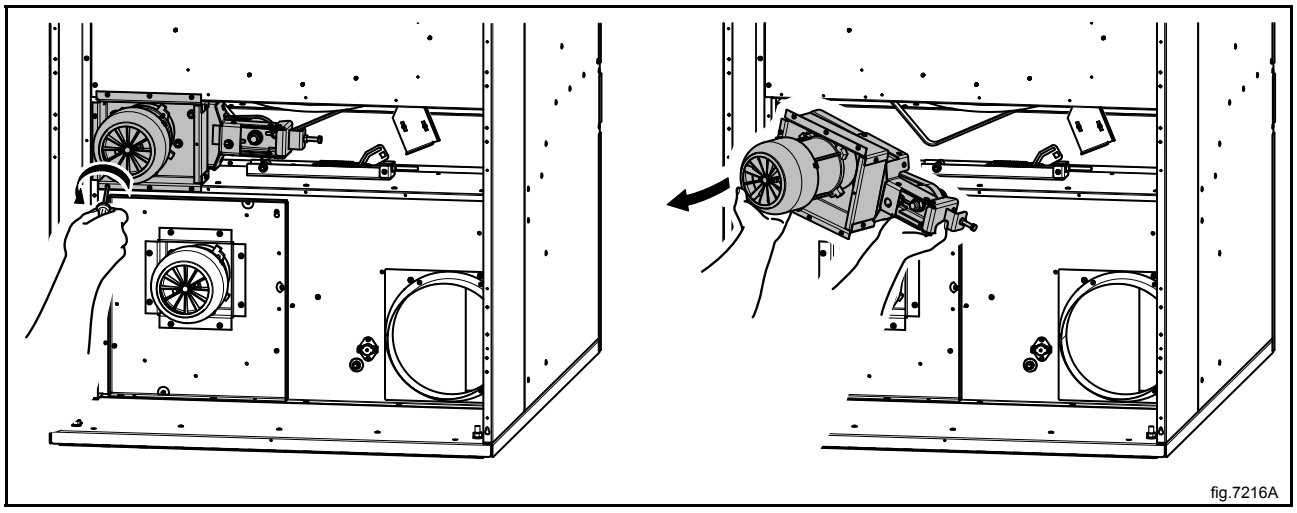


fig.7216A

In order to loosen the belt, first loosen the four screws a bit.

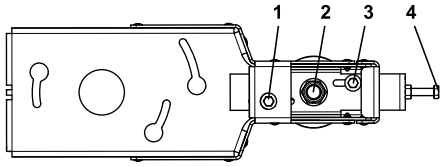


fig.490377800

Loosen the belt (C) from the “motor arm”.

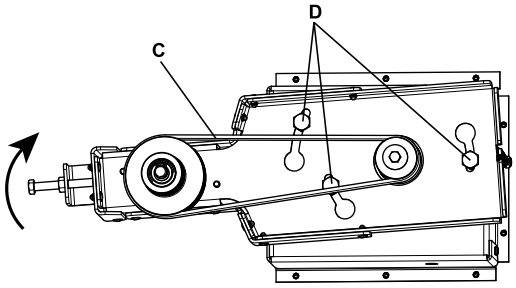


fig.7224A

Put the new belt in position (C) and tighten the screws. Start by tightening 1 and 3 a bit. Thighten 4 and check the belt tension with a frequency meater or similar. The frequency shall be 80 Hz ± 5. Adjust with 4 if necessary. Then tighten 2 with tightening torque 80 Nm ± 5 and finally 1 and 3 with tightening torque 6 Nm ± 1 again when all is in position.

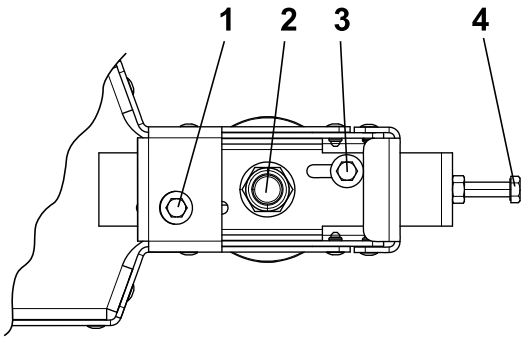


fig.49077800A

Fasten the belt (B) and the wire (A). Rotate the drum to make sure that the belt is in position.

Tighten the belt tensioner with a torque wrench by pulling the tension plate (E) clockwise until it is in position.

Check the belt tension with a frequency meater or similar. The frequency shall be 75 Hz ± 5 Hz. Adjust if necessary.

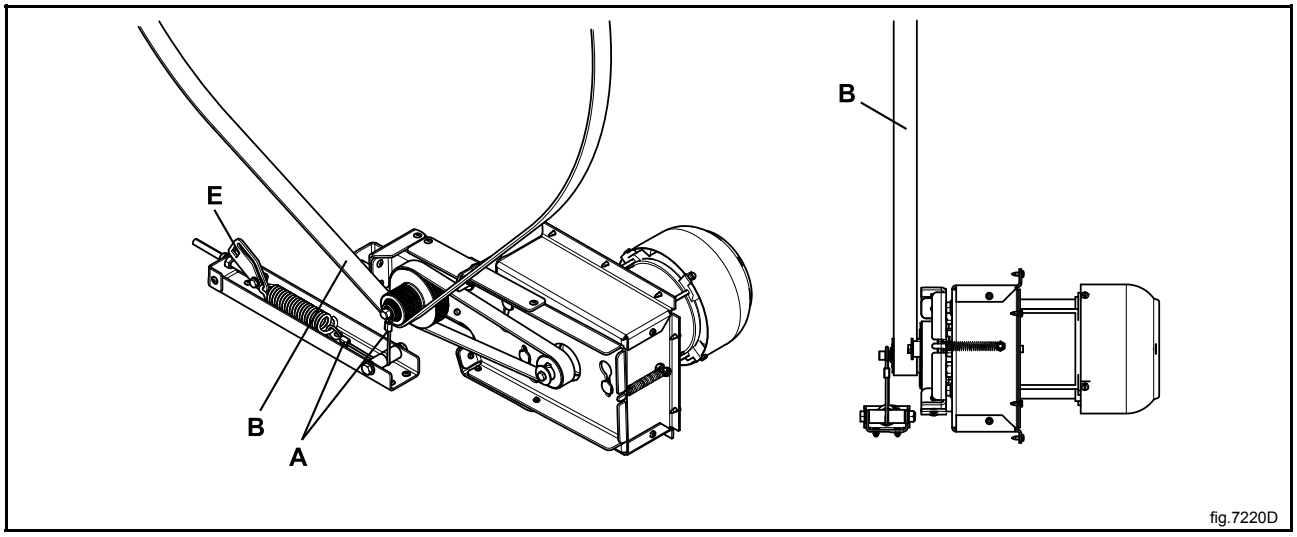


fig.7220D

Remount the cover plate and the rear panels.

Note!

The machine will NOT work without the cover plate.

Remount the front panel and the door.

11.3 Replacement of rear sealing

Disconnect the power to the machine.

Demount the two rear panels.

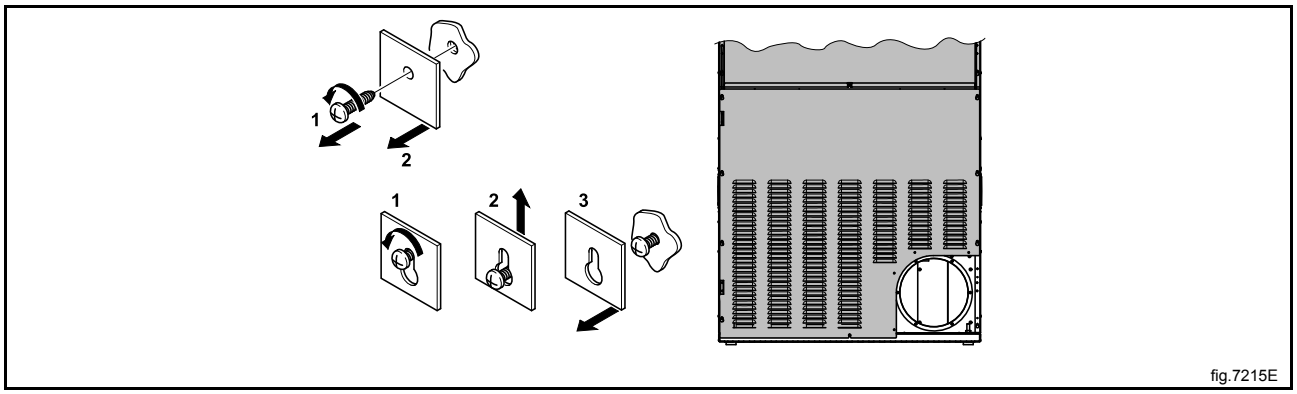


fig.7215E

Demount the cover plate to the belt tensioner.

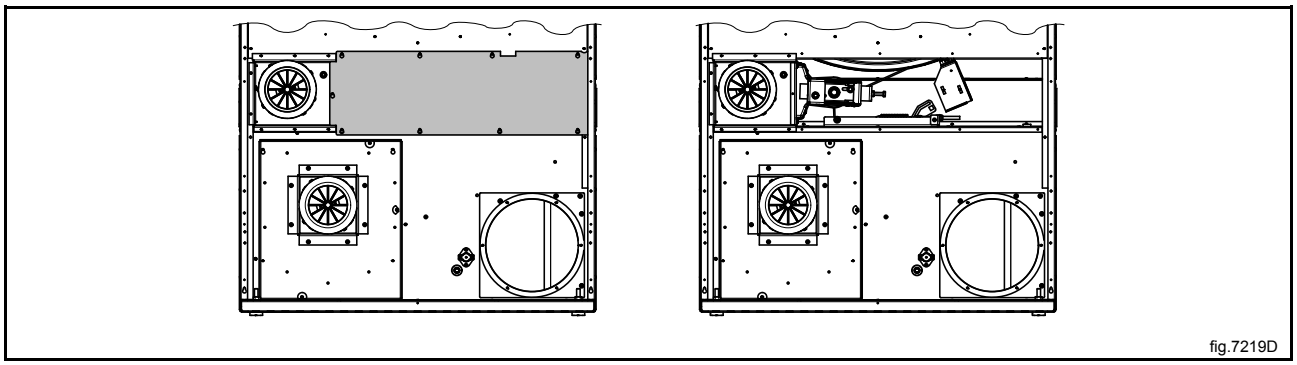


fig.7219D

Loosen the belt tensioner with a torque wrench by pulling the tension plate counter clockwise to the bottom.

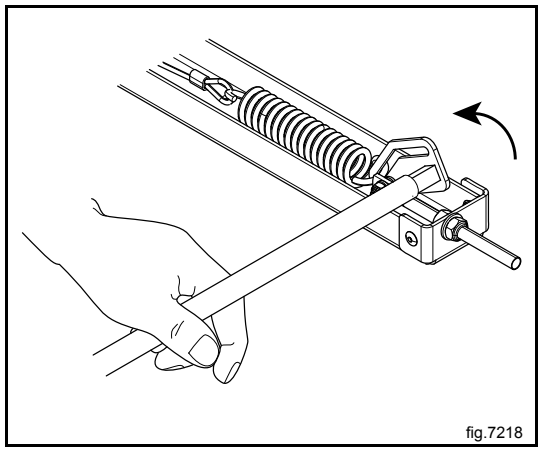


fig.7218

Loosen the wire (A) between the spring and the pulley.

Note!

The wire can be sharp so it is recommended to use gloves.

Loosen the belt around the drum (B).

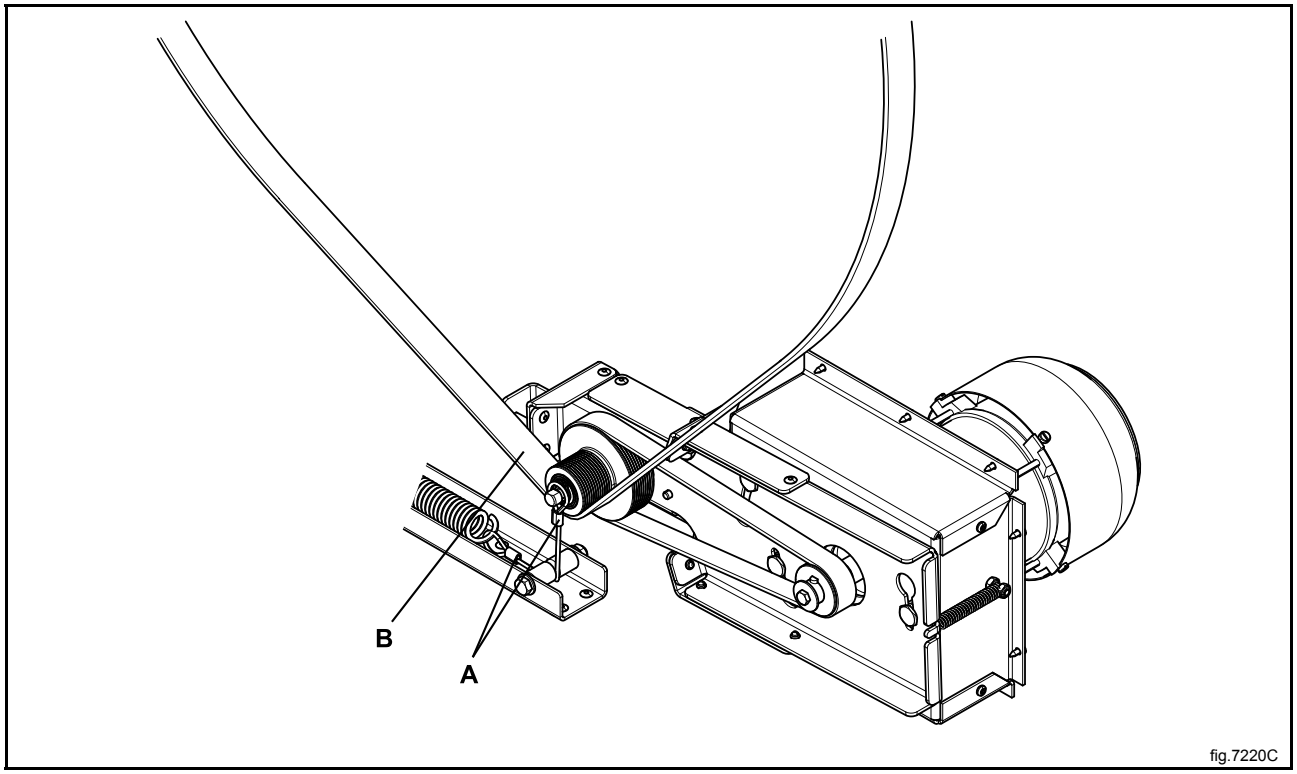


fig.7220C

Demount the hinges and remove the door. Remove the upper hinge first.

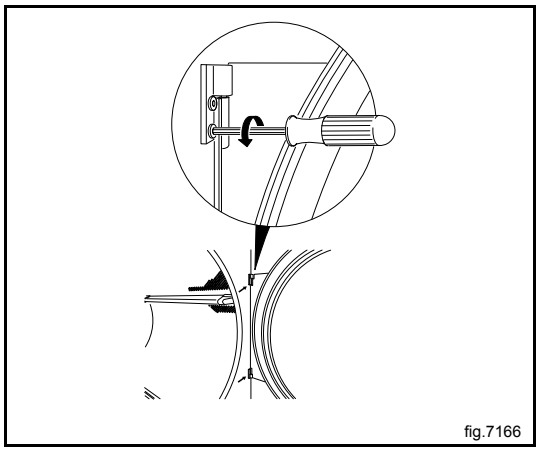


fig.7166

Remove the screws on the front panel and carefully loosen the panel. Disconnect the door switch cable and remove the panel.

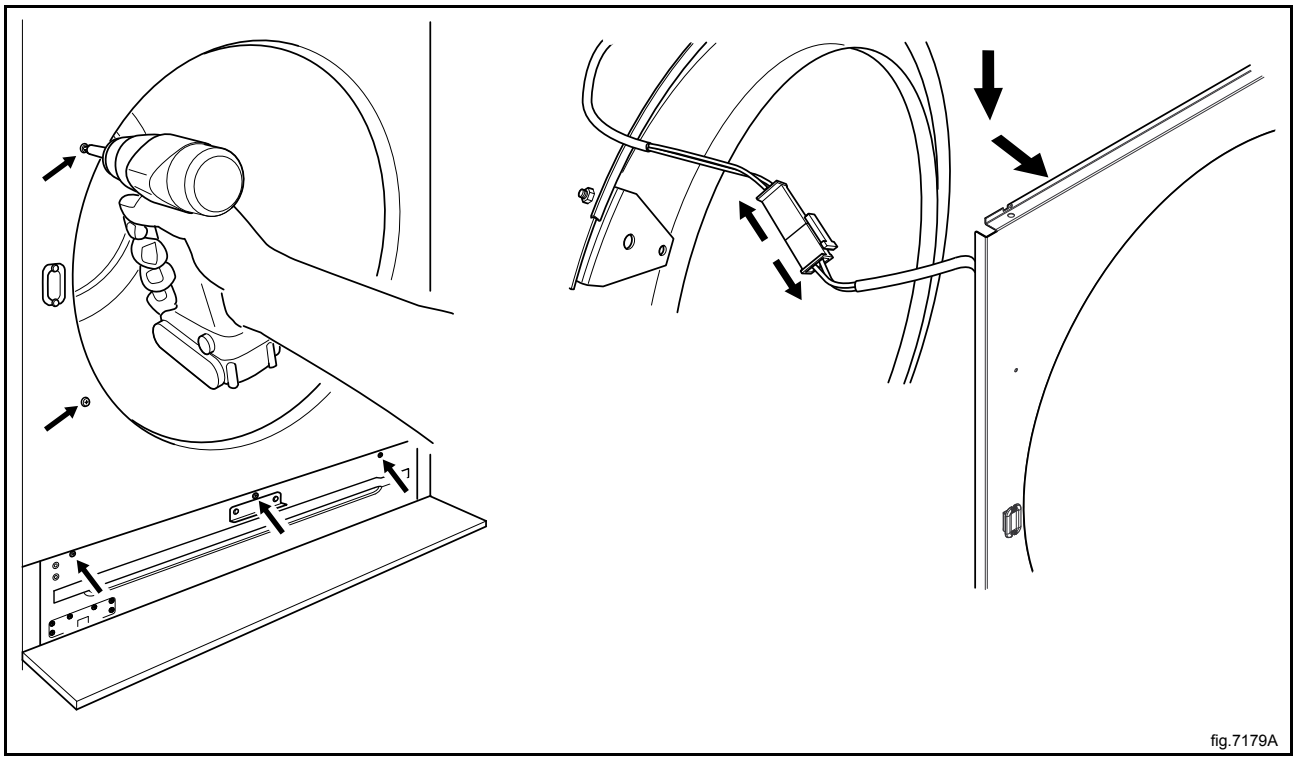


fig.7179A

Loosen the screws and remove the brackets.

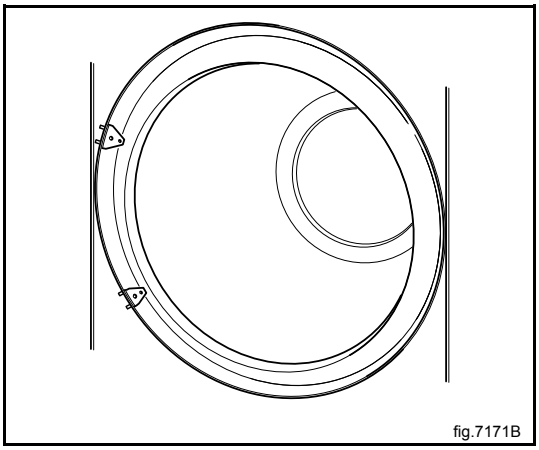


fig.7171B

Remove the screws and the bearing house (A).

1. Shows a machine without RMC. Remove the bolt (B) and the washer (C).
2. Shows a machine with RMC. Loosen the screw and pull the RMC flange to the side in order to remove the bolt (B) and the washer (C).

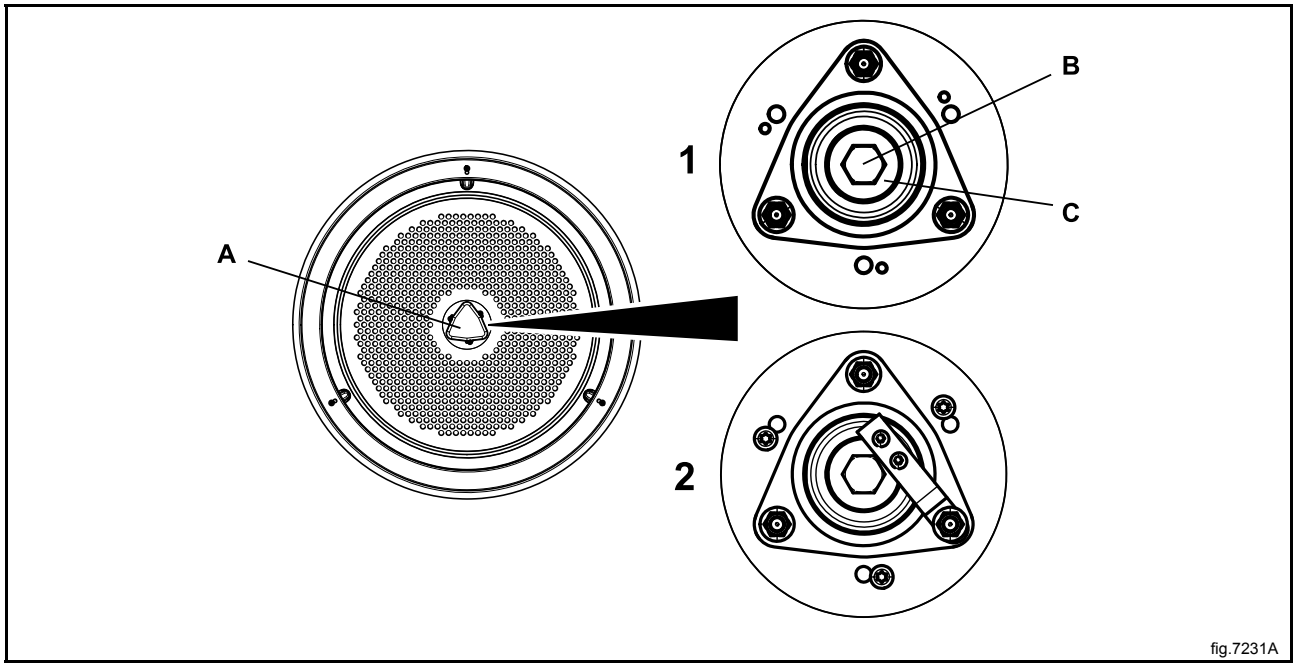


fig.7231A

Carefully lift out the drum. Be careful not to damage the belt.

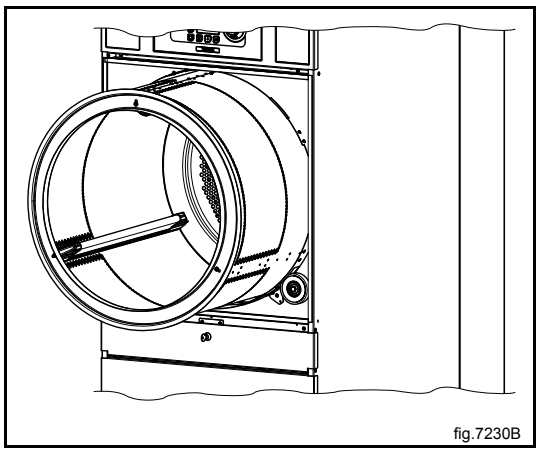


fig.7230B

Remove the screws and remove the outer sealing plate.

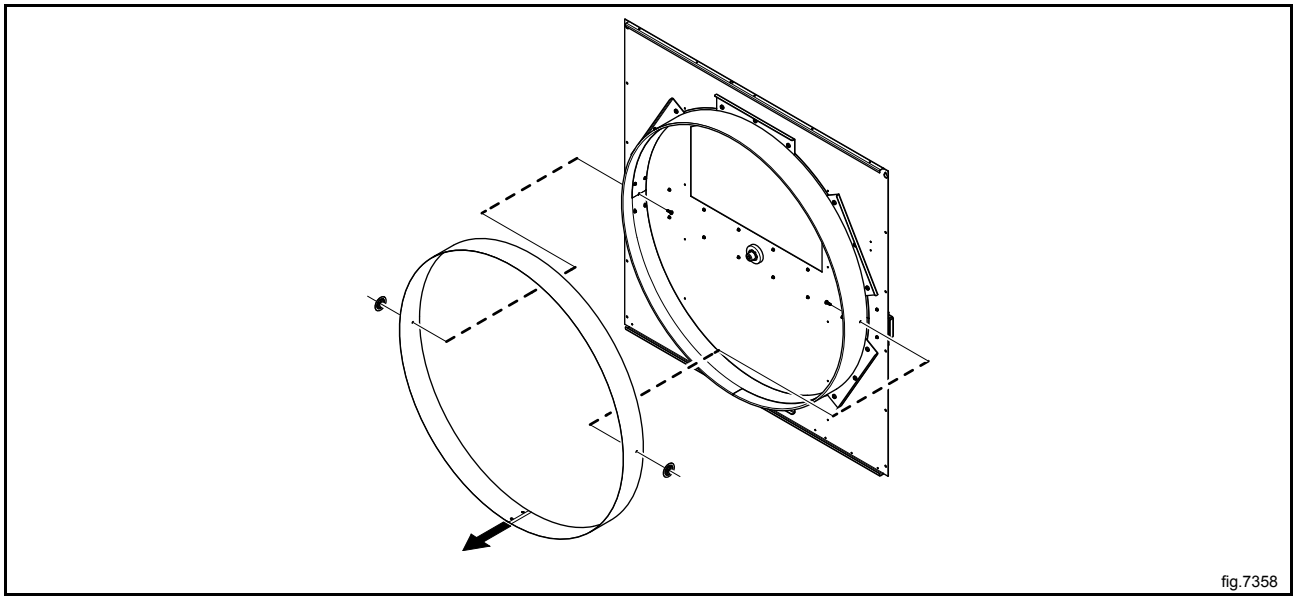


fig.7358

Cut loose the rear sealing from the inner sealing plate.

Put glue on the inner sealing plate and fasten the new rear sealing on the inner sealing plate.
The rough side shall be fastened to the glue.

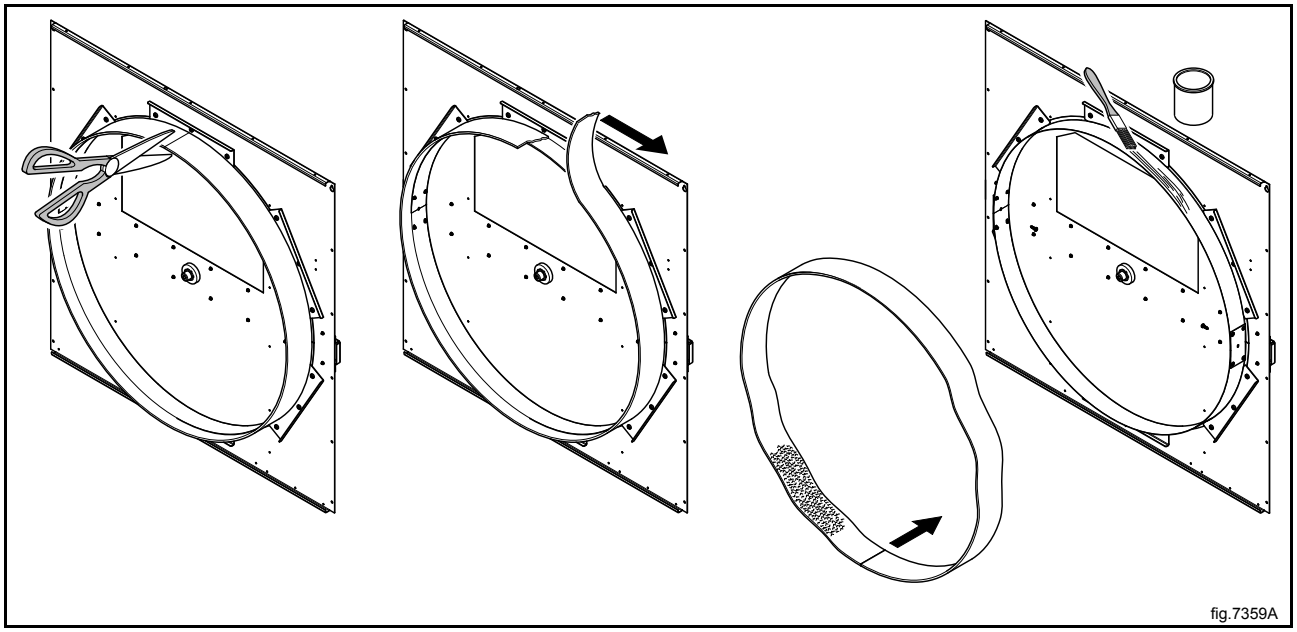


fig.7359A

Remount the outer sealing plate and fasten the screws.

When remounting the drum, first fasten the belt temporarely on the outer drum in the machine, then put the drum in position.

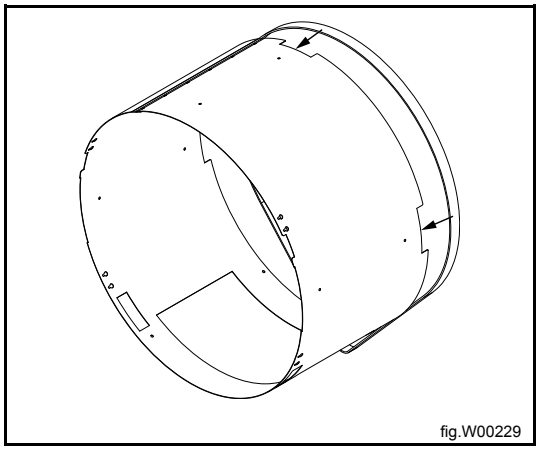


fig.W00229

Fasten the bolt and the washer and remount the bearing house. Use tightening torque 20 Nm ± 3 Nm.

Push the belt from the outer drum onto the inner drum and make sure it is in position.

Fasten the belt (B) and the wire (A). Rotate the drum to make sure that the belt is in position.

Tighten the belt tensioner with a torque wrench by pulling the tension plate (E) clockwise until it is in position.

Check the belt tension with a frequency meater or similar. The frequency shall be 70 Hz ± 5 Hz. Adjust if necessary.

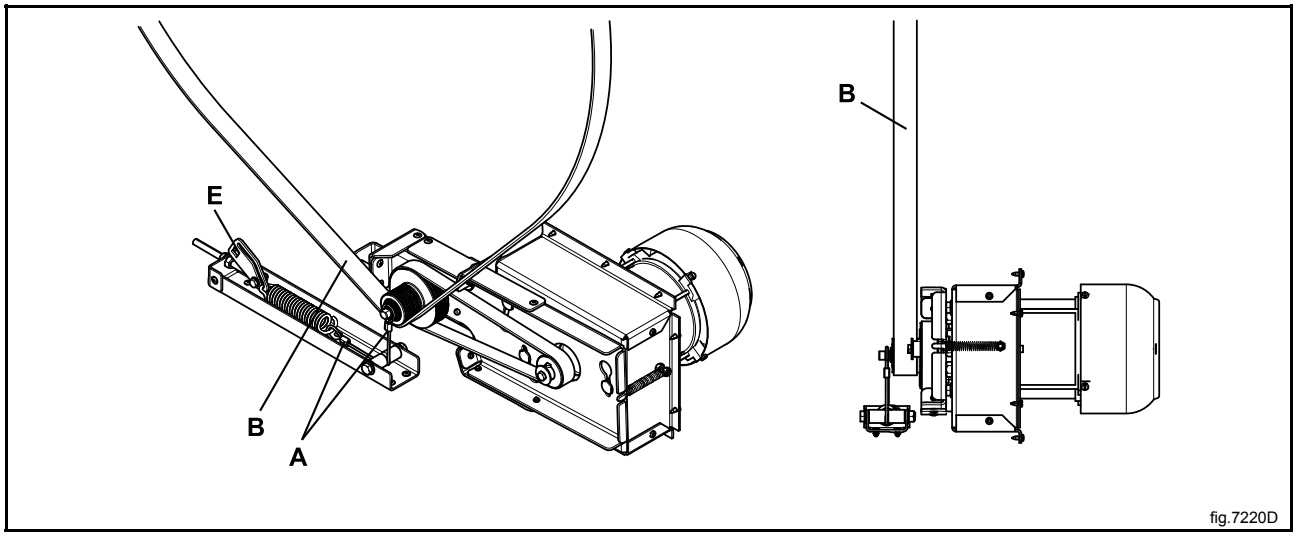


fig.7220D

Remount the cover plate and the rear panels.

Note!

The machine will NOT work without the cover plate.

Remount the front panel and the door.

12 Program unit

12.1 Description

The program unit is electronic and comprises a circuit board containing microprocessor, program memory, serial interface to the motor control etc.

The program unit receives its power from a separate voltage unit.

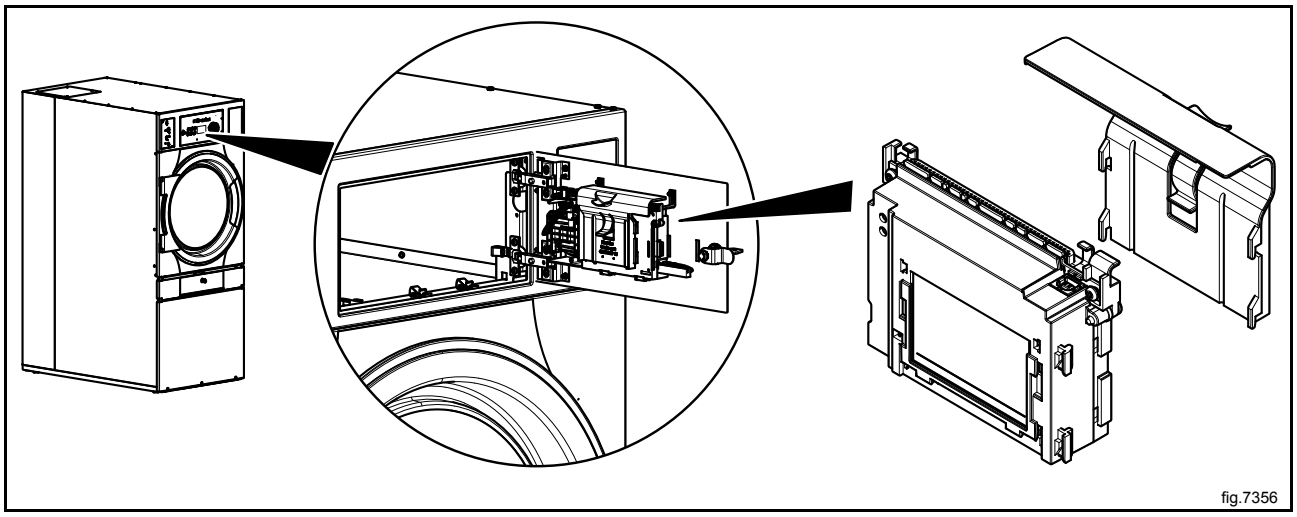


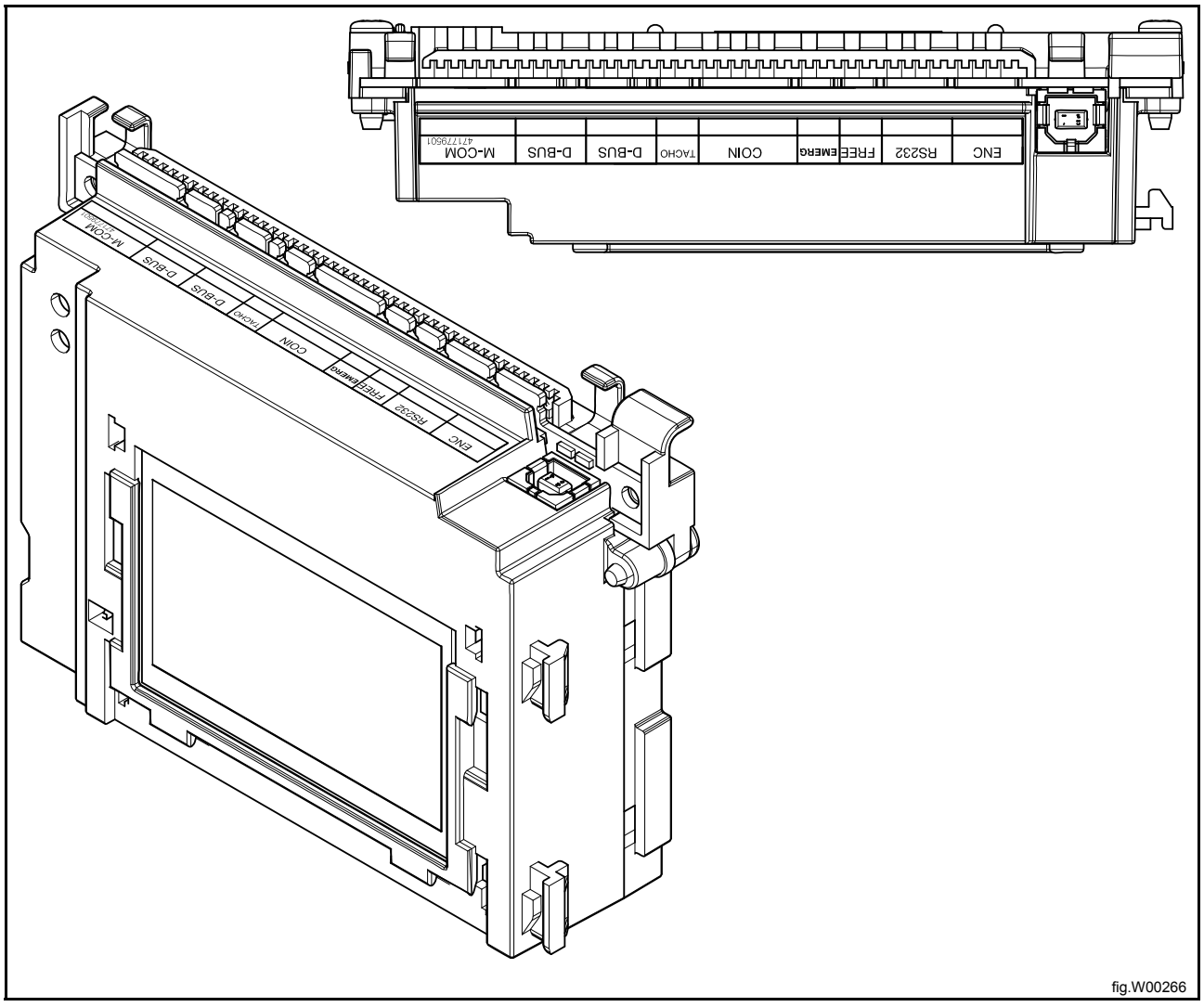
fig.7356

The program unit receives information from the I/O boards about input like temperature sensors, RMC, vacuum, door status etc, and output like drum, fan and heat control.

12.2 Connections

The program unit board has the following connections:

Board connector	Function
J1	M-COM = Communication, motor control
J2	D-BUS = Databus
J3	D-BUS = Databus
J4	Tacho
J5	COIN = Input, coin meter
J6	EMERG = Input, emergency stop
J7	FREE = Free program (key switch)
J8	RS 232 = Serial communication
J9	Control knob, pulses
J10	USB TYPE A = Connection for software/service download
J12	Display
J13	Membran switches



13 I/O modules

13.1 General

The machine can be equipped with either one or two I/O modules:

- I/O module type 8 is always installed in the machine at delivery. It coltrols internal machine functions and outputs to heating, motors etc.
- I/O module type 2 is installed as an option. It controls the external functions and inputs from payment and booking systems etc.

The functionality of I/O module inputs and outputs is depending on the parameter software downloaded to the machine's program device. The function options for the I/O modules are indicated by a letter in the program designation for each module.

Machine fitted with two I/O modules

6G82 LG1 EL T5290 81O 22J

81O = Function options I/O module type 8 (internal functions).

22J = Function options I/O module type 2 (external functions).

Machine fitted with one I/O module

6G82 LG1 EL T5290 81O 22j

81O = Function options I/O module type 8 (internal functions).

22j = The letter that appears in lower case means that the machine is not fitted with I/O module type 2 but the downloaded parameter software is I/O module type 2 enabled.

Location

The parameter software installed in the machine's program device on delivery is specified at the front and back of the machine.

Using this article number, you can find the program designation and thereby identify I/O module function options on the web.

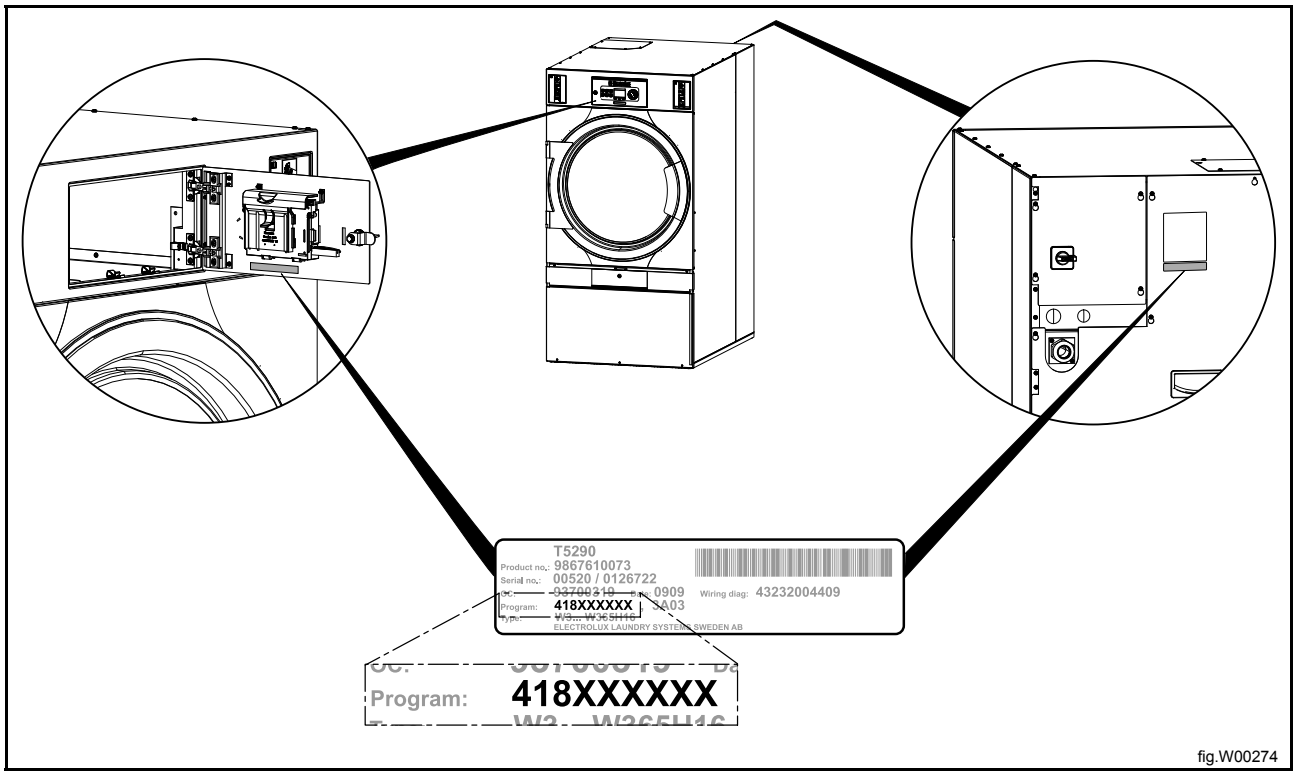


fig.W00274

13.2 Replacement of I/O module

I/O module type 8 and I/O module type 2 are installed in the same way. If the machine has I/O module type 2, it is located on I/O module type 8. The illustration shows replacement of I/O module type 8.

Disconnect the power to the machine.

Demount the upper rear panel.

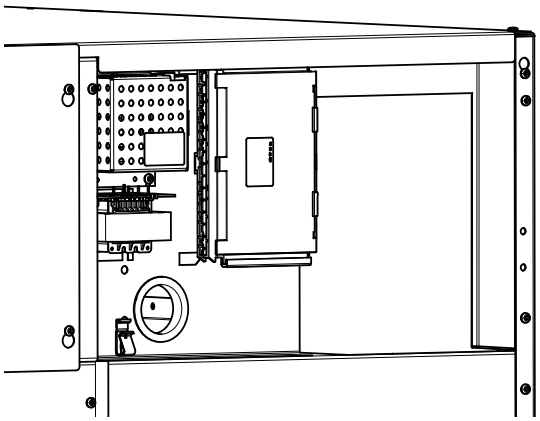


fig.7442

Remove the electrical connections on the module. (Note the position of the connections).

Remove the module by lifting it towards you and up a bit and then pushing it to the left.

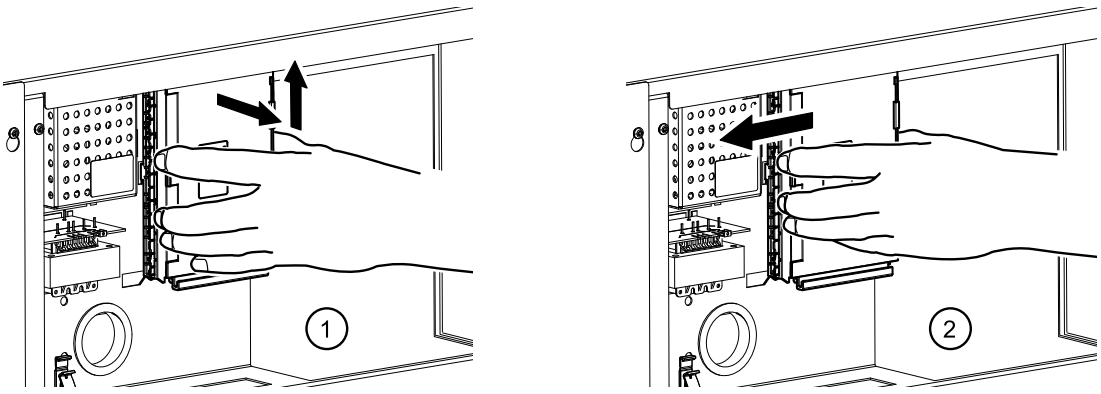
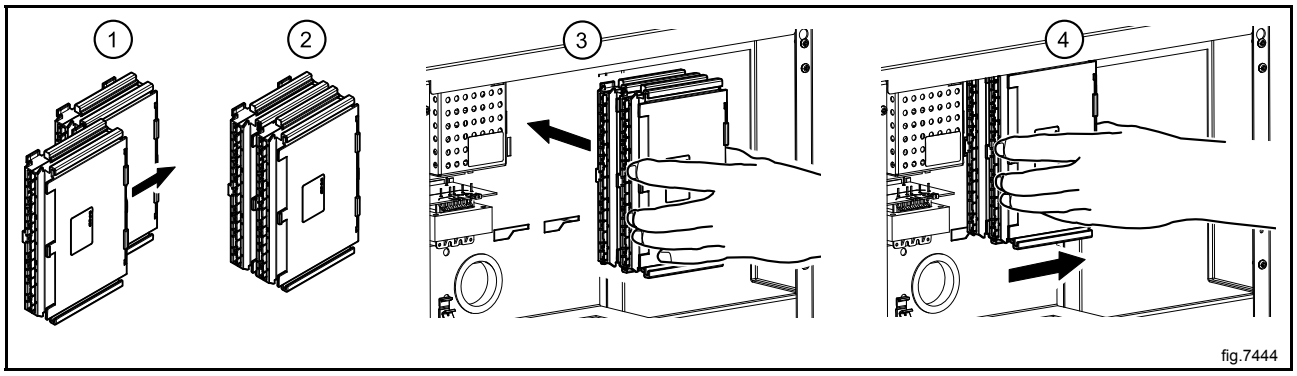


fig.7443

Insert the new module and make sure it is in position.

Connect the electrical connections in the same way as before.

If both I/O module type 8 and I/O module type 2 is to be replaced it is recommended to fit the modules together before mounting in the machine.



Remount the upper rear panel.

Connect the power to the machine.

13.3 External connections to I/O module type 2

Inputs

The signal level may be 5 - 24V DC/AC or 100 - 240V AC. At 5 - 24V, the signal reference must be connected to 3 and at 100 - 240V to 4.

Note!

Do not mix potentials on the inputs.

Connecting excessive voltage (> 24V) to connection 3 may damage the I/O modules.

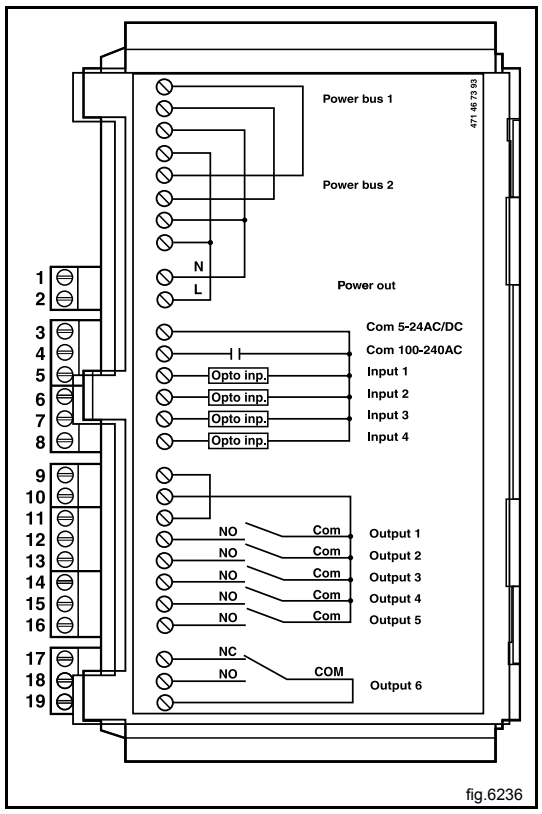


fig.6236

13.4 Circuit diagram of function options for I/O module type 2

13.4.1 Central payment (22J)

To start the machine from a central payment system, the payment system must transmit a start pulse to the machine. The start pulse can be either 230V or 24V. In order to receive a feedback signal once the machine has started, 230V or 24V must be connected to connection 19. The feedback signal on connection 18 remains active (high) during the entire program.

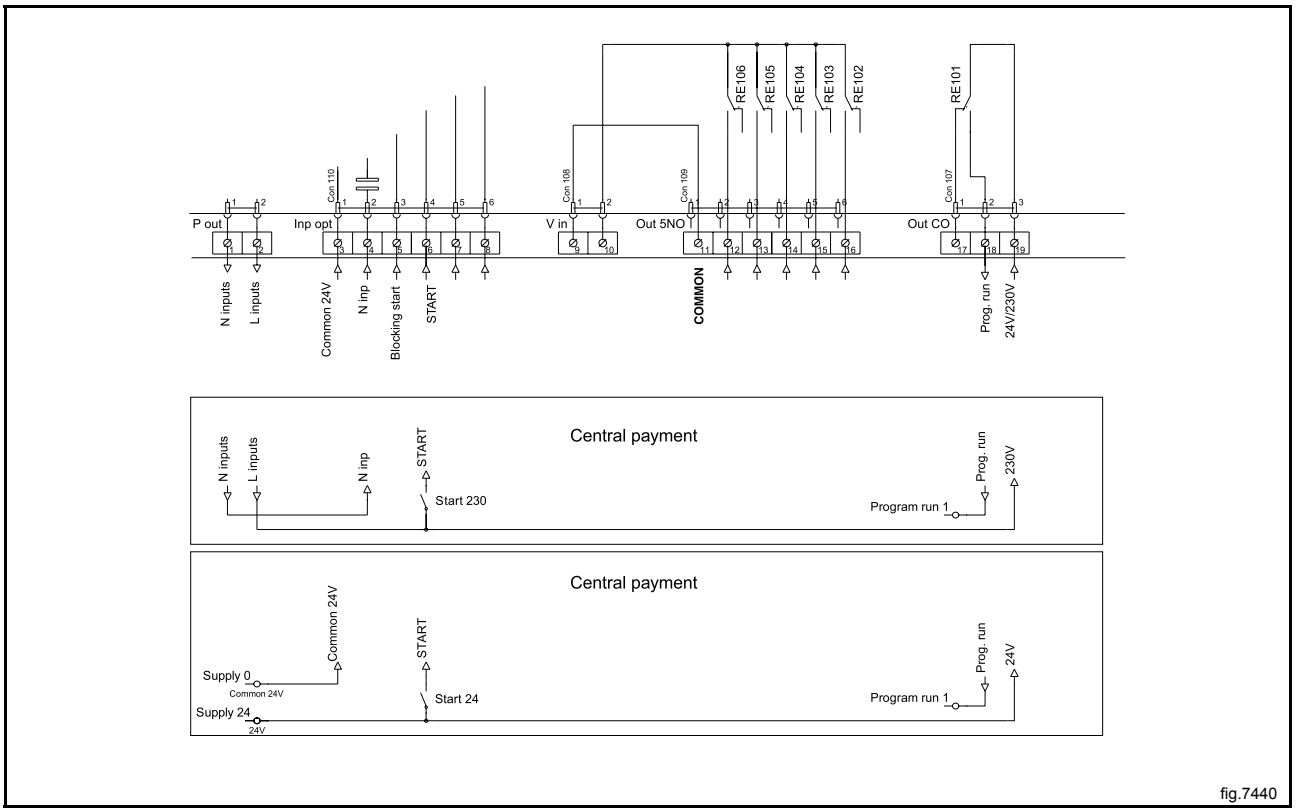


fig.7440

13.4.2 Central payment (22J)

The central payment of booking system shall transmit an active (high) signal to the machine once permission has been granted to start the machine. The signal must remain active (high) until the machine starts. The signal can be either 230V or 24V. In order to receive a feedback signal once the machine has started, 230V or 24V must be connected to connection 19. The feedback signal remains active (high) during the entire program.

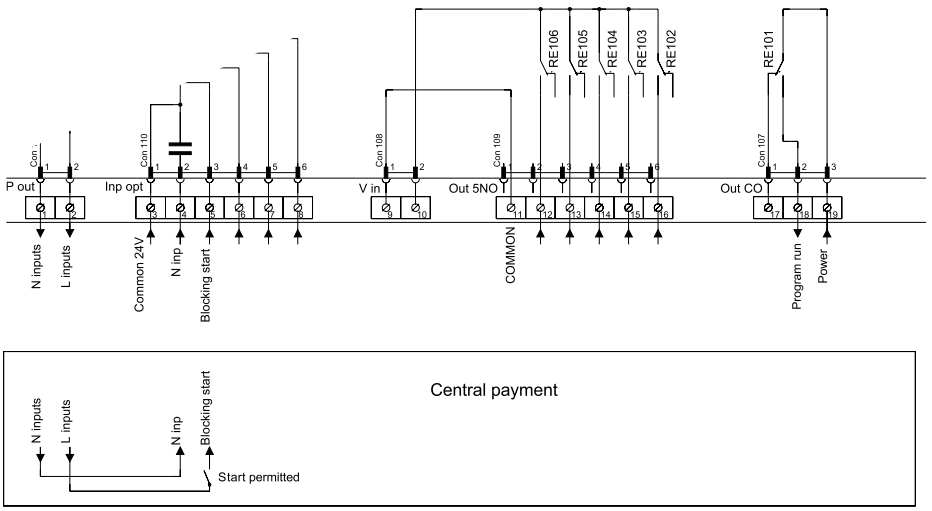


fig.7439

13.4.3 External coin meter/Central payment (22K)

The signal received from external coin meters must be a pulse.

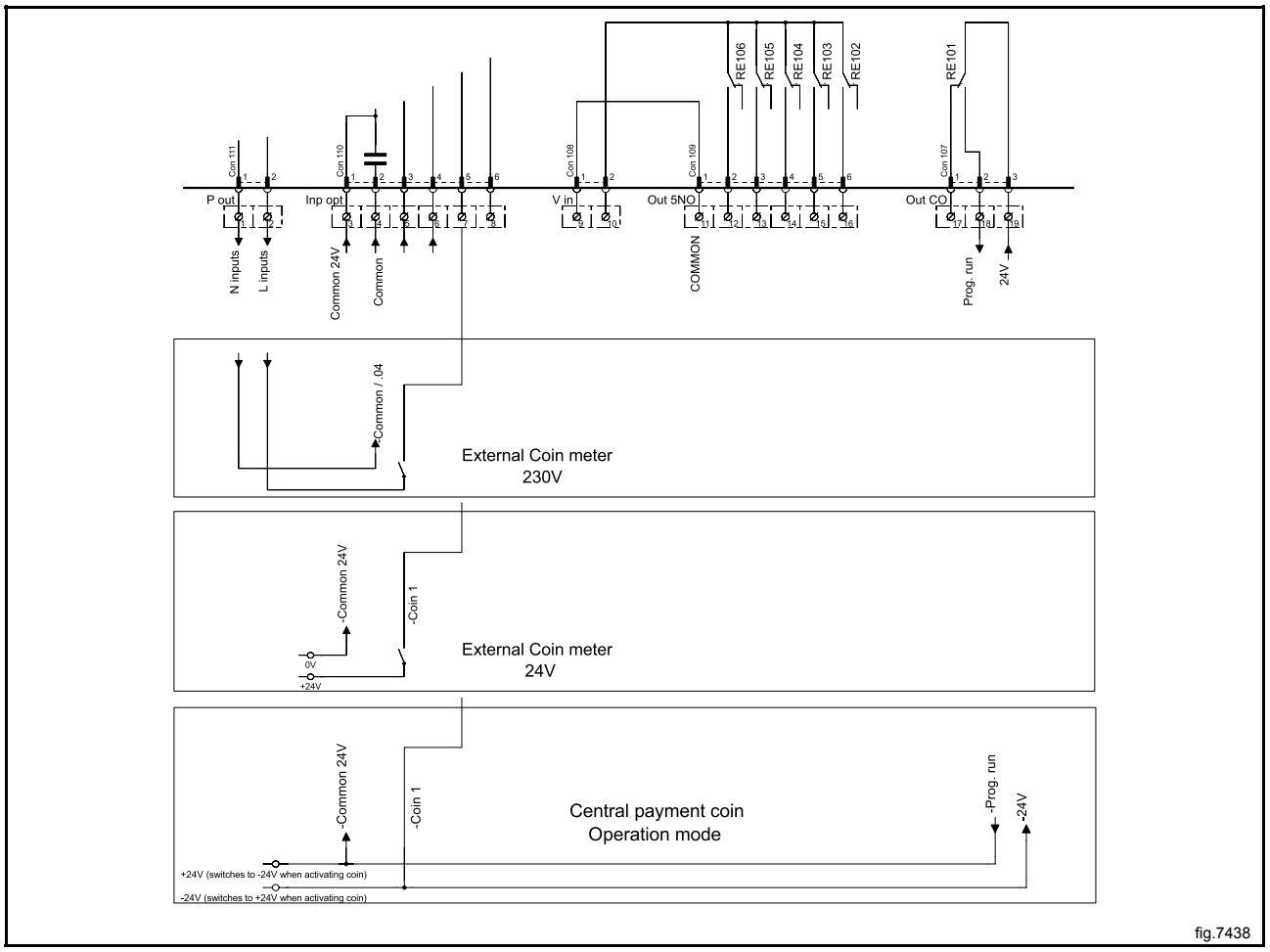


fig.7438

13.4.4 Price reduction (22K)

By maintaining an activated (high) signal on connection 5 ("Price red"), the price of the program can be reduced. This function has a number of uses, including providing reductions during a specific period of the day. Whilst the signal remains active (high), the price of the program is reduced by the percentage entered in the price programming menu.

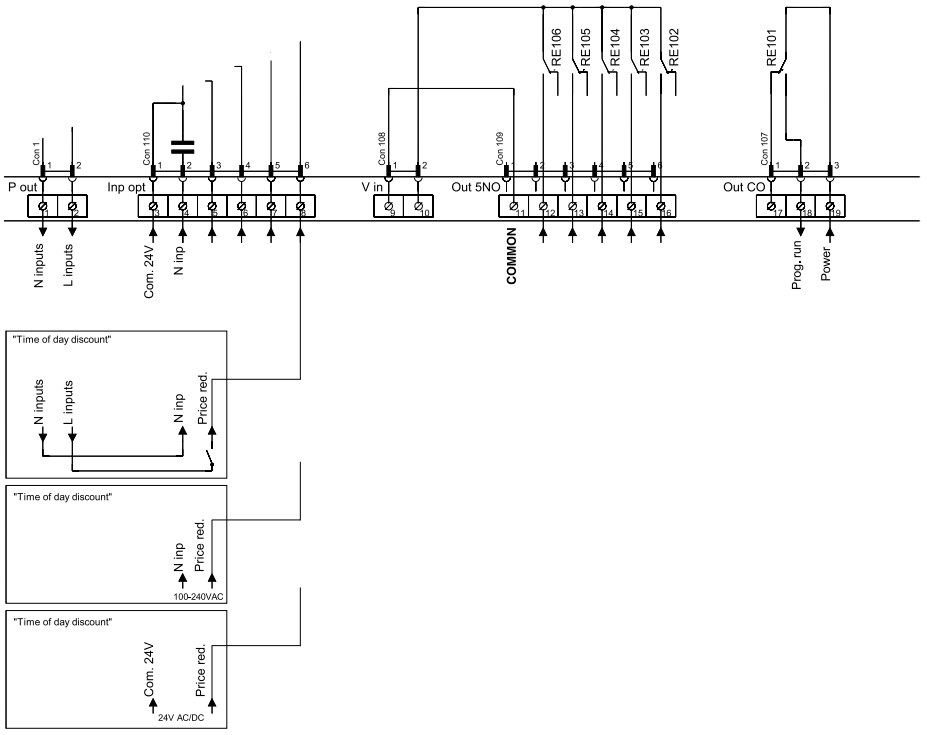


fig.7441

14 Troubleshooting

14.1 General

The troubleshooting section is used to trace errors in the machine to a defective component or unit.

There is a memory in the program unit that will save the selected program for approximately 3-5 minutes in the case of power cuts.

The machine will restart automatically if the power is turned on again within this time.

Safety regulations

Troubleshooting may only be carried out by authorised personnel.

Take care during all work on the machine while the power is on.


Take care when measuring the motor control system since all components have a potential difference of approximately 300V in relation to protective earth and neutral.The components will contain dangerous voltages when the green LED on the motor control board is on. The motor control system will remain live for 30-60 seconds after cutting the power to the machine and the motor has stopped running.

Measurements

For information on measuring points, components and voltages, please refer to the electric schematic supplied with the machine.

14.2 Error code

An error in the program or in the machine is indicated on the display by an error code and a descriptive text.

The error codes are divided into different groups called “Major” comprising different error codes called “Minor”.

The errors will be displayed as for example 12:15 **NO VACUUM**.

The following is a description of all Major groups followed by a description of each error code.

Error code		Text
Major	**Minor**	
MAIN COMMON	11	**REAL TIME CLOCK OUT OF ORDER**
10	13	**START UP OF HARDWARE FAILED**

Error code		Text
Major	**Minor**	
MAIN DRYER	1	**O.H. THERMOSTAT - INLET AIR**
12	2	**O.H. THERMOSTAT - OUTLET AIR**
	3	**INLET AIR SENSOR OPEN**
	4	**INLET AIR SENSOR SHORT CIRCUITED**
	5	**OUTLET AIR SENSOR OPEN**
	6	**OUTLET AIR SENSOR SHORT CIRCUITED**
	8	**CONDENSE WATER CONTAINER IS FULL**
	11	**DRYING ERROR WITH RMC PROGRAM**
	12	**DRYING ERROR WITH AUTOSTOP PROGRAM**
	13	**DRYING ERROR WITH TIME PROGRAM**
	14	**GAS ERROR PRESS GAS REST BUTTON**
	15	**NO VACUUM**
	16	**VACUM SWITCH SHORTED**
	253	**JUMPER 1**
	254	**JUMPER 2**
	255	**JUMPER 3**

Error code		Text
Major	**Minor**	
DRUM MOTOR COMMON 20	1	**O.H. DRUM MOTOR**

Error code		Text
Major	**Minor**	
FAN MOTOR COMMON 30	1	**O.H. FAN MOTOR**

Error code		Text
Major	**Minor**	
INTERNAL COM. 40	21	**I/O COMMUNICATION**

14.3 Description of error codes and causes

MAIN COMMON

10:11 REAL TIME CLOCK OUT OF ORDER

The real time clock is used by the timer, measuring time, power failure, error codes, etc.

The error code is activated if there is a time out in the communication with the internal real time clock in the timer or if the data sent to/from the real time clock is incorrect.

The error can only be removed by turning of the power to the machine for 30 seconds.

10:13 START UP OF HARDWARE FAILED

The timer has an internal time limit for initialization of the system.

The error code is activated if 15 seconds has expired during start up and the hardware still is not initialized.

The error can only be removed by turning of the power to the machine for 30 seconds.

MAIN DRYER

12:1 O.H. THERMOSTAT - INLET AIR

The error code is activated if the protection thermostat for inlet air has trigged due to overheating. The overheating thermostat for inlet air will be trigged at 195 °C.

The overheating thermostat for inlet air needs to be mechanically restored.

When the overheating thermostat for inlet air is restored it is possible to reset the error code from the timer by a short press on the control knob/start button and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

The error code can be trigged if:

- The inlet air sensor has stopped operating correctly.
- The fan has stopped operating.
- The airflow is obstructed, by lint, overload, etc.

If the overheating thermostat for inlet air is not trigged, but there still is an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

12:2 O.H. THERMOSTAT - OUTLET AIR

The error code is activated if the protection thermostat for outlet air has trigged due to overheating. The overheating thermostat for outlet air will be trigged at 90°C.

The overheating thermostat for outlet air needs to be mechanically restored.

When the overheating thermostat for outlet air is restored it is possible to reset the error code from the timer by a short press on the control knob/start button and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

The error code can be trigged if:

- The outlet air sensor has stopped operating correctly.

If the overheating thermostat for outlet air is not trigged, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

12:3 INLET AIR SENSOR - OPEN

The error code is activated if the inlet air sensor (PT100) or its wires is open.

If the inlet air temperature in the **SHOW INPUTS** menu show a temperature of 222 °C the inlet air sensor is open.

When the inlet air sensor is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

The error code can be trigged if:

- The sensor, harness or connector is broken.

The sensor shall measure around 110 Ohm in room temperature, see table. (Measure direct over the sensor).

If the measure of inlet air sensor is OK, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

If the input for the inlet air sensor is short circuited, the timer will display the inlet air temperature of 0 °C.

Inlet air sensor resistor value	Temperature
100 Ohm	0 °C
107–112 Ohm	20–30 °C
176 Ohm	200 °C

12:4 INLET AIR SENSOR - SHORT-CIRCUITED

The error code is activated if the inlet air sensor (PT100) or its wires is short circuited.

If the inlet air temperature in the **SHOW INPUTS** menu show a temperature of 0 °C the inlet air sensor is short circuited.

When the inlet air sensor is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

The error can be trigged if:

- The sensor, harness or connector is broken.

The sensor shall measure around 110 Ohm in room temperature, see table. (Measure direct over the sensor).

If the measure of inlet air sensor is OK, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

If the input for the inlet air sensor is short circuited, the timer will display the inlet air temperature of 222 °C.

Inlet air sensor resistor value	Temperature
100 Ohm	0 °C
107–112 Ohm	20–30 °C
176 Ohm	200 °C

12:5 OUTLET AIR SENSOR - OPEN

The error code is activated if the outlet air sensor or its wires is open.

If the outlet air temperature in the **SHOW INPUTS** menu show a temperature of -10 °C the outlet air sensor is open.

When the outlet air sensor is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

The error code can be trigged if:

- The sensor, harness or connector is broken.

The sensor shall measure around 5 K Ohm in room temperature, see table. (Measure direct over the sensor).

If the measure of outlet air is OK, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

If the input for the outlet air sensor is short circuited the timer will display the inlet air temperature of 100 °C.

Outlet air sensor resistor value	Temperature
26.7 K Ohm	– 10 °C
6–3.9 K Ohm	20–30 °C
330 Ohm	100 °C

12:6 OUTLET AIR SENSOR - SHORT-CIRCUITED

The error code is activated if the outlet air sensor or its wires is short circuited.

If the outlet air temperature in the **SHOW INPUTS** menu show a temperature of 100 °C the outlet air sensor is open.

When the outlet air sensor is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

The error code can be trigged if:

- The sensor, harness or connector is broken.

The sensor shall measure around 5 K Ohm in room temperature, see table. (Measure direct over the sensor).

If the measure of outlet air sensor is OK, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

If the input for the outlet air sensor is open circuited the timer will display the inlet air temperature of 0 °C.

Outlet air sensor resistor value	Temperature
26.7 K Ohm	– 10 °C
6–3.9 K Ohm	20–30 °C
330 Ohm	100 °C

12:8 CONDENSE WATER CONTAINER IS FULL

The pump will run when a program starts for normally 15 seconds. Then it will run again after normally 3 minutes. The pump will also run if the input for the float is trigged.

The error code is activated if the pump has tried to empty the condense water container without the signal from the float in the condense water container has been deactivated.

When the float in the condense water container is restored it is possible to reset the error code from the timer. The error code is reset from the timer by a short press on the control knob/start button. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

The error code can be trigged if:

- The condense water container is full and the pump is not operating.
  Check the pump by activating the **CONDENSER PUMP** menu in the **ACTIVATE OUTPUTS** menu when the machine is in service mode.
- If the pump is running and no water is coming out, the drain is blocked or the float is out of order.
- If water coming out of the hose, it might be partly blocked.

If the pump does not run or if there is no level in the condense water container check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

12:11 DRYING ERROR WITH RMC PROGRAM

The error code is activated if the RMC system does not register that the clothes are dry within the maximum drying time. When the error is trigged the machine will automatically go to the cooling module before the program ends.

The error code is reset from the timer by a short press on the control knob/start button. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

If the clothes are still wet after maximum drying time and the dryer is not overloaded, check that the heating system is working correct by using the **ACTIVATE OUTPUTS** menu when the machine is in service mode.

Note!

Make sure that the fan is active before turning on the heat.

If the clothes are dry, check the RMC system and harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

- RMC value no load = 0%
- RMC value 100K Ohm between lifter and drum = ~24%
- RMC value system short circuit = 50%

12:12 DRYING ERROR WITH AUTOSTOP PROGRAM

The error code is activated if the Auto Stop system does not register that the clothes are dry within the maximum drying time. When the error is trigged the machine will automatically go to the cooling module before the program ends.

The error code is reset from the timer by a short press on the control knob/start button. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

If the clothes are still wet after maximum drying time and the dryer is not overloaded, check that the heating system is working correct by using the **ACTIVATE OUTPUTS** menu when the machine is in service mode.

Note!

Make sure that the fan is active before turning on the heat.

If the clothes are dry, check the outlet air sensor and harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

12:13 DRYING ERROR WITH TIME PROGRAM

The error code is activated if a time program has continued longer than the maximum drying time without the door has been opened.

When the error is trigged the machine will automatically go to the cooling module before the program ends.

The error code is reset from the timer by a short press on the control knob/start button. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

12:14 GAS ERROR PRESS GAS RESET BUTTON

The error code is activated if no flame has been detected by the gas control box. The gas control box trig an input on the timer system, which generates the error code.

The metal probe of the flame sensor generates an electrical current when exposed to the burner's flame. This signal is detected by the ignition control module which, in turn, cuts off the gas valve immediately if the sensor does not indicate flame within 10 seconds. The gas control box does 3 attempts to ignite. The integrity of the sensor's electrical connection is, therefore, critical to proper operation of this system. When the gas control box is in error mode a red LED is active on the gas control box.

The timer sends a reset signal to the gas control box by a short press of the start button or service button (depending on market and segment). When the gas control box receive a reset command it removes the error. The timer will automatically restart the program when the error is removed from the gas control box and when heat is allowed (vacuum needed) the gas control box will try to ignite the gas again. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

The gas error can also be reset at the gas control box. The machine will automatically restart when the error is restored.

The error code can be trigged if:

- The gas control box fails to ignite. Check the gas supply and nozzle pressure.

If the gas control box do not have a gas error but the timer does, check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

12:15 NO VACUUM

The error code is activated if the vacuum/pressure switch (normally open) is not trigged within set time, normally 12 seconds.

The error code is reset from the timer by a short press on the control knob/start button. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

The error code can be trigged if:

- The fan is not operating or blows in the wrong direction.
- The airflow is obstructed.
- The vacuum switch sensor or hose is disconnected.
- The lint drawer is open, etc.

Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** and **ACTIVATE OUTPUTS** menus when the machine is in service mode.

12:16 VACUUM SWITCH SHORTED

The error code is activated if the vacuum/pressure switch was already closed when a program was started.

The error code is reset from the timer by a short press on the control knob/start button. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

Check the vacuum switch/pressure sensor, harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

12:253 JUMPER 1

The error code is activated if the jumpers that has trigged the error code is missing.

Jumpers are a by-pass of input not used in the machine. How many jumpers used is depending on configuration. When the jumper is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

12:254 JUMPER 2

The error code is activated if the jumpers that has trigged the error code is missing.

Jumpers are a by-pass of input not used in the machine. How many jumpers used is depending on configuration. When the jumper is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

12:255 JUMPER 3

The error code is activated if the jumpers that has trigged the error code is missing.

Jumpers are a by-pass of input not used in the machine. How many jumpers used is depending on configuration. When the jumper is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

DRUM MOTOR COMMON

20:1 O.H. DRUM MOTOR

The error code is activated if the overheating protection for the drum motor has trigged.

The overheating protection is automatically restored. When the overheating protection is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and ongoing program will be ended.

The error code can be trigged if:

- The motor is very warm. Check that the vent holes in the motor are not covered.

If the overheating protection is not trigged, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

FAN MOTOR COMMON

30:1 O.H. FAN MOTOR

The error code is activated if the overheating protection for blower motor has trigged.

The overheating protection is automatically restored. When the overheating protection is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start button will make the timer reset and the ongoing program will be ended.

The error code can be trigged if:

- The motor is very warm. Check that the vent holes in the motor are not covered.

If the overheating protection is not trigged, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the **SHOW INPUTS** menu when the machine is in service mode.

INTERNAL COM.

40:21 I/O COMMUNICATION

The error code is activated if the timer no longer communicate with one or more I/O boards.

There is an internal data bus between the different I/O boards in the machine with information about inputs, outputs, etc. that the timer use to control the machine. The error code is activated if the timer has lost communication with one or more I/O boards. The error will also be activated if the service button is pressed on the wrong I/O board during configuration of I/O boards. If there is communication between the I/O board and timer the LED next to the service button will flash. If there is no communication to the I/O board but power, the LED will light when the button is pressed on the I/O board.

Check that all I/O boards are configured in **I/O CONFIGURATION** menu when the machine is in service mode.

If all I/O boards present in the list check the LED and harness, connectors and functions by reading the electrical schematic.

15 Maintenance

15.1 Clean the fan, the exhaust duct and the fresh-air intake to the room

Check that the following are not clogged by lint and dust or otherwise blocked and clean with a vacuum cleaner:

- The fan. **Be careful not to damage the fan**.
- Exhaust duct.
- Fresh-air intake to the room.

Check that the exhaust system connections are tight.

15.2 Clean the glide surface for the RMC graphite collector

Clean the glide surface for the RMC graphite collector on the outside of the drum (A).

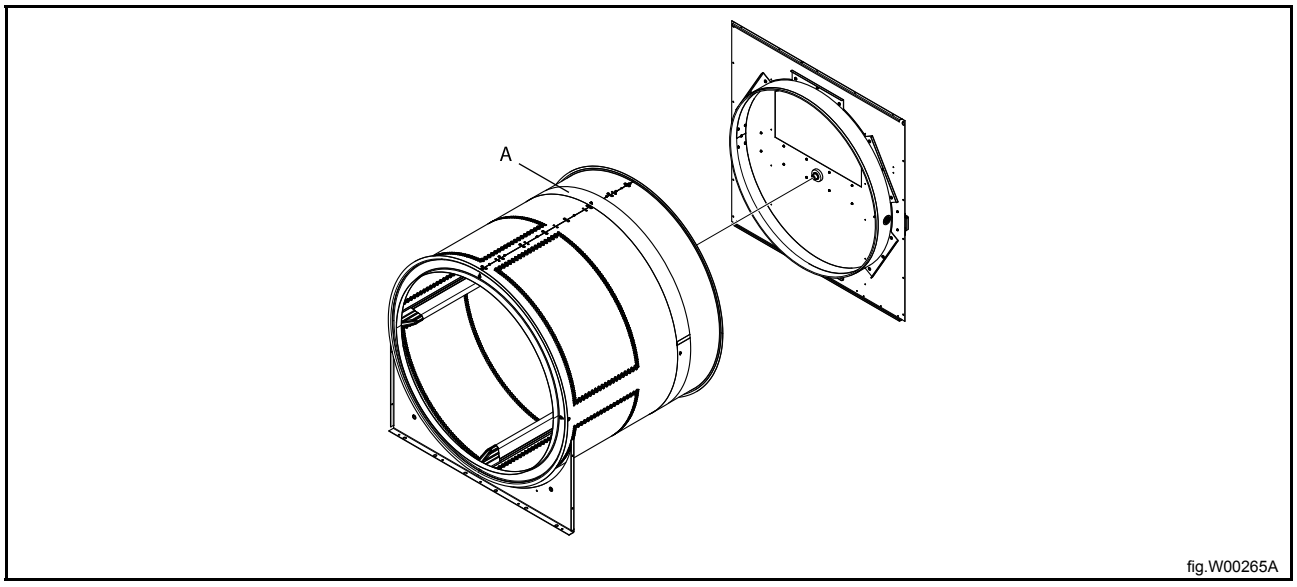


fig.W00265A

15.3 Clean the area around the drum

Disconnect the power to the machine.

Demount the hinges and remove the door. Remove the upper hinge first.

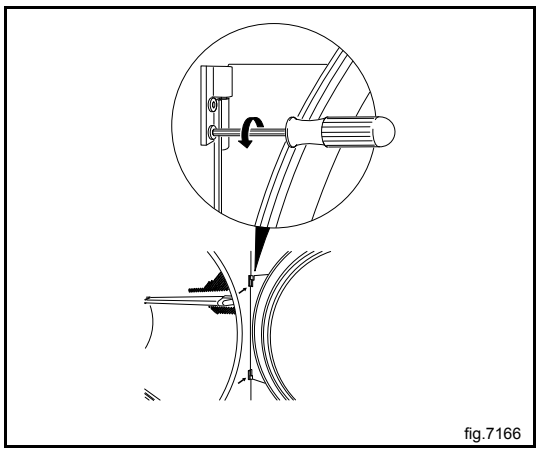


fig.7166

Remove the screws on the front panel and carefully loosen the panel. Disconnect the door switch cable and remove the panel.

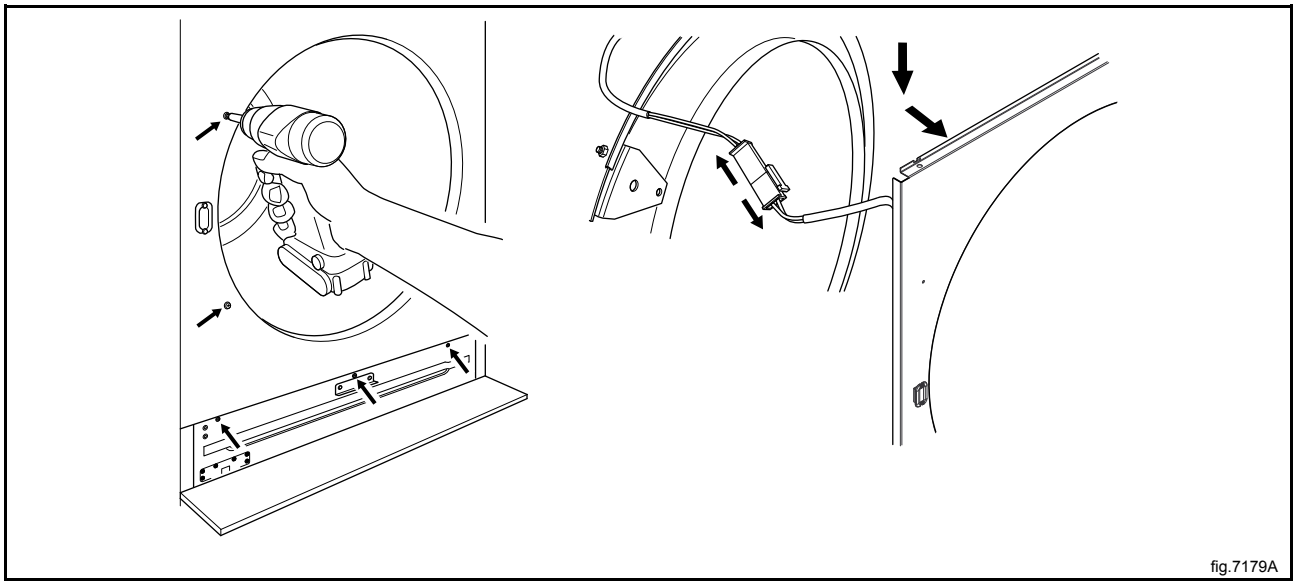


fig.7179A

Remove all lint around the drum with a vacuum cleaner.

Check the support rollers (A) and replace if necessary.

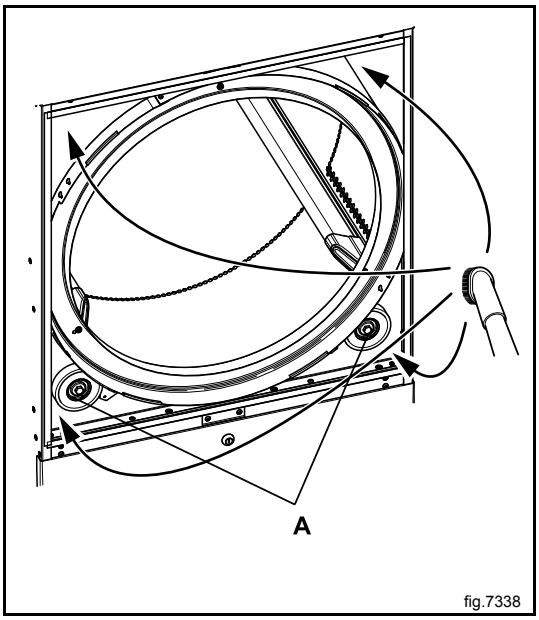


fig.7338

Connect the door switch cable and remount the front panel.

Remount the door.

15.4 Clean the motors

Disconnect the power to the machine.

Demount the two rear panels.

Clean the fan wheel on each motor with a vacuum cleaner.

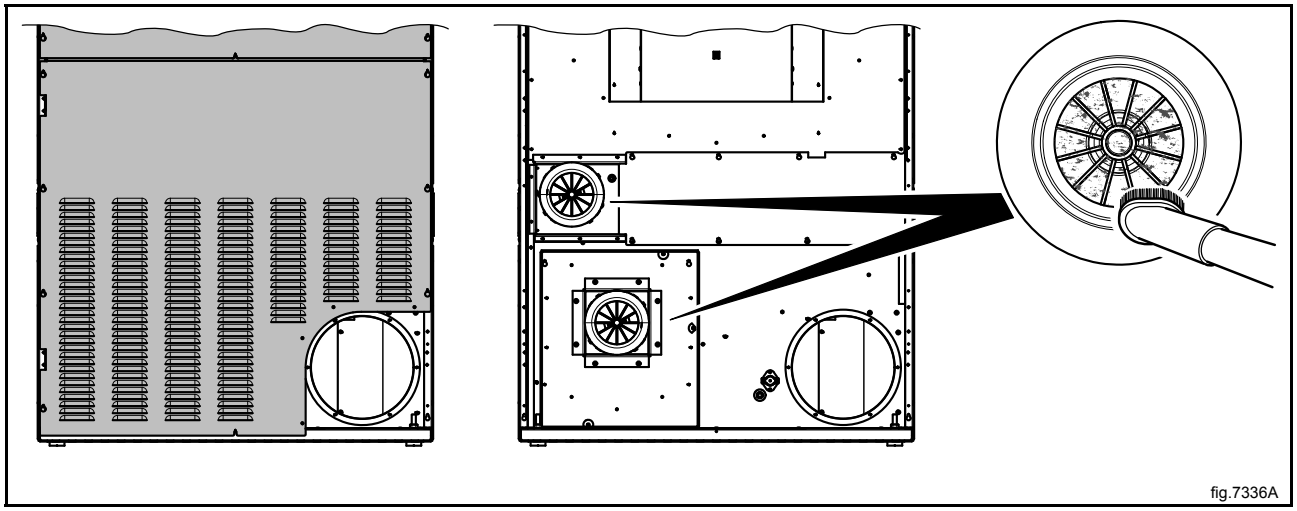


fig.7336A

Demount the cover plate to the belt tensioner.

Clean the area around the belt tensioner and the transmission with a vacuum cleaner.

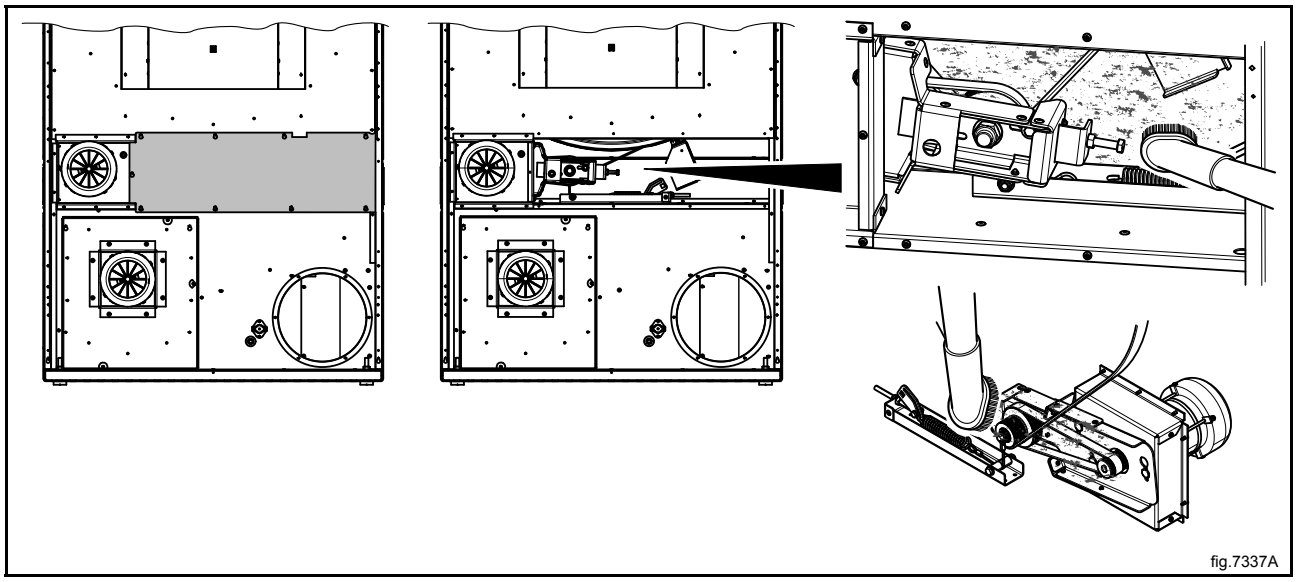


fig.7337A

Remount the cover plate and the rear panels.

Note!

The machine will NOT work without the cover plate.

15.5 Check the belt tension

Check the belt tension with a frequency meater or similar. The frequency shall be:
A = 70 Hz± 5. Adjust if necessary.
B = 80 Hz ± 5. Adjust if necessary.

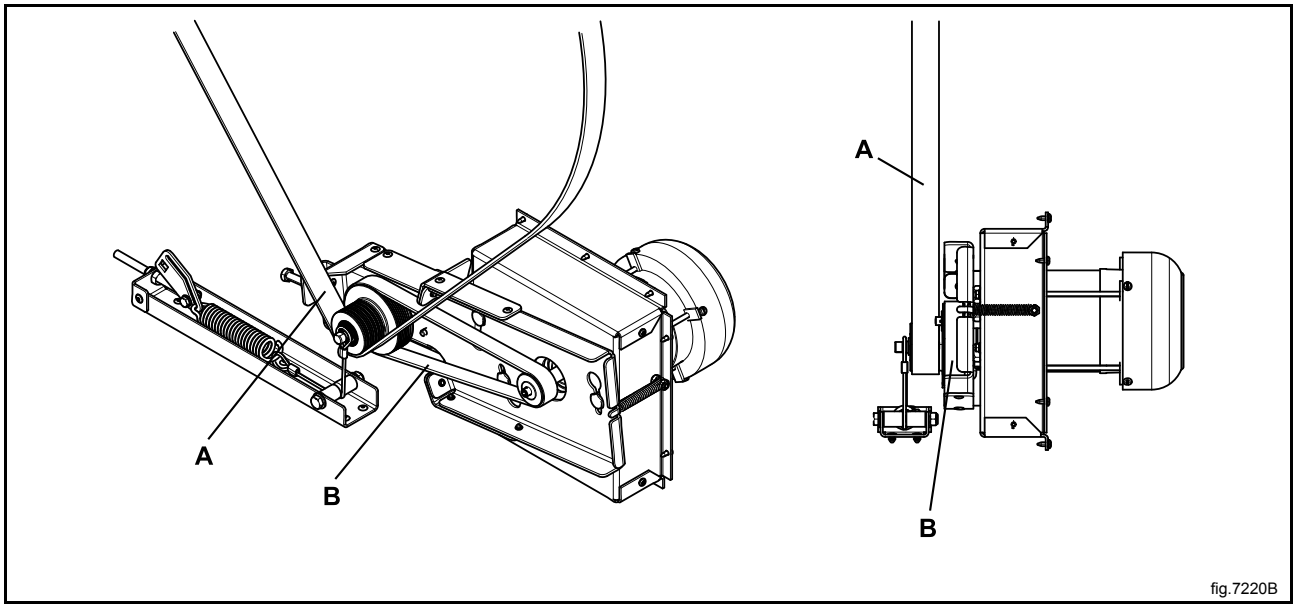


fig.7220B

Remount the cover plate and the rear panels.

Note!

The machine will NOT work without the cover plate.

When reliable laundry and wetcleaning equipment is desired, the choice is Wascomat!

The world's oldest and leading manufacturer of commercial laundry equipment for coin laundries, hotels, motels, nursing homes and any other institutional laundry use, and the environmentally safe, wetcleaning "dual-use" systems for drycleaners.

WASCOMAT PROVIDES "PEACE OF MIND GUARANTEE"

Backed by a company that's been in the laundry equipment business for over 100 years and has earned a reputation as the standard of quality worldwide, Wascomat dealers provide:

– Free survey of your laundry needs

– Laundry design and layout

– Quality laundry equipment in a size and model for every need

– Installation, start-up and training

– Worldwide parts and service

– Best warranty in the business

– *"Lease-a-Laundry Program"*, which includes the laundry equipment installation and ongoing service

EXPAND, MODERNIZE, RETOOL OR BUILD A NEW LAUNDRY WITH LOW-COST FINANCING OR LEASING FROM WASCOMAT*

With Wascomat/Viking financing or leasing you can obtain and install durable, efficient, state-of-the-art Wascomat washers, dryers and non-polluting, environmentally-friendly wetcleaning equipment to meet all anti-pollution regulations.

For more information and to apply for financing or leasing, call Viking Financial Services LLC 1-800-645-2209

* For qualified applicants and equipment only.

Wascomat provides efficient, quality washers, dryers, flatwork ironers and non-polluting wetcleaning equipment.

FRONT-LOAD WASHER MODELS

Solid and soft-mount, coin operated and commercial laundry washers in standard, high and ultra-high extract models. Designed for long life and efficient water and energy use. Available from 18 to 250 lb. capacities.

SIDE-LOAD WASHER MODELS

Pullman, Side-Load, Barrier and Clean Room washer models with high 300 to 350 G-Force extraction, designed and built for long, trouble-free life and big water and energy savings. Available from 55 to 250 lb. capacities.

GAS EFFICIENT DRYER MODELS

Coin operated and commercial energy and gas efficient, user friendly TD dryer models with optional unique Wascomat Residual Moisture Control (RMC). Available in a size and model for every laundry need.

AUTOMATIC FLATWORK IRONERS

A unique one-operator, fully automatic, labor saving, ironer that does it all: feeds, irons, folds, stacks and counts. Also available in fully and semi-automatic models in a size and model for every laundry need.

WASCOMAT NON-POLLUTING WETCLEAN EQUIPMENT

The best alternative to Perc, uses water and complies with OSHA, EPA and all other environmental, anti-pollution regulations. Wascomat state-of-the-art wetclean technology eliminates all pollution concerns and provides the best wetcleaning and washing results. Available in a size and model for every wetcleaning need.

With the push of a button, the unique Wascomat "Dual-Use" Wetcleaner converts to an ideal laundry washer for washing shirts, comforters, drapes, all other washable garments and cleaner's wash-dry-fold customer service.

---

100 ANNIVERSARIO 1902 - 2002 Wascomat ANNIVERSARY

WASCOMAT PROVIDES THE BEST CUSTOMER SERVICE WITH EXPERIENCED WORLDWIDE CUSTOMER SUPPORT, WITH AN OVER 100-YEAR TRACK RECORD.

WASCOMAT/VIKING FINANCIAL SERVICES PROVIDES LOW COST FINANCING AND LEASING* FOR YOUR BUSINESS GROWTH.

For more information call Wascomat at 516-371-4400

Wascomat Laundry Equipment

The Standard of Quality for Over 100 Years!

* For qualified applicants and equipment only.