

How to Service

Rotor recognition, tachometer, imbalance, lid & drive

VS1295



Year 2018 onwards

Refrigerated models



CENTURION
SCIENTIFIC LIMITED



Ranges that use this Circuit board are

- PrO-Analytical
- PrO-Hospital
- PrO-CW
- PrO-Cytology
- PrO-Xtract
- PrO-Oiltest (display is red)
- PrO-Vet (Limited models)

What to do

For the following checks and adjustments, always remove the power cord from the Centrifuge.

Cleaning of the bowl and display overlay is required.

Use a bacteria proof type wipe. Do not use bleach or strong cleaning solutions

The following pages show what is required.

Rotor recognition.

Remove the rotor and check its magnets underneath , are all in place by looking at the chart supplied? If not do not use as the unit will go into safety mode 2000 Rpm.

Tachometer

Remove the grill on the underside and clean the tachometer a blast of air is best. Do not use a hard metal brush , be careful and if air is not available use a soft brush NO cleaning solutions .

Lid

Grease the lid latch rotor with a minimum spray of silicon as supplied

Lid seals

Replace the lid seal as shown

Lid underseal

Replace as shown, Note whilst the top cover has been removed check the

Imbalance sensor for adjustment

After replacing the top cover/Lid.

Refit the power cord and follow the Test procedures (Page 15-21)

These procedures test all sensors and confirm its use and safety

Rotor recognition sensor

P 4

Check the sensor is clean
and wires are intact



S Rotor recognition sensor



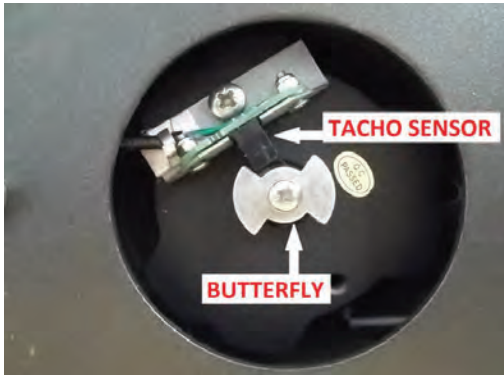
Magnets to underside of
rotor must match chart on
previous page designated
to rotor. If not do not use

VS1295 only. Magnets per rotor

Name	Magnets	Max Capacity	Max tube size	Description	Max speed	
BRK5218	12	24 x 2ml	11 x 50mm	Fixed angle. With sealed lid	15,000	
BRK5248	11	48 x 2.2ml	11 x 50mm	Fixed angle. With sealed lid	15,000	
BRK5249	11	24x2.2ml & 24x0.5ml	11x50 & 6x30mm	Fixed angle. With sealed lid	15,000	
BRK5298	11	8 x PCR strips	6 x 40mm	Fixed angle. With sealed lid	15,000	
BRK5424	10	24 x 2ml	11 x 50mm	Fixed angle. With sealed lid	15,000	
BRK5436	10	36 x 0.5ml	8 x 30mm	Fixed angle. With sealed lid	15,000	
BRK5448	10	48 x 0.2ml	6 x 40mm	Fixed angle. With sealed lid	15,000	
BRK5494	10	4 x PCR strips	6 x 40mm	Fixed angle. With sealed lid	15,000	
BRK5463	10	36 x 2ml	11 x 50mm	Fixed angle. With sealed lid	15,000	
BRK5464	10	18x2ml & 18x0.5ml	11x50 & 8x30mm	Fixed angle. With sealed lid	15,000	
BRK5499	10	2xPCR strips 10x2ml	11 x 40mm	Fixed angle. With sealed lid	13,200	MM only
BRK5463	9	36 x 2ml	11 x 50mm	Fixed angle. With sealed lid	13,200	MM only
BRK5464	9	18x2ml & 18x0.5ml	11x50 & 8x30mm	Fixed angle. With sealed lid	13,200	MM only
BRK5401	8	24xcapillary & 12x2ml	2x75mm & 11x40mm	Haematocrit & Fixed angle	13,000	
BRK5648	8	48 x 2.2ml	11 x 50mm	Fixed angle. With sealed lid	13,000	
BRK5649	8	24x2.2ml & 24x0.5ml	11x50 & 6x30mm	Fixed angle. With sealed lid	13,000	
BRK5698	8	8 x PCR strips	6 x 40mm	Fixed angle. With sealed lid	13,000	
BRK5407	7	4x15ml & 4x10ml	17x120mm & 13x110mm	Fixed angle. With Sealed Lid	8,000	
BRK5540	7	4xstd or 2xhigh plates	85 x 128mm	Microtitor Rotor	3,500	
BRK5740	7	4xstd or 2xhigh plates	85 x 128mm	Microtitor Rotor	3,500	
BRK5404	6	4 x 50ml	30 x 115mm	Fixed angle. With sealed lid	6,000	
BRK5408	6	8 x 15ml	17 x 120mm	Fixed angle. With sealed lid	6,000	
BRK5100	6	6 x 100ml	45 x 125mm	Fixed angle. With sealed lid	6,000	
BRK5406	6	6 x 50ml	30 x 115mm	Fixed angle. With sealed lid	6,000	
BRK5412	6	12 x 15ml	17 x 120mm	Fixed angle. With sealed lid	6,000	
BRK5308	6	8 x 50ml	30 x 115mm	Fixed angle. With sealed lid	6,000	
BRK5324	6	24 x 15ml	17 x 120mm	Fixed angle. With sealed lid	6,000	
BRK5316	6	16 x 15ml	17 x 120mm	Fixed angle. With sealed lid	6,000	
BRK5206	5	6 x 50ml	30 x 115mm	Fixed angle. With sealed lid	10,000	
BRK5212	5	12 x 15ml	17 x 120mm	Fixed angle. With sealed lid	10,000	
BRK5204	5	4 x 50ml	30 x 115mm	Fixed angle. With sealed lid	10,000	
BRK5202	5	8 x 15ml	17 x 120mm	Fixed angle. With sealed lid	10,000	
BRK5434	4	24 x 15ml	17 x 120mm	Fixed angle.	4,000	
BRK5431	4	8 x 50ml	30 x 115mm	Fixed angle	4,000	
BRK5256	4	6 x 250ml	62 x 130mm	Fixed angle	10,000	
BRK3000	3	See below	See below	Swing out	4,000	
BRK3002	3	4 x 500ml	98 x 160mm	Swing out	4,000	
BRK3003	3	4 x 750ml	98 x 170mm	Swing out	4,000	
BRK3004	3	4 x 1000ml	98 x 180mm	Swing out	4,000	
BRK5508S	2	8 x 5ml	13 x 82mm	Swing out	4,000	
BRK5508M	2	8 x 10ml	15 x 115mm	Swing out	4,000	
BRK5508L	2	8 x 15ml	17 x 120mm	Swing out	4,000	
BRK7000	2	4 x 750ml	TBA	Swing out	4,000	
BRK5506	1	4 x 125ml	45 x 100mm	Swing out	4,000	
BRK1001	1	4 x 250ml	62 x 100mm	Swing out	4,000	
BRK5600	1	4 x 100ml Oil tubes	Small, Tall & Pear	Oil Test Swing Out	4,000	
BRK4940	0	12 x Dual holders	0.2 to 6ml	Cytology Rotor	2,500	
BRK4460	0	12 x Dual holders	0.2 to 6ml	Cytology Rotor	2,000	
BRK5450	0	12 x place	10 x 75 OR 12 X 75mm	Fixed angle	3,500	

Tachometer cleaning & adjustment

To check and clean the tachometer sensor turn off the centrifuge via the switch on the rear and unplug it from the mains supply then tip the centrifuge on its side. You will then see a hole in the base of the centrifuge which will give you access to the tacho sensor and butterfly after removing the grill (4 screws)



2021 Style

Make sure that the tacho sensor and butterfly are free from dirt and foreign objects i.e animal hair, tissues etc. Clean with a cotton bud or air blast



Make sure the sensor is at the angle shown.

Make sure the butterfly is firmly fixed to the motor shaft. Tighten if necessary.

NOTE: When the centrifuge is running it draws air in through the grill hole in the bottom. Anything that is near or under the machine can be drawn in.

NOTE. All now have a circular bracket holding the sensor
The above is for clarity

Tachometer sensors rarely fail, check wiring on solder pads and connection to display board.

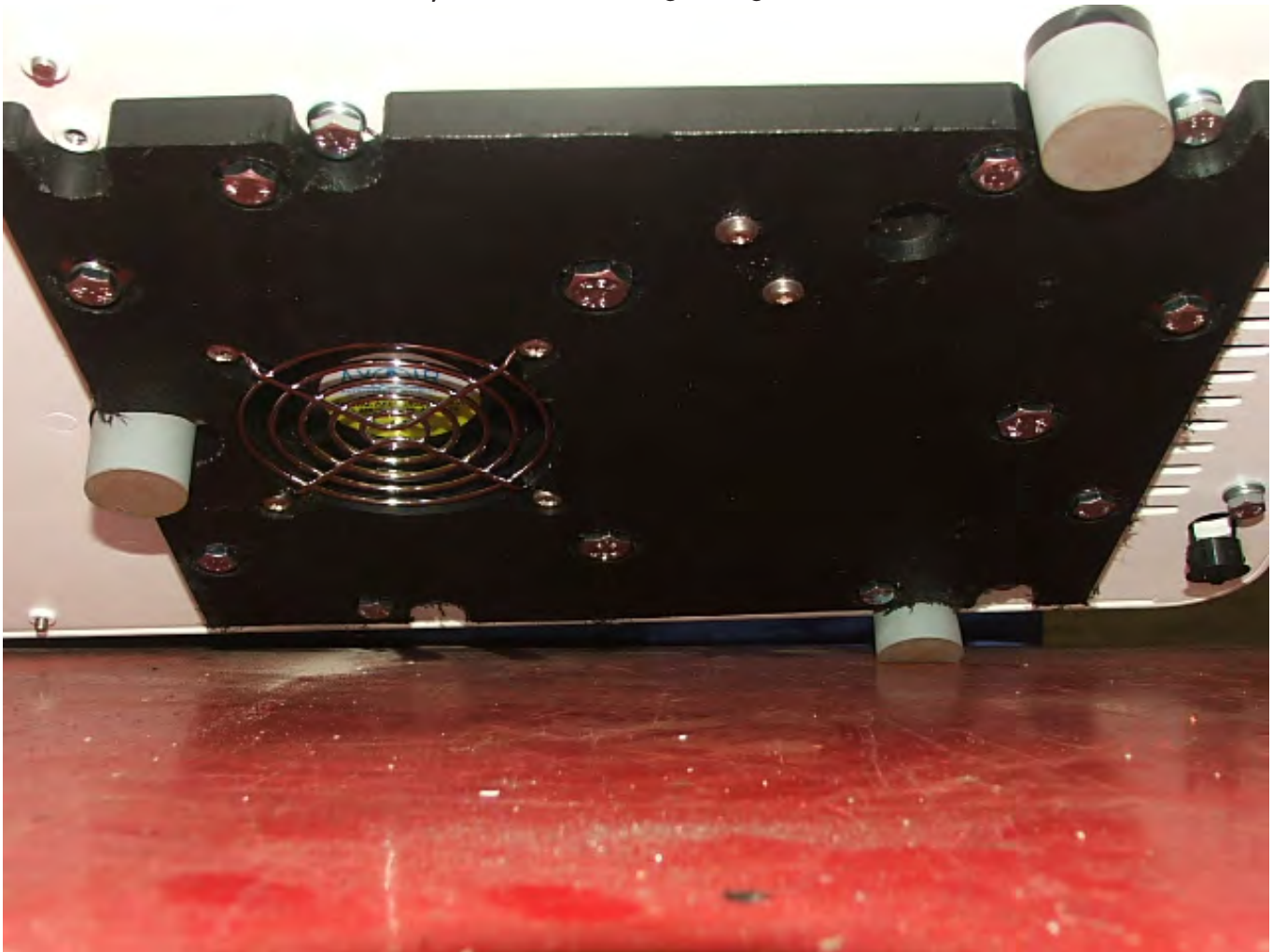
Refrigerated Tachometer cleaning & adjustment

To check and clean the tachometer sensor turn off the centrifuge via the switch on the rear and unplug it from the mains supply. place the unit between 2 tables so you may gain access underneath.

DO NOT TURN ON ITS SIDE OR OVERTURN

You will then see a hole in the base of the centrifuge which will give you access to the

tacho sensor and butterfly after removing the grill (4 screws)



NOTE: When the centrifuge is running it draws air in through the grill hole in the bottom. Anything that is near or under the machine can be drawn in.

NOTE. All now have a circular bracket holding the sensor
The above is for clarity

Tachometer sensors rarely fail, check wiring on solder pads and connection to display board.

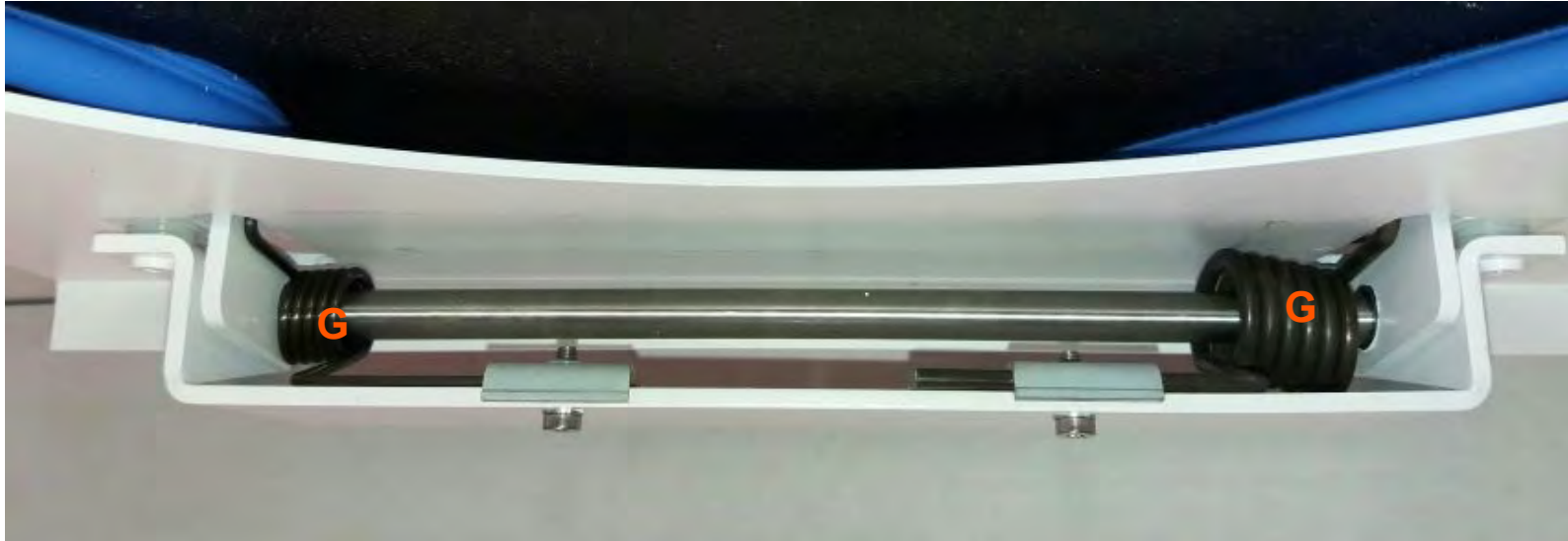
G Add a small spray of silicon grease here, as supplied.



Lid latch position

Note orientation of latch
Pin position front to rear
Note height and use of
washer and spring washer
ALL Important

Lid spring lubrication



G Spray a small amount of provided silicon grease here

Note

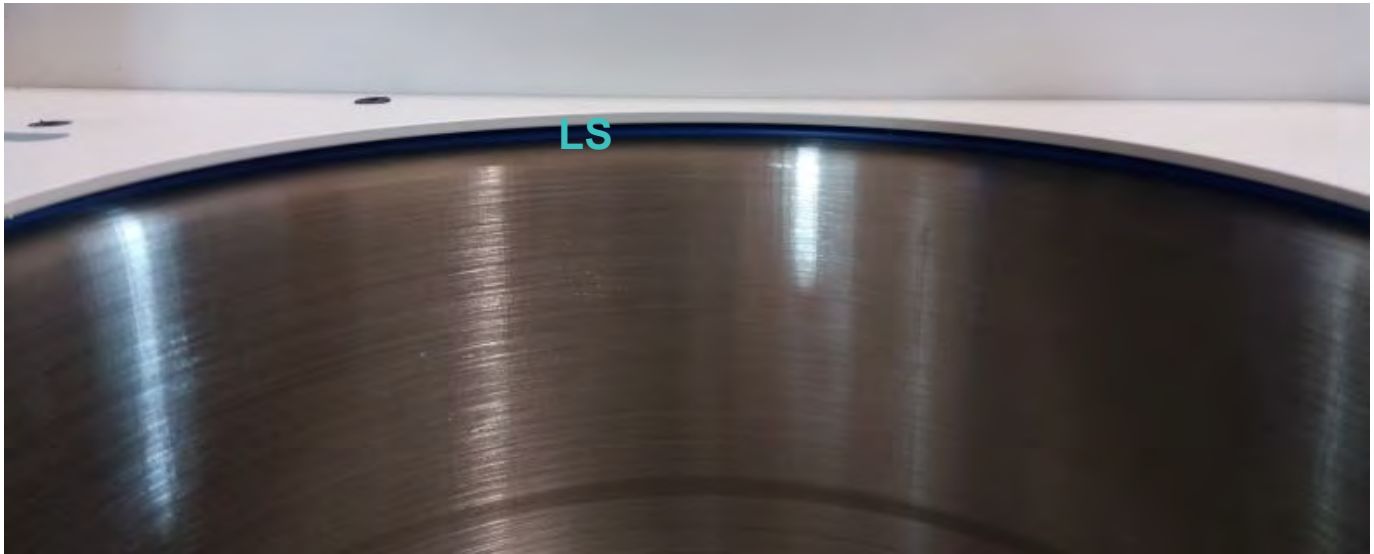
You can spray through the top obround down onto the spring



Remove the lid seal by pulling out at the rear section

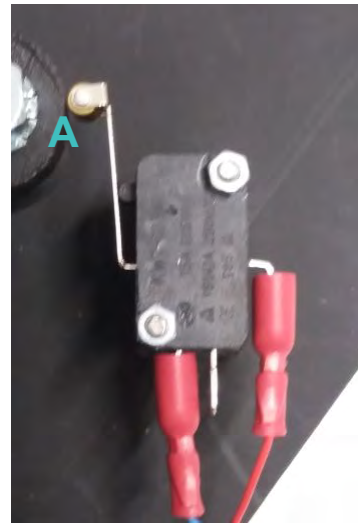
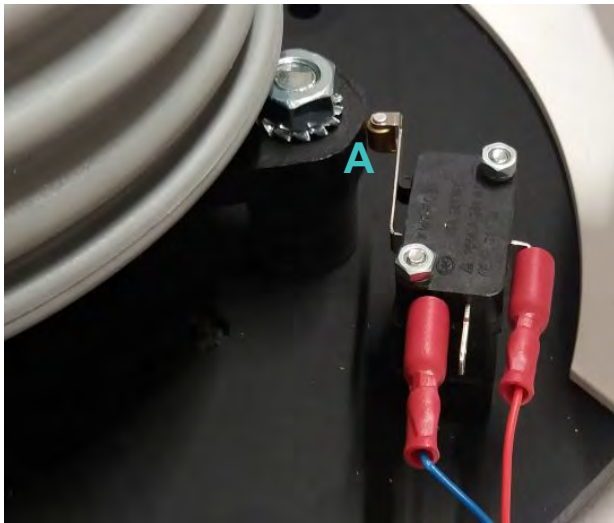
Replace by pushing in the seal into the groove.

Make sure fit is correct or temperature control will suffer



Shown with Top cover and
Lid removed

P 12 **Imbalance check and adjustment**



A. Adjust post so gap here is 2mm from arm roller to motor



What to do. Refrigerated units

Micro, Small, & Medium units

For the following checks and adjustments, always remove the power cord from the Centrifuge.

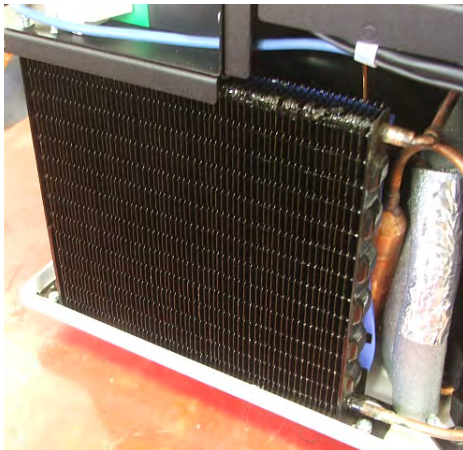
Cleaning of the bowl is required be careful of the vertical temperature sensor. Wipe the display overlay.

Use a bacteria proof type wipe. Do not use bleach or strong cleaning solutions

The following pages show what is required. POWER OFF

Condensor

Remove the rear panel and Left side panel. Air blast through the condensor and remove any debris. Check the Condensor fan blades and wipe clean if necessary. Check the Compressor mounts for cracks and if so replace. Check all copper pipework for security especially the "Dairy tray " surrounding the compressor base



Wiring

Check the wiring to the compressor housing and to the Fan for any chafing or looseness If so re enstate into their relevant fixings.

Refit Sides and rear panels . Re Power and turn on check Refrigeration is cooling

What to do. Refrigerated units

The following pages show what is required. POWER OFF

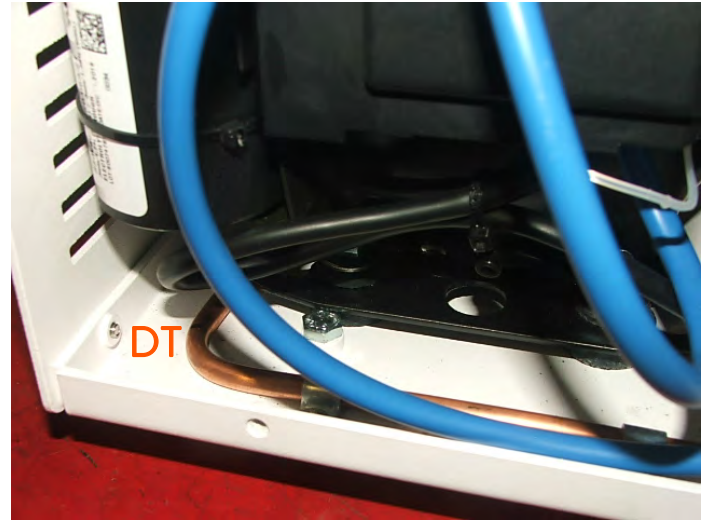
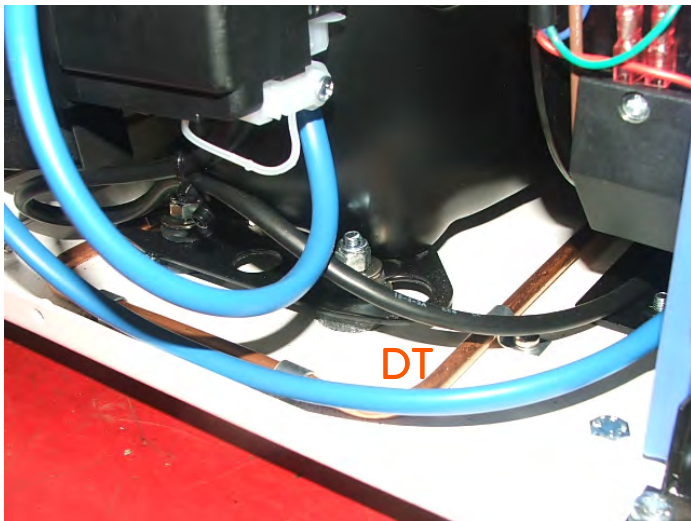
Condensor 2, 3 & 4 Litre units

Air blast through the front grill to the condensor and remove any debris. Check the Condensor fan blades and wipe clean if necessary. Check the Compressor mounts for cracks and if so replace. Check all copper pipework for security especially the "Dairy tray " surrounding the compressor base. DT



Wiring

Check the wiring to the compressor housing and to the Fan for any chafing or looseness. If so, re-estate into their relevant fixings. Wiring shown in blue



Refit Sides and rear panels . Re Power and turn on check Refrigeration is cooling

How to balance

Rotor balancing. **Very Important**



Tare (zero) your scales first

Weigh a tube, note its weight Weigh another and match its weight to within 0.1 gram



Swing out rotor, buckets. Balancing



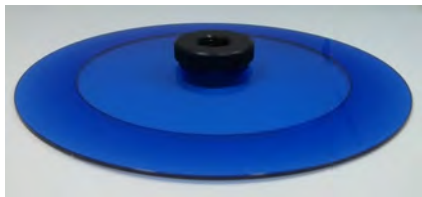
Place all your required tubes in all 4 buckets.
Equal amount per bucket.
Weigh each bucket containing tubes

Match other 3 buckets, with tubes to within 1 gram of each other



For BRK5506 rotor use the adaptor

Tube placement micro rotors



Haematocrit Rotor

Always fit the lid supplied, as shown to the left



ALWAYS load your tubes opposite to each other

ALWAYS weigh samples to within 0.1 Gram. For best separations. (see page 4)

ALWAYS fit the lid supplied

CHECK the Rim seal gasket and replace **every 2 months** (Part number 8011)

CHECK the rotor screw fixing tightness regularly



Micro tube Rotor

Always fit the lid supplied, as shown to the left



ALWAYS load your tubes opposite to each other

ALWAYS weigh samples to within 0.1 Gram For best separations. (see page 4)

ALWAYS fit the lid supplied

CHECK the two top seals and replace regularly (Part number 8044)

CHECK the rotor screw fixing tightness regularly

Tube placement Fixed angle rotors



Small fixed angle Rotors

Always fit the lid supplied, as shown to the left



ALWAYS load your tubes opposite to each other

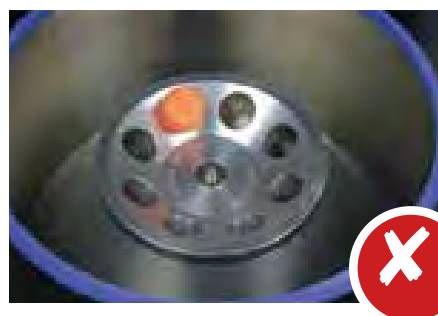
ALWAYS weigh samples to within 0.1 Gram. For best separations. (see page 4)

CHECK The rotor screw fixing tightness regularly



Large fixed angle Rotors

Always fit the lid supplied, as shown to the left



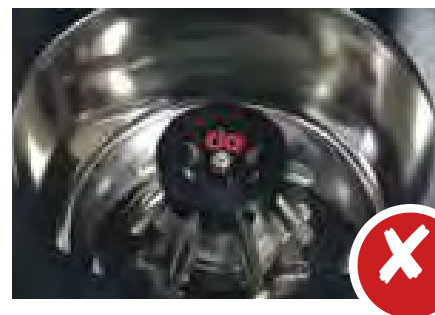
ALWAYS load your tubes opposite to each other

ALWAYS weigh samples to within 0.1 Gram. For best separations. (see page 4)

CHECK The rotor screw fixing tightness regularly

How to balance

Small Swing out rotor



ALWAYS load your tubes opposite to each other
ALWAYS weigh samples to within **0.1 Gram**. For best separations
ALWAYS fit **ALL** the Tube Holders and any supports
CHECK The rotor screw fixing tightness regularly

Medium – Large Swing out Rotors



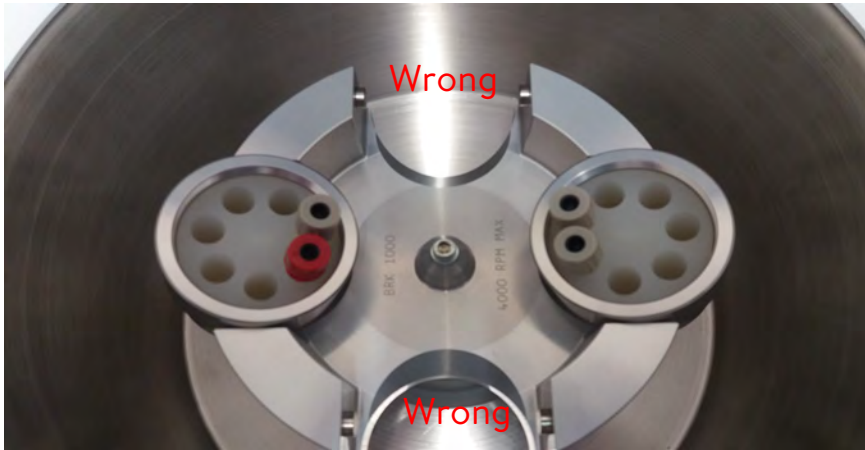
ALWAYS load your tubes opposite to each other
ALWAYS Weigh **Bucket** and all samples within to **1.0 Gram**
ALWAYS fit **ALL** 4 Buckets and 4 Adaptors supplied
CHECK the rotor screw fixing tightness regularly

Microtitor Rotor



ALWAYS load your plates opposite to each other
ALWAYS weigh samples to within **1.0 Grams**. For best separations
ALWAYS fit **both** Buckets supplied (2)
CHECK the rotor screw fixing tightness regularly

How to balance



This is not balanced!

Even though there are two samples in two buckets opposite to each other it is not balanced.

NEVER run swing out rotors with only two buckets



All four buckets must be used at all times



A



B

Always use the same size tubes as in A per bucket.

**NEVER use different size tubes as in B per bucket
Check they fit and do not hit the centre as shown in C**

Test checks. Confirmation of sensors

Please follow the following pages

These will confirm that all sensors are working correctly for safe use and to extend its working life.

Within these checks will also allow you to turn off or on the buzzer and check the LEDs are working correctly

The Dog test shows that its internal checks are good too

For units supplied with the BRK5401 Haematocrit rotor.

Please change the blue gasket in the rotor.

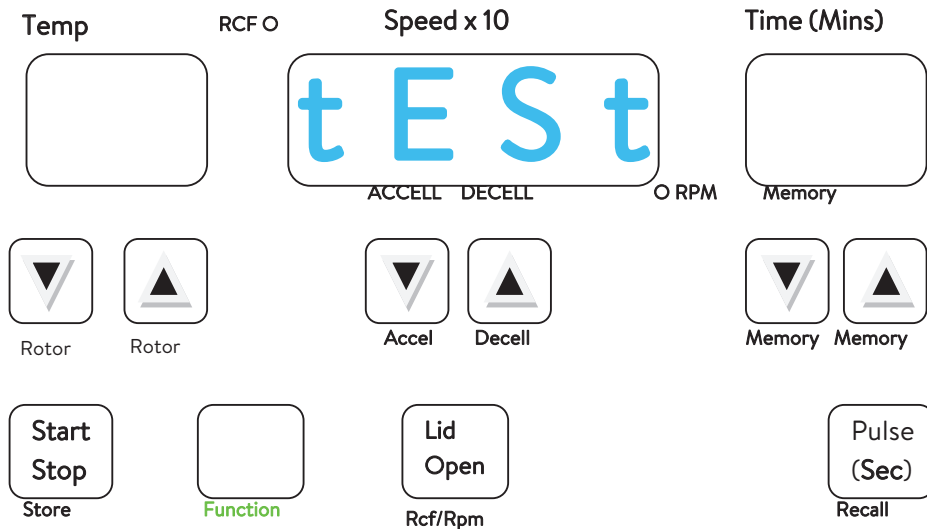
NOTE this should be changed every 2 months maximum

Part number is 8011 for a pack of 6 gaskets.

By changing this gasket regularly you save Capillary tubes from breaking
Loss of time and the need to take another blood sample reducing patient anxiety.

A cost of 7 Pence per day is not ridiculous either.

HOW TO ENTER TEST AREA. *KEEP THE LID OPEN*
 Turn power on at rear whilst pressing **Function** button in



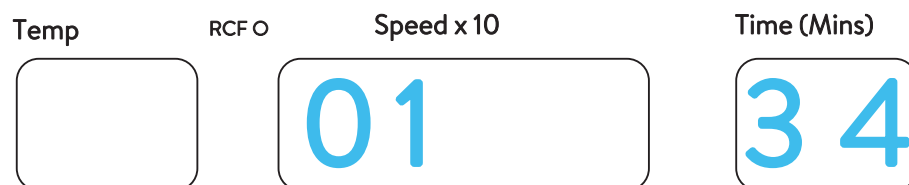
Release the **Function** button
 Press the Up arrow on time (**Memory**)
 You will then see the following



Press Memory up arrow to go to each line

Line 34

Buzzer Off (00) or On (01)



Buzzer on

LED/AMPLIFIER CHECK



Line 35

Press Decell button to increment segments

TEST Routine Diagnostics

Temp

RCF O

Speed x 10

00 00

ACCELL DECELL

O RPM

Time (Mins)

3 6

Memory

▼

Rotor

▲

Rotor

▼

Accel

▲

Decell

▼

Memory

▲

Memory

Start
Stop

Store

Function

Lid
Open

Rcf/Rpm

Pulse
(Sec)

Recall

Temp

RCF O

Speed x 10

00 00

A B C D

Time (Mins)

3 6

A. Rotor recognition.

B Tachometer

C. Lid sensor

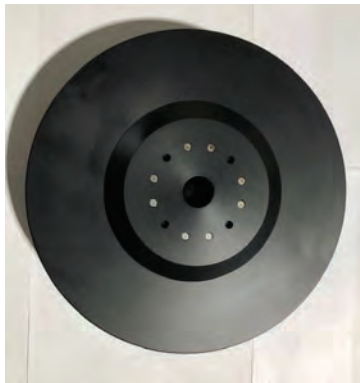
D. Imbalance

See following pages for each test. A B C D

Temp	RCF O	Speed x 10	Time (Mins)
		00 00	3 6

A

A. Rotor recognition.



Count the number of magnets on the underside of the rotor.

NOTE

Rotors have varying numbers

Examples only shown

Black rotor 8 magnets seen

White rotor 6 magnets seen



Whilst rotating the rotor a full circle (360 degrees) count the number of 0 to 1 shown on the display
These should match the number seen or to match chart supplied on the following page

Temp	RCF O	Speed x 10	Time (Mins)
		10 00	3 6

A

A. Rotor recognition.

TEST Routine. FA 10. Tachometer

Temp	RCF O	Speed x 10	Time (Mins)
		00 00	3 6

B

B. Tachometer



*Whilst rotating the rotor full circle
(360 degrees)
Check the number of 0/1 seen
These should be 2 per rotation*

Temp	RCF O	Speed x 10	Time (Mins)
		0 1 00	3 6

B

B. Tachometer

Temp RCF O Speed x 10 Time (Mins)

 00 00 3 6

C

OPEN state

C. Lid



Close the Lid

Temp RCF O Speed x 10 Time (Mins)

 00 10 3 6

C

CLOSED state

C. Lid

TEST Routine FA21-28. Imbalance

P26

Temp	RCF O	Speed x 10	Time (Mins)
	00 00	3 6	

D

None imbalance state

D. Imbalance



*With rotor screw fixed to motor shaft
Push the rotor (hard) to the right side
8 should show on the display.
see below*

Temp	RCF O	Speed x 10	Time (Mins)
	00 01	3 6	

D

Imbalance state

D. Imbalance

Final tests and return to use

BUZZER TEST

Press Memory up arrow
to go to each line

Temp	RCF O	Speed x 10	Time (Mins)
		BU Zt	St

Line 37

Buzzer Test . Press DECELL button to instigate

Temp	RCF O	Speed x 10	Time (Mins)
		BU ZO	n

Buzzer On
Can you hear it?

Buzzer Test . Press DECELL button to instigate

Temp	RCF O	Speed x 10	Time (Mins)
		BU ZO	FF

Buzzer Off

Buzzer Test . Press DECELL button to instigate

DOG TEST

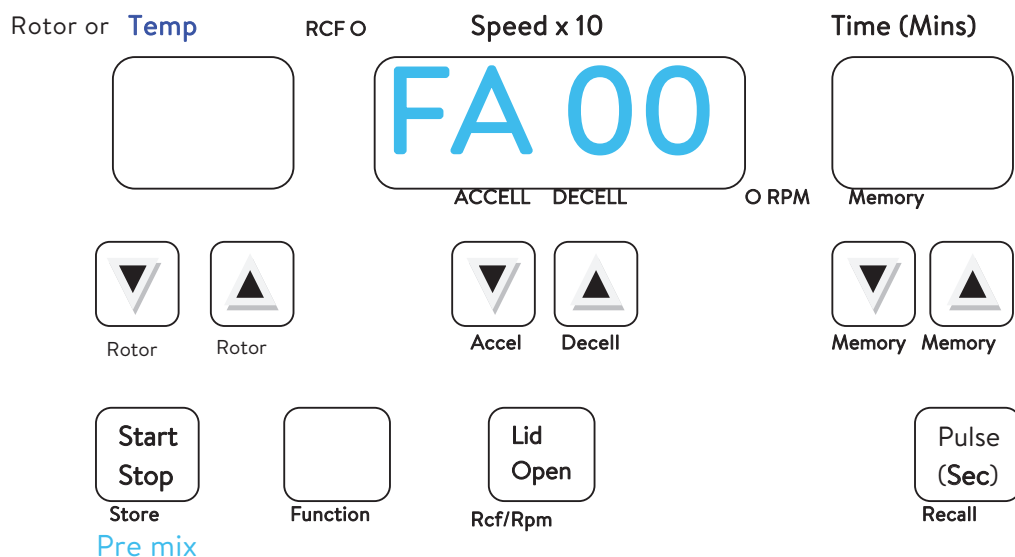
Temp	RCF O	Speed x 10	Time (Mins)
		DO 9t	St

Line 38

Final Test (Dog Test). Press DECELL button

Temp	RCF O	Speed x 10	Time (Mins)
		HELL	0

HELLO Should display on screen Centrifuge is out of TEST routine



Fault codes are shown in the Speed section of the LED display (shown above in Green)

The following List show what each Code means and what to do.

FA10	No rotation seen	Check the Following with the Lid open. Tubes are too tall and foul the Lid, replace with correct ones Check the rotor to see if it freely turns, if not look for Objects in the bowl that may be fouling and remove. <i>If not Contact our Service Department</i>
FA21	Imbalance BG	Check the Following. Weigh your tubes to 1g of each other Place tubes in Rotor opposite each other (see Following Rotor pages for instructions) <i>If Fault code persists call our Service Department.</i>
FA22	Imbalance BD	As above.
FA23	Imbalance MG	As above.
FA24	Imbalance MD	As above.
FA25	Imbalance Base Sensor	<i>Contact our Service Department.</i>
FA26	Imbalance Motor Sensor	<i>Contact our Service Department.</i>
FA27	Data time out	<i>Contact our Service Department.</i>
FA28	Imbalance	See the following Rotor pages
FA30	Lid is open	Close the Lid, press down on 2 front corners, push firmly. <i>If problem persists Contact our Service Department</i>
FA40	Rotor recognition	Wrong rotor selected , look at code on rotor and select same in rotor selection

Fault codes are shown in the Speed section of the LED display (shown on previous page)

The following List show what each Code means and what to do.

FA50

Inverter Drive

Look at the Obround viewing port (Rear)

Note the Code shown in the inverter display. *

Turn off the power at the wall mains switch only.

WAIT 3 minutes, Turn on again and Run. If problem persists

Contact our Service Department, with the Inverter code

FA51

Inverter error

As above.



Obround viewing port shown. *

Temp



Refrigerated model only

If this is shown in the Temp window there is a Temperature probe failure

Contact our Service Department



Speed will not go beyond 2000 Rpm.

- The Electronics have set the Speed to safe mode
- Check the rotor bottom has magnets fitted
- Check correct rotor is in use against program chosen
- If not then Contact our Service Department

Noisy

- Unbalanced tubes, see Rotor pages
- Lid seal needs replacing
- Rotor Lid not fitted

Lid support fail

- Spring has failed. Contact our Service Department

What to do

For the following checks and adjustments, always remove the power cord from the Centrifuge.

Cleaning of the bowl and display overlay is required.

Use a bacteria proof type wipe. Do not use bleach or strong cleaning solutions

The following pages show what is required.

Rotor recognition.

Remove the rotor and check its magnets underneath , are all in place by looking at the chart supplied? If not do not use as the unit will go into safety mode 2000 Rpm.

Tachometer

Remove the grill on the underside and clean the tachometer a blast of air is best. Do not use a hard metal brush , be careful and if air is not available use a soft brush NO cleaning solutions .

Lid

Grease the lid latch rotor with a minimum spray of silicon as supplied

Lid seals

Replace the lid seal as shown

Lid underseal

Replace as shown, Note whilst the top cover has been removed check the

Imbalance sensor for adjustment

After replacing the top cover/Lid.

Refit the power cord and follow the Test procedures (Page 15-21)

These procedures test all sensors and confirm its use and safety

PrO-Care

Service, Warranty & Maintenance packages

The lifespan of a centrifuge depends upon how well it is looked after and maintained.

Many of our centrifuges have lived a life of over 15 years.

This is not only due to our stringent manufacturing process and high quality components but also to a yearly servicing package. Making them a cost effective solution of centrifugation.

Whilst our centrifuges come with a confidence giving warranty, yearly services are imperative to ensure your warranty is valid, this also ensures your machine is working to its best ability and lengthens its life span. Also as centrifuges are a dangerous machine, safety checks are required too.

For UK customers we offer a back to base service package including carriage to us and return all within 48 hours. Centrifuge seals , fuses & other parts are replaced, adjustments made, rotor checked for stress cracks, seals changed if necessary (extra charge) PAT (portable appliance test) is included Obligatory in UK.

For worldwide customers we offer a full parts package per model. The designated country distributor services the units accordingly.

Call our Office to discuss or visit our Service website

WWW.ServicePrO-Care.com

www.Centurionscientificglobal.com

Switchboard. 0044 (0) 2392 631225

Research & service

The Old equine Barn
Church Farm
Stoughton Chichester
PO18 9JL. UK

Ambient manufacturing

The Old Grain Barn
Church Farm
Stoughton Chichester
PO18 9JL. UK

Refrigeration Manufacturing

The Old Drier Barn
Church Farm
Stoughton
Chichester
PO18 9JL. UK

Sales

The Old Stables Church
Farm Stoughton
Chichester