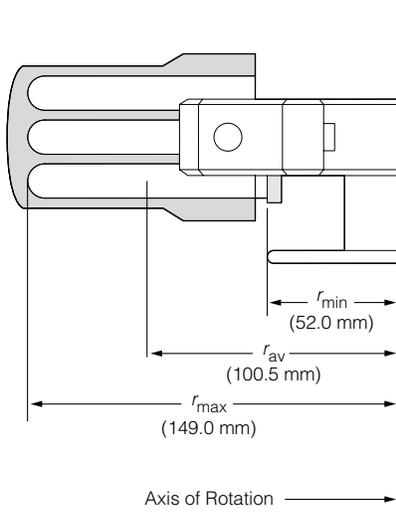


INSTRUCTIONS FOR USING THE S4180 SWINGING BUCKET ROTOR

In Beckman Coulter Allegra 21 Series, GS-15 Series, and Spinchron 15 Series Centrifuges



SPECIFICATIONS

Maximum speed

Refrigerated centrifuge	5500 rpm
Nonrefrigerated centrifuge	4500 rpm
Critical speed range*	500 to 1300 rpm
Density rating at maximum speed	1.2 g/mL
Relative Centrifugal Field† at maximum speed at r_{max}	
Refrigerated	$5450 \times g$
Nonrefrigerated	$3650 \times g$
Conditions requiring speed reductions.	see RUN SPEEDS
Number of buckets	4
Nominal volume (largest tube).	180 mL
Maximum rotor capacity	720 mL
Maximum load allowed in each bucket at rated speed	
(excluding weight of bucket)	300 grams
Approximate acceleration time to maximum speed	
(rotor fully loaded, accel curve 9)	54 sec
Approximate deceleration time from maximum speed	
(rotor fully loaded, decel curve 9)	40 sec
Weight of fully loaded rotor	2.93 kg (6.45 lb)
Bucket material	anodized aluminum

* The critical speed range is the range of speeds over which the rotor shifts so as to rotate about its center of mass. Passing through the critical speed range is characterized by some vibration.

† Relative Centrifugal Field (RCF) is the ratio of the centrifugal acceleration at a specified radius and speed ($r\omega^2$) to the standard acceleration of gravity (g) according to the following formula:

$$RCF = \frac{r\omega^2}{g}$$

where r is the radius in millimeters, ω is the angular velocity in radians per second ($2\pi \text{ RPM}/60$), and g is the standard acceleration of gravity (9807 mm/s^2). After substitution:

$$RCF = 1.12 r \left(\frac{\text{RPM}}{1000} \right)^2$$

DESCRIPTION

This Beckman Coulter rotor has been manufactured in an NSAI-registered ISO 9001 or 9002 facility for use with the appropriately classified Beckman Coulter centrifuge.

THE ROTOR

The S4180, rated 5500 rpm (4500 rpm in the nonrefrigerated centrifuges), is a four-place swinging bucket rotor used in Beckman Coulter Allegra 21 series, GS-15 series, and Spinchron 15 series centrifuges. This rotor carries adapters that allow centrifugation of a wide range of tube and bottle sizes (from 1.5-mL reaction vials to 180-mL bottles). The S4180 rotor develops centrifugal forces that are suitable for rapidly sedimenting protein precipitates, large particles, cells, and cell debris.

The rotor yoke and buckets are made of aluminum and are black-anodized for corrosion protection. The buckets can be run by placing them over pivot pins on the arms of the yoke. Buckets swing out to a horizontal position during centrifugation. A tie-down screw is used to secure the rotor to the drive shaft during centrifugation. Figure 1 shows the rotor and accessories.

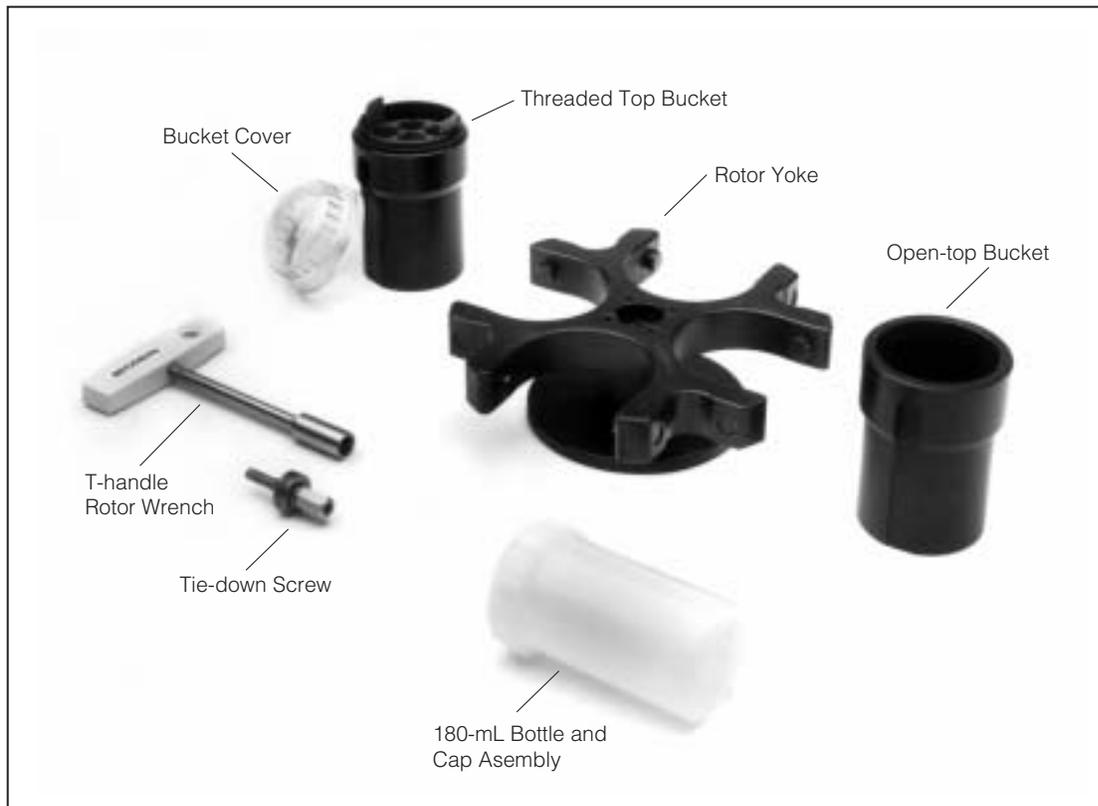


Figure 1. The S4180 Horizontal Rotor and Accessories

The centrifuge identifies rotor speed during the run by means of a magnetic speed sensor system in the centrifuge rotor chamber and magnets imbedded in the rotor. The overspeed system ensures that the rotor does not exceed its permitted speed.

See the Warranty at the back of this manual for warranty information.

BUCKETS AND ACCESSORIES

Two types of buckets are available for the S4180 rotor:

- Open-top buckets hold several sizes of labware in modular or one-piece adapters. Maximum tube length for use in these buckets is 112 mm.
- Threaded-top buckets, with screw-on transparent covers, also hold several sizes of labware in modular or one-piece adapters. Each cover requires an O-ring that seats in a groove at the top of the bucket. Covers have been tested¹ to demonstrate containment of microbiological aerosols under normal conditions of the associated Beckman Coulter centrifuge when used and maintained as instructed. The covers will contain liquids and broken tube particles, reducing the need to clean the centrifuge chamber, and allowing you to take appropriate precautions before opening the covers in the event of tube breakage. Maximum tube length for use in these buckets is 110 mm.

A variety of tube sizes can be centrifuged in the rotor, supported in tube adapters listed in the Table below. The adapters can also serve as tube racks in the laboratory.

A 180-mL, 55 × 104-mm, polyethylene bottle (361245), with screw-on cap, can also be used in either bucket (see Figure 1). This bottle is placed directly in the bucket, without an adapter.

PREPARATION AND USE

Specific information about the S4180 horizontal rotor is given here. Use the applicable instrument instruction manual together with this manual for complete rotor and centrifuge operation information.

¹ Validation of microbiological containment was done at an independent third-party testing facility (CAMR, Porton Down, UK, or USAMRIID, Ft. Detrick, MD, U.S.A.). Improper use or maintenance may affect seal integrity and thus containment.

Tube Adapters for the S4180 Rotor

Adapters*		Tubes		Maximum Number Tubes per Rotor
Part Number (pkg 2)	Tubes per Adapter	Description	Nominal Volume	
361224	12	11-mm reaction vials	1.5 mL	48
361222	12	12 × 55-mm RIA vials	3 mL	48
		12 × 75-mm RIA vials	5 mL	
361226	9	13 × 85 mm	10 mL	36
361223	12	12 × 100 mm	7 mL	48
361227	12	12.5 × 75 mm	10 mL	48
361225	6	16 × 81 mm	10 mL	24
361229	4	17-mm Monovette w/sealing caps	10 mL	16
361228	7	16 × 100 mm	15 mL	28
361230	3	17 × 100 mm (conical)†	15 mL	12
361232	2	24 × 100 mm	25 mL	8
361233	2	25 × 92 mm	30 mL	8
361234	1	30-mm conical	50 mL	4
361236‡	1	29 × 107 mm Corex (round bottom)	50 mL	4
361235‡	1	34 × 100 mm glass (round bottom)	50 mL	4
361237	1	38 × 104 mm	85 mL	4
361238	1	44 × 100 mm	100 mL	4
361248**	6	14.5 × 62 mm	7 mL	24
361230**	3	17 × 79.7 mm (conical)	15 mL	12
361770**	5	17.5 × 76 mm	10 mL	20

* Use rubber cushion, part number 361239, with modular adapters.

† These tubes cannot be spun in covered buckets with bucket covers in place because of interference between the bucket covers and the tube caps. The tubes can be run without adapters in specially designed buckets, part number 361240 (set of 4).

‡ Requires rubber cushion part number 361241.

** Used with labeled tubes.

**WARNING**

Normal operation may involve the use of solutions and test samples that are pathogenic, toxic, or radioactive. Operator error or tube failure may generate aerosols. Do not run toxic, pathogenic, or other hazardous materials in this rotor unless you take all appropriate safety precautions. Ask your laboratory safety officer to advise you about the level of containment required for your application and the proper decontamination or sterilization procedures to follow if fluids escape from containers.

TUBES

Tubes should be pretested under anticipated run conditions (using water instead of valuable samples) if operating below 4°C or above room temperature. Refer to *Chemical Resistances* (publication IN-175) for information on the chemical resistances of tube and adapter materials.

INSTALLING THE ROTOR YOKE

For runs at other than room temperature, refrigerate or warm the rotor beforehand for fast equilibration.

NOTE

Before the first use of a new rotor, lubricate the pivot pins with Spinkote™ (306812). After the first use, apply Spinkote to the pivot pins approximately once a week and after cleaning or autoclaving.

1. Inspect the yoke and buckets for any signs of corrosion or damage; if any evidence of damage is present, do not centrifuge the rotor.

NOTE

Make sure that the tapered sleeve is in place at the base of the centrifuge drive shaft (see Figure 2) before installing the rotor yoke. The yoke rests on the sleeve while spinning, and will not operate properly if the sleeve is missing.

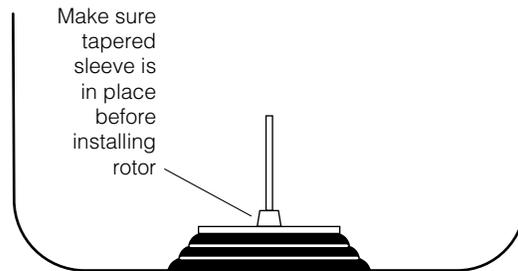


Figure 2. Tapered Sleeve Position

2. Before installing the yoke in a centrifuge, lightly lubricate the drive hole with a lubricant such as Anti-Seize² (see instructions under MAINTENANCE).

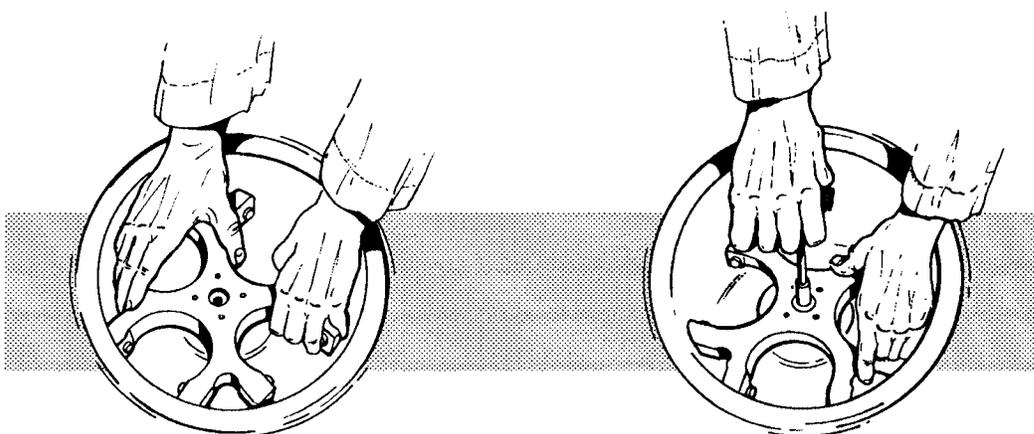


CAUTION

Never drop the rotor onto the shaft. The centrifuge drive shaft can be bent if the rotor is forced sideways or dropped onto it.

3. Carefully lower the yoke straight down onto the drive shaft. See Figure 3. Be sure the yoke is properly seated on the shaft.
4. Fasten the tie-down screw (361367) clockwise onto the centrifuge drive shaft. Use the T-handle rotor wrench (361371) to tighten the tie-down screw firmly on the shaft.

² A registered trademark of Permatex.



Lower the yoke onto the drive shaft

Tighten the tie-down screw with the T-handle wrench.

Figure 3. Installing the Rotor Yoke on the Centrifuge Drive Shaft

|||➔ **NOTE**

If the rotor yoke is left in the centrifuge between runs, before each run make sure it is properly seated on the drive shaft, and that the tie-down screw is tight.

LOADING THE BUCKETS



WARNING

Handle body fluids with care because they can transmit disease. No known test offers complete assurance that they are free of micro-organisms. Some of the most virulent—Hepatitis (B and C) and HIV (I–V) viruses, atypical mycobacteria, and certain systemic fungi—further emphasize the need for aerosol protection.

Beckman Coulter supplies buckets in weight-matched sets to make balancing easier. To prevent accidental imbalance it is important to keep matched sets of buckets together. To ensure optimal performance and stability, the rotor must be loaded symmetrically. Two factors affect symmetric loading:

- The buckets must be loaded symmetrically with respect to their pivotal axes.
- The rotor should be loaded symmetrically with respect to its center of rotation.

This means that for best results you should load opposing buckets with the same type of labware containing the same amounts of fluid of equal density. Additionally, opposing buckets and their contents should weigh approximately the same (within 10 grams). Do not exceed the rated maximum load for buckets (300 grams each bucket, including labware and sample).

It is not necessary to completely fill all tubes or positions in buckets; however, partially filled buckets must be balanced with respect to the bucket pivotal axis (see Figure 4). In adapters, each tube should be placed so that its weight is balanced by a tube in a diametrically opposite position across the pivotal axis in the same adapter. Adapters placed in opposing buckets should also be filled the same way.

The pivotal axis of a bucket can be imagined as a line extending across the bucket from one pivot pin to the other. If a bucket is loaded so that its weight is unequally distributed on either side of its pivotal axis, it may not swing to a horizontal position during a run. As a result, extra stress will be placed on the bucket and/or tubes during the run, increasing the possibility of tube breakage or rotor imbalance.

NOTE

Do not fill and carry adapters. Place adapters in buckets before filling them.

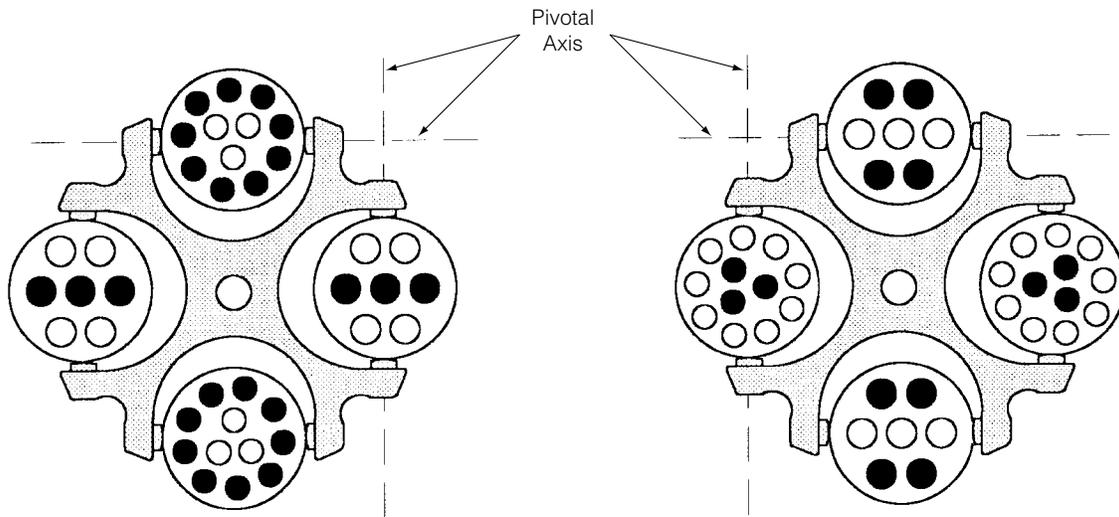


Figure 4. Arranging Tubes in the Rotor. All buckets must be attached to the rotor for every run, whether loaded or empty. Never run the rotor with only two positions filled.

1. Load the filled tubes into the buckets.

NOTE

Tubes placed in opposing buckets must be filled to the same level with liquid of the same density. Fewer than maximum number of tubes can be centrifuged in the multi-tube adapters if they are arranged symmetrically in the buckets (see Figure 4).

2. Place covers on buckets, if applicable. Screw covers to the right (clockwise) to tighten.
3. Attach each bucket to the yoke by aligning the grooves in the bucket sides with the pivot pins, then sliding the buckets down until the pivot pins are seated in the bucket pockets (see Figure 5).



CAUTION

Attach all four buckets, loaded or empty, to the rotor. If only two buckets are filled, place them in opposite positions on the rotor yoke. All four positions on the rotor yoke must contain buckets during a run. Never run the rotor with only two positions filled.

4. Make sure buckets are properly seated over the pivot pins on the rotor yoke as shown in Figure 5.

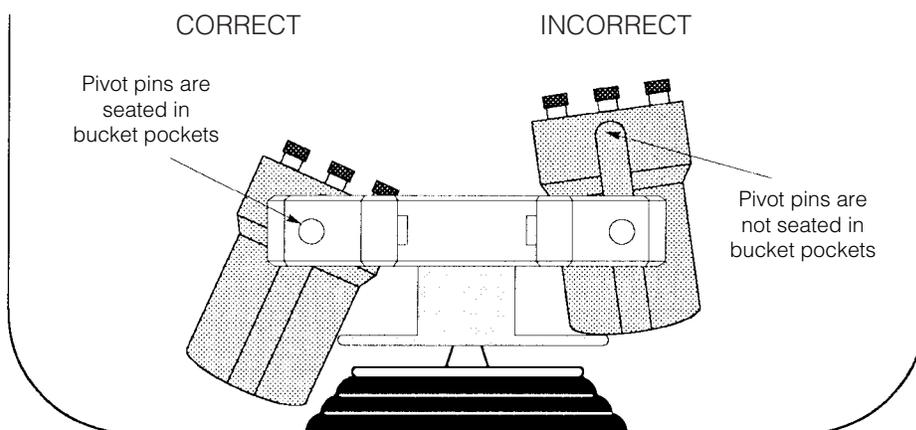


Figure 5. Seating Buckets on Yoke Pivot Pins. Buckets must be inserted at an angle, or the bucket bottom will rest on the rotor base and the pivot pins will not seat in the pin pockets.

OPERATION

Refer to the instrument instruction manual for centrifuge operation.

REMOVAL AND SAMPLE RECOVERY



CAUTION

If disassembly reveals evidence of leakage, you should assume that some fluid escaped the rotor. Apply appropriate decontamination procedures to the centrifuge and accessories.

1. Remove the buckets from the instrument.
2. Remove covers (if used) from buckets, and remove the tubes from the buckets.



NOTE

If glass tubes break, remove the glass very carefully from the adapter and bucket. If all the glass particles are not contained in the bucket or adapter, be careful when examining or cleaning the centrifuge gasket and chamber as glass particles may be embedded in their surfaces.

3. If removing the rotor yoke, loosen the tie-down screw by turning it to the left (counter-clockwise) with the rotor wrench.



NOTE

When you remove the rotor yoke, make sure that the tapered sleeve from the centrifuge drive shaft does not come out with the yoke. If the tapered sleeve is inside the yoke hole, remove it and put it back on the drive shaft (see Figure 2).

RUN SPEEDS

The centrifugal force at a given radius in a rotor is a function of speed. Comparisons of forces between different rotors are made by comparing the rotors' relative centrifugal

fields (RCF). When rotational speed is adjusted so that identical samples are subjected to the same RCF in two different rotors, the samples are subjected to the same force. The RCF at each speed is automatically calculated by the centrifuge software; if the RCF is entered, the centrifuge calculates the equivalent revolutions per minute (rpm). *Do not select rotational speeds that exceed 5500 rpm for refrigerated centrifuges, or 4500 rpm for nonrefrigerated centrifuges.*

Speed Derating

The maximum run speed (5500 rpm in a refrigerated centrifuge, 4500 in a nonrefrigerated centrifuge) listed in the rotor specifications is for operation when all conditions are within the standard specifications. Maximum allowable run speed for the rotor must be reduced in some circumstances.

- The rotor can process solutions at the maximum rated speed if the solution density is 1.2 g/mL or less. When centrifuging solutions of densities greater than 1.2 g/mL, the maximum run speeds must be reduced according to the following equation to protect the rotor from excessive stresses due to the added tube load:

$$\text{reduced maximum speed} = (5500^* \text{ rpm}) \sqrt{\frac{1.2 \text{ g/mL}}{\text{density of tube contents}}}$$

*Use 4500 for nonrefrigerated centrifuges.

- When some glass tubes are used, reduce rotor speed to prevent tube breakage. Because the strength of tubes can vary from lot to lot, and will depend on handling and usage, Beckman Coulter highly recommends that you pretest these tubes in the appropriate labware in the S4180 rotor, using water samples, to determine optimal operating conditions.

NOTE

Scratches (even microscopic ones) significantly weaken glass tubes.

CARE AND MAINTENANCE

INSPECTION

- Periodically (at least monthly) inspect the rotor, especially inside cavities, for rough spots, cracks, pitting, white powder deposits (frequently aluminum oxide), or *heavy* discoloration. If any of these signs are evident, do not run the rotor. Contact your Beckman Coulter representative for information about the Field Rotor Inspection Program and the rotor repair center.

- Regularly check the condition of the tie-down screw (361367); if it is worn or damaged, replace it. Regularly check the condition of the O-ring (threaded-top buckets); if it is worn or damaged, replace it.
- Check bucket covers and adapters for crazing or cracks before use. Do not centrifuge cracked covers or adapters.

MAINTENANCE

Do not use sharp tools on the rotor, as they can scratch the anodized surface. Corrosion begins in scratches and may open fissures in the rotor with continued use.

- Approximately once a week after cleaning and/or autoclaving, lubricate the rotor pins with a lubricant such as Spinkote™ (306812).
- Before using the tie-down screw, check it for damage such as distortion, splitting, or stripped threads. If damage is apparent, replace it.

Store the rotor in a dry environment (not in the instrument). Refer to *Chemical Resistances* (publication IN-175) for the chemical compatibilities of rotor and tube materials. Your Beckman Coulter representative provides contact with the Field Rotor Inspection Program and the rotor repair center.

CLEANING

Wash the rotor and rotor components immediately if salts or other corrosive materials are used or if spillage has occurred. Do not allow corrosive materials to dry on the rotor.

NOTE

Do not wash rotor components in a dishwasher.
Do not soak in detergent solution for long periods,
such as overnight.

Rotor Components

Under normal conditions, wash the rotor frequently to prevent corrosion that can begin in scratches.

1. Use a mild detergent such as Beckman Solution 555™ (339555), diluted 10 to 1 with water, and a soft brush to wash the yoke and tie-down screw. The Rotor Cleaning Kit (339558) contains two quarts of Solution 555 and brushes that will not scratch rotor components.
2. Rinse thoroughly with water.
3. Air-dry upside down. *Do not use acetone to dry the rotor.*
4. Lubricate the rotor pins with Spinkote (306812).

Before reinstalling the rotor yoke, lightly lubricate the drive hole with Anti-Seize (961660) to prevent the rotor from sticking, as follows:

1. Apply the lubricant onto a swab.
2. Draw the coated swab through a paper towel to remove excess lubricant.
3. Lightly coat the inside of the drive hole with the lubricant remaining on the swab.

Buckets

1. Remove the O-ring from threaded-top buckets before cleaning.
2. Wash the buckets, covers, and O-rings with a mild detergent such as Solution 555, diluted 10 to 1 with water, and a soft brush.
3. Thoroughly rinse with water and air-dry.
4. Replace the O-ring in the groove (threaded-top buckets).

Adapters

1. Disassemble modular adapters for washing by pulling them apart.
2. Use a mild detergent such as Solution 555, diluted 10 to 1 with water, and a soft brush to scrub the adapters.
3. Rinse thoroughly with water.
4. Air-dry upside down. Reassemble modular adapters.

DECONTAMINATION

If the anodized aluminum yoke and/or buckets become contaminated with radioactive material, decontaminate them using a solution that will not damage the anodized surfaces. Beckman Coulter has tested a number of solutions and found two that do not harm anodized aluminum: RadCon Surface Spray or IsoClean Solution (for soaking),³ and Radiacwash.⁴

While Beckman Coulter has tested these methods and found that they do not damage components, no guarantee of decontamination is expressed or implied. Consult your laboratory safety officer regarding the proper decontamination methods to use.

If the rotor or other components are contaminated with toxic or pathogenic materials, follow appropriate decontamination procedures as outlined by your laboratory safety officer.

STERILIZATION AND DISINFECTION

- The rotor and all rotor components (except bucket covers) can be autoclaved at 121°C for up to an hour. Bucket covers should not be autoclaved for more than 15 minutes.
- Ethanol (70%)⁵ may be used on all rotor components, including those made of plastic.

While Beckman Coulter has tested these methods and found that they do not damage the rotor or components, no guarantee of sterility or disinfection is expressed or implied. When sterilization or disinfection is a concern, consult your laboratory safety officer regarding proper methods to use.

TUBE BREAKAGE



CAUTION

To reduce the potential for corrosion, clean buckets thoroughly immediately following a tube breakage.

If a glass tube breaks, remove the glass very carefully from the adapter and bucket. Imbedded glass particles that remain in the bucket or adapters can cause tube failure during subsequent runs.

³ In the United States, contact Nuclear Associates (New York); in Eastern Europe and Commonwealth States, contact Victoreen GmbH (Munich); in South Pacific, contact Gammasonics Pty. Ltd. (Australia); in Japan, contact Toyo Medic Co. Ltd. (Tokyo).

⁴ In the United States., contact Biodex Medical Systems (Shirley, New York); internationally, contact the U.S. office to find the dealer closest to you.

⁵ Flammability hazard. Do not use in or near operating centrifuges.

RETURNING A ROTOR

Before returning a rotor or accessory for any reason, prior permission (a Returned Goods Authorization form) must be obtained from Beckman Coulter, Inc. This RGA form may be obtained from your local Beckman Coulter office. It should contain the following information:

- serial number
- history of use (approximate frequency of use),
- reason for the return,
- original purchase order number, billing number, and shipping number, if possible,
- name and phone number of the person to be notified upon receipt of the rotor or accessory at the factory, and,
- name and phone number of the person to be notified about repair costs, etc.

To protect our personnel, it is the customer's responsibility to ensure that the parts are free from pathogens and/or radioactivity. Sterilization and decontamination must be done before returning the parts. Smaller items (such as tubes, bottles, etc.) should be enclosed in a sealed plastic bag.

*All parts must be accompanied by a note, plainly visible on the outside of the box or bag, stating that they are safe to handle and that they are not contaminated with pathogens or radioactivity. **Failure to attach this notification will result in return or disposal of the items without review of the reported problem.***

Use the address label printed on the RGA form when mailing the rotor and/or accessories to:

Beckman Coulter, Inc.
1050 Page Mill Road
Palo Alto, CA 94304

Attention: Returned Goods

Customers located outside the United States should contact your local Beckman Coulter office.

SUPPLY LIST

NOTE

To obtain copies of referenced publications, contact Beckman Coulter, Inc., Technical Publications Department, 1050 Page Mill Road, Palo Alto, CA 94304, U.S.A. (telephone 650-859-1753; fax 650-859-1375).

Contact Beckman Coulter sales (1-800-742-2345 in the United States; worldwide offices are listed on the back cover of this manual) for detailed information on ordering parts and supplies. For your convenience, a partial list is given below.

REPLACEMENT ROTOR PARTS

S4180 rotor (open buckets)	361101
S4180 rotor (covered buckets)	361109
Buckets, open-top (set of 4)	361244
Threaded-top bucket with screw-on cover (set of 4)	361243
Replacement cover for bucket 361243 (set of 4)	361242
Buckets for 15-mL conical tubes (set of 4)	361240
Tie-down screw	361367
T-handle rotor wrench	361371

OTHER

Adapters	see Table
Bottle and cap assembly, 180-mL	361245
Rubber cushion for modular adapters (set of 4)	361239
Rubber cushion for round-bottom tubes (set of 4)	361241
Spinkote lubricant (1 oz)	306812
Anti-Seize (1 1/2 oz)	961660
Silicone vacuum grease (2 oz)	335148
Rotor Cleaning Kit	339558
Rotor cleaning brush	339379
Beckman Solution 555 (1 qt)	339555

BENCHTOP ROTOR WARRANTY

Subject to the conditions specified below and the warranty clause of the Beckman Coulter, Inc., terms and conditions in effect at the time of sale, Beckman Coulter agrees to correct either by repair or, at its election, by replacement, any defects of material or workmanship which develop within seven (7) years after delivery of a benchtop centrifuge rotor to the original buyer by Beckman Coulter or by an authorized representative, provided that investigation and factory inspection by Beckman Coulter discloses that such defect developed under normal and proper use. Should a Beckman Coulter centrifuge be damaged due to a failure of a rotor covered by this warranty, Beckman Coulter will supply free of charge all centrifuge parts required for repair.

CONDITIONS

1. Except as otherwise specifically provided herein, this warranty covers the rotor only and Beckman Coulter shall not be liable for damage to accessories or ancillary supplies including but not limited to (i) tubes, (ii) tube caps, (iii) tube adapters, or (iv) tube contents.

2. This warranty is void if the rotor has been subjected to customer misuse such as operation or maintenance contrary to the instructions in the Beckman Coulter rotor or centrifuge manual.
3. This warranty is void if the rotor is operated with a rotor drive unit or in a centrifuge unmatched to the rotor characteristics or operated in a Beckman Coulter centrifuge that has been improperly disassembled, repaired, or modified.
4. Thermoplastic rotors or components used in some benchtop centrifuges are warranted for one (1) year from date of purchase.

DISCLAIMER

IT IS EXPRESSLY AGREED THAT THE ABOVE WARRANTY SHALL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND OF THE WARRANTY OF MERCHANTABILITY AND THAT BECKMAN COULTER, INC. SHALL HAVE NO LIABILITY FOR SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER ARISING OUT OF THE MANUFACTURE, USE, SALE, HANDLING, REPAIR, MAINTENANCE, OR REPLACEMENT OF THE PRODUCT.

Beckman Coulter Worldwide Biomedical Research Division Offices

AUSTRALIA

Beckman Coulter Australia Pty Ltd
Unit D, 24 College St.
Gladesville, NSW 2111
Australia
Telephone: (61) 2 9844-6000
or toll free: 1 800 060 880
Fax: (61) 2 9844-6096
email: lifescienceaustralia@beckman.com

CANADA

Beckman Coulter (Canada) Inc.
6755 Mississauga Road, Suite 600
Mississauga, Ontario
Canada L5N 7Y2
Telephone: (905) 819-1234
Fax: (905) 819-1485

CHINA

Beckman Coulter Inc.
Beijing Representative Office
Unit 2005A, 2006-2009, East Ocean Center
Jian Guomenwai Avenue
Beijing 100004
China
Telephone: (86) 10 6515 6028
Fax: (86) 10 6515 6025, 6515 6026

EASTERN EUROPE/ MIDDLE EAST/NORTH AFRICA

Beckman Coulter International S.A.
22, Rue Juste-Olivier
Case Postale 301-303
CH-1260 Nyon, Switzerland
Telephone: (41) 22 994 07 07
Fax: (41) 22 994 07 00

FRANCE

Beckman Coulter France S.A.
Paris Nord II, 33/66 rue des Vanesses
B.P. 50359
Villepinte, France
95942 ROISSY CDG Cedex
Telephone: 01 49 90 90 00
Fax: 01 49 90 90 10
e-mail: bioresearch.france@beckman.com

GERMANY

Beckman Coulter GmbH
Europark Fichtenhain B-13
47807 Krefeld
Germany
Telephone: 49 21 513335
Fax: 49 21 51333633
e-mail: bioresearch.de@beckman.com



HONG KONG

Beckman Coulter Hong Kong Ltd.
12th Floor, Oxford House
979 King's Road
Taikoo Place, Hong Kong
Telephone: (852) 2814 7431, 2814 0481
Fax: (852) 2873 4511

ITALY

Beckman Coulter S.p.a.
Centro Direzionale Lombardo
Palazzo F/1, Via Roma 108
20060 Cassina de' Pecchi
Milano, Italy
Telephone: 02-953921
Fax: 02-95392264

JAPAN

Beckman Coulter K.K.
Toranomon 37 Mori Bldg.
3-5-1, Toranomon
Minato-ku, Tokyo 105-0001
Japan
Telephone: 03-5404-8359
Fax: 03-5404-8436

MEXICO

Beckman Coulter de Mexico S.A. DE C.V.
Avenida Popocatepetl #396
Colonia Gral. Pedro Maria Anaya
Codigo Postal 03340
Mexico, D.F. Mexico
Telephone: 525 605-77-70
Fax: 525 575-18-25

NETHERLANDS

Beckman Coulter Nederland B.V.
Nijverheidsweg 21
3641 RP-Mijdrecht
Postbus 47
3640 AA Mijdrecht
The Netherlands
Telephone: 0297-230630
Fax: 0297-288082

SINGAPORE

Beckman Coulter Singapore Pte. Ltd.
116 Changi Road
Unit #03-01/02
Singapore 419718
Telephone: (65) 6339 3633
Fax: (65) 6336 6303

SOUTH AFRICA/SUB-SAHARAN AFRICA

Beckman Coulter
Stand 1A Primegro Park
Tonetti Street
1685 Halfway House
Johannesburg
Republic of South Africa
Telephone: (27) 11-805-2014/5
Fax: (27) 11-805-4120
e-mail: beckman@intekom.co.za

SPAIN

Beckman Coulter España S.A.
C/ Caleruega, 81
28033 Madrid, Spain
Telephone: 91 3836080
Fax: 91 3836096
email: bioresearch.espana@beckman.com

SWEDEN

Beckman Coulter AB
Archimedesvaegen 7
Box 111 56
SE-168 11 Bromma
Sweden
Telephone: (0)8 564 85 900
Telefax: (0)8 564 85 901

SWITZERLAND

Beckman Coulter International S.A.
22, Rue Juste-Olivier
Case Postale 301-303
CH-1260 Nyon
Switzerland
Telephone: 0800 850 810
Fax: 0848 850 810

TAIWAN

Beckman Coulter Taiwan Inc.
Taiwan Branch
8th Floor
216 Tun Hwa South Road, Section 2
Taipei 106, Taiwan
Republic of China
Telephone: (886) 2 2378 3456
Fax: (886) 2 2377 0408

TURKEY

Beckman Coulter Ltd.
E-5 Yanyol Faith Cad.
81410 Soganklik Kartal
Istanbul
Turkey
Telephone: 90 216 309 1900
Fax: 90 216 309 0090

UNITED KINGDOM

Beckman Coulter United Kingdom Ltd
Oakley Court
Kingsmead Business Park
London Road
High Wycombe
Buckinghamshire HP11 1JU
England, U.K.
Telephone: 01494 441181
Fax: 01494 447558
e-mail: beckman_uk@beckman.com

Authorized dealers in other countries.

Beckman Coulter, Inc. • 4300 N. Harbor Boulevard, Box 3100 • Fullerton, California 92834-3100
Sales: 1-800-742-2345 • Service: 1-800-551-1150 • Internet: www.beckmancoulter.com • Telex: 678413 • Fax: 1-800-643-4366

