Because of the safety issues with high g-forces in a centrifuge, it is recommended that rotors, buckets, and tube shields be inspected every 6 months for corrosion and fatigue. If there is any indication of wear, the rotor, buckets, and tube shields should be removed from service. Contact LW Scientific for return instructions, so the rotor can be evaluated by an LW Scientific technician for repair or replacement. It is also recommended that after 2 years of service rotors, buckets, and tube shields be returned to LW Scientific for inspection. Following these procedures will ensure safety of lab personnel as well as extend the life of the centrifuge.

*Please note the following procedures are for the 8-place rotor ONLY.

G-Force and Spin Time are the most important considerations for proper fluid separations. G-force is a function of radius and speed, and varies with different centrifuges and rotor configurations. The following are commonly recommended separation settings. Please refer to your tube manufacturer and/or medical procedure manuals for the correct G-force and spin times for each fluid, tube type, and procedure.

**Warning:** Some types of tubes cannot withstand the high G-forces produced at full speed in the C5, and tube breakage may result from improper speed settings.

**Blood** can be separated at G-forces between 1,200 and 4,250 G's, and at spin times between 2 minutes and 15 minutes depending upon tube type and procedure.

Common routine blood separations are performed at 1,500-2,000 G's (3,000-4,000 rpm) for 8-10 minutes, and platelet-poor-plasma separations are done at 4,250 G's (5,000 rpm) in 6-8 minutes.

**Specifications**

- **Speed Range**: Swing-out: 500-5,000 rpm
- **Max Force**: 4,250 G-force
- **Max Volume**: 240 ml (24-place)
- **120 ml (8-place)**
- **Fuse**: 5 amp / 250 v
- **Motor**: Brushless DC
- **Height**: 12.63” (320 mm)
- **Length**: 18.13” (460 mm)
- **Width**: 15.5” (393 mm)
- **Weight**: 39 lb (17.7 kg)

**G-Forces**

<table>
<thead>
<tr>
<th>RPM's</th>
<th>Large Tube Sleeve (152mm radius)</th>
<th>Small Tube Sleeve Insert (117mm radius)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000</td>
<td>170</td>
<td>G-Force 131</td>
</tr>
<tr>
<td>1,300</td>
<td>Fecals 267</td>
<td>221</td>
</tr>
<tr>
<td>1,600</td>
<td>Urine/Semen 435</td>
<td>335</td>
</tr>
<tr>
<td>1,800</td>
<td>551</td>
<td>424</td>
</tr>
<tr>
<td>2,000</td>
<td>680</td>
<td>523</td>
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<tr>
<td>2,500</td>
<td>1,062</td>
<td>818</td>
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<tr>
<td>3,000</td>
<td>1,529</td>
<td>1,177</td>
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<tr>
<td>3,500</td>
<td>2,082</td>
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<tr>
<td>4,000</td>
<td>Blood 2,719</td>
<td>2,093</td>
</tr>
<tr>
<td>4,500</td>
<td>3,441</td>
<td>2,649</td>
</tr>
<tr>
<td>5,000</td>
<td>4,250</td>
<td>3,270</td>
</tr>
</tbody>
</table>

The C5 Centrifuge is intended for use as a Class 1 Medical Device

**Warning:** Some types of tubes cannot withstand the high G-forces produced at full speed in the C5, and tube breakage may result from improper speed settings.

**Recommended Upgrades:**

- **Crit-Carrier** (For Vet Use Only)
- **Irap Rotor**
- **Bucket Rotor**

Ask your authorized LWS dealer about additional accessories.

**Model pictured:**

C5 Centrifuge

Not all features available on all models - see back page for model specifications.
Introduction

The newly-redesigned C5 Centrifuge is now designed, engineered, and assembled in the United States. It is available with multiple rotor configurations, including the standard 8-place 1.5ml horizontal swing-out rotor, a 24-place 10ml horizontal bucket rotor, a 4-place horizontal 50ml bucket rotor, as well as many custom rotors for specialty devices. The C5 features programmable, digital controls and variable speeds up to 5,000 rpm (4,250g) for the swing-out rotor and up to 4,000 rpm for the bucket rotor, which produces platelet-poor-plasma in minutes. Select slower speeds for other samples such as urine sediments, fecals, semen, etc. Simply program the time and speed, and touch the start button. The C5 features double-decked metal construction and a lid that remains locked until the rotor has come to a complete stop to meet the strictest safety standards in the lab. Maximum tube size for the standard 8-place 15ml rotor is 128mm long by 17.5mm diameter.

Operation

1. Do not insert test tubes at this time. Close the lid, and press down until you hear the lid lock click. Set the speed to “10” (1,000 rpm) and the time to “5” minutes.
2. Start the unit by pressing the RUN button. The unit should come up to speed with a smooth sound and little or no vibration. If there is excessive vibration or noise, shut off the unit immediately, check the troubleshooting tips, and contact LW Scientific if not resolved.
3. Now turn the speed up to the highest setting of “30” for the swing-out rotor or “40” for the bucket rotor, and check for smooth sound and little vibration. If there’s excessive vibration or noise, shut off the unit immediately and contact LW Scientific. The unit is now ready to be loaded.
4. ALWAYS BALANCE THE LOAD. Be certain to balance tubes of equal weight across each other on the rotor. You should only balance 2, 4, 6, or 8 tubes at a time on an 8-place rotor and similarly even increments in a 24-place bucket rotor. If you need to spin only one tube, you must use another tube filled with slightly equal fluid (or water) to balance the rotor. If spinning fecals, use the same fecal solution in the balance tube, because water is much lighter than the dense fecal solutions (for fecal hints, please contact LW Scientific). Proper balancing will improve sample separation and will extend the life of the centrifuge. Spinning out-of-balance loads may break tubes, and can cause damage to the tube which will not be covered under warranty.
5. ALWAYS MAKE SURE TUBES ARE SUPPORTED FROM THE BOTTOM. Use proper tube shields and/or rubber tube cushions. Never allow a tube to hang by its cap on the rim of the tube shield, which can cause the stopper top to pop off and the tube to break as it hits the bottom of the shield. The cap may also cause damage inside the bowl. Damage due to improper loading will not be covered under warranty.
6. KNOW THE G-FORCE LIMITS OF YOUR TUBES. The C5 at full speed will produce enough g-force to break some low-cost types of tubes. Be certain that you are not exceeding the recommended g-forces for the brand of tubes that you are using.
7. NEVER FORCE A TUBE INTO THE SHIELDS. Tubes should fit easily into and out of the tube shield. Make sure the tubes do not exceed the length limits listed in the “Introduction”, or the tubes may hit the top of the lid and break upon startup. *Please see page 23 for tube requirements of the 24-place bucket rotor.

Troubleshooting

No Power:
- Do not operate the centrifuge at this point.
- Make sure all tubes and cushions are balanced on the rotor at all times. Proceed to “Operation”.

Wobbles and shakes:
- Plug into another outlet. Check the 2 fuses (fuse filament should be visible).
- Do not operate the centrifuge at this point.

Excessive noise:
- Plug into another outlet. Check the 2 fuses (fuse filament should be visible).
- Do not operate the centrifuge at this point.

Break down:
- Never force a tube into the tube shield. The tube shields and cushions were designed to accommodate most common sizes of tubes.

Lid won’t open:
- Never force a tube into the tube shield. The tube shields and cushions were designed to accommodate most common sizes of tubes.

Unpacking and Set up

What’s included:
- Rotor Wrench
- 3-prong AC Power Cord
- Two 5-amp 250v Spare Fuses
- Manual Lid Release Tool
- Motor Shaft Nut (holds rotor in place)
- 8 Tube shields*
- 8 Tube Sleeve inserts (for small tubes)*

*Some customers may order a bucket rotor or specialty rotor, and will not receive the 8-place rotor. Bucket rotors include 4-place rotor, 4-metal buckets, and 4 inserts to hold tubes.

1. LW Scientific packs each C5 centrifuge with utmost care. All units undergo a QC check prior to shipping from LW Scientific headquarters in Lawrenceville, GA to ensure proper operation. Examine the outer and inner containers for any visible damage, and retain the packing material. If there is visible damage, please contact the shipper or distributor, as our warranty does not cover shipping damage.
2. Remove the centrifuge from the shipping container and inspect for possible shipping damage. Do not operate the centrifuge at this point.
3. Please read and complete the warranty form online at LWScientific.com/warranty_form. The warranty form documents your purchase. Failure to fill out the warranty form may void any warranty claims on the unit.
4. Place the centrifuge on a sturdy, level surface. Plug the power cord into the appropriate power outlet.
5. Turn the power on with the on/off switch on the back of the unit. The power light and digital display should light up.
6. If power fails, you must override the lid-lock by pushing the supplied Manual Lid Release Tool or a small screwdriver into the release hole on the front right side of the unit.
7. Inspect the chamber. Remove all packing material from the chamber, install the rotor (see insert instruction page), and ensure that all the tube shields are in place. Make sure that no tube shields or tube cushions or other pieces have fallen loose into the bowl. Make sure that the rotor nut is tight using the included Rotor Wrench. Do not operate the centrifuge at this point.
8. If you purchased the 8-place rotor, eight rubber tube cushions are included to accommodate smaller tubes. Make sure that all shields and cushions are balanced on the rotor at all times. Proceed to “Operation”.

Care and Maintenance

With proper care and maintenance, your C5 centrifuge will provide years of laboratory service. Please follow these guidelines:

1. Use only high quality test tubes. Lower quality or inexpensive glass or plastic tubes may fracture and release their contents into the tube chamber. Make sure you know the maximum force allowed for the tubes you are spinning.
2. Never force a tube into the tube shield. The tube shields and cushions were designed to accommodate most common sizes of tubes.
3. Keep the tube shields clean. If a tube breaks inside a shield, clean all the debris from the shield and bowl and disinfect.
4. Motor and electrical maintenance: The C5 uses a maintenance-free brushless motor and its bearings are never force a tube into the tube shield. The tube shields and cushions were designed to accommodate most common sizes of tubes. Always balance the load. Know the g-force limits of your tubes. Never force a tube into the shields. Twists should fit easily into and out of the tube shield. Make sure the tubes do not exceed the length limits listed in the “Introduction”, or the tubes may hit the top of the lid and break upon startup. Please see page 23 for tube requirements of the 24-place bucket rotor.