Available Accessories:

- 1" Tube cushion p/n 1525
- 0.25" Tube cushion p/n 9150
- 13 x 75 mm Insert p/n 7713064
- 13 x 100 mm Insert p/n 7713066
- Shield caps p/n 7713011
- 0.5 to 1 mL Tube Adapter p/n 7713068
- 1.5 to 2 mL Tube Adapter p/n 7713065
- SmartView™ Platform p/n 00-079-009-001

Programmable Run Time is Factory Preset to 10 MINUTES
See Page 4

INSTRUCTIONS FOR DISPOSAL OF WEEE BY USERS IN THE EUROPEAN UNION
This product must not be disposed of with other waste. Instead, it is the user’s responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service, or where you purchased the product.

WARRANTY:
Drucker Diagnostics warrants that this centrifuge is free from defects in workmanship and parts for 2 years.
Model Description:
The Model 642M is a 12VDC continuous-duty, electronically-controlled horizontal centrifuge intended for mobile applications where the Vehicle has a 12VDC power supply (cigarette lighter). The unit has a lid safety interlock system and is controlled by an electronic push–button timer that has been preset for ten (10) minutes, for precise spin times and ease of use. Samples can be safely viewed through the transparent lid. Entry into the machine is restricted during operation by the safety interlock system. The Model 642M features a lighted control panel that displays the status of the machine, easily viewable from a distance. For warranty information, turn to page 12.

Intended Use:
This centrifuge is an IVD accessory, and therefore subject to the former EU IVD Directive 98/79/EC and the current EU IVD Regulation 2017/746. It is a laboratory product designed to separate components by generation of relative centrifugal force. It separates human and animal samples – such as blood, urine and other body fluids -- collected in appropriate specimen receptacles, either alone or with reagents or other additives. As a general purpose laboratory centrifuge, it is designed to also run other containers filled with chemicals (non-flammable, non-explosive, non-volatile, and non-highly reactive only), environmental samples, and other non-human body samples. This centrifuge should be operated by trained personnel only. Any use other than those intended by the Manufacturer is explicitly prohibited. [Maximum sample density is 1.15 grams/mL].

Supplied Equipment:
The following items come standard with each Model 642M centrifuge:

1. One (1) six–place horizontal rotor p/n 7786061
2. Six (6) 100 mm tube holders p/n 7713031
3. Six (6) 75 mm tube holders p/n 7713033

WARNING: Use universal precautions when handling laboratory specimens. All human specimens of blood, blood compounds, or bodily fluids are potentially biohazardous and may contain hepatitis B virus, hepatitis C virus, human immunodeficiency virus or other disease causing agents. For the safety of both the operator and service personnel, care should be taken when handling substances that are known to be toxic, radioactive, or contaminated with pathogenic microorganisms when using this centrifuge. When Risk Group II materials are used (as identified in the World Health Organization “Laboratory Bio-Safety Manual”) the use of a Bio- Seal should be employed. More than one level of protection must be provided in the case of materials of a higher group. The use of flammable or explosive materials as well as those materials which chemically react vigorously is prohibited. Any use of the equipment in a manner not specified in these instructions may impair the level protection provided by the equipment.

Calibration Testing:
It is recommended that the top speed be tested every two years to verify proper operation. Contact Drucker Diagnostics for further information or testing availability.

Transportation:
During transportation, accessories can become dislodged from the rotor and fall into the rotor chamber where they can remain unnoticed. Before transporting the centrifuge in a vehicle; make certain that the centrifuge is secured sufficiently to prevent shifting sliding or rolling, and that there are no tube holders or accessories in the rotor or rotor chamber.

Notes on Repaired Centrifuges:
For verification of the safe state of the centrifuge following factory service or repair, refer to the date on the calibration label (located on the back of the centrifuge). This is the date that the repaired centrifuge was last factory tested and calibrated. For additional servicing information and technical support, contact Drucker Diagnostics or your authorized distributor.

Disposal:
This device is labeled with the WEEE symbol (a crossed out “waste bin”). The final user should not discard this product along with other household waste. It should be collected and treated separately.

Replacement Parts:

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7774037</td>
<td>Foot, rubber</td>
</tr>
<tr>
<td>7751068</td>
<td>Switch, lid safety</td>
</tr>
<tr>
<td>7786061</td>
<td>Rotor, six-place, horizontal</td>
</tr>
<tr>
<td>7760016</td>
<td>Power Cord</td>
</tr>
<tr>
<td>7735054</td>
<td>Motor</td>
</tr>
<tr>
<td>7751079</td>
<td>Fuse</td>
</tr>
<tr>
<td>03-1-0008-0016</td>
<td>Pawl, latch, lid</td>
</tr>
<tr>
<td>03-1-0008-0009</td>
<td>Knob, latch, lid</td>
</tr>
<tr>
<td>7724071</td>
<td>Hinge, friction</td>
</tr>
<tr>
<td>7732018</td>
<td>Seal, lid gasket</td>
</tr>
<tr>
<td>02-002-1-0024</td>
<td>Lid Assembly</td>
</tr>
<tr>
<td>03-0-0003-0188</td>
<td>Front Panel Label</td>
</tr>
<tr>
<td>02-006-1-0047</td>
<td>Control board</td>
</tr>
<tr>
<td>7713079</td>
<td>Shield for 75/100 mm tubes</td>
</tr>
<tr>
<td>7713031</td>
<td>Red Tube Holder, for 17 mm x 100 mm tubes</td>
</tr>
<tr>
<td>7713033</td>
<td>Green Tube Holder, for 17 mm x 75 mm Tubes</td>
</tr>
</tbody>
</table>
**Safety:**
- The centrifuge should be placed on a stable, flat surface.
- Before using the centrifuge, check the rotor. Do not operate the centrifuge if the rotor is loose, or do not rotate freely.
- Rotors and accessories that show evidence of damage or corrosion or are to be taken out of service.
- The centrifuge must be taken out of service if safety related damages are found in the rotor chamber.
- Do not open the lid until the rotor has come to a complete stop.
- For use only on smooth level surfaces, or approved centrifuge stands.
- Do not move the centrifuge while it is plugged in or running.
- Do not operate the centrifuge in a moving automobile.

**Lid Safety Switch:**
The lid is secured to the top of the cabinet by a latching knob and pawl system. When the knob is rotated clockwise, the pawl grips the underside of the cabinet opening and prevents the lid from opening. A mechanical stop positions the pawl and prevents it from rotating completely. When rotated to the stop position, the pawl makes contact with a switch that is mounted underneath the cabinet top. This “lid safety switch” prevents the centrifuge from operating while the lid is open. An indicator light on the front of the centrifuge will light up when the lid has been latched properly.

**Lid Safety Interlock System:**
In addition to the Lid Safety Switch, the centrifuge has a true “0 RPM” lid locking system. The lid safety interlock system keeps the lid locked at all times, (even during power failure), and requires that the rotor be at rest in order to unlock the lid. The centrifuge will not allow entry into the rotor chamber unless the centrifuge has power and the rotor is stopped. To open the lid, make sure that the centrifuge is plugged in and, with the rotor stopped, press the OPEN/STOP button.

Note: After the rotor has started spinning, it may be possible to rotate the lid knob enough to cause the pawl to lose contact with the lid safety switch. If this happens, the centrifuge motor may lose power, but the lid will still remain locked. If the knob is accidentally moved and this situation should occur, rotate the knob fully clockwise to its stop position and the centrifuge will resume operation.

**Over Current Protection:**
The centrifuge provides protection from overcurrents with a fused power cord. In the event of an overcurrent condition, the fuse will blow - cutting power to the centrifuge, while protecting the internal electronics.

**Emergency Rotor Chamber Entry:**
In the event of power failure, it may be impossible to unlock the lid by conventional means. In this case, entry into the rotor chamber may be made by removing the latch label and using a pen to manually disengage the locking mechanism (see photo). Pull the mechanism towards the control panel and then unlatch and open the lid. If the centrifuge is damaged, contact your authorized dealer or Drucker Diagnostics.

**Technical Specifications:**

**General Specifications for the Model 642M Centrifuge**
- **Voltage:** ............................................................. 12-24V DC  
- **Power:** ............................................................. 100 Watts  
- **Maximum load:** ............................................. 6 x 10mL  
- **Maximum Sample Density:** ........................... 1.15 grams / mL  
- **Nominal Speed (75/100 mm holders):** ......... 3,400 (± 175) RPM  
- **Nominal RCF (75/100 mm holders):** .............. 1,650 xg  
- **Environmental Conditions for Use:**  
  - For In-vehicle / Indoors only  
  - Ambient temperature: ...................................... 2°C - 35°C  
  - Humidity: .......................................................... 90% Max  
- **Noise:** .............................................................. ≤ 65 dBA  

**Dimensions:**
- **Height:** ............................................................ 8.75 in (22 cm)  
- **Width:** .............................................................. 11.75 in (30 cm)  
- **Depth:** .............................................................. 14.00 in (35 cm)  
- **Weight:** ............................................................ Approximately 12 lbs. (5.4 kg)  

*Any use other than those specified by the Manufacturer is explicitly prohibited.*

**Initial Setup Procedure:**
If any problems are found during the initial setup procedure, refer to the troubleshooting section of this manual. For further assistance, contact Drucker Diagnostics at 814-342-6205 or 814-692-7661.

1. Plug the power cord into the automobile’s 12V accessory outlet.
2. For safety purposes, the locking system is always activated. To deactivate the system, (in order to insert or retrieve samples), press the ‘OPEN / STOP’ button on the control panel. The ‘UNLOCKED’ indicator light should illuminate. If it does not, refer to the troubleshooting section of this manual. The lid will be unlocked for 15 seconds after pushing the ‘OPEN / STOP’ button.
3. Turn the latch counterclockwise and open the lid.
4. Spin the rotor by hand; check for free and level rotation. If the rotor does not spin freely, refer to the troubleshooting section of this manual.
5. Place the six test tube holders inside the rotor (as shown to the right), and verify that they are seated properly.
6. Close the lid. Rotate the lid knob clockwise to its complete stop position. The ‘LATCHED’ indicator light should be illuminated. If it is not, make sure that the lid is latched properly. The centrifuge will not run unless the lid is latched and that the ‘LATCHED’ light is on.
7. Turn the centrifuge on by pushing the ‘START’ button.
8. The ‘RUNNING’ indicator light will illuminate.
9. The test tube holders will slide up into the horizontal position and the unit will accelerate to full speed.
10. Listen to the sound of the centrifuge. A smooth whirring sound should be heard. If there are any loud or unusual sounds, stop the centrifuge by pushing the ‘OPEN / STOP’ button immediately and refer to the troubleshooting section of this manual.
11. While the machine is running, try to turn the latch counterclockwise. Power may be cut to the motor but you should be unable to fully turn the latch. If it is possible to turn the latch and open the lid while the unit is running, contact Drucker Diagnostics for assistance. Close and latch the lid.
12. Push the ‘OPEN / STOP’ button. The ‘RUNNING’ indicator light should go out and the motor should slow to a stop.

13. The lid should remain locked until the rotor has nearly stopped. If the machine unlocks prematurely, contact Drucker Diagnostics for assistance.

Once the rotor has stopped, the interlock system will become disengaged for sixty (60) seconds. The ‘UNLOCKED’ indicator light will illuminate during this time.

14. To gain entry into the centrifuge after this period has ended, simply press the ‘OPEN / STOP’ button. The lid will unlock for fifteen (15) additional seconds. After the centrifuge has passed this procedure it is ready for operation.

**Control Panel:**

- ‘LATCHED’ Indicator Light: Lights up when the machine is in operation, (power is being applied to the motor).
- ‘RUNNING’ Indicator Light: Lights up when the machine is in operation, (power is being applied to the motor).
- ‘UNLOCKED’ Indicator Light: Lights up when the lid has been closed and latched properly.
- ‘OPEN / STOP’ Button: Allows for access into the rotor chamber by disengaging the locking mechanism. Entry is only permitted when the rotor is stopped. Pressing this button during operation will terminate the run and unlock the lid after the rotor has come to a stop.
- ‘START’ Button: Begins a new run, (the lid must be closed, see pg. 6).

**Centrifugation Settings:**

To verify the preset time:

a) Push the ‘OPEN / STOP’ button to disengage the lock and then open the lid.

b) Push and hold the ‘START’ button for approximately three (3) seconds. The ‘LATCH’ indicator light will begin to flash; indicating verification mode.

c) When you release the ‘START’ button, the ‘RUN’ indicator light will begin to flash. Make note of how many times the ‘RUN’ light flashes; each flash represents one minute of run time.

d) Press the start button again to check the brake. Make note of how many times the ‘RUN’ indicator blinks. One blink means the brake is turned off. Two blinks means the brake is turned on.

To change the preset time:

a) Push the ‘OPEN/STOP’ button to disengage the lock, and then open the lid.

b) Push and hold the ‘START’ and ‘OPEN’ buttons for approximately three (3) seconds.

c) The ‘LATCH’ indicator will begin to flash; indicating program mode.

d) Release the buttons

e) Press the ‘START’ button once for each minute of run-time, (up to 30 minutes).

f) Press ‘OPEN/STOP’ button to save the time.

**Troubleshooting:**

**NOTE:**

The latch must be turned completely clockwise to its stop position in order for the centrifuge to operate.

1. **Problem:** The rotor does not spin freely.

   **Solutions:**
   - Make sure nothing has fallen into the rotor chamber.
   - If there is nothing obstructing the rotor, the rotor may be damaged. Contact Drucker Diagnostics for further assistance.

2. **Problem:** Excessive noise when the centrifuge is running.

   **Solutions:**
   - Check to see that the load is balanced.
   - Make sure that nothing has fallen into the rotor chamber.
   - Make sure that the nut in the center of the rotor is tight.
   - Have a technician test the motor and replace it if necessary.

3. **Problem:** The centrifuge does not run.

   **Solutions:**
   - Check the electrical outlet.
   - Make sure the lid latch is turned completely clockwise to its stop position. When the lid is closed properly, the latch light on the control panel will illuminate.
   - Check the fuse in the end of the power cord. If the filament is broken, the fuse has blown and must be replaced with a fuse of the same type and rating. Contact Drucker Diagnostics for further assistance.
   - The printed circuit board may be damaged. Have a technician test and replace the circuit board if necessary.

4. **Problem:** The latch light does not come on when the lid is closed.

   **Solutions:**
   - Make sure the centrifuge has power.
   - Make sure the lid latch is turned completely clockwise to its stop position. The latch makes contact with a switch underneath the front top of the cabinet. If this switch is not activated, the light will not turn on and the centrifuge will not run.

5. **Problem:** The centrifuge does not unlock after a run has completed.

   **Solutions:**
   - The lid should remain locked until the rotor has nearly come to a complete stop and then unlock for 60 seconds. If additional unlock time is needed, press the ‘OPEN / STOP’ button. If the lid remains locked after this and will not unlock, the electronics may have been damaged. Contact Drucker Diagnostics for assistance. To access the rotor chamber, follow the procedure in the Emergency Rotor Chamber Entry section of this manual.

6. **Problem:** The run time is not set to the desired length.

   **Solutions:**
   - Refer to the Centrifugation Settings section of this manual to check and/or change the preset run time.

For servicing information or additional technical support, contact Drucker Diagnostics at 814-342-6205 or 814-692-7661.
4. **Motor and Electrical Maintenance**: The Model 642M motor should not need servicing for the life of the centrifuge. The electrical components are selected for high reliability and should not need service.

5. **Tube Holder Replacement**: It is recommended that the tube holders be replaced after 24 months of use. Inspect tube holders regularly for cracks. If cracks are discovered, replace immediately.

### Cleaning and Disinfection:

To prolong the life of the centrifuge cleaning and disinfection is recommended every six months, or whenever there is a spillage or tube breakage. Contaminants must be removed immediately, or corrosion and premature degradation of components can occur.

- a) Unplug the centrifuge before cleaning.
- b) Autoclaving of any component of the centrifuge is prohibited.
- c) Apply cleaning solutions with a towel or cloth. Do not submerge the centrifuge in water or other cleaning solutions as this will cause damage and void the warranty.
- d) ONLY isopropyl alcohol, soap and water, or a 10% (5500 PPM) bleach solution should be used for cleaning and disinfection of the centrifuge and accessories.
- e) All surfaces must be dried immediately after cleaning and disinfecting.
- f) TBQ Germicidal products shall not be used, as they will cause damage to the centrifuge and void the warranty.
- g) The use of fully/partially halogenated hydrocarbons, ketones, esters, ethers, benyzls, ethyl benzenes, and all other chemicals not prescribed by the manufacturer shall not be used as they may cause damage to the rotor chamber, rotor, tube holders, accessories and centrifuge exterior and void the warranty.
- h) It may be necessary to remove the rotor and clean the rotor chamber. Refer to the Installation and removal of the rotor section of this manual.

### Operation:

#### NOTE: Follow the initial setup procedure on page 3 before initial operation.

- a) If any problems are found during the initial setup procedure, refer to the troubleshooting section.
- b) Plug the power cord into the automobile’s 12V accessory outlet.
- c) Unlock the lid by pressing the OPEN/STOP button on the control panel. The UNLOCKED indicator light should illuminate. The lid will be unlocked for 15 seconds after pushing the OPEN/STOP button.
- d) Turn the latch counterclockwise and open the lid.
- e) Spin the rotor by hand; check for smooth rotation free from excessive wobble.
- f) Place six test tube holders (supplied) of the same type inside the rotor (as shown to the right), and verify that they are seated properly.
- g) Close the lid. Rotate the lid knob clockwise to its stop position. The ‘LATCHED’ indicator light should be illuminated. If it is not, make sure that the lid is latched properly. The centrifuge will not run unless the lid is latched and the ‘LATCHED’ light is illuminated.
- h) Start a centrifugation cycle by pushing the START button.
- i) The ‘RUNNING’ indicator light will illuminate.
- j) The test tube holders will slide up into the horizontal position and the rotor will accelerate to full speed.
- k) Listen to the sound of the centrifuge. A smooth whirring sound should be heard. If there are any loud or unusual sounds, stop the centrifuge by pushing the OPEN/STOP button.
- l) Push the OPEN/STOP button. The ‘RUNNING’ indicator light should go out and the motor should slow to a stop.
- m) The lid should remain locked until the rotor has nearly stopped. If the centrifuge unlocks prematurely, contact Drucker Diagnostics for assistance. Once the rotor has stopped, the interlock system will become disengaged for sixty (60) seconds. The ‘UNLOCKED’ indicator light will illuminate during this time.
- n) To gain entry into the centrifuge after this period has ended, simply press the OPEN/STOP button. The lid will unlock for fifteen (15) additional seconds.

- g) When the latch light starts blinking faster, press the ‘START’ button once to set the brake to OFF or twice to set the brake to ON.
- h) Press ‘OPEN/STOP’ to exit program mode.
**Installation and Removal of the Rotor:**

a) The rotor is secured with a single nut, visible with the lid open. The nut is located in the center of the rotor.
b) Use a 1/2” nut driver to loosen the nut (turn counter-clockwise).
c) Lift the rotor straight up and out of the rotor chamber.
To install the rotor, reverse steps A and B above.
d) Take care to align the hub splines with the rotor hub.
e) Tighten the rotor nut by hand with a 1/2” nut driver until snug. One full thread showing above the nut is a good indicator of proper installation.

**Centrifuging balanced loads will extend the life of the centrifuge and produce better results.**

b) Opposing tube holders must be identical and must contain the same cushion or none at all.
c) Opposing tube holders must be empty or loaded with equally weighted samples.
d) If an odd number of samples is to be spun, fill a tube with water to match the weight of the unpaired sample and place it across from this sample.

**Care and Preventative Maintenance:**

With proper care and maintenance your centrifuge will provide years of laboratory service. For proper care, the following steps should be taken:

1. **Provide Adequate Ventilation:** For cooling purposes, the Model 642M draws in ambient air through the air intake cover on the top of the lid and exhausts this air in the rear of the base. The centrifuge should be placed on a hard smooth surface for good air circulation.

2. **Always Spin Balanced Loads:** Make certain that you are always spinning a balanced load. The Model 642M has been designed to provide excellent vibration dampening. However, out-of-balance loads may break glass test tubes and may produce unsatisfactory separation results. Proper load balancing will improve sample separation and extend the life of the centrifuge. Use the following rules when loading the rotor.

   a) Centrifuging balanced loads will extend the life of the centrifuge and produce better results.
   b) Opposing tube holders must be identical and must contain the same cushion or none at all.
   c) Opposing tube holders must be empty or loaded with equally weighted samples.
   d) If an odd number of samples is to be spun, fill a tube with water to match the weight of the unpaired sample and place it across from this sample.

3. **Keep the Tube Holders Clean:** NOTE: Always follow the safety guidelines of your laboratory to properly clean up and/or dispose of materials in the event that a substance known to be potentially toxic, radioactive or contaminated with a pathogenic microorganism is spilt in or on the centrifuge. Small glass fragments left in the tube holder after a tube breakage may adhere to the next test tube inserted in that holder. When this tube is handled, these fragments may puncture protective gloves and lacerate the operator’s fingers or hand. Remaining fragments may provide stress points on subsequent tubes and result in additional breakage. If a tube breakage occurs, carefully remove the tube holder. Properly dispose of the sample and tube fragments and thoroughly clean both the inside and outside of the tube holder. Insert a new tube cushion (if necessary) and replace the tube holder in the rotor.

**Tube Holder Configurations:**

The Model 642M is capable of spinning test tubes up to 17 mm x 100 mm with its horizontal rotor. Use the following chart and drawing to determine which tube holder and cushion combination should be used with your application.

**DIRECTIONS:**

1. Compare the tube to be spun with the three boxes shown below.
2. Find the box that most closely matches the tube’s length. **NOTE:** The tube length with its stopper or cap must be shorter than the chosen box or the tube will not fit properly in the tube holder.
3. Match the letter from the chosen box with one of the configurations shown.

   "For Example: A tube is found to be as long as box C. Accordingly, we can use a 75/100 mm tube holder (configuration C)."

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*This part is available as an accessory. Contact Drucker Diagnostics for assistance.