horizon

MODEL HORIZON 24 FLEX

Model HORIZON 24 Flex Operator's Manual

Laboratory Centrifuge

Drucker Diagnostics

P/N 03-0-0002-0143 Rev. B

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THIS IS A UNIVERSAL CENTRIFUGE, COMPATIBLE WITH VOLTAGE REQUIREMENTS IN ALL COUNTRIES. THE LINE CORD WILL VARY BY COUNTRY.

WARNING

For the safety of both the operator and service personnel, care should be taken when using this centrifuge if handling substances that are known to be toxic, radioactive or contaminated with pathogenic microorganisms. When Risk Group II materials are used (as identified in the World Health Organization "Laboratory Bio-Safety Manual"), a Bio-Seal should be employed. In the event that materials of a higher risk group are being used, more than one level of protection must be provided. The use of flammable or explosive materials as well as those materials which have a vigorous chemical reaction is prohibited.

Model Description

HORIZON is a versatile line of centrifuges designed with 3 settings to process Chemistry, Coag or Platelet Poor Plasma, and Urine specimens in the same unit. The maximum g-force of 2,000 xg makes HORIZON compatible with most brands of tubes. Cycle settings can be changed to accommodate custom setting.

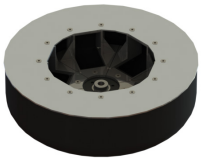
*The horizontal rotors and rotor accessories are rated for a rotational speed of 3500 RPM (a force of 3200 xg).

Intended Use

General purpose laboratory centrifuge for sample separation.

Supplied Accessories (Standard)

See next page for optional rotor/accessories



One (1) 4-Bucket Horizontal Rotor*
p/n 7786012

Four (4) 1.5" Green Buckets**
p/n 7713107

***for use with Owl Manor 60 mL Products Horizon 24 Flex, Owl Manor (00-384-092-000)*

Two (2) 1.5" Green Buckets**
p/n 7713107

***for use with Owl Manor 60 mL Products*

Two (2) 1.5" Purple Buckets***
p/n 7713037

****for use with Owl Manor 30 mL Products, Horizon 24 Flex, Owl Manor SA (00-384-092-001)*

Also included (not shown):

- One (1) 10´ Line Cord
- One (1) Operator's Manual

See the next page for a description of optional accessories.

WARRANTY:

Drucker Diagnostics warranties that this centrifuge is free from defects in workmanship and parts for 2 years.

Drucker Diagnostics

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Specifications

General Specifications for the Horizon Model 755VES Centrifuge

Overall Dimensions (H x W x D): ..... 9˝ x 15˝ x 17˝
Centrifuge Motor: ..... 1/2 H.P. Brushless DC
Timer: ..... Electronic, with hold or 0.5 to 99 minutes, +/- 1%
Weight: ..... 39 lbs.

Permitted Environmental Conditions

Ambient Temperature During Operation: 16 ºC - 35 ºC
Maximum Relative Air Humidity: 90%

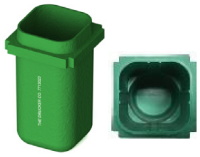
Electrical Requirements

Power (Watts): 280
Voltage (Volts): ..... 95 to 235
Frequency (Hz): 50/60

**See label on back of centrifuge for voltage requirements.*

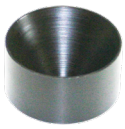
Contact your authorized dealer to order accessories.

Optional Accessories



1.5" Bucket
p/n 7713107

50 mL Bucket
p/n 7713037



50 mL Conical
Tube Insert
p/n 7787060

4 Place Bucket
p/n 7713023

Bucket Cap
p/n 7713035

13 x 75 mm Insert
p/n 7713064

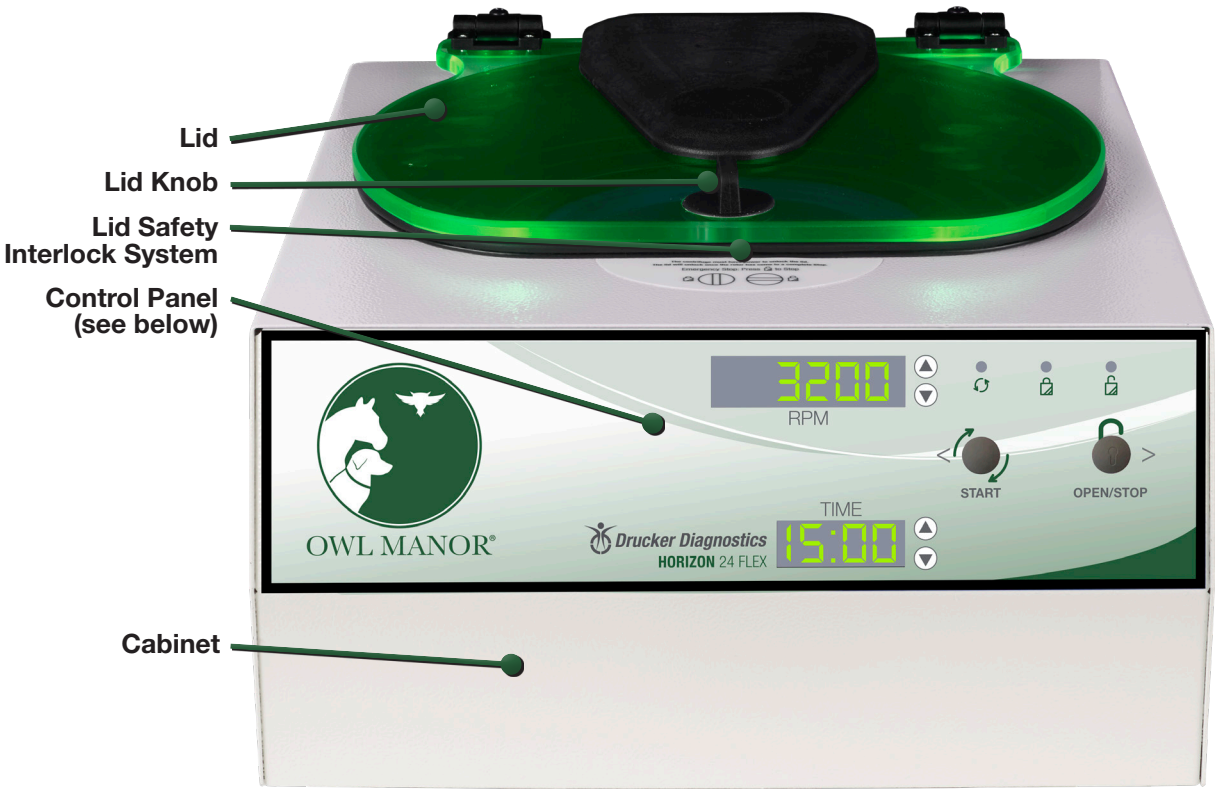
13 x 100 mm Insert
p/n 7713066

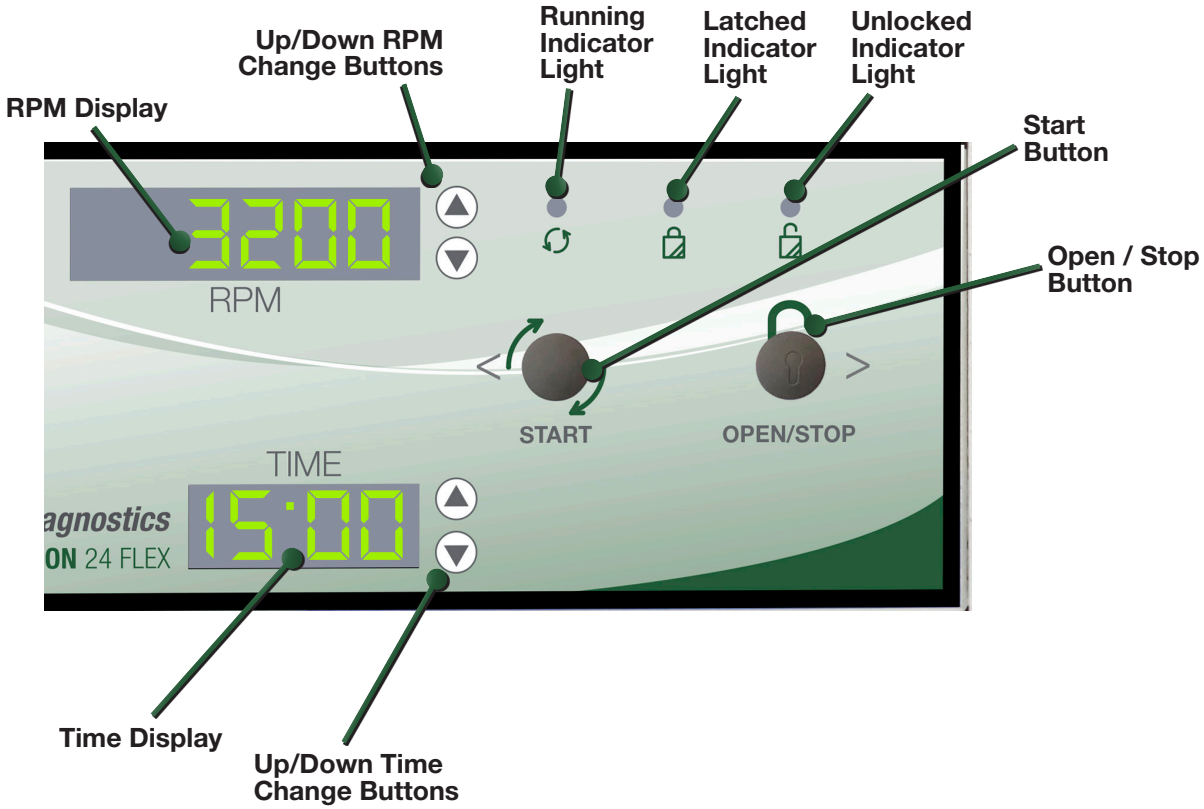
.5 to 1 mL
Tube Adapter
p/n 7713068

1.5 to 2 mL
Tube Adapter
p/n 7713065

Any use other than those specified by the manufacturer is explicitly prohibited.
Maximum sample density is 1.15 grams / mL, (water density = 1.0 grams / mL)

Control Panel / Parts of the Centrifuge





Setup Location

1. Unpack the centrifuge and verify that all of the supplied equipment is present.
2. Choose a setup location which meets the following criteria:
   a) A bench top clearance height of 21" is required in order to open the lid.
   b) The clearance envelope is the space around the centrifuge which is required for safety. Choose a setup location which will allow for a clearance envelope of at least 30" x 30", (with the centrifuge at the center). No person or hazardous material shall be permitted in the clearance envelope during operation.The operator time within the envelope shall be limited to the time necessary for loading, unloading and centrifuge operation only.
   c) Proper ventilation is necessary to prevent the overheating of samples as well as premature failure of the centrifuge. Choose an area which will allow unencumbered air flow.
   d) The centrifuge is designed to rest on its four rubber feet. No adjustment is necessary for leveling the centrifuge, however, the surface should be flat and level.
   e) Be sure the outlet is always within reach as the line cord is the means of emergency disconnection.

Initial Setup Procedure

If any problems are found during the initial setup procedure, refer to the troubleshooting section.

1. Plug the female end of the line cord into the back of the centrifuge. Plug the male end into an approved electrical outlet. For electrical safety, the unit must always be properly grounded.
2. Flip the power switch located on the back of the centrifuge to the ON position.
3. For operator safety, the locking system is always active; requiring power and direction from the user to disengage it (the lid also automatically unlocks at the end of a run when it is safe to do so). To unlock the lid (in order to access the rotor chamber) press the 'OPEN / STOP' button on the control panel. The 'UNLOCKED' indicator light should illuminate. If it does not, refer to the section on troubleshooting. The lid will remain unlocked for 15 seconds after pressing the 'OPEN / STOP' button.
4. Turn the latch counterclockwise and open the lid.
5. Spin the rotor by hand; check for free and level rotation. If the rotor does not spin freely, refer to the section on troubleshooting.
6. Place the buckets inside the rotor and verify that they are seated properly.
7. 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 properly and the 'LATCHED' indicator light is illuminated.
8. Use the up arrow button next to the RPM display to set the speed to full. The top speed for the horizontal rotor is 3500RPM (3200 RPM for fixed angle rotors).
9. Initiate a test run by pressing the 'START' button.

(Continued on next page)

Initial Setup Procedure (continued)

10. The ‘RUNNING’ indicator light will illuminate.
11. The buckets will slide up into the horizontal position and the unit will accelerate to the current set speed.
12. 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 pressing the ‘OPEN / STOP’ button immediately and refer to the section on troubleshooting.
13. Press the ‘OPEN / STOP’ button to terminate the test run. The rotor will decelerate to a complete stop and the lid will then unlock automatically for sixty (60) seconds.
14. Take time now to familiarize yourself with the various Control Panel Functions. See page 9.
15. The centrifuge is now ready for operation.

Operation

NOTE: Follow the initial setup procedure before initial operation.

1. Press the ‘OPEN / STOP’ button to unlock the lid and then open the lid.
2. Place the tube samples into the buckets. Be sure to follow the rules for balanced loads. See page 8.
3. Close the lid and turn the lid knob clockwise to its complete stop position. The ‘LATCHED’ indicator light should illuminate to indicate that the latch is closed properly. If the lid knob is not completely latched, the ‘LATCHED’ indicator light will not illuminate and the centrifuge cannot be operated.
4. Set the desired speed and run time using the appropriate up and down arrow buttons.
5. Begin the run by pressing the ‘START’ button on the control panel.
6. The centrifuge should begin to spin. The ‘RUNNING’ indicator light should illuminate.

IF A PROBLEM IS FOUND DURING A SPIN THAT REQUIRES THE CENTRIFUGE TO SHUT DOWN, PRESS THE ‘OPEN / STOP’ BUTTON IMMEDIATELY !

7. After time has elapsed, the ‘RUNNING’ indicator light will extinguish and the rotor will decelerate to a complete stop.
8. The ‘UNLOCKED’ indicator light will illuminate, the lid light will flash, and the locking mechanism will disengage, allowing entry into the rotor chamber. If the automatic unlock times out (after 60 seconds) simply press the ‘OPEN / STOP’ button.
9. Turn the lid knob counterclockwise and open the lid. The lid light will turn off.
10. Remove the tube samples.
11. The centrifuge may be used again immediately.

Guide to Balanced Centrifuge Loads

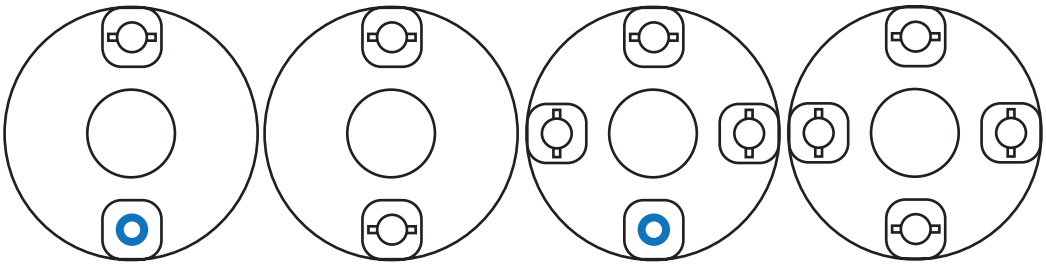
One to four devices can be processed in the same cycle. To ensure that the load is balanced, opposing buckets must be loaded with equally filled devices or a device and a counterbalance. Please refer to device I.F.U. for proper use of the counterbalance.

1 device: Load the opposing bucket with a counter balance
2 devices: Place the two devices in opposite buckets
3 devices: Place a counter balance in the empty bucket
4 devices: Insure that devices in opposing bucket are filled identically

Device

Counterbalance

Balanced Rotor Loading



1 2 3 4

Control Panel Functions

Time Adjustment and Timer Operation: The run time may be set from 30 seconds to 99 minutes and 30 seconds. Press the up and down arrow buttons next to the time display to adjust the run time. Adjustments may be made prior to a run. A quick tap will adjust the time by 30 seconds. Hold down the button for 1 minute adjustments.

Speed Adjustment: The speed may be set from 500 RPM to 3,400 RPM. Press the up and down arrow buttons next to the speed display to adjust the RPM. Adjustments may be made prior to a run. A quick tap will adjust the speed in increments of 50 RPM. Hold down the buttom to adjust the speed in increments of 100 RPM.

Starting and Stopping a Run: With the lid switch closed, press the 'START' button to begin a run. Press the 'OPEN / STOP' button at any time during a run to terminate it.

Unlocking the Lid: The lid is unlocked whenever the red 'UNLOCKED' indicator light is illuminated. The lid unlocks automatically for 60 seconds at the end of a run. The lid can also be unlocked for an additional 15 seconds by pressing the 'OPEN / STOP' button while the unit is idle. The lid cannot be unlocked while the rotor is spinning.

Imbalance Detection Reset: This centrifuge is equipped with imbalance detection. If an imbalance is detected, the centrifuge will terminate the current run and will begin to brake to a stop. The words 'BALANC' and 'ERROR' will flash on the speed display. Once the rotor has stopped, open the lid to cancel the error reporting, balance the load and begin a new run. Alternately, the error reporting can be canceled by pressing the 'OPEN / STOP' button.

Care and Preventative Maintenance

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

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

2. Always Spin Balanced Loads: This centrifuge is equipped with imbalance detection. However, it is still possible to run loads that are minimally imbalanced. Refer to page 8 for additional information on balancing the load.

3. Keep the Buckets 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 bucket after a tube breakage may adhere to the next tube inserted in that bucket. 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 bucket. Properly dispose of the sample and tube fragments and thoroughly clean both the inside and outside of the bucket. Insert a new tube cushion (if necessary) and replace the bucket in the rotor.

4. Motor and Electrical Maintenance: This centrifuge uses a brushless-DC motor. There are no brushes to replace and it should not need routine servicing for the life of the centrifuge. The electrical components are selected for high reliability and should not need service.

5. Keep the Centrifuge Clean: The cabinet, rotor top and accessories shall be thoroughly cleaned using either soap and water, or a mild bleach solution. It is critical that the buckets are dried completely inside before any product tubes are loaded. Left over chemical residue can damage or weaken the tubes. The use of Fully/Partially Halogenated Hydrocarbons, Ketones, Esters and all other chemicals not prescribed by the manufacturer may cause damage to the rotor and buckets and shall not be used.

If it is necessary to remove the rotor for additional cleaning it is required that a qualified technician remove the outside housing and rotor assembly. Contact your authorized dealer for additional information.

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 your warranty!

6. Bucket Replacement: It is recommended that the buckets be replaced after 24 months of use. Inspect buckets regularly for cracks. If cracks are discovered, replace immediately.

Troubleshooting:

1. Problem: The rotor does not spin freely.

Solutions:

- Make sure that nothing has fallen into the rotor chamber.
- If there is nothing obstructing the rotor, the motor may be damaged.

Contact your authorized dealer for further assistance.

2. Problem: There is excessive noise when the machine 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 screw in the center of the rotor is snug.
- The motor may be damaged.

Contact your authorized dealer for further assistance.

3. Problem: The centrifuge does not run or an error message is displayed.

Solutions:

- Make sure that the centrifuge is getting power. Does the control panel come on? Check the electrical outlet that the unit is plugged into.
- If the unit is getting power, make sure that the lid latch is closed properly. The latch is closed properly when the yellow 'LATCHED' indicator light is illuminated.
- If the centrifuge stops soon after start-up and 'ERROR' is displayed on the speed display, refer to the following for fault information:

ERROR / SPEED
The centrifuge cannot reach full speed due to a problem with the rotor, an inadequate power supply, or other electrical problems. Press the 'OPEN / STOP' button to cancel the error and then check the rotor and the line voltage. Contact your authorized dealer for further assistance.
ERROR / BALANCE
The centrifuge has detected an imbalance. Press the 'OPEN / STOP' button to cancel the error and balance the load. If the load is balanced, make sure that the centrifuge is installed on a secure, level location.

Contact your authorized dealer for further assistance.

4. Problem: The lid knob cannot be turned / the lid cannot be unlocked.

Solutions:

- Make sure the centrifuge has power and that the rotor is stopped. Press the "OPEN / STOP" button. The red 'UNLOCKED' indicator light should illuminate and the unlocked mechanism should disengage, allowing entry into the lid.
- If the lid is still locked, make sure that the red 'UNLOCKED' indicator is illuminated and turn the lid knob first completely clockwise and then counterclockwise.
- If the red 'UNLOCKED' indicator will not illuminate or the locking mechanism will not disengage, the electronics or locking mechanism may be damaged.

Contact your authorized dealer for further assistance.

The Horizon model 755 complies with all requirements of UL's Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements, UL 61010-1, Issued: 7/12/2004, Ed: 2nd, Rev: 10/28/08; Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use Part 1: General Requirements, CSA/C22.2 #61010-1, Issued: 7/12/2004, Ed: 2nd

Safety:

Horizon Lid Safety Switch: The Horizon 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 micro–switch mounted underneath the cabinet top.The lid safety switch prevents the centrifuge from operating while the lid is open. The yellow 'LATCHED' indicator light on the front of the machine will illuminate when the lid has been latched properly.

Horizon Lid Safety Interlock System: In addition to the Lid Safety Switch, the Horizon 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 centrifuge 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.

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 unit is damaged, contact your authorized dealer.

Calibration and Earth Ground Testing:

It is recommended that the top speed, ground continuity and line leakage be tested every two years for continued safe operation. Contact your authorized dealer for further information or testing availability.

Contact your authorized dealer to order replacement parts or accessories.

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.

EC	REP

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