NOTICE: This document contains references to Varian. Please note that Varian, Inc. is now part of Agilent Technologies. For more information, go to **www.agilent.com/chem.**

Agilent Technologies

VK 7025 Dissolution Apparatus Operator's Manual

P/N 70-9033
November 2010
Revision H

Limitation of Liability

The information in this document is subject to change without notice. Varian, Inc. makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties or merchantability and fitness for a particular purpose. Varian, Inc. shall not be liable for errors contained herein or for incidental consequential damages in connection with the furnishing, performance, or use of this material.

First Edition (November 2010)
VK 7025 Dissolution Apparatus Operator's Manual
Part Number 70-9033 Revision H
Printed in the United States of America

The following terms are trademarks of Varian, Inc.:

- Benchsaver™
- BIO-DIS III®
- Enhancer Cell®
- Full Flow Filters™
- Peak Vessel™
- Practical Solutions®
- QA and QAII™
- TruCenter™
- VanKel®
- VK®

Varian, Inc.
13000 Weston Parkway
Cary, North Carolina 27513-2250
800.229.1108
919.677.1108
Fax: 919.677.1138
www.varianinc.com

VARIAN

Table of Contents

List of Figures

Chapter 1 Safety Practices and Hazards

The VK 7025 has been carefully designed so that when used properly you have an accurate, fast, flexible, and safe instrument.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Operation of a VK 7025 involves the use of aqueous liquids and various pharmaceutical dosage forms. Unskilled, improper, or careless use of this instrument can create shock hazards, fire hazards, or other hazards which can cause death, serious injury to personnel, or severe damage to equipment and property.

Information on safety practices is provided with your instrument and operation manuals. Before using your instrument or accessories, you must thoroughly read these safety practices.

Observe all relevant safety practices at all times.

Electrical Hazards

The dissolution apparatus contains electrical circuits, devices, and components operating at dangerous voltages. Contact with these circuits, devices, and components can cause death, serious injury, or painful electric shock.

Panels or covers that are retained by fasteners which require the use of a tool for removal may be opened only by Varian-trained, Varian-qualified, or Varian-authorized service engineers. Consult the manuals or product labels supplied with the dissolution apparatus to determine which parts are operator-accessible.

Application of the wrong supply voltage, connection of the instrument to an incorrectly wired supply outlet, or lack of proper electrical grounding can create a fire hazard or a potentially serious shock hazard and could seriously damage the instrument and any attached ancillary equipment.

Always use a three-wire outlet with ground connection which is adequately rated for the load. The installation must comply with local, state, and federal safety regulations.

Do not connect the instrument to the main power supply until you have made sure that the operating voltage is correctly set for the main power supply in the specific outlet in your laboratory to which the equipment will be connected.

Other

Other specific warnings and cautions appear in the manuals where appropriate and detail the specific hazard, describe how to avoid it, and specify the possible consequences of not heeding the warning or caution.

Warning

A 'Warning' message appears in the manual when failure to observe instructions or precautions could result in death or injury. Symbols depicting the nature of the specific hazard are also placed alongside warnings.

These symbols are also used on warning labels attached to the instrument. When you see one of these symbols, you must refer to the relevant operation or service manual for the correct procedure referred to by that warning label.

The meaning of the symbols that appear alongside warnings in this manual are as follows:

Electrical shock

Pinch point

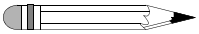
Caution
Refer to accompanying documents

Read all warnings and cautions carefully and observe them at all times.

Caution

A 'Caution' message appears in the manual when failure to observe instructions could result in damage to equipment (Varian supplied and / or other associated equipment).

A 'Note' appears in the manual to give advice or information.



Information Symbols

I	Switches main power on
0	Switches main power off
	Indicates single-phase alternating current
	Indicates the product complies with the requirements of one or more European Union (EU) directives
	Indicates that this product must not be disposed of as unsorted municipal waste (see "WEEE Directive" on page 13)

General

CE Compliant Products

The VK 7025 has been designed to comply with the requirements of the Electro-magnetic Compatibility (EMC) Directive and the Low Voltage Directive (LVD) of the EU.

Varian, Inc. has confirmed that each product complies with the relevant directives by testing a prototype against the prescribed European Norm (EN) standards.

Proof that a product complies with the directives is indicated by:

- the CE marking appearing on the rear of the product.
- the documentation package that accompanies the product containing a copy of the declaration of conformity. This declaration is the legal declaration by Varian, Inc. that the product complies with the directives and also shows the EN standards to which the product was tested to demonstrate compliance. The declaration of conformity is signed by the representative of the manufacturing plant.

WEEE Directive

All Varian products that are subject to the WEEE directive shipped after August 13, 2005 are compliant with the WEEE marking requirements. Such products are marked with the "crossed out wheelie bin" WEEE symbol shown on page 12 in accordance with European Standard EN 50419.

This symbol on the product or on its packaging indicates that this product must not be disposed of as unsorted municipal waste. 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 on collection, reuse, and recycling systems, please contact your local/regional waste administration, your local distributor, or Varian, Inc.

This page was intentionally left blank, except for this message.

Chapter 2 Introduction

The VK 7025 is designed for dissolution testing of a variety of pharmaceutical products, including tablets, capsules, transdermal patches, and membranes. It can be configured as USP Apparatus 1, 2, 5, or 6.

The unique design of the VK 7025 has a lower profile than existing dissolution apparatus. The drive unit moves up and down with the touch of a key to move paddles or basket shafts into and out of the vessels. In order to allow clear access to the vessels, the drive unit slides back rather than continuing to move upwards. This compact design has the evaporation covers attached to the spindle housings on the drive unit and offers convenient access to the mechanics of the system through a hinged top cover.

The front panel displays the Method Status screen during a run, providing full information on spindle speed, elapsed time, temperature and more. Most operating parameters are programmable including spindle speed, test length, bath temperature, and test start times.

The built-in Report Center Printer provides a complete report, either at pre-programmed time intervals or on demand, of several important test parameters. Printouts are on plain paper which will not fade or discolor over time or with exposure to chemical fumes.

The VK 7025 Dissolution Apparatus comes with all accessories needed for proper function:

- PETG water bath
- Heater / circulator
- USP dissolution paddles or rotating basket assemblies (14.5-inch shaft length)
- TruCenter Vessels, 1000 mL, with upper and lower magnetic ring flanges
- Standard evaporation covers
- Complete set of alignment tools to ensure full USP compliance
- Built-in Report Center Printer
- Sampling cannulas
- Dosage Delivery Module (DDM)
- AutoTemp Vessel Temperature Sensing System

These features are optional on the VK 7025:

- Individual clutches
- Fiber optic probes

Warning

The dissolution apparatus contains electrical circuits, devices, and components operating at dangerous voltages. Contact with these circuits, devices, and components can cause death, serious injury, or painful electric shock.

Caution

Panels or covers that are retained by fasteners which require the use of a tool for removal may be opened only by Varian-trained, Varian-qualified, or Varian-authorized service engineers.

The following illustration shows a VK 7025.

Conventions Used in this Manual

- Quick keys you are asked to press are in bold. For example, "press **MENU**".
- To perform functions that require making selections from the display screen, for example, "select MANUAL OPERATION" means to press the key to the left or right of MANUAL OPERATION.
- Key sequences you are asked to press appear like this: **0** > **ENTER**.

Note

Remember to return the warranty card supplied with this manual. Completing and returning the card ensures your right to protection under the terms and conditions of your warranty. It also enables us to better assist you in the event of any problems. Additionally, it guarantees you will be informed of any issues that arise concerning your equipment, such as upgrades, retrofits, or regulatory changes.

Quick Key Guide

ESC	Press **ESC** to return to the previous screen.
MENU	From any point after the Main Menu, press **MENU** to return to the Main Menu.
ENTER	After entering any input, press **ENTER** to complete the process.
STOP / PAUSE	Press **STOP / PAUSE** to pause or abort the present program.
RUN	To manually begin operations that were not programmed to delay start, press **RUN**.
CLEAR	Press **CLEAR** to instantly clear an entry.
DRIVE UP	Press **DRIVE UP** to raise the drive unit. The drive unit automatically rises to the home position unless another key is pressed. Pressing **DRIVE UP** or **DRIVE DOWN** stops the upward movement of the drive unit.
DRIVE DOWN	Press and hold **DRIVE DOWN** to lower the drive unit. Release the key when the drive unit is in the appropriate position.

Screen Saver

The VK 7020 / 7020 S / 7025 screen saver initiates after 30 minutes of inactivity and no program running. Press any key to reactivate the dissolution apparatus.

If security has been disabled, the last screen displays.

If security has been enabled, a screen requesting the current user's password displays. Enter the password and press **ENTER**. The last screen displays.

Chapter 3 Setup

Unpacking Your VK 7025

The VK 7025 is shipped in one carton containing the following:

- VK 7025 drive unit assembly, PETG water bath, power supply box, glassware, and accessories
- heater / circulator

Follow these steps to safely unpack your tester and accessories:

Step 1. Open the carton and check the contents for damage which may have occurred during shipping. Shipping damage rarely occurs, but if it does contact both the carrier who delivered the instruments and the Dissolution Systems Service Department. Though claims for damage should be filed with the carrier, we can help you file a claim.

Step 2. Remove all packing from the dissolution apparatus.

Warning

The VK 7025 weighs approximately 200 pounds and therefore requires special handling.

Step 3. There are four lifting straps included with the dissolution apparatus. One is positioned around each of the four legs.

Step 4. Place the straps around your wrist as indicated in Figure 1, "Lifting Straps," below.

FIGURE 1. Lifting Straps

Warning

Because of its heavy weight, two people should lift the tester. *Do not* lift the tester by the drive unit. Lift by holding the base plate.

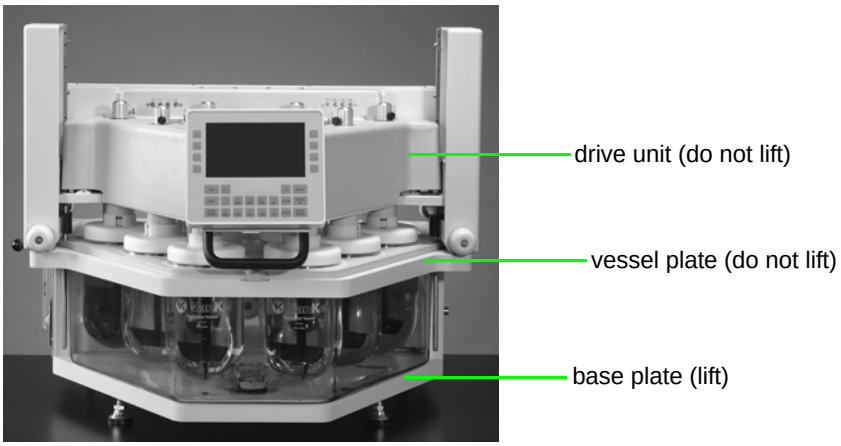
Step 5. Use the lifting straps to lift the dissolution apparatus off of the packing platform. Place the dissolution apparatus on the ground.

Step 6. Once clear of the packaging materials, use the hand holds grooved into the base plate to lift the dissolution apparatus onto a sturdy benchtop (see Figure 2, "VK 7025 Lifting Guide," below).

Warning

The electrical connection at the back of the tester is the primary disconnect for the instrument. The tester should be positioned to allow accessibility to the power cords for easy disconnection.

FIGURE 2. VK 7025 Lifting Guide



Setting Up the VK 7025

Complete the following steps to safely set up your VK 7025:

Warning

Ensure the tester is configured at the factory for the voltage supplied.

Step 1. Ensure the power switch on the power supply box is in the OFF position.

Warning

The electrical connection at the back of the tester is the primary disconnect for the instrument.

Step 2. Connect the power cord between the receptacle on the side of the dissolution apparatus and an outlet of the appropriate voltage.

Step 3. Turn on the dissolution apparatus. PRESS DRIVE UP TO INITIALIZE INSTRUMENT displays.

Step 4. Press and release **DRIVE UP** to lift the drive unit to its home position.

Step 5. Turn off the dissolution apparatus.

Step 6. Remove the cushioning material between the drive unit and vessel plate.

Step 7. Level the instrument by placing the bubble level provided in the accessory kit on the vessel plate. Check for level in the center of the front and rear of the instrument and on the left and right sides of the instrument. The feet supporting the tester are adjustable. Turn them counterclockwise with a 3/4-inch open wrench until the bubble in the level is in the center at all four check points.

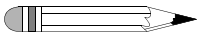
Step 8. Lock the feet in place by tightening the nut snugly against the base plate (see Figure 3, "VK 7025 Foot," on page 23).

FIGURE 3. VK 7025 Foot

Raising and Lowering the Drive Unit

Warning

Ensure your hands are not in the path of the drive unit as it rises and lowers.



Note

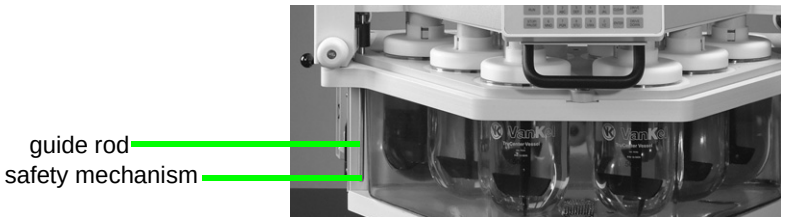
There is a safety mechanism in the bottom of the left side guide rod which keeps the drive unit from lowering improperly. If the rods do not line up precisely with the holes in the vessel plate, the mechanism engages and the drive unit stops lowering and rises to the home position. See Figure 4, "Drive Unit Guide Rods," on page 24.

To raise the drive unit, press **DRIVE UP**. The drive unit stops automatically when it reaches the home position. To stop the drive unit before it reaches the home position, press **DRIVE UP** again.

To lower the drive unit, ensure the drive unit is latched in the forward-most position and press and hold **DRIVE DOWN**. Release the key when the drive unit reaches the desired position. The drive unit stops automatically when at the lowest position. There is a safety mechanism located in the bottom of the left side guide rod which keeps the drive unit from lowering improperly. If the rods do not line up precisely with the holes in the vessel plate, the mechanism engages and the drive unit stops lowering and rises to the home position.

The guide rods also serve to guarantee the drive unit is positioned with the apparatus in the correct centering location for operation. See Figure 4, "Drive Unit Guide Rods," below.

FIGURE 4. Drive Unit Guide Rods



Sliding Back the Drive Unit

There are two release levers for the drive unit which keep it from sliding back. One is located on either side of the drive unit.

FIGURE 5. Drive Unit Release Lever

To slide the drive unit back, complete the following steps:

Step 1. Ensure the drive unit has been fully raised to the home position.

Step 2. Place both hands on the two release levers and use your index fingers to depress the release levers.

Step 3. Use your thumbs to slide the drive unit back far enough to disengage it from the latching mechanism.

Step 4. Move your hand to the handle at the front of the drive unit and slide the drive unit back until it stops.

Step 5. When in the forward position, ensure the drive unit latches into place. This guarantees it is positioned in the correct centering location for operation.

Setting Up the Water Bath and Heater / Circulator

The removable water bath connects directly to the inlet and outlet of the heater / circulator. Following are the connection procedures for the VK 7025 Dissolution Apparatus:

Step 1. Ensure the water bath is positioned under the vessel plate and rests firmly on the base plate. Secure the vessel plate to the frame with three screws. Finger-tighten the screws. overtightening the screws could damage the vessel plate.

Step 2. Locate the two tubing clamps.

Step 3. The heater / circulator has two liquid ports, one on each end. The inlet is connected to the water bath outlet and the outlet (which is located next to the power switch) is connected to the water bath inlet.

Step 4. Slip a tubing clamp over one end of the short length of tubing that is connected to the underside of the water bath. Carefully place this end of the tubing over the inlet port on the heater / circulator. Slide it on until it meets the heater / circulator.

Step 5. Slide the clamp toward the end until it is over the inlet port and secure. This ensures a leak-free connection.

Caution

Do not overtighten the tubing clamps. Damage to the plastic tubing could result.

Step 6. Slip a tubing clamp over one end of the longer length of tubing that is connected to the back of the water bath. Carefully place this end of the tubing over the outlet port on the heater / circulator. Slide it on until it meets the heater / circulator.

Step 7. Slide the clamp toward the end until it is over the outlet port and tighten with a screwdriver. This ensures a leak-free connection.

Caution

Do not overtighten the tubing clamps. Damage to the plastic tubing could result.

Step 8. Plug the supplied bath temperature probe into the jack on the rear panel of the tester labeled BATH TEMP. Place the end of the temperature probe through the small hole in the back of the vessel plate. Do not fill the water bath at this time.

Step 9. Plug one end of the six-pin DIN cable into the rear of the heater / circulator and the other end of the cable into the jack on the rear panel of the tester labeled HEATER CIRC. The heater / circulator uses the temperature measured by the bath temperature probe to control the water bath temperature.

Step 10. Ensure the power switch on the heater / circulator is in the OFF position.

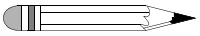
Step 11. Locate the accessory kit. Remove the power cord and plug the female end into the AC line / fuse connector on the rear panel of the heater / circulator.

Step 12. Plug the heater / circulator into an AC outlet of the proper voltage.

Filling the Water Bath

Step 1. Raise the drive unit to its home position and slide it back to allow full access to the vessels.

Step 2. If applicable, remove one of the vessels and set it aside. Fill the water bath with ultrapure water by pouring the water through the hole in the vessel plate. Fill to the level indicated by the operating water level tag located on the right side of the water bath.

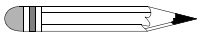


Note

If possible, preheat the water to speed achievement of the desired bath temperature. Use purified water whenever possible to minimize scale and mineral buildup. Algaecides may be used to inhibit algae and bacteria growth. Check the label to ensure the formulation is compatible with the plastic materials used in the bath construction. See "Water Bath / Acrylic Care" on page 101.

Step 3. Turn on the heater / circulator.

Step 4. Check all connections for leaks. You may notice bubbles from the water bath inlet as the air in the system is purged. After a few minutes flow into the bath should be smooth and steady.



Note

Though the heater / circulator is designed to be self-priming, it might be necessary to help the priming process in a dry unit. With the unit below the level of the water bath, lift one end and then the other for a minute or two to help air clear from the unit.

Installing and Centering the Vessels

The tester is supplied with specially designed vessels and magnetic ring flanges. The magnetic ring flanges will keep the vessels centered at all times, without the use of tools, and prevent the vessels from "floating" even when they are empty.

Step 1. Raise the drive unit to its home position and slide it back until it stops.

Step 2. Place the vessel in the hole in the vessel plate. Press down so that the vessel and magnetic ring flanges fit securely in place and are flush with the vessel plate.

Step 3. Twist the vessel slightly until the magnets in the ring flanges make contact with the magnets in the vessel plate.

Step 4. Repeat steps 2 and 3 for each vessel.

Step 5. The vessels are automatically centered and require no further adjustment.

Installing Paddle / Basket Shafts

USP guidelines require that the paddle or basket shaft be aligned with the center vertical axis of the vessel and that the bottom of each paddle or basket be 25 ± 2 mm above the bottom of the vessel. See the current USP for a complete explanation.

Installing Paddles

Note

If using paddles, it is easier to install the evaporation covers prior to installing the paddles. See "Installing Standard Evaporation Covers" on page 36 or "Installing Basket / Low-loss Evaporation Covers" on page 37 as appropriate for the type of evaporation covers included with your system.

Step 1. Raise the drive unit to its home position.

Step 2. Carefully insert a paddle into each spindle until approximately half of the shaft is above the top of the spindle.

Step 3. Place a 25 mm height sphere in each of the vessels.

Note

When using paddle over disk, insert the disk in the vessel and set the paddle height to 25 ± 2 mm over the disk.

Step 4. Press and hold **DRIVE DOWN** until the drive unit is at its lowest position.

Note

There is a safety mechanism in the bottom of the left side guide rod which keeps the drive unit from lowering improperly. If the rods do not line up precisely with the holes in the vessel plate, the mechanism engages and the drive unit stops lowering and rises to the home position. See Figure 4, "Drive Unit Guide Rods," on page 24.

Step 5. Gently press down each paddle shaft until the bottom of the paddle blade rests against the height sphere.

Step 6. Place a shaft locking ring on the top of each shaft and slide it down until it rests on the shaft collar.

Step 7. Rotate each shaft locking ring so the drive positioning teeth on both the shaft locking ring and the shaft collar rest against one another, locking the shaft in place.

Step 8. Tighten the set screws using the 7/64-inch T-handle Allen wrench provided.

Step 9. Raise the drive unit to its home position. Remove the height spheres from the vessels.

Step 10. Lower the drive unit until it stops. The paddles are set at the USP-specified height of 25 ± 2 mm above the bottom of the vessel.

Installing Basket Shafts

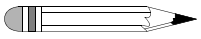
Step 1. Raise the drive unit to its home position.

Step 2. Carefully insert a basket shaft into each spindle until approximately half of the shaft is above the top of the spindle.

Step 3. Clip the basket height gauge onto a shaft.

Step 4. Press and hold **DRIVE DOWN** until the drive unit is at its lowest position.

Note



There is a safety mechanism in the bottom of the left side guide rod which keeps the drive unit from lowering improperly. If the rods do not line up precisely with the holes in the vessel plate, the mechanism engages and the drive unit stops lowering and rises to the home position. See Figure 4, "Drive Unit Guide Rods," on page 24.

Step 5. Gently press down the basket shaft until the bottom of the gauge rests against the bottom of the vessel. Be careful not to use excessive pressure or the bottom of the vessel may crack.

Step 6. Place a shaft locking ring on the top of the shaft and slide it down until it rests on the shaft collar.

Step 7. Rotate the shaft locking ring so the drive positioning teeth on both the shaft locking ring and the shaft collar rest against one another, locking the shaft in place.

Step 8. Tighten the set screw using the 7/64-inch T-handle Allen wrench provided.

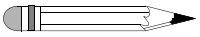
Step 9. Raise the drive unit to its home position. Remove the height gauge from the basket shaft.

Step 10. Repeat steps 3 - 9 for each of the remaining positions.

Step 11. The basket shafts are set at the appropriate height so when the baskets are installed and the drive unit lowered they are at the USP-specified height of 25 ± 2 mm above the bottom of the vessel.

Installing Rotating Cylinders

Note



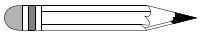
If using rotating cylinders, it is easier to install the evaporation covers prior to installing the rotating cylinders. See "Installing Standard Evaporation Covers" on page 36 or "Installing Basket / Low-loss Evaporation Covers" on page 37 as appropriate for the type of evaporation covers included with your system.

Step 1. Raise the drive unit to its home position.

Step 2. Carefully insert a rotating cylinder shaft into the spindle until approximately half of the shaft is above the top of the spindle.

Step 3. Press and hold **DRIVE DOWN** until the drive unit is at its lowest position.

Note



There is a safety mechanism in the bottom of the left side guide rod which keeps the drive unit from lowering improperly. If the rods do not line up precisely with the holes in the vessel plate, the mechanism engages and the drive unit stops lowering and rises to the home position. See Figure 4, "Drive Unit Guide Rods," on page 24.

Step 4. Using a height gauge tool (optional), gently press down the rotating cylinder shaft to set the height to the USP-specified height of 25 ± 2 mm above the bottom of the vessel.

Step 5. Place a shaft locking ring on the top of the shaft and slide it down until it rests on the shaft collar.

Step 6. Rotate the shaft locking ring so the drive positioning teeth on both the shaft locking ring and the shaft collar rest against one another, locking the shaft in place.

Step 7. Tighten the set screw using the 7/64-inch T-handle Allen wrench provided.

Step 8. Repeat steps 3 - 7 for each of the remaining positions.

Step 9. Lower the drive unit until it stops. The rotating cylinders are set at the USP-specified height of 25 ± 2 mm above the bottom of the vessel.

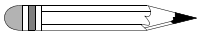
Installing the Intrinsic Dissolution Apparatus

Step 1. Raise the drive unit to its home position.

Step 2. Carefully insert an intrinsic dissolution apparatus shaft into a spindle until approximately half of the shaft is above the top of the spindle.

Step 3. Press and hold **DRIVE DOWN** until the drive unit is at its lowest position.

Note



There is a safety mechanism in the bottom of the left side guide rod which keeps the drive unit from lowering improperly. If the rods do not line up precisely with the holes in the vessel plate, the mechanism engages and the drive unit stops lowering and rises to the home position. See Figure 4, "Drive Unit Guide Rods," on page 24.

Step 4. Gently press down the shaft until the desired height is reached.

Step 5. Place a shaft locking ring on the top of the shaft and slide it down until it rests on the shaft collar.

Step 6. Rotate the shaft locking ring so the drive positioning teeth on both the shaft locking ring and the shaft collar rest against one another, locking Tighten the set screw using the 7/64-inch T-handle Allen wrench provided. The intrinsic dissolution apparatus is set at the desired height above the bottom of the vessel.

Step 7. Repeat this procedure as applicable for additional positions.

Removing the Dissolution Apparatus

To remove paddles, baskets, rotating cylinders or intrinsic dissolution apparatus, complete the following steps:

Step 1. Loosen the set screw on the shaft locking ring using the 7/64-inch T-handle Allen wrench and remove the shaft locking ring. Repeat this step for all positions.

Step 2. Raise the drive unit to its home position and gently remove the shafts taking care not to drop them into the vessels.

Centering Verification

To verify the centering of the paddle / basket shafts, complete the following steps:

Step 1. Locate the centering verification gauge and the EaseAlign centering ring.

FIGURE 6. Centering Verification Gauge

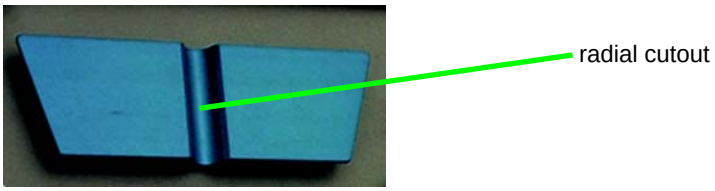


FIGURE 7. EaseAlign Centering Ring

Step 2. Place the EaseAlign centering ring on the first vessel (see Figure 7, "EaseAlign Centering Ring," above).

Step 3. Place the centering verification gauge against the shaft with the shaft resting in the radial cutout (see Figure 6, "Centering Verification Gauge," above).

Step 4. Slide the centering verification gauge down the shaft until the tapered ends rest in two opposing slots of the EaseAlign centering ring.

Step 5. Rotate the centering verification gauge 90 degrees and slide the gauge down the shaft until the tapered ends rest in the other two opposing slots of the EaseAlign centering ring. The shaft should remain within the confines of the radial cutout of the gauge at both settings.

Step 6. Repeat steps 2 - 5 for the remaining vessel positions.

Installing Cannula Assemblies

Step 1. Ensure the sampling and return lines are connected to the sampling and return cannulas of each cannula assembly according to the following order: red (1), white (2), blue (3), purple (4), yellow (5), clear (6), green (7), and brown (8).

Step 2. Install the cannula assemblies in the appropriate opening in the top cover according to the order listed in step 1. Use the alignment pin and coordinating notch to guide each assembly through the opening in the top cover.

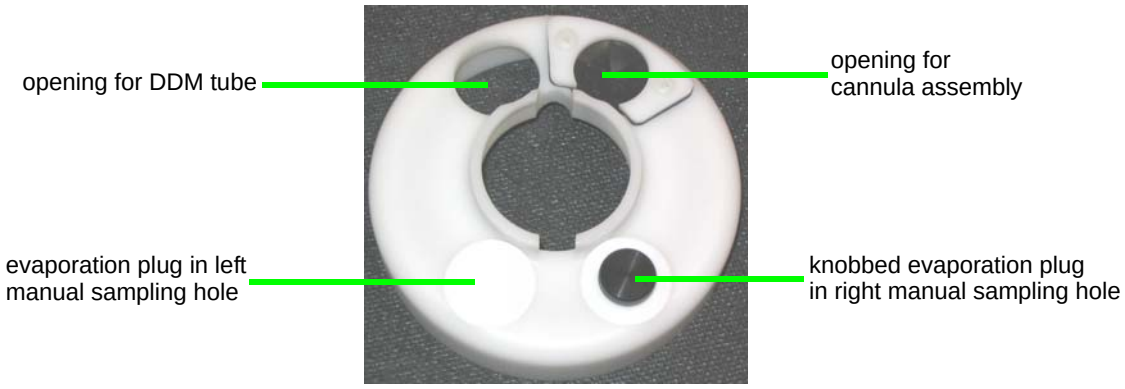
Step 3. Complete "Cannula Height Calibration" on page 50 to perform the electronic adjustment.

Installing Standard Evaporation Covers

To place the evaporation covers onto the spindles, complete the following steps:

Step 1. For vessel position 1, place the knobbed evaporation plug in the left manual sampling hole and the evaporation plug in the right manual sampling hole (see Figure 8, "Standard Evaporation Cover," below).

FIGURE 8. Standard Evaporation Cover



Step 2. Align the appropriate openings in the evaporation cover with the plastic DDM tube extending from the bottom of the drive unit and the cannula assembly.

Step 3. Apply gentle upward pressure until the top of the evaporation cover slides over the O-ring on the spindle housing. The evaporation cover floats in place.

Step 4. Repeat steps 1 - 3 for vessel positions 2 and 3.

Step 5. For vessel position 4, place the knobbed evaporation plug in the right manual sampling hole and the evaporation plug in the left manual sampling hole (see Figure 8, "Standard Evaporation Cover," above).

Step 6. Repeat steps 2, 3, and 5 for the remaining vessel positions.

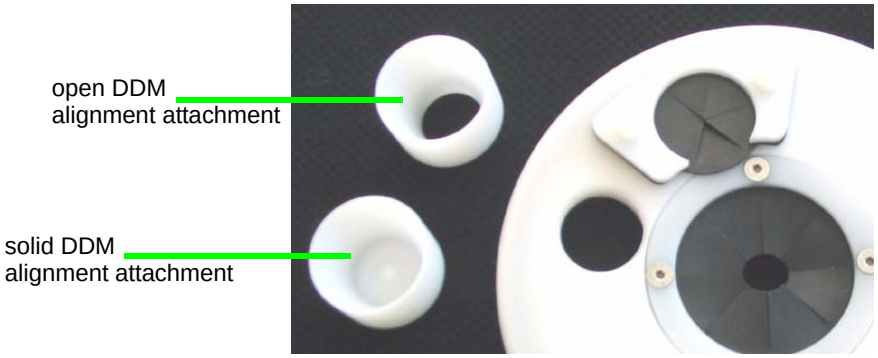
Installing Basket / Low-loss Evaporation Covers

The evaporation cover for low loss or baskets comes with two DDM alignment attachments. Both attachments aid the alignment of the evaporation cover on the vessel. The open alignment attachment allows use of the DDM. The solid alignment attachment reduces evaporation and blocks use of the DDM.

If using the optional evaporation cover for use with baskets or for low loss, complete the following steps:

Step 1. Determine which DDM alignment attachment is appropriate for your system and screw the attachment into the opening in the evaporation cover (see Figure 9, "Evaporation Cover for Low Loss or Baskets," below).

FIGURE 9. Evaporation Cover for Low Loss or Baskets



Step 2. If using paddles or rotating cylinders, remove the apparatus from vessel position 1. Feed the shaft through the center hole of the evaporation cover and replace the apparatus following the instructions under "Installing Paddles" on page 29 or "Installing Rotating Cylinders" on page 31, as appropriate. Repeat for each vessel position.

If using baskets, place an evaporation cover on the vessel at each vessel position. Visually align the DDM tube with the DDM alignment attachment and the cannula assembly with the opening in the evaporation cover.

Step 3. When lowering the drive unit to run the method, stop the downward movement two inches above the vessel plate. Align the evaporation cover with the cannula assembly and the DDM tube at each vessel position. Lower the drive unit completely. The DDM tube should rest within the DDM alignment attachment.

Setting the Manual Sampling Cannula

To sample manually from positions 7 and 8, it is necessary to set the manual sampling cannulas to the correct length.

For positions 7 and 8, complete the following steps:

Step 1. From the System Setup Menu 1 screen, select DIAGNOSTICS. The Diagnostic Menu screen displays.

Step 2. Select DDM TEST.

Step 3. Position a DDM manual override adapter over the DDM at position 7. *Do not* press down on the adapter.

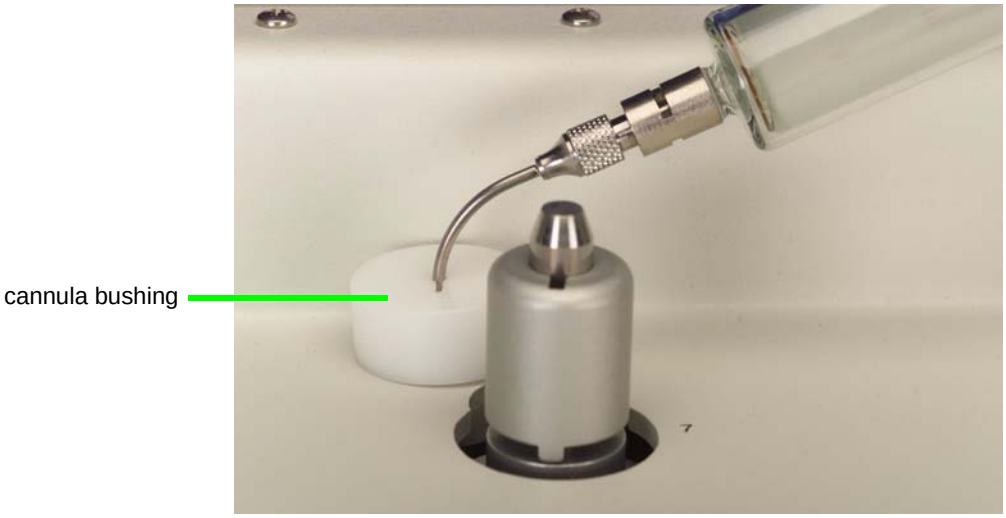
Step 4. Select the corresponding location on the screen and the appropriate DDM opens. Gentle downward pressure slides the adapter into place. The adapter prevents the DDM from closing.

Step 5. Press **ESC** twice to return to the System Setup Menu 1 screen.

Step 6. Attach the cannula (part number 17-3315) to the syringe.

Step 7. Place the manual sampling cannula through the DDM manual override adapter and into the vessel (see Figure 10, "Manual Sampling through the Top Cover," on page 39).

FIGURE 10. Manual Sampling through the Top Cover



Step 8. Loosen the hex screw on the cannula bushing and slide the bushing up or down the cannula until it is positioned for the correct USP-specified sampling location.

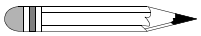
Step 9. If sampling from a 500 mL volume, remove the bushing.

Step 10. When positioned correctly, tighten the hex screw.

Step 11. Remove the manual sampling cannula and set aside for use during the test.

Step 12. Gently remove the DDM manual override adapter.

Programming Administrative Control



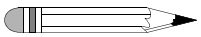
Note

For initial setup, the preprogrammed user identification is 9 and the preprogrammed password is 9. It is recommended that you immediately change the user identification and password for Administrative control of the VK 7020 / 7020 S / 7025 Dissolution Apparatus once your unit is operational.

Security Levels

ADMINISTRATOR	Allows access to all functions.
SUPERVISOR	Allows method editor privileges. Does not allow access to the System Setup Menu 1 screen which includes administration and calibration functions.
OPERATE ONLY	Allows access to user functions. Does not allow access to the System Setup Menu 1 screen which includes administration and calibration functions. Does not allow method editor privileges.

Up to 24 user identifications and passwords can be stored on the VK 7020 / 7020 S / 7025. User identifications are alphabetic and / or numeric combinations no longer than nine characters in length. Passwords are numeric and no longer than eight characters in length.



Note

If you erase or forget all system administrator passwords, contact the Dissolution Systems Service Department.

Setting Up the User List

For initial set up of user identifications and passwords, the preprogrammed user identification is 9 and the preprogrammed password is 9. It is recommended that you immediately change the user identification and password for Administrative control of the VK 7025 Dissolution Apparatus once your unit is installed.

To set up the user list, complete the following steps:

Step 1. Ensure the dissolution apparatus is turned on.

Step 2. If directed, press **DRIVE UP** to initialize the dissolution apparatus. The drive unit moves to the home position and the Login screen displays.

Step 3. Enter the user identification (Login ID) and press **ENTER**.

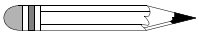
Step 4. Enter the password and press **ENTER**. The System Setup Menu 1 screen displays.

Step 5. Select ADMINISTRATION. The Administration screen displays.

Step 6. Select ADD USER. The Enter User ID and Password screen displays.

Step 7. Enter the new user identification and press **ENTER**.

Note



To display a letter, hold down the number key until the appropriate letter displays, then release the key. For example, to display the letter C, press and hold 2. As you hold the number key, the 2 displays and is replaced by an A, then a B and finally a C. If you continue to hold the 2, these characters continue to scroll until you release the number key.

Step 8. Enter the new user password and press **ENTER**.

Step 9. Confirm the new password and press **ENTER**.

Step 10. Determine the security level for the new user by selecting ADMINISTRATOR, SUPERVISOR, or OPERATE ONLY. The Administration screen displays.

Step 11. Repeat steps 6 - 10 until all users' identifications, passwords, and security levels have been entered.

Step 12. Delete the preprogrammed user identification and password that came with your dissolution apparatus (see "Deleting Preset User Definitions" below).

Deleting Preset User Definitions

It is recommended that you immediately change the user identification and password for Administrative control of the VK 7025 Dissolution Apparatus once your unit is installed.

Step 1. After entering the user identifications, passwords, and security levels, select LIST / DELETE USERS. The List and Delete Users screen displays.

Step 2. Select the preset user identification and password by selecting NEXT until the cursor flashes over the number of the appropriate user identification.

Step 3. Select DELETE.

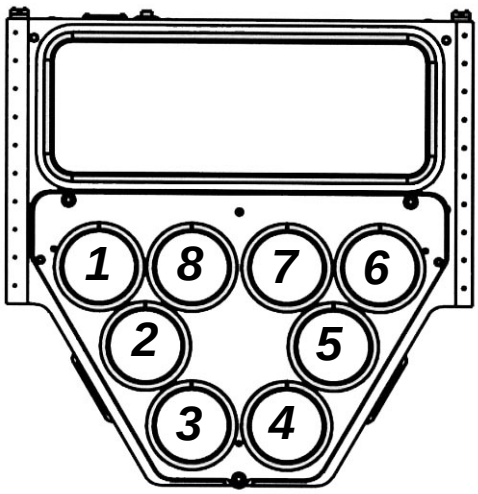
Step 4. Select YES to confirm deletion. The List and Delete Users screen displays.

Step 5. Press **ESC** to return to the Administration screen.

Vessel Plate Layout

The vessels on the VK 7025 are numbered counterclockwise beginning with the back left corner.

FIGURE 11. Vessel Plate Layout



This page was intentionally left blank, except for this message.

Chapter 4 Administrator Operation

If your security level is “supervisor” or “operate only,” continue to Chapter 5, “Operation,” on page 59.

User Settings

To add, list, or delete users, see “Programming Administrative Control” on page 40.

After adding the user identifications, passwords, and security, press **ESC** to return to the System Setup Menu 1 screen.

Following is a description of the System Setup Menu 1 screen options:

Option	Response
Main Menu	All operation functions begin at the Main Menu. See "Main Menu" on page 59.
Administration	Select ADMINISTRATION to add, list or delete users, set edit method authority and set up security override. See "Administration" on page 47.
Calibration	Select CALIBRATION in order to set the calibration information, and if applicable, the cannula height, the bath vessel difference and the alternate start drive position. See "Calibration" on page 48.
Alarms	Select ALARMS to enter the preventative maintenance (PM) expiration date and the bath temperature limit and to view the calibration calendar menu. See "Alarms" on page 52.
Diagnostics	This option is for diagnostic purposes and if applicable, independent operation of the DDMs, cannulas and clutches. See "Diagnostics" on page 54.
Temp Display	Select TEMP DISPLAY to toggle between ENABLED and DISABLED. If temp display is enabled, the vessel temperatures / cannula positions display at the bottom of the system monitor screen. If temp display is disabled, the vessel temperatures / cannula positions do not display. This option is applicable only if AutoTemp is installed.
Paddle Spin	Select PADDLE SPIN to toggle between ENABLED and DISABLED. If paddle spin is disabled, the paddles do not spin prior to the start of the test. ***Note: if an initial temperature is taken in the method, the paddles spin regardless of whether paddle spin is enabled or disabled.*** If paddle spin is enabled, the paddles spin prior to the start of the test which allows the vessel temperature to equilibrate. This removes the possibility of a temperature gradient—allowing for a more accurate vessel temperature reading.
Menu 2	Select MENU 2 to access menus for the setting the clock and communication port functions; entering serial numbers, the number of vessels, and the tester identification number; enabling or disabling all position spin; and to set a delay between the initial temperature measurement and the opening of the DDMs. See "Menu 2" on page 55.

Administration

From the System Setup Menu 1 screen, select ADMINISTRATION. The Administration screen displays.

Following is a description of the Administration screen options:

Option	Response
Add User	Select ADD USER to enter user identifications and passwords. See "Setting Up the User List" on page 41 for instructions on adding a user.
List / Delete Users	Select LIST / DELETE USERS to list and delete user identifications and passwords. See "Deleting Preset User Definitions" on page 42 for instructions on deleting user identifications and passwords.
Edit Method Authority	Select EDIT METHOD AUTHORITY to toggle between ALL USERS and ADMINISTRATOR. This function grants method editor privileges to the administrator and supervisor or all users. Select ALL USERS to override the limited access levels for *OPERATE ONLY*.
Security Override	Select SECURITY OVERRIDE to toggle between ENABLED and DISABLED. If security override is enabled: • when the machine is turned on, the System Setup Menu 1 screen displays without requiring you to log in. • you cannot log out. If security override is disabled, when the machine is turned on, the Login screen displays and you must log in.
Last User	The user identification of the last user and the date and time of last login displays on the screen.

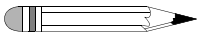
Calibration

From the System Setup Menu 1 screen, select CALIBRATION. Spindle hours are displayed under the screen title. The Calibration Menu screen displays.

Following is a description of the Calibration Menu screen options:

Option	Response
Bath Vessel Diff.	Enter the difference between the water bath temperature and the vessel temperature. See "Bath Vessel Difference" below.
Set Alternate Start Drive Position	When performing a staggered start under manual operation with Apparatus 1, you must set the drive unit to an alternate start position. See "Setting an Alternate Drive Unit Position" on page 49.
Cannula Height Calibration	This option displays only if AutoTemp and / or sampling cannulas are installed. To set the sampling position for the cannulas, see "Cannula Height Calibration" on page 50.

Bath Vessel Difference



Note

For this option, if you enter a value outside of the acceptable range, an error message displays indicating appropriate values.

To set the bath vessel difference, complete the following steps:

Step 1. From the System Setup Menu 1 screen, select CALIBRATION. The Calibration Menu screen displays.

Step 2. From the Calibration Menu screen, select BATH VESSEL DIFF.

Step 3. Enter the observed difference in the temperature between the water bath temperature and the vessel temperature. The acceptable range is 0.0 to 10.0 °C. Press **CLEAR** to delete the entry or press **ENTER** to continue. The Calibration Menu screen displays with the new bath vessel difference value.

Note

This value is automatically set when a vessel temperature start is performed. See "Vessel Temp Start" on page 83.

When all appropriate parameters on the Calibration Menu screen have been entered, press **ESC** to return to the System Setup Menu 1 screen.

Setting an Alternate Drive Unit Position

When performing a staggered start and sampling manually with Apparatus 1, you must set an alternate drive unit start position.

Note

Ensure the basket assemblies are installed and the standard evaporation covers are removed prior to beginning this procedure.

To set the height to an alternate position, complete the following steps:

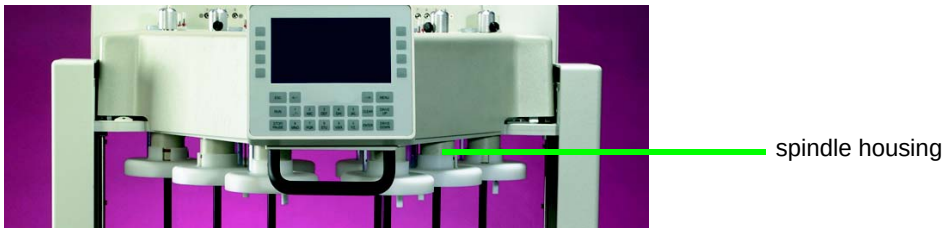
Step 1. From the System Setup Menu 1 screen, select CALIBRATION. The Calibration Menu screen displays.

Step 2. Raise the drive unit to its home position.

Step 3. If applicable, remove the cannula assembly.

Step 4. Raise the basket shafts so the basket shaft heads rest against the spindle housings (see Figure 12, "Spindle Housing," on page 50).

FIGURE 12. Spindle Housing



Step 5. Ensure the optional basket evaporation covers are in place.

Step 6. Lower the drive unit to position the baskets just above the evaporation covers.

Step 7. Select SET ALTERNATE START DRIVE POSITION to set the height. The drive unit automatically lowers to this position when a staggered start test is started with Apparatus 1 while under manual operation.

Step 8. With the drive unit in this position, reset the basket height to the USP-specified 25 ± 2 mm above the bottom of the vessel.

When all appropriate parameters on the Calibration Menu screen have been entered, press **ESC** to return to the System Setup Menu 1 screen.

Cannula Height Calibration

Note

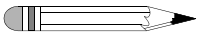
This section does not apply if you are manually sampling or using staggered baskets or paddles.

If it is necessary to adjust the factory-set sampling heights for the cannulas, complete the following steps:

Step 1. Ensure the drive unit is in its lowest position.

Step 2. From the Calibration Menu screen, select CANNULA HEIGHT CALIBRATION. The Set Sampling Depth screen displays with factory-set values for each apparatus.

SET SAMPLING DEPTH	
BASKET 900 mL 200	MOVE UP
BASKET 500 mL 400	MOVE DOWN
PADDLE 900 mL 200	
PADDLE 500 mL 400	MENU 2
CANNULA POSITION = 0	



Note

The factory-set number displayed under each option is not a distance measurement. It refers to the number of steps the cannula motor moves.

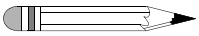
Step 3. If you are using paddle over disk or rotating cylinder, select MENU 2 to view these apparatus.

Step 4. To ensure the cannulas are in their home position, select MOVE DOWN to move the cannulas to their lowest position, then select MOVE UP to move the cannulas to their highest position.

Step 5. Select MOVE UP or MOVE DOWN to position the cannulas at the appropriate height in the vessels.

Step 6. When the cannulas are in the correct position, select the appropriate apparatus and volume. The number of steps the cannula motor moved to reach that position displays under the selected apparatus and volume.

Note



For volumes between 500 mL and 900 mL, the appropriate cannula height is interpolated from the 500 mL and 900 mL settings. For volumes greater than 900 mL, the appropriate cannula height is extrapolated from the 500 mL and 900 mL settings.

Step 7. Press **ESC**. The cannulas return to the home position and the Calibration Menu screen displays.

When all appropriate parameters on the Calibration Menu screen have been entered, press **ESC** to return to the System Setup Menu 1 screen.

Alarms

From the System Setup Menu 1 screen, select ALARMS. The Setup Alarms screen displays the basket and paddle expirations dates and the following options:

Option	Response
PM Expiration Date	Use this option to set the preventative maintenance alarm. Select PM EXPIRATION DATE. The cursor flashes. Enter the date in the appropriate format and press **ENTER**. The date displays.
USP Cal Menu	Use this option to enter calibration and expiration dates. See "Calibration Calendar" on page 53.
Bath Temp. Limit	Use this option to set an alarm to sound if the water bath temperature exceeds the set limit. Select BATH TEMP. LIMIT. The cursor flashes. Enter the limit and press **ENTER**. The bath temperature limit displays on the screen. Entering a value of 0.0 disables the alarm.

Calibration Calendar

From the Setup Alarms screen, select USP CAL MENU. The Calibration Calendar screen displays.

Following is a description of the Calibration Calendar screen options:

Option	Response
Basket Calibration Date	Enter the date the calibration was performed in the appropriate format and press **ENTER**.
Paddle Calibration Date	Enter the date the calibration was performed in the appropriate format and press **ENTER**.
Basket Expiration Date	Enter the calibration expiration date in the appropriate format and press **ENTER**.
Paddle Expiration Date	Enter the calibration expiration date in the appropriate format and press **ENTER**.

An alarm sounds when an entered date is reached. ALARM BASKET CAL DUE, ALARM PADDLE CAL DUE, or ALARM PM DUE displays. Press **CLEAR** to silence the alarm.

Press **ESC** to return to the Setup Alarms screen. When all appropriate parameters on the Setup Alarms screen have been entered, press **ESC** to return to the System Setup Menu 1 screen.

Diagnostics

To check the operation of applicable options for your instrument, select DIAGNOSTICS from the System Setup Menu 1 screen. The Diagnostic Menu screen displays.

Following is a description of the Diagnostic Menu screen options:

Option	Response
DDM Test (if installed)	Select DDM TEST. Select each location and verify the corresponding DDM opens and closes. Press **ESC** to return to the Diagnostic Menu screen.
Cannula Test (if installed)	Select CANNULA TEST. Select a location and verify the corresponding cannula moves down. UP changes to DOWN. Select the location again and verify the corresponding cannula moves up. Repeat for all cannula positions. Press **ESC** to return to the Diagnostic Menu screen.
Shaft Brake & Clutch Test (if installed)	Select SHAFT BRAKE & CLUTCH TEST. Select a location and verify the clutch activates. OFF changes to ON. Select the location again and verify the brake activates. Repeat for all shaft positions. Press **ESC** to return to the Diagnostic Menu screen.
Read Bath & Heater Temp	Select READ BATH & HEATER TEMP. The Bath and Heater Temp screen displays with the bath and heater temperatures. This is the only screen where the heater temperature displays. Press **ESC** to return to the Diagnostic Menu screen.

Communications Bus Diagnostic, Lift Board Input Test, and Input & Output Tests also display, but these options are for qualified service personnel only. If you have any questions about the operation of your VK 7025, see Chapter 8, "Service and Warranty," on page 117 or contact the Dissolution Systems Service Department.

Menu 2

From the System Setup Menu 1 screen, select MENU 2. The System Setup Menu 2 screen displays.

Following is a description of the System Setup Menu 2 screen options:

Option	**Response**
Clock	Select CLOCK to set the date, time, and date format. See "Setting the Clock" on page 56.
Comm. Port Functions	Select COMM. PORT FUNCTIONS to set the baud rate, communication port, and external control. The Comm. Functions screen displays. See "Setting Communication Port Functions" on page 56.
Serial Numbers	Select SERIAL NUMBERS to enter the serial numbers of equipment being used. See "Setting Serial Numbers" on page 57.
Vessels	Select VESSELS to select the number of vessels being used. ***Note: it is imperative to set the correct number of vessels being used or the instrument will not function properly.***
All Position Spin	Select ALL POSITION SPIN to toggle between ENABLED and DISABLED. When disabled, the paddles or baskets rotate only when the drive unit is at the correct operating height. When enabled, the paddles or baskets rotate when the drive unit is at any height.
Tester ID	Select TESTER ID to enter an identification number for the dissolution apparatus. This number appears with the dissolution apparatus serial number on the printout.
Dly After Ini Tmp	Select DLY AFTER INI TMP to enter a delay duration between the measuring of the initial temperature and the DDMs opening.

Setting the Clock

From the System Setup Menu 2 screen, select CLOCK. The Clock Functions screen displays.

Following is a description of the Clock Functions screen options:

Option	Response
Set Date	Select SET DATE. The cursor flashes. Enter the correct date and press **ENTER**. The correct date displays.
Set Time	Select SET TIME. The cursor flashes. Enter the correct time in 24-hour format and press **ENTER**. The correct time displays.
Date Format	Select DATE FORMAT to toggle between MM/DD/YYYY and DD/MM/YYYY.

Press **ESC** to return to the System Setup Menu 2 screen.

Setting Communication Port Functions

From the System Setup Menu 2 screen, select COMM. PORT FUNCTIONS. The Comm. Functions screen displays.

Following is a description of the Comm. Functions screen options:

Option	Response
External Control	Select EXTERNAL CONTROL to toggle between DISABLED and ENABLED. If external control is enabled, a VK 8000 or Total Solution software can control the VK 7025. To use external control, you must log off the dissolution apparatus.

Option	Response
Baud Rate	Select BAUD RATE to toggle between 2400, 4800, 9600, 19200, 28800, and 38400. The baud rate must be set to 9600 when connected to a VK 8000 or Total Solution system.
Comm. ID	Select COMM. ID. The cursor flashes. Enter the correct communications port identification number in xx format and press **ENTER**. The correct communications port identification number displays. The communications port identification number must be 01 when connected to a VK 8000 or single Total Solution system. ***Note: a leading zero is necessary when entering a communications port identification number between 01 and 09.***

Press **ESC** to return to the System Setup Menu 2 screen.

Setting Serial Numbers

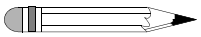
To enter the serial numbers of your accessories, complete the following steps:

Step 1. Select SERIAL NUMBERS from the System Setup Menu 2 screen. The Enter Serial Numbers screen displays.

Step 2. Select VESSEL, PADDLE, BASKET / SHAFT, or ROTATING CYLINDER. The corresponding serial number screen displays with numbers 1 through 8 listed down the left side of the screen. If BASKET / SHAFT is selected, two columns display. The left column is for basket serial numbers and the right column is for shaft serial numbers.

Step 3. Enter the serial numbers for the vessel, paddle, basket and shaft, or rotating cylinder for each of the corresponding spindle locations. See "Vessel Plate Layout" on page 43.

Note



To display a letter, hold down the number key until the appropriate letter displays, then release the key. For example, to display the letter C, press and hold 2. As you hold the number key, the 2 displays and is replaced by an A, then a B, and finally a C. If you continue to hold the 2, these characters continue to scroll until you release the number key.

To delete an entry, select PREVIOUS or NEXT to place the cursor on the appropriate line. Press ENTER.

Step 4. Press **ENTER** to accept an entry and move to the following line until all the serial numbers have been entered. When entering basket and shaft serial numbers, the cursor moves from basket location 1 to shaft location 1 and then to basket location 2 followed by shaft location 2 and so on.

Step 5. Press **ESC** to return to the Enter Serial Numbers screen.

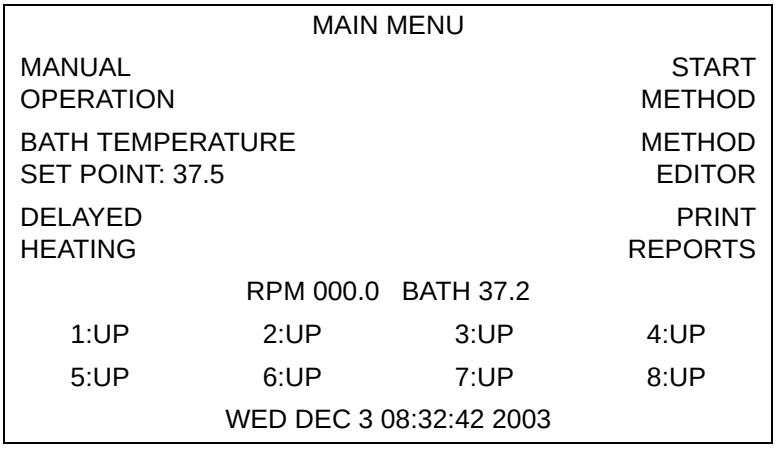
Step 6. Repeat steps 2 - 5 to enter serial numbers for the remaining appropriate accessories. Press **ESC** to return to the System Setup Menu 2 screen.

When all appropriate parameters on the System Setup Menu 2 screen have been entered, press **ESC** to return to the System Setup Menu 1 screen.

Chapter 5 Operation

Main Menu

From the System Setup Menu 1 screen, select Main Menu. The Main Menu displays.



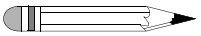
Following is a description of the Main Menu options:

Option	Response
Manual Operation	Select MANUAL OPERATION to set parameters for manual operation. See "Manual Operation" below.
Bath Temperature Set Point	Select BATH TEMPERATURE SET POINT. The cursor flashes. Enter the desired bath temperature and press **ENTER**. ***Note: use this option to heat the bath independent of running a program or performing manual operation.***
Delayed Heating	Select DELAYED HEATING to enter date, time and temperature for heating to begin. See "Setting Delayed Heating" on page 72.
Start Method	Select START METHOD to select the method to run, print the method parameters, enter information about the product being tested or start the test. See "Start Method" on page 73.
Method Editor	Select METHOD EDITOR to display options to create / modify, copy or store a method. See "Method Editor" on page 84.
Print Reports	Select PRINT REPORTS to print the current method parameters, serial numbers or the results from the preceding method, set print frequency and turn on or off the printer. See "Print Reports" on page 90.

Manual Operation

From the Main Menu, select MANUAL OPERATION. The Manual Operation screen displays.

Following is a description of the Manual Operation screen options:



Note

For the following options, if you enter a value outside the acceptable range, an error message displays indicating appropriate values.

Option	Response
RPM Set	If a speed setting has previously been entered, the setting displays next to RPM SET. To change the setting, select RPM SET. The cursor flashes. Enter the desired speed in xx format. The acceptable range is 10 to 250 RPM. Press ← or **CLEAR** to clear unwanted or incorrect entries. Press **ENTER** to accept the speed setting.
Bath Temperature Set Point	If a temperature setting has previously been entered, the setting displays next to BATH TEMPERATURE SET POINT. To change the setting, select BATH TEMPERATURE SET POINT. The cursor flashes. Enter the desired temperature in xx.x format. The acceptable range is 20.0 to 55.0 °C. Press ← or **CLEAR** to clear unwanted or incorrect entries. Press **ENTER** to accept the temperature setting.
Volume	If a volume setting has previously been entered, the setting displays below VOLUME. To change the setting, select VOLUME. The cursor flashes. Enter the media volume in xxxx format. The acceptable range is 500 to 1050. Press ← or **CLEAR** to clear unwanted or incorrect entries. Press **ENTER** to accept the volume setting.
Apparatus	If an apparatus setting has previously been entered, the setting displays below APPARATUS. To change the apparatus selection, select APPARATUS. The Select Apparatus screen displays. The options listed include: Baskets, Paddles, Paddle Over Disk, and Rotating Cylinder. Select the apparatus being used. The Manual Operation screen displays and the newly selected apparatus is listed below APPARATUS.

Option	Response
Sample Point Alarm	The sample point alarm allows the user to set an alarm to sound at some time interval prior to the sample point. By default, the sample point alarm is disabled. See "Setting Sample Points and Alarms" below.
Use Alternate / Standard Start Height	Select ALTERNATE / STANDARD START HEIGHT to toggle between the two options. This selection is necessary only when using Apparatus 1 (baskets). See "Setting an Alternate Drive Unit Position" on page 49.
Manual Sample	See "Manual Sampling of Temperature" on page 63.

Setting Sample Points and Alarms

To enable the alarm, complete the following steps:

Step 1. Select SAMPLE POINT ALARM. DISABLED changes to ENABLED and TIME MM:SS displays.

Step 2. Enter the time and press **ENTER**. SAMPLE POINTS displays. Press ← to clear unwanted or incorrect entries.

Step 3. Select SAMPLE POINTS. The Sample Points screen displays.

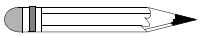
Step 4. Enter up to 24 timepoints in hhh:mm:ss format and press **ENTER** to move to the next timepoint location. The maximum acceptable value is 999:59:59. Press ← to clear unwanted or incorrect entries.

Note

Set the sample timepoints far enough apart to allow for the operation of the DDMs and cannulas (at least three minutes). If there is not enough time between sample timepoints, the sample timepoint clock counts negative time.

Step 5. Select PREVIOUS and NEXT to scroll up and down the timepoints. Press **CLEAR** to delete unwanted timepoints.

Step 6. After all sample timepoints have been entered, press **ESC** to return to the Manual Operation screen.



Note

Press CLEAR to silence the alarm.

Manual Sampling of Temperature

From the Manual Operation screen, select MANUAL SAMPLE. The Manual Sampling screen displays.

	MANUAL SAMPLING		
UP	SELECT ALL		DOWN
UP	INDIVIDUAL PROBE		DOWN
SELECT POSITION = 1			
	VESSEL TEMPS		
1:UP	2:UP	3:UP	4:UP
5:UP	6:UP	7:UP	8:UP

The vessel temperatures / cannula positions display only if temp display is enabled (see "Temp Display" on page 46).

To check the temperature in all vessels, select DOWN corresponding to SELECT ALL. The cannulas lower and the temperature readings display next to all vessel position numbers at the bottom of the screen. Wait one minute for the readings to stabilize. To raise all probes, select UP corresponding to SELECT ALL.

To check the temperature in a specific vessel location, enter the vessel position number and select DOWN corresponding to INDIVIDUAL PROBE. The temperature reading displays next to the appropriate vessel position number. Wait one minute for the reading to stabilize. To raise the individual probe, select UP corresponding to INDIVIDUAL PROBE.

Press **ESC** to return to the Manual Operation screen.

Starting a Test

Before starting the test, complete the following steps to set the DDM manual override adapters in place at vessel positions 7 and 8:

Step 1. From the System Setup Menu 1 screen, select DIAGNOSTICS. The Diagnostic Menu screen displays.

Step 2. Select DDM TEST.

Step 3. Position a DDM manual override adapter over the DDM at vessel position 7. *Do not* press down on the adapter.

Step 4. Select the corresponding location and the appropriate DDM opens. Gentle downward pressure slides the adapter into place. The adapter prevents the DDM from closing.

Step 5. Repeat steps 3 and 4 for vessel position 8.

Step 6. Press **ESC** until the Main Menu displays.

Step 7. Select MANUAL OPERATION. The Manual Operation screen displays.

When all parameters listed on the Manual Operation screen have been entered and the DDM manual override adapters are in place for vessel positions 7 and 8, complete the steps listed under the appropriate apparatus on the following pages to start the test immediately.

Apparatus	**Procedures**
Paddles	See "Paddles" on page 65.
Baskets	See "Baskets" on page 67.
Paddle over disk	See "Paddle Over Disk" on page 69.
Rotating cylinder	See "Rotating Cylinder" on page 70.

Paddles

Note

If performing a staggered drop, remove the cannula assemblies, if applicable, to prevent the raised paddles from damaging them.

Before starting the test, ensure the paddle spin is enabled or disabled depending on your configuration (see "Paddle Spin" on page 46).

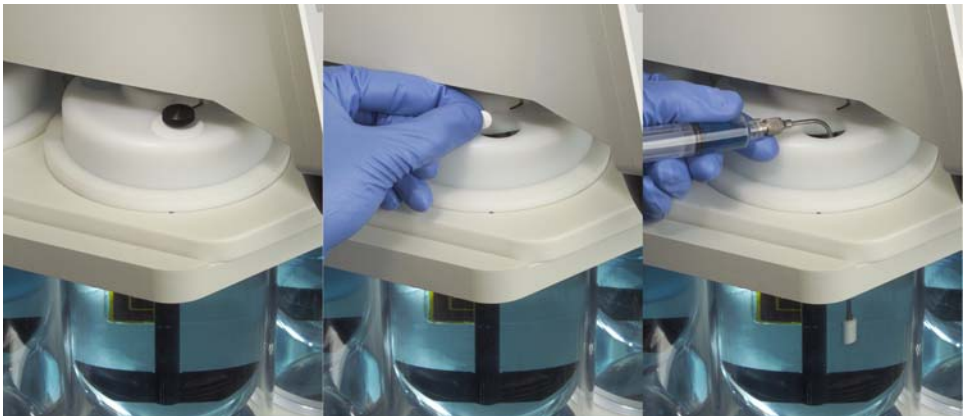
Step 1. Press **RUN**. If paddle spin is disabled, METHOD STARTUP STATUS / MANUAL TABLET DROP / PRESS RUN TO CONTINUE displays. If paddle spin is enabled, METHOD STARTUP STATUS / MANUAL TABLET DROP / PRESS STOP TO STOP PADDLES / PRESS RUN TO CONTINUE displays.

Step 2. If paddle spin is enabled, press **STOP**. If paddle spin is disabled, skip this step and continue to step 3.

Step 3. Pull up the shaft locking ring to lift each paddle out of the medium.

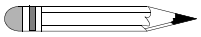
Step 4. Remove the knobbed evaporation plug on the outside of the evaporation cover at vessel position 1, drop the dosage unit and replace the knobbed evaporation plug. See Figure 13, "Standard Evaporation Cover, Dropping Dosage Unit and Sampling," below.

FIGURE 13. Standard Evaporation Cover, Dropping Dosage Unit and Sampling



Step 5. Push down the paddle shaft at vessel position 1.

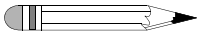
Step 6. Press **RUN**. The Method Status screen displays and the paddles rotate.



Note

To quit the test from the Method Status screen, press ESC and select EXIT. The Manual Operation screen displays.

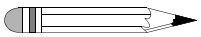
Step 7. At the desired time intervals, manually drop a dosage unit into each additional vessel and push down the corresponding paddle shaft.



Note

For vessel positions 2 - 6, remove the knobbed evaporation plug on the outside of each evaporation cover, drop the dosage unit, and replace the knobbed evaporation plug (see Figure 13, "Standard Evaporation Cover, Dropping Dosage Unit and Sampling," on page 65). For vessel positions 7 and 8, drop a dosage unit into each vessel through the corresponding DDM tube.

Step 8. Continue the dissolution test according to the prescribed method. At the desired time interval, pull samples from each vessel. Two minutes after the final keystroke, the Test in Progress screen displays.



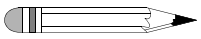
Note

For vessel positions 1 - 6, remove the knobbed evaporation plug, pull the sample, and replace the knobbed evaporation plug (see Figure 13, "Standard Evaporation Cover, Dropping Dosage Unit and Sampling," on page 65). For vessel positions 7 and 8, place the long cannula (part number 17-3315) into the vessel through the opening in the DDM. See "Setting the Manual Sampling Cannula" on page 38.

To quit the test from the Test in Progress screen, press ESC once to return to the Method Status screen and a second time to quit the test.

Baskets

Note



On the Manual Operation screen, USE STANDARD START HEIGHT displays. To use this setting, continue with the directions indicated below. To switch to the alternate height setting, select USE STANDARD START HEIGHT. USE ALTERNATE START HEIGHT displays. Ensure the alternate drive position is set (see "Setting an Alternate Drive Unit Position" on page 49).

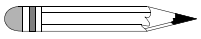
Step 1. Press **RUN**. RAISE DRIVE TO INSTALL BASKETS / PRESS RUN TO MOVE / DRIVE TO STANDARD (ALTERNATE) / START POSITION displays.

Step 2. Press **DRIVE UP** to raise the drive unit to the home position.

Step 3. Install the baskets containing the dosage units.

Step 4. Press **RUN**. If using the standard start height, LOWERING DRIVE displays and the drive unit lowers to the operating position. If using the alternate start height, MOVING DRIVE INTO POSITION displays. The drive unit lowers to the previously entered alternate start position.

Note

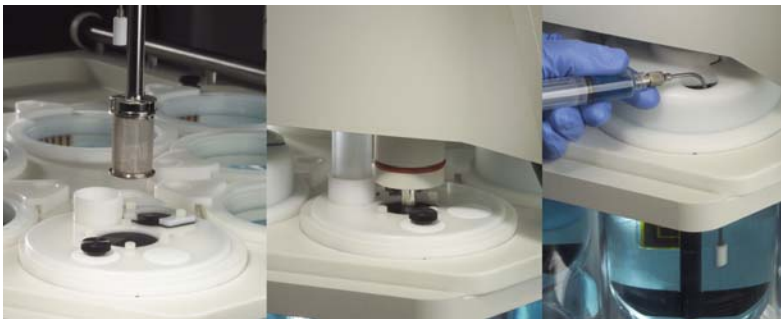


If using the standard start height and low-loss evaporation covers, press STOP to stop the drive unit approximately two inches above the vessel plate.

Align the evaporation cover with the cannula assembly and the DDM tube at each vessel position.

Press DRIVE DOWN to lower the drive unit to the operating position. The Method Status screen displays.

FIGURE 14. Basket / Low-loss Evaporation Cover, Positioning and Sampling



Step 5. The Method Status screen displays and the baskets rotate.

Note

To quit the test from the Method Status screen, press ESC and select EXIT. The Manual Operation screen displays.

Step 6. If using an alternate start height, manually press the basket shafts down so the baskets are lowered into the vessel at the desired time intervals.

Step 7. Continue the dissolution test according to the prescribed method. At the desired time interval, pull samples from each vessel. Two minutes after the final keystroke, the Test in Progress screen displays.

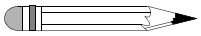
Note

For vessel positions 1 - 6, remove the knobbed evaporation plug, pull the sample, and replace the knobbed evaporation plug (see Figure 14, "Basket / Low-loss Evaporation Cover, Positioning and Sampling," above). For vessel positions 7 and 8, place the long cannula (part number 17-3315) into the vessel through the opening in the DDM. See "Setting the Manual Sampling Cannula" on page 38.

To quit the test from the Test in Progress screen, press ESC once to return to the Method Status screen and a second time to quit the test.

Paddle Over Disk

Note



If performing a staggered drop, remove the cannula assemblies, if applicable, to prevent the raised paddles from damaging them.

Before starting the test, ensure the paddle spin is enabled or disabled depending on your configuration (see "Paddle Spin" on page 46).

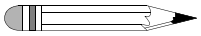
Step 1. Press **RUN**. If paddle spin is disabled, METHOD STARTUP STATUS / MANUAL DISK DROP / PRESS RUN TO CONTINUE displays. If paddle spin is enabled, METHOD STARTUP STATUS / MANUAL DISK DROP / PRESS STOP TO STOP PADDLES / PRESS RUN TO CONTINUE displays.

Step 2. If paddle spin is enabled, press **STOP**. If paddle spin is disabled, skip this step and continue to step 3.

Step 3. Pull up the shaft locking ring to lift each paddle out of the medium.

Step 4. Lift the evaporation cover at vessel position 1, manually drop the disk assembly into the vessel, and push down the paddle shaft.

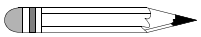
Note



In order to drop the disk assembly, it may be necessary to raise the drive unit. Press DRIVE UP to raise the drive unit slightly, lift each vessel evaporation cover, drop the disk assembly into each vessel, and press DRIVE DOWN until the drive unit is completely lowered.

Step 5. Press **RUN**. The Method Status screen displays and the paddles rotate.

Note

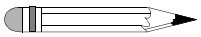


To quit the test from the Method Status screen, press ESC and select EXIT. The Manual Operation screen displays.

Step 6. At the desired time intervals, lift each evaporation cover, manually drop the disk assembly into each vessel and push down the corresponding paddle shaft.

Step 7. Continue the dissolution test according to the prescribed method. At the desired time interval, pull samples from each vessel. Two minutes after the final keystroke, the Test in Progress screen displays.

Note

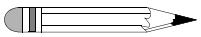


For vessel positions 1 - 6, remove the knobbed evaporation plug, pull the sample, and replace the knobbed evaporation plug. For vessel positions 7 and 8, place the long cannula (part number 17-3315) into the vessel through the opening in the DDM. See "Setting the Manual Sampling Cannula" on page 38.

To quit the test from the Test in Progress screen, press ESC once to return to the Method Status screen and a second time to quit the test.

Rotating Cylinder

Note



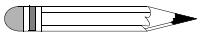
When using rotating cylinders, ensure USE STANDARD START HEIGHT displays. If not, select USE ALTERNATE START HEIGHT. USE STANDARD START HEIGHT displays.

Step 1. Press **RUN**. RAISE DRIVE TO INSTALL PATCHES / PRESS RUN TO MOVE / DRIVE TO STANDARD / START POSITION displays.

Step 2. Press **DRIVE UP** to raise the drive unit to the home position.

Step 3. Install the patches on the rotating cylinders.

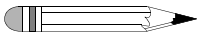
Step 4. Press **RUN**. LOWERING DRIVE displays and the drive unit lowers to the operating position. The Method Status screen displays and the cylinders rotate.



Note

To quit the test from the Method Status screen, press ESC and select EXIT. The Manual Operation screen displays.

Step 5. Continue the dissolution test according to the prescribed method. At the desired time interval, pull samples from each vessel. Two minutes after the final keystroke, the Test in Progress screen displays.

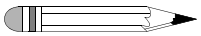


Note

For vessel positions 1 - 6, remove the knobbed evaporation plug, pull the sample, and replace the knobbed evaporation plug (see Figure 14, "Basket / Low-loss Evaporation Cover, Positioning and Sampling," on page 68). For vessel positions 7 and 8, place the long cannula (part number 17-3315) into the vessel through the opening in the DDM. See "Setting the Manual Sampling Cannula" on page 38.

To quit the test from the Test in Progress screen, press ESC once to return to the Method Status screen and a second time to quit the test.

Setting Delayed Heating



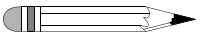
Note

For this option, if you enter a value outside of the acceptable range, an error message displays indicating appropriate values.

By default, the delayed heating option is disabled. To enable delayed heating, complete the following steps:

Step 1. From the Main Menu, select DELAYED HEATING. The Delayed Heating screen displays.

Step 2. Enter the desired start date in the appropriate format and press **ENTER**. ENTER TIME HH:MM:SS displays.



Note

Any time and day of the week is acceptable. Pumping functions are not affected by the delay. This feature inhibits the growth of organisms and evaporation by allowing the water bath to be heated only when necessary rather than continuously.

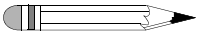
Step 3. Enter the time in 24-hour format (for example, 3:00 pm is entered as 15:00:00).

Step 4. Press **ENTER**. SET POINT 0.0 displays.

Step 5. Enter the desired temperature in xx.x format. The acceptable range is 20.0 to 55.0 °C. Press ← or **CLEAR** to clear unwanted or incorrect entries. Press **ENTER** to accept the temperature setting. TIME TO HEATING START displays with a countdown in hh:mm:ss format.

Step 6. To stop the delayed heating and reset it to the disabled mode, press **ESC**. The Main Menu displays.

Start Method



Note

Methods are not write-protected. Check with other users before proceeding.

From the Main Menu, select START METHOD. The Start Method screen displays.

Following is a description of the Start Method screen options:

Option	Response
Select Method	Use this option to enter a number between 1 and 23 corresponding to the method desired. This is most easily achieved by using List Methods (see below). If a previous method has been selected, the method number displays next to CURRENT and the method name displays next to METHOD. If a different method is required, select SELECT METHOD. The cursor flashes next to CURRENT. Enter the method number and press **ENTER**. The method name displays next to METHOD. If no method exists, see "Creating / Modify Method" on page 84 to create a method.
List Methods	Use this option to display a list of the methods stored on the VK 7025 in order to select a specific method. To list the currently available methods by number and name, select LIST METHODS. The Select Method to Load screen displays. Scroll up or down the list by selecting NEXT or PREVIOUS. When the correct method is highlighted, select SELECT. The Start Method screen displays with the new method number and name in place. If no method exists, see "Creating / Modify Method" on page 84 to create a method.

Option	Response
Print Method	Use this option to print the method parameters. To print the information stored under the method number displayed on the Start Method screen, select PRINT METHOD. The printer must be turned on and enabled. To enable the Report Center Printer, see "Print Reports" on page 90.
Lot / Batch Data	To enter information about the product being tested, select LOT / BATCH DATA. The Lot / Batch Data Menu 1 screen displays. The following options are listed: Product Name, Lot Number, Batch Number, Note, and Menu 2 (which displays Ref. Number and Strength). Select the parameter and the cursor flashes on the corresponding line. Enter the appropriate information for each item up to 25 characters. Additional notes and comments up to 30 characters can be entered by selecting NOTE. Complete each field using any combination of letters or numbers. To display a letter, hold down the number key until the appropriate letter displays, then release the key. Press **ESC** to return to the Start Method screen. When running a method, the text displays on the printout along with the method parameters. In manual operation, the lot / batch data note does not display on the printout.
Instant Start	Use this option to begin the test according to the currently selected method. See "Instant Start" on page 75.
Delay Start (VK 7025 with Paddles)	This option displays only when using paddles with a VK 7025. Use this option to program the test to begin automatically on a specific date and time. See "Delay Start" on page 82.

Option	Response
Vessel Temp Start (VK 7025 with Paddles)	This option displays only when using paddles with a VK 7025. You can program the test to begin automatically when the dissolution medium reaches a programmed temperature. See "Vessel Temp Start" on page 83.
Wait External Start	The VK 7025 can be used with an external device (for example, the Waters Alliance System). The external start command is supplied as a simple TTL closure through a four-pin DIN cable (supplied separately) connected to the START INPUT port located on the rear panel of the VK 7025. Select WAIT EXTERNAL START. WAITING EXTERNAL START displays. The test runs according to the program entered on the VK 7025 once the external start command is received.

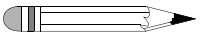
Instant Start

Depending upon the apparatus listed in the method and the options installed on your tester, complete the steps listed under the appropriate apparatus on the following pages to start the test immediately.

Apparatus	Procedures
Paddles	See "Paddles" on page 76.
Baskets	See "Baskets" on page 78.
Paddle over disk	See "Paddle Over Disk" on page 79.
Rotating cylinder	See "Rotating Cylinder" on page 80.

Paddles

Note



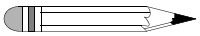
Before starting the test, ensure DDM is enabled or disabled (see "Controlling Dosage Delivery Module (VK 7025 with Paddles only)" on page 87), paddle spin is enabled or disabled (see "Paddle Spin" on page 46) and initial and final temp are enabled or disabled (see "Sample Vessel Temp" on page 88) depending on your configuration.

Step 1. From the Start Method screen, select INSTANT START.

DDM	Paddle Spin	Initial Temp	Final Temp	After selecting INSTANT START, the following information displays:
disabled	enabled or disabled	enabled	enabled or disabled	METHOD STARTUP STATUS / SAMPLING INITIAL TEMPERATURE / MANUAL TABLET DROP / PRESS STOP TO STOP PADDLES / PRESS RUN TO CONTINUE
disabled	enabled	disabled	enabled or disabled	METHOD STARTUP STATUS / MANUAL TABLET DROP / PRESS STOP TO STOP PADDLES / PRESS RUN TO CONTINUE
disabled	disabled	disabled	enabled or disabled	METHOD STARTUP STATUS / MANUAL TABLET DROP / PRESS RUN TO CONTINUE
enabled—simultaneous or sequential	enabled or disabled	enabled	enabled or disabled	METHOD STARTUP STATUS / SAMPLING INITIAL TEMPERATURE / SIMULTANEOUS (SEQUENTIAL) DELIVERY STARTED
enabled—simultaneous or sequential	enabled or disabled	disabled	enabled or disabled	METHOD STARTUP STATUS / SIMULTANEOUS (SEQUENTIAL) DELIVERY STARTED

Step 2. If DDM is disabled and paddle spin or initial temp is enabled, press **STOP** to drop the dosage unit into non-rotating media. Manually drop a dosage unit into each vessel.

Note

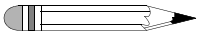


For vessel positions 1 - 6, remove the knobbed evaporation plug on the outside of each evaporation cover, drop the dosage unit, and replace the knobbed evaporation plug. For vessel positions 7 and 8, drop a dosage unit into each vessel through the corresponding DDM tube.

Otherwise, skip this step and continue to step 3.

Step 3. Press **RUN**. The Method Status screen displays and the paddles rotate.

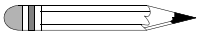
Note



To quit the test from the Method Status screen, press ESC and select EXIT. The Start Method screen displays.

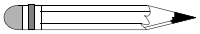
Step 4. Continue the dissolution test according to the prescribed method. Two minutes after either the cannulas return to the home position or the final keystroke, the Test in Progress screen displays.

Note



To quit the test from the Test in Progress screen, press ESC once to return to the Method Status screen and a second time to quit the test.

Baskets



Note

If using baskets, ensure final temp is enabled or disabled. See "Sample Vessel Temp" on page 88.

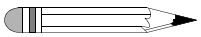
Step 1. From the Start Method screen, select INSTANT START. RAISE DRIVE TO INSTALL BASKETS / PRESS RUN TO MOVE / DRIVE TO STANDARD / START POSITION displays.

Step 2. Press **DRIVE UP** to raise the drive unit to the home position.

Step 3. Install the baskets containing the dosage units.

Step 4. If using the low-loss evaporation covers, replace the covers on the vessels. Visually align the DDM tube with the DDM alignment attachment and the cannula assembly with the opening in the evaporation cover.

Step 5. Press **RUN**. LOWERING DRIVE displays and the drive unit lowers. If using the standard evaporation covers, the drive unit lowers to the operating position. The Method Status screen displays and the baskets rotate.



Note

If using the low-loss evaporation covers, press STOP to stop the drive unit approximately two inches above the vessel plate.

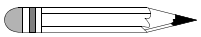
Align the evaporation cover with the cannula assembly and the DDM tube at each vessel position.

Press DRIVE DOWN to lower the drive unit to the operating position. The Method Status screen displays.

To quit the test from the Method Status screen, press ESC and select EXIT. The Start Method screen displays.

Step 6. Continue the dissolution test according to the prescribed method. Two minutes after either the cannulas return to the home position or the final keystroke, the Test in Progress screen displays.

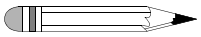
Note



To quit the test from the Test in Progress screen, press ESC once to return to the Method Status screen and a second time to quit the test.

Paddle Over Disk

Note



Before starting the test, ensure paddle spin is enabled or disabled (see "Paddle Spin" on page 46) and final temp is enabled or disabled (see "Sample Vessel Temp" on page 88) depending on your configuration.

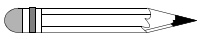
Step 1. From the Start Method screen, select INSTANT START.

Paddle Spin	Final Temp	After selecting INSTANT START, the following information displays:
enabled	disabled or enabled	METHOD STARTUP STATUS / MANUAL DISK DROP / PRESS STOP TO STOP PADDLES / PRESS RUN TO CONTINUE
disabled	disabled or enabled	METHOD STARTUP STATUS / MANUAL DISK DROP / PRESS RUN TO CONTINUE

Step 2. If paddle spin is enabled, press **STOP**. If paddle spin is disabled, skip this step and continue to step 3.

Step 3. Lift each vessel evaporation cover and manually drop the disk assembly into each vessel.

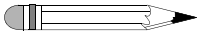
Note



If using the low-loss evaporation covers, press DRIVE UP to raise the drive unit slightly, lift each vessel evaporation cover, drop the disk assembly into each vessel, and press DRIVE DOWN until the drive unit is completely lowered.

Step 4. Press **RUN**. The Method Status screen displays and the paddles rotate.

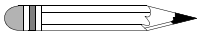
Note



To quit the test from the Method Status screen, press ESC and select EXIT. The Start Method screen displays.

Step 5. Continue the dissolution test according to the prescribed method. Two minutes after either the cannulas return to the home position or the final keystroke, the Test in Progress screen displays.

Note



To quit the test from the Test in Progress screen, press ESC once to return to the Method Status screen and a second time to quit the test.

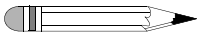
Rotating Cylinder

Step 1. From the Start Method screen, select INSTANT START. RAISE DRIVE TO INSTALL PATCHES / PRESS RUN TO MOVE / DRIVE TO STANDARD / START POSITION displays.

Step 2. Press **DRIVE UP** to raise the drive unit to the home position.

Step 3. Install the patches on the rotating cylinders.

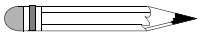
Step 4. Press **RUN**. LOWERING DRIVE displays and the drive unit lowers to the operating position. The Method Status screen displays and the cylinders rotate.



Note

To quit the test from the Method Status screen, press ESC and select EXIT. The Start Method screen displays.

Step 5. Continue the dissolution test according to the prescribed method. Two minutes after either the cannulas return to the home position or the final keystroke, the Test in Progress screen displays.



Note

To quit the test from the Test in Progress screen, press ESC once to return to the Method Status screen and a second time to quit the test.

For the first two minutes of a test, the Method Status screen displays the following information:

- method name
- selected apparatus
- set speed
- set bath temperature
- next timepoint
- elapsed time
- last vessel temperatures

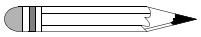
(if AutoTemp is installed and enabled in your method)

- user id
- current time
- current date
- current speed
- current bath temperature
- manual sample (if autosampler is installed)

After the first two minutes of a test, the Test in Progress screen displays. The Test in Progress screen details the current speed and bath temperature, the time to the next sample point (if applicable), the elapsed time, and the Manual Sample option (if autosampler is installed). Press **ESC** to return to the Method Status screen.

If you press **STOP / PAUSE**, the Method Paused screen displays. The time paused and the current elapsed time display. Select EXIT to stop the current method. ABORTING METHOD STAND BY displays and the screen returns to the Start Method screen. To continue the test, select CONTINUE. The Method Status screen displays.

Delay Start



Note

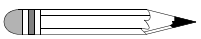
For this option, if you enter a value outside of the acceptable range, an error message displays indicating appropriate values.

If you are using paddles, DDMs, and an autosampler, you can program a delayed start based on a specific date and time. If you do not select paddles and DDM in your method, this option is not available. To set the delayed start, complete the following steps:

Step 1. From the Start Method screen, select DELAY START. The Time Delay Start Setup screen displays the current date and time below the RPM and water bath temperature. If temp display is enabled (see "Temp Display" on page 46), the vessel temperatures / cannula positions display as well.

Step 2. The cursor flashes under ENTER DATE. Enter the date in the appropriate format and press **ENTER**. ENTER TIME displays.

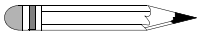
Step 3. Enter the time in 24-hour format (for example, 3:00 pm is entered as 15:00:00) and press **ENTER**. The Time Delay Start Status screen displays the time until the test starts. Once the test begins, the Method Status screen displays (see page 81).



Note

To abort the test from either the Time Delay Start Status screen or the Method Status screen, press and hold ESC. Once the method begins, press STOP / PAUSE or ESC and select EXIT. The Start Method screen displays.

Vessel Temp Start



Note

For this option, if you enter a value outside of the acceptable range, an error message displays indicating appropriate values.

If you are using paddles, DDMs, and an autosampler, you can program the instrument to start based on the dissolution medium reaching a specific temperature. To set the temperature start, complete the following steps:

Step 1. From the Start Method screen, select VESSEL TEMP START. VESSEL TEMPERATURE START / BATH TEMP WILL BE ADJUSTED TO CONTROL VESSEL TEMP / INPUT VESSEL START TEMP displays on the screen and the cursor flashes.

Step 2. Enter a temperature and press **ENTER**. The acceptable range is 20.0 to 55.0 °C.

Step 3. The shafts rotate at 15 RPM and the cannulas lower. The following screen displays:

VESSEL TEMP START STATUS

BATH TEMP WILL BE ADJUSTED
TO CONTROL VESSEL TEMP

WAITING FOR VESSELS TO
STABILIZE AT 37.0

TIME SINCE HEATING START
00H:01M:00S

RPM 015.0 BATH 037.2

1:37.1	2:36.9	3:37.1	4:37.0
5:37.0	6:36.9	7:36.9	8:37.1

FRI MAY 23 15:23:04 2003

Step 4. To stop the heating process, press and hold **ESC** until the screen goes blank. The cannulas return to the home position and the Start Method screen displays.

Method Editor

From the Main Menu, select METHOD EDITOR. The Method Menu screen displays. You can view the method, but only those with appropriate security levels can change information in this section. The Method Menu screen displays the following options: Modify Method (see "Creating / Modify Method" below), Copy Method (see "Copying Methods" on page 89) and Store Method (see "Storing Methods" on page 90).

Creating / Modify Method

To create a new method or modify an existing method, complete the following steps:

Step 1. From the Method Menu screen, select MODIFY METHOD to display the Select Method Location to Modify screen.

Step 2. Scroll up or down the list by selecting NEXT or PREVIOUS until the correct method number is highlighted.

Step 3. Select SELECT. If no method exists, scroll through the list until the desired method location is highlighted and select SELECT. The Method Menu 1 screen displays.

Following is a description of the Method Menu 1 screen options:

Option	**Response**
Method	Select METHOD to name the method. The cursor flashes. Enter the desired name and press **ENTER**. The method name displays.
Apparatus	Select APPARATUS to change the apparatus being used for the test. See "Apparatus" on page 61.
RPM Set	Select RPM SET to set the speed in rotations per minute. See "RPM Set" on page 61.
Bath Temperature Set Point	Select BATH TEMPERATURE SET POINT to set the water bath temperature in degrees Celsius. See "Bath Temperature Set Point" on page 61.

Option	Response
Sampling Setup	Use this option to enable or disable autosampling and set cannula down time, AutoTemp, volume, sample points, and sample point alarms. See "Sampling Setup" below.
DDM Disabled (if installed)	This option indicates the status of the dosage delivery module. DDM is disabled by default. See "Controlling Dosage Delivery Module (VK 7025 with Paddles only)" on page 87 to enable the DDM.
Test Length	Select TEST LENGTH to set the desired test length. The cursor flashes. Enter the desired test length in hhh:mm:ss format and press **ENTER**. The maximum acceptable input is 999:59:59. Press ← to clear incorrect or unwanted entries.
Menu 2	After the appropriate parameters have been entered on Method Menu 1, select MENU 2. The Method Menu 2 displays. See page 88 for information on Method Menu 2.

Sampling Setup

To set the sample timepoints, select SAMPLING SETUP from the Method Menu 1 screen. The Sampling Setup screen displays.

Following is a description of the Sampling Setup screen options:

Option	Response
Auto Sampling	Select AUTO SAMPLING to toggle between ENABLED and DISABLED. If an autosampler is installed, ensure ENABLED displays next to the option. If DISABLED displays on the screen, select DISABLED to enable this option. Once autosampling is enabled, you are prompted to enter the cannula downtime. See Set Cannula Down Time and AutoTemp below.
Set Cannula Down Time	Select SET CANNULA DOWN TIME to enter the amount of time the cannula remains in the vessel. The cursor flashes. Enter a time in mm:ss format and press **ENTER**. The minimum acceptable time is one minute.
AutoTemp (if installed)	Select AUTOTEMP to toggle between ENABLED and DISABLED. AutoTemp must be enabled to measure vessel temperatures.

Option	Response
Volume	Select VOLUME to enter the media volume. The cursor flashes. Enter a volume and press **ENTER**. The acceptable range is 500 to 1050 mL.
Sample Points	Select SAMPLE POINTS to toggle between ENABLED and DISABLED. If enabled, SET SAMPLE POINTS and SAMPLE POINT ALARM ENABLED / DISABLED display. See below.
Set Sample Points	To set the sample timepoints, see "Setting Sample Points" below.
Sample Point Alarm	The sample point alarm is disabled by default. To enable the sample point alarm, select SAMPLE POINT ALARM DISABLED from the Sampling Setup screen. SAMPLE POINT ALARM ENABLED and TIME MM:SS display. Enter the time interval prior to the sample point for the alarm to sound and press **ENTER**. Press **CLEAR** to silence the alarm.

Setting Sample Points

Step 1. Select SET SAMPLE POINTS. The Sample Points screen displays a list of timepoints 01 through 24. The cursor flashes next to timepoint 01.

Step 2. Enter the timepoint in hhh:mm:ss format and press **ENTER** to move to the next timepoint location. Press ← to clear unwanted or incorrect entries one character at a time. Press **CLEAR** or **0** > **ENTER** to delete the current timepoint or any unwanted timepoints.

Note

Set the sample timepoints far enough apart to allow for the operation of the DDMs and cannulas (at least three minutes). If there is not enough time between sample timepoints, the sample timepoint clock counts negative time.

If a value greater than the test length is entered, SAMPLE POINT IS GREATER / THAN METHOD LENGTH / METHOD LENGTH WILL / BE ADJUSTED / PRESS ANY KEY TO CONTINUE displays. The test length automatically adjusts to the time of the sample point.

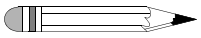
Step 3. Select PREVIOUS or NEXT to scroll up or down the timepoints.

Step 4. Enter the desired timepoints and press **ESC** to return to the Sampling Setup screen.

When all appropriate parameters have been entered on the Sampling Setup screen, press **ESC** to return to the Method Menu 1 screen.

Controlling Dosage Delivery Module (VK 7025 with Paddles only)

Note



DDM caps are provided to keep dust out of the DDM tubes when the equipment is not in use. These caps can also be used during operation. Remove the cap, place the dosage unit in the DDM opening in the top cover and replace the cap.

For the following options, if you enter a value outside of the acceptable range, an error message displays indicating appropriate values.

DDM can only be enabled if this option is installed on your tester and paddles are selected as the apparatus. Sequential DDM is an option only if clutches are installed.

To enable the dosage delivery module, complete the following steps:

Step 1. Select DDM DISABLED from the Method Menu 1 screen. The DDM Setup Menu screen displays.

Step 2. Select DOSAGE DELIVERY DISABLED. DOSAGE DELIVERY ENABLED and DOSAGE DELIVERY METHOD SIMULTANEOUS display.

Step 3. To change to sequential, select DOSAGE DELIVERY METHOD SIMULTANEOUS. DOSAGE DELIVERY METHOD SEQUENTIAL and DELIVERY INCREMENT display. If clutches are not installed, the paddles rotate during a sequential dosage delivery. If clutches are installed, the paddle stops for approximately three seconds as the corresponding DDM opens.

Step 4. Select DELIVERY INCREMENT. The cursor flashes.

Step 5. Enter a delivery increment time in mm:ss format and press **ENTER**. The maximum acceptable value is 59:59.

Step 6. Press **ESC** to return to the Method Menu 1 screen.

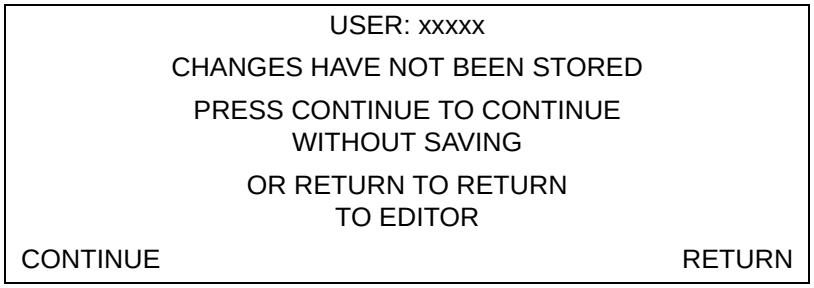
When all the appropriate parameters have been entered on the Method Menu 1 screen, select MENU 2. The Method Menu 2 screen displays.

Following is a description of the Method Menu 2 screen options:

Option	Response
Final Spin RPM	To program a final spin, select FINAL SPIN RPM. The cursor flashes. Enter the desired speed in xxx format. The acceptable range is 10 to 250 RPM. Press **ENTER**. Press ← to clear unwanted or incorrect entries.
Final Spin Time	Select FINAL SPIN TIME to set the final spin time. The cursor flashes. Enter the desired spin time in hhh:mm:ss format and press **ENTER**. The maximum allowable time is 999:59:59.
Sample Vessel Temp	This option is only available if AutoTemp is enabled. To read the initial vessel temperature, select INITIAL to toggle between ENABLED or DISABLED. ***Note: initial vessel temperature is only available if the apparatus selected is paddles.*** To read the final vessel temperature, select FINAL to toggle between ENABLED or DISABLED.
Alarm Point	Select ALARM POINT to set an alarm to sound during the test. Enter the desired alarm time in hhh:mm:ss format and press **ENTER**.

When all appropriate parameters have been entered on the Method Menu 2 screen, press **ESC** twice to return to the Method Menu screen. Select STORE METHOD to save the previously entered information (see "Storing Methods" on page 90). If you do not

select STORE METHOD and press **ESC** to go back further in the system, the following screen displays:



Select CONTINUE to disregard the changes and return to the Main Menu.

Select RETURN to display the Method Menu 1 screen and the current changes. The changes have not been saved. To save the changes, see "Storing Methods" on page 90.

Copying Methods

To copy an existing method, complete the following steps:

Step 1. From the Method Menu screen, select COPY METHOD. The Select Method Location to Copy From screen displays.

Step 2. Select the method location to copy from by selecting PREVIOUS and NEXT until the desired method number is highlighted.

Step 3. Select SELECT. The Select Method Location to Copy To screen displays.

Step 4. Select the location to copy to by selecting PREVIOUS and NEXT until the desired method location is highlighted.

Step 5. Select SELECT. The Method List screen displays with the copied method listed.

Step 6. Press **ESC** to return to the Method Menu screen.

Step 7. Press **ESC** again to return to the Main Menu.

Storing Methods

To save a new or modified method, complete the following steps:

Step 1. From the Method Menu screen, select STORE METHOD to save the information. The Select Method Location to Store At screen displays.

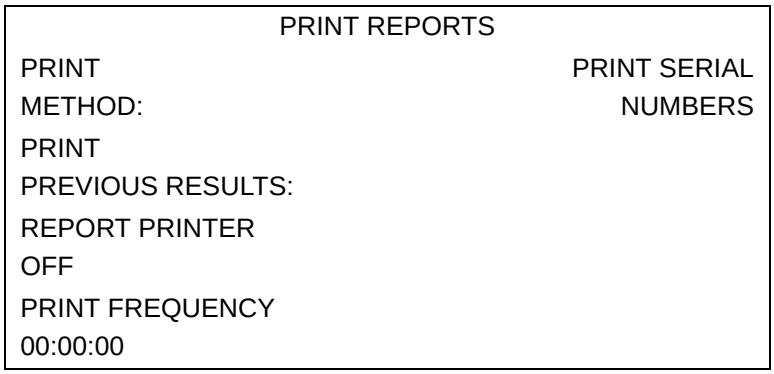
Step 2. Scroll up or down the list by selecting NEXT or PREVIOUS until the desired method location is highlighted.

Step 3. Select SELECT. The Method List screen displays with the stored method listed.

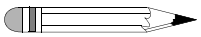
Step 4. Press **ESC** to return to the Method Menu screen or press **MENU** to return to the Main Menu.

Print Reports

To print information to the Report Center Printer, select PRINT REPORTS from the Main Menu. The Print Reports screen displays.



Following is a description of the Print Reports screen options:



Note

In order to operate any of the printer functions listed, the printer must be enabled. See "Report Printer On / Off" below.

Option	Response
Print Method	Select PRINT METHOD to print method parameters. Enter a method number and press **ENTER**.
Print Previous Results	Select PRINT PREVIOUS RESULTS to print the results from the last test run. The printer buffer is 8K. If you exceed the storage capacity, a complete copy of the previous results will not print. The printer buffer resets to 0 whenever a new test is started.
Report Printer On / Off	Select REPORT PRINTER to toggle between ON and OFF. Once this option is set, the selection becomes the default. In order to use the Report Center Printer, this option must be set to ON.
Print Frequency	Select PRINT FREQUENCY to enter the time interval the current program information should be sent to the Report Center Printer in hh:mm:ss format. Do not enter 00:00:00 to turn off the printer function. See "Report Printer On / Off" above.
Print Serial Numbers	Select PRINT SERIAL NUMBERS to print the serial numbers of the vessels, paddles, baskets and shafts, and rotating cylinders entered under the System Setup Menu 2 screen (see "Setting Serial Numbers" on page 57).

This page was intentionally left blank, except for this message.

Chapter 6 Fiber Optics

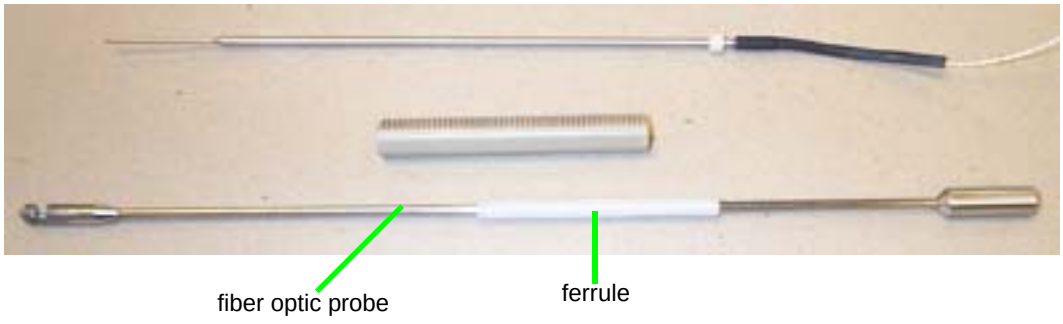
Installing Fiber Optics

To install and set the height for the fiber optic assemblies, complete the following steps:

Step 1. Log into the VK 7025 as an administrator.

Step 2. Clip the ferrule onto the fiber optic probe (see Figure 15, “Fiber Optic Assembly,” below).

FIGURE 15. Fiber Optic Assembly



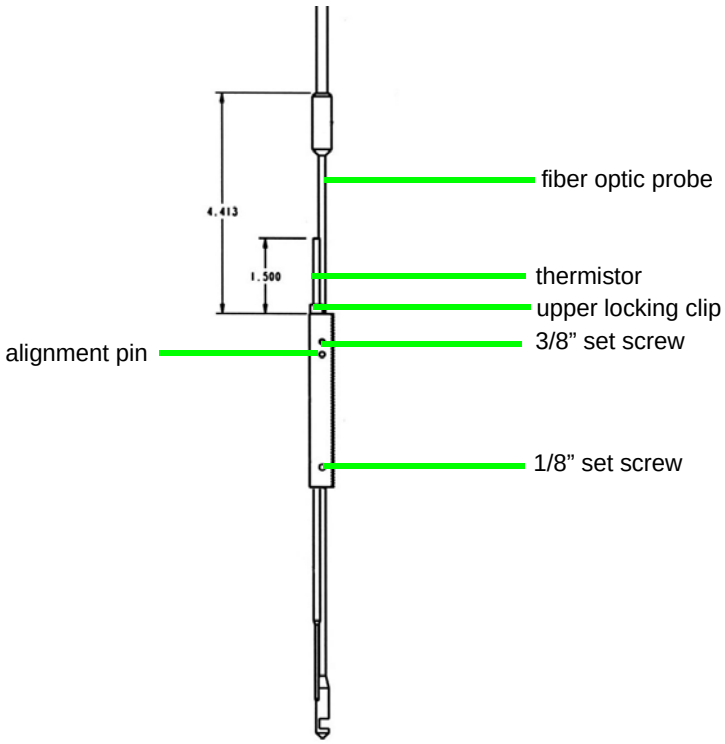
Step 3. Insert the fiber optic probe into the PEEK assembly housing.

Step 4. Ensure the ferrule is positioned so once inside the assembly housing, the window is oriented away from the set screws.

Step 5. Ensure the upper locking clip is in place near the top of the thermistor and insert the thermistor into the PEEK assembly housing (see Figure 16, "Fiber Optic Assembly Setting," below).

Step 6. Slide both the fiber optic probe and thermistor through the assembly housing so the top of the thermistor is 1.5 inches from the assembly housing and the top of the fiber optic probe is 4.4 inches from the top of the assembly housing (see Figure 16, "Fiber Optic Assembly Setting," below).

FIGURE 16. Fiber Optic Assembly Setting



Step 7. Tighten the two set screws to lock the fiber optic probe in place (see Figure 16, "Fiber Optic Assembly Setting," on page 94).

Step 8. Ensure the locking clip is in place against the assembly housing.

Step 9. Ensure the drive unit is in the lowest position.

Step 10. Place the fiber optic assembly into the opening in the top of the drive unit corresponding to vessel position 1.

Step 11. Use the alignment pin and coordinating notch to guide the assembly through the opening in the top cover leaving approximately 1/4 inch of the PEEK assembly housing exposed.

Step 12. Repeat steps 2 - 11 for all remaining vessel positions.

Step 13. From the System Setup Menu 1 screen, select CALIBRATION > CANNULA HEIGHT CALIBRATION. The Set Sampling Depth screen displays with factory-set values for each apparatus. If you are using paddle over disk or rotating cylinder, select MENU 2 to view these apparatus.

SET SAMPLING DEPTH	
BASKET 900 mL 200	MOVE UP
BASKET 500 mL 400	MOVE DOWN
PADDLE 900 mL 200	
PADDLE 500 mL 400	MENU 2
CANNULA POSITION = 0	

Note

The factory-set number displayed under each option is not a distance measurement. It refers to the number of steps the cannula motor moves.

Step 14. To ensure the fiber optic probes are in their home position, select MOVE DOWN to move the fiber optic probes to their lowest position, then select MOVE UP to move the fiber optic probes to their highest position.

Step 15. Select MOVE UP or MOVE DOWN to position the fiber optic windows at the appropriate height in the vessels. See Figure 17, "Fiber Optic Probe in Vessel," on page 96.

FIGURE 17. Fiber Optic Probe in Vessel

Step 16. When the fiber optic windows are in the correct position, select the appropriate apparatus and volume. The number of steps the cannula motor moved to reach that position displays under the selected apparatus and volume.

Step 17. Press **ESC**. The fiber optic probes return to the home position and the Calibration Menu screen displays.

Step 18. Press **ESC** again to return to the System Setup Menu 1 screen.

Chapter 7 Maintenance and Troubleshooting

Maintenance

Warning

The dissolution apparatus contains electrical circuits, devices, and components operating at dangerous voltages. Contact with these circuits, devices, and components can cause death, serious injury, or painful electric shock.

Periodic maintenance needs may vary depending on frequency of instrument usage.

Daily Maintenance

See “Paddle / Basket Shaft Care” on page 99, “Basket Care” on page 100, and “Water Bath / Acrylic Care” on page 101 as applicable for additional information on proper maintenance of your equipment.

- All parts exposed to the dissolution media should be cleaned after each use. Parts made from stainless steel, such as paddle and basket shafts, cannulas, and temperature probes, are particularly susceptible to surface corrosion if not cleaned

thoroughly after use. If any stainless steel parts show signs of surface discoloration, lightly wipe the surface with a soft cloth or nonabrasive pad to remove it.

- Carefully wipe the paddles or basket shafts after each use.
- Carefully wash the dissolution baskets after each use.
- Carefully wash the dissolution vessels after each use.

Caution

Use care when washing the TruCenter vessels as heat over 65 °C can damage the plastic of the magnetic ring flanges.

Weekly Maintenance

See "Paddle / Basket Shaft Care" on page 99, "Basket Care" on page 100, and "Water Bath / Acrylic Care" on page 101 as applicable for additional information on proper maintenance of your equipment.

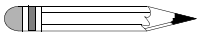
- Inspect the water bath and heater / circulator tubing for algae or other materials. If algae is present, change the bath water and add an algaecide. If you use a water bath algaecide or clear bath product, ensure it is compatible with PETG and acrylic.

Monthly Maintenance

See "Paddle / Basket Shaft Care" on page 99, "Basket Care" on page 100, and "Water Bath / Acrylic Care" on page 101 as applicable for additional information on proper maintenance of your equipment.

- Drain the water from the water bath and clean the bath thoroughly. Refill the water bath and add an algaecide.
- Clean and lubricate the upper and lower portion of the support legs with the recommended synthetic lubricant.

- It is recommended that the water bath temperature probe jack is checked for surface corrosion and wiped clean with a soft cloth or nonabrasive pad every one to three months.



Note

Depending on the frequency of use, it may be necessary to complete this maintenance procedure more often.

Paddle / Basket Shaft Care

1. When using with corrosive materials such as hydrochloric acid or media containing salts, be sure to rinse them thoroughly with deionized water immediately after each use, and dry thoroughly with a soft towel or cloth.

2. Do not clean with abrasive cleansers or cloths. Use deionized water whenever possible. If you must use a cleanser or solvent, be sure that it is as mild as possible, non-abrasive, and fully compatible with fluorocarbons and stainless steel before use. If in doubt, call the service department for advice before proceeding.

3. We recommend that you do not use a laboratory dishwasher. Clean paddles and basket shafts only by hand. The high temperatures to which your items would be subject in a dishwasher may damage the fluorocarbon coating.

4. Be sure to handle with care. Our QC laboratory has checked the shafts for straightness, to ensure that they will operate without significant wobble. If you must clean or handle them while they are still mounted on the instrument, use minimal pressure on the shaft to prevent them from bending. While in the chucks, just a little bit of pressure exerted on the shaft—especially near the blade or basket—can easily bend the shaft and cause significant wobble.

5. Use care when removing vessels from the apparatus while the paddles or basket shafts are installed so that you do not bump them.

6. When attaching or removing baskets, do not bend the clips excessively.

7. Please store paddles and basket shafts properly between uses. Do not simply place these items in a drawer. They will be subject to nicks, chips, and scratches as they

bump against each other. Place them back into the original styrofoam shipping container or other appropriate container between uses. This will prevent them from coming into contact with each other or anything else in the storage area.

Basket Care

1. When using with corrosive materials such as hydrochloric acid or media containing salts, be sure to rinse them thoroughly with deionized water immediately after each use, and dry thoroughly with a soft towel or cloth.

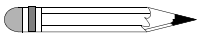
2. Please do not clean baskets or shafts with abrasive cleansers or cloths, especially if they're gold or Teflon coated. Mesh openings on baskets could enlarge, which could have an effect on results. Use deionized water whenever possible. If you must use a cleanser or solvent, be sure that it is as mild as possible, non-abrasive, and fully compatible with fluorocarbons and stainless steel before use. If in doubt, contact the service department for advice before proceeding.

3. We recommend that you do not use a laboratory dishwasher. Clean baskets only by hand. The high temperatures to which your baskets would be subject in a dishwasher may damage the fluorocarbon coating.

4. Use caution when handling baskets. It is important that they retain their cylindrical shape, so take care not to kink or bend the mesh. Check frequently to ensure that the mesh is completely open and that there are no rips or tears.

5. Please store baskets properly between uses. Do not simply place these baskets in a drawer. They will be subject to nicks, chips, and scratches as they bump against each other and they may get bent out of shape. Place them back into the original shipping container or other appropriate container between uses. This will prevent them from coming into contact with each other or anything else in the storage area.

Water Bath / Acrylic Care



Note

The following information pertains to any items, in addition to the water bath, made of acrylic.

Caution

Do not use cleaning compounds containing ammonia or abrasive cleaners on your water bath.

The water bath supplied with the VK 7025 Dissolution Apparatus should be maintenance free except for an occasional cleaning. If you use a water bath algaecide or clear bath product, ensure it is compatible with PETG and acrylic. The flow paths in the heater / circulator are primarily stainless steel and should tolerate most clear bath formulations. Check with the product manufacturer to be sure the product is safe for your water bath.

1. All of our water baths are fabricated entirely of commercial grade acrylic. When using them with corrosive materials such as hydrochloric acid or media containing salts, be sure to rinse them thoroughly with deionized water immediately after each use, and dry thoroughly with a soft towel or cloth.

2. Do not clean with abrasive cleansers or cloths. Use deionized water whenever possible. If you must use a cleanser or solvent, be sure that it is as mild as possible, non-abrasive, and fully compatible with PETG and acrylic before use. If in doubt, call the service department for advice before proceeding.

3. Do not use ammonia, window-cleaning sprays, kitchen scouring compounds, or solvents such as acetone, gasoline, benzene, alcohol, carbon tetrachloride, or lacquer thinner. These can scratch the material's surface and / or weaken it causing small surface cracks called "crazing".

4. Our recommendations include but are not limited to the following:
   - Hot water:< 150 °F
   - Household ammonia
   - Vinegar (5% Glacial Acetic Acid)
   - Ethyl alcohol: maximum 10%

- Isopropyl alcohol: maximum 25%

Repairing Leaking Fittings

Complete these steps if any of your water bath fittings are leaking:

Step 1. Turn off the heater / circulator and drain the water bath completely.

Step 2. Remove the leaky bulkhead fitting.

Step 3. Remove the elbow fitting from the bulkhead fitting.

Step 4. Inspect the bulkhead fitting gaskets for damage and replace them as necessary.

Step 5. Remove the old Teflon tape from all male fittings. Inspect the threads for damage and replace the fitting as necessary.

Step 6. Apply new Teflon tape to the male fitting threads.

Step 7. Reinstall and tighten the bulkhead fitting on the water bath.

Step 8. Reinstall and tighten the elbow fitting to the bulkhead fitting.

Step 9. Fill the water bath and turn on the heater / circulator.

Step 10. Inspect the fitting for leaks. If the fitting still leaks, contact the Dissolution Systems Service Department.

Removing the Top Cover

Caution

Panels or covers that are retained by fasteners which require the use of a tool for removal may be opened only by Varian-trained, Varian-qualified, or Varian-authorized service engineers.

Step 1. Turn on the dissolution apparatus.

Step 2. Lower the drive unit to the lowest position.

Step 3. Turn off the dissolution apparatus and remove the power cord.

Step 4. Remove the two screws in the top cover located just behind the display screen.

Step 5. Lift the top cover from the front of the machine. It hinges back to allow access to the machinery.

Replacing the Top Cover

Step 1. Pull down the front end of the top cover and rest it in place.

Step 2. Replace the two screws in the cover behind the display screen.

Step 3. Reconnect the power cord and turn on the instrument.

Cleaning the Cannulas

Step 1. Turn off the dissolution apparatus.

Step 2. Remove the cannulas from the dissolution apparatus by pulling up the entire cannula assembly housing which contains the cannulas and, if applicable, the thermistor.

Step 3. Disconnect the cannulas from the sample tubing.

Step 4. Remove the sample cannulas from the cannula assembly and clean using an appropriate cleaning solution.

Step 5. Wipe any surface discoloration from the cannula assembly housings with a clean, damp cloth.

Step 6. Carefully place the sample cannulas back into the cannula assemblies.

Step 7. Reconnect the sample tubing.

Step 8. Use the guide pin and coordinating notch to position the cannula assembly housing and reinsert it into the top cover of the dissolution apparatus. Push the cannula down until it engages with the gears in the motor housing.

Step 9. Turn on the dissolution apparatus. The cannulas return to the home position.

Cleaning the Cannulas Using the VK 8000 Clean System Function

Step 1. Ensure the VK 7020 S / 7025 is connected correctly to the VK 8000 and that external control is enabled. See "External Control" on page 56.

Step 2. Ensure the drive unit is raised to the home position.

Step 3. Ensure the baskets or paddles are out of the way of the cleaning solution containers by pushing them up against the spindle housings.

Step 4. Position the cannula cleaning tray on the vessel plate so the cannulas are centered above the containers.

FIGURE 18. Cannula Cleaning Tray

Step 5. From the Manual Operation screen, set the volume to 500 mL.

Step 6. Select MANUAL SAMPLE. The Manual Sampling screen displays.

Step 7. From the Manual Sampling screen, select DOWN corresponding to SELECT ALL.

Step 8. Lower the drive unit by pressing **DRIVE DOWN** until the tips of the sample cannulas are below the surface of the cleaning solution.

Step 9. Log off the dissolution apparatus.

Step 10. Press **CLEAN SYSTEM** on the VK 8000. The cleaning process begins immediately.

Step 11. When the cleaning process is complete, press **DRIVE UP** to raise the drive unit to the home position.

Step 12. Remove the cannula cleaning tray from the vessel plate. Use a clean, soft cloth to dry the exterior surfaces of the cannulas.

Replacing the Flanges

The tester is supplied with specially designed vessels and magnetic ring flanges. The magnetic ring flanges will keep the vessels centered at all times, without the use of tools, and prevent the vessels from "floating" even when they are empty.

Note

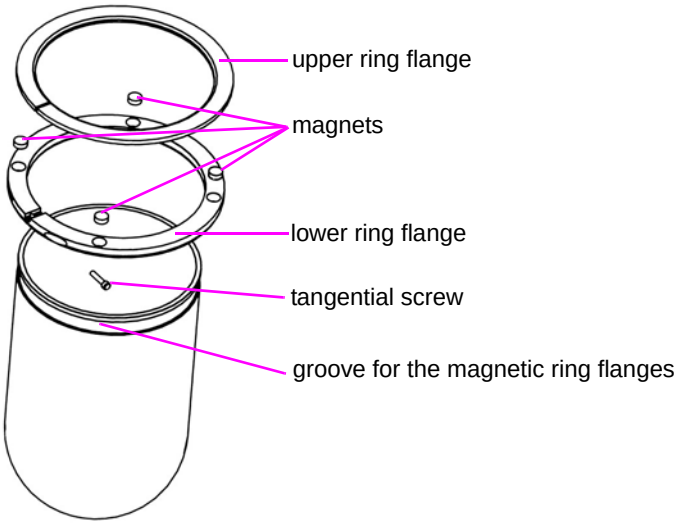
The TruCenter vessels are shipped pre-assembled. Steps 1 - 5 below are necessary only when replacing a vessel.

Step 1. Loosen the tangential screw on the lower ring flange.

Note

There are two flanges—an upper ring flange and a lower ring flange. The lower ring flange is thicker and contains the magnets which secure the vessel to the vessel plate.

FIGURE 19. TruCenter Vessel—exploded view

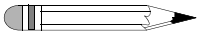


Step 2. To slide the upper and lower ring flanges off the old vessel, gently pull out and up until they clear the groove in the vessel.

Step 3. Align the upper and lower ring flanges so they nestle together and do not slide.

Step 4. Slide the ring flanges onto the new vessel so they rest in the groove in the vessel.

Step 5. Tighten the tangential screw on the ring flange.



Note

Do not overtighten the tangential screw or damage to the vessel could occur.

Report Center Impact Printer

The following is helpful information for using your impact printer.

Installing the Cartridge Ribbon

If the printer is used infrequently, the print impression sometimes becomes weak because the ribbon dries out. If the printed material is difficult to read and you suspect this is the cause of the problem, advance to a new section of the ribbon by pressing the printer toggle switch to the *Paper feed* position. If the printing is still faint, replace the cartridge.

To install the cartridge:

Step 1. Toggle the printer off line by pressing the printer toggle switch to the *OnLine / Off Line* position. When the printer is off line, the Ready LED does not illuminate.

Step 2. Four small grooves are embossed on the printer cover. Gently push on these grooves to tilt the cover. When the printer cover is tilted up, you can lift it off completely.

Step 3. Push down on the right side of the ribbon cartridge (marked PUSH) and remove the old cartridge.

Step 4. Install the new cartridge. If there is already paper in the printer, hold the cartridge between your thumb and index finger, slide it over the paper and into the printer compartment. Ensure the paper is between the ribbon cartridge and the ink ribbon. Ensure the ink cartridge is inserted firmly to prevent weak or irregular printing. The cartridge must be properly seated and aligned for the best printing.

Step 5. Turn the cartridge knob (marked by an arrow) clockwise to stretch the ribbon taut.

Step 6. Replace the cover.

Step 7. Toggle the printer online by pressing the printer toggle switch to the *OnLine / Off Line* position. The Ready LED illuminates.

Step 8. Replace the paper if necessary.

If you get ribbon ink on the printer's plastic cover, remove it immediately. Once dried, it is difficult to remove.

Replacing the Paper Roll

Step 1. Toggle the printer off line by pressing the printer toggle switch to the *OnLine / Off Line* position. When the printer is off line, the Ready LED does not illuminate.

Step 2. Grasp the paper roll cover firmly by the grooves on the side and the front edge. Pull outward to remove the cover.

Step 3. Press the printer toggle switch to *Paper feed* to advance the paper approximately one inch beyond the paper cutter.

Step 4. Using scissors, cut the paper feeding to the printer and remove the paper roll.

Step 5. Pull the remaining paper through the printer mechanism. *Pull the paper from the front (paper cutter side)*. Pulling the paper out of the back of the printer will damage the print mechanism.

Step 6. Unroll several inches of paper on the new roll.

Step 7. If it is jagged, cut a straight edge on the paper roll to facilitate the entry of the paper into the printer.

Step 8. Slide the paper through the slot connecting the paper compartment and the printer compartment. You can slide it in approximately 1/4 inch before it stops.

Step 9. While holding the paper in place, press the printer toggle switch to the *Paper feed* position and hold until approximately one inch of paper has emerged from the top of the printer. Make sure the roll of paper feeds squarely. If it does not, the paper will jam and possibly damage the printer mechanism.

Step 10. Release the printer toggle switch.

Step 11. Turn the paper roll to take up any slack in the paper feeding to the printer.

Step 12. Place the paper roll into the paper compartment.

Step 13. Replace the paper roll cover. If the cover is difficult to remove or replace, the left and right edges can be trimmed or shaved with a utility knife allowing the cover to slide easier.

Step 14. Toggle the printer online by pressing the printer toggle switch to the *OnLine / Off Line* position. The Ready LED illuminates.

Toggling Your Printer Online

Complete these steps to toggle your printer online:

Step 1. Toggle the printer online by pressing the printer toggle switch to the *OnLine / Off Line* position. When the printer is off line, the Ready LED does not illuminate.

Step 2. Release the switch and it returns to the center position. The Ready LED illuminates and a READY message prints if the PRINT READY command has not been turned off. See "Printer Configuration" on page 111 for instructions on turning on and off the PRINT READY command. When you first turn on the instrument, it prints a READY message to assure you that the built-in microprocessor is operating properly.

When you turn off the printer, wait at least three seconds before turning it on again.

Printer Self Test

You can test the print head and ribbon only *after* inserting paper. Do not attempt to print without paper. Follow these steps to perform a printer self test:

Step 1. Turn off the dissolution apparatus.

Step 2. Press and hold the printer toggle switch in the *Paper feed* position.

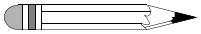
Step 3. Turn on the dissolution apparatus.

Step 4. Hold the printer toggle switch until printing begins. The printer prints a list of the current configuration settings and performs a continuous print test.

Step 5. Press the printer toggle switch to the *OnLine / Off Line* position to stop the printing operation.

Step 6. The printer is ready to resume normal operation.

Printer Configuration



Note

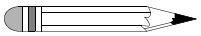
The printer configuration is set by the factory. This procedure should be performed only if the printer displays erroneous characters. Contact the Dissolution Systems Service Department for assistance, if necessary.

Step 1. Turn off the dissolution apparatus.

Step 2. Press and hold the printer toggle switch in the *OnLine / Off Line* position while turning on the instrument. Hold the printer toggle switch in the *OnLine / Off Line* position for six seconds after the instrument is turned on, then release the switch.

Step 3. The printer should print: *** SETUP MENU *** and CONFIGURE... [NEXT/OK]. If this message does not print, repeat steps 1 through 3.

Step 4. The printer toggle switch is used to complete the configuration. Pressing the left side of the printer toggle switch selects NEXT to advance to the next menu item. Pressing the right side of the printer toggle switch selects OK to accept what is stated on this line of the menu item. Each time the switch is pressed, another part of the menu prints. Allow the printer to finish printing before pressing the switch again. See the table of commands on the following page.



Note

The printout is easier to read if the printer cover is removed.

*** SETUP MENU***	
CONFIGURE [NEXT/OK]	Press NEXT to avoid configuration
CUSTOM [NEXT/OK]	Press OK to enter custom mode
CUSTOM MENU	
PRINT CUSTOM SETUP [NEXT/OK]	Press NEXT
AUTO SEQ = NO [NEXT/OK]	Press OK
ZERO = Ø [NEXT/OK]	Press OK
POUND SIGN = # [NEXT/OK]	Press OK
_(UNDERSCORE) [NEXT/OK]	Press OK
ONLINE/OFFLINE = YES [NEXT/OK]	Press OK
EXT CH SET = NO [NEXT/OK]	Press OK
PRINT READY = YES [NEXT/OK]	Press NEXT
PRINT READY = NO [NEXT/OK]	Press OK
READY...	

Your printer is now configured correctly.

Fuse Replacement

Warning

The dissolution apparatus contains electrical circuits, devices, and components operating at dangerous voltages. Contact with these circuits, devices, and components can cause death, serious injury, or painful electric shock.

Panels or covers that are retained by fasteners which require the use of a tool for removal may be opened only by Varian-trained, Varian-qualified, or Varian-authorized service engineers.

The fuse is located in the power entry module on the rear of the heater / circulator.

Step 1. Before checking or attempting to replace a fuse, remove the power cord from the heater / circulator.

Step 2. There is a release slot on the bottom of the fuse compartment. The fuse compartment holder is released by inserting a small screw driver beneath the slot.

Step 3. A slight application of pressure upward releases the compartment.

Step 4. Pull the fuse compartment holder out of the power entry module. The fuse and a spare are located inside. The fuse is a 10 amp metric (5 x 20 mm) fuse for 115 V and 5 amp metric (5 x 20 mm) fuse for 230 V.

Step 5. Replace the fuse in the compartment.

Warning

Never replace a fuse with one of a higher amperage rating. Doing so may compromise the safety margin and could result in damage to the instrument or personal injury.

Step 6. Push the fuse compartment holder into the power entry module until both sides snap. Replace the power cord.

Troubleshooting

The Dissolution Systems Service Department can assist you if you experience problems or have questions concerning your dissolution apparatus. Many problems can be traced to simple sources and are easily solved.

Following is a troubleshooting guide which may help you:

Problem	**Suggested Solution**
The display screen freezes.	Press **STOP / PAUSE** and **ENTER** at the same time to restart the system.
All administrative passwords are forgotten or deleted.	Contact the Dissolution Systems Service Department.

Following is a list of error messages that may display on your screen and the suggested solution:

Error Message	**Suggested Solution**
Spindle board error: RPM NOT AT SETPOINT	Ensure nothing is blocking the paddle or basket preventing it from rotating.
Temperature board error: HEATER SENSOR EXCEEDS BATH SENSOR BY 5 DEGREES	Check bath water level. Ensure the heater / circulator is primed and water is flowing.
Temperature board error: HEATER TEMP RISE EXCEEDS 0.284 DEGREES PER SEC	Check bath water level. Ensure the heater / circulator is primed and water is flowing.
Temperature board error: HEATER SENSOR OPEN	Ensure the cable from the heater / circulator to the back of the VK 7025 is connected.
Temperature board error: BATH SENSOR OPEN	Ensure the bath temperature probe is plugged into the back of the VK 7025.
Temperature board error: HEATER SENSOR OVER 70	Check the bath water level. Ensure the heater / circulator is primed and water is flowing.

If any of the listed problems persist, contact the Dissolution Systems Service Department. The Dissolution Systems Service Department can be reached at 800.229.1108 (inside the US) or 919.677.1108 (outside the US). Optionally, you can send a fax to 919.677.1138. You can also e-mail the Dissolution Systems Service Department at dissolution.service@varianinc.com.

This page was intentionally left blank, except for this message.

Chapter 8 Service and Warranty

The warranty is provided by Varian, Inc. or one of its authorized representatives.

Service and Warranty Information

Varian dissolution products carry a one-year warranty on parts and labor. The Dissolution Systems Service Department (or one of its representatives) will, at its option, either repair or replace any mechanical and electrical components in your instrument which prove to be defective. During the first year of warranty coverage, there is no charge for the labor to repair your unit. The Dissolution Systems Service Department (or one of its representatives) will determine the best site to repair the unit, either onsite or returned to Varian, Inc. Any onsite warranty services are provided only at the initial installation point. Installation and onsite warranty services are available only in Dissolution Systems service travel areas.

Exclusions and Limitations

Excluded from this warranty are expendable or consumable items such as, but not limited to, paddles, baskets, vessels, and acrylic water baths. Also excluded are defects from improper or inadequate maintenance by the customer, user-induced chemical action or contamination, unauthorized modification or misuse, and improper site preparation and maintenance.

Operation of software is not warranted to be uninterrupted or error-free.

Obtaining Warranty Service

To obtain warranty service in the United States, contact the Dissolution Systems Service Department at 800.229.1108 to obtain authorization to return units for repair. At the option of the customer, onsite warranty service is available, but travel charges may be incurred. The customer should prepay all shipping charges for products returned to the Dissolution Systems Service Department (unless otherwise authorized), and Varian, Inc. will pay all charges for return to the customer.

Warranty Limitations

Varian, Inc. makes no other warranty, either express or implied, with respect to this product. Specifically disclaimed are any implied warranties of merchantability and fitness for a particular use. In no event will Varian, Inc. be liable for any indirect, incidental, or consequential damages arising from the use of this product. This warranty gives you specific legal rights which may vary from state to state or province to province, so you may have other rights and some of these exclusions may not apply to you.

Exclusive Remedies

The remedies provided herein are the customer's sole and exclusive remedies. In no event shall Varian, Inc. or its representatives be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory. Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This page was intentionally left blank, except for this message.

Index

t

u

v

w

This page was intentionally left blank, except for this message.

Tell Us How We Are Doing

We listen to our customers. We work hard to make our technical documentation user friendly, and to make the information in our manuals easy to retrieve and use. We'd like you to tell us the kinds of additional information you'd find helpful in our documentation. Your feedback will be carefully considered when we prepare future editions of this manual.

This manual should contain the following additional information:

The most useful thing about this book is:

This manual would be more helpful if:

My general impressions of this book are:

May we contact you regarding your comments? ____ YES ____ NO (If yes, please write your name, address, and telephone number here.)

Please return this form via mail to: Technical Writing / Dissolution Systems, Varian, Inc., 13000 Weston Parkway, Cary, North Carolina 27513-2250 USA. Optionally, you can return this form via fax at 1.919.677.1550. Always, feel free to telephone us to discuss your comments at 1.800.229.1108.