Synergy / SBTS

Slide Basket Transfer System

Operator Guide

A84510100 Issue 8 February 2022

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CE IVD

These instruments conform to the general safety and performance of:

- In Vitro Diagnostics Regulation (IVDR) EU 2017/746

Symbols

The following symbols and conventions may be used throughout this document and on the instrument:

This symbol is used on the equipment, or in a document, to indicate that instructions must be followed for safe and correct operation.

This symbol is also used on the instrument, or in a document, to indicate that irritants or potentially harmful chemicals are present. Refer to the Material Safety Data Sheets for the products, and always use Good Laboratory Practice.

If this symbol appears on the instrument always refer to the operator guide.

This symbol indicates that a surface is hot. If this symbol appears on the instrument or in the documentation always refer to the operator guide. Take suitable precautions.

This symbol is utilised on the instrument, or in a document, to indicate that there are potential biological risks associated with the instrument and / or with instrument use. Always use Good Laboratory Practice.

This symbol is utilised on the instrument, or in a document, to indicate that there are potential flammable risks associated with the instrument and / or with instrument use. Always use Good Laboratory Practice.

Manufacturer

This symbol is used on the instrument, or in the document, to indicate that instructions for use must be consulted

A warning is given in the documentation if there is a potential risk of injury, equipment failure or poor tissue sample processing outcome.

Note

Notes give additional information about a job or instruction, but do not form part of the instruction.

Contents

EMC Statement

This IVD equipment complies with the emissions and immunity requirements of IEC 61326-2-6.

This equipment has been designed and tested to CISPR 11 Class A.

This equipment is intended for use in a laboratory environment, by a trained and qualified professional. In a domestic environment, it may cause radio interference, in which case it may be necessary to take measures to mitigate the interference.

The electromagnetic environment should be evaluated prior to operation of the instrument.

Do not use this instrument in close proximity to sources of strong electromagnetic radiation (e.g. unshielded Intentional RF sources) as these may interfere with the proper operation.

Safety Information

Introduction

Epredia instruments are designed for convenient and reliable service; however, improper use or handling by a user may damage the instrument or cause a hazard to health. The instrument must not be used in a manner not specified by Epredia.

Correct maintenance procedures are essential for consistent performance. It is recommended that users secure a maintenance contract with our service department.

To remain compliant with regulatory requirements, and to ensure that mandatory safety upgrades are performed at the earliest opportunity, it is strongly recommended that all service activities are performed by Epredia-factory trained Engineers. Warranty may be voided if service is performed by non-factory trained Engineers.

Maintenance or repairs that are not performed by Epredia trained Engineers with proven training may affect the safety, performance and compliance of the equipment.

Please consult your local sales or support teams for more information about service contracts.

The following sections contain important information for the safe setup and use of the instrument, and should be read and understood by the user before using the instrument

All users must read and understand the following sections before using the instrument.

General Safety

This instrument, as supplied, conforms to IEC61010-1 and IEC61010-2-101; however, the addition of chemicals introduces potential hazards. Good Laboratory Practice must be employed and consideration must be given to the potential for hazard when dealing with these chemicals.

Good Laboratory Practice must be used when handling tissue samples to prevent cross contamination and infection. The user should complete a risk assessment to determine any potential hazards related to tissue handling.

- Do not introduce any source of ignition into, or near, the instrument once it has been loaded with reagents.
- Do not remove any panels or access covers, unless specifically instructed to do so. The instrument does not have any user serviceable parts. Potentially lethal voltages are present inside the instrument.
- The instrument must be properly connected to a good earth, (ground) via the Mains input supply and positioned such that it is possible to interrupt the Mains supply at the source by removing the plug from the socket.
- Use only factory approved accessories or replacement parts within the instrument.
- Only use reagents recommended in the operator guide.

- Position the instrument such that it is possible to interrupt the Mains supply at the source by removing the plug from the socket.
- If this instrument is used in a manner not specified by Epredia, the protection provided by the instrument may be impaired.
- Make sure that there is at least 100 mm (4 in) clearance around any fan inlets on the instrument.
- Do not use the instrument in close proximity to strong electromagnetic radiation, as these may interfere with the proper operation. The electromagnetic environment should be evaluated prior to operation of the device.

- Once the instrument is fully setup, do not attempt to move the instrument. Only trained Epredia service engineers are authorised to move the instrument.
- When the doors are open on the SBTS, be careful not to get your hands caught if the doors should drop down and close.
- Extraction of SBTS is via the Gemini AS – refer to the Gemini AS Operator Guide to make sure the filter is correctly fitted and the extraction system is operating correctly.
- Moving mechanical surfaces inside the SBTS can cause a trap hazard when the doors on the instrument are open.

Disposal of Sealed Lead Acid Batteries

Three batteries are located within the SBTS: one for Gemini, two for ClearVue:

Follow the instructions for the Disposal of Sealed Lead Acid Battery sections in the Gemini AS Operator Guide (A81510100) and ClearVue Operator Guide (A79210100).

Batteries cannot be accessed by the customer and must only be replaced by trained service personnel.

Chemical Safety

The introduction of chemicals creates potential hazards. Epredia has adopted the following position with regard to the subject of volatile chemicals used in laboratories:

- Customers using non-specified chemicals in the instrument, do so at their own risk.
- Do not use harmful chemicals or solvents to clean the instrument.
- The operator has carried out any legally required assessment of chemicals used and is using Good Laboratory Practice.
- All chemicals recommended by Epredia have auto-ignition temperatures considerably above any surface temperatures that can be reached during a single fault failure on the instrument.

- Harmful chemical vapours such as Xylene may be emitted during the normal operation of some instruments and the operator should be aware of suitable precautions and safety measures. The short-term exposure limits for Xylene will be no greater than 100 ppm.
- The instrument contains no source of ignition in any areas of the instrument where chemicals are stored, or likely to leak into, in a single fault condition.
- Do not use consumables past their expiration date.
- The operator is fully aware of the contents of the specification documents detailing the properties of the chemicals they are using.

Some chemicals which may be used during operation are flammable - do not use sources of ignition in the vicinity of the instrument when it is loaded with reagents.

Environment

This instrument is required to comply with the European Union's Waste electrical and Electronic Equipment (WEEE) Directive 2012/19/EU. It is marked with the following symbol:

Epredia has contracts with one or more recycling / disposal companies in each EU Member State and this product and packaging should be disposed of or recycled through them. For further information, contact your Epredia service representative.

Warranty Statement

Epredia is proud of their quality, reliability and of our after-sales service. We continuously strive to improve our service to our customers.

Please ask your distributor or Epredia representative about service contracts which can help maintain your instrument in an optimal operating condition.

Warranty provisions necessarily vary to comply with differences in national and regional legislation. Specific details can be found in the delivery documentation or from your dealer or representative.

Please note that your warranty may be invalidated if:

- This instrument is modified in any way, or not used as intended by Epredia.
- Accessories and reagents which have not been approved by Epredia are used.
- The instrument is not operated or maintained in accordance with instructions.
- The installation of the instrument was not conducted by a certified Epredia representative.

Any serious incident that has occurred in relation to the device shall be reported to the manufacturer and the competent authority of the Member State in which the user/or the patient resides.

How to use this Guide

Introduction

The Slide Basket Transfer System, (referred to as SBTS) is intended for use in pathology laboratories by operators familiar with staining and coverslipping techniques and laboratory equipment.

This Operator Guide must be read in conjunction with the following Operator Guides:

- Gemini AS Operator Guide (A81510100)
- ClearVue Operator Guide (A79210100)

Before operating the SBTS, ensure that you have read and understood the Safety Information and the relevant sections in this Operator Guide and the Gemini AS and ClearVue Operator Guides.

Chapter Summary

This Operator Guide is structured to let you start processing quickly and safely with the SBTS.

Chapter 1 - Introduction to the SBTS

This chapter gives a tour of the instrument and its features. It describes the different parts of the instrument and gives general information about using the SBTS.

Chapter 2 - Installation and Setup

This chapter is a guide to installing and setting up the SBTS.

Chapter 3 - Basic Operation

This chapter explains how to load, stain and coverslip slides using the SBTS on a day-to-day basis.

Chapter 4 - Cleaning and Maintenance

This chapter describes how to clean and maintain the SBTS to ensure that staining and coverslipping is safe, efficient and reproducible.

Chapter 5 - Troubleshooting

This chapter helps identify and resolve common faults and issues.

Introduction

Welcome to the SBTS Operator Guide.

This chapter introduces the SBTS and provides an overview of the instrument.

The following subjects are covered:

- Introduction to the SBTS
- Identification of parts
- System specifications
- System interface

Introduction to the SBTS

The SBTS is an accessory to link a Gemini AS to a ClearVue to allow a basket of slides to be automatically transferred from the Gemini AS to the ClearVue.

Note

When it is used as part of the SBTS, it is recommended where possible that the Gemini AS pot layout should be changed so that position 16 reagent is compatible with the final step of the stain protocol, (refer to the Loading Reagents section).

For more information and step-by-step instructions, refer to Chapter 3: Basic operation.

To create and run your own staining protocols on Gemini and learn how to maximize the efficiency and throughput of the instrument, refer to Chapter 4: Advanced operation in the Gemini AS Operator Guide.

IVD Intended Purpose

The automated Slide Basket Transfer System is an in vitro diagnostic device intended to be used by trained professionals in a laboratory environment as an accessory to the Gemini AS microscope slide stainer and ClearVue slide coverslipper for the transfer of glass slide baskets.

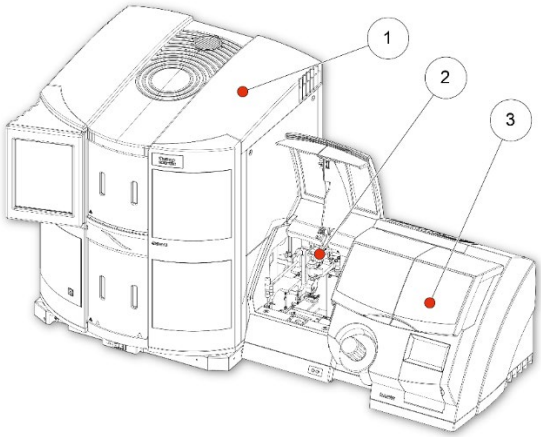
Pre-defined Gemini AS Protocols

The Gemini AS is supplied with pre-defined protocols which have been optimised for Epredia stains and reagents. These pre-defined protocols are provided for convenience only. They may need to be modified to suit your own reagents, water and other local conditions.

Epredia has not validated these protocols under all possible conditions and takes no responsibility for their use. Customers should always validate protocols under local laboratory conditions. For more details and product information, please contact your Epredia representative.

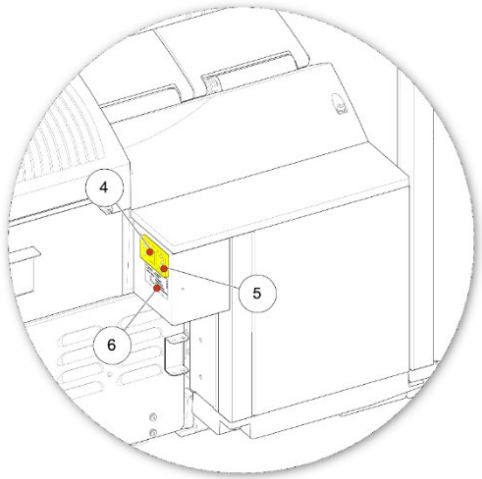
Identification of Parts

The following diagrams identify the different components of the SBTS. Familiarise yourself with the location of the Gemini loading stations A and B, magnetic sensors, transfer location, SBTS load and service doors, ClearVue load doors.



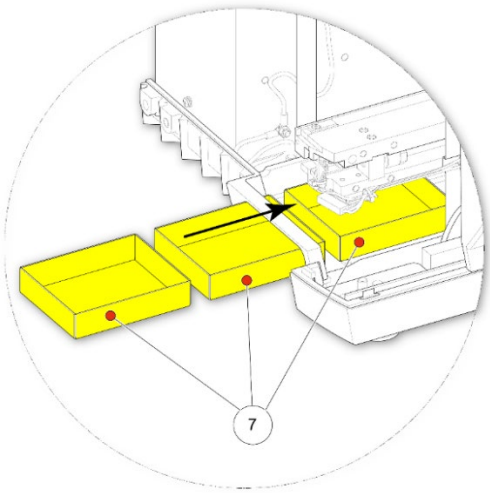
SBTS (front view, doors open)

1. Gemini AS
2. SBTS
3. ClearVue



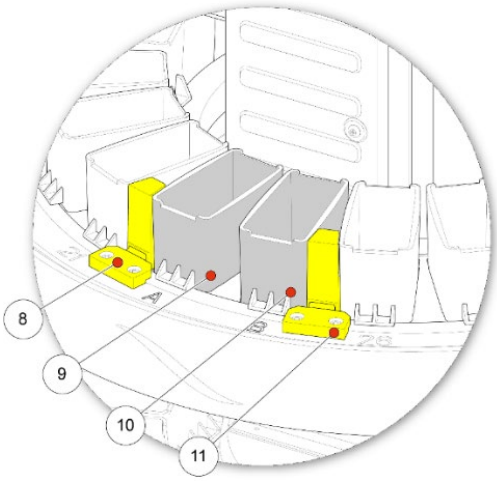
SBTS (rear view, connections)

4. Power switch
5. Power inlet
6. Rating label



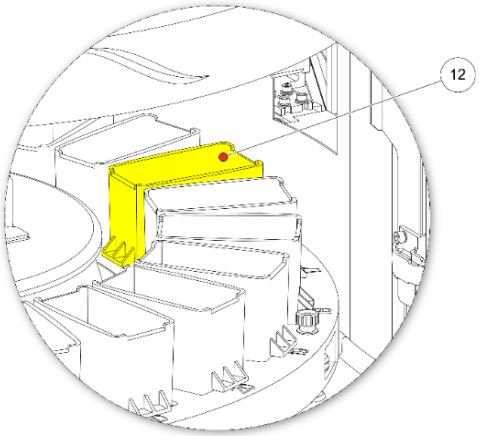
Three Xylene trays fitted into ClearVue (Gemini AS and SBTS removed for clarity)

7. Xylene trays (x3)



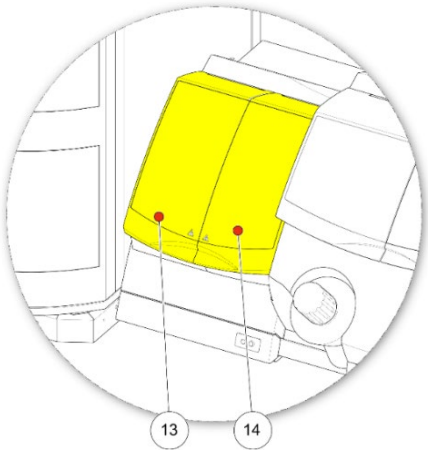
Gemini AS Loading Station A and B (Magnetic Sensors)

8. Left Hand Magnetic Sensor
9. Loading Station A
10. Loading Station B
11. Right Hand Magnetic Sensor



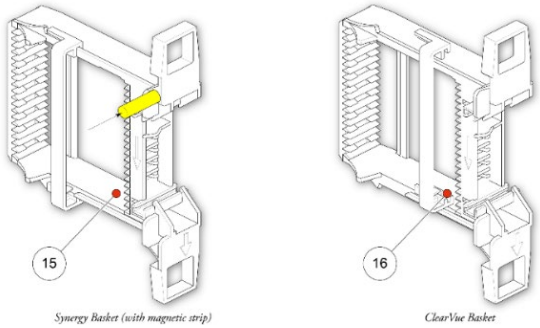
Gemini AS Pot 16: Transfer Position to SBTS

12. Transfer position to SBTS occurs above Pot 16



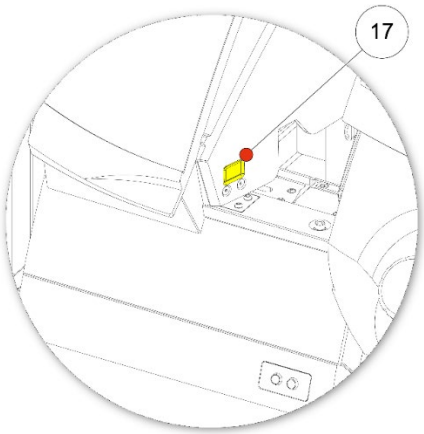
SBTS Doors

13. Service Door
14. Load Door



SBTS basket and ClearVue only basket

15. SBTS Basket (with magnet shown in yellow)
16. ClearVue-only Basket

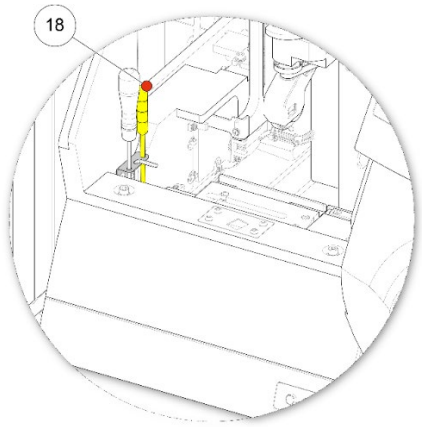


Service door release button

17. Service Door Release Button

Note

Press this to open the door and press again when closing the door.

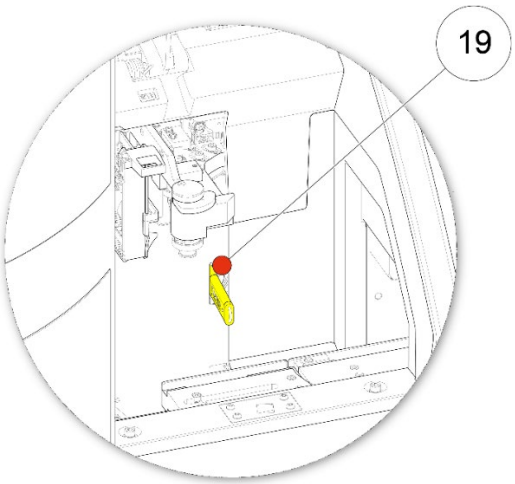


SBTS tool location

18. SBTS Manual Unload Screwdriver (shown in yellow)

Note

This storage position is used for this SBTS screwdriver (shown in yellow) and the ClearVue tools (screwdriver and Allen key shown in white at the same location).



ClearVue USB location

19. ClearVue USB location within the SBTS (USB flash drive shown in yellow)

Note

Refer to the Create the Engineer's Log and Update the System Software sections in Chapter 3 of the ClearVue Operator Guide.

System Specifications

The specifications for the SBTS instrument are detailed in the following tables.

The combined stainer-coverslipper system weighs approximately 165 kg (365 lb) when empty and 179 kg (395 lb) when full. The system must be separated into two parts and moved by trained service personnel.

At least two people are required to safely move the instrument. Ensure you do not tilt the instrument during movement.

Mechanical Specifications

Width (Gemini AS + SBTS + ClearVue)	157 cm (61.81 in)
Depth (including Gemini touchscreen housing)	790 mm (31.10 in)
Height (Gemini AS)	890 mm (35.04 in)
Weight *(with no reagents)*	165 kg (365 lb)
Weight *(with typical reagents)*	179 kg (395 lb)

Electrical Specifications

Power Supply Voltages	100 - 240 VAC (~) *Maximum supply voltage fluctuations not to exceed ± 10% of nominal voltage.*
Frequency	50 / 60 Hz
Power	600 VA
Fuses	2 x T10A, 250V

Environmental Specifications

For indoor use only

Temperature (operating limits)	+5°C to +40°C (+41°F to +104°F)
Temperature (recommended operation)	+15°C to +30°C (+59°F to +86°F) *Performance may deteriorate when operated outside this temperature range.*
Temperature (transit/storage)	-25°C to +55°C (-13°F to 131°F), +70°C (158°F) for short exposure.
Humidity	Maximum 80% RH at 31°C (88°F) decreasing linearly to 50% RH at 40°C (104°F)
Altitude	Up to 2000 m (6500 feet)
Pollution Degree	2
Over Voltage Category	II
Baskets	Maximum operating temperature is 75°C. ***Note*** *Not dishwasher, microwave or autoclave safe.*
Noise Level	<70 dBA (Typically: 65 dBA)

System Interfacing

Users interact with the SBTS via the Gemini AS interface, which includes additional features for SBTS operation. These features are described in this manual. Normal Gemini AS screens are described in the Gemini AS Operator Guide.

Note

Refer to the System Interfacing section in Chapter 1 of the Gemini AS Operator Guide for general information about how to use the Gemini AS interface.

Refer to the System Interfacing section in Chapter 1 of the ClearVue Operator Guide for details of the ClearVue screen.

SBTS LEDs

As well as the normal Gemini AS and ClearVue displays, the SBTS has important LEDs that are described below:

Note

When the instrument is first turned on the LED's will flash several times.

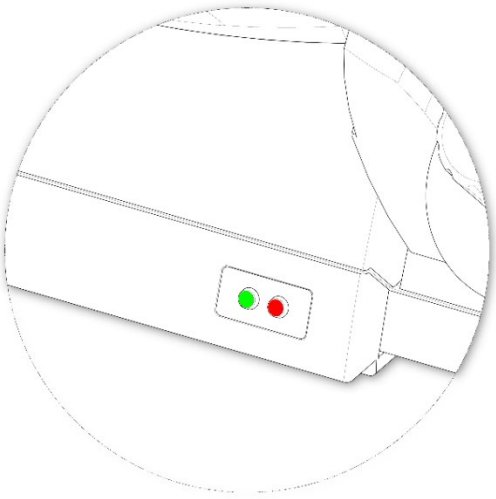
- *GREEN (left-hand) LED*

  This LED signifies that the SBTS is powered.
- *RED (right-hand) LED*

  This LED is ON when baskets are scheduled to transfer from Gemini AS to ClearVue. Manually loading baskets when the red (right-hand) LED is on will impact scheduling from the Gemini AS.

  It is recommended that only one basket is loaded into ClearVue at a time when the red (right-hand) LED is OFF.

  The red LED remains on until coverslipping is complete in the ClearVue and the ClearVue is available again for manual loading.



SBTS green power on LED and red warning LED

Chapter 2 - Installation and Setup

Installation and Setup

This chapter describes the installation and setup procedures for the SBTS and covers the following subjects:

SBTS is normally installed and commissioned by an Epredia trained service engineer. If the SBTS has already been installed and the required reagents have been loaded, refer to Chapter 3 - Basic Operation for a description of the routine operation of the instrument.

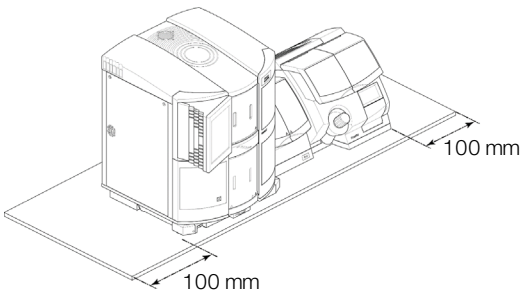
The combined stainer-coverslipper system weighs approximately 165 kg (365 lb) when empty and 179 kg (395 lb) when full. The system must be separated into two parts and moved by trained service personnel.

Instrument Positioning and Setup

Make sure that the SBTS is positioned so that Gemini is as close as possible to a power socket, water supply and waste water outlet.

The bench should be rigid and level and made from a non-flammable material and be at least 700 mm deep. Ensure that the bench can hold the maximum weight of the instrument (179 kg / 395 lbs) when it is fully loaded with reagents and accessories.

Make sure that there is at least 100 mm clearance on the left-hand side of Gemini AS (for the fan) and at least 100 mm on the right-hand side of ClearVue to access the battery switch.



Instrument positioning and clearances

Note

For ease of servicing, we recommend that 220 mm is left on the left-hand side of Gemini AS.

The height of the bench must take into consideration the height of the Gemini AS (890 mm).

Preparing Gemini AS

Refer to the relevant sections in the Gemini AS Operator Guide to carry out the following procedures.

- Connecting the water supply and drainage
- Fitting the filter
- Adjusting the turntable

Electrical Requirements

Refer to the Electrical Requirements section in this manual before proceeding further.

The combined stainer-coverslipper system is mains operated and requires an AC power source.

The combined stainer-coverslipper system must be plugged into a properly earthed mains supply.

Position the combined stainer-coverslipper system such that it is possible to interrupt the mains supply at the source by removing the plug from the socket and switching the battery isolator switches to off (O).

The wiring convention is as follows:

- Brown Wire - Live (L or L2) terminal
- Blue Wire - Neutral (N or L1) terminal
- Green/Yellow - Earth (E, ground or ⏚) terminal

The instrument is fitted with a rating plate, which describes the unit's electrical requirements.

SBTS rating plate

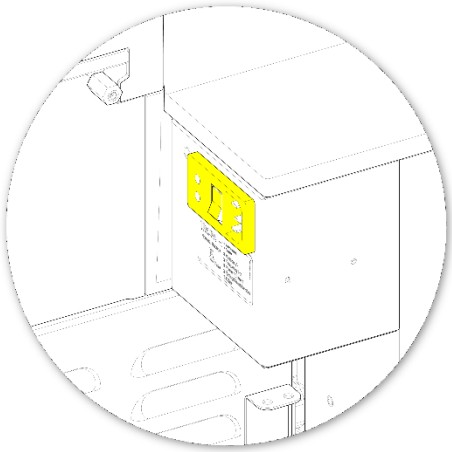
Start-up Procedure

Once Gemini AS, SBTS and ClearVue are unpacked and installed the system can be connected to mains power.

Before connecting the instrument ensure that the mains supply voltage corresponds with the voltage rating on the rating label next to the SBTS mains inlet.

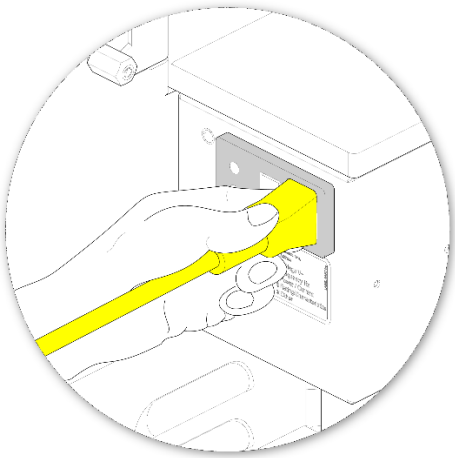
Connect the SBTS to the Mains Supply

- Ensure the mains power switch on the rear of SBTS is set to the O (OFF) position.



SBTS mains power switch – set to OFF

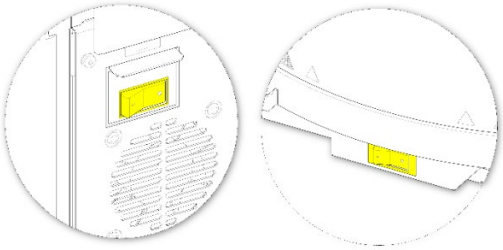
- Insert the appropriate moulded power cable, supplied with the instrument, into the 3-pin socket on the rear of the SBTS.
- Connect the other end of the cable to a suitable mains supply.



Power lead fitted

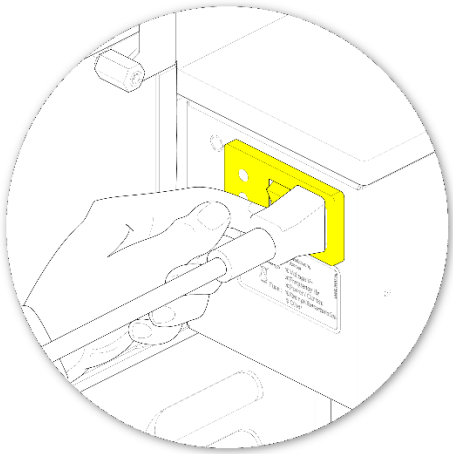
To start up the SBTS

- Press I (ON) side of battery isolation switches of Gemini AS and ClearVue.



Battery isolation switch for Gemini AS and ClearVue

- Press the I (ON) side of the mains power switch of the instrument.



SBTS mains power switch – set to ON

Note

When connecting the power supply for the first time, the batteries will take approximately 14 hours to charge. The battery isolation switch must be left in the ON position until the batteries are checked at the annual service or if the unit is to be shut down and transported, refer to *Normal Shutdown Procedure**.*

Shutdown Procedures

Normal Shutdown Procedure

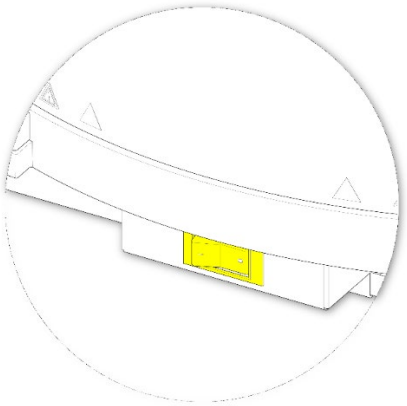
Follow this procedure under normal operating conditions.

- Wait for all baskets to be processed by Gemini AS and ClearVue.
- Switch off the mains power on the SBTS.
- Acknowledge the power off on the Gemini AS touchscreen.
- Shut down Gemini AS. Follow the instructions in the Shutdown Procedure section in Chapter 2 of the Gemini AS Operator Guide.
- Shut down ClearVue. Follow the instructions in the Shutting Down the ClearVue section in Chapter 2 of the ClearVue Operator Guide.

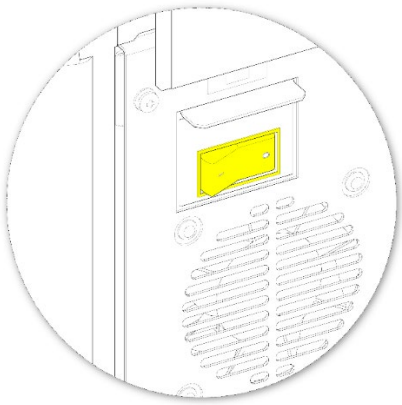
Emergency Shutdown Procedure

Follow the following procedure in an emergency

- Switch the battery isolation switch on Gemini AS to O (OFF) to isolate the power from Gemini AS and SBTS.
- Switch the battery isolation switch on ClearVue to O (OFF) to isolate the power from ClearVue.
- Remove the power cord to completely isolate the power from the system.



Gemini AS battery isolation switch location



ClearVue battery isolation switch location

Setting up Gemini AS

Refer to the relevant sections in Chapter 2 of the Gemini AS Operator Guide to carry out the following procedures.

- Options menu
- Setting the system language
- Setting the time and date
- Setting audible warnings
- Enabling access code protection
- Using other options
    - QC options
    - Load/save
    - Engineering logs
    - Software update

Setting up ClearVue

Refer to the relevant sections in Chapter 2 of the ClearVue Operator Guide to carry out the following procedures.

- Fill the mountant bottle
- Change the purge tray and debris tray
- Start up the ClearVue
- Fill the dispense head cleaning station
- Degas the mountant bottle
- Flush the system
- Purge the system
- Remove and replace the coverslip hopper

Chapter 3 – Basic Operation

SBTS-specific Basic Operation

This chapter covers the following SBTS-specific information:

- Setting up protocols
- Loading staining and coverslipping slides
- Maintaining the xylene tray level
- Manually loading basket

Gemini AS Basic Operation

Refer to the following sections in Chapter 3 of the Gemini AS Operator guide for the following basic operation topics:

- Using urgent start
- Using step start
- Monitoring the progress of a batch
- Checking reagent usage counts
- Responding to quality control alerts
- Pausing and replacing reagents
- Overriding a maximum use alert
- Pausing the instrument
- Returning a batch of slides
- Cancelling a batch
- Completing a protocol
- Batches report
- Battery back up
- Viewing reagent layout (in Chapter 4 of the Gemini AS Operator guide)

ClearVue Basic Operation

Refer to the following sections in Chapter 2 of the ClearVue Operator guide for the following basic operation topics:

- Daily tasks
- Weekly tasks
- Level the ClearVue before use
- Change the carbon filter
    - Fit the extraction kit
    - Fill the mountant bottle
    - Change the purge tray and debris tray
    - Start up the ClearVue
    - Fill the dispense head cleaning station
    - De-gas the mountant bottle
    - Flush the system
    - Purge the system
    - Remove and replace the coverslip hopper
    - Shutting down the ClearVue
    - Abort a basket / manually abort a basket
    - Remove slides during coverslipping
    - Remove baskets from the vertical lift

Processing Overview

The SBTS is an accessory to link a Gemini AS to a ClearVue to allow a basket of slides to be automatically transferred from the Gemini AS to the ClearVue.

Baskets can also be loaded manually into the ClearVue loading positions. A red light indicates that the transfer station is in operation and that baskets cannot be loaded manually without causing an alarm.

Note

If further baskets are ready for transfer in Gemini AS, they will be held in secure Gemini AS pots until the transfer can take place.

We recommend that you do not manually load baskets into ClearVue when the transfer station red (right-hand) LED in ON. If you do, an alarm will sound.

The main operational steps are as follows:

- Place slides into an SBTS slide basket.
- Select and load the required protocol set. The protocol set defines the available staining routines.
- Load reagents into Gemini AS. The reagents required depend on the selected protocol set. Reposition the last post-stain reagents under the transfer position (16) if required.

Open one of the Gemini AS load doors, place a slide basket in the starting position and close the load door. Decide if this basket should also be coverslipped.

Note

Only Gemini load doors A and B can be used with SBTS

Note

The default option assumes that an SBTS basket will be used for transfer to ClearVue. The ClearVue button on the Gemini AS screen will have yellow text. If the basket is not to be transferred to ClearVue, press the ClearVue button on Gemini AS to deselect it (the button text goes white).

- Start the required protocol. The available protocol depends on the selected load door.
- Once the staining has commenced additional baskets can be introduced into Gemini AS.
- Remove the slide basket either:
  - Out of ClearVue when staining and coverslipping is completed, or
  - From unload door of Gemini AS if staining is completed and no coverslipping was required.

Note

Baskets loaded for coverslipping by ClearVue may still be presented to the unload door if the ClearVue becomes unavailable for an extended period during the staining. Baskets will also be presented to unload doors when the mains has failed.

Before using the SBTS, make sure that the Gemini AS and/or ClearVue extraction systems have been set up correctly according to their respective operator guides.

Setting up Protocols

Once slides have been loaded into baskets, they can be stained using one of the instrument's staining protocols.

To run a specific protocol:

- First load a protocol set.
- Review the reagent layout and reposition the last post-stain reagents under the transfer position (16) if required.
- Load the required reagents into the instrument.

Loading, Staining and Coverslipping Slides

SBTS slide baskets (part number A84510032) are used to hold the slides in the instrument during staining and coverslipping.

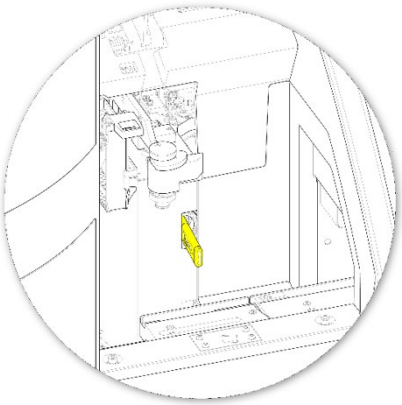
To initiate staining and automatically coverslipping:

- Load baskets into the instrument through the appropriate load door. If a basket is to be coverslipped the load position must be A or B.
- Start the protocol with the selected load door.

The load and unload doors are intended for access to the reagent pots directly behind the doors. Be aware of moving parts during operation. Do not reach further into the instrument as the arm can move both horizontally and vertically without warning and cause injury. Do not touch the arm mechanism at the centre of the instrument. Do not rest your hands-on top of the reagent pots.

Remove all single or multi-pot reagent covers before any baskets are loaded.

Before loading the first basket of the shift, open the SBTS load door and make sure that the ClearVue USB port is empty. If a USB stick (flash drive) has accidentally been left in place, it may be damaged or could prevent the transfer of baskets to the ClearVue input rail.

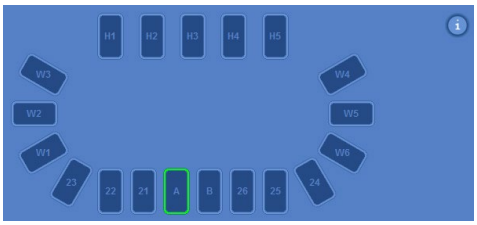


ClearVue flash drive location

Note

You can only load baskets into the instrument if the load positions are not occupied by other baskets.

- Load the slides into the baskets (refer to the Load a Basket section in Chapter 2 of the ClearVue Operator Guide).
- Slide open the appropriate load door. Available load doors are outlined in green on the Stain screen.

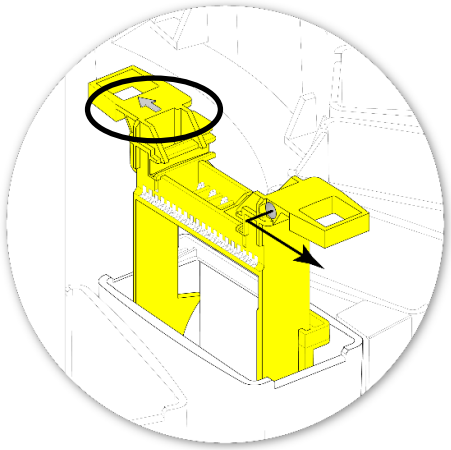


Door A is available for loading

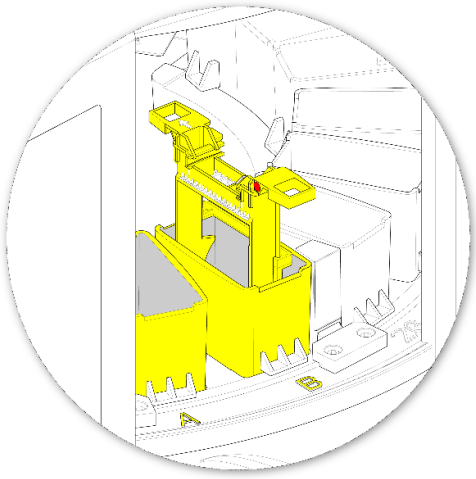
- Load the basket into the Gemini AS loading position A or B. Make sure the basket is loaded centrally in the pot.

  Any SBTS baskets containing slides to be coverslipped must have their magnet towards the user and the moulded arrow pointing into Gemini AS.

- Close the load door.



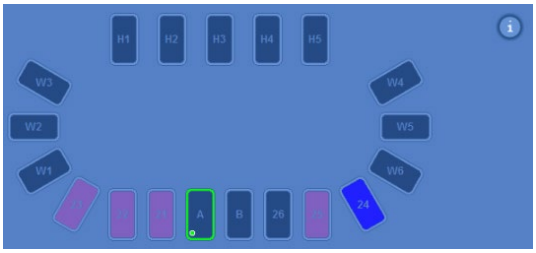
Magnet position for automatic coverslipping



Gemini AS positions A and B

Note

When an SBTS basket is loaded, the magnets in the basket are detected and are shown as green dots on the stain screen.

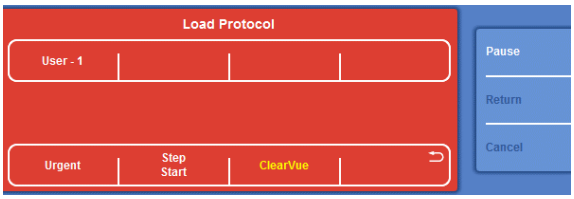


SBTS basket detected (green dot)

- The Load Protocol window is then displayed in the centre of the screen.

  This lists all the protocols in the selected protocol set that can be started from the selected load door.

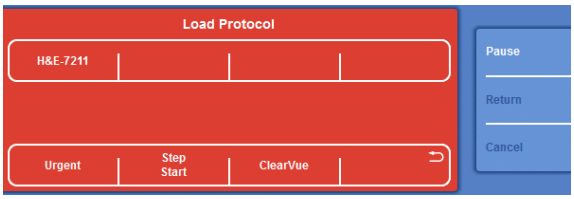
  If an SBTS basket is detected, the ClearVue button on the Gemini AS screen is active and has yellow text.



The Load Protocol window

- If you do not want the basket to be automatically coverslipped, deactivate the ClearVue option in this screen.

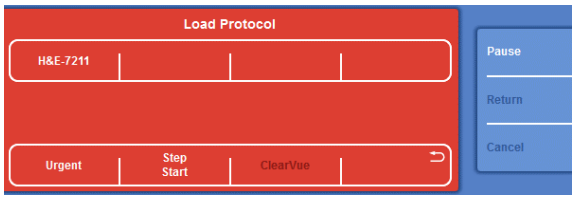
  In this case ClearVue option is already disabled in this screen (the ClearVue button text is white).



ClearVue option disabled

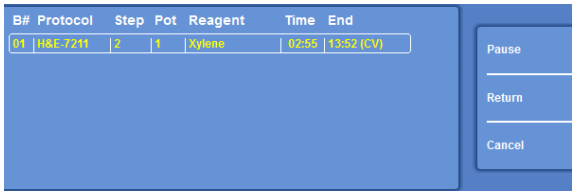
If you want to use an urgent or step start, refer to the Using Urgent Start and Using Step Start sections in Chapter 3 of the Gemini AS Operator Guide, for details.

The ClearVue button is not active if the basket is inserted the wrong way around. Replace the basket in the correct orientation before proceeding further. If they are inserted incorrectly there may be a risk to the staining operation.



ClearVue option deactivated

- Press the button corresponding to the protocol that you want to run.
- The selected protocol is started. The Batch Monitoring window replaces the Load Protocol window.



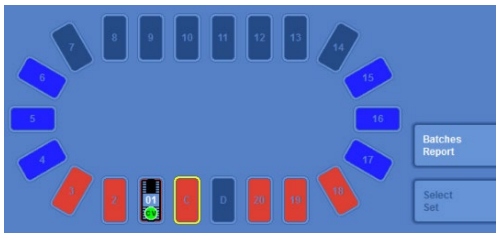
The Batch Monitoring window

Note

The Return key is not available while a basket is being transferred from Gemini AS.

Note

The SBTS basket destined for ClearVue is marked with CV in Stain screen.



SBTS basket marked with CV

- Baskets are picked up and moved through the various reagent pots once the protocol is started.
- When the protocol has completed:
  - SBTS baskets are automatically transferred to ClearVue.
  - If a basket was started as a non-ClearVue basket, it can be removed from the Gemini AS unload positions.

Note

Baskets that have transferred to the ClearVue will remain on the Batch Monitoring list until they have been coverslipped and ClearVue has signalled that it is ready to accept another basket.

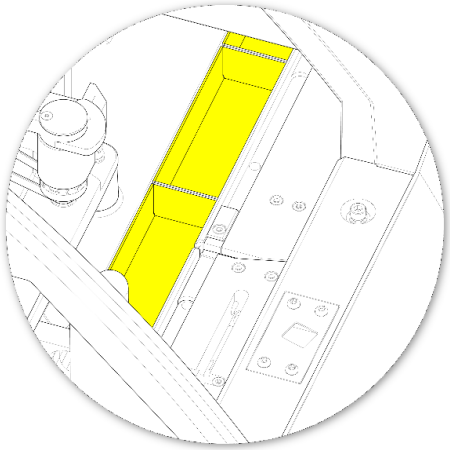
Be aware of the transfer arm whenever the transfer station service door is open.

The Slide Basket Transfer System will balance the demands of the staining protocols with the speed of the ClearVue coverslipper. Baskets will be retained in Gemini AS reagent locations until ClearVue is ready to accept them. It is recommended that the number of baskets loaded onto Gemini AS at the same time is limited to 15, or less if a basket of slides will be waiting for more than 60 minutes to progress through its staining protocol.

Maintaining the Xylene Tray Level

The Xylene trays are intended to provide a xylene-rich atmosphere to prevent slides on the load rail from drying out when the system is used for manual loading and there are likely to be multiple baskets on the load rail. In normal SBTS use, with automatic transfer between Gemini and ClearVue, it is not necessary to fill the Xylene trays.

If the system is to be used for manual loading, check the Xylene trays every week. Top up or empty as required.



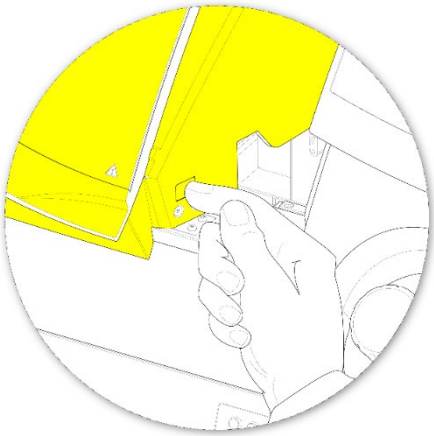
Xylene trays

- Open the SBTS load (right-hand) door.
- Press the service door release button and lift the service door to open it.

Note

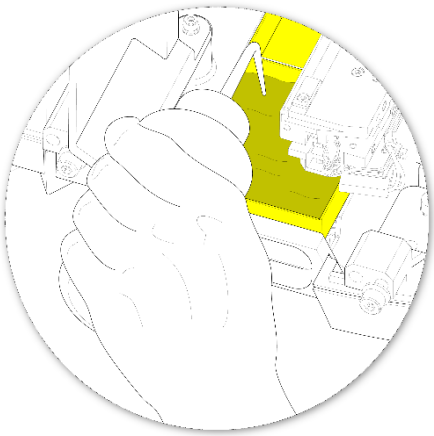
This is equivalent to opening the Gemini AS big door. Staining will stop.

- Empty the trays and dispose of the used Xylene in accordance with local procedures.
- Slide the empty trays into the ClearVue.
- Refill each tray with fresh Xylene using the wash bottle.



Service door release button

- Check the Xylene trays are filled to a third full.
- If necessary, use the wash bottle to fill up the trays with fresh xylene.

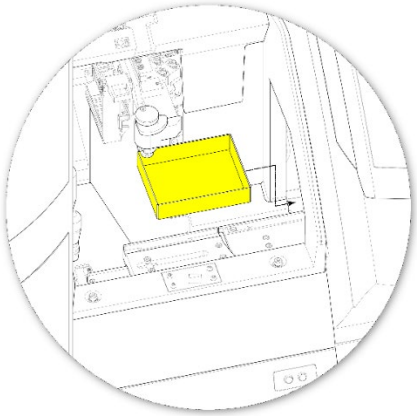


Fill Xylene trays

- If you need to empty the old Xylene from the trays, carefully slide out each tray from the ClearVue.

We recommend that only one basket is manually loaded onto an empty system at a time to avoid any impact on the Gemini AS stainer baskets.

- Press the service door release button and close the service door.
- Close the SBTS load door.



Remove and refit trays

Manually Load a Basket

Baskets can be manually loaded into the ClearVue via the SBTS load door.

Refer to the Load a Basket section in Chapter 2 of the ClearVue Operator guide.

Only manually load baskets when the red (right-hand) LED is OFF on the transfer station.

Do not manually load baskets if both red and green LEDs are on.

If the ClearVue is not available for transferring baskets from the transfer station for more than 10 minutes the Gemini AS will start to direct finished baskets to the unload doors.

Check the magnet on the basket is free from debris before loading into Gemini AS.

Unload a Basket

To unload baskets from the ClearVue, refer to the Unload a Basket section in Chapter 2 of the ClearVue Operator guide.

Note

Be aware that magnets in the slide baskets will pull the baskets together. Use two hands to unload a basket.

Reagent Layout

The layout of reagents in the Gemini AS can be changed to optimise the throughput of baskets by duplicating steps to eliminate bottlenecks or by minimising the movement of the arm. It can also allow different protocols to share reagents or remain separate. The layout of reagents can be viewed or changed using the Customise Layout option from the Setup Sets screen.

A new protocol set, recently changed protocol set or protocol set with a red status, MUST have its layout inspected, via Customise Layout, before it can be saved.

Chapter 4 - Cleaning and Maintenance

This chapter describes how to clean and maintain your SBTS.

Refer to Chapter 5 of the Gemini AS Operator Guide and Chapters 4 and 5 of the ClearVue Operator Guide for details of how to clean and maintain these parts of the stainer / coverslipper system.

Read this chapter to learn about:

- Cleaning safety
- Spillages
- Waste reagents
- SBTS specific tasks

Cleaning Safety

Normal standards of laboratory hygiene and routine maintenance procedures are all that is necessary to keep the SBTS in good and serviceable condition.

Before using any cleaning or decontamination method, except those recommended by the manufacturer, users should check with the manufacturer that the proposed method will not damage the equipment.

Inspect the instrument for obvious damage or wear whenever you clean or use it.

Turn off the instrument and disconnect it from the mains supply before cleaning.

Always wipe up any spills immediately.

In the event of a major spillage, disconnect the instrument from the mains supply immediately and do not reconnect and switch on until the instrument has been thoroughly dried out and checked by a Service Engineer.

If hazardous material is spilt on, or inside, the instrument you must carry out the appropriate decontamination.

We recommend removing corrosive reagents from Gemini AS (e.g. Acid Alcohol) if the system is powered off to prevent damage to ClearVue mechanisms

Do not use abrasive compounds or metal components to clean the SBTS or its components and accessories.

Always take the necessary safety precautions when you clean or decontaminate the SBTS to protect yourself against the effects of chemicals.

Do not remove any access covers.

As with all scientific equipment, due care and Good Laboratory Practice must be employed when dealing with chemicals, and consideration must be given to the potential for hazard when dealing with particular chemicals. Wear gloves and other PPE if required.

Clearing Spillages

Note

Follow your own laboratory practice spillage procedures or do the following.

Any reagent spills within the instrument will be contained. Small spills, such as drips from the reagent tubes when the reagents are changed, will evaporate and be extracted.

Some chemicals which may be used during operation are flammable – do not use sources of ignition in the vicinity of the instrument when it is loaded with reagents.

Harmful chemical vapours such as xylene may be emitted during the normal operation of some instruments, and the operator should be aware of suitable precautions and safety measures. The short-term exposure limits for Xylene will be no greater than 100 ppm.

Follow the cleaning instructions for the Gemini AS and ClearVue in Chapter 5 of their respective Operator Guides.

SBTS Specific Cleaning Tasks

Wipe the base inside the SBTS every week to remove any drips or spills.

Wipe all parts that come into contact with the baskets, including the ClearVue load rail.

Waste Reagents

Always dispose of waste reagents safely. Wear gloves or other PPE, if appropriate.

Do not pour waste reagent into the public drain without approval from your local waste water authority.

Chapter 5 -Troubleshooting

To ensure safety, reliability and consistency of performance, only a qualified Epredia Service Engineer should set up, service or repair the SBTS instrument.

Only an authorised technician should replace instrument fuses.

Moving the SBTS mechanism incorrectly can cause damage.

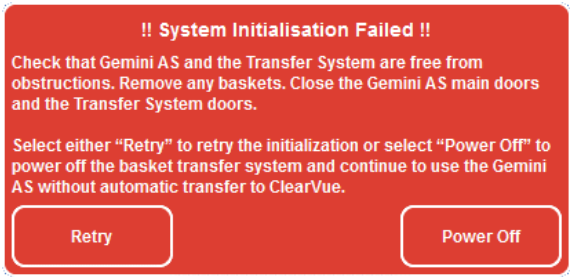
This chapter describes how to troubleshoot problems that may occur when using the SBTS.

Refer to Chapter 6 of the Gemini AS and ClearVue Operator Guides for details of how to troubleshoot these parts of the stainer-coverslipper system.

SBTS-specific Error Messages

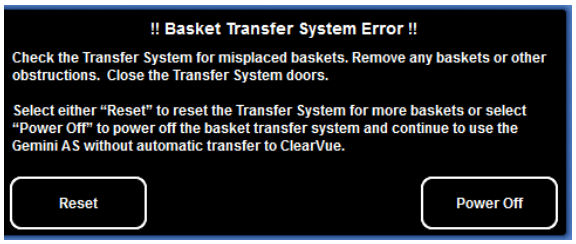
The following three error messages are SBTS-specific and are displayed on the Gemini AS screen:

!! System Initialisation Failed!!



- Check that Gemini AS and SBTS are free from obstructions.
- Remove any baskets.
- Close the Gemini AS main doors and the SBTS doors.
- Press **Retry** to retry the initialisation or press **Power Off** to power off the SBTS and continue to use the Gemini AS without automatic transfer to the ClearVue.

!! Basket Transfer Error!!

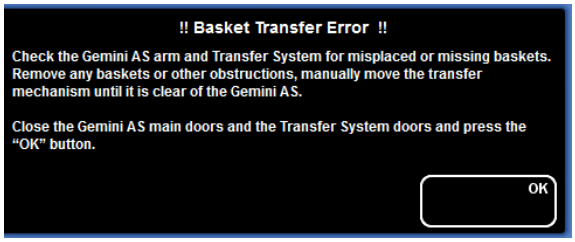


The basket did not transfer to the SBTS correctly and was not detected correctly at the twist home position.

- Check the Gemini AS arm and SBTS for misplaced or missing baskets.
- Remove any baskets or other obstructions.
- Manually move the mechanism until it is clear of the Gemini AS (look inside the Gemini AS to make sure the mechanism is clear of the transfer window).

- Close the Gemini AS main doors and the SBTS doors.
- Press the **OK** button.

!! Basket Transfer System Error!!



The basket did not transfer to ClearVue and get coverslipped correctly.

- Check the SBTS for misplaced baskets.
- Remove any baskets or other obstructions.
- Close the SBTS doors.
- Press **Reset** to reset the SBTS for more baskets or press **Power Off** to power off the SBTS and continue to use the Gemini AS without automatic transfer to ClearVue.

Note

If there is a mechanical problem e.g. damaged or misplaced belt, this error will recur. Select ***Power Off*** *in this case to continue to use the Gemini AS as a standalone instrument until the problem is corrected.*

Contact your local Epredia service partner if any problem persists.

Note

To confirm the LED's are functioning correctly, turn off the instrument then turn back on and ensure the LED's flash several times.

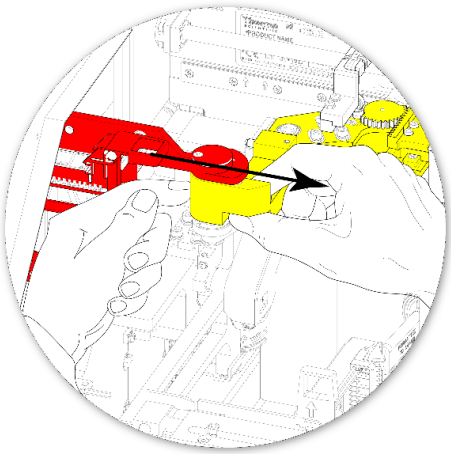
Removing Blockages

Gemini AS into SBTS

If there is a failure while moving the basket from Gemini AS into SBTS:

- Move the x-axis mechanism to the right. Apply pressure only in the areas identified in the picture.

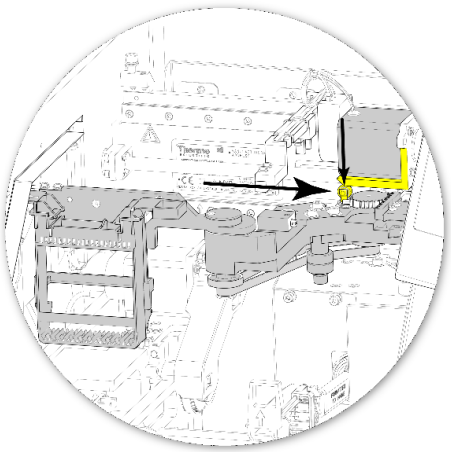
  Do not push or pull on the basket or pick-up part highlighted in red.



Manual push points on the x-axis mechanism

- Move the mechanism to the right to the home position.

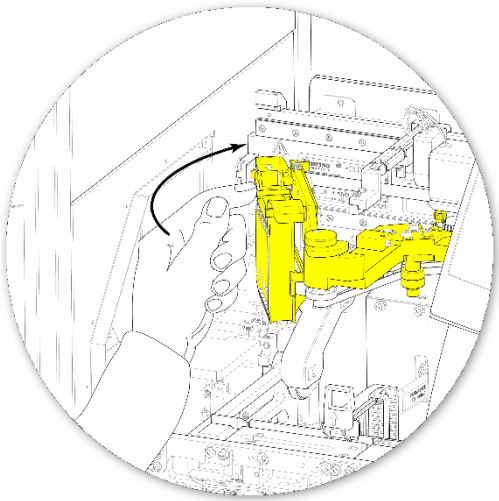
  The roller and pin will be depressed by the motor plate as shown.



Move the mechanism to the home position

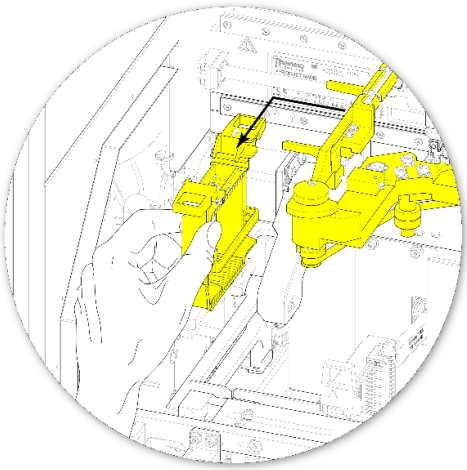
- With the roller and pin depressed, rotate the basket pick-up mechanism as shown.

  If the roller and pin is not depressed, the mechanism will not rotate and may be damaged if pushed too hard.



Rotate the basket pick-up mechanism

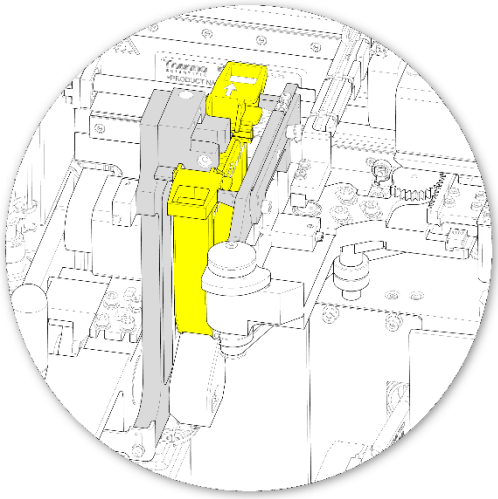
- Remove the basket as shown.



Remove the basket

Flip Mechanism

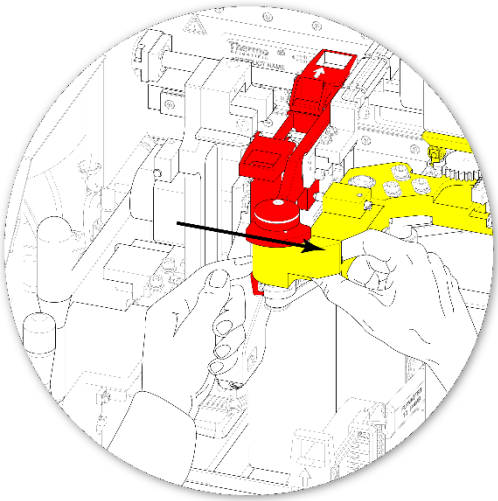
If there is a failure moving the basket onto the flip mechanism:



Flip mechanism

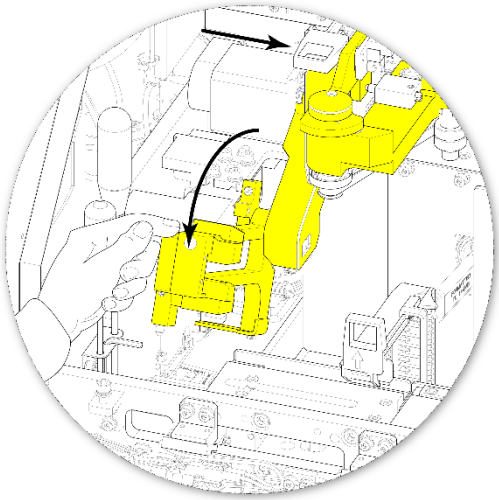
- Move the x-axis mechanism to the right. Apply pressure only in the areas identified in the picture.

Do not push or pull on the basket or pick-up part highlighted in red.



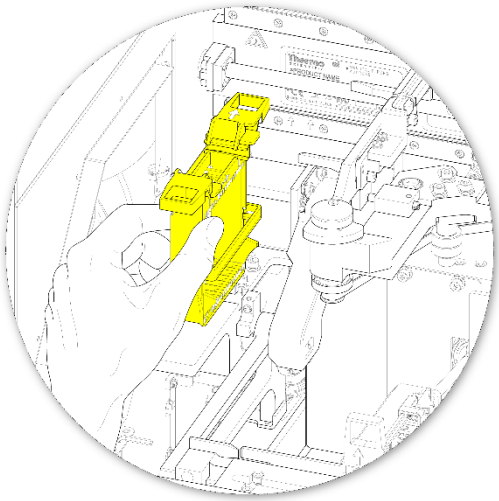
Manual push points on the x-axis mechanism

- Move the basket to the right to allow the flip mechanism to be rotated down as shown.



Flip mechanism rotated down

- Remove the basket as shown.

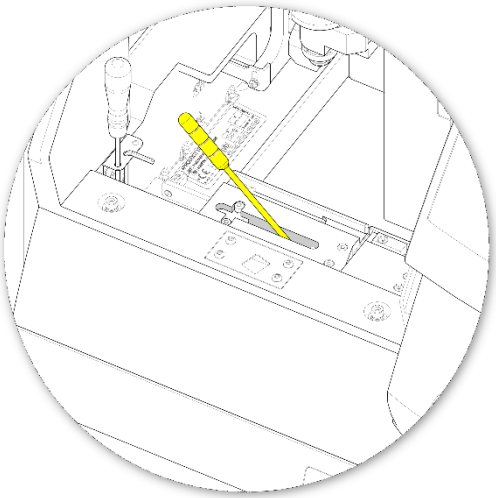


Remove the basket

Manually Unload a Basket

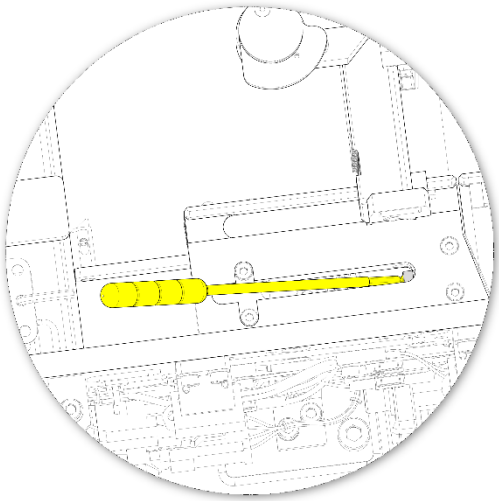
For details of how to remove a basket from the ClearVue load rails in the event of a problem, refer to the Remove Baskets from the Load and Unload Rail section in Chapter 2 of the ClearVue Operator Guide, with the following explanation of how to access the screwdriver slot on the end of the ClearVue mechanism leadscrew to move the baskets:

- When the SBTS is used to join the Gemini AS and ClearVue, the SBTS covers the normal access to the screwdriver slot on the end of the ClearVue mechanism leadscrew. A new tool is supplied with SBTS to access the leadscrew.
- Fit the SBTS manual unload screwdriver into the slot as shown in the diagrams



Location of the ClearVue leadscrew

- Push the screwdriver forward to engage with the ClearVue load rail mechanism, then rotate it clockwise to bring the basket pusher as far over to the left-hand side of the ClearVue as possible.



Unload screwdriver located in the leadscrew socket

- Reach through the ClearVue load door to remove the basket.

Appendices

The appendices provide additional information about your SBTS system.

Refer to the Appendices of the Gemini AS and ClearVue Operator Guides for specific information for those two instruments:

The following SBTS specific subjects are covered in the following appendices:

- Accessories
- Repacking your instrument

Appendix A - Accessories

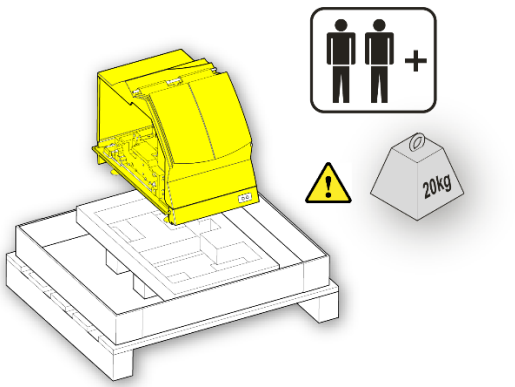
Part Number	Description
A84510032	SBTS basket kit black sliders (contains 5x baskets)
A84510041	SBTS basket kit white sliders (contains 5x baskets)
AP18730	Wash Bottle
A84530110	Manual Unload Screwdriver
A84510100	Operator Guide
A84510100-CD	Documentation CD
A84530101	Xylene Tray
A78430388	Memory Stick (Grey 1.44MB) (for use with ClearVue)
AP17385	USB Flash Drive 2GB (for use with Gemini AS)

Appendix B – Repacking Instructions

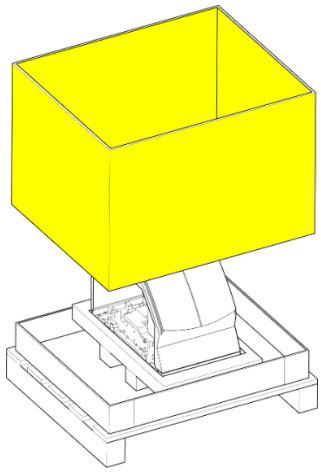
The combined stainer-coverslipper can only be dismantled by a qualified Epredia Service Representative.

Ensure that the combined stainer-coverslipper has been dismantled by a qualified person.

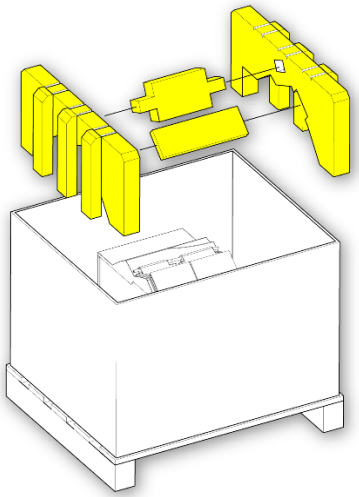
- Place the SBTS onto the foam base on the pallet.



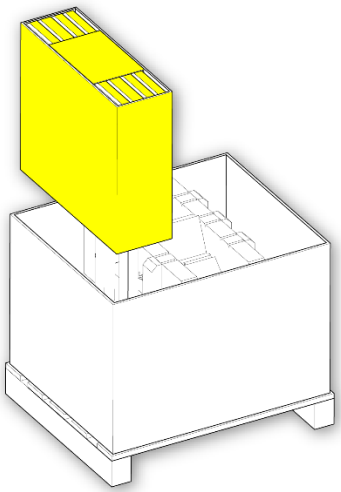
- Fit the outer carboard sleeve on top of the pallet.



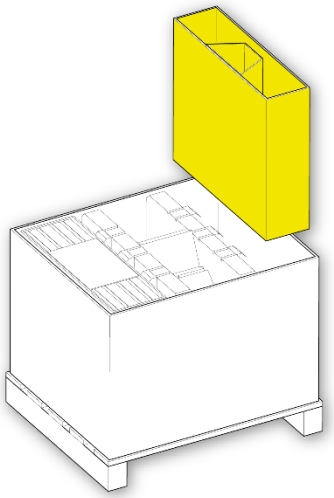
- Fit the Inner foam packaging on top of the SBTS in the packaging.



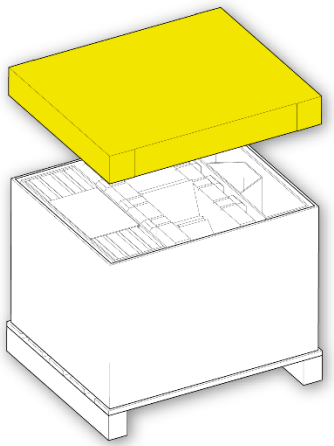
- Slide the accessories box into the packaging on the left-hand side of the instrument



- Slide the other accessories box into the right-hand side of the instrument.



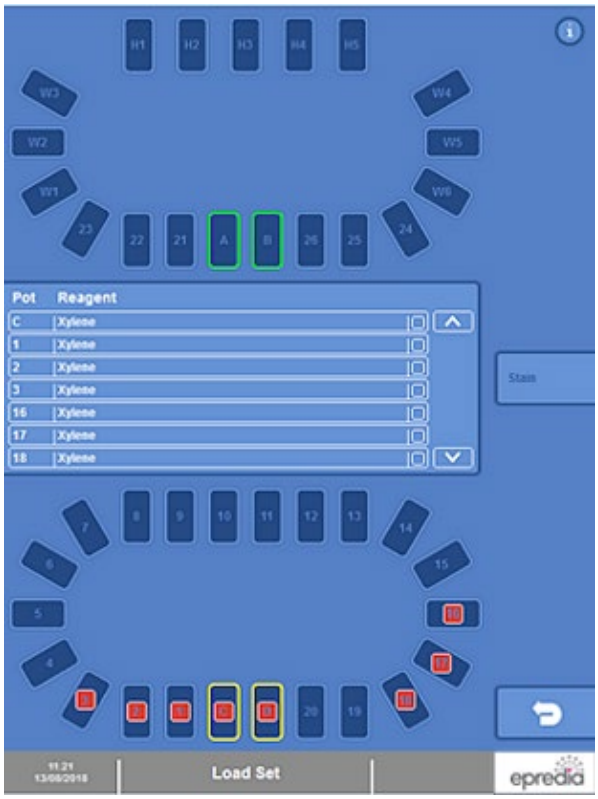
- Fit the lid onto the packaging box.

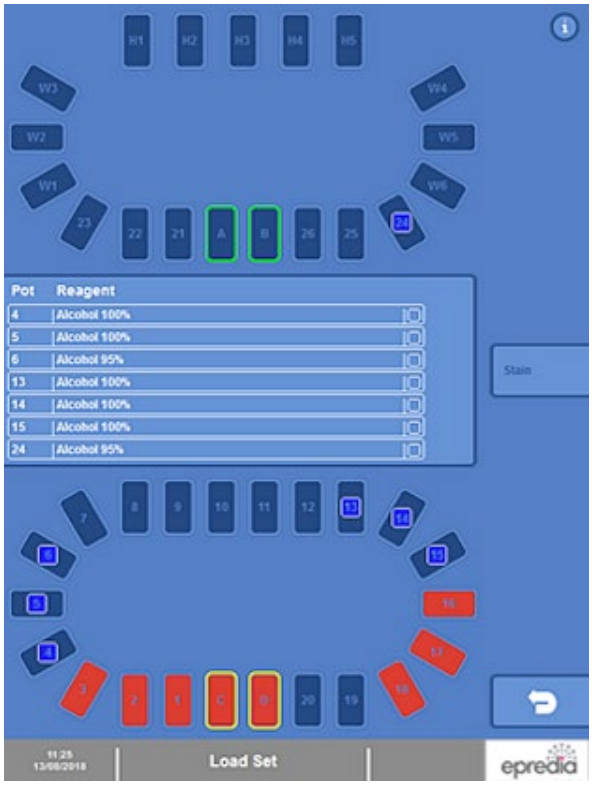


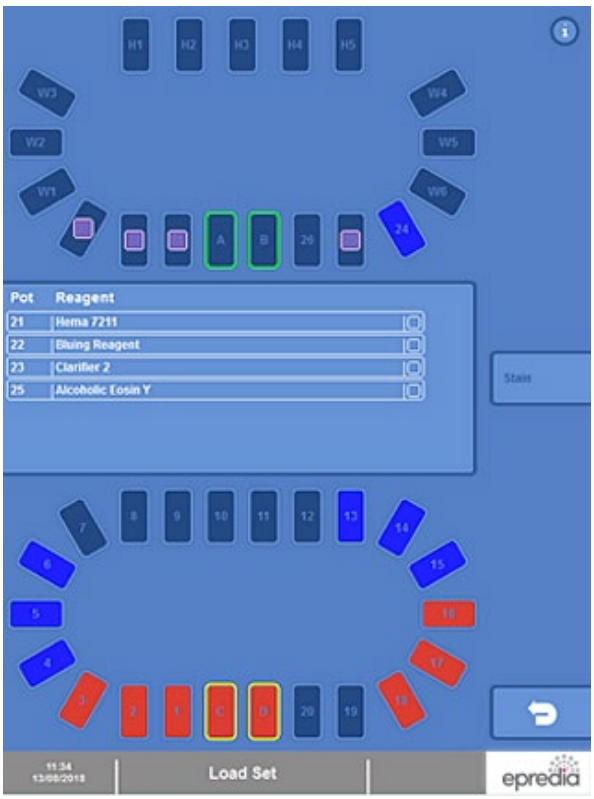
Appendix C – Recommended layouts for transfer via SBTS

Haematoxylin 7211 Protocol

Step	Reagent		Step Time	Limit	Agitate	Pot Number
1	Dry Storage		0:00			A & B
2	Xylene		3:00	No Max	Initial	1
3	Xylene		2:00	No Max	Initial	2
4	Xylene		1:00	No Max	Initial	3
5	Alcohol		1:00	No Max	Initial	4
6	Alcohol		1:00	No Max	Initial	5
7	Alcohol		1:00	No Max	Initial	6
8	Running Water		1:00	No Max	Initial	
9	Hema 7211		2:00	Critical	Initial	21
10	Running Water		1:00	No Max	Initial	
11	Clarifier 2		0:30	Critical	Initial	23
12	Running Water		1:00	No Max	Initial	
13	Bluing Reagent		1:00	Standard	Initial	22
14	Running Water		1:00	No Max	Initial	
15	Alcohol	95%	1:00	No Max	Initial	24
16	Alcoholic Eosin		0:30	Critical	Initial	25
17	Alcohol		1:00	No Max	Initial	15
18	Alcohol		1:00	No Max	Initial	13
19	Alcohol		1:00	No Max	Initial	12
20	Xylene		1:00	No Max	Initial	16
21	Xylene		1:00	No Max	Initial	17
22	Xylene		1:00	No Max	Initial	18
23	Xylene		0:00	No Max	Initial	C & D

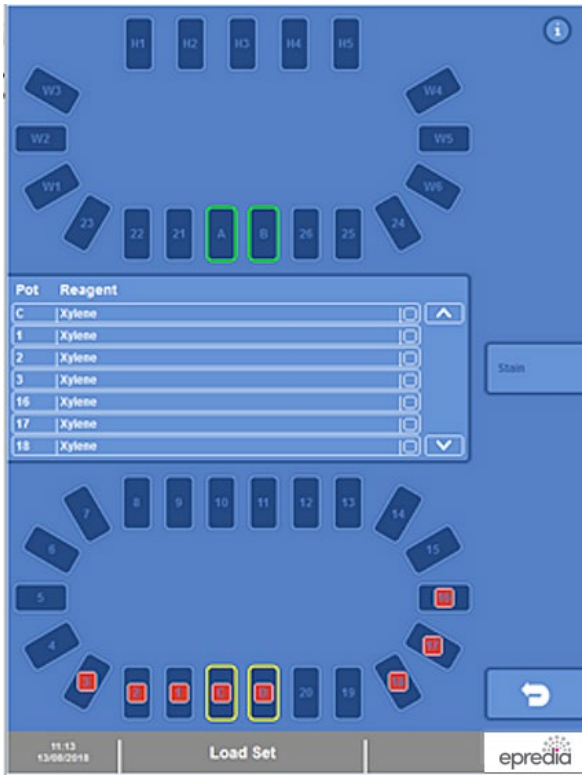

Pot Reagent
C Xylene
1 Xylene
2 Xylene
3 Xylene
16 Xylene
17 Xylene
18 Xylene
Stain
Load Set
epredia

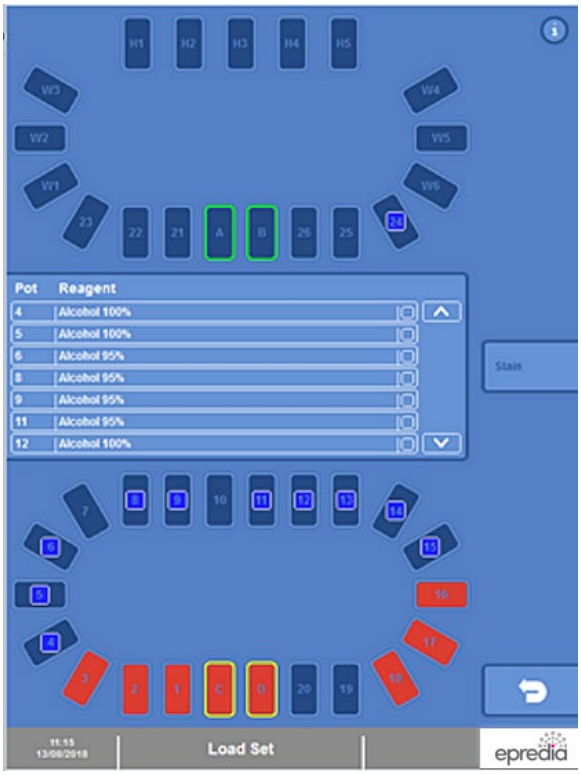

Pot Reagent
4 Alcohol 100%
5 Alcohol 100%
6 Alcohol 95%
13 Alcohol 100%
14 Alcohol 100%
15 Alcohol 100%
24 Alcohol 95%
Stain
Load Set
epredia

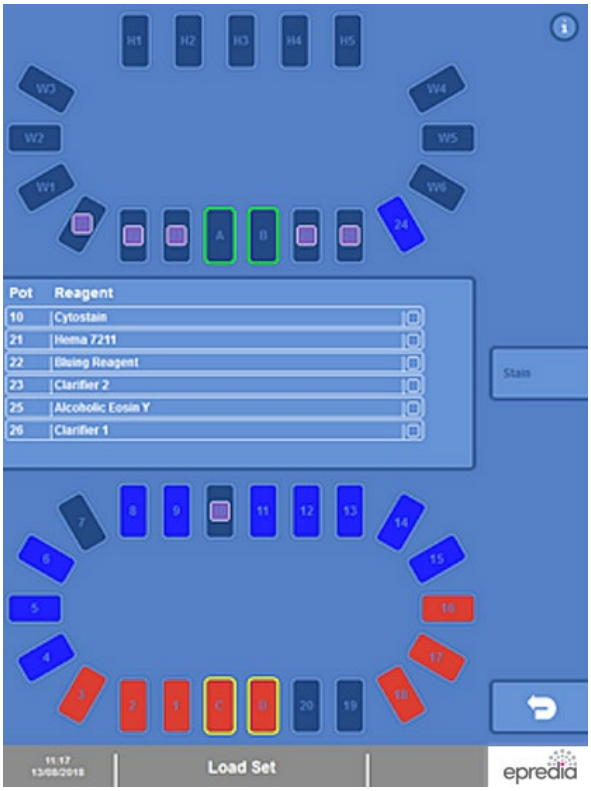

Pot Reagent
21 Hema 7211
22 Bluing Reagent
23 Clarifier 2
25 Alcoholic Eosin Y
Stain
Load Set
epredia

PAP Stain Protocol

Step	Reagent		Step Time	Limit	Agitate	Pot Number
1	Dry Storage		0:00			A & B
2	Alcohol		15:00	No Max	Initial	8
3	Alcohol		3:00	No Max	Initial	6
4	Running Water		3:00	No Max	Initial	
5	Hema 7211		1:00	Critical	Initial	21
6	Running Water		1:00	No Max	Initial	
7	Clarifier 1		0:45	Critical	Initial	26
8	Running Water		1:00	No Max	Initial	
9	Bluing Reagent		0:30	Standard	Initial	22
10	Running Water		0:30	No Max	Initial	
11	Alcohol	95%	0:30	Standard	Initial	9
12	Cytostain		1:00	Critical	Initial	10
13	Alcohol	95%	0:30	Standard	Initial	11
14	Alcohol	95%	0:30	Standard	Initial	24
15	Alcohol		1:00	No Max	Initial	12
16	Alcohol		1:00	No Max	Initial	15
17	Alcohol		1:00	No Max	Initial	13
18	Xylene		1:00	No Max	Initial	16
19	Xylene		1:00	No Max	Initial	17
20	Xylene		1:00	No Max	Initial	18
21	Xylene		0:00	No Max	Initial	C & D


Pot Reagent
C Xylene
1 Xylene
2 Xylene
3 Xylene
16 Xylene
17 Xylene
18 Xylene
Stain
Load Set
epredia


Pot Reagent
4 Alcohol 100%
5 Alcohol 100%
6 Alcohol 95%
8 Alcohol 95%
9 Alcohol 95%
11 Alcohol 95%
12 Alcohol 100%
Stain
Load Set
epredia


Pot Reagent
10 Cytostain
21 Hema 7211
22 Bluing Reagent
23 Clarifier 2
25 Alcoholic Eosin Y
26 Clarifier 1
Stain
Load Set
epredia

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Revision Control For This Document

Date	Revision number	Changes made
February 2022	8	IVDR compliance requirements added, including this revision record table.

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