Sample Change

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Note:  These instructions reflect current procedures in our lab on our Cameca SX50 only.
Sample Change Instructions

If you are removing a shuttle already in the microprobe: Start with PART I, page 3.

If you are inserting a new shuttle and the microprobe is currently empty: Start with PART II, page 15.

If you are exchanging shuttles (taking a shuttle out and then inserting another shuttle): Start with PART I, page 3 and follow the instructions for both Parts I and II.
PART I: Sample Extraction
Step 1

Press This Button

- **Display**
- **Video**
- **Vacuum**
- **Stage**
- **Column**
- **Eds**
- **Wds**

- **Hv**: 15.0 kV
- **Current**: 20.0 nA
Step 2

Press This Button

Setup

Off  Standby  On  Setup

Hv  15.0  kV
Current  20.0  nA
Step 3

Press This Button
Step 4

Press This Button
Step 5

Wait for the message: “Turn Gun Valve to Position 1”. Then:

Turn the big black knob all the way clockwise (i.e. the number 1 is facing towards the computer)
Step 6

VERY IMPORTANT!

WAIT!
until you see these words on the screen.

Then wait until this number is $< 1.10^1$
Step 7

A: Open Airlock

B: Insert Rod

Open the airlock gate valve. Push lever in and move it to the up position.

C: Extract Shuttle

Make sure this arrow is pointing outwards. then

Push this handle all the way in.

D:
GO TO STEP 8

Pull the handle all the way back out.
Step 8

E: **Close Airlock!!!**

**VERY IMPORTANT!**

Close the airlock gate valve!

Twist handle to right, push in and push down.
Step 9

VERY IMPORTANT!
Double check that the airlock gate valve is closed.
then
Press This Button

Open airlock gate valve
Move in/out shuttle
Close airlock gate valve
Step 10
Wait for Airlock to Vent (hissing sound stops, airlock reads $1.10^{+5}$ pascals. Then:

A: Open Outer Chamber

B: Remove Shuttle

C: Close Outer Chamber

D: Chamber Closed
Step 11

Wait a few minutes for the message: “Turn Gun Valve to Position 2”. Then:

Wait until this message appears on the screen.

Then turn the big black knob all the way counter-clockwise (i.e. the number 2 is facing towards the computer).
PART II: Sample Insertion
Step 1. Put shuttle in outer airlock:

A: Press This Button to unlatch airlock

B: Swing airlock open.

C: Slide shuttle onto lines of sample extraction rod.

D: Swing airlock closed again.
Step 2
If the Vacuum window is not already open. Then:

Press This Button
Step 3

Press This Button
Step 4

Sample exchange?

[Options: Cancel, Yes]

Press This Button
Step 5
Wait for the message: “Turn Gun Valve to Position 1”. Then:
Step 6

VERY IMPORTANT!

WAIT!
until you see these words on the screen.

Then wait until this number is $< 1.10^1$
Step 7

A: Open Airlock

B: Insert Shuttle

C: Extract Rod

D: GO TO STEP 8
Step 8

E: **Close Airlock!!!**

**VERY IMPORTANT!**

Close the airlock gate valve!

Twist handle to right, push in and push down.
Step 9

VERY IMPORTANT!
Double check that the airlock gate valve is closed.
then

Press This Button

VACUUM SETUP

Open airlock gate valve
Move in/out shuttle
Close airlock gate valve

Pressure Unit : Pa

6.10^-6

Ion Pump

airlock back up complete

1 MV

Anticon off (0 deg).

Cryo off (0 deg).

3.100

SV
Sec. Pump

2.100

EV2

RP2

EV1

X

EV3

AI 1

AI 3

RP1
Step 10

Wait a few minutes for the message: “Turn Gun Valve to Position 2”. Then:

Wait until this message appears on the screen.

Then turn the big black knob all the way counter-clockwise (i.e. the number 2 is facing towards the computer)
Step 11
Wait for the message: “Vacuum Ready”
Next Step

Go to Calibration
Instruction Set

Or

Analysis Instruction Set