

CALIBRATION PROCEDURE.

Install the new version of NAVIGATOR.

Connect the computer to the ENDEAVOUR generator via RS232 serial port.

Switch on the generator and select WS 4 (NO BUCKY)

Start the program and LOGIN as Technical Service (type LEDOMAX in password window).

Refer to tube characteristic documents to compute the Anode Thermal Characteristic (Anode Cool Down curve) and maximum power capability for both Small and Large focus.

Connect the generator as per instruction manual.

Right click on the TUBE ITEM and enter in ODEL Library.

Select a tube similar to the one under calibration in term of MAXIMUM LOAD on SMALL and LARGE FOCUS and thermal characteristics.

Left click on the tube and look in tube General Characteristics:

Take a look and modify if necessary to kVmax value.

Take a look and modify if necessary to SMALL FILAMENT mAmax value: THIS VALUE WILL BE USED AS LIMIT FOR THE CALIBRATION PROCEDURE.

Take a look and modify if necessary to LARGE FILAMENT mAmax value: THIS VALUE WILL BE USED AS LIMIT FOR THE CALIBRATION PROCEDURE.

Take a look to the ANODE SPEED parameter. If present only the normal speed starter choose NORMAL SPEED If present the High Speed Starter Option and the tube is an High Speed Tube select NORMAL and HIGH SPEED.

If necessary press the TAB of thermal characteristics and change the values that describes the curve.

If necessary press the TAB of maximum load and change the values that describes the curves for both SMALL and LARGE filament for NORMAL SPEED and, if present the option, also in HIGH SPEED.

Press OK and SEND key to save and send to the generator the modified values.

Right click on TUBE ITEM and select the voice "AUTOMATIC CALIBRATION" then "SMALL FOCUS".

A window with FOUR TABS is shown: GENERAL, MIN FIND, MAX FIND, CALIBRATE.

FIRST Take a look on GENERAL DATA TAB.

STAND-BY CURRENT: enter the stand-by current in Ampere (generally 2.5)

MIN HEATING: enter the minimum current to have the minimum emission at maximal kV (3A at least)

MAX HEATING: enter the maximum filament current permitted on the small filament (4.8 generally)

MAX KV: here you can reduce the calibration High Voltage (Generally 140kV) value if the tube is not seasoned or is discharging at high kV (enter 125, is enough for a 150kV tube, or 110 kV for a 125kV).

ANODE SPEED: use NORMAL or HIGH depending on the options on the generator.

THEN PRESS SET to accept the value.

Click on FIND MIN tab to correct the MIN HEATING VALUE:

Press start , then press PREPARATION and EXPOSURE KEY on the control console, the generator start exposing. Keep the key pressed until the "DONE, MINIMUM HEATING VALUE FOUND" writing in the info-line appear.

Click on FIND MAX tab to correct the MAXIMUM HEATING VALUE:

Press start , then press PREPARATION and EXPOSURE KEY on the control console, the generator start exposing. Keep the key pressed until the "DONE, MAXIMUM HEATING VALUE FOUND" writing in the info-line appear.

NOTE this procedure is tube-stressing, wait a few minutes after done before proceeding.

Click on CALIBRATION tab to start the calibration procedure.

The calibration is divided into 10 steps. From left to right there are 10 interval of current between the Minimum heating and the Maximum heating.

Each step need at least 3 exposures to be saved. More the exposures more the accuracy of the calibration.

Higher the step, higher the power, so in steps after the fifth wait a few minuts between each step.

To select the calibration step move the down arrow in the step indicator.

Press START key to begin the step calibration.

There is a STEP STATUS indicator in low right position:

WHITE color meas STEP NOT CALIBRATED.

YELLOW color means STEP PARTIALLY CALIBRATED but NOT ENOUGH TO CLOSE THE STEP

YELLOW color with a "K" inside means STEP PARTIALLY CALIBRATED, exposure ENOUGH TO CLOSE THE STEP

GREEK color with a “K” inside means STEP FULLY CALIBRATED.

Select STEP 0.

Press START key

KEEP PREPARATION and EXPOSURE KEY on control console PRESSED until the indicator becomes GREEN.

(if nothing happens keep the key pressed, the waiting time was too short and the generator is waiting to cool down the tube)

Wait a few minutes

Select STEP 1

.....

Till STEP 9

When a sufficient number of steps are calibrated, press the key “OK and SEND to end the calibration procedure and

REPEAT THE PROCEDURE FOR THE LARGE FOCUS:

Right click on TUBE ITEM and select the voice “AUTOMATIC CALIBRATION” then “LARGE FOCUS”.

FIRST Take a look on GENERAL DATA TAB.

STAND-BY CURRENT: enter the stand-by current in Ampere (generally 2.5)

MIN HEATING: enter the minimum current to have the minimum emission at maximal kV (3A at least)

MAX HEATING: enter the maximum filament current permitted on the small filament (5A generally)

MAX KV: enter the same value used for SMALL FOCUS.

ANODE SPEED: select the same value used on SLAMM FOCUS

THEN PRESS SET to accept the value.

Click on FIND MIN tab to correct the MIN HEATING VALUE:

Press start, then press PREPARATION and EXPOSURE KEY on the control console, the generator starts exposing.

Keep the key pressed until the “DONE, MINIMUM HEATING VALUE FOUND” writing in the info-line appears.

Click on FIND MAX tab to correct the MAXIMUM HEATING VALUE:

Press start, then press PREPARATION and EXPOSURE KEY on the control console, the generator starts exposing.

Keep the key pressed until the “DONE, MAXIMUM HEATING VALUE FOUND” writing in the info-line appears.

NOTE this procedure is tube-stressing, wait a few minutes after done before proceeding.

Click on CALIBRATION tab to start the calibration procedure.

Select STEP 0.

Press START key

KEEP PREPARATION and EXPOSURE KEY on control console PRESSED until the indicator becomes GREEN.

(if nothing happens keep the key pressed, the waiting time was too short and the generator is waiting to cool down the tube)

Wait a few minutes

Select STEP 1

.....

Till STEP 9

When a sufficient number of steps are calibrated, press the key “OK and SEND to end the calibration procedure and

SAVE THE GLOBAL CONFIGURATION FILE on the hard disk.

Switch off the generator.

Switch on again.

TX the global configuration to the generator.

Press OK on the control console and start exposing to check the calibrated value.