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Model ICX411
Three-field Ionization Chamber
Calibration Procedure for Pre-Amplifier board 61069D

The following adjustments apply to the calibration of a 61069D pre-amplifier board for a stationary 3-field ion chamber, e.g. for chest or table use.

The procedure assumes that the installation of the Automatic Exposure Control (AEC) is complete and that the AEC and x-ray generator are in proper working condition. After making the necessary interconnections between the ion chamber and the AEC, power up the system.

Calibration/Test Set Up:

Select the center field of the ion chamber. Set the generator for 100 kVp and maximum backup time. For 100 kVp use 8 to 10 inches of water or plastic for a phantom. Metals such as copper, aluminum or lead are not suitable for use as phantoms. Make sure the phantom is homogeneous and completely covers all fields equally. Center the x-ray beam on the center field. Collimate the x-ray beam so that it completely covers all three fields but does not extend beyond the limits of the phantom.

Chamber Gain Adjustment (61069D R12):

Typically, the chamber gain adjustment is the only adjustment needed when installing an ICX series ion chamber. Use the chamber gain adjustment to match the overall chamber sensitivity to that of the other stationary chambers connected to the system. Note that the chamber gain adjustment is a multi-turn potentiometer accessible through the pre-amp chassis cover. A clockwise adjustment to the chamber gain potentiometer will increase the sensitivity of the chamber, causing the length of the exposure (mAs) to decrease.

Make exposures and process the films. Adjust the chamber gain for the desired optical density. Make the chamber gain adjustment for each stationary chamber being installed.

Balance Check:

Using the Expos-AID AEC post-exposure mAs display or other calibrated mAs meter check the individual fields to see that they are balanced, that is, that they produce the same mAs reading. If mAs readings are not stable from exposure to exposure for an individual field, then it will be necessary to expose films and make these adjustments based upon optical density.

The individual gain potentiometers (61069D R15, R25 and R32) correspond to Field 2, Field 1 and Field 3 respectively. If necessary, adjust the individual gain potentiometers to balance the outputs to give the same mAs reading for each field. Loosen the screws on the side of the pre-amp chassis and slide the potentiometer cover plate aside to gain access to the individual gain potentiometers. Note that individual gain adjustments are multi-turn potentiometers. A clockwise adjustment to a gain potentiometer will increase the sensitivity of a field, causing the length of the exposure (mAs) to decrease.

Drift Adjustments:

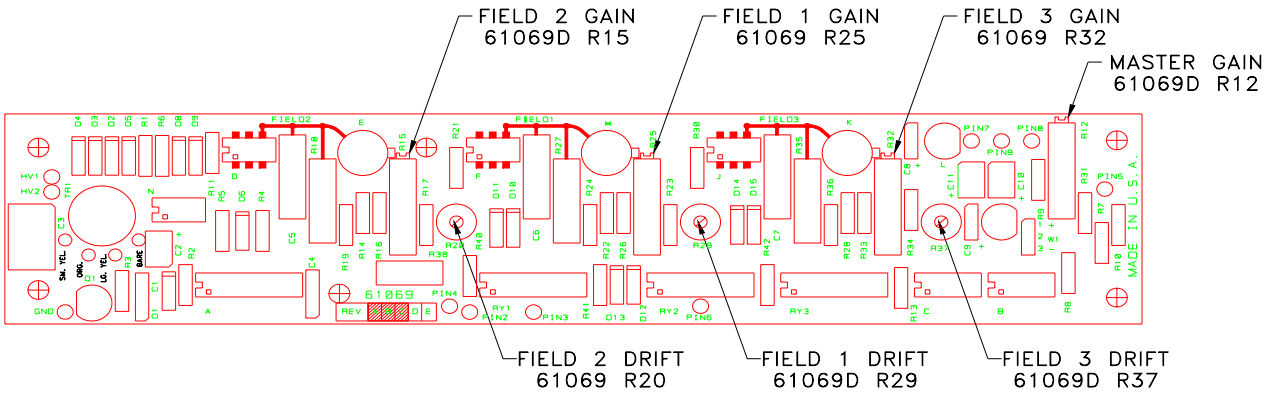
The Drift Adjustments (61069D R20, R29 and R37) are preset at the factory for a rate <50mV/8 seconds. They are not to be adjusted on site. If the drift adjustments are incorrect return the ion chamber to the factory for recalibration.

61069D PIN OUTS	FUNCTION
1	NO CONNECTION
2	FIELD 2 SELECT
3	FIELD 1 SELECT
4	RESET
5	OUTPUT
6	FIELD 3 SELECT
7	-15VDC
8	+15VDC
9	GND

NOTE:

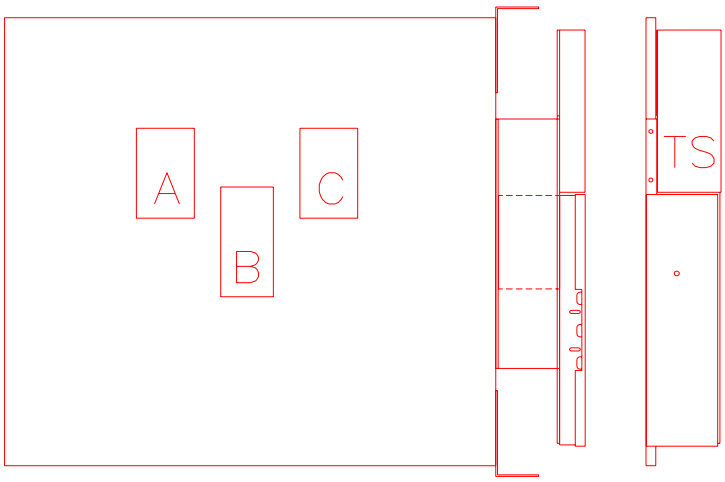
Our field designations (Field 1, Field 2 and Field 3) **do not** correspond to the field designations used in G.E publications.

61069D



ICX411 for right hand vertical Bucky stands:

A = field 1
B = field 2
C = field 3



ICX411 for right hand (R.H.) vertical Bucky stand
as viewed from the patient side.
TS shows the location of the terminal strip.

The ICX411 is normally shipped wired to be used in a right hand vertical Bucky stand. Use the following procedure to reconfigure for use in a left hand vertical Bucky stand.

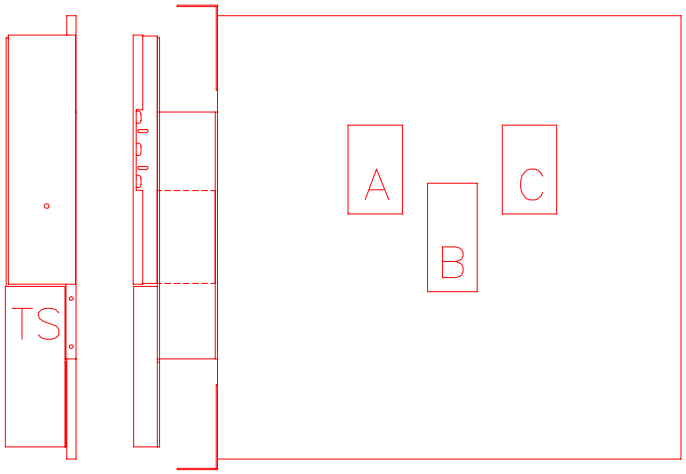
1. Unscrew the entire pre-amp chassis assembly where it attaches to the ICX411 frame. Rotate the pre-amp chassis assembly so that the terminal strip is now located toward the bottom of the ion chamber. Be careful not to strain the wires between the ion chamber and the pre-amp chassis. Reconnect the pre-amp chassis assembly to the ICX411 frame.

2. Switch the brown and violet wires at the barrier block terminal strip (TS) as follows:

For R.H. vertical Bucky stand
violet = TS pin 4 and brown = TS pin 6.

For L.H. vertical Bucky stand
brown = TS pin 4 and violet = TS pin 6.
ICX411 for L.H. Vertical Bucky Stands:

A = field 1
B = field 2
C = field 3



ICX411 for left hand (L.H.) vertical Bucky stand
as viewed from the patient side
TS shows the location of the terminal strip.