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## ICX195 Ionization Chamber Calibration Procedure for Pre-Amplifier Board 61112A

The following adjustments apply to the calibration of the ICX195 ionization chamber with the 61112A pre-amplifier board for use with the Picker Spot Filmer. Refer to the ICX195 ion chamber dimension drawing for field locations and gain adjustment pot locations. Note that the two outer "A" fields function together as a single field. Also note that the small center "B" field may be selected alone or in conjunction with the outer center "C" fields. There is no need to open the ICX195 pre-amplifier chassis assembly. All adjustments are accessible through the holes in the pre-amplifier chassis cover.

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 field I ("B" field) of the ion chamber. Set the generator for 100kVp and maximum backup time. For 100kVp, 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 "B" field. Collimate the x-ray beam so that it completely covers all three fields but does not extend beyond the limits of the phantom.

### Master Gain Adjustment:

Typically, the master gain adjustment is the only adjustment needed when installing an ICX series ion chamber. Use the master gain adjustment to match the overall chamber sensitivity to that of the other stationary chambers connected to the system. Note that the master gain adjustment is a 3-turn potentiometer. A clockwise adjustment to the master gain potentiometer will increase the length of the exposure.

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

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**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.

Refer to the ICX195 ion chamber dimension drawing for field locations and their corresponding gain adjustment potentiometer locations. If necessary, adjust the individual gain potentiometers to balance the outputs to give the same mAs reading or optical density for each field selection. Note that individual gain adjustments are 3-turn potentiometers. A clockwise adjustment to a gain potentiometer will increase the length of the exposure.

Since the master gain adjustment was made with Field B selected, adjustment of Field A or Field C should be made by matching their outputs to that of Field B. Adjustment of Field C may cause a slight change to that of Field B. If adjustment of Field C is required, then the calibration of Field B should be rechecked.

**Ion Chamber Pin Outs:**

<b>Pin No.</b>	<b>Function</b>
1	Cable Shield
2	Field 2 Select (selects the A fields)
3	Field 1 Select (selects the B field)
4	Reset
5	Output
6	Field 3 Select (selects the C field)
7	- 15 Vdc
8	+15 Vdc
9	Ground (GND)