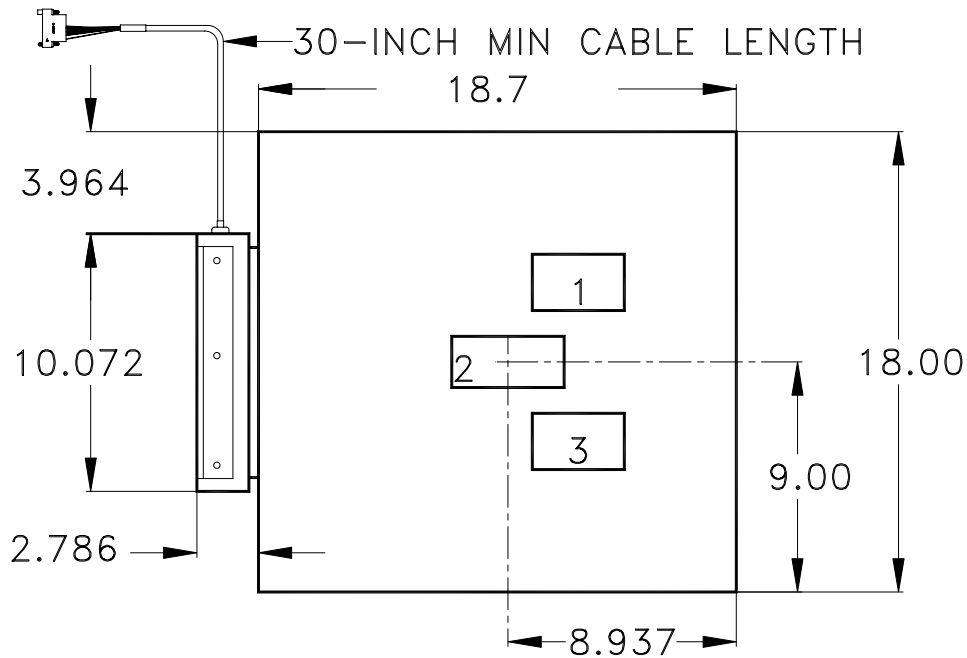


ICX214
Three-field Ionization Chamber
Calibration Procedure for Pre-Amplifier board 61156A

The model ICX214 is intended for use with the RT Table when replacing GEMS P/N 46-178120G1 and 46-178120G2.



WARNING:

- This service manual is available in English only.
- If a customer's service provider requires a language other than English, it is the customer's responsibility to provide translation services.
- Do not attempt to service the equipment unless this service manual has been consulted and is understood.
- Failure to heed this warning may result in injury to the service provider, operator or patient from electric shock and mechanical or other hazards.

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The following adjustments apply to the calibration of the 61156A pre-amplifier board used with the model ICX214 three-field ion chamber.

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

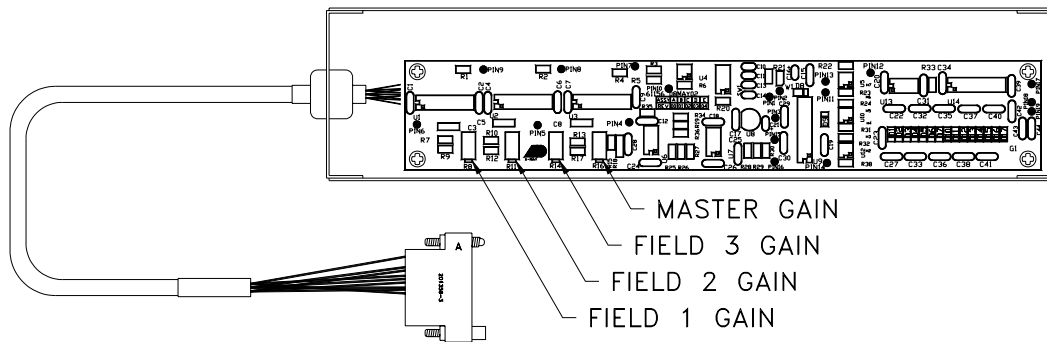
Calibration/Test Set Up:

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 (20 to 25 cm) 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.

Master Gain Adjustment (61156A R16):

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 multi-turn potentiometer. A counter-clockwise adjustment to the master 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 master gain for the desired optical density. Adjust the master gain for each chamber being installed.



Balance Check:

Using the 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.

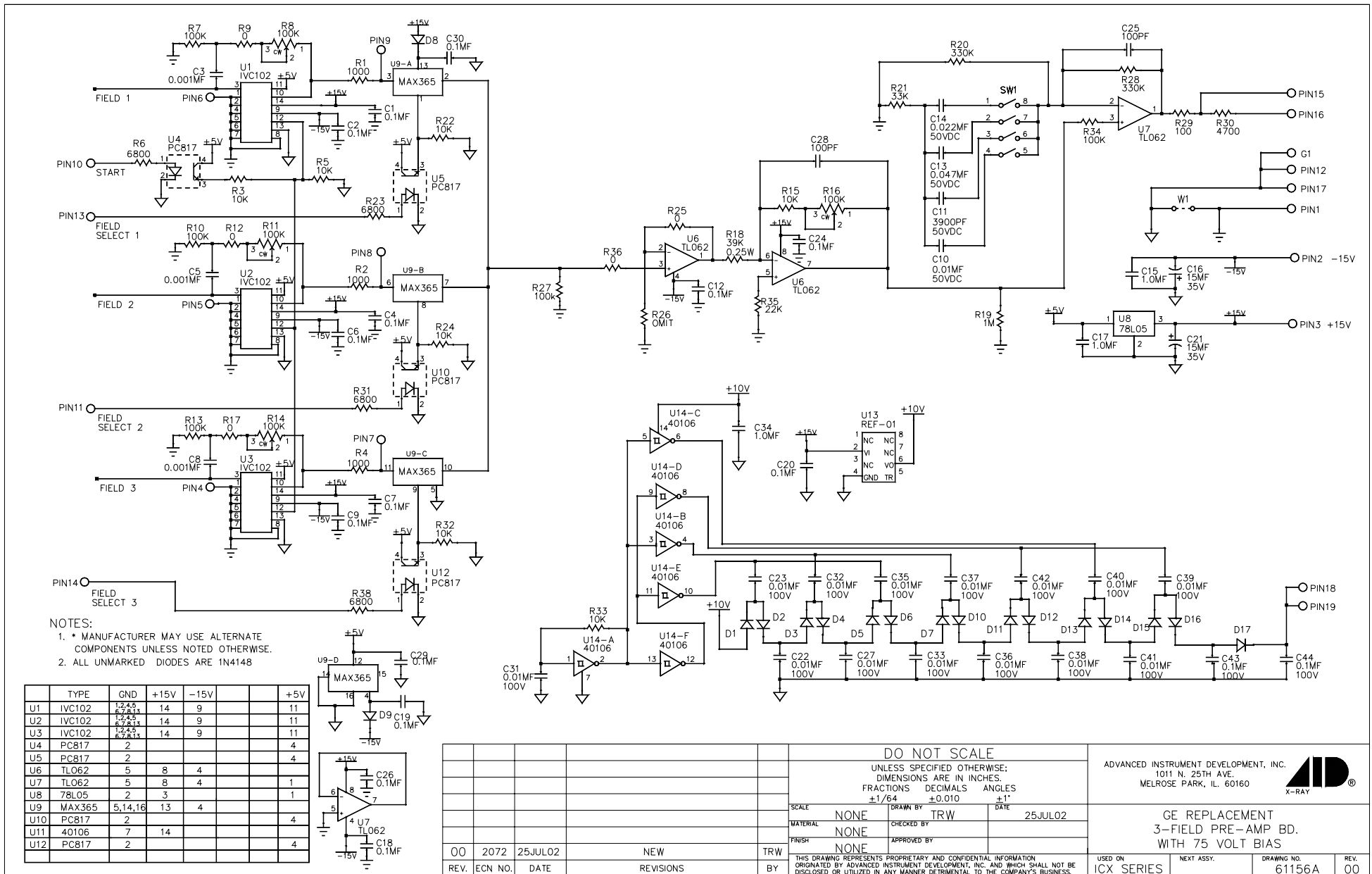
The individual gain potentiometers (61156A R14, R11 and R8) correspond to ion chamber fields 1, 2 and 3 respectively. If necessary, adjust the individual gain potentiometers to balance the outputs to give the same mAs reading for each field. Note that individual gain adjustments are multi-turn potentiometers. A clockwise adjustment to a gain potentiometer will increase the sensitivity of a field, causing the length of the exposure (mAs) to decrease.


Ion Chamber Pin Outs:

| 20-PIN AMP CONNECTOR | FUNCTION | WIRE COLOR | 61156A PRE-AMP BOARD |
|----------------------------|------------------------------|---------------|----------------------------|
| A | FIELD 3 SELECT | BROWN | 14 |
| B | OUTPUT | WHITE | 15 |
| C | +15VDC | ORANGE | 3 |
| D | FIELD 2 SELECT | YELLOW | 11 |
| E | GND | GREEN | 12 |
| F | -15VDC | BLUE | 2 |
| H | FIELD 1 SELECT | VIOLET | 13 |
| J | RESET (START INTEGRATING) | GRAY | 10 |
| K | SHIELD | BLACK | 1 |
| L | GND | BLACK | 1 |

Acceptable Power Supply Ranges for 61156A Pre-amp:

| Supply Voltage | Measurement Point | Acceptable Range |
|-------------------------------------|----------------------------|------------------------------|
| +15VDC Pos. Input Supply Voltage | 61156A pin 3 | From +14.2VDC to +15.8VDC |
| -15VDC Neg. Input Supply Voltage | 61156A pin 2 | From -14.2VDC to -15.8VDC |
| +5VDC Regulated on board | 61156A C17 (positive lead) | From +4.7VDC to +5.3VDC |
| +75VDC Internal Bias Voltage | 61156A PINS 18 & 19 | From +65VDC to +85VDC |



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|--|---------|-------------|-----------|------|--|
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