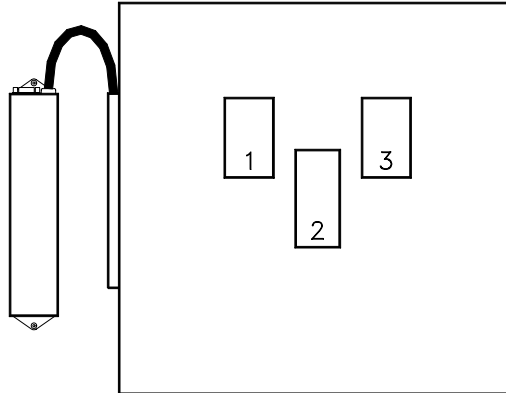


ICX247 Three-field Ionization Chamber
(GEHC P/N 2210104)
Calibration Procedure for Pre-Amplifier board 61130A

The following adjustments apply to the calibration of the 61130A pre-amplifier board used with the model ICX247 three-field ion chamber.



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.

This document represents proprietary information originated by Advanced Instrument Development, Inc. and which shall not be disclosed or utilized in any manner detrimental to the company's business.

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.

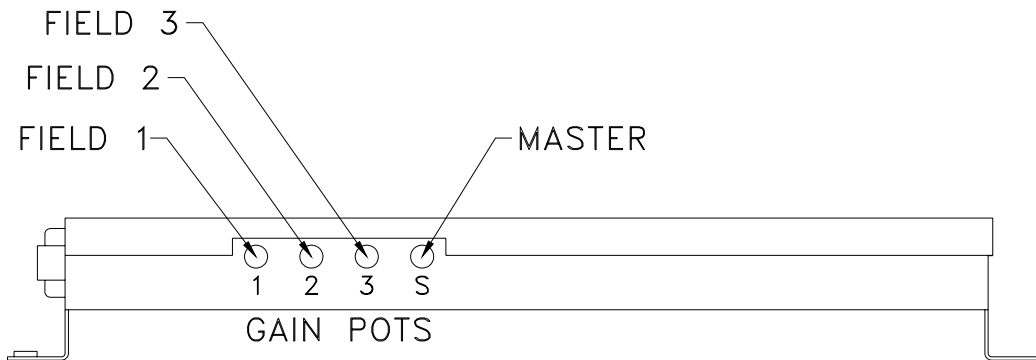
Calibration/Test Set Up:

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 (61130A R21):

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.

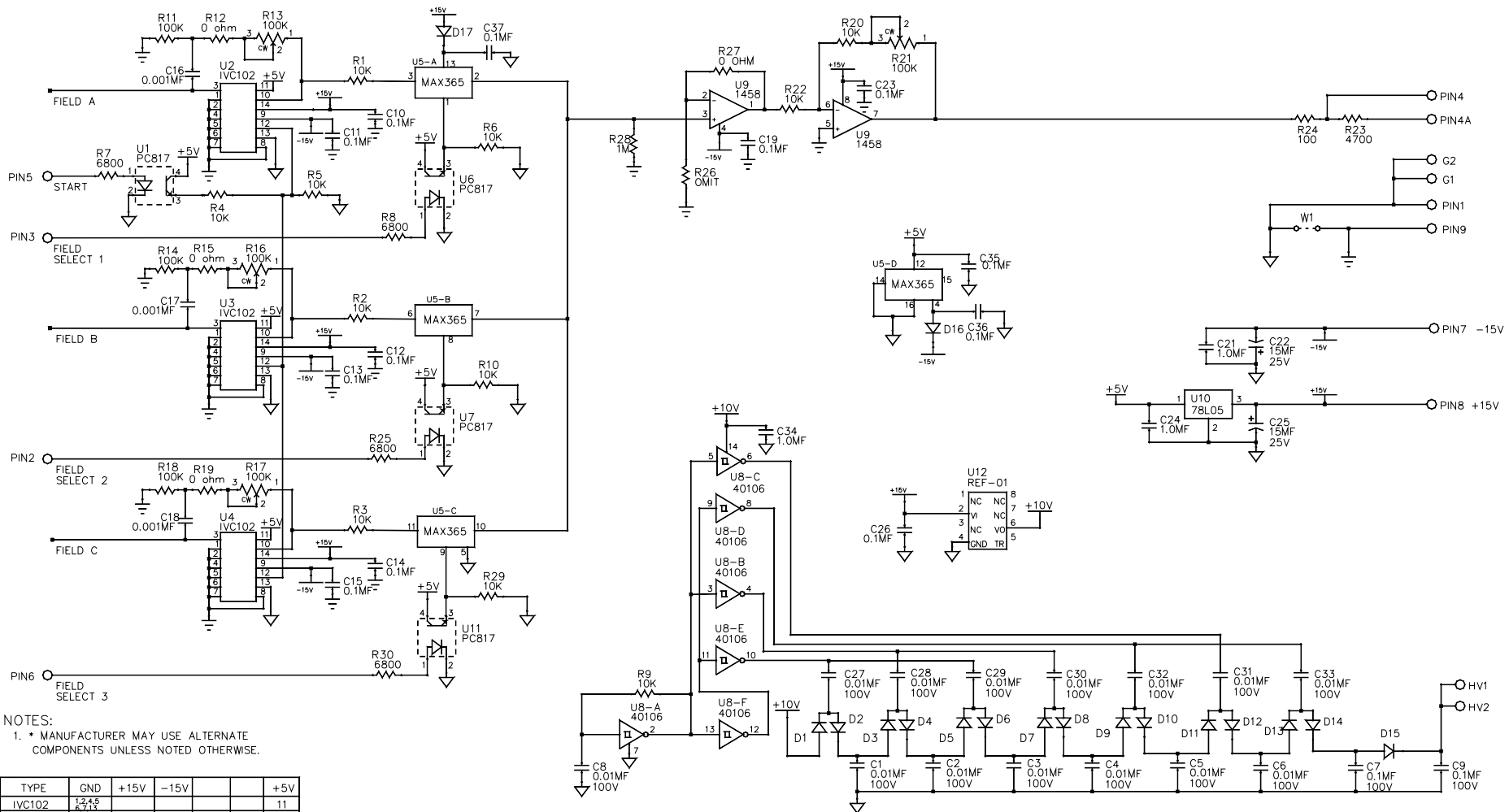
The individual gain potentiometers (61130A R13, R16 and R17) correspond to ion chamber fields 1, 2 and 3 respectively. If necessary, adjust the individual gain potentiometers to balance the outputs to give the same mAs reading for each field. Note that individual gain adjustments are multi-turn potentiometers. A clockwise adjustment to a gain potentiometer will increase the sensitivity of a field, causing the length of the exposure (mAs) to decrease.

Ionization Chamber Pin outs:

61130A PRE-AMP BOARD PAD NUMBER	61130A PRE-AMP CHASSIS WIRE COLOR	FUNCTION	J1 9-PIN SUB-D PIN NUMBER
1	BLACK	GROUND, 24V RTN	1
2	BROWN	FIELD 2 SELECT (CENTER)	2
3	RED	FIELD 1 SELECT (LEFT)	3
4	ORANGE	OUTPUT	4
5	YELLOW	START INTEGRATE	5
6	GREEN	FIELD 3 SELECT (RIGHT)	6
7	BLUE	-15VDC	7
8	VIOLET	+15VDC	8
9	WHITE	GROUND, 15V RTN	9


Acceptable Power Supply Ranges for 61130A Pre-amp:

Supply Voltage	Measurement Point	Acceptable Range
+12VDC Pos. Input Supply Voltage	61130A pin 8	From +11.4VDC to +15.8VDC
-12VDC Neg. Input Supply Voltage	61130A pin 7	From -11.4VDC to -15.8VDC
+5VDC Regulated on board	61130A C24 (positive lead)	From +4.7VDC to +5.3VDC
+75VDC Internal Bias Voltage Regulated on board	61130A C35 at the cathode of D15	From +65VDC to +85VDC



NOTES:
 1. * MANUFACTURER MAY USE ALTERNATE COMPONENTS UNLESS NOTED OTHERWISE.

	TYPE	GND	+15V	-15V	+5V
U1	IVC102	1,2,4,5			11
U2	IVC102	1,2,4,5			11
U3	IVC102	1,2,4,5			11
U4	PC817	2	4		
U5	1458	5	8	4	
U6	40106				
U7	78L05	2	3		1
U8	PC817	2	4		
U9	PC817	2	4		
U10	PC817	2			4
U11	4066	7,12	14		
U12	1458	5	8	4	

				DO NOT SCALE			ADVANCED INSTRUMENT DEVELOPMENT, INC. 1011 N. 25TH AVE. MELROSE PARK, IL. 60160		
				UNLESS SPECIFIED OTHERWISE: DIMENSIONS ARE IN INCHES. FRACTIONS DECIMALS ANGLES ±1/64 ±0.010 ±1°					
				SCALE	DRAWN BY	DATE			
				NONE			20JAN98		
				MATERIAL	CHECKED BY				
				REPLACED 4066 WITH MAX365			CJL		
				RELEASED TO PRODUCTION			JC		
				APPROVED BY					
REV. ECN NO. DATE				REVISIONS			BY		
02 1793 24FEB99							THIS DRAWING REPRESENTS PROPRIETARY AND CONFIDENTIAL INFORMATION ORIGINATED BY ADVANCED INSTRUMENT DEVELOPMENT, INC. AND WHICH SHALL NOT BE DISCLOSED OR UTILIZED IN ANY MANNER DETRIMENTAL TO THE COMPANY'S BUSINESS.		
01 1712 06JUL98							USED ON		
							NEXT ASSY.		
							DRAWING NO.		
							61130A		
							REV.		
							02		