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ICX924  
Three Output Ionization Chamber  
Calibration Procedure for Pre-Amplifier board 61137E

The following adjustments apply to the calibration of a 61137E pre-amplifier board for an ICX924 stationary three output 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 x-ray generator are in proper working condition. After making the necessary interconnections between the ion chamber and the AEC, power up the system.

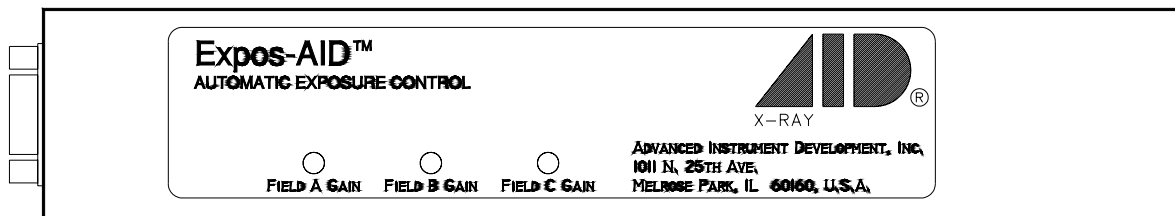
**Calibration/Test Set Up:**

Set the generator for 100 kVp and maximum backup time. For 100 kVp use 8 to 10 inches (20 to 25cm) 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 both 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.

Field Selection:

To select a field individually, leave that field's selection jumper in place and remove the jumpers for the unused fields. For normal operation with all fields active, all three jumpers (W11, W12 & W13) should be in place.

FIELD	FIELD A (FIELD 1)	FIELD B (FIELD 2)	FIELD C (FIELD 3)
FIELD GAIN POT	R5	R9	R13
FIELD SELECT JUMPER	W11	W12	W13



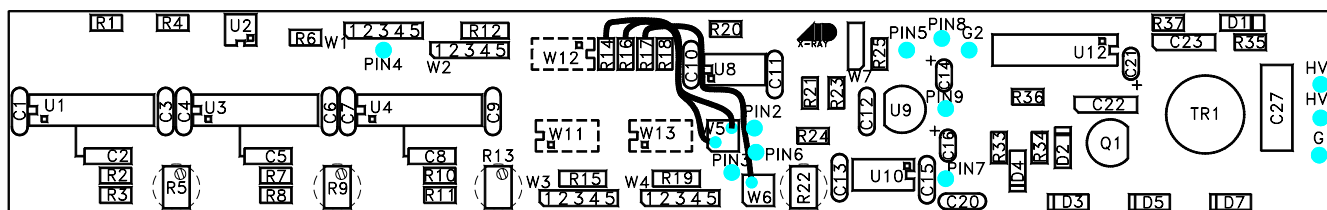
Balance Check:

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.

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.

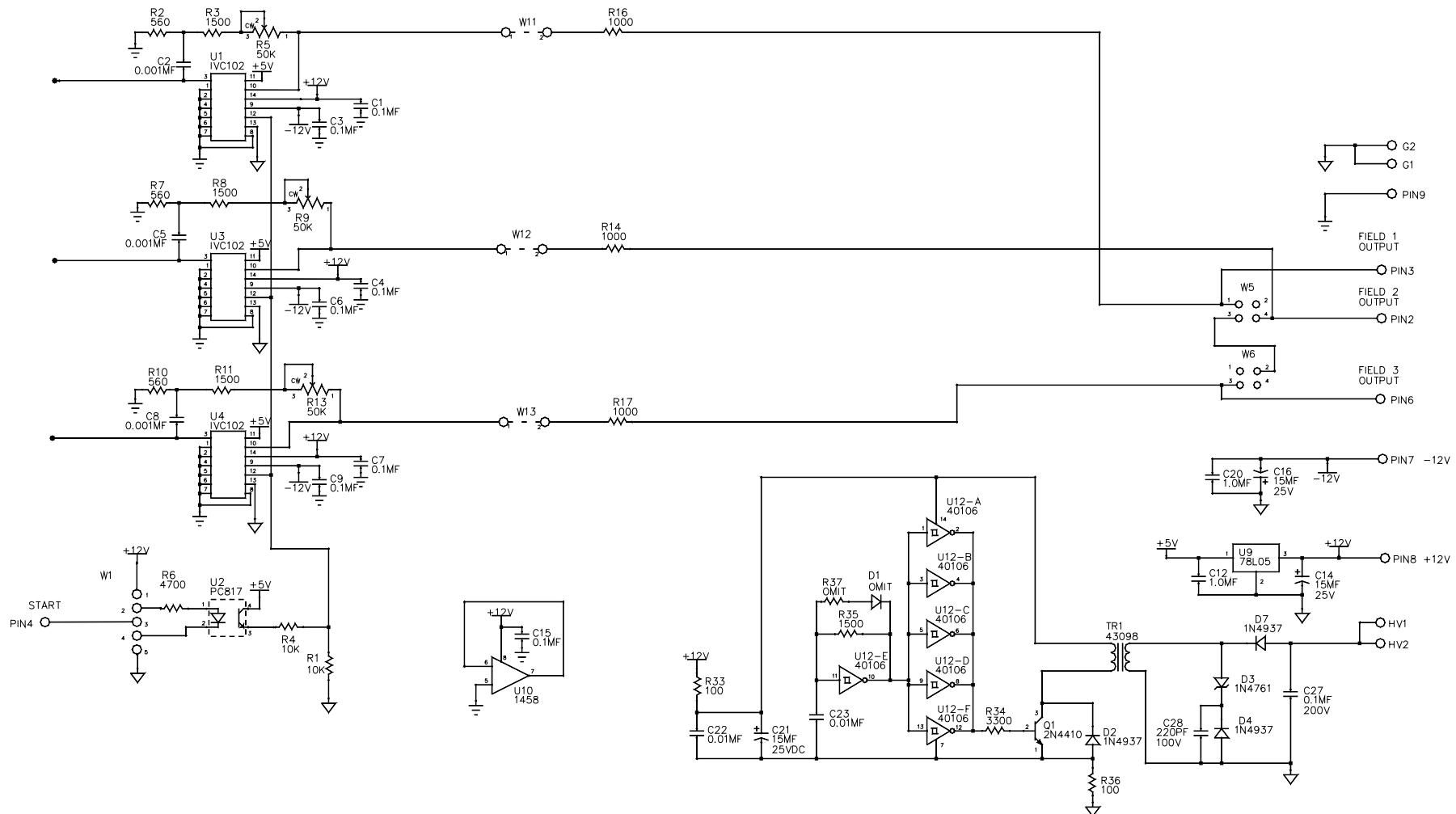
Ionization Chamber Pin outs:

PIN NUMBER	FUNCTION	DESCRIPTION	JUMPER
1	No Connection	None	None
2	Field 2 Output	Time integrated signal ramping from 0VDC to a maximum of at least 80% of the supply voltage (+9.6VDC for +12VDC supply). The slope of this signal is directly proportional to the amount of x-ray flux received.	W12 = IN
3	Field 1 Output	Time integrated signal ramping from 0VDC to a maximum of at least 80% of the supply voltage (+9.6VDC for +12VDC supply). The slope of this signal is directly proportional to the amount of x-ray flux received.	W11 = IN
4	RESET	Low-Active. Pulling this line to ground ( $\leq 8VDC$ ) beginning at exposure start and lasting for the entire duration of the exposure allows the integrator to operate.	W1 = 1-2 & 3-4
5	No Connection	None	None
6	Field 3 Output	Time integrated signal ramping from 0VDC to a maximum of at least 80% of the supply voltage (+9.6VDC for +12VDC supply). The slope of this signal is directly proportional to the amount of x-ray flux received.	W13 = IN
7	-15VDC	-11.4VDC to -15.75VDC less than 15 mA.	None
8	+15VDC	+11.4VDC to +15.75VDC less than 85 mA.	None
9	Ground	0VDC	None



Acceptable Power Supply Ranges for 61137E Pre-amp:

Supply Voltage	Measurement Point	Acceptable Range
+12VDC Pos. Input Supply Voltage	61137E pin 8	From +11.4VDC to +12.6VDC
-12VDC Neg. Input Supply Voltage	61137E pin 7	From -11.4VDC to -12.6VDC
+5VDC Regulated on board	61137E C12 (positive lead)	From +4.7VDC to +5.3VDC
-75VDC Internal Bias Voltage Regulated on board	61137E C27 at the anode of D7	From -65VDC to -85VDC



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

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00	1902	26MAY00	REMOVED TR1 PIN NUMBERS	CJL		
00	1876	3MAR00	SAME AS 61137D EXCEPT TOP TURN	CJL		
				USED ON	ICX924	
				NEXT ASSY.		
				DRAWING NO.	61137E	
				REV	00	