FIELD CALIBRATION PROCEDURE
FOR ALTEK MODEL 134

SUGGESTED EQUIPMENT:
4-1/2 Digit Voltmeter (+ 0.05% or better) with a 250 Ohm Resistor (+ 0.05% or better). As a less accurate alternative, a DC milliampmeter may be used directly which eliminates the 250 Ohm resistor. An adjustable power supply, 24 VDC nominal.

mA OUTPUT SOURCE MODE:
Before any adjustments to the model 134 are made, fresh batteries (Alkaline, Duracell MN1604 are recommended) should be placed in the unit. Set the left hand switch to mA OUT while observing the LED. The LED should flash once, indicating proper battery voltage. If the LED does not flash, check each battery for proper voltage and correct connection. Set the meter to a range which covers 1-5 VDC with sufficient resolution. Place the 250 Ohm resistor in series with the Model 134 output. The meter will read 1-5 volts corresponding to 4-20 mA through the resistor (see Diagram 1).

ADJUSTMENTS:
Set the left hand switch to "mA OUT" and the right hand switch to "DIAL." Rotate the knob clockwise until 000 is reached. Adjustment the SPAN pot (see Diagram 2) so that the meter reads 5.000 Volts + 0.1% (4.996 to 5.004 VDC). Move the right hand switch to "100%" and adjust the 100% pot (see note 1) to the same value as the SPAN. Move the right hand switch back to "DIAL" and rotate the knob counterclockwise until it again reads 000. Adjust the ZERO pot so that the meter reads 1.000 Volts + 0.1% 00.0% pot (see note 2) to the same value as the ZERO. Move the right hand switch back to "DIAL" and rotate the knob to 500. Adjust the LINEARITY pot (see note 3) so that the meter reads 3.000 Volts + 0.1% (2.996 to 3.004 VDC). Check and readjust pots as necessary to obtain desired accuracy. Additional points can be checked to + 0.1 (+ 0.004 VDC) to insure linearity across the entire range. The optional AC ADAPTOR may now be connected and the calibration again checked to insure proper operation of the unit. If connecting the AC ADAPTOR causes the unit to vary more than the specifications allow, it is advised that the Power Supply Effect test should be made.

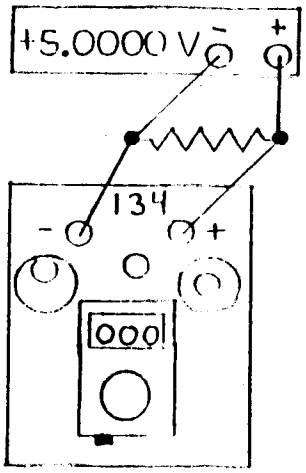

Diagram 1

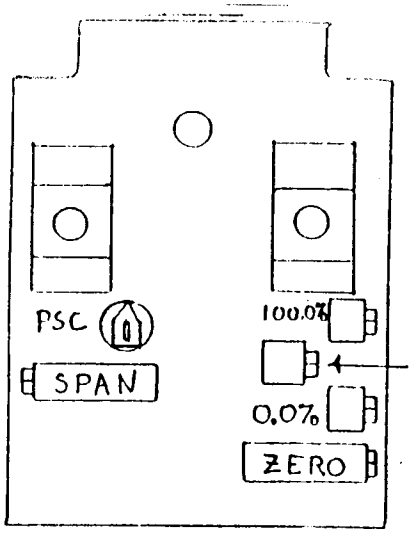

Diagram 2

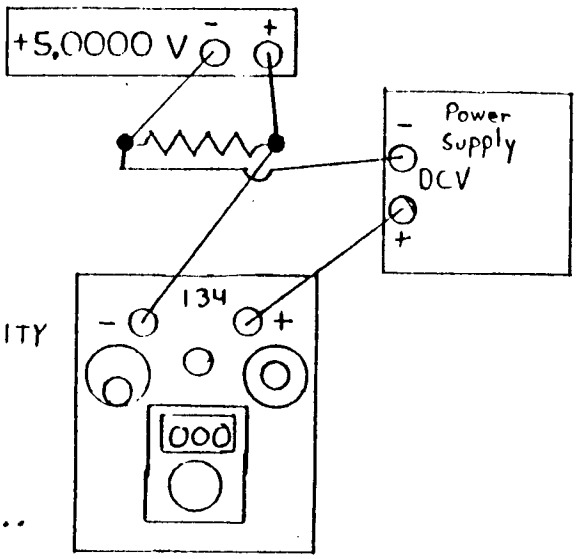

Diagram 3

2 WIRE SIMULATOR MODE:
To check the two wire mode disconnect the Model 134 and place the DC power supply in series with the Model 134 and 250 Ohm resistor. Move the left hand switch to the "2 WIRE" position. The "100%, 00.0% and DIAL" readings should all be within + 0.1% (+ 0.004 VDC) of those found in **"SOURCE"** mode.

SUPPLY EFFECT:
This test is made using the 2 Wire mode (see above). Set the left hand switch to "2 Wire" and the right hand switch to "00.0%" Note the meter reading with the power supply set at 24 VDC. Adjust the power supply + or -10 VDC and note this reading. The two readings should be within + 0.05% (+0.002 VDC). During routine calibration the power supply compensator should need no adjustment. The pot has been sealed at the factory to avoid accidental movement. If the OP AMP has been replaced or the Model 134 is outside of the above deviation, the power supply note the meter readings at both ends of a 10 VDC change of the power supply. Adjust the PSC pot as necessary to within + 0.05% (+ 0.002VDC). If the PSC pot is adjusted the entire calibration procedure **MUST** be repeated. If component replacement is required, save and replace the insulating material on the underside of the printed circuit board.

If the unit fails to meet any of its stated specifications after recalibration, it should be returned to the factory for repair.

NOTE 1) Board Revision B or higher.
NOTE 2) Board Revision E or higher.
NOTE 3) Board Revision F or higher.
NOTE 4) Board Revision D or higher.

DOCUMENT #: 1-070 **REVISION:** A
DRAWN BY: C. BRANDT **DATE:** 30' JUNE 94
REVIEWED BY: [signature] **DATE:** 22 JULY 94
APPROVED BY: R. Daniels **DATE:** 22 JULY 94

Serial Number:	Model Number:134	Order Number:
Calibrated By:	Description:4-20mA SOURCE 2-WIRE SIMULATOR	Date:
Received From:		

Function Parameter Tested	Low Limit	As Received	High Limit	Adjusted
mA SOURCE QUIK-CHEK				
4.00mA	0.9968V		1.0032V	
20.00mA	4.9968V		5.0032V	
% SOURCE, DIAL				
00.0% = 4.00mA	0.9960V		1.0040V	
25.0% = 8.00mA	1.9960V		2.0040V	
50.0% = 12.00mA	2.9960V		3.0040V	
75.0% = 16.00mA	3.9960V		4.0040V	
100% = 20.00mA	4.9960V		5.0040V	

Assets	Serial No.	Last Cal'd	Cal Due

DOCUMENT# Q-259 REV A DRAWN BY:D. NEFF 27 OCT 1994