

Calibration of: 500# L.C. 6 Serial No: 418055  
Standard Used: Test Frame 18 1KIP Serial No: 6047 Certification Date: 6-1-97  
Amplifier: mm. 2120 A Serial No: 108753 Location: F  
Voltmeter: H-P 3465A Serial No: 162140916 Certification Date: 4-11-97  
Frame No. 18 By: DWH Tens. (Comp) or Other: SV EX 10510 cal  
Date: 7 AUG 97 Temp: 74 Humidity: 43 Cal. Volts A: 4.290 B:

[illegible]

Y intercept : \_\_\_\_\_ R fit of slope: \_\_\_\_\_ Standard Dev of Error of \_\_\_\_\_

slope  $\alpha$  : 50.0103  $\times$  Cal Volts(a) 4.290 = 214.544-50 4.291

$\times$  Cal Volts(b) \_\_\_\_\_ = \_\_\_\_\_

← (Calibration Constants)

Poly. Fit Coeff.  $a_0$  : \_\_\_\_\_  $a_1$  : \_\_\_\_\_  $a_2$  : \_\_\_\_\_  $a_3$  : \_\_\_\_\_  $y = a_0 + a_1(x) + a_2(x)^2 + a_3(x)^3$

500 Lb Compression Load Cell S/N 418055  
2120A Amp Slot F 7 Aug 97

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Per ASTM E-4

Y-intercept = 4.531804E-03  
Slope = 1.999588E-02 y/x 1 / Slope = 50.0103 x/y  
Corr. Coef. = 1  
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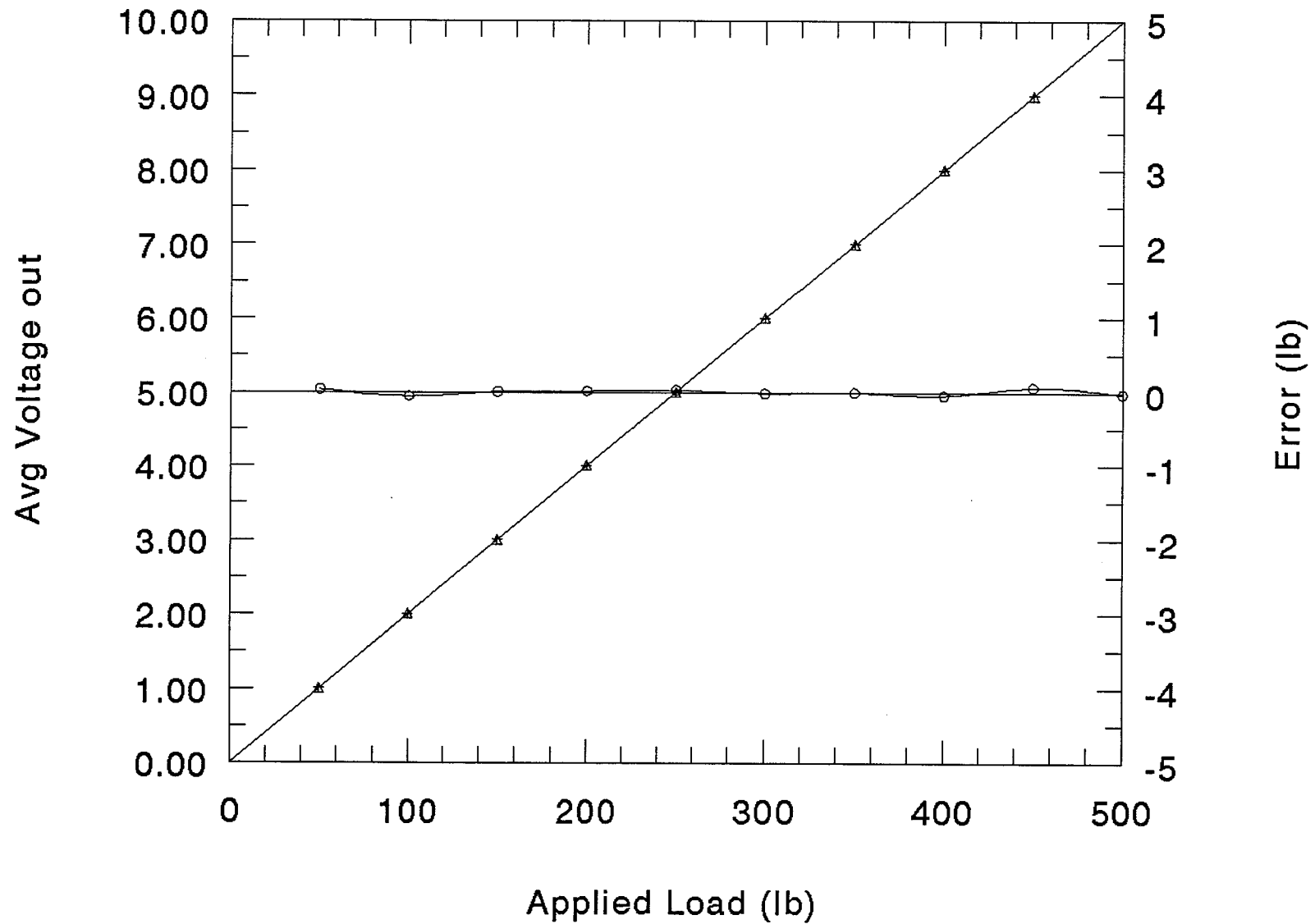
Mean of error = 1.25885E-05  
Median of Error = -1.296997E-04  
Min of Error = -5.601501E-02  
Max of Error = 6.604004E-02  
Standard Deviation of Error = 3.689187E-02

Label for X is --> Load  
Label for Y is --> Avg Volts Out

| Nth | X         | Y        | X-Calculated | Error   | % Error  |
|-----|-----------|----------|--------------|---------|----------|
| 1   | +50.0000  | +1.0050  | +50.0337     | +0.0337 | +0.06742 |
| 2   | +100.0000 | +2.0030  | +99.9440     | -0.0560 | -0.05602 |
| 3   | +150.0000 | +3.0040  | +150.0043    | +0.0043 | +0.00286 |
| 4   | +200.0000 | +4.0040  | +200.0146    | +0.0146 | +0.00729 |
| 5   | +250.0000 | +5.0040  | +250.0249    | +0.0249 | +0.00995 |
| 6   | +300.0000 | +6.0030  | +299.9851    | -0.0149 | -0.00495 |
| 7   | +350.0000 | +7.0030  | +349.9955    | -0.0045 | -0.00130 |
| 8   | +400.0000 | +8.0020  | +399.9557    | -0.0443 | -0.01107 |
| 9   | +450.0000 | +9.0040  | +450.0660    | +0.0660 | +0.01468 |
| 10  | +500.0000 | +10.0020 | +499.9763    | -0.0237 | -0.00474 |

500 Lb Compression Load Cell # 418055  
2120A Amp Slot F 7 Aug 97

+ data       $\Delta$  slope       $\circ$  error



Calibration of: 500<sup>±</sup> L.C. 6 as released Serial No: 418055  
Standard Used: Sintech 20/G 1 kip Serial No: 12864 Certification Date: 5/20/98  
Amplifier: M.G. 2120 A Serial No: 108753 Location: F  
Voltmeter: H.P. 3465 B Serial No: 1530A02063 Certification Date: 6/9/98  
Frame No. 20/G By: J. Fry Tens. Comp. or Other: 5 V Excitation  
Date: 7/28/98 Temp: 70°F Humidity: 52% Cal. Volts A: +4.302 B: -2.462

[illegible]

Y intercept : \_\_\_\_\_ R fit of slope: \_\_\_\_\_ Standard Dev of Error  $\sigma$  \_\_\_\_\_

Slope  $\alpha$  : 49.95725  $\times$  Cal Volts(a) 4.302 = 214.916  $\pm 50$  = 4.298

$\times$  Cal Volts(b) \_\_\_\_\_ = \_\_\_\_\_  $\leftarrow$  (Calibration Constants)

Poly. Fit Coeff.  $a_0$ : \_\_\_\_\_  $a_1$ : \_\_\_\_\_  $a_2$ : \_\_\_\_\_  $a_3$ : \_\_\_\_\_  $y = a_0 + a_1(x) + a_2(x)^2 + a_3(x)^3$

500# L.C. 6 #418055  
7/28/98 Compression

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Per ASTM E-4

Y-intercept = -.2001567  
Slope = -49.95725 1 / Slope = -2.001712E-02  
Corr. Coef. = .9999994  
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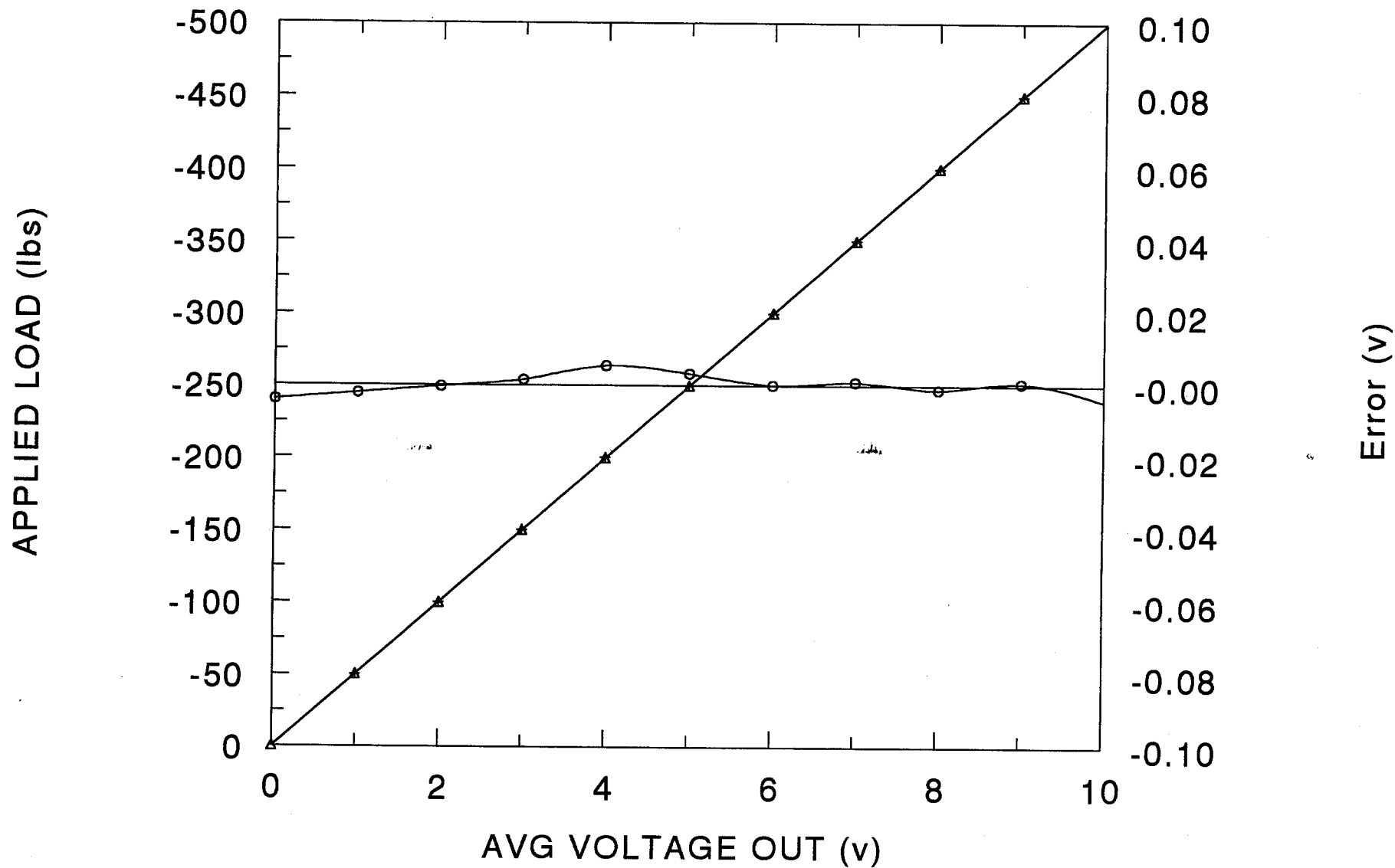
Mean of error = -4.964796E-07  
Median of Error = 1.282692E-04  
Min of Error = -4.448891E-03  
Max of Error = 5.416632E-03  
Standard Deviation of Error = 2.930113E-03

Label for X is --> Avg Voltage Out  
Label for Y is --> Applied Load

| Nth | X        | Y         | X-Calculated | Error   | % Error       |
|-----|----------|-----------|--------------|---------|---------------|
| 1   | +0.0000  | +0.0000   | -0.0040      | -0.0040 | %-4.00666E+06 |
| 2   | +0.9990  | -50.0000  | +0.9968      | -0.0022 | -0.21530      |
| 3   | +1.9980  | -100.0000 | +1.9977      | -0.0003 | -0.01477      |
| 4   | +2.9970  | -150.0000 | +2.9986      | +0.0016 | +0.05208      |
| 5   | +3.9940  | -200.0000 | +3.9994      | +0.0054 | +0.13562      |
| 6   | +4.9970  | -250.0000 | +5.0003      | +0.0033 | +0.06548      |
| 7   | +6.0010  | -300.0000 | +6.0011      | +0.0001 | +0.00214      |
| 8   | +7.0010  | -350.0000 | +7.0020      | +0.0010 | +0.01405      |
| 9   | +8.0040  | -400.0000 | +8.0028      | -0.0012 | -0.01450      |
| 10  | +9.0030  | -450.0000 | +9.0037      | +0.0007 | +0.00772      |
| 11  | +10.0090 | -500.0000 | +10.0046     | -0.0044 | -0.04445      |

500# L.C. 6  
LC #418055 7/28/98

+ data     $\Delta$  slope     $\circ$  error



Southwest Research Institute  
Materials Engineering Department  
Calibration Record

Calibration of: 500 lbs L.C. 6

Serial No: 418055

Standard Used Sintech 20/G 1KIP

Serial No: 12864

Certification Date: 2/11/99

Amplifier: M.G. 2120 A

Location : F

Serial No. 108753

Voltmeter: H.P. 3465 B

Serial No: 1530A-02063

Certification Date: 12/27/99

Frame No 20/G By J. Fey

Tens., Comp. or Other :

Date: 1/13/00 Temp: 73°FHumidity: 44%

Cal. Volts A: +4.200

B: 2403

[illegible]

Y intercept : \_\_\_\_\_ R fit of slope: \_\_\_\_\_ Standard Dev of Error  $\sigma$  \_\_\_\_\_

Slope  $\alpha$ : 49.98937  $\times$  Cal Volts(a) 4.200 = 209.955  $\div 50$  4.199  
 $\times$  Cal Volts(b) \_\_\_\_\_ = \_\_\_\_\_  
 <--- (Calibration Constants)

Poly. Fit Coeff.  $a_0$  : \_\_\_\_\_  $a_1$  : \_\_\_\_\_  $a_2$  : \_\_\_\_\_  $a_3$  : \_\_\_\_\_  $y = a_0 + a_1(x) + a_2(x)^2 + a_3(x)^3$

**Load Cell #6 -- 500 Lbs.**

| Applied Load | Run1   | Run2   | Run3   | Avg.    |
|--------------|--------|--------|--------|---------|
| 50           | 1.005  | 1.006  | 1.006  | 1.0057  |
| 100          | 2.006  | 2.007  | 2.006  | 2.0063  |
| 150          | 3.007  | 3.008  | 3.006  | 3.0070  |
| 200          | 4.008  | 4.009  | 4.007  | 4.0080  |
| 250          | 5.009  | 5.01   | 5.009  | 5.0093  |
| 300          | 6.01   | 6.012  | 6.01   | 6.0107  |
| 350          | 7.011  | 7.012  | 7.011  | 7.0113  |
| 400          | 8.011  | 8.012  | 8.011  | 8.0113  |
| 450          | 9.008  | 9.009  | 9.008  | 9.0083  |
| 500          | 10.004 | 10.004 | 10.005 | 10.0043 |

| Error (lbs.) |
|--------------|
| 0.080454     |
| 0.057761     |
| 0.035069     |
| -0.00429     |
| -0.06031     |
| -0.11632     |
| -0.13902     |
| -0.12838     |
| 0.03222      |
| 0.242811     |

49.98937 Lbs/volt  
-0.353093 y intercept

# Cal of Load Cell #6 SN 418055

