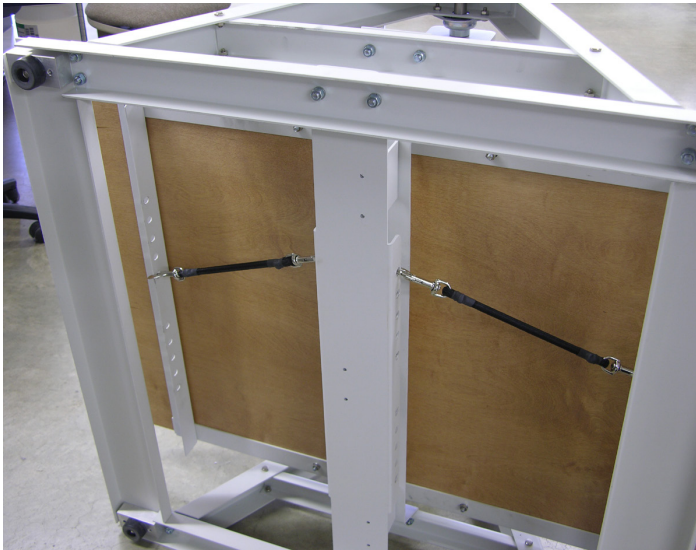


# ***Stability Platform Tension Strap Retrofit User's Manual***



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## Description

The Platform Tension Retrofit Kit allows all Model 16020 Stability Platforms to be outfitted with adjustable tension capability. The kit consists of tension straps and brackets that fit onto the center brace of the stand and the underside of the wooden platform. The tension impedes the swing of the platform, making the balancing task less difficult. The tension is adjusted by placing straps on the bottom of the platform. Each strap is stretched between the bracket holes on the platform base and on the platform itself. Given the number of bracket hole positions, a virtually unlimited number of strap configurations is possible. The included tables and charts show the characteristics of common strap configurations. The specific setup used will depend on the desired tension characteristics. The recommended configurations can be modified to suit a particular application, but the user should be careful not to exceed the minimum and maximum strap tension for each platform height setting.

## Assembly of Platform Tension Brackets

### Tools Needed

- (2) 1/2" wrenches or sockets
- (1) 7/16" wrench or socket

### Parts

- (2) – Tension Strap Center Bracket (mounts to center brace)
- (2) – Tension Strap Outer Bracket (mounts to platform underside)

See the attached assembly drawing for details on the assembly.

1. Remove the bolts on the bottom of the center brace.
2. Place the Tension Strap Center Brackets on either side of the center brace.
3. Reattach the bolts to secure the brackets to the center brace assembly.
4. Remove the nuts on the both ends and either side of platform brackets.
5. Place the Tension Strap Outer Brackets across the end of the platform.
6. Reattach the nuts to secure the strap brackets to the platform.

## Platform Height

The Stability Platform can be adjusted to four different heights. As the height of the platform is increased, the center of gravity is moved closer to the pivot point of the platform, thus increasing the difficulty of the balancing task. The platform is adjusted by removing the knobs from the sides of the platform and moving the platform clamps to the desired setting. The platform height settings are spaced 1.5" apart.

**Platform setting 1 (lowest setting)**

Tilt Range:  $\pm 15^\circ$   
 Platform Height: 6.0" from base  
 11.5" from pivot point

**Platform setting 2**

Tilt Range:  $\pm 20^\circ$   
 Platform Height: 7.5" from base  
 10.0" from pivot point

**Platform setting 3**

Tilt Range:  $\pm 25^\circ$   
 Platform Height: 9.0" from base  
 8.5" from pivot point

**Platform setting 4**

Tilt Range:  $\pm 30^\circ$   
 Platform Height: 10.5" from base  
 7.0" from pivot point

**Terms and Conventions for Tension Tables**

**Strap weights**

"LD" is a light duty/regular duty strap  
 "HD" is a heavy duty strap

The platform comes with three pairs of straps: two pairs of light duty/regular duty and one pair of heavy duty straps. Extra straps or replacement straps can be ordered separately through Lafayette Instrument Company.

**Replacement Strap Part Numbers**

Heavy Duty: # 4-233-017  
 Light Duty/Regular Duty: # 4-233-018

**Platform Positions**

"1" is the lowest position  
 "4" is the highest position

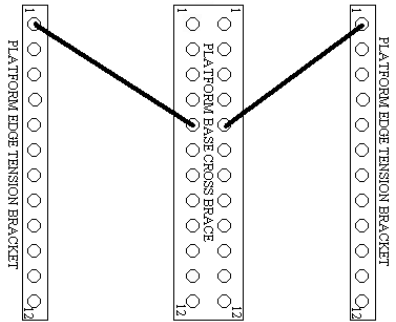
**Test Methods**

The values in the tension tables represent the amount of force in pounds required to tilt the platform the specified number of degrees. The force applied was measured using a hand held force dynamometer. The readings were all taken from the center of the non-skid pad on the platform.

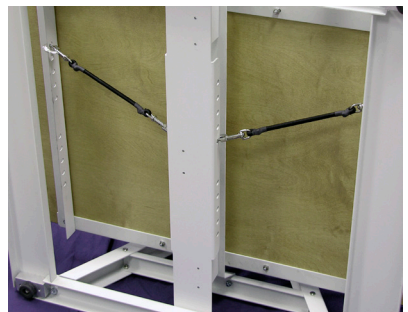
**Strap hole offset**

The tension of the platform is adjusted by stretching or relaxing the straps. The strap hole offset gives the number of holes along the tension bracket between the strap ends. The larger the offset, the more tension on the strap. The strap placement recommendations are accompanied by hole diagrams that represent the tension brackets on the bottom of the platform as looking down on the platform.

The 1-to-5 setting indicates that the strap will be stretched between the first hole on the tension bracket to the fifth hole on the platform cross brace. Straps are always placed in pairs and are typically symmetrical.



Example Strap hole offset (1-to-5)



# Stability Platform Tension Strap Retrofit

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Each Platform setting has a maximum and minimum allowable strap hole offset. Settings below the minimum offset will create slack in the straps and result in inconsistent tension. Settings above the maximum offset will damage the strap and/or hinder the motion of the platform. Do not exceed the maximum settings.

## Platform setting 1 (Lowest setting)

Minimum Offset: 1-to-5  
Maximum Offset: 1-to-10

## Platform setting 3

Minimum Offset: 1-to-1  
Maximum Offset: 1-to-8

## Platform setting 2

Minimum Offset: 1-to-4  
Maximum Offset: 1-to-9

## Platform setting 4 (Highest setting)

Minimum Offset: 1-to-1  
Maximum Offset: 1-to-5

**Maximum strap stretch (any setting): 22"**

## Tension Setting Characteristics

The tension tables and graphs represent three different tension settings: low, medium and high tension. Each tension setting will give the platform slightly different tilt response characteristics.

**Low tension:** Provides the most consistent response throughout the tilt range of the platform. The tension is basically linear across the entire range. This setting may produce a slight "tension gap" at the center point as the tilt crosses over from one strap to the other.

**Medium tension:** Provides a slight non-linear response across the tilt range of the platform. The maximum tension provided by the straps is greater than in the low tension settings.

**High Tension:** Provides an exaggerated non-linear response. Since the straps are always under tension, there is no gap in the center of the range when the tilt crosses from one strap to the other. This setting provides the smoothest tilt action. The side effect of the high tension is that the straps actually cancel each other out in the lower tilt angle ranges and less tension is produced than in the low tension setting. The maximum tension provided at the high tilt range is greater than the other two settings.

## Tension Tables

The following tables and graphs characterize the common tension settings for the Stability Platform. The tables and graphs represent the amount of force in pounds required to tilt the platform a set number of degrees with each strap and platform configuration. The numbers represent the order of placement if more than one pair of straps is used. The graphs are sorted by platform height and tension characteristics.

### Setting 1-L

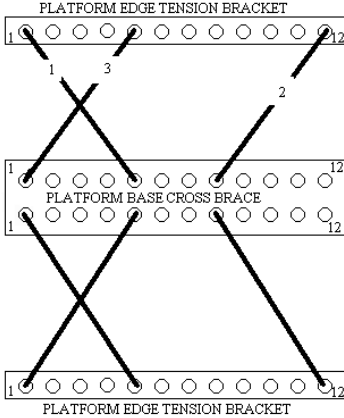
Tension: Low

Platform Position: 1 (lowest setting)

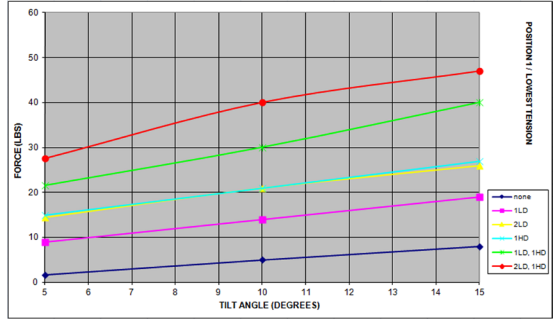
Strap Hole Offset: 1-to-5

Strap Stretch: 14" to 18"

Platform Tilt Range: 0 to  $\pm 15^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	7-9	14-16	14-16	21-23	27-29
10	5	13-15	20-22	20-22	29-31	39-41
15	8	18-20	25-27	26-28	39-41	46-48



### Setting 1-M

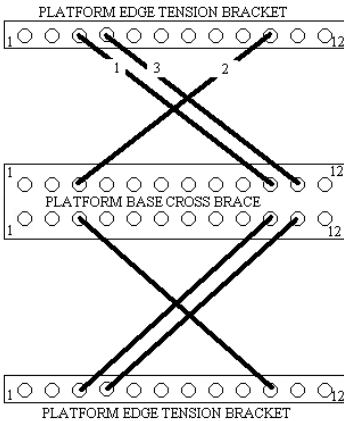
Tension: Medium

Platform Position: 1 (lowest setting)

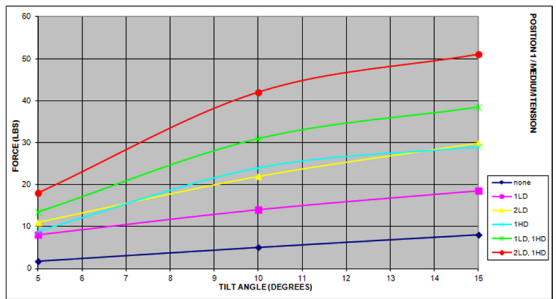
Strap Hole Offset: 1-to-8

Strap Stretch: 15" to 19"

Platform Tilt Range: 0 to  $\pm 15^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	7-9	10-12	8-10	13-15	17-19
10	5	13-15	21-23	23-25	30-32	41-43
15	8	18-20	29-31	28-30	38-40	50-52



# Stability Platform Tension Strap Retrofit

## Setting 1-H

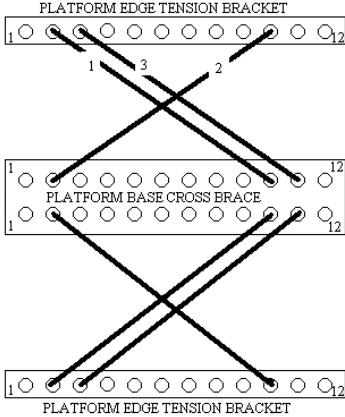
Tension: High

Platform Position: 1 (lowest setting)

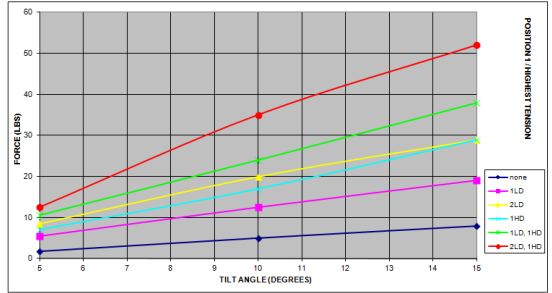
Strap Hole Offset: 1-to-9

Strap Stretch: 16" to 22"

Platform Tilt Range: 0 to  $\pm 15^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	5-7	8-10	6-8	10-12	10-14
10	5	12-14	19-21	16-18	23-5	34-36
15	8	18-20	28-30	28-30	37-39	51-53



## Setting 2-L

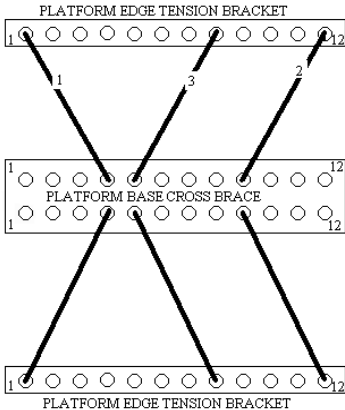
Tension: Low

Platform Position: 2

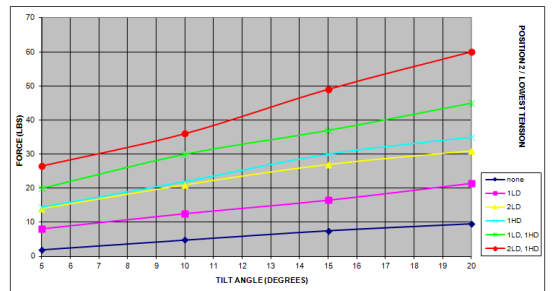
Strap Hole Offset: 1-to-4

Strap Stretch: 13.5" to 19"

Platform Tilt Range: 0 to  $\pm 20^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	7-9	13-15	14-16	19-21	26-28
10	5	12-14	20-22	21-23	29-31	35-37
15	8	16-18	26-28	29-31	36-38	48-50
20	10	21-23	30-32	34-36	44-46	59-61



### Setting 2-M

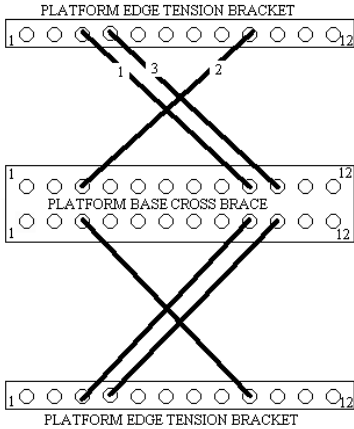
Tension: Medium

Platform Position: 2

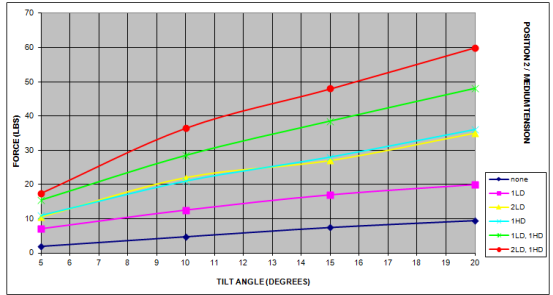
Strap Hole Offset: 1-to-7

Strap Stretch: 15" to 20"

Platform Tilt Range: 0 to  $\pm 20^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	6-8	10-12	10-12	15-17	17-19
10	5	12-14	21-23	20-22	28-30	36-38
15	8	16-18	26-28	27-29	38-40	47-49
20	10	19-21	34-36	35-37	47-49	59-61



### Setting 2-H

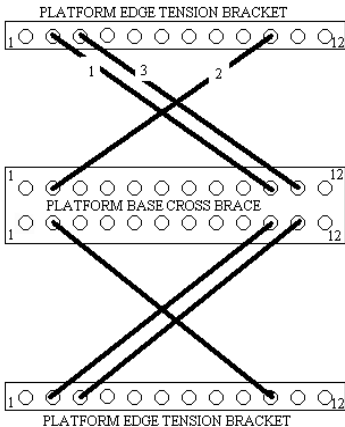
Tension: High

Platform Position: 2

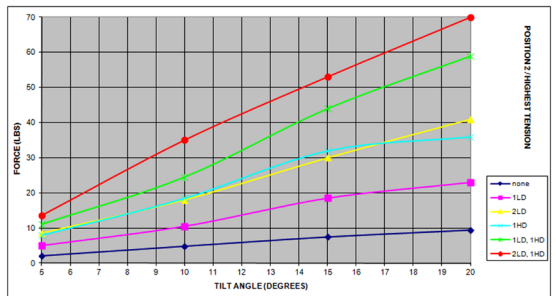
Strap Hole Offset: 1-to-9

Strap Stretch: 16" to 21"

Platform Tilt Range: 0 to  $\pm 20^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	4-6	8-10	7-9	10-12	13-15
10	5	10-12	17-19	18-20	24-26	34-36
15	8	18-20	29-31	31-33	43-45	52-56
20	10	22-24	40-42	35-37	57-62	67-72



# Stability Platform Tension Strap Retrofit

## Setting 3-L

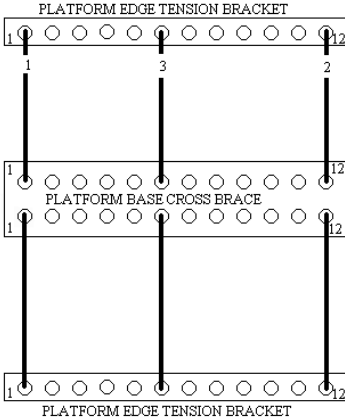
Tension: Low

Platform Position: 3

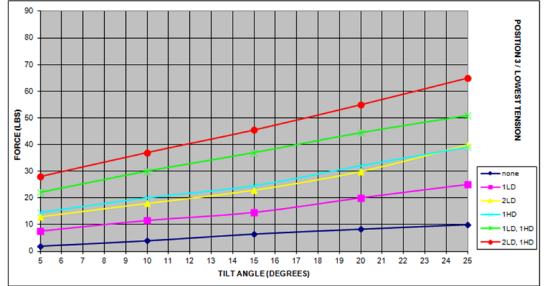
Strap Hole Offset: 1-to-1

Strap Stretch: 13.5" to 20"

Platform Tilt Range: 0 to  $\pm 25^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	7-9	12-14	14-16	21-23	27-29
10	4	11-13	17-19	19-21	29-31	36-38
15	6	14-16	22-24	24-26	36-38	45-47
20	8	19-21	29-31	31-33	44-46	54-56
25	10	24-26	39-41	38-40	50-52	63-67



## Setting 3-M

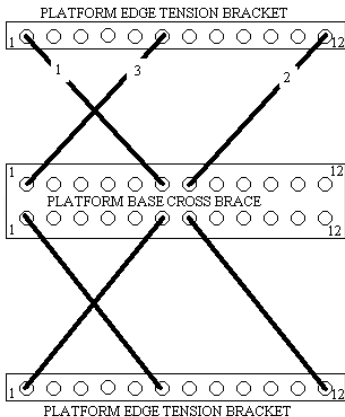
Tension: Medium

Platform Position: 3

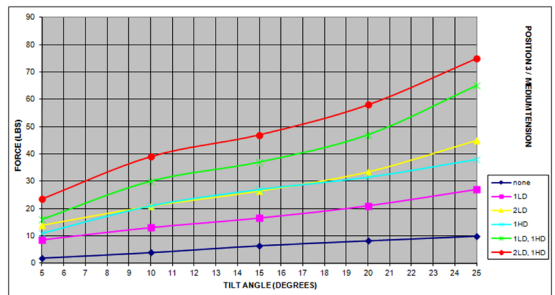
Strap Hole Offset: 1-to-6

Strap Stretch: 14" to 21"

Platform Tilt Range: 0 to  $\pm 25^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	8-10	13-15	10-12	15-17	23-25
10	4	12-14	20-22	20-22	29-31	38-40
15	6	16-18	26-28	26-28	36-38	46-48
20	8	20-22	33-35	31-33	46-48	57-59
25	10	26-28	44-46	37-39	62-68	73-77





### Setting 3-H

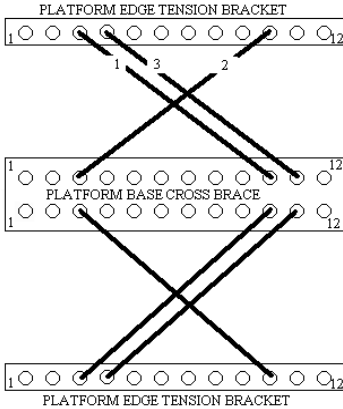
Tension: High

Platform Position: 3

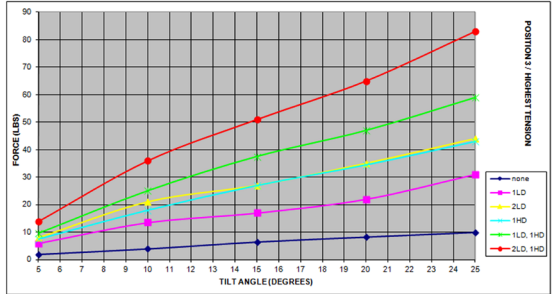
Strap Hole Offset: 1-to-8

Strap Stretch: 16" to 22"

Platform Tilt Range: 0 to  $\pm 25^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	5-7	7-9	7-9	9-11	13-15
10	4	13-15	20-22	17-19	24-26	35-37
15	6	16-18	26-28	26-28	37-39	50-52
20	8	21-23	34-36	34-36	46-48	64-66
25	10	30-32	43-45	42-44	57-61	81-85



### Setting 4-L

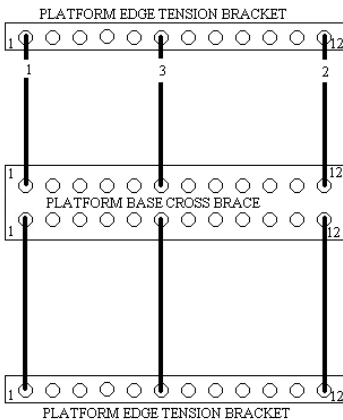
Tension: Low

Platform Position: 4

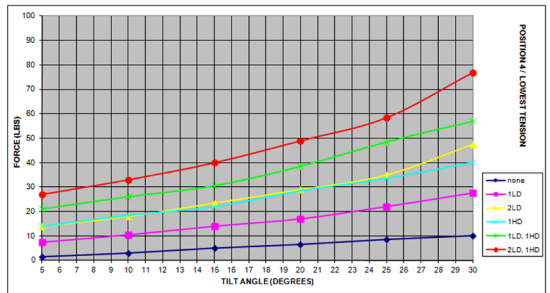
Strap Hole Offset: 1-to-1

Strap Stretch: 14" to 22"

Platform Tilt Range: 0 to  $\pm 30^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	7-9	13-15	13-15	20-22	26-28
10	4	10-12	17-19	18-20	25-27	32-34
15	6	13-15	23-25	21-23	30-32	39-41
20	8	16-18	28-30	28-30	38-40	48-50
25	10	21-23	34-36	34-36	48-50	50-60
30	10	27-29	47-49	39-41	55-59	75-79



# Stability Platform Tension Strap Retrofit

## Setting 4-M

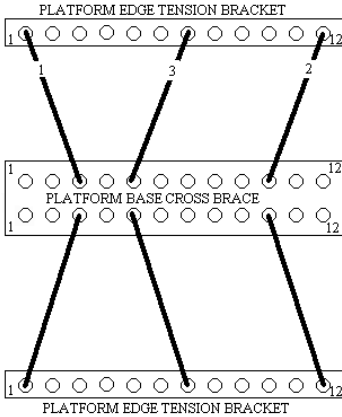
Tension: Medium

Platform Position: 4

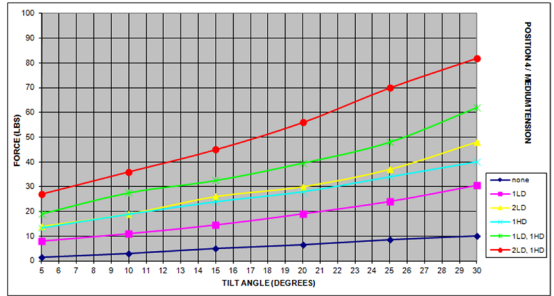
Strap Hole Offset: 1-to-3

Strap Stretch: 14.5" to 22"

Platform Tilt Range: 0 to  $\pm 30^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	7-9	13-15	13-15	18-20	26-28
10	4	10-12	18-20	18-20	27-29	35-37
15	6	14-16	25-27	23-25	32-34	44-46
20	8	18-20	29-31	27-29	39-41	55-57
25	10	23-25	36-38	33-35	47-49	68-72
30	10	30-32	47-49	39-41	60-64	80-84



## Setting 4-H

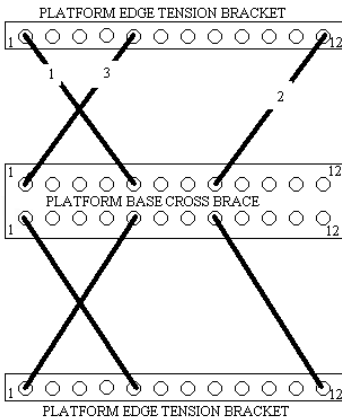
Tension: High

Platform Position: 4

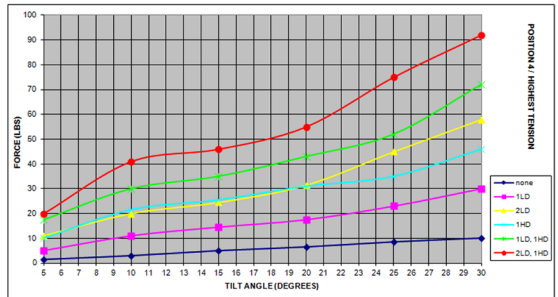
Strap Hole Offset: 1-to-5

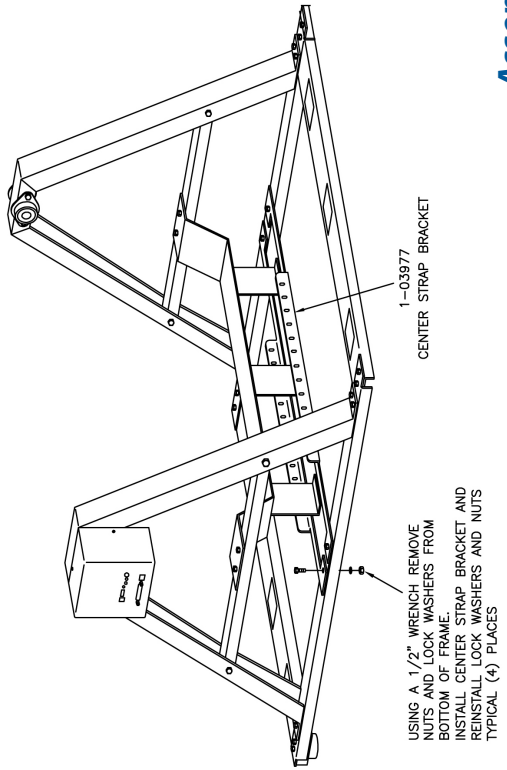
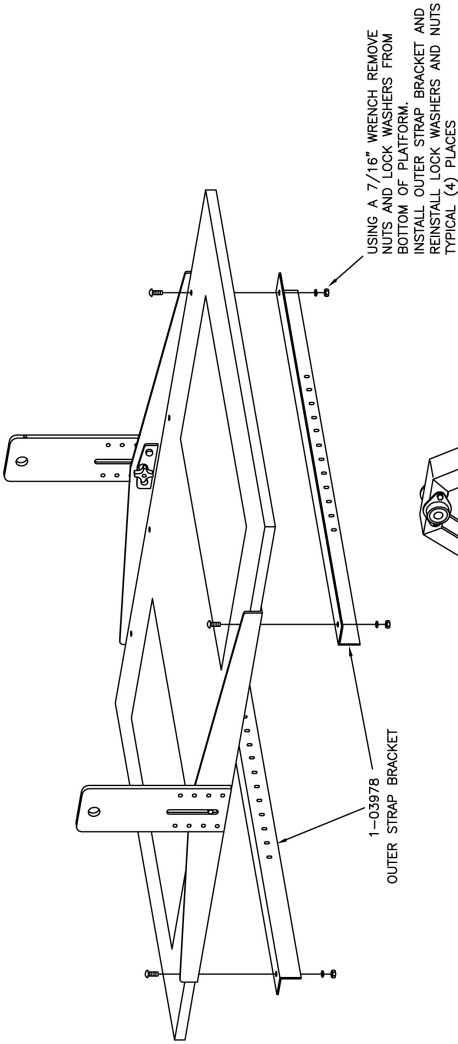
Strap Stretch: 15" to 22"

Platform Tilt Range: 0 to  $\pm 30^\circ$



Tilt Angle Degrees	Force (lbs.)					
	without straps	1LD	2LD	1HD	1LD 1HD	2LD 1HD
5	2	4-6	10-12	9-11	17-19	19-21
10	4	10-12	19-21	21-23	29-31	40-42
15	6	14-16	24-26	25-27	34-36	45-47
20	8	17-19	31-33	29-31	42-44	54-56
25	10	22-24	44-46	34-36	51-53	73-77
30	10	29-31	56-60	44-48	70-74	90-94





# Terms and Conditions

## LIC Worldwide Headquarters

Toll-Free: (800) 428-7545 (USA only)

Phone: (765) 423-1505

Fax: (765) 423-4111

Email: [sales@lafayetteinstrument.com](mailto:sales@lafayetteinstrument.com)

[export@lafayetteinstrument.com](mailto:export@lafayetteinstrument.com) (Outside the USA)

## Mailing Address:

Lafayette Instrument Company

PO Box 5729

Lafayette, IN 47903, USA

## Lafayette Instrument Europe:

Phone: +44 1509 817700

Fax: +44 1509 817701

Email: [eusales@lafayetteinstrument.com](mailto:eusales@lafayetteinstrument.com)

## Phone, Fax, Email or Mail-in Orders

All orders need to be accompanied by a hard copy of your purchase order. All orders must include the following information:

- Quantity
- Part Number
- Description
- Your purchase order number or method of pre-payment
- Your tax status (include tax-exempt numbers)
- Shipping address for this order
- Billing address for the invoice we'll mail when this order is shipped
- Signature and typed name of person authorized to order these products
- Your telephone number
- Your email address
- Your FAX number

## Domestic Terms

There is a \$50 minimum order. Open accounts can be extended to most recognized businesses. Net amount due 30 days from the date of shipment unless otherwise specified by us. Enclose payment with the order; charge with VISA, MasterCard, American Express, or pay COD. We must have a hard copy of your purchase order by mail, E-mail or fax. Students, individuals and private companies may call for a credit application.

## International Payment Information

There is a \$50 minimum order. Payment must be made in advance by draft drawn on a major US bank; wire transfers to our account; charge with VISA, MasterCard, American Express, or confirmed irrevocable letter of credit. Proforma invoices will be provided upon request.

## Exports

If ordering instrumentation for use outside the USA, please specify the country of ultimate destination, as well as the power requirements (110V/60Hz or 220V/50Hz). Some model numbers for 220V/50Hz will have a "C" suffix.

## Quotations

Quotations are supplied upon request. Written quotations will include the price of goods, cost of shipping and handling, if requested, and estimated delivery time frame. Quotations are good for 30 days, unless otherwise noted. Following that time, prices are subject to change and will be re-quoted at your request.

## Cancellations

Orders for custom products, custom assemblies or instruments built to customer specifications will be subject to a cancellation penalty of 100%. Payment for up to 100% of the invoice value of custom products may be required in advance. Cancellation for a standard Lafayette Instrument manufactured product once the product has been shipped will normally be assessed a charge of 25% of the invoice value, plus shipping charges. Resell items, like custom products, will be subject to a cancellation penalty of 100%.

## Exchanges and Refunds

Please see the cancellation penalty as described above. No item may be returned without prior authorization of Lafayette Instrument Company and a completed Return Form. A copy of the Return Form or your assigned Return # (you will receive this via email after submitting the form) must be included with the returned goods. The merchandise should be packed well and fully insured. Unopened merchandise may be returned prepaid within thirty (30) days after receipt of the item and in the original shipping carton. Collect shipments will not be accepted. Returned products must be in saleable condition, and credit is subject to inspection of the merchandise.

## Repairs

**Instrumentation may not be returned without prior authorization by Lafayette Instrument Company and a completed Return Form. When you**

**complete the Form, or call Lafayette Instrument, you will receive a Return #. Your Return # number will be good for 30 days. Address the shipment to:**

Lafayette Instrument Company

3700 Sagamore Parkway North

Lafayette, IN 47904, USA.

Shipments cannot be received at the LIC PO Box. Items should be packed well, insured for full value, and returned along with a copy of the Return Form or the Return #. An estimate of repair will be given prior to completion ONLY if requested in an enclosed cover letter. We must have a completed purchase order by mail or fax, or repair work cannot commence for non-warranty repairs.

## Damaged Goods

Damaged instrumentation should not be returned to Lafayette Instrument prior to a thorough inspection. If a shipment arrives damaged, note damage on delivery bill and have the driver sign it to acknowledge the damage. Contact the delivery service, and they will file an insurance claim. If damage is not detected at the time of delivery, contact the carrier/shipper and request an inspection within 10 days of the original delivery. Please call the Lafayette Instrument Customer Service Department for repair or replacement of the damaged merchandise.

## Limited Warranty

Lafayette Instrument Company warrants equipment manufactured by the company to be free of defects in material and workmanship for a period of one year from the date of shipment, except as provided hereinafter. The original manufacturer's warranty will be honored by Lafayette Instrument for items not manufactured by Lafayette Instrument Company, i.e. resell items. This assumes normal usage under commonly accepted operating parameters and excludes consumable products.

Warranty period for repairs or used instrumentation purchased from Lafayette Instrument is 90 days. Lafayette Instrument Company agrees either to repair or replace, at its sole option and free of part charges to the customer, instrumentation which, under proper and normal conditions of use, proves to be defective within the warranty period. Warranty for any parts of such repaired or replaced instrumentation shall be covered under the same limited warranty and shall have a warranty period of 90 days from the date of shipment or the remainder of the original warranty period whichever is greater. This warranty and remedy are given expressly and in lieu of all other warranties, expressed or implied, of merchantability or fitness for a particular purpose and constitutes the only warranty made by Lafayette Instrument Company.

Lafayette Instrument Company neither assumes nor authorizes any person to assume for it any other liability in connection with the sale, installation, service or use of its instrumentation. Lafayette Instrument Company shall have no liability whatsoever for special, consequential, or punitive damages of any kind from any cause arising out of the sale, installation, service or use of its instrumentation. All products manufactured by Lafayette Instrument Company are tested and inspected prior to shipment. Upon prompt notification by the Customer, Lafayette Instrument Company will correct any defect in warranted equipment of its manufacture either, at its option, by return of the item to the factory, or shipment of a repaired or replacement part. Lafayette Instrument Company will not be obliged, however, to replace or repair any piece of equipment, which has been abused, improperly installed, altered, damaged, or repaired by others. Defects in equipment do not include decomposition, wear, or damage by chemical action or corrosion, or damage incurred during shipment.

## Limited Obligations Covered by this Warranty

1. In the case of instruments not of Lafayette Instrument Company manufacture, the original manufacturer's warranty applies.
2. Shipping charges under warranty are covered only in one direction. The customer is responsible for shipping charges to the factory if return of the part is required.
3. This warranty does not cover damage to components due to improper installation by the customer.
4. Consumable and/or expendable items, including but not limited to electrodes, lights, batteries, fuses, O-rings, gaskets, and tubing, are excluded from warranty.
5. Failure by the customer to perform normal and reasonable maintenance on instruments will void warranty claims.
6. If the original invoice for the instrument is issued to a company that is not the company of the end user, and not an authorized Lafayette Instrument Company distributor, then all requests for warranty must be processed through the company that sold the product to the end user, and not directly to Lafayette Instrument Company.

## Export License

The U.S. Department of Commerce requires an export license for any polygraph system shipment with an ULTIMATE destination other than: Australia, Japan, New Zealand or any NATO Member Countries. It is against U.S. law to ship a Polygraph system to any other country without an export license. If the ultimate destination is not one of the above listed countries, contact us for the required license application forms.