



G-RAFF HANDRAIL MOUNTING INSTRUCTIONS

Self-Leveling Stairs or Gangways

1. After receiving the shipment, unpack the Self-Leveling Stair or Gangway from its shipping container. The shipment will consist of the following components.

- | | |
|----------------------------------|-----------------------------------|
| A. 1 - gangway or stair assembly | D. 4 - 1/2" x 2 7/32" clevis pin |
| B. 2 - front handrail uprights | E. 6 - 1/2" E-clip |
| C. 2 - handrail sub-assemblies | F. 2 - 1/2" x 4 29/32" clevis pin |

2. Attach the front handrail upright to the handrail sub-assembly with two of the 1/2" x 2 7/32" clevis pins & E-clips (See sketch 1-1). This will complete one handrail assembly. Complete the remaining assembly in the same manner as outlined above.

Note: These joints must pivot freely. The pin, once installed, must be able to be rotated with your fingertips.

3. Install the self-leveling stair or gangway with handrails to your loading rack or platform (See sketch 1-2). This is accomplished by installing 3/4" bolts (not supplied) through the holes in the bottom handrail uprights and the mounting plates of the unit. Fasten securely to the platform with 3/4" locknuts (not supplied). Each unit will require four 3/4" bolts and locknuts.

Note: Remember to position the handrails on the correct side of the unit. The bend in the mounting plate on the front upright extends over the side panel.

4. Attach the front upright to the top of the self-leveling stair or gangway panels. The hole in the front upright mounting plate will match the hole in the panels. As illustrated in Sketch 1-3, position the front upright over the panel of the unit (the wider yoke section will extend over the panel). Insert the 1/2" x 4 29/32" clevis pin through the upright mounting hole and the mounting hole in the panel, install the E-clip on the pin.

WARNING: Two (2) handrails must be used for maximum safety to prevent falls.

WARNING: To prevent falls, before walking on decking or steps, the unit must be supported at both ends.

Should you experience any problems with this shipment or the product, please do not hesitate to contact your G-Raff Systems salesperson at (440) 934-2180, FAX (440) 934-4052, www.g-raffsystems.com, email: dingram@g-raffsystems.com.



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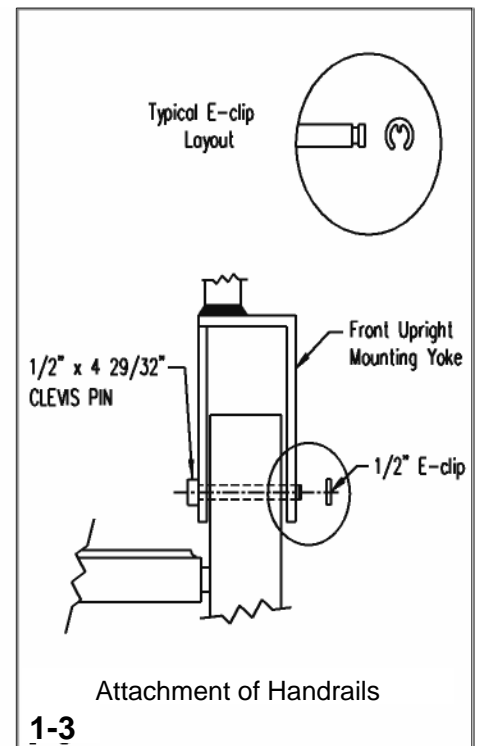
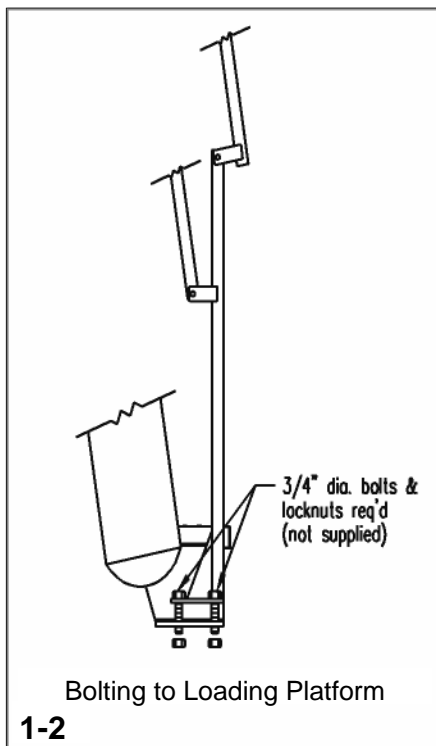
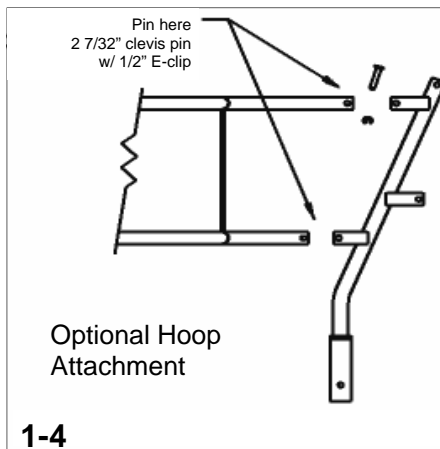
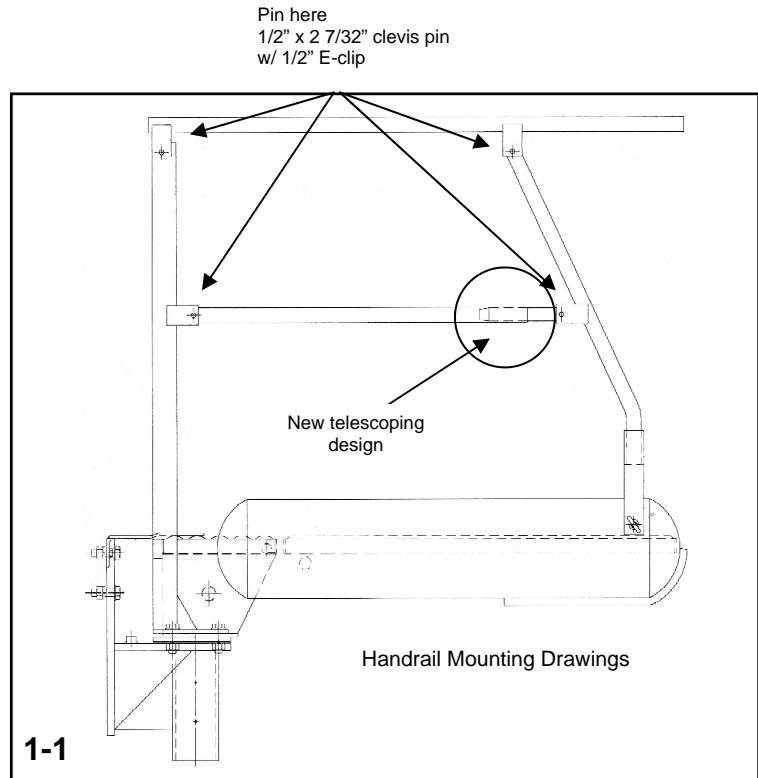
Yoke Style Handrail Mounting Drawings

**Sketch 1-1
Handrail Assembly**

**Sketch 1-2
Bolting to Loading Platform**

**Sketch 1-3
Attachment of Front
Upright Handrails**

**Sketch 1-4
Optional Hoop Attachment**





G-RAFF GANGWAYS & STAIRS

Preventative Maintenance Schedule

Recommended Lubrication Schedule

The pivoting axle bearings used on the G-Raff Gangways and Self-Leveling Stairs require an all purpose bearing grease. Each bearing must be lubricated a minimum of 1 to 3 times per year, more if the unit is used on a limited basis. Handrail pivoting bolts must also be lubricated a minimum of 1 to 3 times per year with a dry graphite compound.

Note: Models manufactured with permanently lubed bearings will not require lubrication.

Special Note: The lubrication of the handrail bolts and bearings is important in order to keep the unit operating freely. Corrosion at these points will cause the handrails and bearing to bind, reducing the ease of movement. (Sketch 2-1 will illustrate an example of where the lubrication points for the bearing are located.)

Spring Tensioning Procedure

Spring tension should be checked on a regular basis as the spring will stretch over a period of time. These adjustments should be to the operator's preference. The following steps will aid in this adjustment process. (See sketch 2-2 for a visual aid during the process.)

1. Remove the machine screws from the rubber bumper, then fold back to expose the adjustment access hole located in the nose cone.
2. With a 7/8" deep-well socket and wrench, rotate the adjustment nut clockwise to tighten the tension, counter-clockwise to reduce the tension. (One full rotation of the adjustment nut to each side adds a fair amount of tension to the unit.)

⚠ CAUTION: When adjusting the spring tension, allow enough remaining tension to prevent the unit from falling, but do not over tighten, allowing the unit to retract too fast. This could cause injury.

3. Once the preferred tensioning is reached, replace the rubber bumper and machine screws.

Annual Inspection Procedure

Annual inspection of the entire unit for corrosion, cracks or excessively worn components will keep the equipment in top working condition.

If problems are located during this inspection, contact our customer service department for the recommended repair or rework solution.

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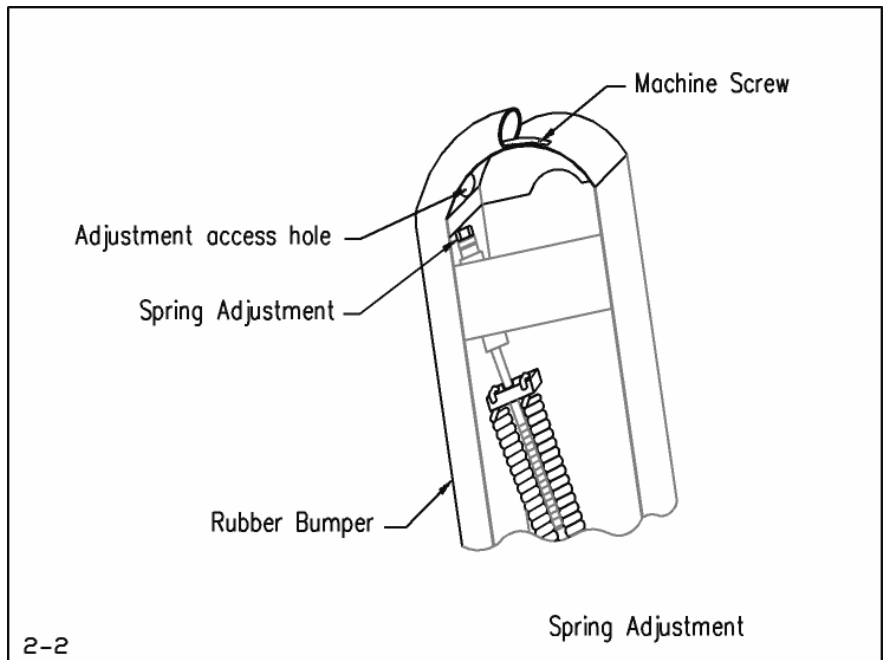
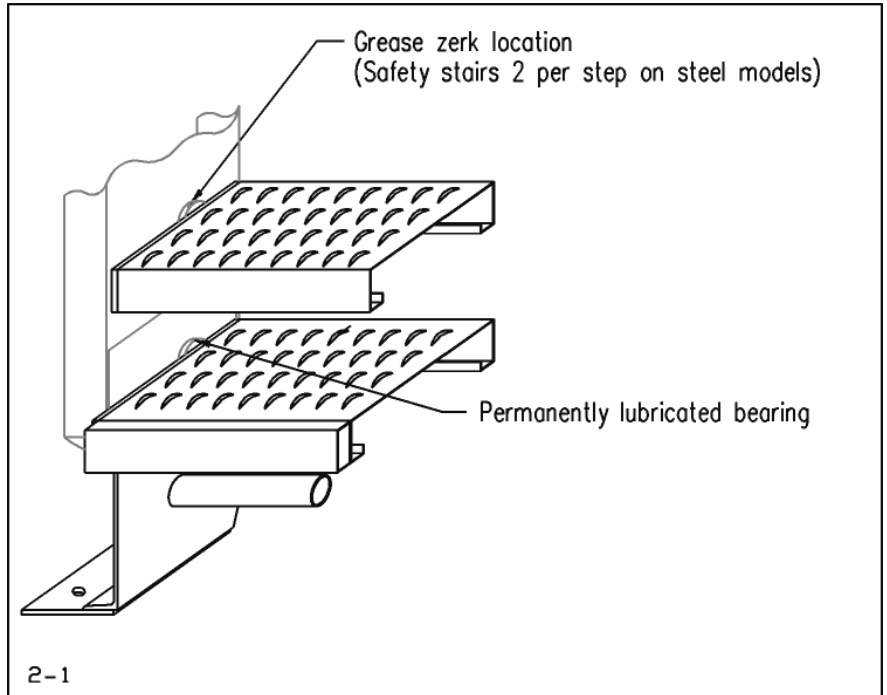
G-RAFF GANGWAYS & STAIRS

Lubrication and Spring Tensioning Drawings

The following drawings will provide a visual aid for the lubrication and spring tensioning adjustments for the gangway or stair.

Sketch 2-1 Lubrication Drawing

Sketch 2-2 Spring Adjustment Drawing



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