ANTI-TIPS
by Spacesaver

INSTALLATION INSTRUCTIONS

SECTION I
INTRODUCTION

SECTION II
IN RAIL ANTI-TIPS (L & T RAIL)

SECTION III
IN-RAIL ANTI-TIPS (B RAIL)

SECTION IV
STANDARD OVERHEAD ANTI-TIPS

SECTION V
SEISMIC OVERHEAD ANTI-TIPS

SECTION VI
CANTILEVER OVERHEAD ANTI-TIPS

SECTION VII
WALL TO WALL OVERHEAD ANTI-TIPS

CAUTION
Spacesaver Recommends:
1. That Safety Glasses be worn during any cutting and drilling operations and grinding.
2. That safety gear such as Hard Hats, Safety Shoes, etc. be worn when required.
# TABLE OF CONTENTS

**Page Identification Code:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>ANTI TIPS</td>
</tr>
<tr>
<td>ATI</td>
<td>ANTI TIP INSTALLATION</td>
</tr>
<tr>
<td>PAGE NUMBER</td>
<td></td>
</tr>
<tr>
<td>REV. 11/99</td>
<td>LATEST REVISION DATE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page No.</th>
<th>SECTION I - INTRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Manual Purpose/Use</td>
</tr>
<tr>
<td>3</td>
<td>Terms</td>
</tr>
<tr>
<td>3</td>
<td>Installation Tips</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION II - IN RAIL ANTI-TIPS (L &amp; T RAIL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION III - IN RAIL ANTI-TIPS (B RAIL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>9 A-B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION IV - STANDARD OVERHEAD ANTI-TIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION V - SEISMIC OVERHEAD ANTI-TIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
</tr>
<tr>
<td>13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION VI - CANTILEVER OVERHEAD ANTI-TIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-15</td>
</tr>
<tr>
<td>15-16-17</td>
</tr>
<tr>
<td>17-18</td>
</tr>
<tr>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION VII - WALL TO WALL OVERHEAD ANTI-TIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
</tr>
<tr>
<td>19</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>21</td>
</tr>
</tbody>
</table>

**Rev. 2.0**
SECTION I
INTRODUCTION

The purpose of this manual is to describe the steps required for a successful anti-tip installation. For the purpose of clarity, all right, left, front and back references assume facing the planned front of the system. The information in this booklet pertains to standard installations, exceptions are possible!

TERMS:

Overhead Anti-Tip:
A combination of saddle and bayonet, mounted to the top of the carriage shelving to prevent tipping.

Saddle:
The portion of the anti-tip mounted to carriage shelving which the bayonet passes through.

Bayonet:
The portion of the anti-tip mounted to carriage or platform shelving which passes through a saddle.

L or T Rail Anti-Tip Hook:
The 3 layer hook which engages with the groove in the rail.

Clevis Pin:
The pin to hold the 3 layer hook in place.

B-Rail Anti-Tip Hook:
The solid hook that engages with the channel parallel to the bar stock rail.

Fixed Saddle:
A saddle rigidly attached to the bayonet.

Movable Saddle:
A saddle which allows the bayonet to slide back and forth as the carriage moves.

Wall Mount Bracket:
The bracket mounted to the wall to support one or both ends of the bayonet.

RG “B” Rail Anti Tip Hook:
The hook which engages with the channel parallel to the bar stock rail.

INSTALLATION TIPS:

1. If the system includes a hex or center groove rail, the anti-tip must be installed directly over this rail to minimize the potential for carriage racking.
2. The anti-tip brackets must be secured directly to a shelving upright and the upright must be secured to the carriage.
3. Use the hardware we provide to attach the anti-tip brackets to the upright. Nut and bolt fastening is a must!
4. We do not provide the hardware to secure the upright to the carriage profile because requirements may vary from area to area. Choose the appropriate hardware and secure each upright to the carriage profile.
5. An anti-tip becomes necessary when the ratio of shelving height to carriage width exceeds 4 to 1 (with no in rail anti-tip). The ratio changes to 6 to 1 (with in rail anti-tip).
6. A minimum of one anti-tip per 9 feet of carriage length is required.
7. On shorter carriages you should locate the anti-tip as close to the linear center of the carriages as possible.
8. To the extent possible, locate the overhead anti-tips equally spaced along the length of the aisle. Plan ahead to avoid the location of other top mounted components.
SECTION II
L & T IN-RAIL ANTI-TIP

STEP 1

1.1
The carriages shown here are equipped with the guide bearing type of guidance system. The guide bearing brackets include an in-rail anti-tip hook. It is necessary to pull the clevis pins from the anti-tip hooks. The best time to do this is while the carriages are still standing on the skid.

1.2
Keep the clevis pins and sleeves in a safe place for re-installation later.

1.3
Once the clevis pin is removed the 3 layer anti-tip hook will swing free, allowing the carriage to be placed on the rails.
**Note:**
Install pins after the carriages are placed on the rails and before the splice bolts are fully tightened. Finally, adjust the guide bearings. See the manual, Installation of Steel Carriages (SC-9516), for instruction regarding guide bearing adjustment.

**STEP 2**

2.1
Swing the 3 layer anti-tip hook into position so that it engages with the groove in the rail.

2.2
Push the clevis pin and sleeve through the 3 layer anti-tip hook from the front.

2.3
Check to see that the clevis pin has penetrated all 3 layers of the anti-tip hook and that the small spring loaded locking ball has popped out.
SECTION III
IN RAIL ANTI-TIP (B-RAIL)

STEP 1

1.1
In-Rail Anti Tips for B-Rail must be field installed. The brackets and hardware are shipped in the hardware box. The bracket is engaged with the anti-tip channel along side the rail, and then bolted to the bottom lip of the carriage profile. Anti-tip brackets are required at each wheel location. The best time to install these hooks is before the shelving is installed. These anti-tip channels must be kept clean.

Please refer to the following illustration for hardware and fastening instruction.
**B-RAIL ANTI-TIP (STANDARD)**

<table>
<thead>
<tr>
<th>Component</th>
<th>Part Number</th>
</tr>
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<tr>
<td>Bolt 3/8 - 16 x 5/8</td>
<td>#95021.01</td>
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<tr>
<td>Flat Washer 3/8</td>
<td>#94032.01</td>
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<td>Carriage Lip</td>
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<tr>
<td>Anti-Tip Hook/Alignment Lance</td>
<td>#400703.001/#400703.002</td>
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<tr>
<td>Flange Nut 3/8 - 16</td>
<td>#93005.02</td>
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</table>
STEP 1

1.1

Seismic in-rail anti-tips for B-rail must be field installed. The brackets and hardware are shipped in the hardware box. The bracket is engaged with the anti-tip channel along side the rail, and then bolted to the bottom lip of the carriage profile. Anti-tip brackets are required at each wheel location. The best time to install these hooks is before the shelving is installed. These anti-tip channels must be kept clean.

Please refer to the following illustrations for hardware and fastening instructions.
### B-RAIL ANTI-TIP (SEISMIC)

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolt</td>
<td>3/8 - 16 x 5/8</td>
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<td>Int. Tooth Lock Washer</td>
<td>3/8</td>
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<td>3/8</td>
</tr>
<tr>
<td>Carriage Lip</td>
<td></td>
</tr>
<tr>
<td>Anti - Tip Hook / Alignment Lance</td>
<td></td>
</tr>
<tr>
<td>Threaded Flat Plate</td>
<td></td>
</tr>
</tbody>
</table>
ROLLER GUIDE BRACKET FOR RG “B” RAIL TYPE

Note: The following material addresses the differences between installing the RG “B” rail type of guide roller bracket as opposed to the type used for “L” or “T” rail. As always the bracket will be set and attached to the carriage at the factory. Adjustment of the guide bearing bracket remains the same as other familiar types depicted in the Steel Carriages Manual (OP-9516). The anti tip hook is unique and the following material addresses this.

FEATURES:
✓ Laminated design of the anti tip hook for added strength.
✓ Anti-tip hook designed to swing out of the way for easier placement of carriage on the rail.
✓ Bracket designed with side to side adjustment to assure proper fit and alignment.

The in rail anti tip design is unique to this rail type. Pull the clevis pin while the carriages are still on the skid.

The clevis pin and sleeve should be kept in a safe place for reinstallation later.
Place the carriage on the rail. The anti-tip hook will swing, allowing the carriage to contact the rail with minimal effort. Double check to confirm that the anti tip hooks have moved out of the way.

The anti tip hook forms a natural “lever” which can be lifted from the carriage interior, thus engaging with the rail channel.

Once the hook is in place, reinstall the clevis pin and sleeve.
SECTION IV
STANDARD OVERHEAD ANTI-TIP

STEP 1
1.1
The bayonet comes assembled to the fixed saddle. When possible, slide the moving saddle onto the bayonet and raise the assembly into position over the shelving.

STEP 2
2.1
The fixed saddle will be sized to slip over the shelving top. The saddle should be positioned at an upright location.

2.2
The moving saddle will be sized to slip over the shelving top. This saddle will be in line with the fixed saddle and bayonet across the aisle.
STEP 3
3.1
Use the factory drilled holes in the saddle as a guide to drill 3/16" holes through each upright at 2 locations.

3.2
Bolt each saddle to the shelving upright using the hardware provided.
#96004.04  #10 - 32 x 1" Pan Head Phillips
#93015.01  #10 - 32 Keps Nut

3.3
Close the open end of the bayonet with the soft plastic cap.
SECTION V
SEISMIC OVERHEAD ANTI-TIP

STEP 1

1.1
The bayonet comes assembled to the fixed saddle. Whenever possible, slide the moving saddle onto the bayonet and raise the assembly into position over the shelving.

1.2
The fixed and moving saddles will be sized to slip over the shelving top. The anti-tip should be positioned at an upright location.

STEP 2

2.1
The bolt holes must be field drilled using a 1/4" bit. Drill through the bracket and upright lining up with the paint hanging hole in the shelf support. Drill 2 holes at each bracket location for the fixed and moveable saddles.
STEP 3

3.1
Bolt each saddle to the shelving upright using the hardware provided.
#95002.09  1/4 - 20 x 1" Hex Head Bolt
#93015.01  1/4 - 20 Keps Nut
SECTION VI
CANTILEVER OVERHEAD ANTI-TIP

STEP 1

1.1
Place the aluminum bracket on the upright spreader. The hole in the angle bracket is pre-drilled at the factory. Use a 3/8” bit to drill through both sides of the spreader.

1.2
Bolt the angle bracket in place using the hardware provided.
#95021.07  3/8 - 16 x 2 1/2” Hex Head Bolt
#93015.08  3/8 - Keps Nut

Note:
The angle bracket must be placed up tightly against the canopy top. If there is a Z channel spot welded into the canopy top for wire dividers, the Z channel must be cut out so the bracket fits tight to the canopy top.

STEP 2

2.1
Use the fixed saddle as a template to drill through the canopy top and the angle bracket. Use a 1/4” bit and drill 2 holes.
**STEP 3**

3.1
Fasten the fixed saddle to the angle bracket using the hardware provided.

- #95002.09 1/4 - 20 x 1” Hex Head Bolt
- #93015.01 1/4 - 20 Keps Nut

**STEP 4**

4.1
Install the moving saddle to the upright directly across the aisle from the fixed saddle. Measure carefully to make certain that the fixed and movable saddles align perfectly! Double faced shelving requires that 2 brackets be installed back to back.
4.2
Bolt the angle brackets in place using the hardware provided. See Step 1.2 for the hardware required.

STEP 5
5.1
Carefully locate the movable saddle over the aluminum brackets under the canopy top. Use the movable saddle as a template to drill through the canopy top and the aluminum brackets. Use a 1/4" bit and drill 4 holes.
**STEP 6**  
6.1  
Fasten the movable saddle to the angle brackets using the hardware provided. See Step 3.1 for the hardware required.

**STEP 7**  
7.1  
Line up and level the bayonet. The holes through the bayonet must be field drilled. Clamp the bayonet into the fixed saddle and drill 2-5/16” holes through both sides using the holes in the fixed saddle as a template.
7.2
Fasten the bayonet to the fixed saddle using the hardware provided. These bolts will arrive assembled into the fixed saddle.

7.3
Close the open end of the bayonet with the soft plastic cap.
STEP 1
1.1
Often systems are installed in areas with permanent walls on either side. Situations like this allow the use of a bayonet supported by the walls. No fixed saddles are used, only movable saddles.

STEP 2
2.1
Whenever possible, assemble the movable saddle, bayonet and wall mount brackets on the floor and raise the entire assembly into position over the shelving.

STEP 3
3.1
The movable saddles fasten to the shelving uprights as described previously. See Standard Overhead Anti-Tip Steps 3.1 and 3.2. Position the entire assembly in place. Slide the wall mount bracket against the wall and mark the 2 holes to be drilled.

Note:
Wall mount bracket must be tied into a structural element of the wall, (Stud/beam) not just to drywall or plaster.
**STEP 4**

4.1

Drill the holes into the wall. The hole size is determined by the size and type of anchor used. Spacesaver does not provide this plug or screw.

**STEP 5**

5.1

Fasten the wall mount bracket to the wall.
STEP 6

6.1
Use the wall mount bracket as a template to drill through both sides of the bayonet. Use a 1/4" bit.

6.2
Fasten the bayonet to the wall mount bracket using the hardware provided.

#95027.01  1/4 - 20 x 3" Hex Head Bolt
#93015.01  1/4 - 20 Keps Nut

Note:
When required, fasten the wall mount bracket at the other wall as described in steps 3-4-5-6 above.