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300A SERIES OUTSWING CASEMENT WINDOW

302 SERIES OUTSWING DOOR

ADJUSTMENT GUIDE – CONCEALED HINGE



Window - Exterior view

Introduction

Following installation, and if required thereafter, the hardware of swinging windows and doors can be adjusted to achieve and maintain optimal performance, and air and water tightness.

Note: Adjustments to Cascadia's window and door hardware should only be performed by skilled and experience window installers or service providers, familiar with European style multi-point hardware.

Adjustments can be made to the window or door sash in all three directions: up/down, left/right, and inward/outward. Up/down, and left/right adjustments are performed at the hinges (top and bottom). Adjustments in the inward/outward direction, which affect the gasket tightness around the sash perimeter, are performed at the individual lock points of the multi-point hardware. The following pages detail the methods for performing adjustments.

The range of possible adjustments may not be sufficient to compensate for some installation deficiencies. It is always recommended to correct any significant installation deficiency, rather than attempt to compensate for it with hardware adjustments. Hardware adjustments should only be used to optimise the performance and ease of operation of a correctly installed product.

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Hardware Type

- NT-Designo, by Roto-Frank of America.

Required Tools

- 4mm Allen wrench (a.k.a. “#4 hex wrench” or “#4 Allen key”)

Summary of Adjustments

- Top hinge – 1 adjustment:
 - Left/right (top of sash)
- Bottom hinge – 2 possible adjustments:
 - Left/right (bottom of sash)
 - Up/down (entire sash)
- Individual lock points (cams) of multi-point hardware around sash perimeter:
 - Inward/outward (gasket compression at area of cam)

Note: Inward/outward adjustment (for gasket compression) is not possible at the hinges, and is not necessary at these locations. The hinge design ensures consistent gasket compression at the hinge corners. If gasket compression appears to be a concern at this location, the overall installation must be checked for plumb, square and level. A twisted installation is the only typical condition that could cause a gasket compression issue at a hinge corner.

Top Hinge

The top hinge allows for one adjustment:

- Left/right (top of sash)

This adjustment is used alone, or in combination (with adjustment to the bottom hinge) to correct minor sash misalignment. Misalignment can be observed where the dimension between the edge of the daylight opening (in the sash) and the nearest edge of the frame (adjacent to the sash) is not consistent on all four sides. This condition may cause portions of the sash to scrape or bind against the frame. Also, the operation of the hardware may be uneven or difficult. Perform the adjustments described below to correct misalignment. (The top hinge should be adjusted first, but further adjustments may be required at the bottom hinge.)

Method

See figures 1 – 3 (starting on next page).

1. Open the sash.
2. For windows not restricted to 4" opening, and doors: Disconnect the standard restrictor pin (at sill for windows; at head for doors) by pulling the restrictor arm away from its connection to the perimeter frame (figure 1). Pull carefully; do not bend the arm.
 - a. For windows restricted to 4" opening, for safety: The restrictor will have to be temporarily removed (remove screws). **Ensure that proper precautions are taken during this entire procedure to avoid falling from any window that is normally restricted to 4" for safety.**
3. Open the sash to its maximum possible angle (approx. 100 degrees).
4. Left/right adjustments: To adjust the horizontal position of the top of the sash, insert the #4 Allen wrench into the location shown in figure 2. Turn the wrench clockwise to move the sash closer to the hinge, and counter clockwise to move the sash away from the hinge. Most often, the required adjustment involves moving the sash toward the hinge at the top (turn clockwise).
5. If adjustments are complete, reconnect restrictor by pushing the restrictor pin back into its original position on the frame (figure 3). If adjustments are required at the bottom hinge also, complete these adjustments (see next section) before reconnecting the restrictor.

Bottom Hinge

The bottom hinge allows for two possible adjustments:

- Left/right (bottom of sash)
- Up/down (entire sash)

Typically, adjusting the bottom hinge is only performed in the case that the required adjustment is beyond the range possible for the top hinge alone. Adjust the top hinge to the maximum extent of its range, prior to adjusting the bottom hinge.

Most often, the required adjustment at the top involves moving the sash toward the hinge. In the case that the maximum range of this adjustment is reached (at the top hinge), the opposite adjustment, at the bottom hinge, will continue to tilt the sash in this direction. The reverse is also true, if the sash requires tilting in the other direction, but this is uncommon.

Method

See figures 4 & 5 (next page).

6. Left/right: To adjust the horizontal position of the bottom of the sash, insert the #4 Allen wrench into the location shown in figure 4. Turn the wrench clockwise to move the sash closer to the hinge, and counter clockwise to move the sash away from the hinge.
 - a. When adjustments are complete, check all around the sash for scraping or binding. There should be none. Also, the sash should not be adjusted to the point that the hardware becomes more difficult to operate, or binds when locking/unlocking.
7. Up/down: After the alignment of the sash has been corrected by the left/right adjustments, the sash may need to be raised or lowered. To raise/lower the entire sash, insert and turn the #4 Allen wrench at the location shown in figure 5. When finished, check again to ensure there is no binding or scraping of the sash, and that the hardware continues to operate smoothly.



Figure 1 – Restrictor arm: pull to disconnect



Figure 2 – Top hinge adjustment point (left/right)



Figure 3 – Restrictor arm: push to reconnect.



Figure 4 – Bottom hinge adjustment point (left/right)



Figure 5 – Bottom hinge adjustment point (up/down)

Individual Lock Points (Cams)

The individual lock points (cams) allow for the following adjustment:

- Inward/outward (gasket compression around perimeter of sash)

Every lock point (cam) can be independently adjusted to control perimeter gasket compression. The factory setting for cams is in the middle position, for even compression. If uneven compression is observed, adjust the cams closest to where the uneven compression is occurring.

To determine where uneven compression is occurring, pull the window or door closed, and slowly lock the handle. Locations with too much gasket compression will be observed to close and tighten before the rest of the perimeter gasket. Locations with too little compression will be observed to be not sufficiently compressed, even after the handle is locked. Correct these conditions by adjusting the cams, as described below.

Tip: Make small adjustments, and regularly check the results until even gasket compression is achieved.

Method

1. Open the sash to allow access to the hardware around the perimeter of the sash.
2. To increase or decrease the gasket compression at any lock cam, insert the #4 Allen wrench into the cam, as shown in figure 6, and adjust as follows:

The lock cam can be rotated in either direction for adjustment. The full range of adjustment occurs over 180 degrees; continuing to turn past 180 degrees reverses the adjustment, until the lock cam returns to its original position (at 360 degrees). Lock cams have an indicator dot on the perimeter of the cam, which shows its position (figure 7). See figure 7 for settings.



Figure 6 – Inward/outward adjustment (gasket compression at lock cam)
Rotate wrench in lock cam for adjustment



Figure 7 – Typical lock cam on multi-point hardware. Dot on left side of cam's perimeter is the adjustment indicator. Loosest setting: indicator dot is on exterior side of cam. Tightest setting: indicator dot is on interior side of cam. Middle setting: indicator is on top or bottom.