



This guide contains procedures for common user serviceable repair tasks found on aluminum single-hung windows. If a condition arises that is not covered in this guide, please contact us for professional help. This product guide covers our current JELD-WEN Premium and Builders Series windows as well as our historical products with the following names: Seasonshield, Windowmaster, Wenco and Summit. For help identifying your window model, refer to your product purchase paperwork or call us for additional help.

Do-It-Yourself

Technician



## INTRODUCTION

Single-hung windows have one operating sash and either one fixed upper sash or glass directly set into the frame. An insect screen is mounted on the exterior side of the operating sash(es).

### CONTACT US

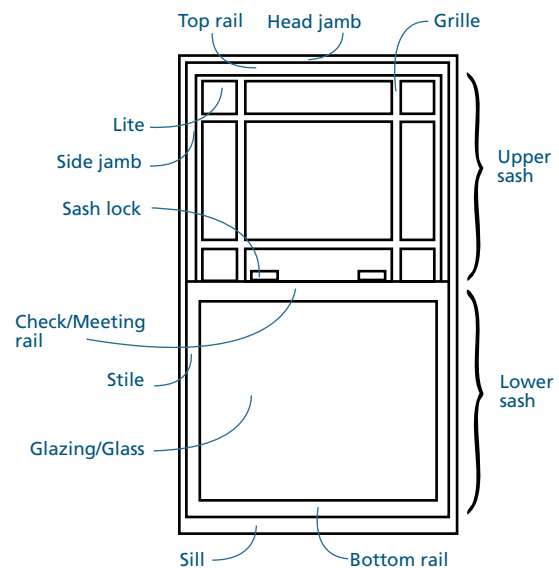
For questions, feel free to contact us by phone or email:

- Phone: 1-(800)-JELD-WEN/1-(800)-535-3936
- Email: customerserviceagents@jeld-wen.com

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## SINGLE-HUNG WINDOW ANATOMY



The advice offered herein can be done by a homeowner with some mechanical aptitude. If you are unsure, it is recommended that you hire a trained service provider such as a competent and licensed construction contractor or building professional. JELD-WEN disclaims any and all liability associated with the use and/or provision of these instructions. Any reliance upon the information or advice is at the risk of the party so relying. The information contained herein may be changed from time to time without notification.

## PRECAUTIONS & SAFETY

- Follow all manufacturers' instructions and labels.
- Use proper and safe equipment and precautions if servicing the exterior side of windows above ground level.
- Window insect screens are not security devices and will not prevent children, other people, or pets from falling through.
- Use extra care when driving screws near glass unit to avoid breakage.
- Use caution when tightening screws to avoid stripping the screw holes.
- Sash removal can be awkward and could cause physical injury or product damage; we recommend the help of a second person.
- Maintain a strong grip on balance when removing or installing. Balances are spring-loaded and they will decompress quickly if released, possibly causing personal injury and/or product damage.
- Beware of oil causing slippery surfaces.

## NEEDED TOOLS & MATERIALS

### NEEDED TOOLS

**Note!** Each tool is not required for every task.

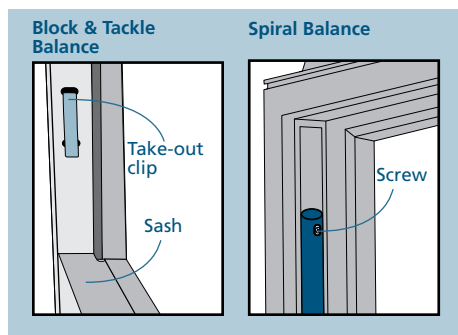
- Tape measure
- Level
- Flat head screwdriver
- Phillips head screwdriver
- Spiral adjustment tool (ask your supplier for one) or locking needle-nose pliers
- #2 square head screwdriver

### NEEDED MATERIALS

- String
- Tape

## SASH REMOVAL & INSTALLATION

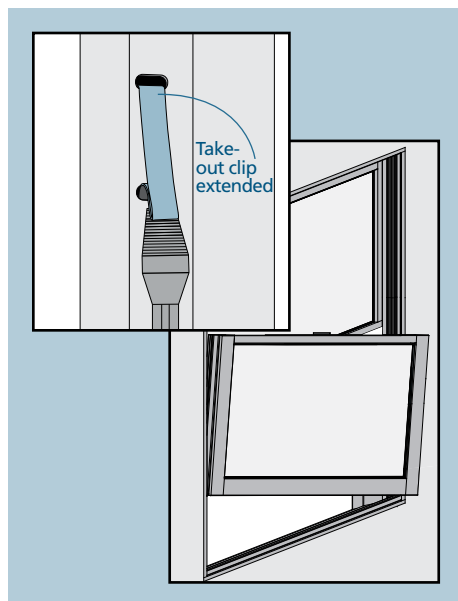
The type of balance the window has will determine the steps necessary to remove the sash. Windows that have metal clips in both jambs, just above the bottom sash, have block and tackle balances. Windows with a circular rod with a screw in the top (if there is a cover in the track, snap it out to see the balance), in both jambs, have spiral balances.



### BLOCK & TACKLE BALANCE

#### Removal

1. Locate metal clips in side jambs on both sides of window.
2. From the interior, lift bottom of take-out clips with flat head screwdriver until they snap into angled position. Leave take-out clips in angled position until sash is reinstalled.
3. Slide top of sash several inches above take-out clips.
4. Push sash toward one side jamb until it is clear of the opposite side jamb and remove.



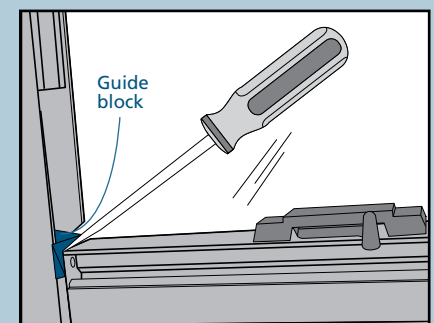
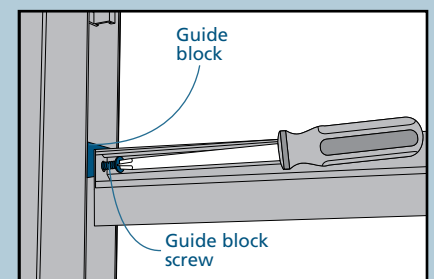
#### Installation

1. If a new lock came separately with a new sash, install new lock onto new sash.
2. Insert one side of sash into one side jamb above metal take-out clips.
3. Fit other side of sash into opposite side jamb.
4. Close sash.
5. Level take-out clips flush to side jambs.
6. Test sash operation. If sash does not move freely or lock does not engage, remove and reinstall.

### SPIRAL BALANCE

#### Removal

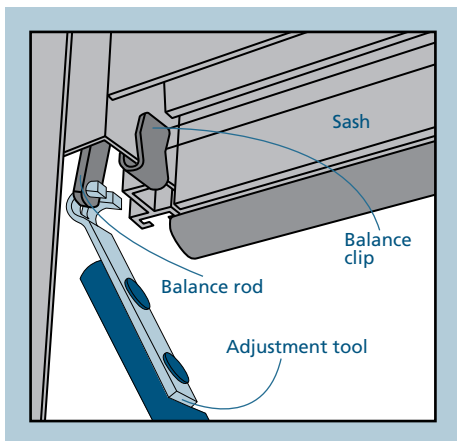
1. If replacing a sash with a new one, a balance adjustment tool should have been sent with the new sash. If the sash is not being replaced or the tool did not come with the new sash, call us for an adjustment tool.
2. Unlock window and open most of the way.
3. Locate guide blocks on all four corners of the sash and remove screws holding in the guide blocks.
4. Use a flat head screw driver to pry guide blocks off all four corners (note position for replacement) and be careful not to scratch the paint.



## SASH REMOVAL & INSTALLATION - CONTINUED

### SPIRAL BALANCE - CONTINUED

- Open window all the way; this releases most of the tension in the balance springs.
- Adequately support the sash until fully removed or reinstalled.
- Insert the adjustment tool into the small hole on the bottom of the spiral rod.
- Pull the spiral rod down about 1" and slowly allow the rod to unwind. Repeat for the opposite side.
- Lower the sash to the bottom and remove the screw from the top of one of the balances. Remove the balance.
- Slide the sash to the same side the balance was removed and remove sash.



#### Installation

- Install new lock onto sash if the lock was broken or the sash doesn't have a lock already installed.
- Slide the appropriate side of the sash into the jamb that has the balance still attached.
- Insert opposite side of sash into jamb.
- Push sash up into open position.
- Slide balance into the groove between the sash and jamb until the bottom of the balance is flush with bottom of sash.

- Use the balance adjustment tool and turn the rod clockwise six complete turns and reattach to the bottom corners of the sash. Repeat for opposite side.
- Snap guide blocks into place and attach them with screws.
- Open, close and lock window; if sash does not function properly, you may need to readjust the balance with the balance adjustment tool. If sash still does not function properly, remove and reinstall.

### FIXED SASH

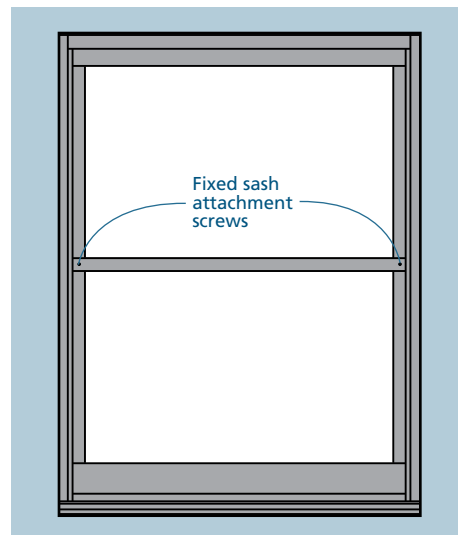
These steps only apply to windows with a fixed upper sash. They do not apply to direct set glass.

#### Removal

- Remove operating sash as noted above.
- From the exterior, remove screws located on the bottom rail of the fixed sash.
- Slide sash down half way.
- Push sash toward one side jamb until it is clear of the opposite side jamb and remove sash.

#### Installation

To install, reverse removal steps as noted above.



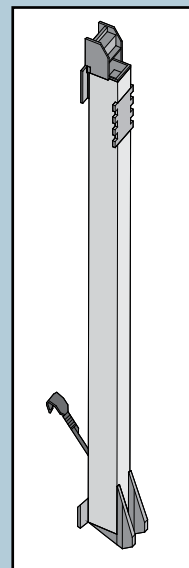
## BALANCE REPLACEMENT & ADJUSTMENT

A balance system controls the movement of a sash in a single-hung window. Balance systems are under tension; replace with caution. If you need help determining if the window needs a new balance, call our service department. Order the same balance type and specify the sash size. Balances are designed to support different sash sizes. A large sash requires a different balance than a smaller sash. A properly fitting balance will be the correct length, hold the sash weight, and fit with all other components. If a balance needs to be replaced, we recommend replacing all balances in the window at the same time. Read and understand all instructions before beginning.

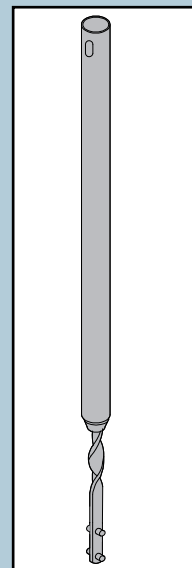
There are two types of balance systems; block and tackle, and spiral.

- The block and tackle balance is encased in a metal sleeve and used on windows with metal take-out clips in the side jambs. These balances are not adjustable and may have slight differences.
- The spiral balance is a spiral-shaped rod extending from a steel tube down into a clip attached to the sash. Spiral systems are adjustable and may be adjusted if not operating properly. Spiral systems must be adjusted when replaced for proper operation.

**Block & Tackle Balance**



**Spiral Balance**

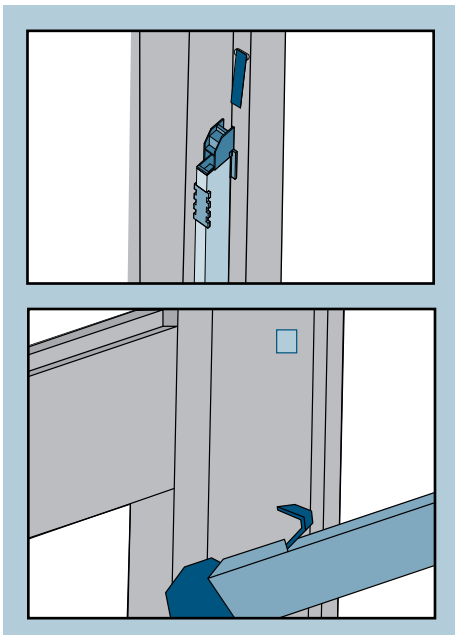


## BALANCE REPLACEMENT & ADJUSTMENT - CONTINUED

### BLOCK & TACKLE BALANCE

#### REMOVAL

1. Remove the sash as explained in "SASH REMOVAL & INSTALLATION."
2. Tightly grip both ends of balance. Pull down to release balance top from metal takeout clip.
3. Firmly hold both ends of balance (do not grip underside of balance or injury may result), and allow balance to lift up to release tension.
4. Remove cord hook on bottom back side of balance from mounting hole in side jamb, and remove balance.



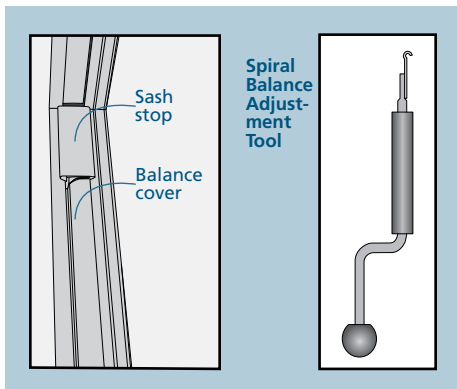
#### INSTALLATION

1. Reverse removal steps for the balance.
2. Reinstall sash.
3. Test sash operation and make sure lock fully engages. If the sash does not move freely or the lock does not engage, remove and reinstall.

### SPIRAL BALANCE

#### REMOVAL

1. With the sash closed, remove sash stop (if present) by pulling on one end until it comes out.
2. Lift and pull off balance cover (if present) to expose balance.
3. Completely open sash.
4. Grip bottom end of spiral rod with adjustment tool. Pull down 1" then lift out of clip (clip remains attached to sash bottom).



**Note!** If you do not have a spiral balance adjustment tool, use locking needle nose pliers, but with extreme caution.

5. Tightly hold adjustment tool and allow spiral rod to move up and unwind.
6. Lower sash.
7. At the top, unscrew and remove balance.

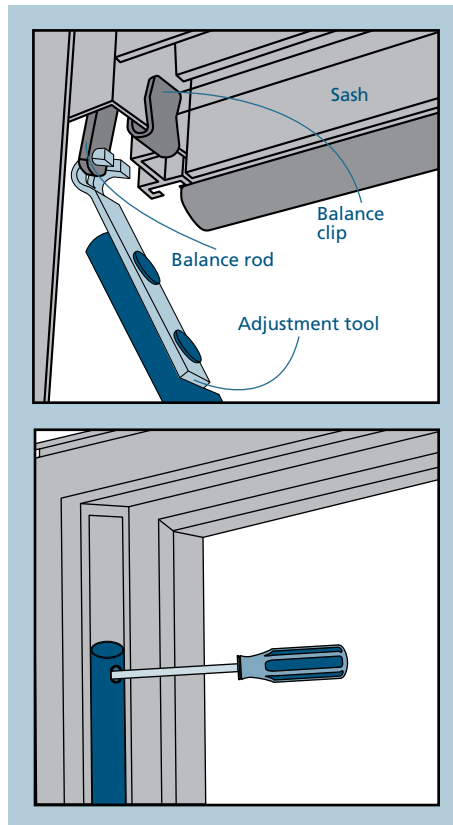
#### INSTALLATION

1. Screw top of new balance into place in side jamb.
2. Raise sash all the way.
3. Grip bottom end of spiral rod with adjustment tool. Pull down and rotate clockwise six turns to set tension. Maintain grip on tool for next step.
4. Pull spiral rod down and fully engage into clip.

5. Replace balance cover (if present).
6. Replace sash stop (if present).

#### ADJUSTMENT

1. Disconnect spiral rod from clip with adjustment tool as described above in "SPIRAL BALANCE REMOVAL" above.
2. Adjust as follows, but do not exceed more than two full turns at a time:
  - If sash drops, rotate clockwise to add tension. Add tension to both sides equally.
  - If sash pops up, rotate counter-clockwise to decrease tension.
3. Reconnect spiral rod into clip.
4. Reinstall sash and test operation. If necessary, repeat process until sash operates smoothly.



## LOCK REPLACEMENT

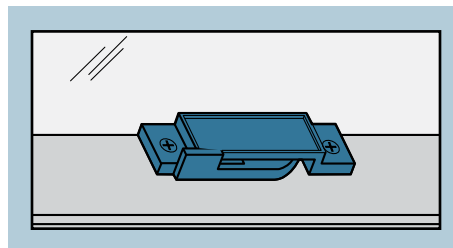
The lock sits on the top rail of the lower sash and engages into the frame. The lock keeper is part of the frame and not a separate hardware component.

#### Removal

1. Unlock sash.
2. Unscrew and remove old lock.

#### Installation

1. Install new lock in the same place.
2. Test operation.



## PROPER WINDOW INSTALLATION

- Proper installation is essential for keeping windows operating smoothly. If a window fails to operate properly, an inspection is necessary to determine if it was installed correctly.
- These inspection instructions apply to flat window types. Bow windows, bay windows, and unusual geometric-shaped windows are more complicated and should be inspected by a window professional.
- A contractor or installer can assist in determining the cause of a window being "out of specification" and possibly correct it. Window problems due to improper installation are usually not covered by the manufacturer's warranty. For installation instructions, contact us or your supplier.
- The specifications and measurements referenced in this guide are taken from ASTM E2112 Standard Practice for Installation of Exterior Windows, Doors and Skylights.

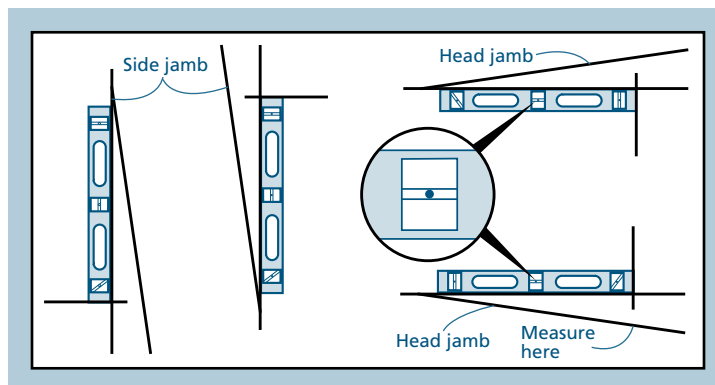
**Note:** These instructions do not address inspection for proper "water tightness" or flashing. A "water tight" inspection requires removal of the exterior siding around the window. Seek professional assistance regarding this issue.

### LEVEL INDICATOR

Accurate measurements are essential in determining level and plumb. Most carpenters' levels have several bubble level indicators, making it possible to measure all parts of the window.

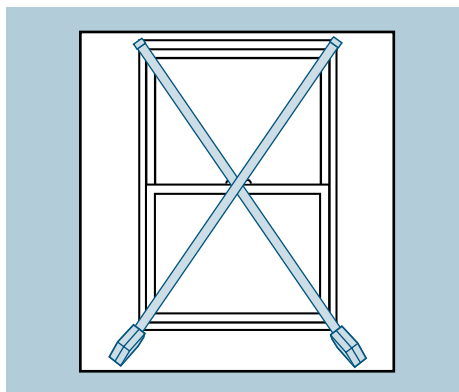
Examine the horizontal indicator. If the bubble is centered between the lines of the indicator, it is level.

If the bubble is not exactly centered, measure how far "out of level" or "out of plumb" by maneuvering the end of the level until the bubble is exactly centered. Measure the farthest gap between the level and the surface. On a 2' level, the gap must not exceed 1/16", or on a 4' level (or longer), the gap must not exceed 1/8", or the surface is out of level/plumb.



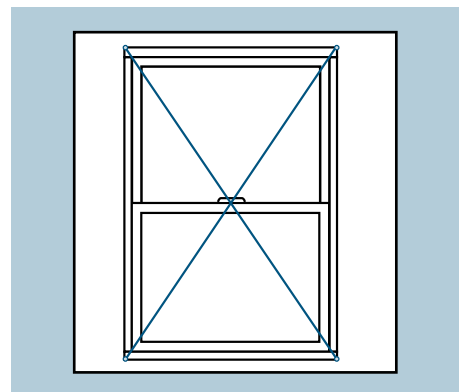
### SQUARE

Measure frame/sash from top left to bottom right corner and from top right to bottom left corner. If measurements differ by 1/8" for windows up to 20 sq. ft. or 1/4" for windows larger than 20 sq.ft., unit is out-of-square.



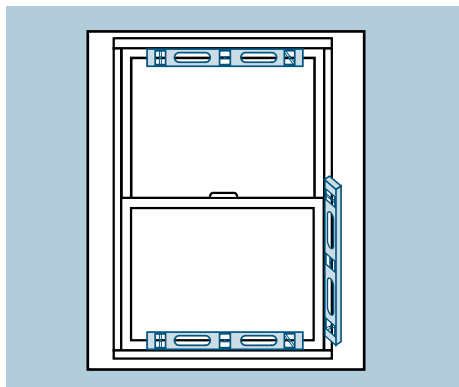
### FRAME TWISTS

Attach two pieces of string to frame/sash, corner to corner. If there is a gap between strings at center point larger than 1/8" for windows up to 4' wide or high, or 3/16" for windows larger than 4' wide or high, the frame is not flat. Repeat by switching strings and re-measuring.



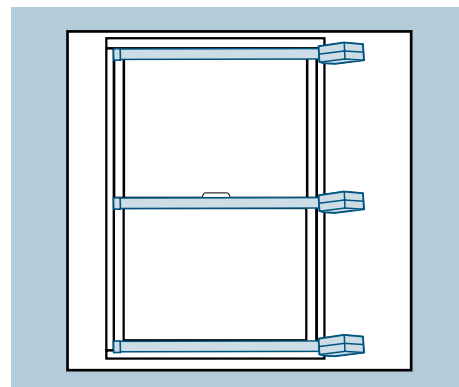
### LEVEL AND PLUMB

For plumb, place level against each side jamb or use a plumb bob. For level, place level against head jamb and sill.



### PROPER SHIMMING

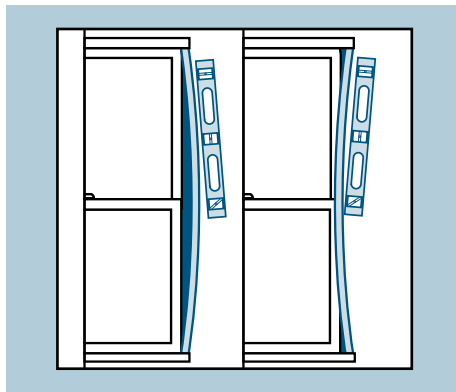
Measure width of frame at top, center, and bottom. If any two measurements differ more than 1/16", the frame is over or under shimmed. Repeat process and measure height of frame.



## PROPER WINDOW INSTALLATION - CONTINUED

### STRAIGHT SIDE JAMBS

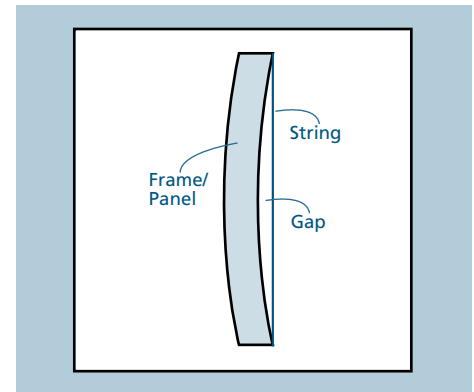
Place level against inside of side jamb. Look for gaps anywhere between level and side jamb. Repeat steps for other side jamb. Some Double-Hungs with balances have adjustment screws located about half way up the balance. Turn screws in 1/4 turn increments until gap is less than 1/16".



### FRAME/PANEL BOW

Inspect interior and exterior frame jambs, or stiles/rails of panel (not glass) to determine if bowed.

1. Cut piece of string slightly longer than height of frame or panel.
2. Pull tightly and stretch string to upper and lower corners of jambs, or, stiles or rails of panel. Tape securely.



3. Look for gap between string and frame or panel. If gap measures more than 1/16" at any point, the panel is bowed.

## TROUBLESHOOTING OPERATIONAL PROBLEMS

**Note!** Please check each possible cause, including verifying proper installation, before contacting us for assistance.

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Sash will not open	Sash locked	Make sure lock latch is in unlocked position, try again
	Obstructions	Remove obstructions/shipping blocks
	Sash damaged	Repair or replace sash
	Lock damaged or broken	Replace lock
	Keeper loose or damaged	Tighten if loose, replace if damaged
	Weatherstrip loose or damaged	Reattach if loose, replace if damaged
	Balance damaged or broken	Remove sash and examine balance for damage. Replace if damaged.
	Improper installation	Inspect installation
Sash will not close	Sash locked	Make sure lock latch is in unlocked position, try again
	Obstructions	Remove obstructions/shipping blocks
	Keeper loose or damaged	Reattach if loose, replace if damaged
	Lock latch misaligned or damaged	Adjust if misaligned, replace if damaged
	Weatherstrip loose or damaged	Reattach if loose, replace if damaged
	Balance damaged	Remove sash and examine balance for damage. Replace if damaged.
	Sashes do not line up at check (meeting) rails/stiles	Make sure both sashes are completely closed. If rails/stiles do not meet correctly, call us for assistance
	Improper installation	Inspect installation
Sash binds or drags	Obstructions	Remove obstructions/shipping blocks
	Weatherstrip loose or damaged	Reattach if loose, replace if damaged
	Hardware loose, misaligned or damaged	Tighten loose hardware. Re-align if misaligned. Replace if damaged.
	Balance misaligned or damaged	Remove sash and examine balance. Re-align or replace if damaged.
	Improper installation	Inspect installation
Sash will not lock properly	Lock misaligned or damaged	Realign if misaligned, replace if damaged
	Sashes do not line up at check (meeting) rails/stiles	Make sure both sashes are completely closed. If rails/stiles do not meet correctly, call us for assistance
	Improper installation	Inspect installation

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Sash will not stay up or not stay down	Balance out of adjustment	Adjust balance (if applicable)
	Balance damaged	Remove sash and examine balance for damage. Replace if damaged.
	The balance could contain the wrong spring	Replace balance
	Improper installation	Inspect installation
Sash appears crooked in frame	Obstructions	Remove obstructions/shipping blocks
	Balance damaged	Remove sash and examine balance for damage. Replace if damaged.
	Improper installation	Inspect installation
The window surface fogs up	Condensation. <i>See also our condensation document at: <a href="http://www.jeld-wen.com/_pdf/JGI012.pdf">http://www.jeld-wen.com/_pdf/JGI012.pdf</a></i>	<p>If condensation is on an interior surface:</p> <ul style="list-style-type: none"> <li>• Raise the average temperature of the house one or two degrees and do not block vents.</li> <li>• Vent all appliances to the outdoors and run exhaust fans.</li> <li>• Open window blinds for air circulation.</li> <li>• Turn humidifiers down as the temperature gets colder (unless used for medical purposes).</li> </ul> <p>If condensation is on an exterior surface:</p> <ul style="list-style-type: none"> <li>• Close window coverings to reduce cooling of the glass surface by air-conditioning.</li> <li>• Remove or trim shrubbery close to windows to promote air circulation.</li> </ul> <p>If condensation is between glass panes:</p> <ul style="list-style-type: none"> <li>• Seal failure. Replace either the insulating glass assembly or the entire sash. This determination should be made by a service representative.</li> </ul>
Water leaks through the window	Clogged weep system	Clean sill track with vacuum or damp cloth and pour small amount of water into interior sill track. If water doesn't drain out, inspect the exterior and clear any blockage. If not blocked, insert thin wire into weep hole (do not insert wire if the weep system has an exterior crevice). Repeat until water runs through weep hole.
	Weatherstrip damaged or missing	Reattach if loose, replace if damaged
	Sash damaged or loose at joints	Replace sash

## GLOSSARY

### Balance

The hardware in the side jamb of a single or double-hung window that is part of the system that allows the window to operate up and down.

### Check rail

The top horizontal member of the lower sash and the bottom horizontal member of the upper sash that meet at the middle of a double or single-hung window when closed

### Direct-set

The window's glass is secured directly into the window frame without the stiles and rails of a sash

### Jamb

The vertical frame members of a window or door assembly.

### Keeper

A bracket utilized as a latching point.

### Sash

An assembly comprised of stiles (vertical pieces), rails (horizontal pieces) and the window's glass.

### Single-hung

A window with a fixed upper sash and movable lower sash that slides vertically.

### Weatherstrip

A strip of material that covers the joint between two separate parts of a window or patio door and is used to prevent rain, snow, and cold air from entering.

### Weep hole

The visible exit or entry part of a water drainage system used to drain water out of a window unit.