

Breezway Louvre Windows

Service Technician Guide

Only for use by Breezway certified service representatives, not for external distribution.

Australia

breezway[®]

Amendment Record - 23.1

Amendment Record - 23.1-1 1

Equipment - 23.2

Special Tool - 23.2.1 2
 Equipment Required - 23.2.2 3

General Troubleshooting Directory - 23.3

Excessive Force Required to Operate Galleries - 23.3.1-1 5
 Keylock Issues - 23.3.2-1 6
 Leakage and Sealing - 23.3.3-1 7
 Powerlouvre Motor and PCB - 23.3.4-1 8
 Obstructions Affecting Powerlouvre Operation - 23.3.5-1 14
 Powerlouvre Apptivate Control Unit - 23.3.6-1 15

Replacement Guide - 23.4

Altair Louvre Gallery and Blades - 23.4.1

Gallery Replacement - 23.4.1.1-1 18
 Clip Replacement - 23.4.1.2-1 20
 Keylock Barrel Replacement - 23.4.1.3.1-1 21
 Plastic Handle Replacement - 23.4.1.4.1-1 24
 Metal Handle MK1 Replacement - 23.4.1.4.2-1 25
 Metal Handle MK2 Replacement - 23.4.1.4.3-1 26
 Restrictor Plate Assembly Method - 23.4.1.5-1 27

Altair Louvre Window Systems - 23.4.2

Component Form Weatherstrip Insert Replacement - 23.4.2.1.1-1 28
 Easysceen Weatherstrip Insert Replacement - 23.4.2.2.1-1 32
 Innosceen Weatherstrip Insert Replacement - 23.4.2.3.1-1 35
 Innoscreen Slide Handle Replacement - 23.4.2.3.2-1 38
 SL2 Weatherstrip Insert Replacement - 23.4.2.4.1-1 41
 Dualair Weatherstrip Insert Replacement - 23.4.2.5.1-1 42

Altair Louvre for Other Frames - 23.4.3

Fixed Lite Sill Insert Replacement - 23.4.3.1-1 45

Altair Powerlouvre System - 23.4.4

Powerlouvre Tri Gear Motor Replacement - 23.4.4.1-1	47
Blade Removal for Power Window Stopped in Closed Position - 23.4.4.2-1	51
Wiring New PCBs onto Old Motor - 23.4.4.3-1	53
Powerlouvre PCB Replacement - 23.4.4.4-1	54
Powerlouvre Apptivate Control Unit Replacement - 23.4.4.5-1	56

Altair Stronghold System - 23.4.5

Stronghold Pin Removal - 23.4.5.1-1	57
---	----

Altair IGLU System - 23.4.6

IGLU Weatherstrip Insert Replacement - 23.4.6.1-1	58
IGLU Blade Replacement - 23.4.6.2-1	65
IGLU Blade Removal for Power Window Stopped in Closed Position - 23.4.6.3-1	68

Amendment Record - 23.1-1

REVISION	DATE	DESCRIPTION	ISSUED	APPROVED
A	08/06/2023	Original Issue	D.F	S.S

Special Tool - 23.2.1



Assembly Key
Material: 390003869



Clip Lever Tool Kit
Material: 390003870



Hook-end Screwdriver
Material: 390003871



Innoscreen Cover Plate Removal Tool
Material: 390003872



Fixed Lite Jamb Insert Removal Tool
Material: 390003873



Op Bar Support Block
Material: 390003874



Paint Scraper
Material: 390003875



PCB Plug
Material: 390003876



Slide Handle Pin Remove & Install Tool
Material: 390003877

Equipment Required - 23.2.2



Drill Driver & Bits



Pliers



Flat Screwdriver



Rag



Flat File



Rivet Gun



Grease



Soft Face Mallet



Jig Saw



8g x 28mm Self Tapping Screw



Knife



Silicone Gun



Multi Tool



Spray Bottle with Soapy Water



Paint Brush



150/6" x 0.5mm Thick Steel Rule



Paper Clip



Tape Measure



Pin Punch



Wedge

Equipment Required - 23.2.2



Double Sided Tape



Drill Battery



Multimeter



Rivet 73 STST 5-3

Excessive Force Required to Operate Galleries - 23.3.1-1

Note: Troubleshooting guides will show a series of potential solutions to the indicated problem. These are listed in the order of the most likely cause. Follow the troubleshooting from Cause 1.

- Cause 1: Over length blades.

Check that the blades fitted to the window have at least 1mm of end play.

Solution – Replace over length blades.

- Cause 2: Concave channel. *Refer to Figure 23.3.1-1.1.*

Solution – Replace gallery (refer to Section 23.4.1.1-1).

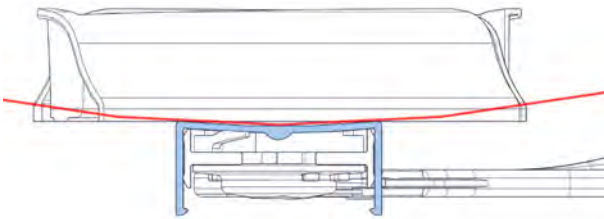


Fig. 23.3.1-1.1

- Cause 3: Build up of dirty/salt spray on surface between clips and channel.

Solution – Refer to the Care & Maintenance tips at breezway.com.au/technical/care-maintenance/.

- Cause 4: Reveal fixing screw protruding into the louvre mechanism.

Solution – Remove the screw.

- Cause 5: Jamb & channels are bowed inwards after installation.

Solution – If the jamb bowing can't be corrected, different length blades will need to be supplied to maintain 1mm end float.

- Cause 6: If the cause has not been identified, a solution to the issue is to modify the bearing living hinges.

Solution –

1. Remove the gallery (refer to Section 23.4.1.1-1).
2. Remove both living hinges from bearings using a flat screwdriver. *Refer to Figure 23.3.1-1.2.*

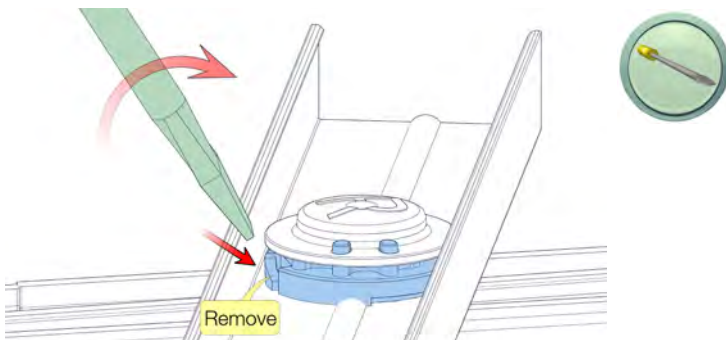


Fig. 23.3.1-1.2

Keylock Issues - 23.3.2-1

Note: If any of the issues below are experienced, refer to the referenced sections to solve the problem.

- Key sheared off in barrel.
Solution - Refer to situation 1 in Section 23.4.1.3.1-1.
- Key will not rotate to vertical in lock position to allow key removal.
Solution - Refer to situation 2 in Section 23.4.1.3.1-1.
- G James keylock replacement.
Solution - Refer to situation 3 in Section 23.4.1.3.1-1.
- Barrel retention disc will not retain the barrel in body.
Solution - Refer to situation 4 in Section 23.4.1.3.1-1.
- Damaged keylock block.
Solution - Replace the keylock block (refer to Section 23.4.1.3.2-1).
- Damaged keylock Op bar.
Solution - Replace Op bar & barrel.

Leakage and Sealing - 23.3.3-1

Note: If any of the issues below are experienced, refer to the referenced sections and potential solutions to solve the problem.

- Leaking fixed lite sill insert.

Solution – Replace FL sill insert (refer to Section 23.4.3.1-1).

- Poor blade contact.

Check 1 – Bowed or wavy blades.

Solution – Flip blades so the bow matches the above and below blades. If this is not possible or blades are wavy, then replace.

Check 2 – Frame installation out of plumb and square.

Solution – Inform customer to rectify.

- Leaking gasket of the jamb/mullion to the sill.

Solution – Apply silicone around perimeter of the jamb/mullion to the sill.

- Damaged clips.

Solution – Replace clips (refer to Section 23.4.1.2-1).

- Concave channel where clip mates. *Refer to Figure 23.3.3-1.1.*

Solution – Replace gallery (refer to Section 23.4.1.1-1).

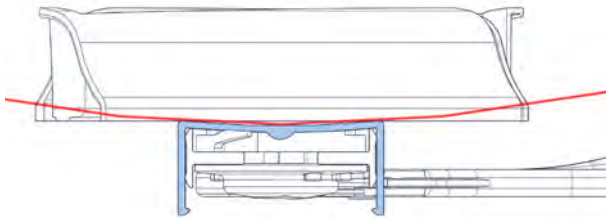


Fig. 23.3.3-1.1

- Blade does not contact the weatherstrip insert seal on Altair Component Form.

Solution 1 – Check the weatherbar is positioned correctly and hard up against the channel.

Solution 2 – Replace the seal.





- Faulty installation, beading/trim or flashing of window causing leaks.

Solution – Inform customer to rectify.

Powerlouvre Motor and PCB - 23.3.4-1

How to read flow charts:

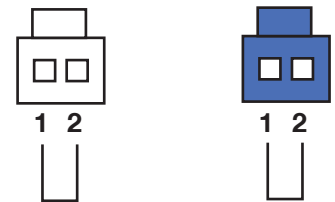
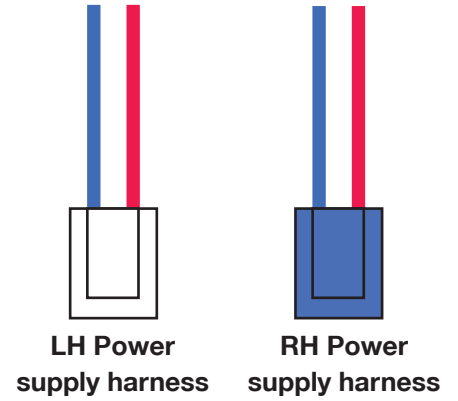
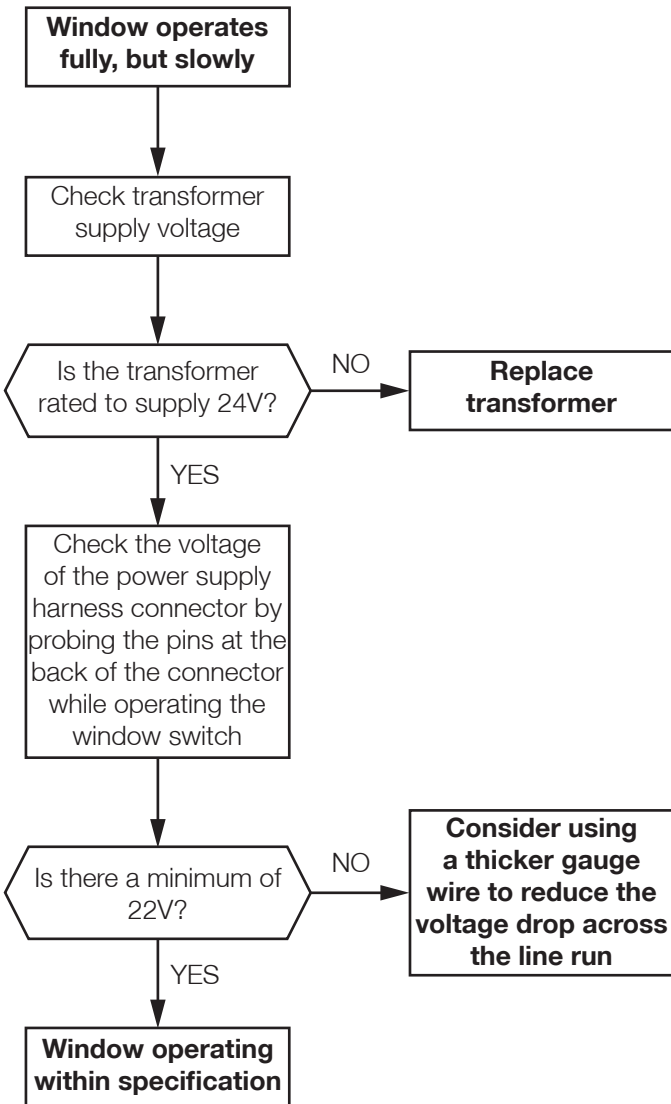
The flow charts are designed to help correct a problem by starting with your symptom, and following the diagnostic steps to a solution. Steps must be completed in sequence.

	(In bold) Describes the condition or situation to start the troubleshooting flow chart
	Asks you to do something; perform a test, set up a condition, etc.
	Asks you about the result of an action by getting you to determine the answer as either 'Yes' or 'No'.
	(In bold) The end of a series of actions and decisions, describes a final repair action and sometimes directs you to another part of the Service Technician Guide.

Note:

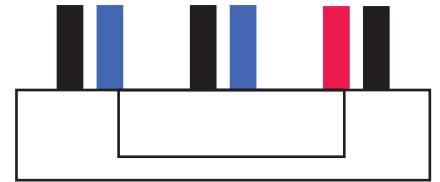
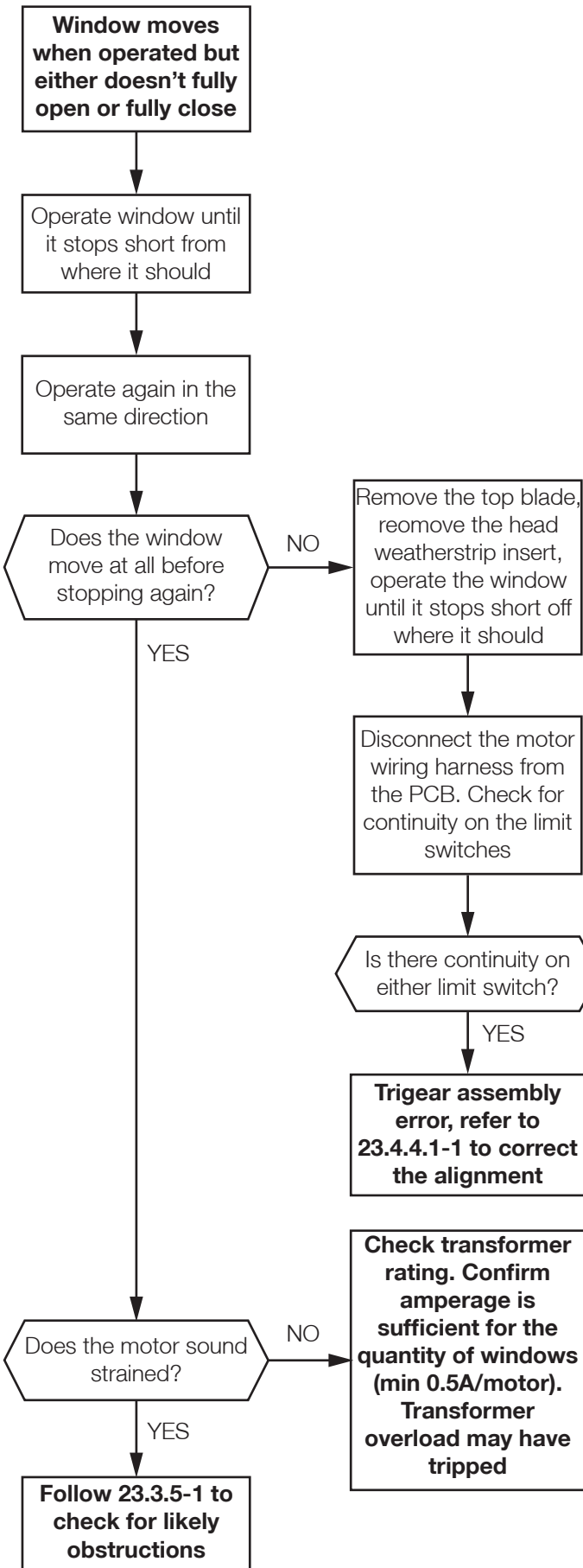
- **If any work is required on wires that you suspect are 240V, contact a licenced electrician.**
- These flowcharts require the use of a multimeter to determine continuity and to check voltage of the low voltage wires only.
- Make sure you are comfortable with how to operate a multimeter safely, to prevent the risk of injury or damage to electrical equipment
- Do not attempt to check or manipulate any wires that you cannot confirm are low voltage.
- The term 'control switch' is used as a general term for the method of control used to operate the window. This could be an Apptivate, bell press switch or other switching control method selected by the customer.
- The term 'alternate power source' is used as a general term and can include equipment such as a drill battery, a transformer or other power source capable of supplying between 12-24V for the purpose of diagnosing powersupply faults.

Powerlouvre Motor and PCB - 23.3.4-1

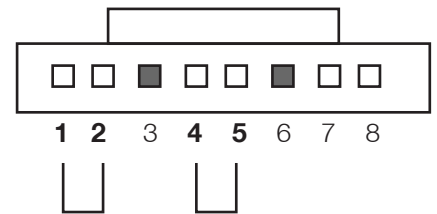


Voltage check across pins 1 & 2

Powerlouvre Motor and PCB - 23.3.4-1

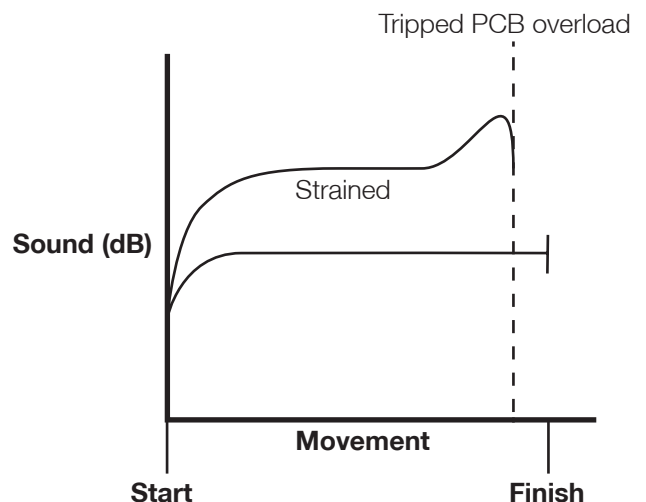


Powerlouvre motor connector

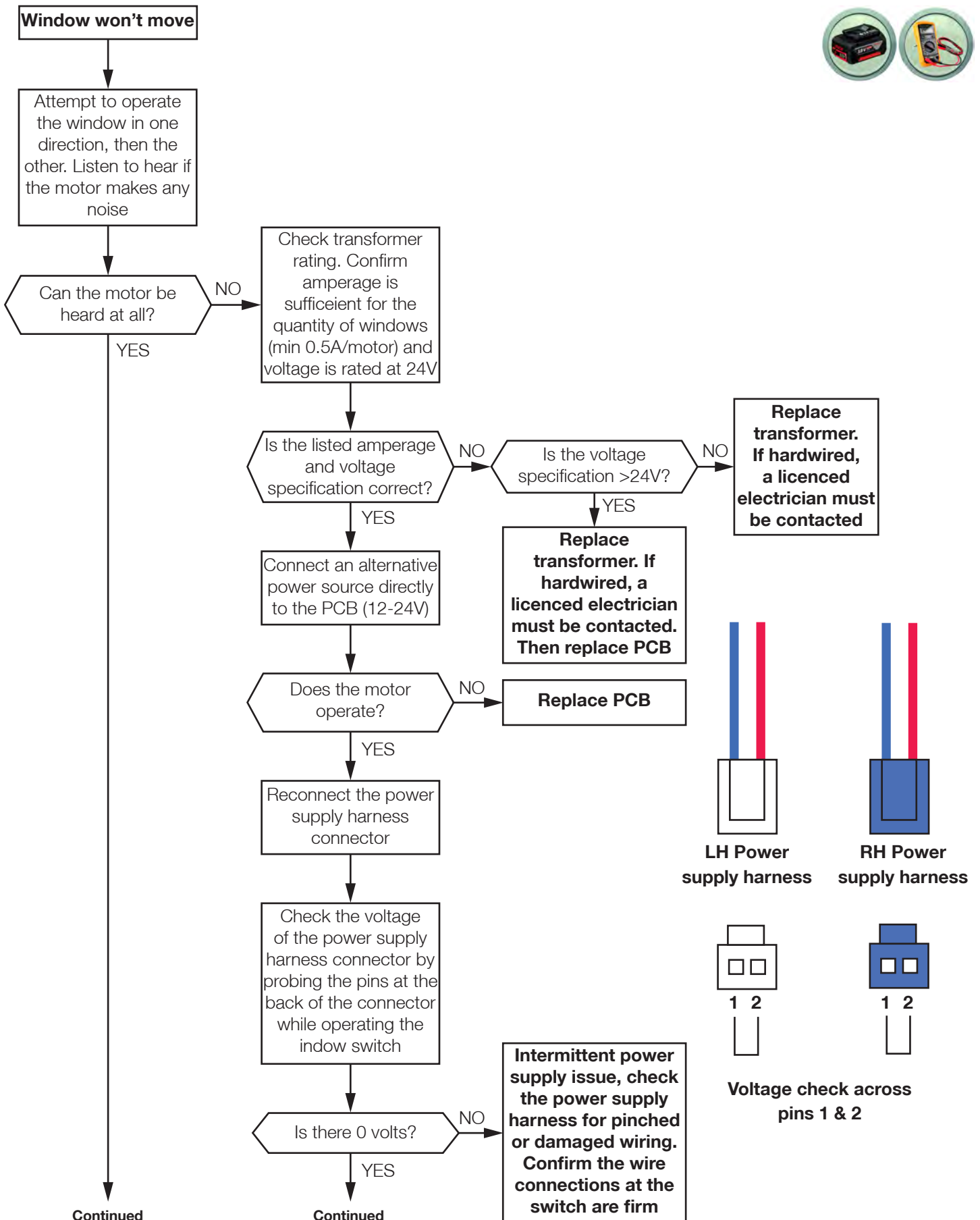


Continuity check: :))
Limit switch one - Between 1 & 2
Limit switch two - Between 4 & 5

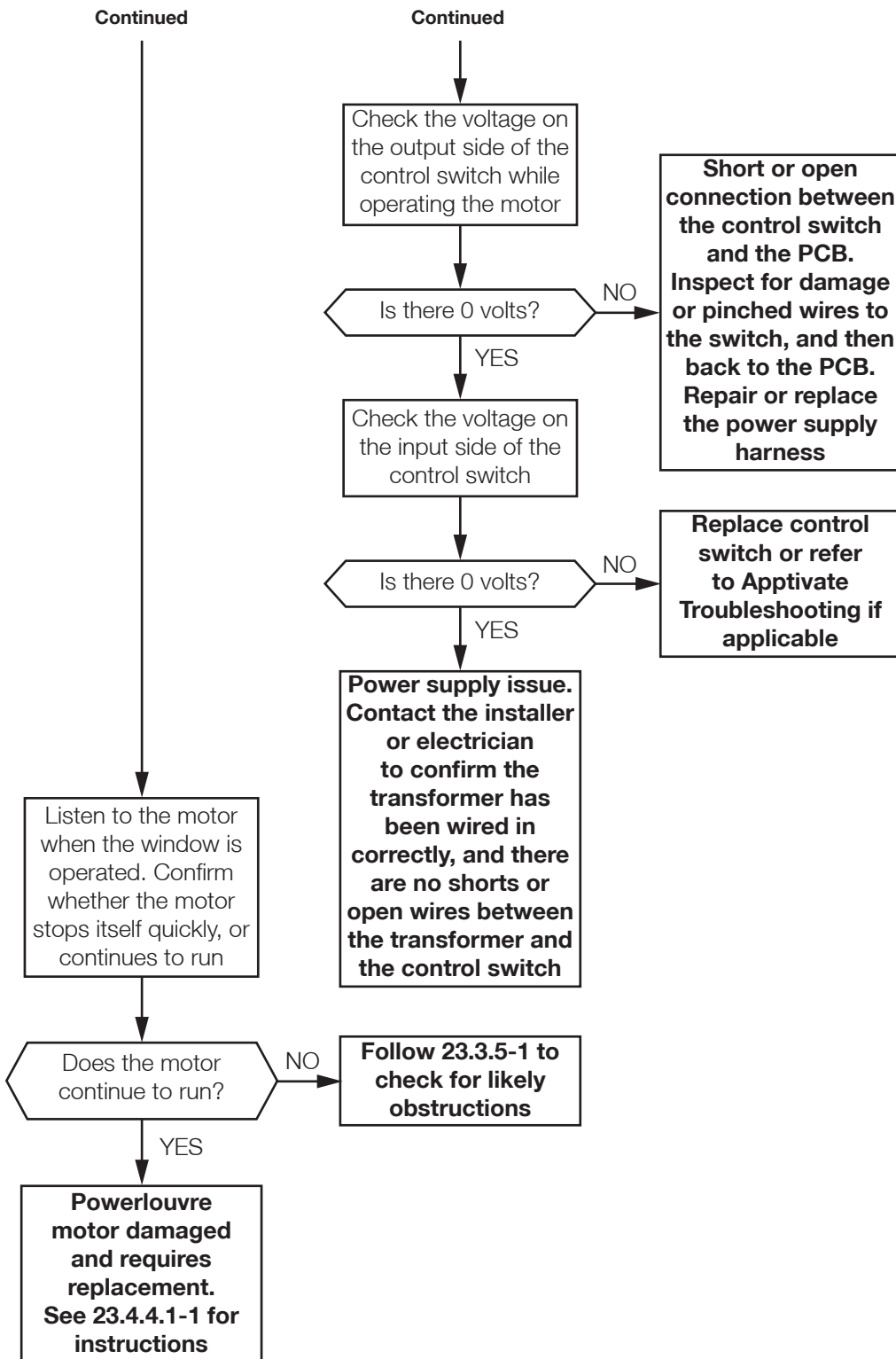
PCB internal overload has tripped caused by excessive operation force. Follow 23.3.5-1 to check for likely obstructions causing excessive operation force



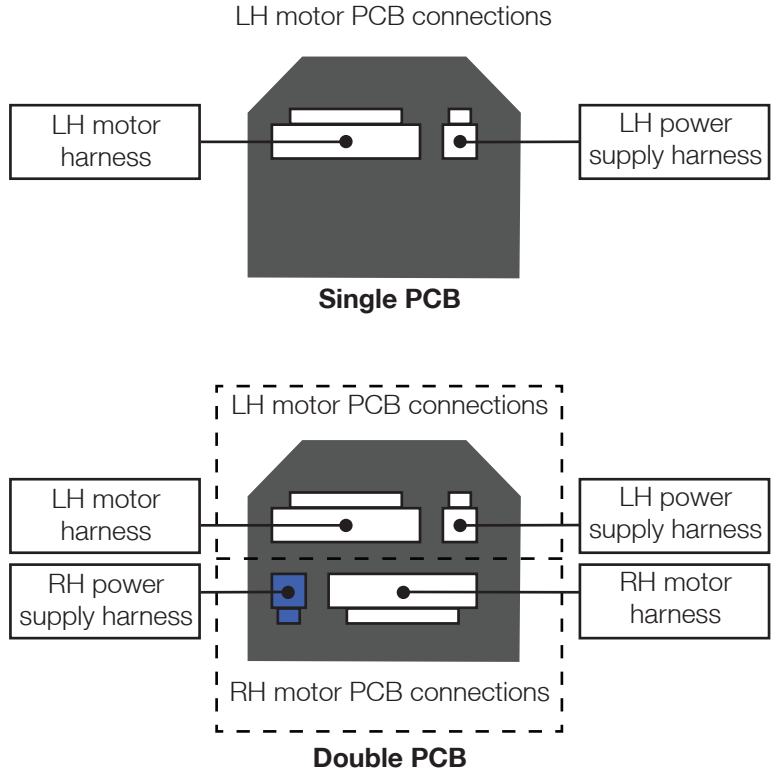
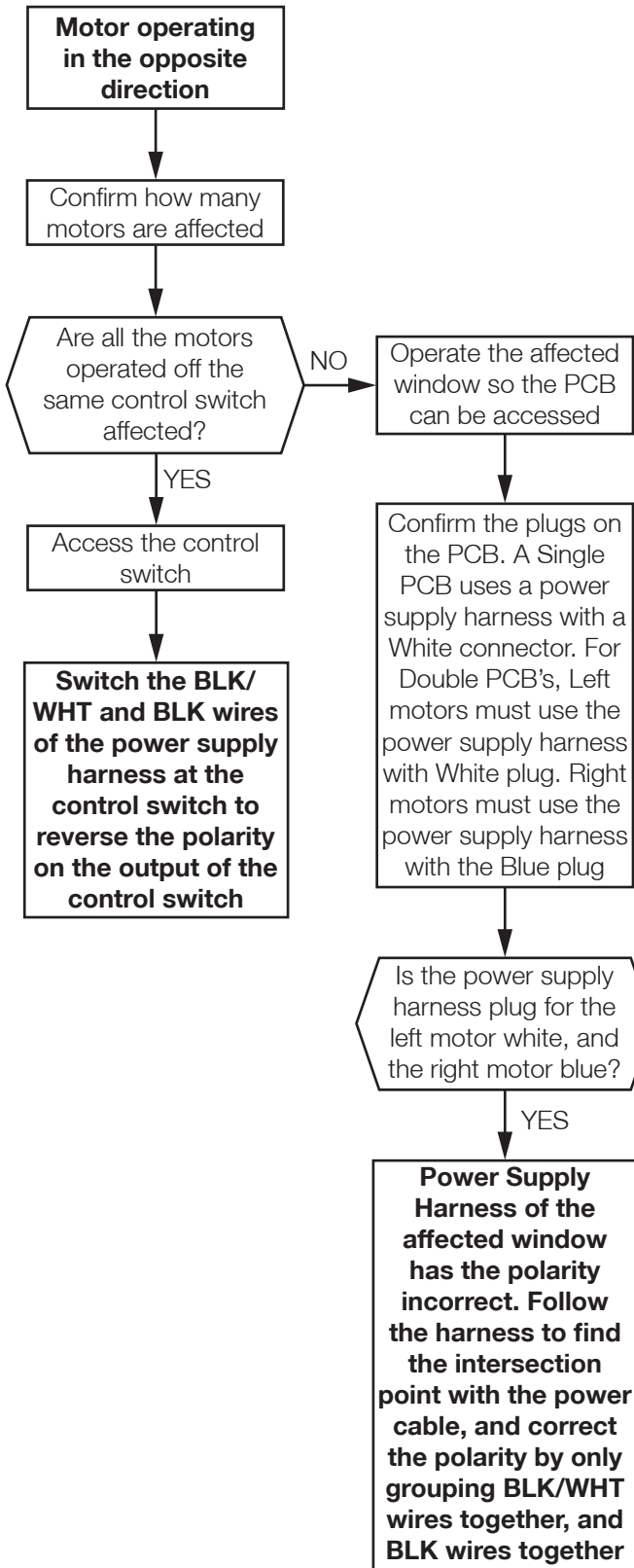
Powerlouvre Motor and PCB - 23.3.4-1



Powerlouvre Motor and PCB - 23.3.4-1



Powerlouvre Motor and PCB - 23.3.4-1



Obstructions Affecting Powerlouvre Operation - 23.3.5-1

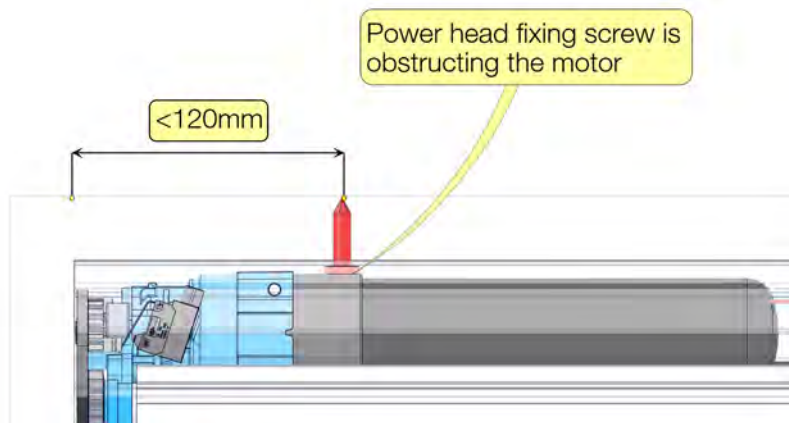


Fig. 23.3.5-1.1

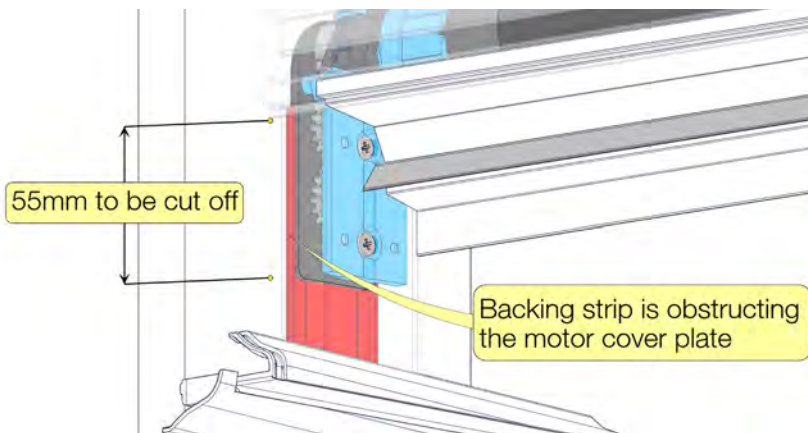


Fig. 23.3.5-1.2

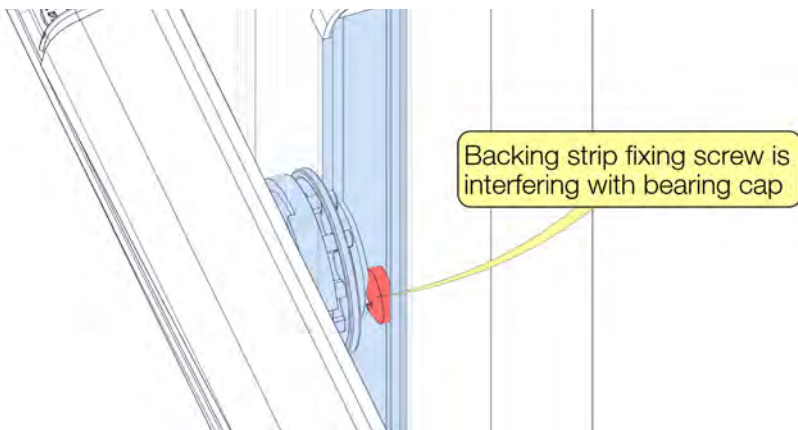


Fig. 23.3.5-1.3

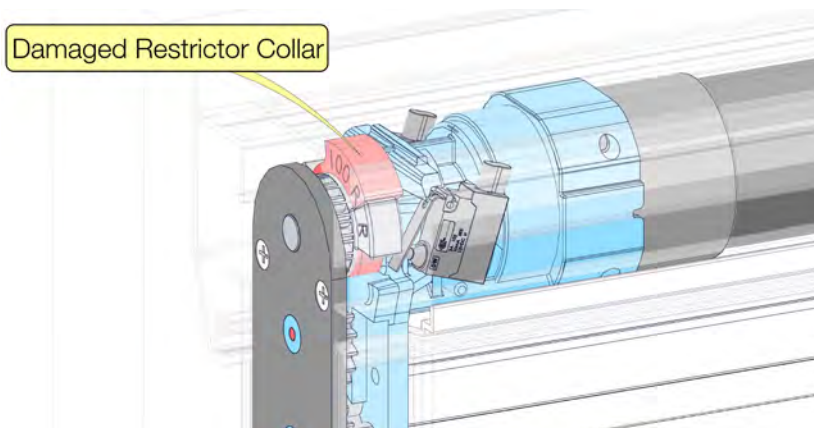


Fig. 23.3.5-1.4

Common obstructions:

- Reveal or surround frame fixing is obstructing a moving part.
- Component Powerlouvre head fixing screw has been placed within the 120mm min from each end and is obstructing the Powerlouvre motor. *Refer to Figure 23.3.5-1.1.*
- Backing strip has not been cut short on the side of the window where a motor is present and is obstructing the Powerlouvre motor cover plate. *Refer to Figure 23.3.5-1.2.*
- Backing strip has been fixed in a location that is interfering with a bearing cap and is obstructing its operation. *Refer to Figure 23.3.5-1.3.*
- Damaged restrictor collar either causing PCB overload or engaging the limit switch incorrectly. *Refer to Figure 23.3.5-1.4.*

Powerlouvre Apptivate Control Unit - 23.3.6-1



- The Apptivate Control Unit is not responding when touched.

Solution - Turn off power (unplug transformer or turn off at distribution board) wait 60 seconds for charge to dissipate, then turn power on again (plug transformer back in) to make the Apptivate Control Unit re-calibrate its touch sensitivity. Unscrew the Apptivate Control Unit from the wall and check whether all 5 diagnostic LED lights are lit or flashing. There are 3 lights on the bottom (indicating touch sensors and the Bluetooth module) 2 of which should be flashing, and 2 lights on the side (indicating that 24v DC power is being supplied). *Refer to Figure 23.3.6-1.1.*



Note:
This check should only be performed by qualified service personnel and only after confirming that the Apptivate Control Unit has not been mistakenly connected to 240V AC power.

Fig. 23.3.6-1.1

- The Apptivate Control Unit is not responding (or responding erratically) when touched, but does respond to the Powerlouvre App.

Solution - There is a known incompatibility between a particular range of AC to DC transformers from Meanwell. These models output a type of electronic 'noise' which interferes with the touch sensors on the Apptivate Control Unit. The Meanwell transformers (generally outputting 1.67 or 3.75 amps) should be replaced with different transformers. *Refer to Figure 23.3.6-1.2.* Breezway supplies both a 2.9 amp and a 6.25 amp transformer which are fully compatible with the Apptivate Control Unit.



Fig. 23.3.6-1.2

Powerlouvre Apptivate Control Unit - 23.3.6-1

- The Powerlouvre Windows open when 'Close' is touched and close when 'Open' is touched.

Solution - The wiring from the Apptivate Control Unit to the Powerlouvre windows has been incorrectly connected. After turning power off, swap the wires connected to the affected 'Motor Group' output from the Apptivate Control Unit (indicated below by the red and green arrows). *Refer to Figure 23.3.6-1.3.*

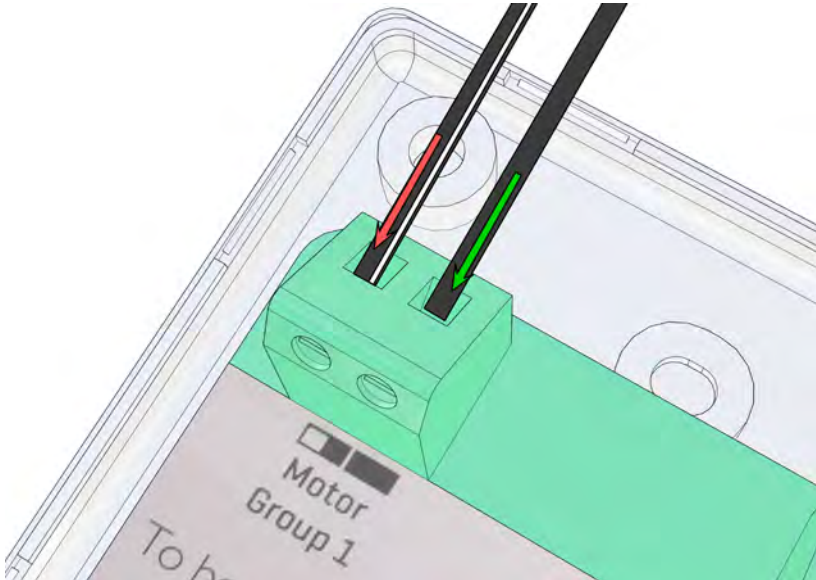


Fig. 23.3.6-1.3

- The Powerlouvre Windows do not open halfway when 'Inter' is touched.

Solution - Perform a factory reset. Then Allow the Apptivate Control Unit to calibrate the 'Inter' position by fully opening and fully closing the connected Powerlouvre Windows a number of times.

- The Powerlouvre Windows open or close without any buttons on the Apptivate Control Unit being touched.

Solution 1 - The Apptivate Control Unit may be operating the Powerlouvre Windows in response to pre-set timer events or in response to temperatures.

Solution 2 - Check the version of the firmware controlling the touch panel, newer firmware may resolve the issue.

- The timers are not operating at the times when it has been set.

Solution - If the Apptivate Control Unit was in timer mode when power was lost, when power is restored the timer mode will be deactivated. If the Timer button on the Apptivate Control Unit is touched it will flash to indicate that the Apptivate Control Unit's internal clock is out of time and will not allow Timer mode to be activated. Opening the Powerlouvre App to allow it to connect to the Apptivate Control Unit will reset the time on the Apptivate Control Unit and return it to normal functioning.

- The Apptivate Control Unit will not fully open (or fully close) the connected Powerlouvre Windows.

Solution - If the Powerlouvre Windows are stopped before reaching the fully open or fully closed position (for example by a physical obstruction), then the Apptivate Control Unit may stop the Powerlouvre Windows in the position in which it was previously stopped as it mistakenly believes that the Powerlouvre Window is fully open (or fully closed). A factory reset must be performed.

Powerlouvre Apptivate Control Unit - 23.3.6-1

Factory reset:

A factory reset will delete all associations with Powerlouvre Apps, timer events, customised temperature settings and customised naming of the Apptivate Control Unit.

- Remove the front cover of the Apptivate Control Unit, use straightened paperclip to push the reset button (bottom left, near screw head). When pushed, the reset button will cause all lights on the Apptivate Control Unit to light up. Push and hold the reset button until all the LED lights on the ACU begin flashing to indicate that the factory reset has been completed. Snap the cover plate back on. Wait 60 seconds for the touch sensitivity re-calibration to be completed. *Refer to Figure 23.3.6-1.4.*

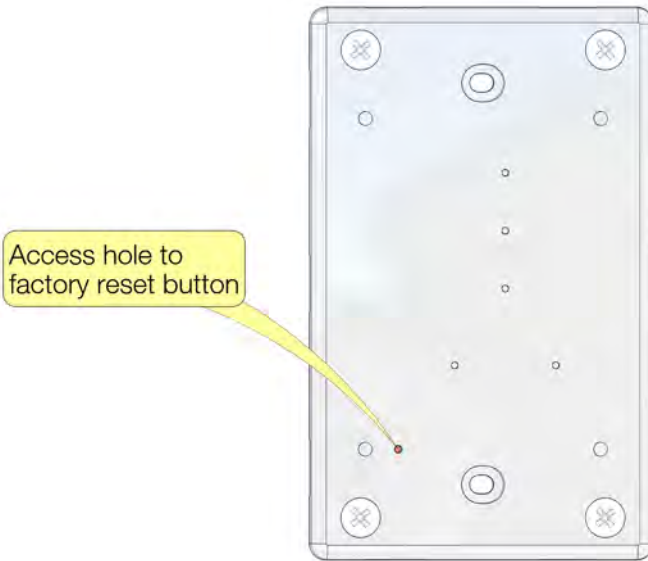


Fig. 23.3.6-1.4

- If the access hole to the factory reset button is blocked, the factory reset button can be accessed by removing the Apptivate Control Unit from the wall. *Refer to Figure 23.3.6-1.5.*

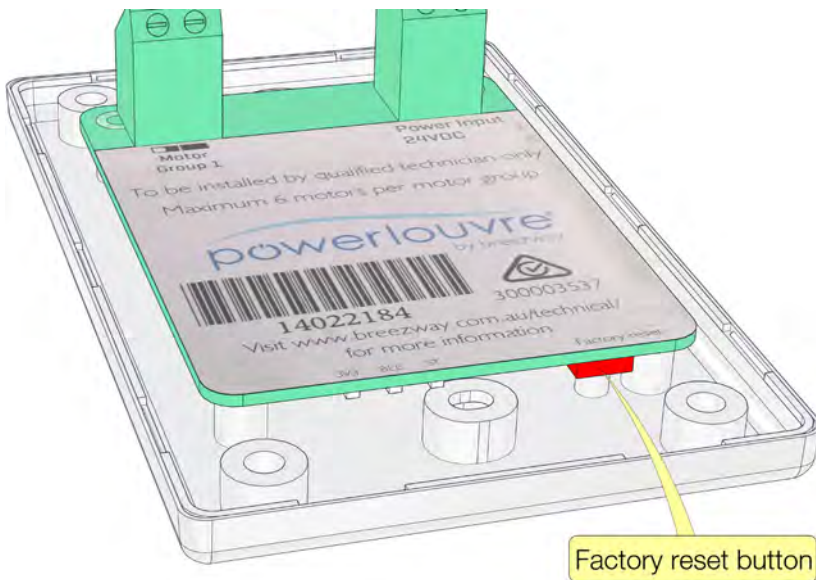


Fig. 23.3.6-1.5

Note:

This should only be performed by qualified service personnel and only after confirming that the Apptivate Control Unit has not been mistakenly connected to 240V AC power.

Gallery Replacement - 23.4.1.1-1

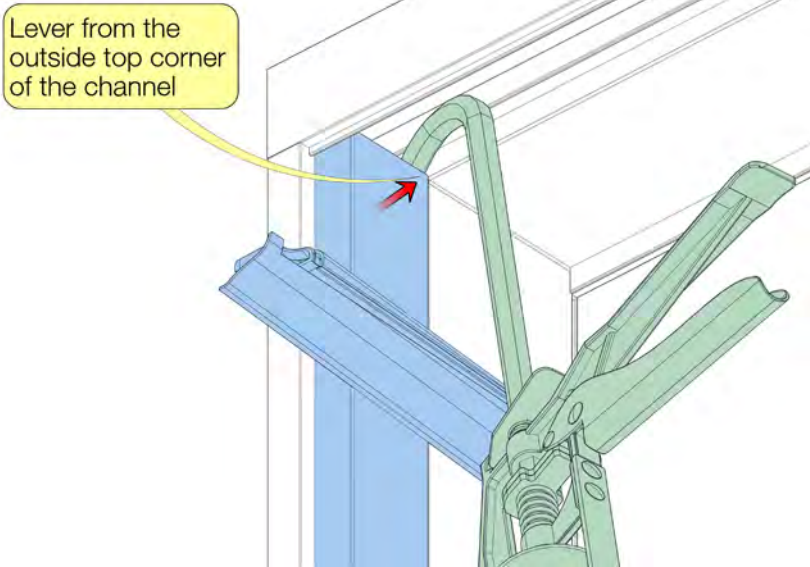


Fig. 23.4.1.1-1.1

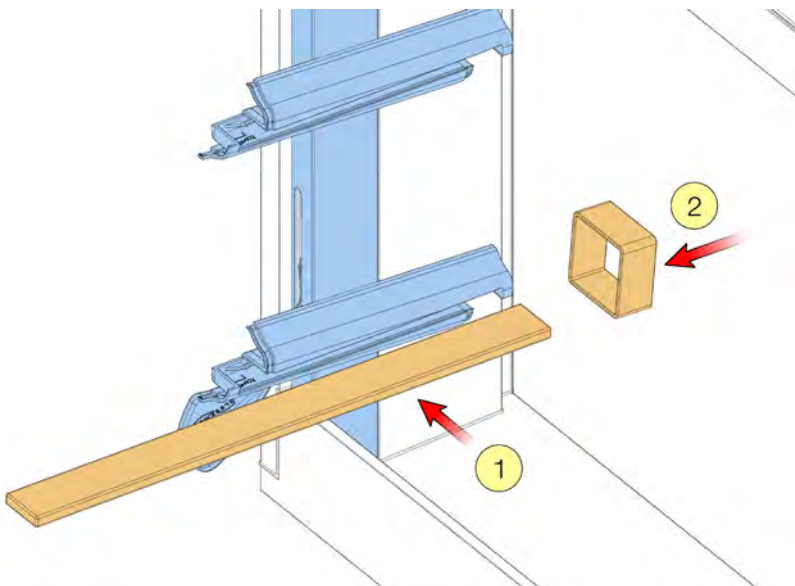


Fig. 23.4.1.1-1.2

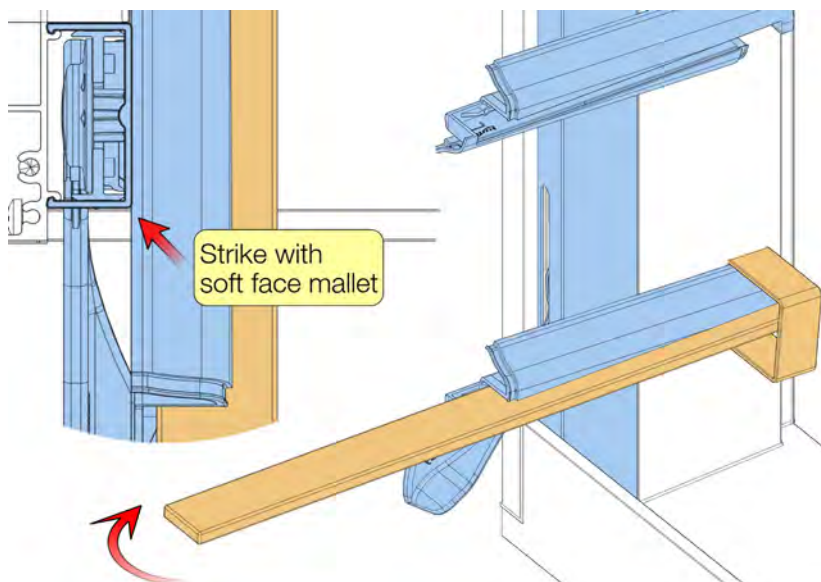


Fig. 23.4.1.1-1.3



Gallery Installed into a Surround Frame

Removal – Method 1 (Suitable for all window systems with a hollow Head):

1. Remove all blades from the clips.
2. Remove head and sill Weatherstrip Inserts (refer to Section 23.4.2.2.1-1).
3. Place the hook end of silicone gun between the top of the channel and the jamb, positioned toward the outer leg of the channel.
4. Lever upwards from behind to unsnap the top of the channel from the jamb. Refer to Figure 23.4.1.1-1.1.

Removal – Method 2:

Note: this method can be used on clip close to the Head or the Sill.

1. Remove all blades from the clips.
2. Remove head and sill weatherstrip inserts (refer to Section 23.4.2.2.1-1).
3. Use the Clip Lever Tool Kit.
4. Open the louvre.
5. Insert the Clip Lever Tool Kit_Flat Bar into the top or bottom clip glass pocket.
6. Place the Clip Lever Tool Kit_SHS over bottom of the clip and bar. Refer to Figure 23.4.1.1-1.2.
7. Hold the end of the flat bar that is protruding toward the inside.
8. Lever the clip to prise the outer leg of the channel off the jamb's snap fitting.
9. As the same time of this lever action, strike the inside corner of the channel with a soft face mallet to aid in decoupling the snap fit between the channel and the jamb. Refer to Figure 23.4.1.1-1.3.

Gallery Replacement - 23.4.1.1-1

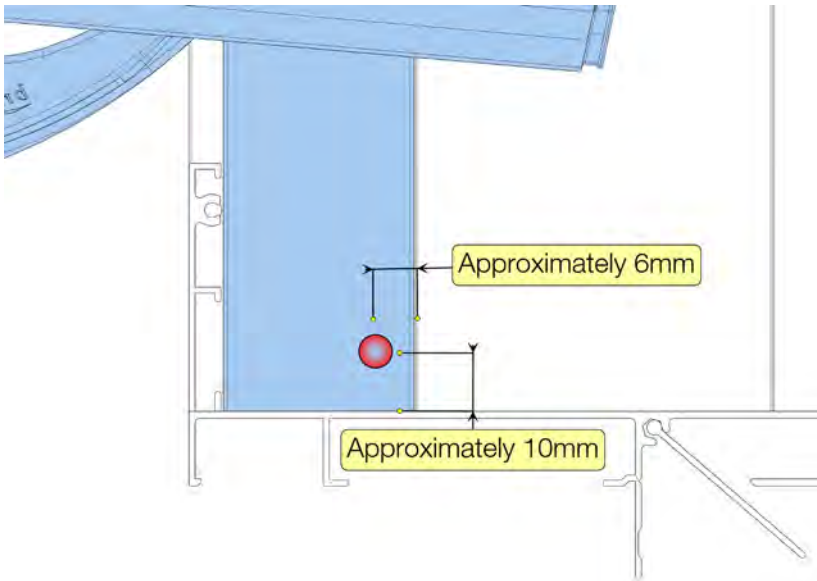


Fig. 23.4.1.1-1.4

Removal – Method 3 - Jacking Screw:

1. Remove all blades from the clips.
2. Remove head and sill weatherstrip inserts (refer to Section 23.4.2.2.1-1).
3. Use drill driver to drill a $\varnothing 4\text{mm}$ hole through the bottom of the channel in position shown. Refer to Figure 23.4.1.1-1.4.
4. Screw in an 8g 28mm long or larger self tapping screw into the drilled hole to cut a thread in the channel.
5. Remove the screw and grind the point off the screw, so the screw does not penetrate the jamb.
6. Reinsert the screw and thread it in until the channel separates from the jamb. Note that the ground off screw point will push against the jamb.

Installation:

1. Confirm the correct gallery orientation.
2. Insert the inside edge of the channel into the inside rib of the jamb or the mullion.
3. Using soft face mallet, strike the top of the gallery to engage the snap fit. Ensure to strike on the open clips or the edge of the channel rather than striking in the middle of the channel as this will cause deformation of channel. Refer to Figure 23.4.1.1-1.5.
4. Snap in the head and sill weatherstrip inserts (refer to Section 23.4.2.2.1-1).
5. Insert the blades back into the clips and cycle open and close to confirm smooth operation.

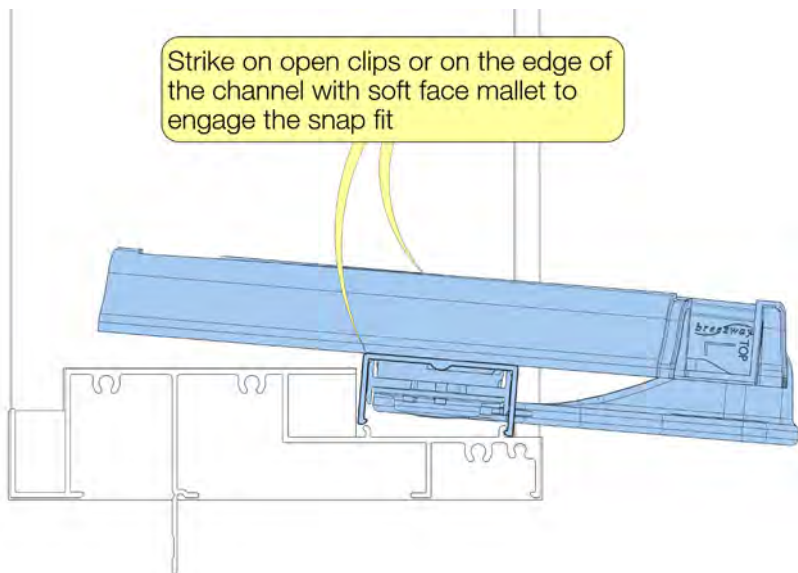


Fig. 23.4.1.1-1.5

Clip Replacement - 23.4.1.2-1

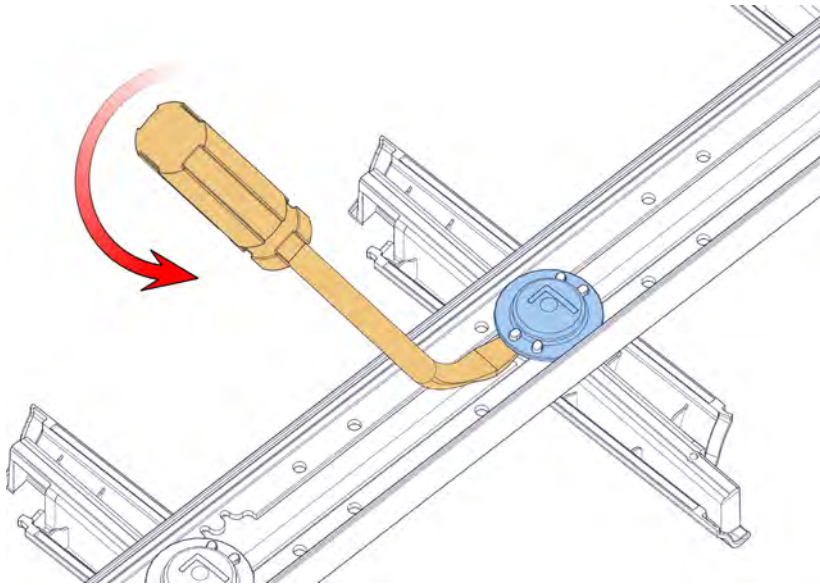


Fig. 23.4.1.2-1.1

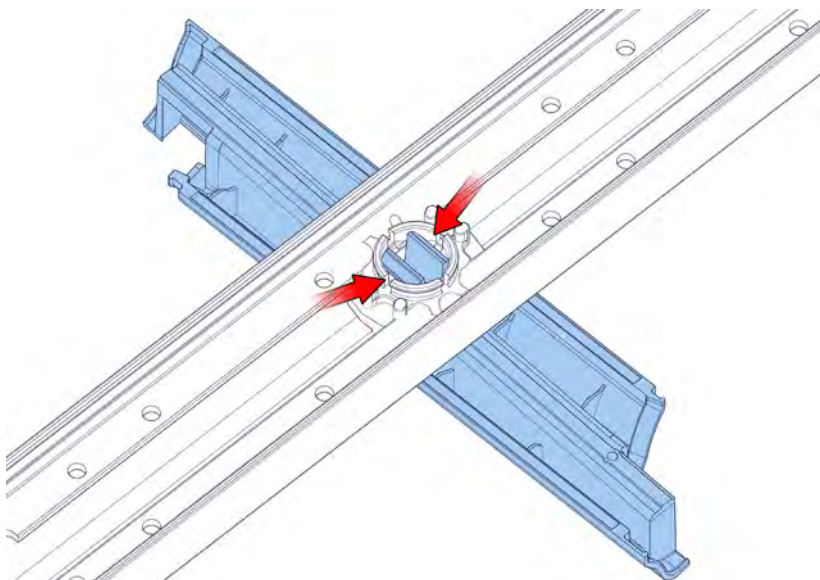


Fig. 23.4.1.2-1.2



Removal:

1. Remove all blades from the clips.
2. Remove the weatherstrip inserts (refer to Sections 23.4.2).
3. Remove the gallery (refer to Section 23.4.1.1-1).
4. Rotate the clips to approximately 45° and remove the retainer cap from the bearing using the Hook-end Screwdriver. *Refer to Figure 23.4.1.2-1.1.*
5. Squeeze the two legs of the clip that engage it into bearing and pull out the clip from the bearing. *Refer to Figure 23.4.1.2-1.2.* Alternatively, hold the gallery by hand and apply appropriate force on one end of the clip.

Installation:

1. Orient the new clip correctly and insert it into the bearing by comparing other clips.
2. Place the gallery on a flat surface, clips facing down and in the open position.
3. Place a retainer on the bearing and ensure the 4 guides on the bearing align with the cut outs in the retainer. *Refer to Figure 23.4.1.2-1.1.*
4. Use soft face mallet to strike the retainer vertically with enough force to fully engage the snap fit onto the bearing. Be mindful that too much force may damage the gallery.
5. Check the retainer is sitting flat and level, this confirms the snap fit has engaged fully.
6. Rotate the clips to ensure smooth operation.

Keylock Barrel Replacement - 23.4.1.3.1-1

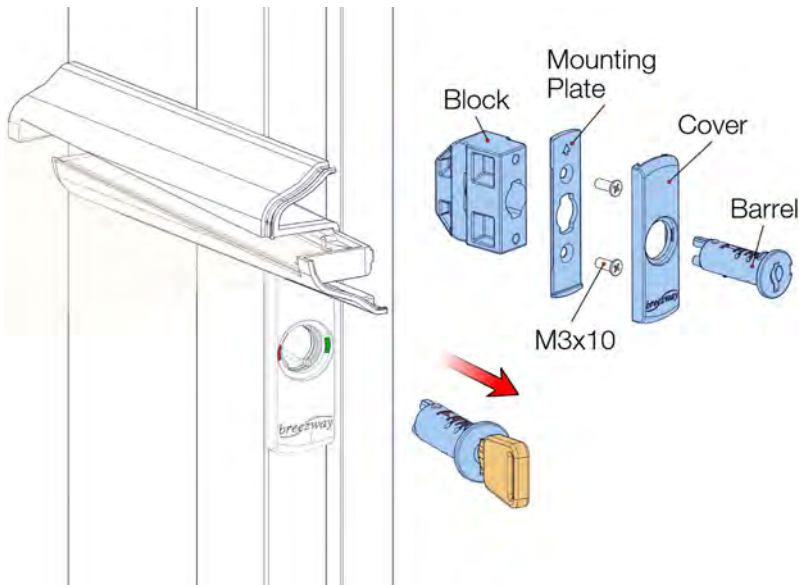


Fig. 23.4.1.3.1-1.1



Removal:

1. Ensure the barrel is in unlocked position, then insert the Assembly Key.
2. Withdraw the barrel and the Assembly Key together. *Refer to Figure 23.4.1.3.1-1.1.*

Situation 1: Key sheared off in barrel

1. Drill a $\varnothing 5\text{mm}$ or $\varnothing 6\text{mm}$ pilot hole in centre of barrel. No deeper than the length of barrel (28mm). Mark the depth on the drill bit using a marker to give a visual indicator to prevent over drilling.
2. Drill the hole out to $\varnothing 9\text{mm}$. Note: barrel may rotate.
3. Withdraw barrel.
4. If there is no damage to block, clean out and replace the barrel.
5. If the block is damaged, replace with a complete keylock assembly.

Situation 2: Key will not rotate to vertical in the locked position to allow key removal

1. Withdraw barrel with the Assembly Key.
2. File larger flats on the long barrel pin. *Refer to Figure 23.4.1.3.1-1.2.*

Situation 3: G James Locks

When replacing G James barrel, be aware there are MKI and MKII profiles of the customer key.

Situation 4: Barrel retention disc will not retain barrel in body

1. Confirm the mounting plate screws are not losing.
2. Withdraw the barrel with the Assembly Key.
3. Put a slight bend in the waffer. *Refer to Figure 23.4.1.3.1-1.3.*

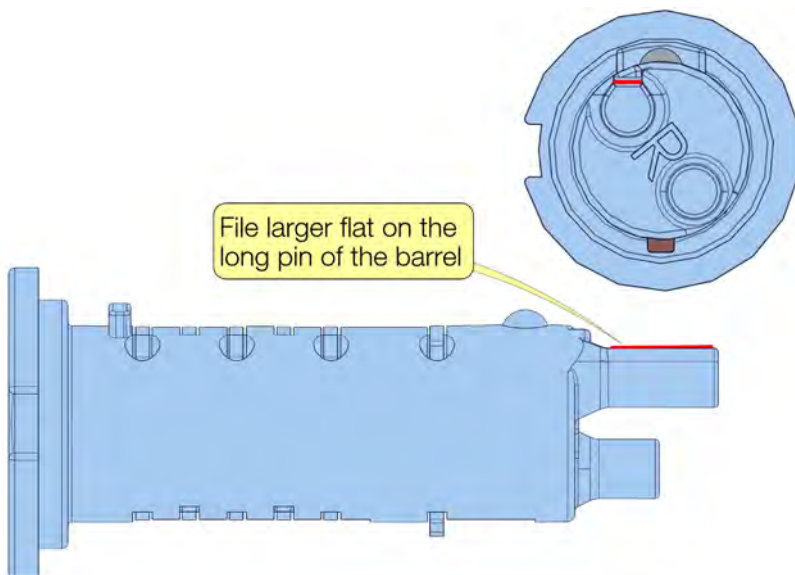


Fig. 23.4.1.3.1-1.2

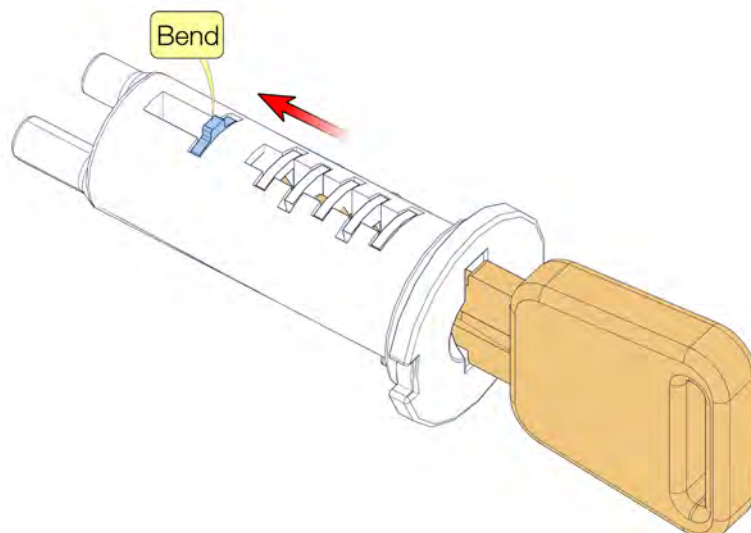


Fig. 23.4.1.3.1-1.3

Keylock Barrel Replacement - 23.4.1.3.1-1

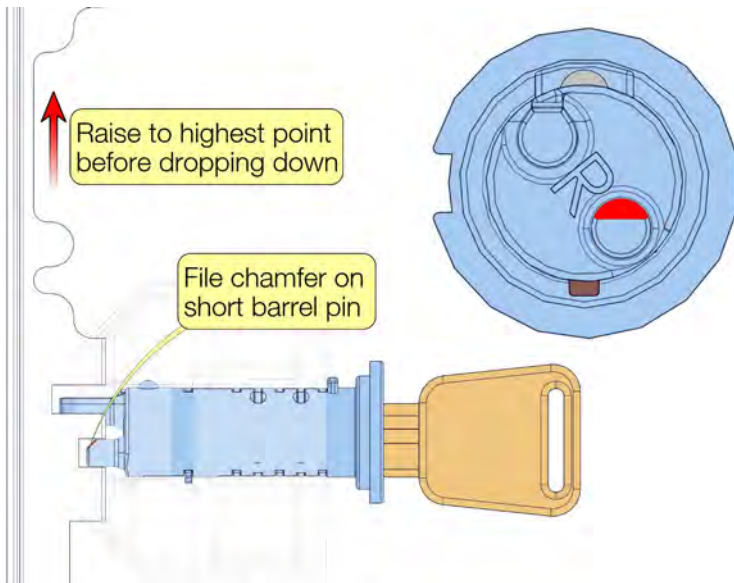


Fig. 23.4.1.3.1-1.4

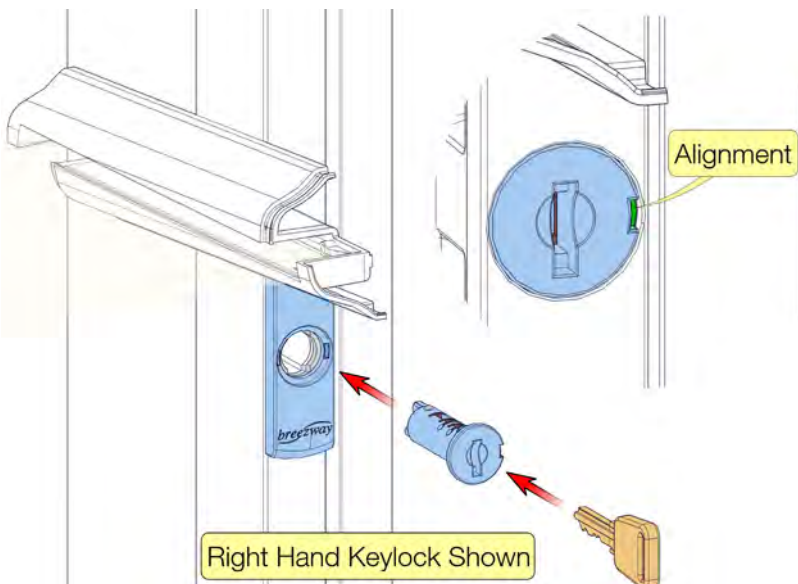


Fig. 23.4.1.3.1-1.5

Installation:

1. File a 1mm x 1mm chamfer on the top edge of short barrel pin to help lift the notch of the Op bar. *Refer to Figure 23.4.1.3.1-1.4.*
2. View the Op bar notches through the keylock body hole.
3. Gradually open the louvre until the cut outs in Op bar are at the highest point. *Refer to Figure 23.4.1.3.1-1.4.*
4. Place the Assembly Key into the new barrel and insert them together into the keylock until the retention wafer engages. Ensure that the notch on the face of the barrel is aligned with the green marker on the cover plate to confirm it's being installed in the unlocked position. NOTE: The notch is always pointed away from the clips during installation. *Refer to Figure 23.4.1.3.1-1.5.*
5. While holding the barrel in the gallery, pull the Assembly Key out.
6. Close the window.
7. Test the new barrel by inserting the customers key and rotating to the locked position. Remove the key and check to ensure clips are locked.
8. Reinsert the key and rotate to the unlocked position. Remove the customer key while in the unlocked position and ensure the clips are unlocked, ensure the barrel stays in place.
9. If the key does not rotate to vertical or can not be removed in the locked position, file a larger flat onto the long barrel pin. *Refer to Figure 23.4.1.3.1-1.2.*

Keylock Block Replacement - 23.4.1.3.2-1



Removal:

1. Remove the gallery (refer to Section 23.4.1.1-1).
2. Remove the barrel (refer to Section 23.4.1.3.1-1).
3. Slide the cover plate off the mounting plate.
4. Remove the two screws securing the mounting plate to the channel.
5. Slide and remove the block from the Op bar cut-out. *Refer to Figure 23.4.1.3.2-1.1.*

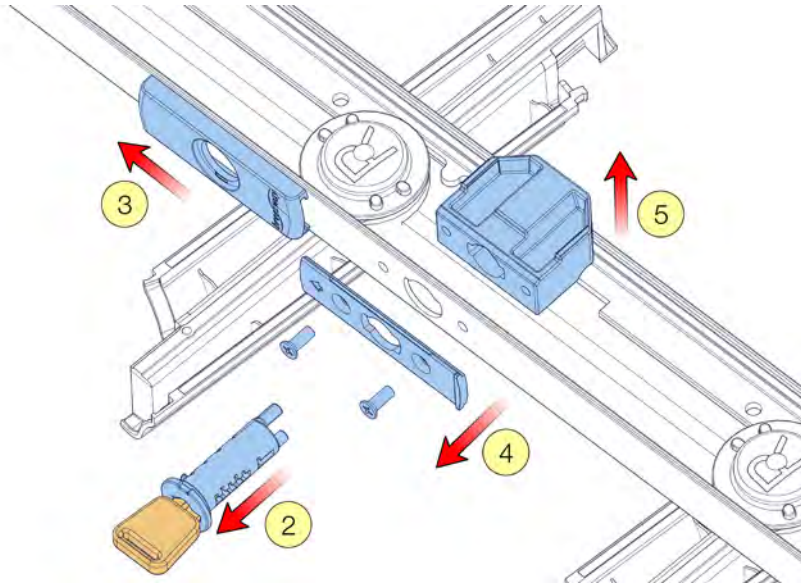


Fig. 23.4.1.3.2-1.1

Installation:

1. Insert the new block into the OP bar cut-out.
2. Slide the block towards the channel mounting holes and align the block holes with the channel holes.
3. Orient the mounting plate so the arrow is facing up and align the holes to the channel holes. Fix the mounting plate, channel and block assembly using the two screws. Note that the head of the screws must be flush with the mounting plate, or they may interfere with the cover plate.
4. Slide the cover plate over the mounting plate, making sure that the logo on the cover plate is pointing towards the bottom of the channel.
5. Insert barrel with the Assembly Key into black. *Refer to Figure 23.4.1.3.2-1.2.*
6. Check the operation of keylock.

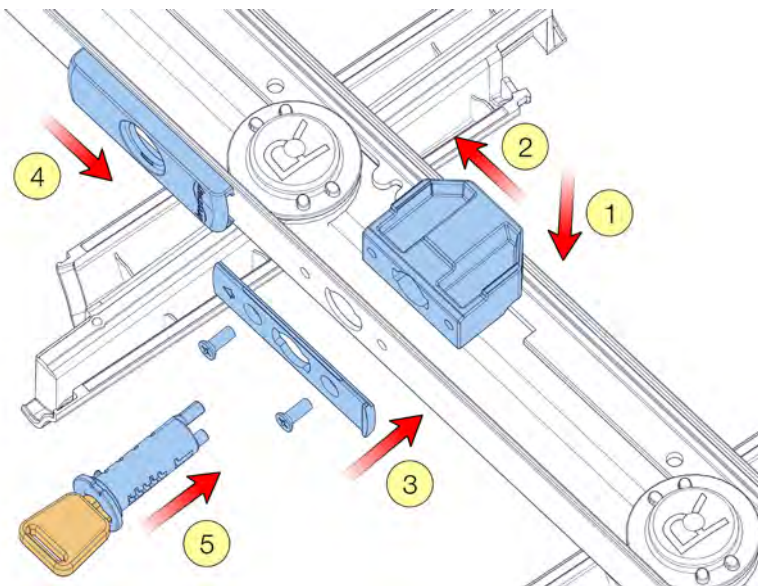


Fig. 23.4.1.3.2-1.2

Plastic Handle Replacement - 23.4.1.4.1-1

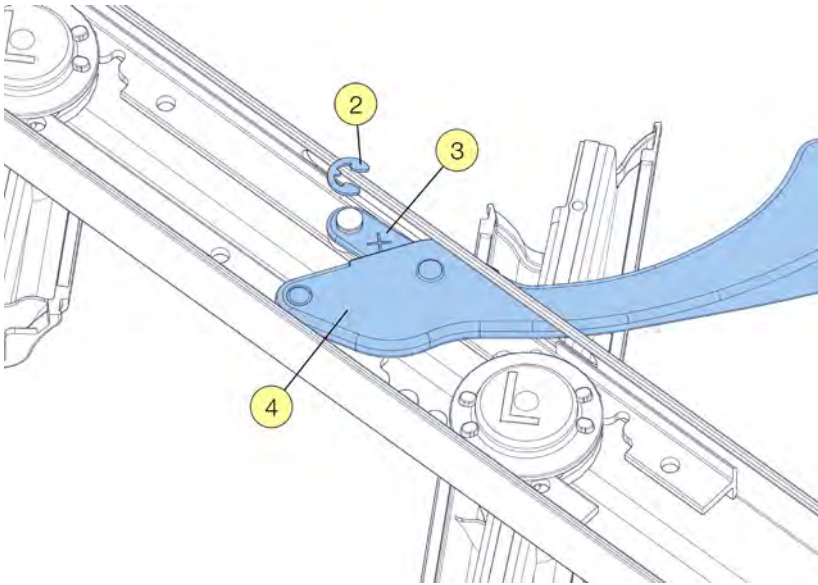


Fig. 23.4.1.4.1-1.1



Removal:

1. Remove the gallery (refer to Section 23.4.1.1-1).
2. Remove the 'E' type circlip from stud using flat screwdriver. Note: Do not reuse.
3. Lift the handle link off the stud.
4. Prise the plastic handle from stud using Hook-end Screwdriver.
5. Remove the plastic handle and link assembly from the gallery through the handle slot. *Refer to Figure 23.4.1.4.1-1.1.*

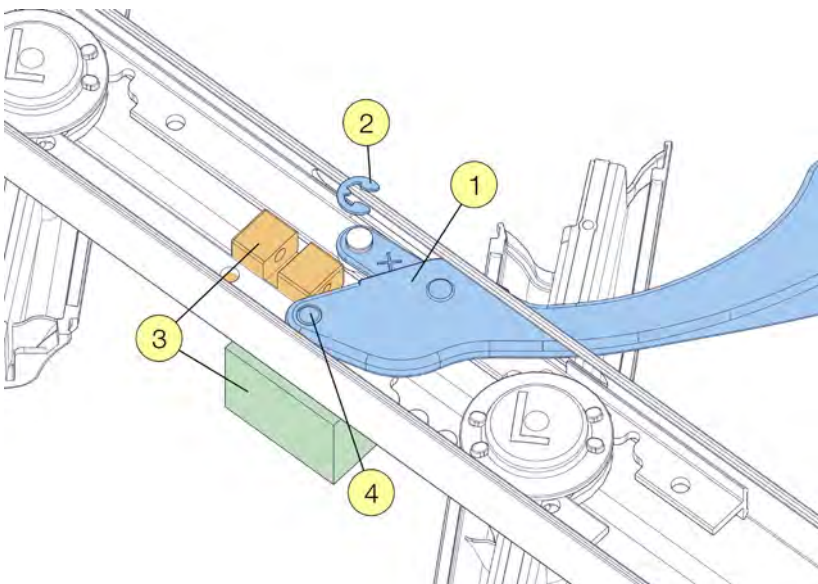


Fig. 23.4.1.4.1-1.2

Installation:

1. Insert the new plastic handle and link assembly through the handle slot.
2. Place the handle link over the Op bar stud and fix using a new 'E' type circlip. Ensure the circlip is located in the groove of stud.
3. Support the channel directly under the handle. Insert the Op Bar Support Block between channel and Op bar.
4. Align the hole of plastic handle with the stud. Use the soft face mallet to strike the handle and engage it onto the stud. *Refer to Figure 23.4.1.4.1-1.2.*
5. Operate handle and check if it operates smoothly.

Metal Handle MK1 Replacement - 23.4.1.4.2-1



Note: If metal handle MK1 is replaced with metal handle MK2, the Op bars must have A600 and A700 rivets. Metal handle MK2 is not compatible with A100 and A300 rivets. *Refer to Figure 23.4.1.4.2-1.3.*

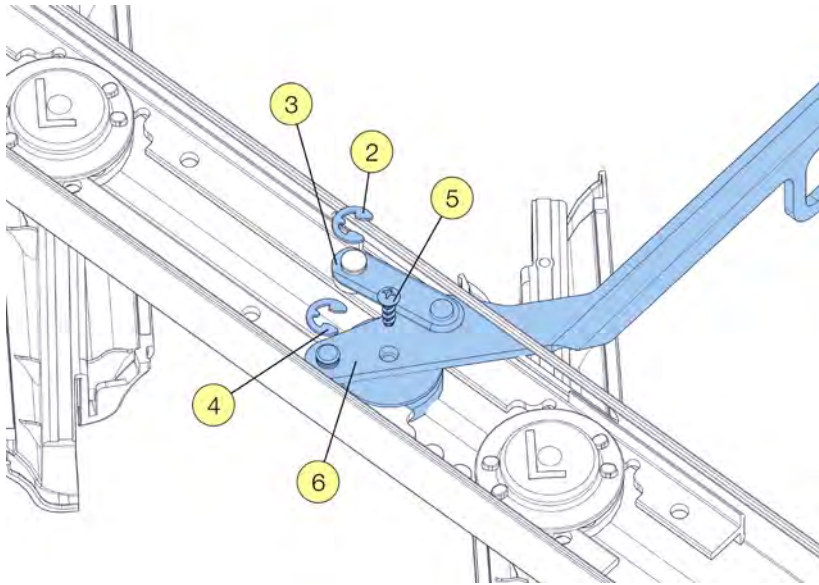


Fig. 23.4.1.4.2-1.1

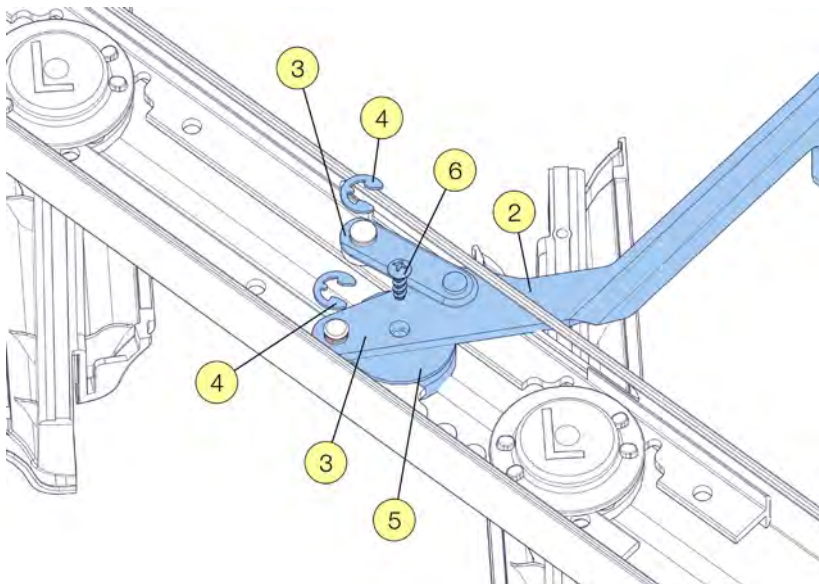


Fig. 23.4.1.4.2-1.2

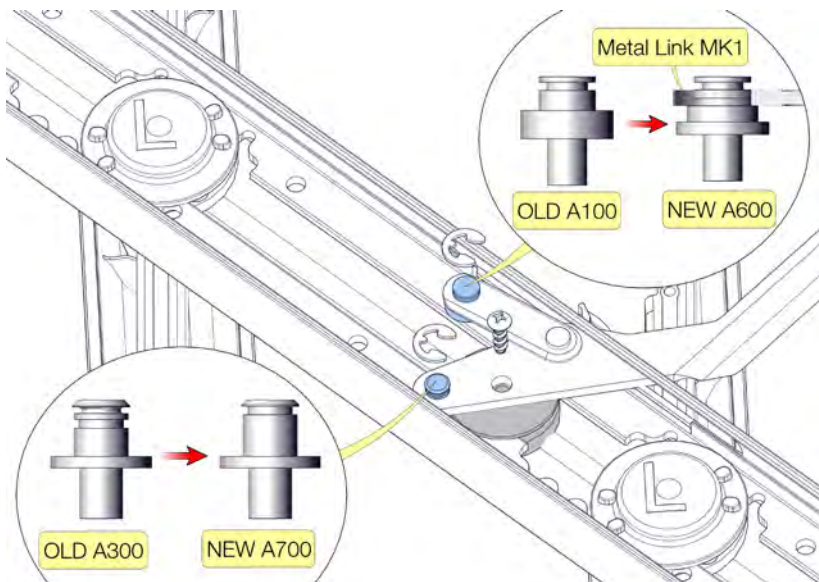


Fig. 23.4.1.4.2-1.3

Removal:

1. Remove the gallery (refer to Section 23.4.1.1-1).
2. Remove the 'E' type circlip from the stud using flat screwdriver. Note: Do not reuse.
3. Lift the metal link MK1 off the stud.
4. Remove the second 'E' type circlip from the stud using flat screwdriver.
5. Unscrew the handle from the handle stabiliser
6. Lift the metal handle and metal link MK1 assembly off the Op bar studs.
7. Remove the metal handle and metal link MK1 assembly through the handle slot. *Refer to Figure 23.4.1.4.2-1.1.*

Installation:

1. Leave the handle stabiliser in position between Op bars.
2. Insert the metal handle and metal link MK1 assembly through the handle slot.
3. Place the metal link MK1 onto the stud closest to the handle slot, and the metal handle MK1 onto the stud opposite the handle slot.
4. Fix the metal handle and metal link MK1 with new 'E' type circlips.
5. Position the handle so the remaining hole lines up with hole in handle stabiliser.
6. Screw the handle stabiliser to the handle using Hi-Lo SS screw. *Refer to Figure 23.4.1.4.2-1.2.*
7. Operate handle and check if it operates smoothly.

Metal Handle MK2 Replacement - 23.4.1.4.3-1

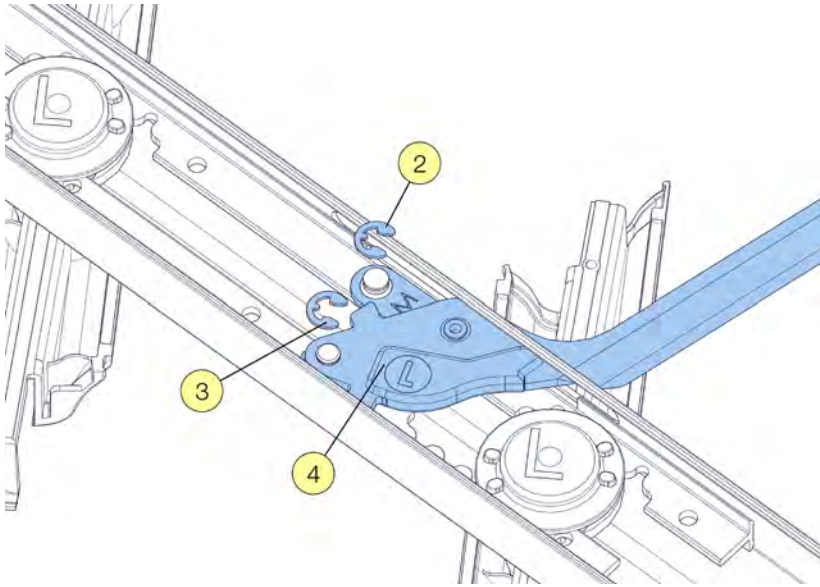


Fig. 23.4.1.4.3-1.1

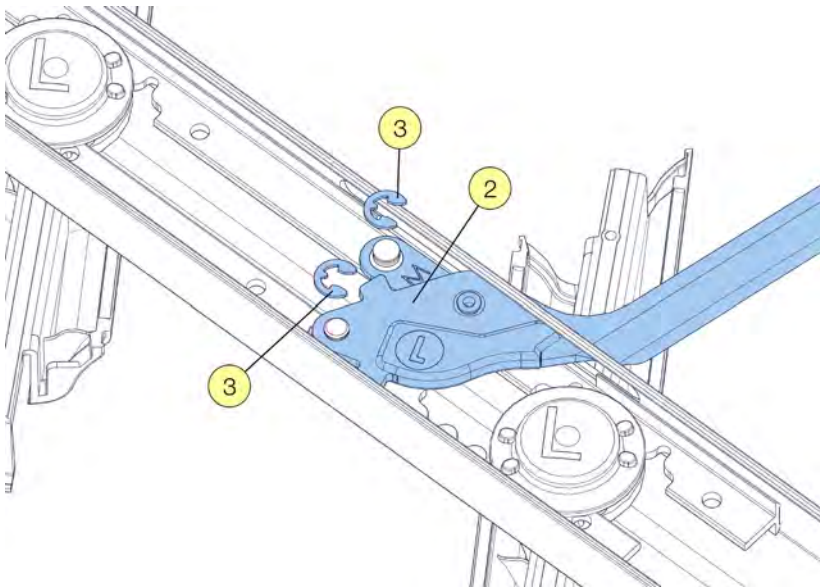


Fig. 23.4.1.4.3-1.2

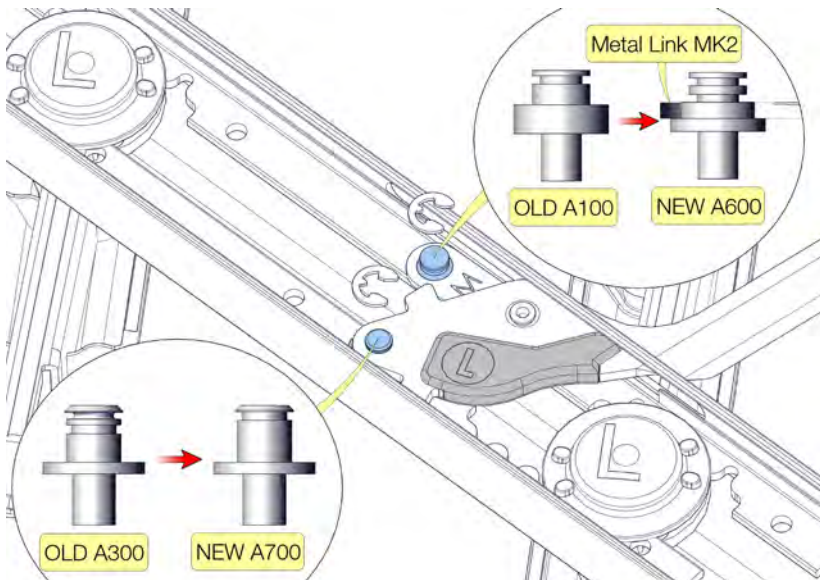


Fig. 23.4.1.4.3-1.3



Note: If metal handle MK1 is replaced with metal handle MK2, the Op bars must have A600 and A700 rivets. Metal handle MK2 is not compatible with A100 and A300 rivets. *Refer to Figure 23.4.1.4.3-1.3.*

Removal:

1. Remove the gallery (refer to Section 23.4.1.1-1).
2. Remove the 'E' type circlip from the stud using flat screwdriver. Note: Do not reuse.
3. Remove the second 'E' type circlip from the stud using flat screwdriver.
4. Lift the metal handle MK2, dumper and metal link MK2 assembly off the Op bar studs.
5. Remove the handle, dumper and link assembly through the handle slot. *Refer to Figure 23.4.1.4.3-1.1.*

Installation:

1. Insert the metal handle MK2, bumper and metal link MK2 assembly through the handle slot.
2. Place the metal link MK2 onto the stud closest to the handle slot, and the metal handle MK2 onto the stud opposite the handle slot.
3. Fix the metal handle and metal link MK2 with new 'E' type circlips. *Refer to Figure 23.4.1.4.3-1.2.*
4. Operate handle and check if it operates smoothly.

Restrictor Plate Assembly Method - 23.4.1.5-1

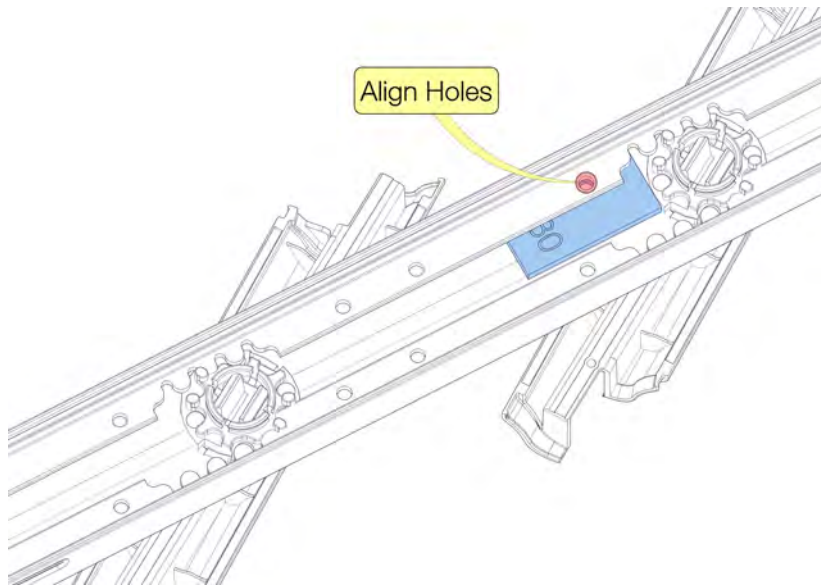


Fig. 23.4.1.5-1.1

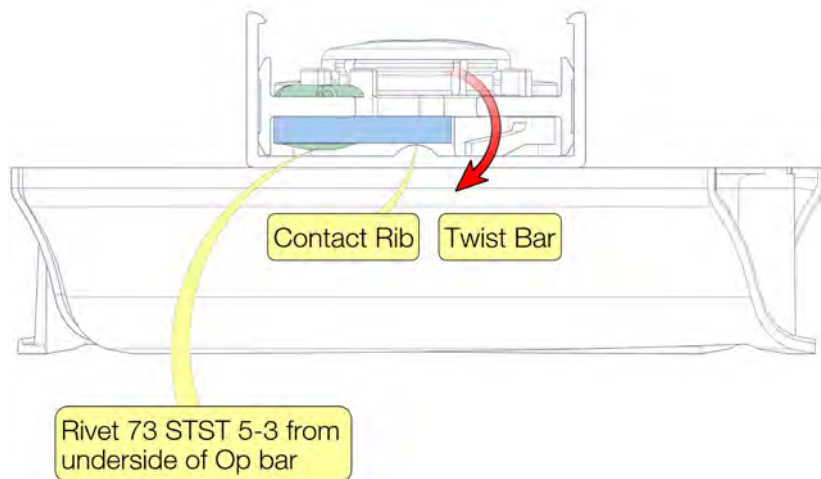


Fig. 23.4.1.5-1.2



Issue: Restriction Plate Rides Over the Bearing Retainer

1. Remove the gallery (Refer to Section 23.4.1.1-1).
2. Leave the existing plate in place.
3. Remove enough bearing retainers from the bearings to allow enough access to fit a new plate in another position between bearings. Confirm the new plate is away from the handle/link mechanism. Refer to Section 23.4.1.2-1 for retainer removal.
4. The Restrictor plate will be fixed to the Op bar on the opposite side to the handle slot. Position the plate so the fixing hole aligns with the hole on the Op bar as shown. Refer to Figure 23.4.1.5-1.1.
5. Rivet from the underside of the Op bar, using the stainless steel rivet 73 STST 5-3 in the orientation as shown. Refer to Figure 23.4.1.5-1.2.
6. After fitting the new plate, twist Op bar slightly to ensure the plate is in contact with the rib on the channel. Refer to Figure 23.4.1.5-1.2.

Component Form Weatherstrip Insert Replacement - 23.4.2.1.1-1

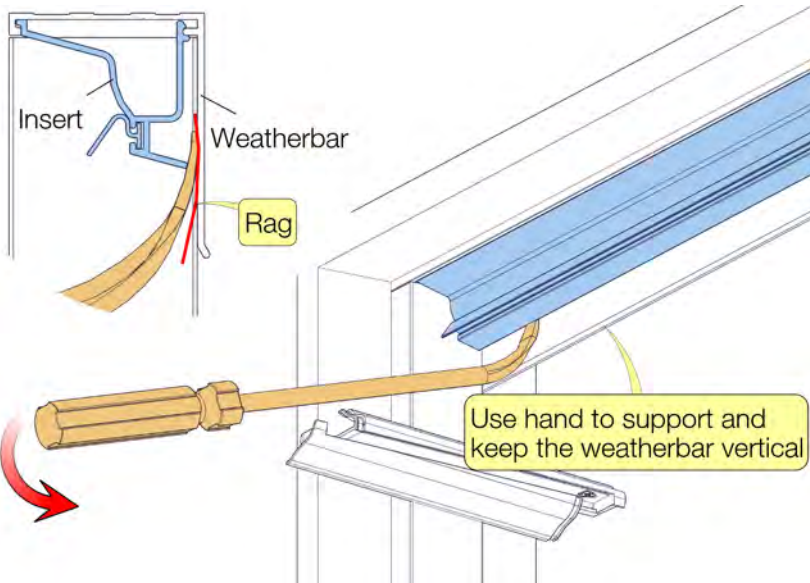


Fig. 23.4.2.1.1-1.1



Manual Component Form Head Weatherstrip Insert

Removal:

1. Open the window and remove top blades from the clips.
2. Insert the Hook-end Screwdriver into the gap between weatherbar and insert from the inside of the frame at either end of the head. Put a rag between the screwdriver and the painted surfaces. At the same time, use another hand to support and keep the weatherbar vertical to prevent deformation. *Refer to Figure 23.4.2.1.1-1.1.*
3. Carefully prise the Insert from weatherbar until it is fully released.

Installation:

1. Confirm the orientation of the insert and start by locating the inside edge of the Insert into the inside edge of the weatherbar.
2. Push upwards & outwards on the inside vertical face of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use soft face mallet to strike one end of insert to engage the snap fit with the weatherbar. *Refer to Figure 23.4.2.1.1-1.2.*

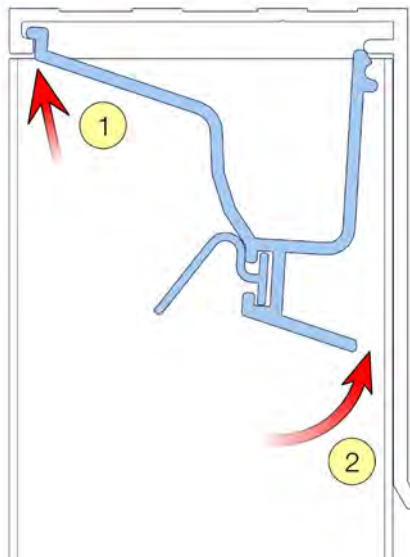


Fig. 23.4.2.1.1-1.2

Component Form Weatherstrip Insert Replacement - 23.4.2.1.1-1

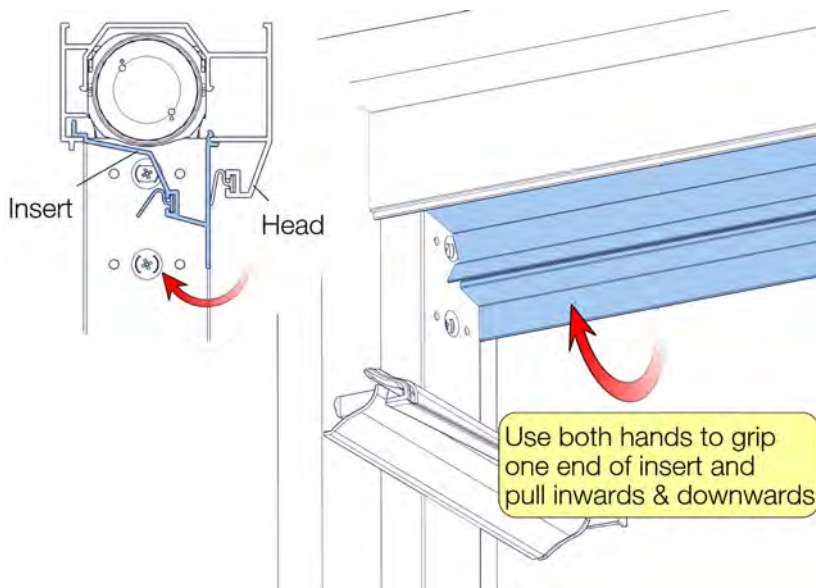


Fig. 23.4.2.1.1-1.3

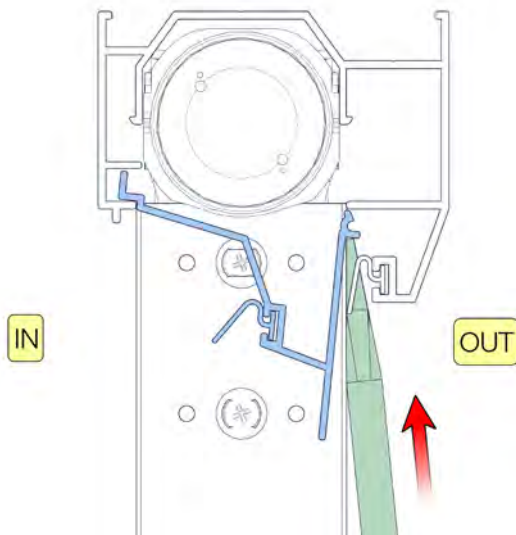


Fig. 23.4.2.1.1-1.4

Powerlouvre Component Form Head Weatherstrip Insert

Removal:

1. Open the window and remove the top blade from the clips.
2. Use both hands to grip one end of the insert and pull inwards & downwards until the insert is fully released. *Refer to Figure 23.4.2.1.1-1.3.*

Installation:

1. Confirm the orientation of the insert and start by locating the inside edge of the insert into the inside edge of the head.
2. Push upwards & outwards on the inside vertical face of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use flat screwdriver on the lip of the top edge of the outside vertical face and push upwards & inwards. Extra care should be taken to ensure that the weatherstrip seal is not damaged by screwdriver. *Refer to Figure 23.4.2.1.1-1.4.*

Component Form Weatherstrip Insert Replacement - 23.4.2.1.1-1

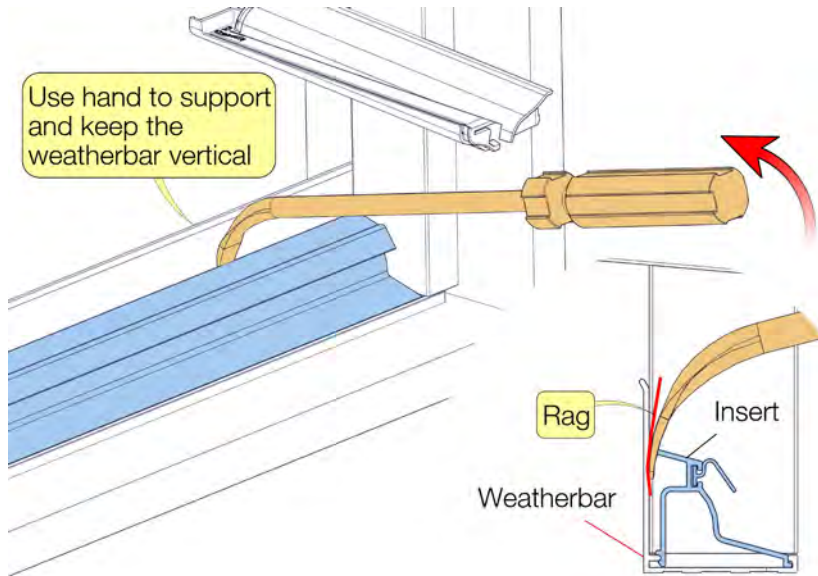


Fig. 23.4.2.1.1-1.5

Component Form Weatherstrip Sill Insert

Removal:

1. Open the window and remove top two blades from the clips.
2. Insert the Hook-end Screwdriver into the gap between the weatherbar and the insert from the outside of frame at either end of the weatherbar. Put a rag between the screwdriver and the painted surfaces. At same time use another hand to support and keep the weatherbar vertical to prevent deformation. *Refer to Figure 23.4.2.1.1-1.5.*
3. Carefully prise the insert from weatherbar until it is fully released.

Installation:

1. Confirm the correct orientation of the insert and start by locating the outer edge of the insert into the outer edge of the weatherbar.
2. Push downwards & inwards on the top of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use a soft face mallet to strike one end of the insert to engage the snap fit with the weatherbar. *Refer to Figure 23.4.2.1.1-1.6.*

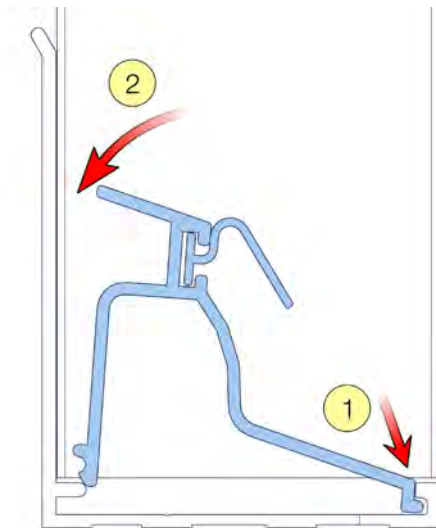


Fig. 23.4.2.1.1-1.6

Component Form Weatherstrip Insert Replacement - 23.4.2.1.1-1

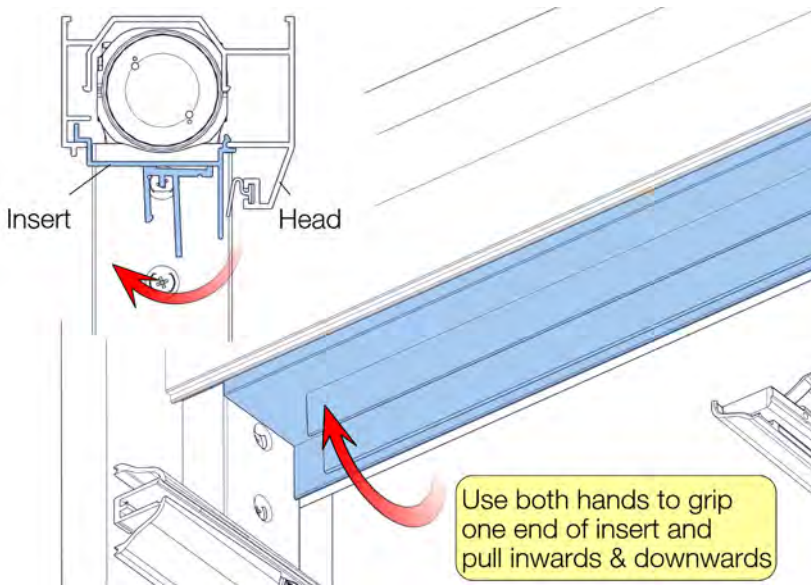


Fig. 23.4.2.1.1-1.7

Powerlouvre Component Form Off-Standard Head Insert

Removal:

1. Open the window and remove top two blades from the clips.
2. Pull down the extension blade one end at a time to release it from the blade carrier, then rotate the extension clips.
3. Use both hands to grip one end of the insert and pull inwards and downwards until the insert with blade carrier is fully released. *Refer to Figure 23.4.2.1.1-1.7.*

Installation:

1. Confirm the orientation of the insert and start by locating the inside edge of the insert into the inside edge of the head.
2. Push upwards & outwards on the inside vertical face of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use soft face mallet to strike one end of the insert to engage the snap fit with the head. If this method of engaging the snap fit proves difficult, use flat screwdriver on the lip of the top edge of the outside vertical face and push upwards & inwards. Extra care should be taken to ensure that the weatherstrip seal is not damaged by screwdriver. *Refer to Figure 23.4.2.1.1-1.8.*

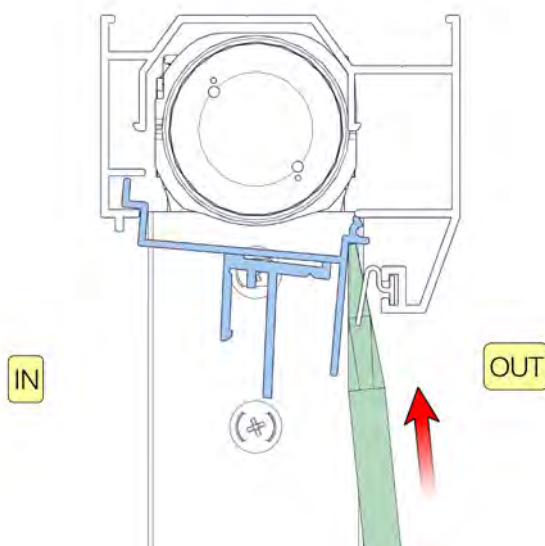


Fig. 23.4.2.1.1-1.8

Easyscreen Weatherstrip Insert Replacement - 23.4.2.2.1-1

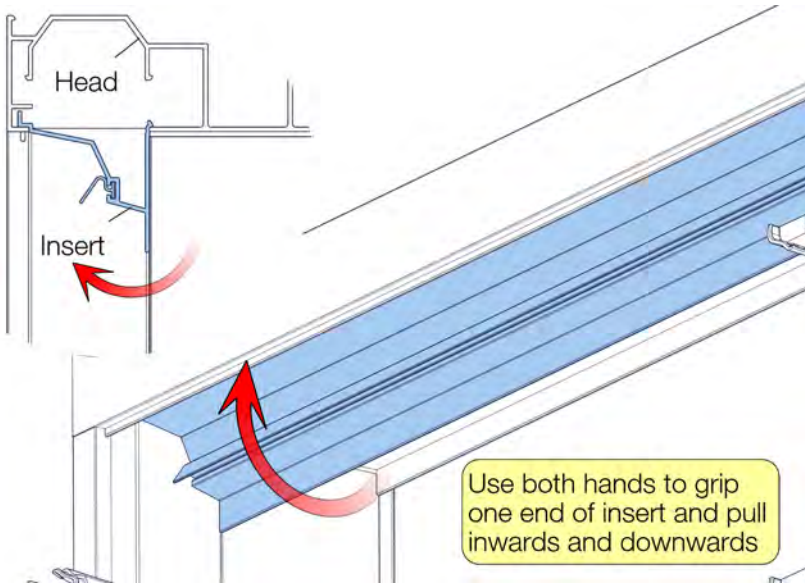


Fig. 23.4.2.2.1-1.1



Easyscreen Weatherstrip Head Insert

Removal:

1. Open the window and remove the top blade from the clips.
2. Use both hands to grip one end of the insert and pull inwards and downwards until the insert is fully released. *Refer to Figure 23.4.2.2.1-1.1.*

Installation:

1. Confirm the orientation of the insert and start by locating the inside edge of the insert into the inside edge of the head.
2. Push upwards & outwards on the inside vertical face of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use soft face mallet to strike one end of the insert to engage the snap fit with the head. If this method of engaging the snap fit proves difficult, use flat screwdriver on the lip of the top edge of the outside vertical face and push upwards & inwards. *Refer to Figure 23.4.2.2.1-1.2.*

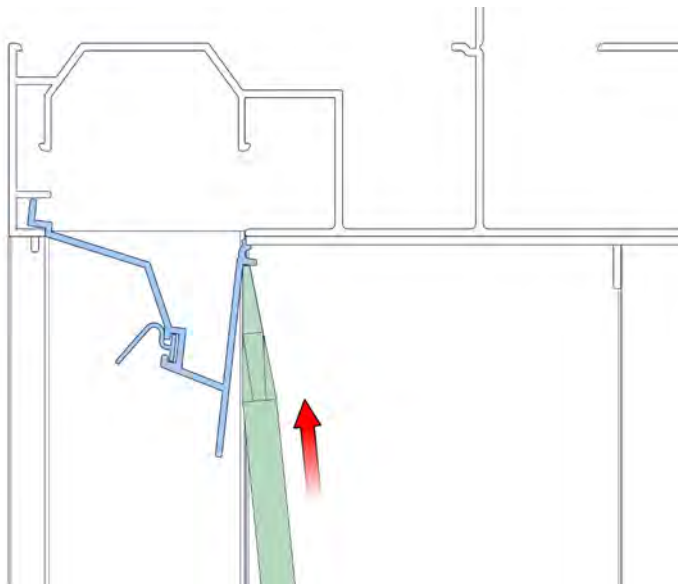


Fig. 23.4.2.2.1-1.2

Easysceen Weatherstrip Insert Replacement - 23.4.2.2.1-1

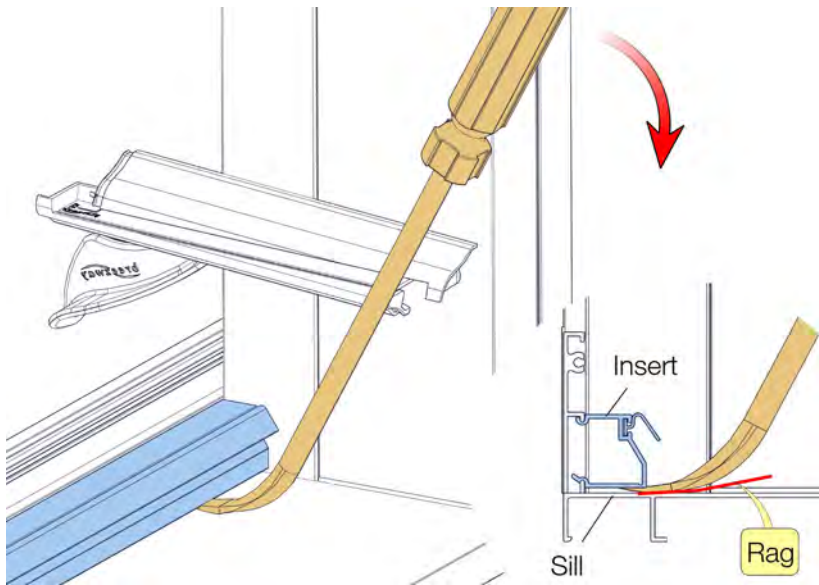


Fig. 23.4.2.2.1-1.3

Easysceen Weatherstrip Sill Insert

Removal:

1. Open the window and remove the bottom blade from the clips.
2. Insert the Hook-end Screwdriver into the gap between the sill and the insert from the outside of the frame at either end of the sill. Put a rag between the screwdriver and the painted surfaces. *Refer to Figure 23.4.2.2.1-1.3.*
3. Carefully prise the insert from the sill until it is fully released.

Installation:

1. Confirm the orientation of the insert and start by locating the top of the insert into the sill and rotate down toward the snap fit feature.
2. Push downwards & inwards on the top of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use a soft face mallet to strike the front face of the sill insert to begin engaging the snap fit. *Refer to Figure 23.4.2.2.1-1.4.*

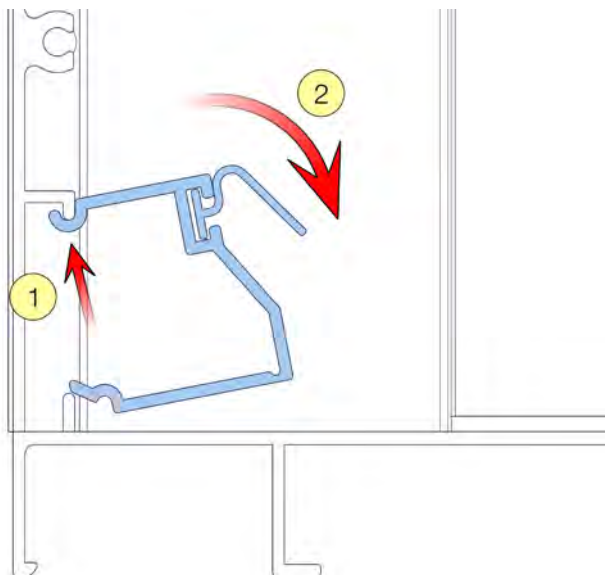


Fig. 23.4.2.2.1-1.4

Easysceen Weatherstrip Insert Replacement - 23.4.2.2.1-1

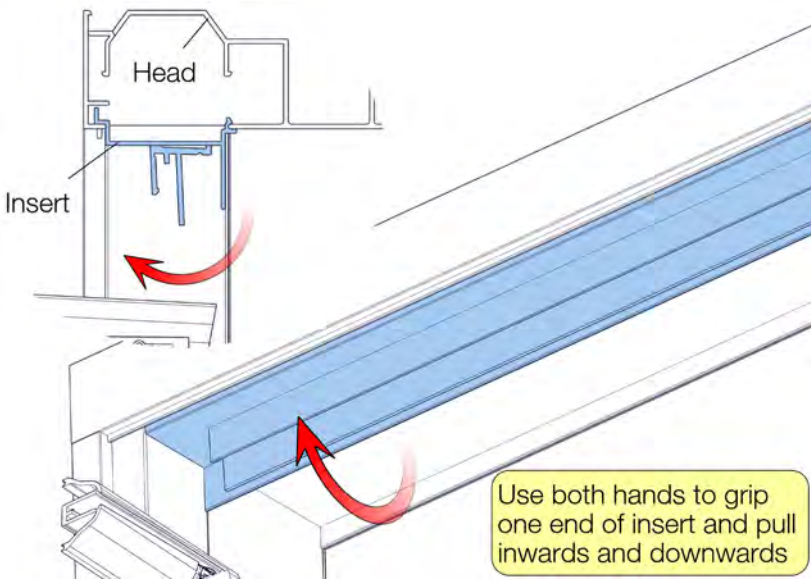


Fig. 23.4.2.2.1-1.5

Easyscreen Off-Standard Head Insert

Removal:

1. Open the window and remove top blades from the clips.
2. Pull down the extension blade one end at a time to release it from the blade carrier, then rotate the extension clips.
3. Use both hands to grip one end of the insert and pull inwards and downwards until the insert with blade carrier is fully released. *Refer to Figure 23.4.2.2.1-1.5.*

Installation:

1. Confirm the orientation of the insert and start by locating the inside edge of the insert into the head.
2. Push upwards & outwards on the inside vertical face of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use flat screwdriver on the lip of the top edge of the outside vertical face and push upwards & inwards. *Refer to Figure 23.4.2.2.1-1.6.*

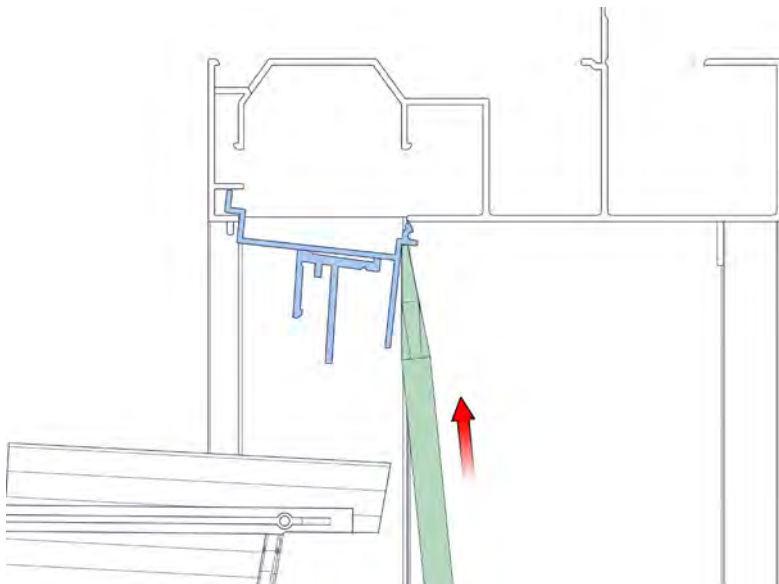


Fig. 23.4.2.2.1-1.6

Innoscreen Weatherstrip Insert Replacement - 23.4.2.3.1-1

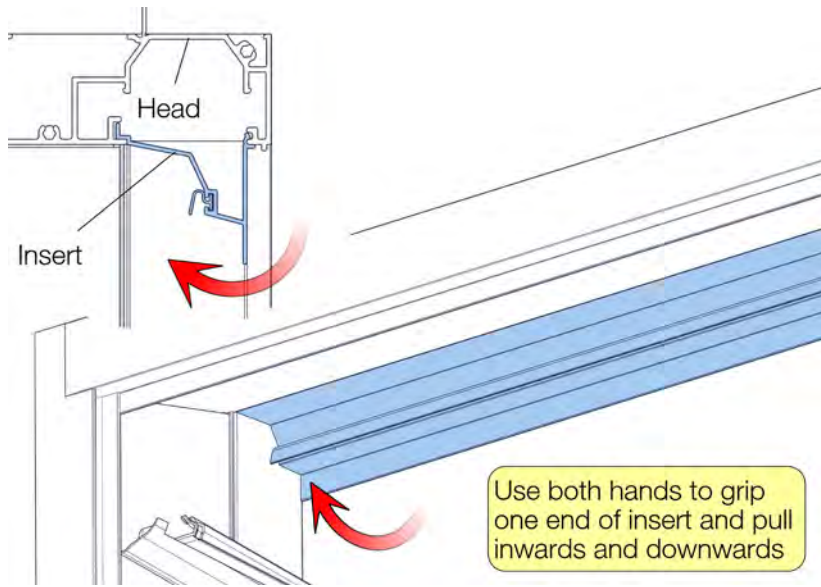


Fig. 23.4.2.3.1-1.1



Innoscreen Weatherstrip Head Insert

Removal:

1. Open the window and remove the top blade from the clips.
2. Use both hands to grip one end of the insert and pull inwards and downwards until the insert is fully released. *Refer to Figure 23.4.2.3.1-1.1.*

Installation:

1. Confirm the orientation of the insert and start by locating the inside edge of the insert into the inside edge of the head.
2. Push upwards and outwards on the inside vertical face of the insert at one end to engage the snap fit with the head by hand first. If this method of engaging the snap fit proves difficult, use flat screwdriver on the lip of the top edge of the outside vertical face and push upwards & inwards. *Refer to Figure 23.4.2.3.1-1.2.*

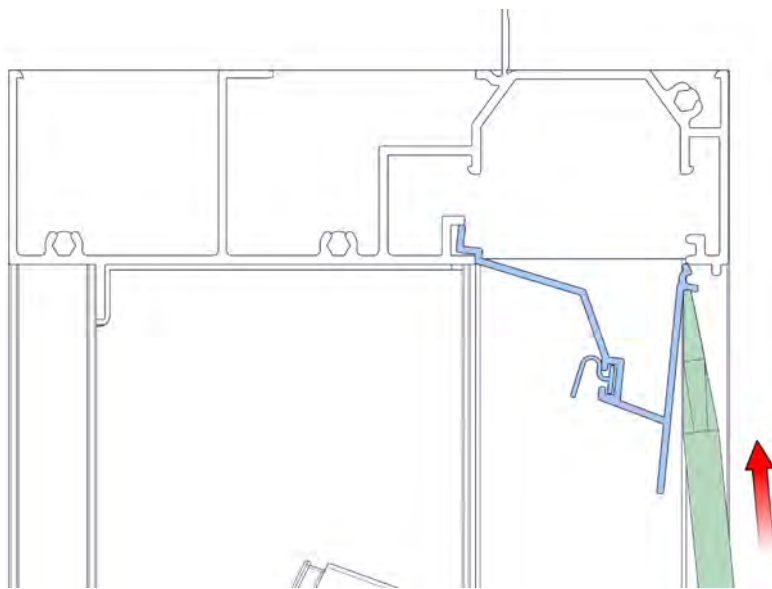


Fig. 23.4.2.3.1-1.2

Innoscreen Weatherstrip Insert Replacement - 23.4.2.3.1-1

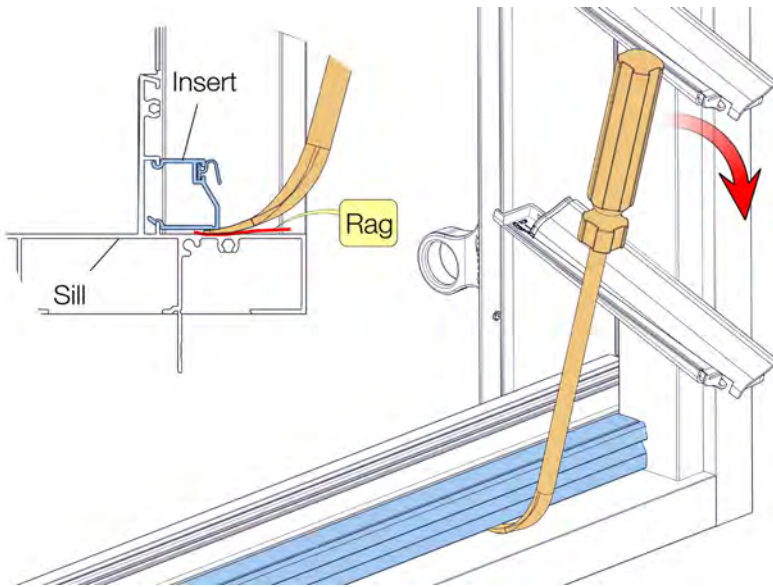


Fig. 23.4.2.3.1-1.3

Innoscreen Weatherstrip Sill Insert

Removal:

1. Open the window and remove the bottom blade from the clips.
2. Insert the Hook-end Screwdriver into the gap between the sill and the insert from the outside of the frame at either end of sill. Put a rag between the screwdriver and the painted surfaces. *Refer to Figure 23.4.2.3.1-1.3.*
3. Carefully prise the insert from the sill until it is fully released.

Installation:

1. Confirm the orientation of the insert and start by locating the top of the insert into the sill and rotate down toward the snap fit feature.
2. Push downwards & inwards on the top of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use a soft face mallet to strike the front face of the insert to begin engaging the snap fit. *Refer to Figure 23.4.2.3.1-1.4.*

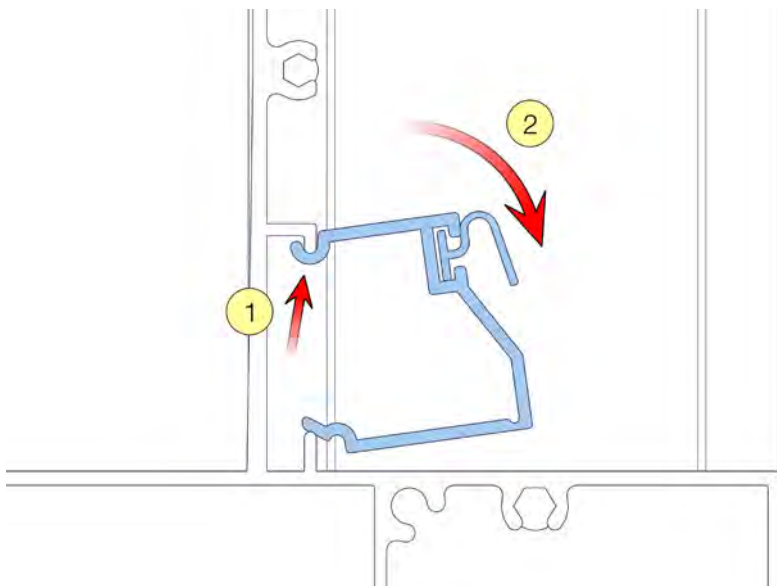


Fig. 23.4.2.3.1-1.4

Innoscreen Weatherstrip Insert Replacement - 23.4.2.3.1-1

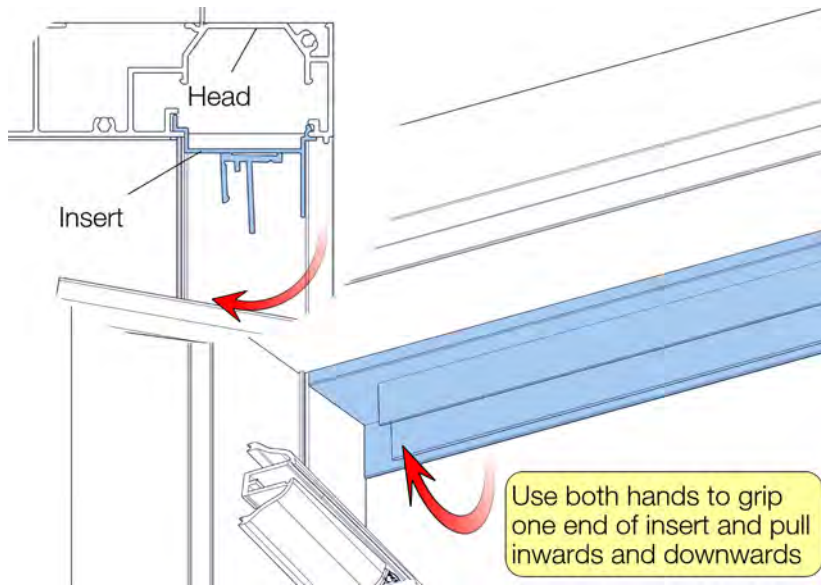


Fig. 23.4.2.3.1-1.5

Innoscreen Off-Standard Head Insert

Removal:

1. Open the window and remove top blades from the clips.
2. Pull down the extension blade one end at a time to release it from the blade carrier, then rotate the extension clips.
3. Use both hands to grip one end of the insert and pull inwards and downwards until the insert with blade carrier is fully released. *Refer to Figure 23.4.2.3.1-1.5.*

Installation:

1. Confirm the orientation of the insert and start by locating the inside edge of the insert into the head.
2. Push upwards & outwards on the inside vertical face of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use flat screwdriver on the lip of the top edge of the outside vertical face and push upwards & inwards. *Refer to Figure 23.4.2.3.1-1.6.*



Fig. 23.4.2.3.1-1.6

Innoscreen Slide Handle Replacement - 23.4.2.3.2-1



Removal of seal carrier end caps, slide plate and plastic pin:

1. Remove the slide handle by inserting a screwdriver handle through the hole and lever up-down to separate the two halves. *Refer to Figure 23.4.2.3.2-1.1.*
2. Use a thin knife blade to prise off the seal carrier end caps. Put a rag under the knife to prevent paint damage. *Refer to Figure 23.4.2.3.2-1.2.*
3. Insert the Cover Plate Removal Tool through the slot between the seal carriers and get into the jamb close to the sill. *Refer to Figure 23.4.2.3.2-1.3.*
4. Rotate the tool to lever off the cover plate from the jamb. *Refer to Figure 23.4.2.3.2-1.4.*
5. Insert the Slide Handle Pin Removal & Install Tool between jamb and the boss on the actuator.
6. Use a suitable pin punch to gently drive the plastic pivot pin into the Slide Handle Pin Remove & Install Tool. *Refer to Figure 23.4.2.3.2-1.5.*
7. Remove the tool with the plastic pin together.
8. Remove the slide plate by pushing towards the outside of the window.

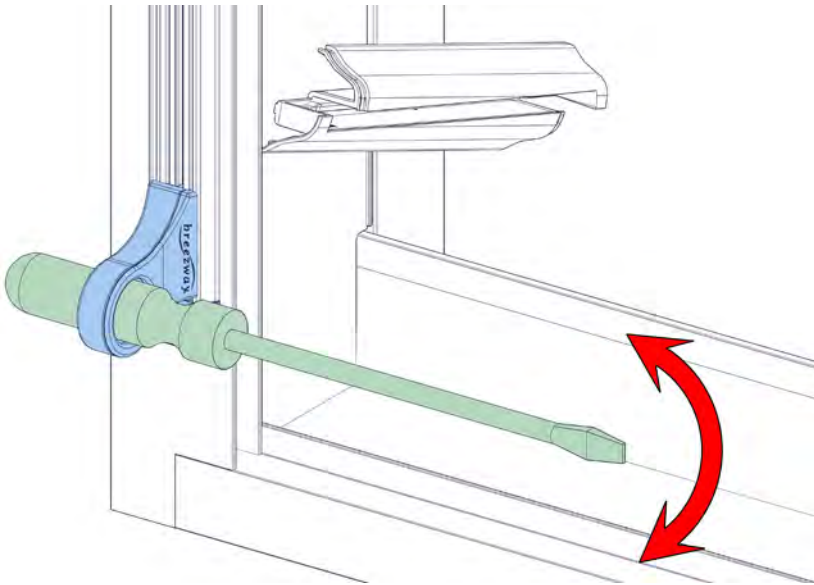


Fig. 23.4.2.3.2-1.1

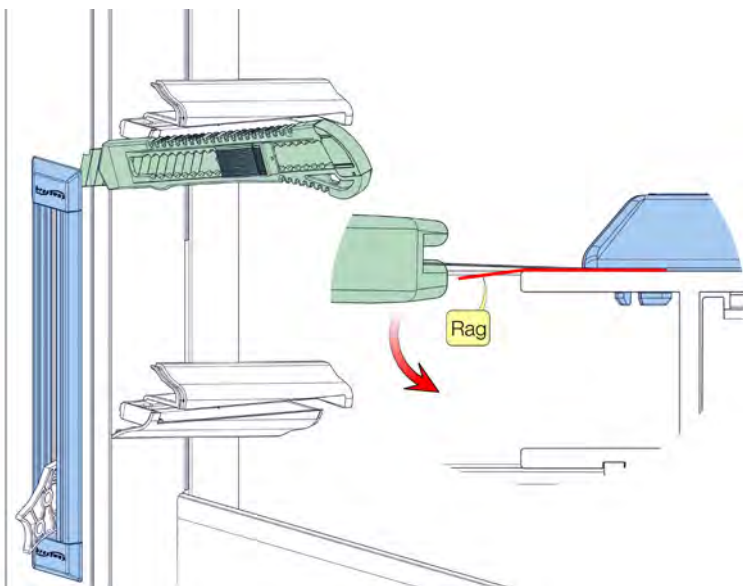


Fig. 23.4.2.3.2-1.2

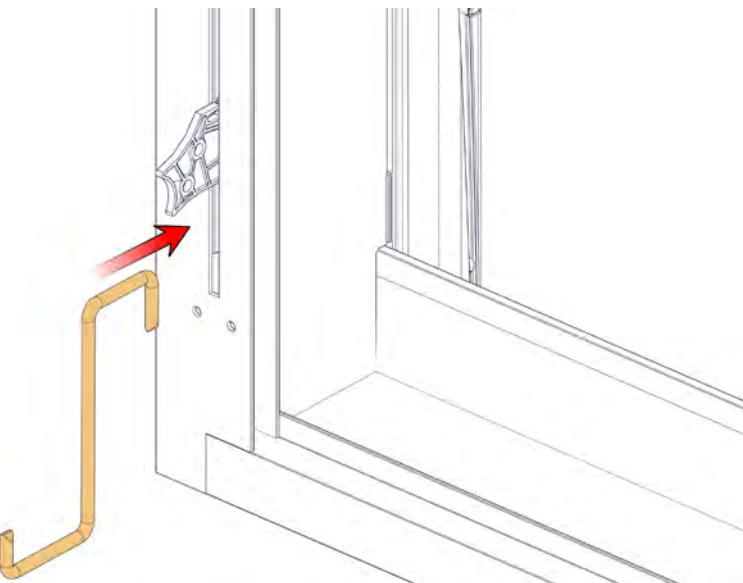


Fig. 23.4.2.3.2-1.3

Innoscreen Slide Handle Replacement - 23.4.2.3.2-1

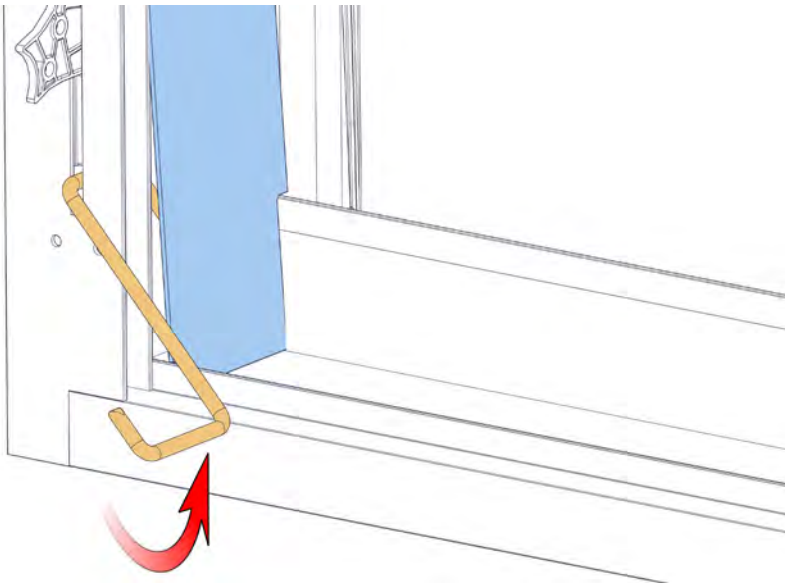


Fig. 23.4.2.3.2-1.4

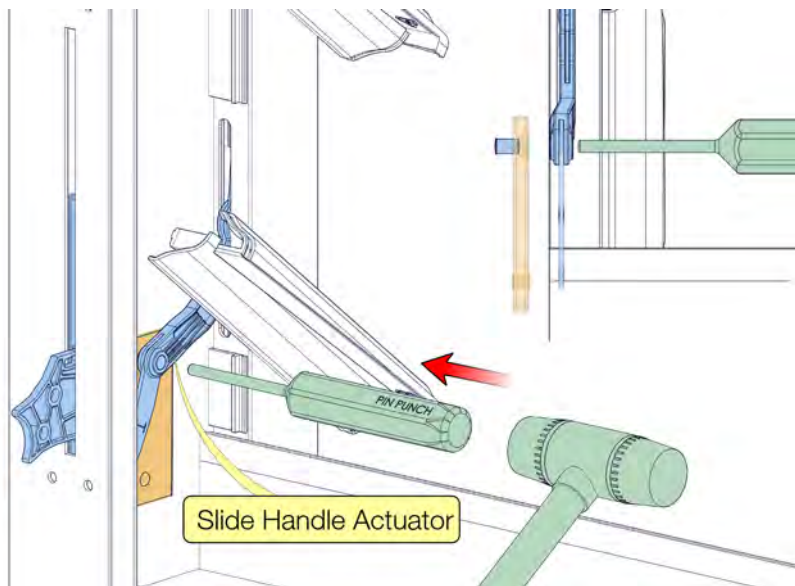


Fig. 23.4.2.3.2-1.5

Innoscreen Slide Handle Replacement - 23.4.2.3.2-1

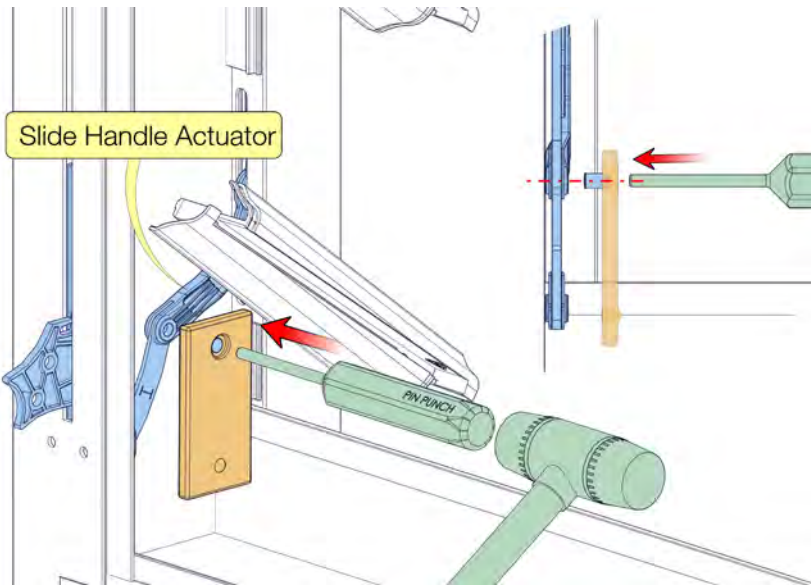


Fig. 23.4.2.3.2-1.6

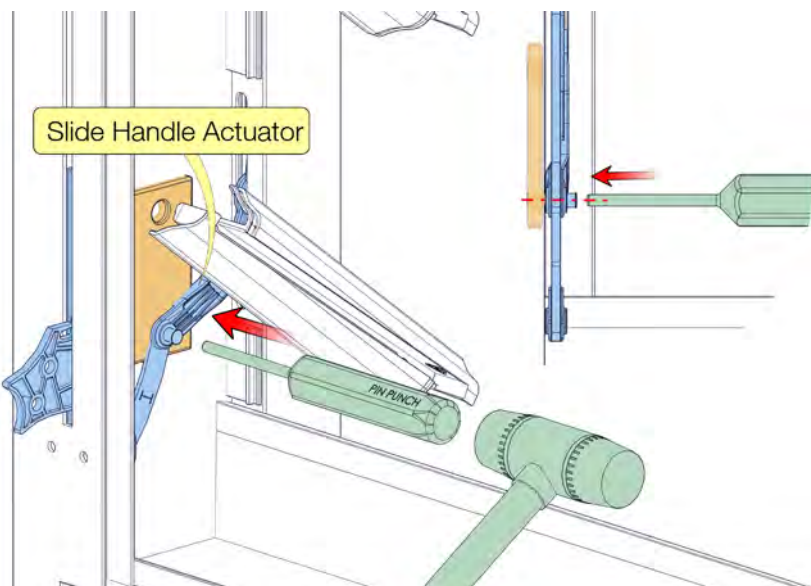


Fig. 23.4.2.3.2-1.7

Reassembly:

1. Pay attention to the actuator plastic pin assembly.
2. Line up the holes of the link and the actuator.
3. Align the plastic pin and the Slide Handle Pin Removal & Install Tool with the link and the actuator, then drive the pin partly in to the link and the actuator with a punch. *Refer to Figure 23.4.2.3.2-1.6.*
4. Insert the protruding pin of the Slide Handle Pin Removal & Install Tool into the hole of the actuator. This supports the actuator assembly and positions the pin correctly.
5. Use a punch to centralize the pin against the locating feature on the Slide Handle Pin Removal & Install Tool. *Refer to Figure 23.4.2.3.2-1.7.*
6. If possible, replace the seal carrier end caps and both sides of the handle. Apply super glue/silicone to adhere end caps to Jamb and adhere two halves of slide handle together.
7. Assemble both sides of the handle to the slide plate. Put the larger side of the handle to the slide plate first, then snap the smaller side onto the larger side by working around the circumference of the hole.
8. Attach the bottom seal carrier end cap.
9. Insert seal carriers behind the handle and locate onto the end cap pins.
10. Attach the top end cap to the seal carrier.
11. Engage top and bottom end cap snap fits into the provisions in the jamb.

SL2 Weatherstrip Insert Replacement - 23.4.2.4.1-1

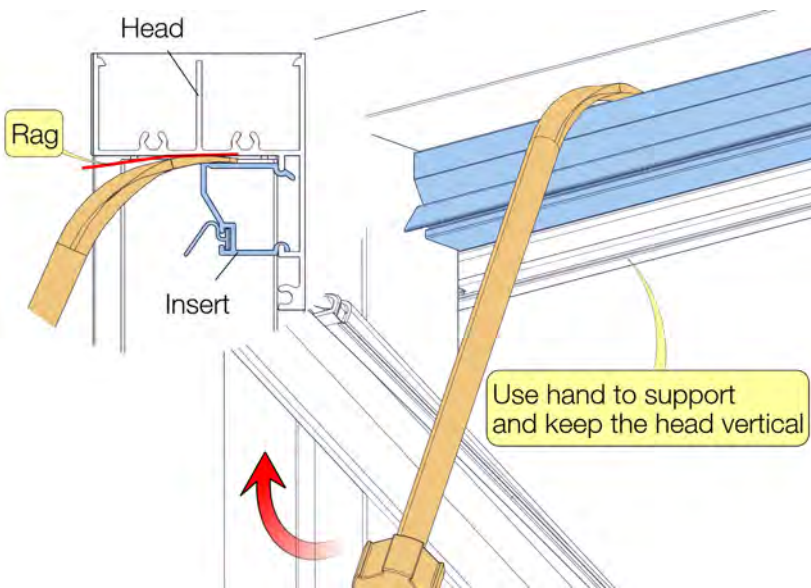


Fig. 23.4.2.4.1-1.1

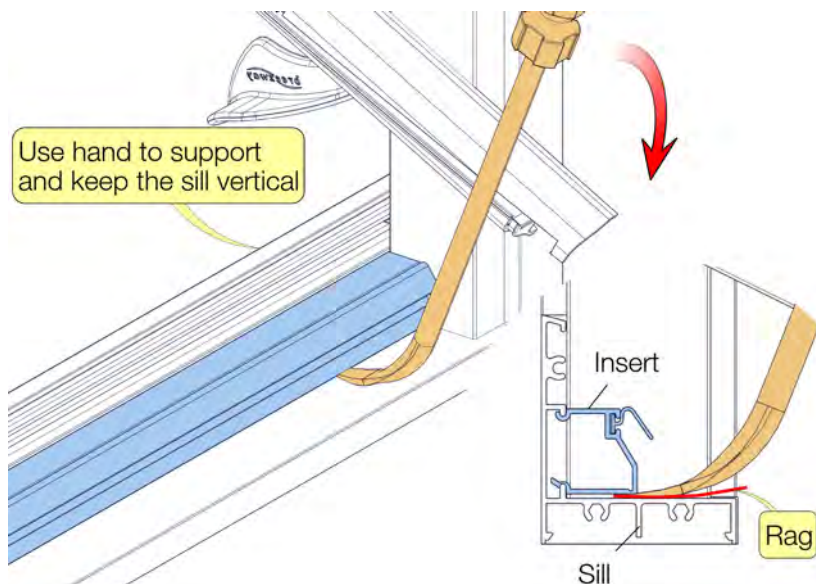


Fig. 23.4.2.4.1-1.2



SL2 Weatherstrip Head Insert

Removal:

1. Open the window and remove top two blades from the clips.
2. Insert the Hook-end Screwdriver into the gap between the head and the insert from the inside of the frame at either end of head. Put rag between the screwdriver and the painted surfaces. At same time use another hand to support and keep the head vertical to prevent deformation. *Refer to Figure 23.4.2.4.1-1.1.*
3. Carefully prise the insert from head until it is fully released.

Installation:

1. Confirm the orientation of the insert and start by locating the outer edge of the insert into the inside edge of the head.
2. Push upwards & outwards on the inside vertical face of the insert at one end to engage the snap fit.

SL2 Weatherstrip Sill Insert

Removal:

1. Open the window and remove the bottom blade from the clips.
2. Insert the Hook-end Screwdriver into the gap between the sill and the insert from outside of frame at either end of sill. Put a rag between the screwdriver and the painted surfaces. *Refer to Figure 23.3.2.4.1-1.2.*
3. Carefully prise the insert plate from sill until it is fully released.

Installation:

1. Confirm the orientation of the insert and start by locating the inner edge of the insert into the outside edge of the sill.
2. Push downwards and inwards on the outside vertical face of the insert at one end to engage the snap fit.

Dualair Weatherstrip Insert Replacement - 23.4.2.5.1-1

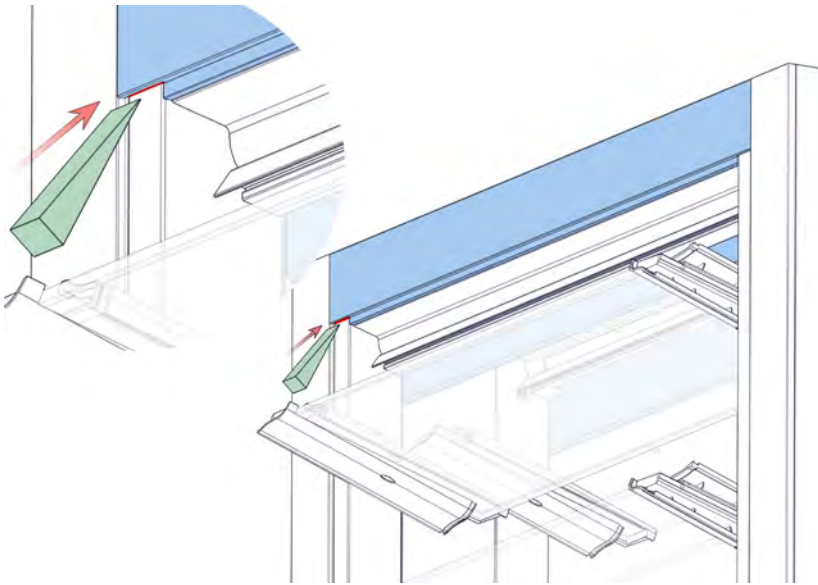


Fig. 23.4.2.5.1-1.1

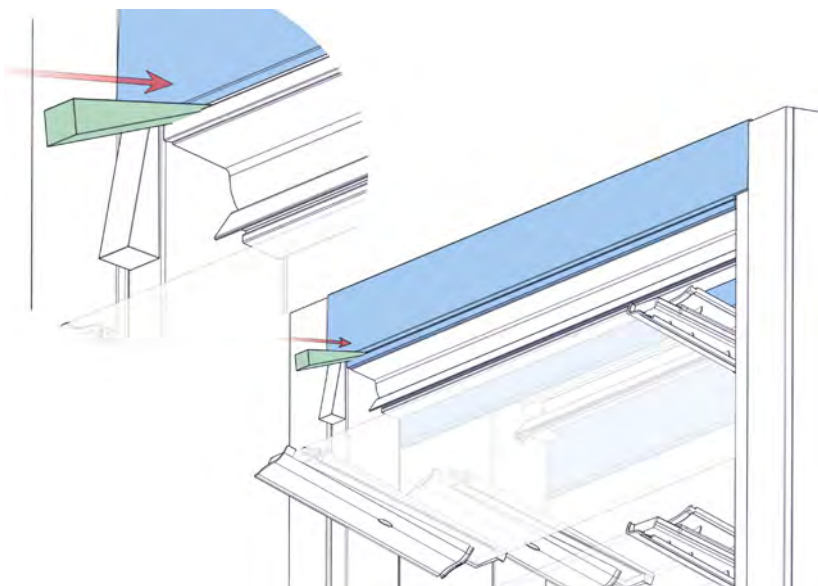


Fig. 23.4.2.5.1-1.2

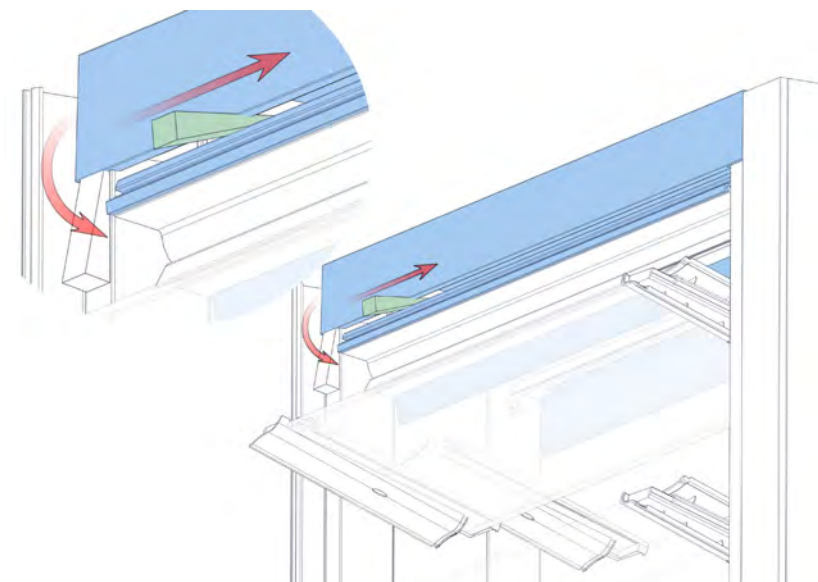


Fig. 23.4.2.5.1-1.3



Dualair Head Insert Plate with Weatherstrips

Removal:

1. Gently push a wedge (plastic wedge or similar) up between the Galleries and Head of frame from the inside of the frame. *Refer to Figure 23.4.2.5.1-1.1.*
2. Once head begins to pull away from gallery, place a second wedge into the gap formed between the head and the head insert plate. *Refer to Figure 23.4.2.5.1-1.2.*
3. Carefully prise the head insert plate from the head until the inside edge is fully released. Take care not to damage the paint. *Refer to Figure 23.4.2.5.1-1.3.*
4. Carefully pull the inside edge of the head insert plate downwards. The head insert plate is fixed along the outside snap fit with silicone, so some force may be required to release. *Refer to Figure 23.4.2.5.1-1.4.*

Installation:

1. Confirm the orientation of the head insert plate with the inserts and start by locating the outer edge of the head insert plate into the outer edge of the head.
2. Push upwards & inwards on the inside vertical face of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use soft face mallet to strike one end of the head insert plate to engage the snap fit with the head. *Refer to Figure 23.4.2.5.1-1.5.*

Dualair Weatherstrip Insert Replacement - 23.4.2.5.1-1

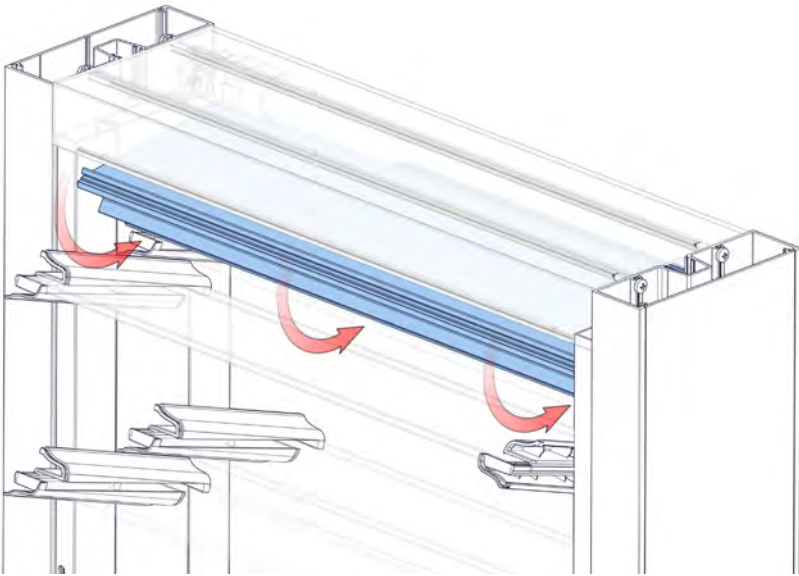


Fig. 23.4.2.5.1-1.4

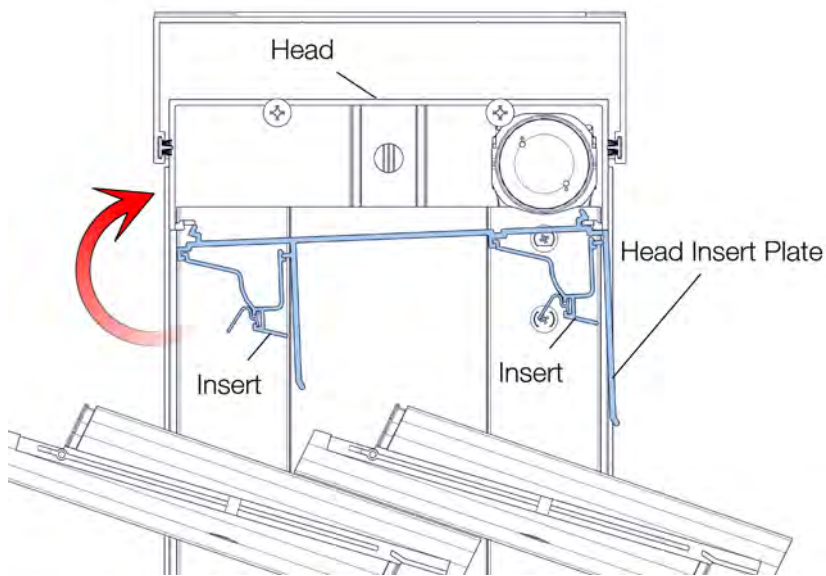


Fig. 23.4.2.5.1-1.5

Dualair Weatherstrip Insert Replacement - 23.4.2.5.1-1

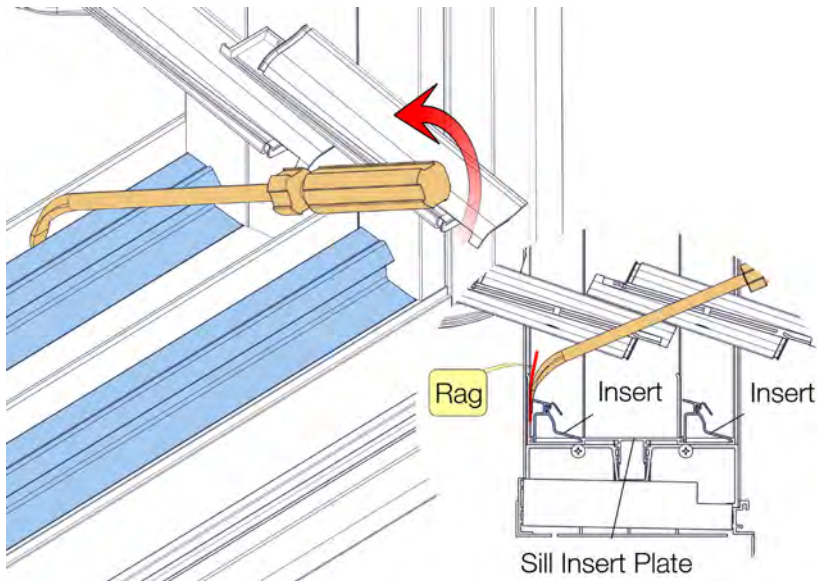


Fig. 23.4.2.5.1-1.6

Dualair Weatherstrip on Sill Insert Plate

Removal:

1. Open the window and remove the bottom two blades from clips.
2. Insert the Hook-end Screwdriver into the gap formed between the sill insert plate and the inserts from outside of frame at either end of the sill insert plate. Put a rag between the screwdriver and paint surfaces. *Refer to Figure 23.4.2.5.1-1.6.*
3. Carefully prise the insert from the sill insert plate until the insert is fully released.
4. Repeat Steps 1 - 3 to remove another insert.

Installation:

1. Confirm the orientation of the inserts and start by locating the outer edge of the insert into the outside edge of the sill insert plate.
2. Push downwards and inwards on the insert at one end to engage the snap fit.

Fixed Lite Sill Insert Replacement - 23.4.3.1-1

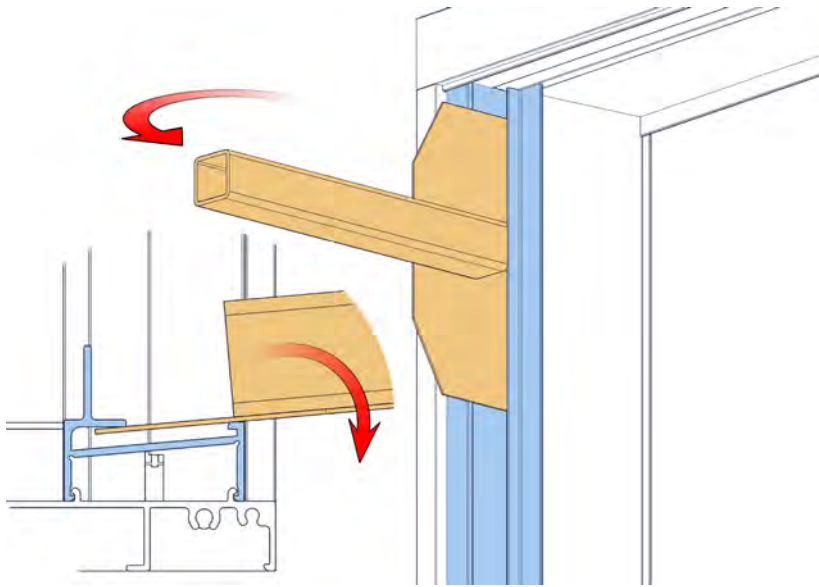


Fig. 23.4.3.1-1.1



Removal:

1. Remove the wedge seal.
2. Remove the fixed lite glass retainers.
3. Remove the fixed lite glass.
4. Remove the fixed lite jamb insert using the Fixed Lite Jamb Insert Removal Tool. Insert the tool and lever from one end, working along the profile until it unclips from the jamb. *Refer to Figure 23.4.3.1-1.1.*
5. Drill a $\varnothing 10-12\text{mm}$ hole in the centre of the top of the sill insert. *Refer to Figure 23.4.3.1-1.2.*
6. Using jig saw, cut along the length of the top of the sill insert, getting as close as possible to the Jamb. Using a shortened blade will help to avoid the end of the blade striking the top of sill. *Refer to Figure 23.4.3.1-1.2.*
7. Complete the remainder of the cut to jamb using a multi tool.
8. Remove the section of the sill insert to expose the rivets.
9. Using $\varnothing 4.0\text{mm}$ drill bit, drill out the 4mm pop rivets (if difficult, drill a series of $\varnothing 4.0\text{mm}$ holes around circumference of rivet. Care needs to be taken to avoid drilling through the sill).
10. Punch down the rivets or cut the protruding rivet to sit flush with the sill.
11. Use multi tool to cut the fixed lite sill insert in two and remove. Take care not to damage the sill. *Refer to Figure 23.4.3.1-1.3.*

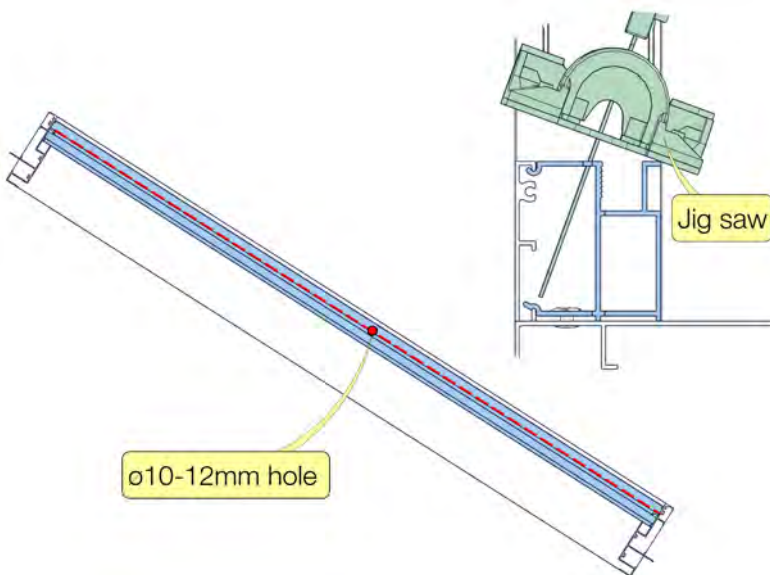


Fig. 23.4.3.1-1.2

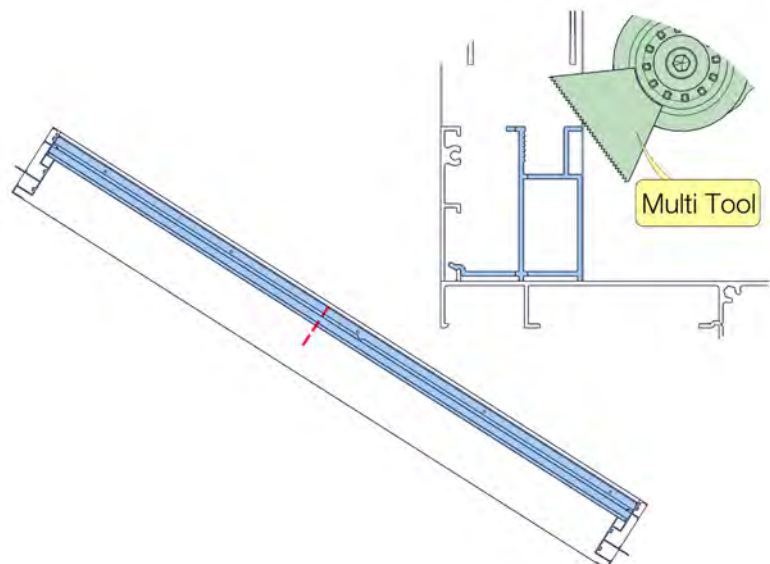


Fig. 23.4.3.1-1.3

Fixed Lite Sill Insert Replacement - 23.4.3.1-1

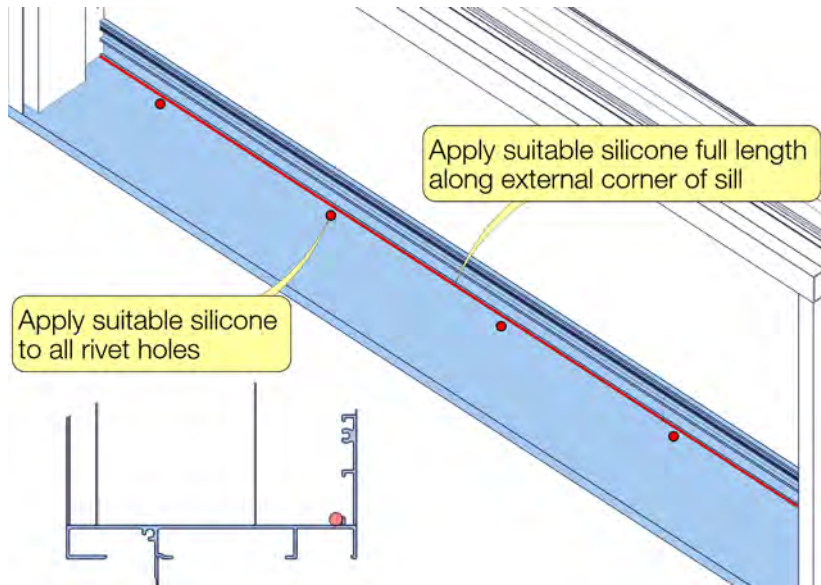


Fig. 23.4.3.1-1.4

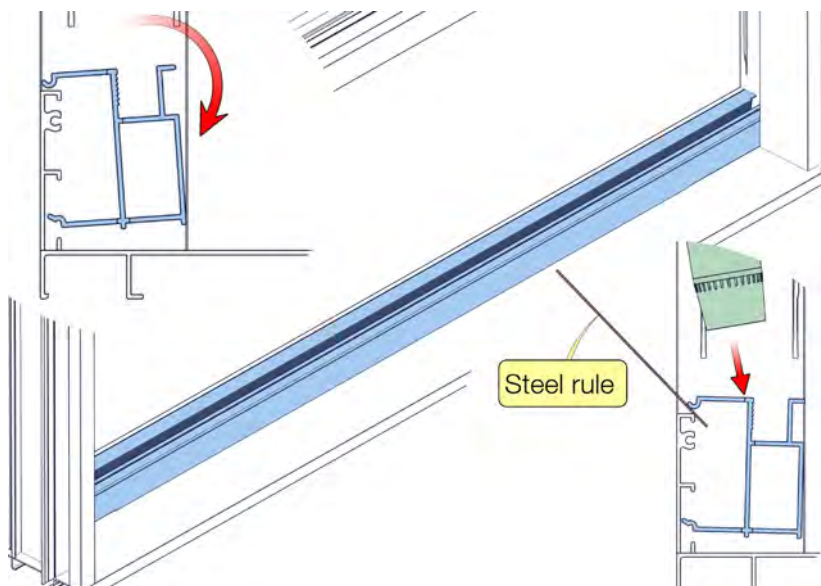


Fig. 23.4.3.1-1.5

Installation:

1. Ensure a minimum of 1.0mm clearance at both ends of the sill insert to the jambs.
2. Apply suitable silicone to all $\varnothing 4.0\text{mm}$ rivet holes.
3. Run a bead of suitable silicone full length along the external corner of the sill. Avoid excess sealant which may compress out and block drain cut outs in the sill insert. *Refer to Figure 23.4.3.1-1.4.*
4. Fit the sill insert.
 - Manoeuvre the fixed lite sill insert past ribs on sill.
 - At one end of the fixed lite sill insert, use 0.5mm thick steel rule to guide the edges over one another.
 - Use soft face mallet to strike above the vertical web of the sill insert to spring it into place. *Refer to Figure 23.4.3.1-1.5.*

Powerlouvre Tri Gear Motor Replacement - 23.4.4.1-1

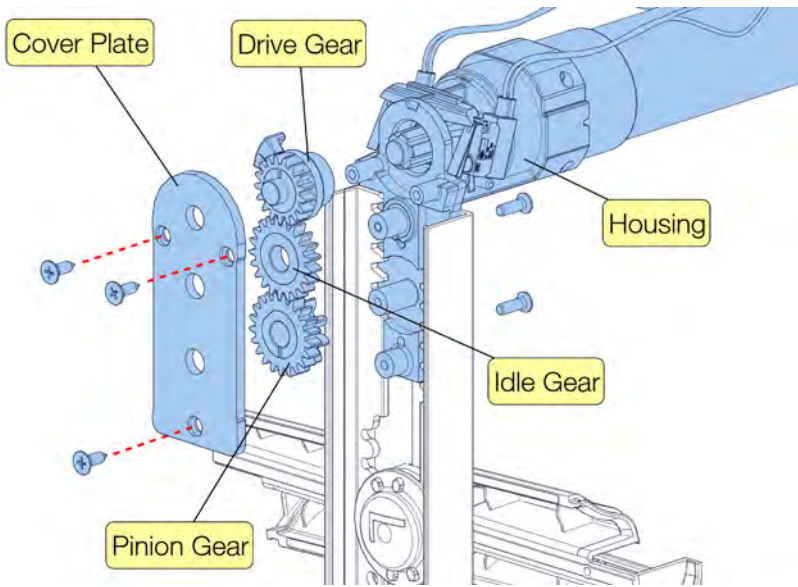


Fig. 23.4.4.1-1.1



Removal:

1. Remove all blades from clips and access the head insert. If the Powerlouvre motor has stopped in the closed position, refer to **Section 23.4.4.2-1** for blade removal.
2. Remove the head insert (refer to **Section 23.4.2**).
3. Remove the PCB from the Head (refer to **Section 23.4.4.4-1**).
4. Remove the sill weatherstrip insert from the sill (refer to **Section 23.4.2**).
5. Remove the gallery with motor (refer to **Section 23.4.1.1-1**).
6. Unscrew 3 screws from the cover plate of the motor.
7. Take off the drive gear, idle gear and the pinion gear.
8. Unscrew the countersunk heads screw from the motor.
9. Remove the motor assembly from Op bars and channel. *Refer to Figure 23.4.4.1-1.1.*

Powerlouvre Tri Gear Motor Replacement - 23.4.4.1-1

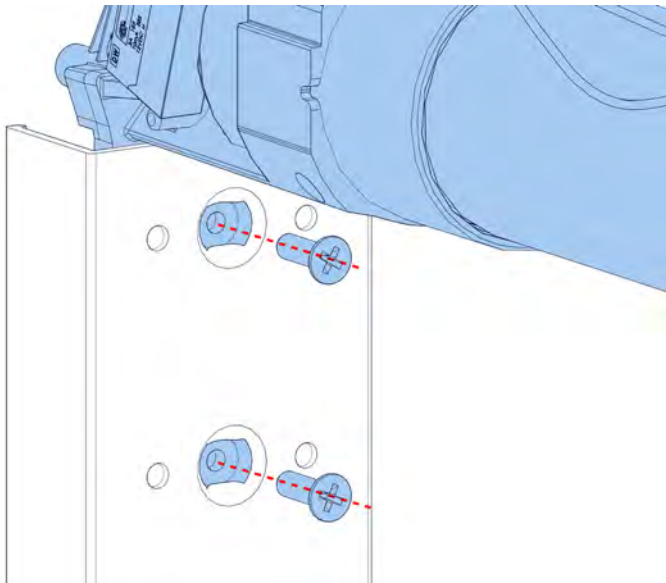


Fig. 23.4.4.1-1.2

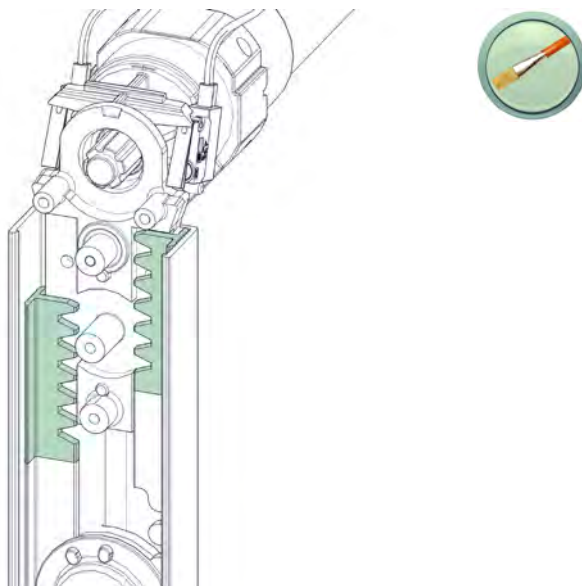


Fig. 23.4.4.1-1.3

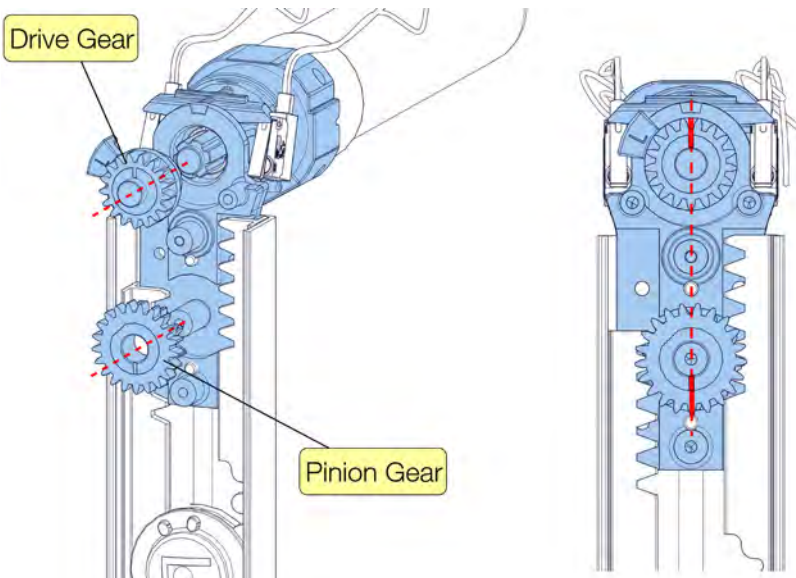


Fig. 23.4.4.1-1.4

Installation:

1. Slip the new motor housing assembly between Op bars & channel, lining up the four location dimples on the channel to the four holes on the housing. Ensuring the housing is properly aligned on the four dimples, screw the housing to the channel from the clip side using two $\varnothing 3.30 \times 7\text{mm}$, 304 S/S No.1 Phillips's drive countersunk heads screws. *Refer to Figure 23.4.4.1-1.2.*
2. Bring the clips firmly closed & apply a film of grease to the Tri Gear Op bar teeth. *Refer to Figure 23.4.4.1-1.3.*
3. For 102 & 152, LHS Standard & Extensions
 - Drop in the pinion gear first, with the finer teeth facing up & the wider teeth towards the op bars. Ensure the index mark on the gear is facing straight down (6 o'clock) and drop gear into place.
 - Place the drive gear firmly into place, with index mark pointing roughly upwards. Once in place, connect to power and drive the motor around so that the index mark is pointing directly up (towards 12 o'clock). Don't rotate drive gear to fully open or closed position without the cover plate in position, otherwise damage may occur. *Refer to Figure 23.4.4.1-1.4.*
4. For 102 & 152, RHS Standard & Extensions
 - Drop in the pinion gear first, with the finer teeth facing up & the wider teeth towards the op bars. Ensure the index mark on the gear is facing straight down (7 o'clock) and drop gear into place.
 - Place the drive gear firmly into place, with index mark pointing roughly upwards. Once in place, connect to power and drive the motor around so that the index mark is pointing directly up (towards 12 o'clock). Don't rotate drive gear to fully open or closed position without the cover plate in position, otherwise damage may occur. *Refer to Figure 23.4.4.1-1.5.*
5. The idle gear should drop into place. If not, refer to Steps 3 - 4, ensuring the drive Gear and the bottom gear are in correct positions. *Refer to Figure 23.4.4.1-1.6.*
6. Apply a film of grease to the teeth of the gears. *Refer to Figure 23.4.4.1-1.7.*
7. Ensuring the countersunk side is face up, place the cover plate into position, lining up to the shafts of the housing. *Refer to Figure 23.4.4.1-1.8.*

Powerlouvre Tri Gear Motor Replacement - 23.4.4.1-1

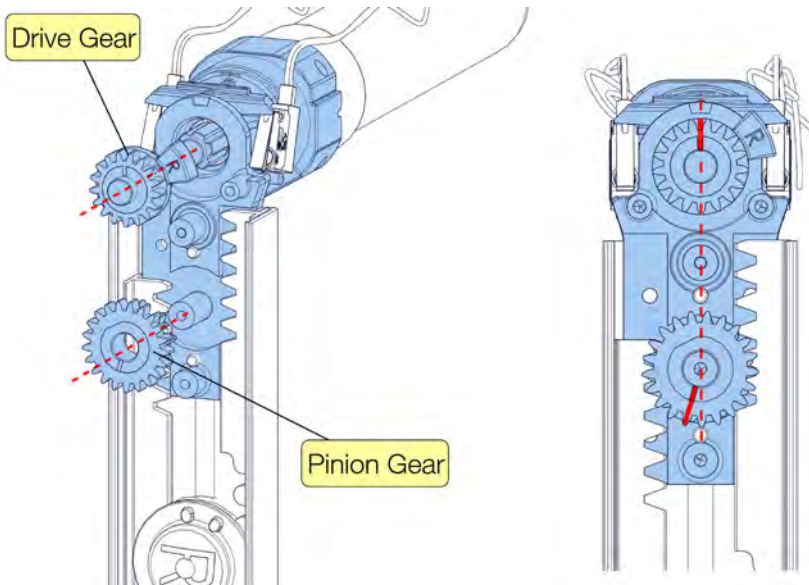


Fig. 23.4.4.1-1.5

8. Insert 3 screws, $\varnothing 2.80 \times 12\text{mm}$, 304 S/S No.1 Phillips's drive countersunk heads, through cover plate, starting with the bottom screw. *Refer to Figure 23.4.4.1-1.9.*
9. Install the gallery with motor onto frame.
10. Connect the power cable to PCB plug with connector and attach the motor cables to the PCB board (refer to Section 23.4.4.4-1).
11. Connect the power cable to a 24V DC power supply. Cycle the window open and closed to confirm the wiring has been installed correctly.

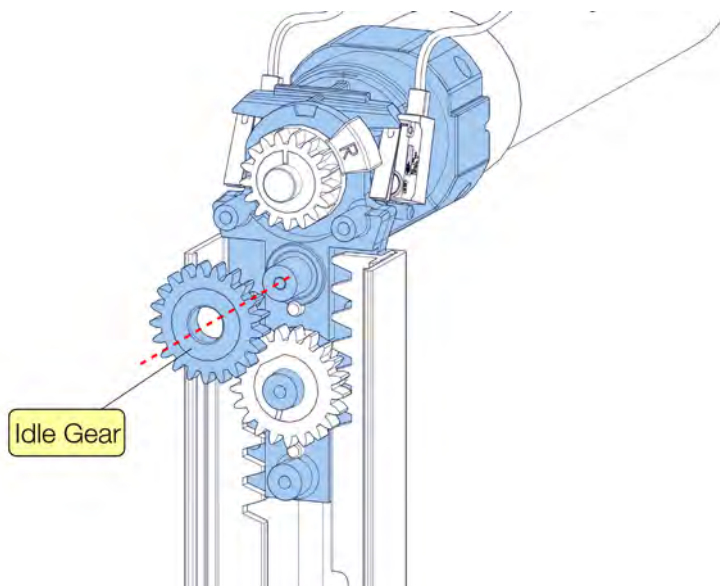


Fig. 23.4.4.1-1.6

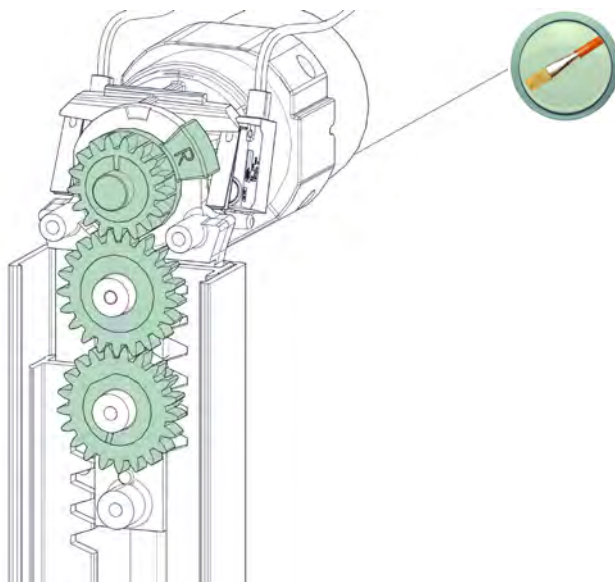


Fig. 23.4.4.1-1.7

Powerlouvre Tri Gear Motor Replacement - 23.4.4.1-1

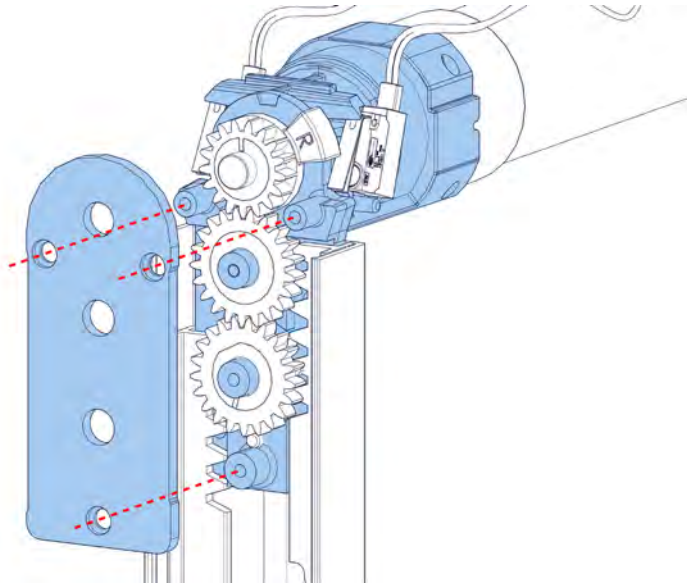


Fig. 23.4.4.1-1.8

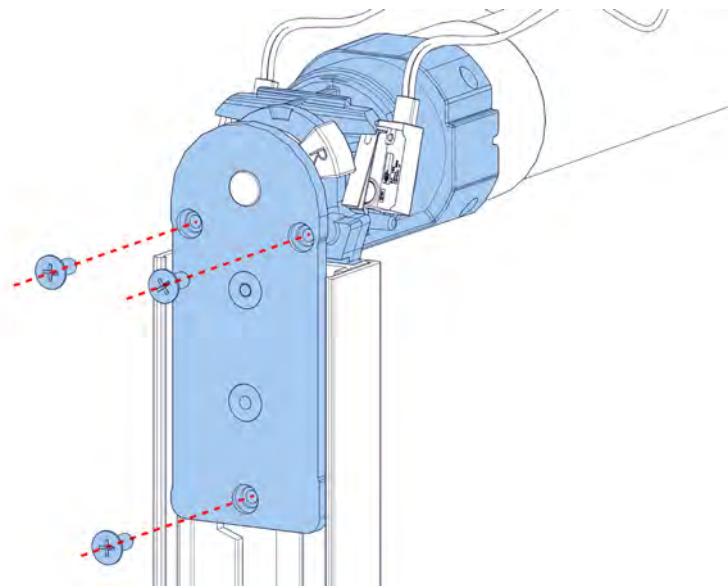
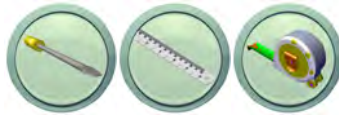


Fig. 23.4.4.1-1.9

Blade Removal for Power Window Stopped in Closed Position - 23.4.4.2-1



Remove the top two blades to access the head insert:

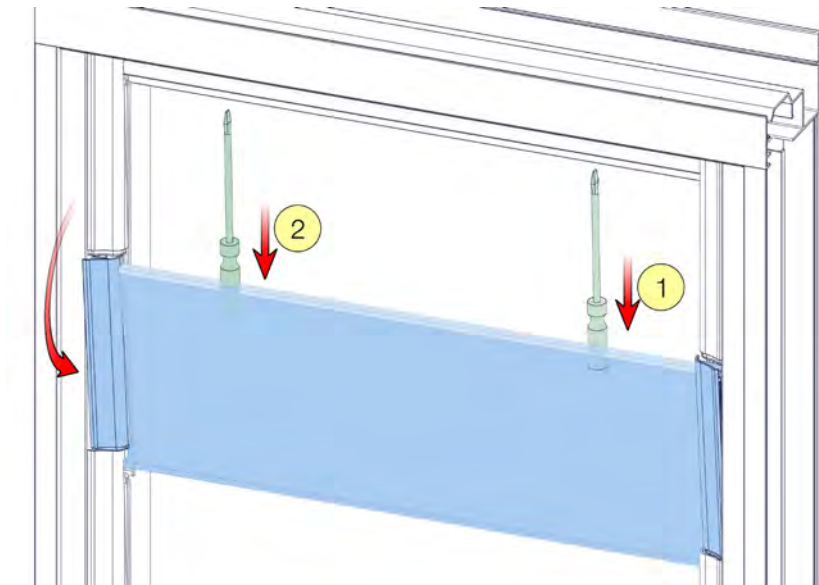


Fig. 23.4.4.2-1.1

1. From the inside of the window, start from the right side of the second blade. Pry the blade inward by hand and put the flat screwdriver handle into the gap. Using the same method, put another screwdriver handle on the operational side. Take care not to damage the blades. *Refer to Figure 23.4.4.2-1.1.*
2. Insert the 0.5mm thick steel rule between the top blade retention feature of clip and the blade on the right side. Slide the blade up approximately 10mm so the retention feature does not reengage and remove the rule. *Refer to Figure 23.4.4.2-1.2.*
3. Repeat Step 2 to slide the blade up on the other side.
4. Use both hands to remove the blade from the clips. Slide the blade evenly until the glass is clear of the clip. *Refer to Figure 23.4.4.2-1.3.*
5. To remove the top blade, insert the steel rule between the blade and the retention feature at the bottom of the clip on the right side. Slide the blade down approximately 10mm so the retention feature does not reengage and remove the rule. Repeat the step to move down the blade on the other side. *Refer to Figure 23.4.4.2-1.4.*
6. To prevent scratches on the clip, place the 0.5mm thick steel rule vertical between the leading edge of the blade and outer face of the No. 2 Clip. Holding the blade with both hands, slide down and pull out of the window evenly until the glass is free from the clips. *Refer to Figure 23.4.4.2-1.5.*

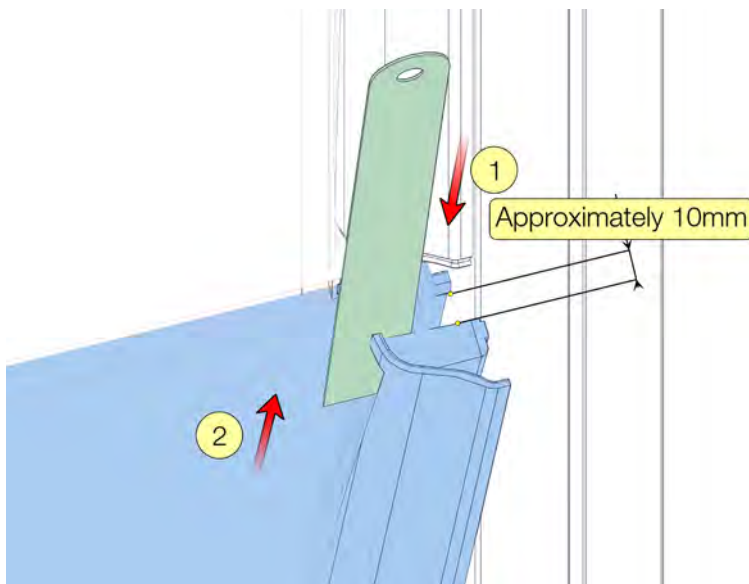


Fig. 23.4.4.2-1.2

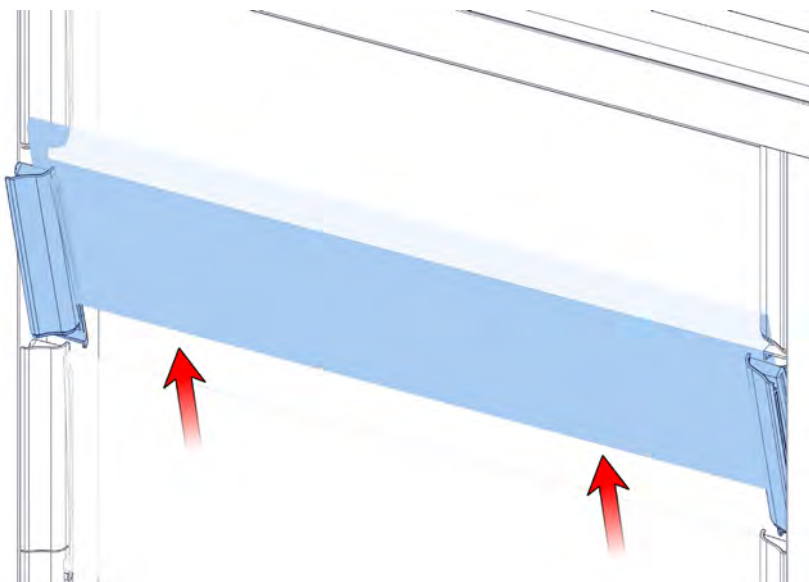


Fig. 23.4.4.2-1.3

Blade Removal for Power Window Stopped in Closed Position - 23.4.4.2-1

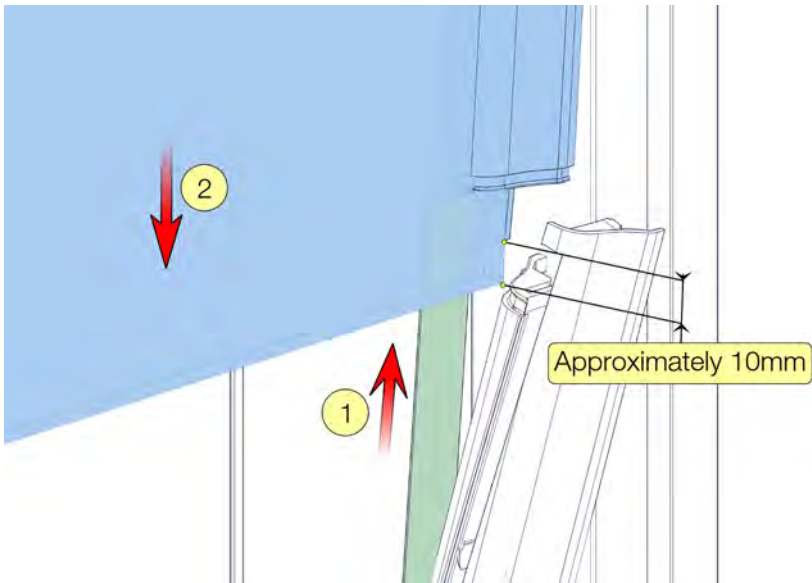


Fig. 23.4.4.2-1.4

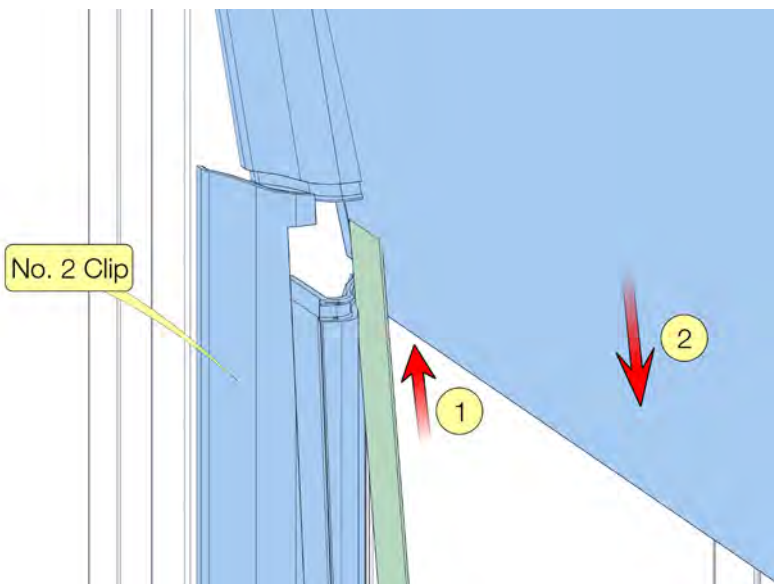


Fig. 23.4.4.2-1.5

Wiring New PCBs onto Old Motor - 23.4.4.3-1



Fig. 23.4.4.3-1.1



This document is to assist sales and service teams to correctly convert the linkage arm Powerlouvre motors to run using the newer PCB3. *Refer to Figure 23.4.4.3-1.1.*

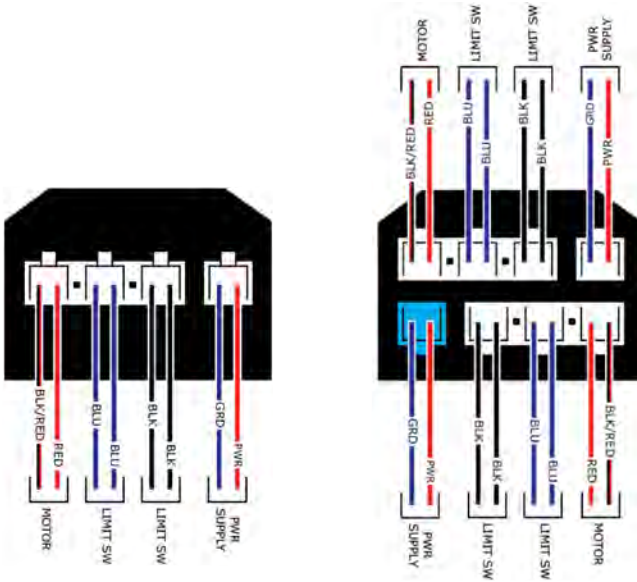


Fig. 23.4.4.3-1.2

- Remove the retaining clips from PCB box.
- Double sided tape is required for PCB replacement.
- 4 x 2 pin PCB plugs are required.

1. Cut the wires close to the PCB to keep the wires coming from the motor and limit switches as long as possible.
2. Remove the shielding from the wires approximately 10mm from the cut end, twist and solder the connector harness to the motor harness. Make sure they are soldered to the correct connector pins. The limit switches have no polarity, but the motor and transformer must be wired as below for either a single or double PCB. *Refer to Figure 23.4.4.3-1.2.*

IMPORTANT:

Heat shrink or insulate the exposed wiring before connecting power to ensure no short circuits.

Check there is a spare pin that separates each connector. *Refer to Figure 23.4.4.3-1.2.*

Powerlouvre PCB Replacement - 23.4.4.4-1

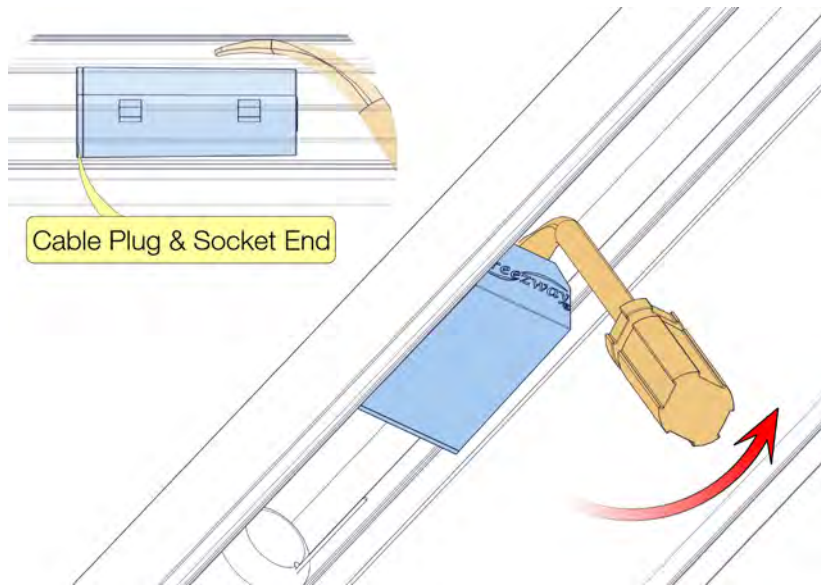


Fig. 23.4.4.4-1.1



Removal:

1. Remove the top blades from clips to access to the head insert. If the Powerlouvre motor has stopped in the closed position, refer to **Section 23.4.4.2-1** for blade removal.
2. Remove the head insert (refer to **Section 23.4.2**).
3. Lever the PCB out of the head from the opposite end to cable plug & socket end using the Hook-end Screwdriver. *Refer to Figure 23.4.4.4-1.1.*
4. Disconnect the PCB plugs from PCB board.

Powerlouvre PCB Replacement - 23.4.4.4-1

Installation:

1. Attach the PCB plugs to the PCB board.
 - For PCB2 – 3P wiring, ensure there is a spare pin separating each plug from the motor before supplying power. *Refer to Figure 23.4.4.4-1.2.*
 - For PCB3 – 3P wiring, ensure there is a spare pin separating each plug from the motor before supplying power. *Refer to Figure 23.4.4.4-1.3.*
 - For PCB3 – 1P wiring, ensure that Left motor must use the Power Supply Harness with a white connector. Right motor must use the Power Supply Harness with a blue connector. *Refer to Figure 23.4.4.4-1.4.*
2. Snap the PCB onto the head.
3. Tie the wires and connectors with cable tie and layout them into the space in the head section that runs alongside the motor.
4. Connect the power cable to a 24V DC power supply. Cycle the window open and closed to confirm the wiring has been installed correctly.
5. Snap in the head insert with weatherstrip seal or Off-std head insert (if applicable) onto the head. Note: Extra care should be taken to ensure that the cables are not pinched between weatherstrip snap in joints.

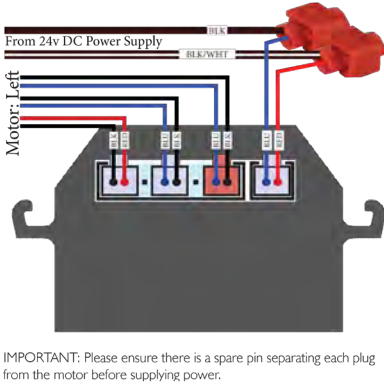


Fig. 23.4.4.4-1.2

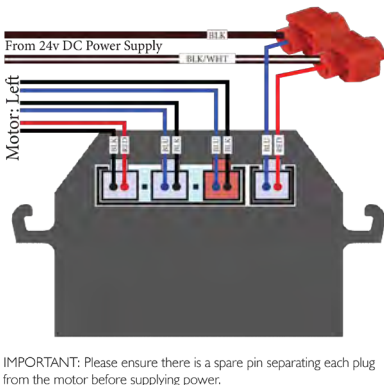
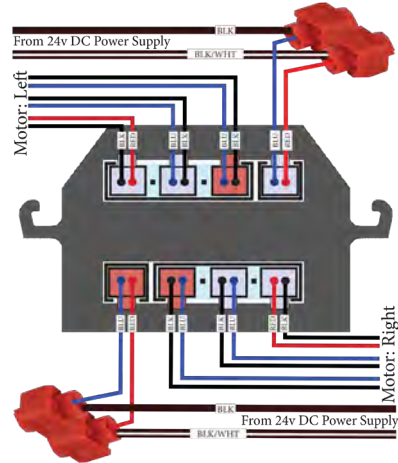


Fig. 23.4.4.4-1.3

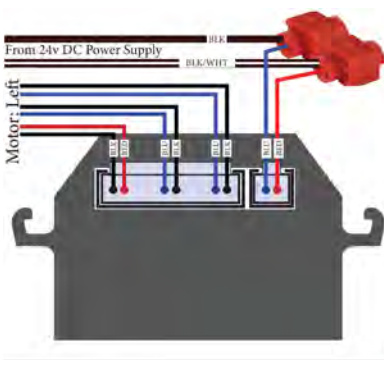
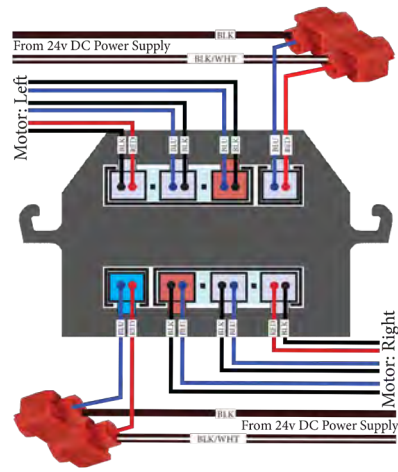
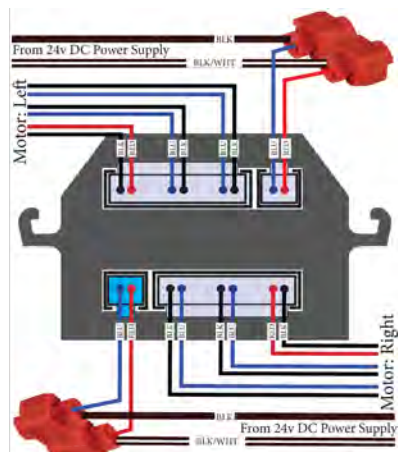


Fig. 23.4.4.4-1.4



Powerlouvre Apptivate Control Unit Replacement - 23.4.4.5-1

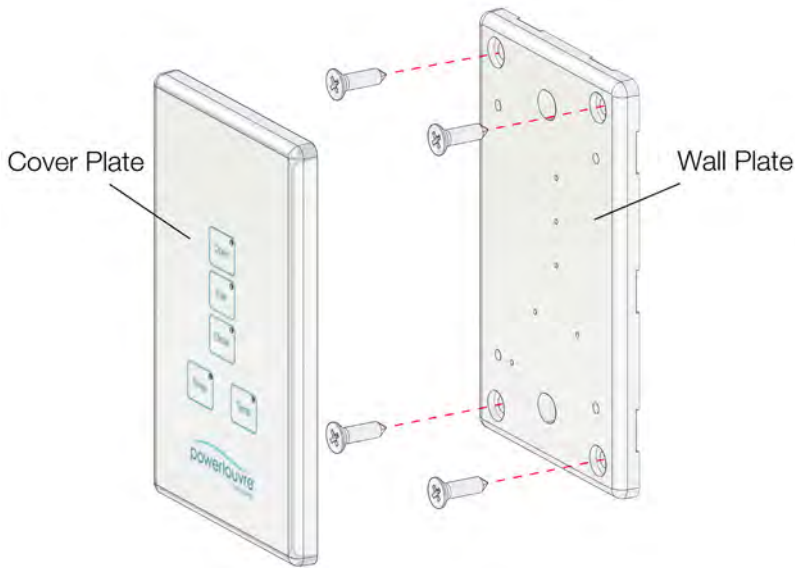


Fig. 23.4.4.5-1.1

Removal:

1. After turning the power off, remove the cover plate using the Hook-end Screwdriver. Put a rag under the screwdriver to prevent wall damage.
2. Remove screws holding wall plate to the wall. *Refer to Figure 23.4.4.5-1.1.*
3. Pull the ACU out of the wall so you can access the wires at the back.
4. Take note of which wires are connected to which terminal, then remove the wires from ACU.

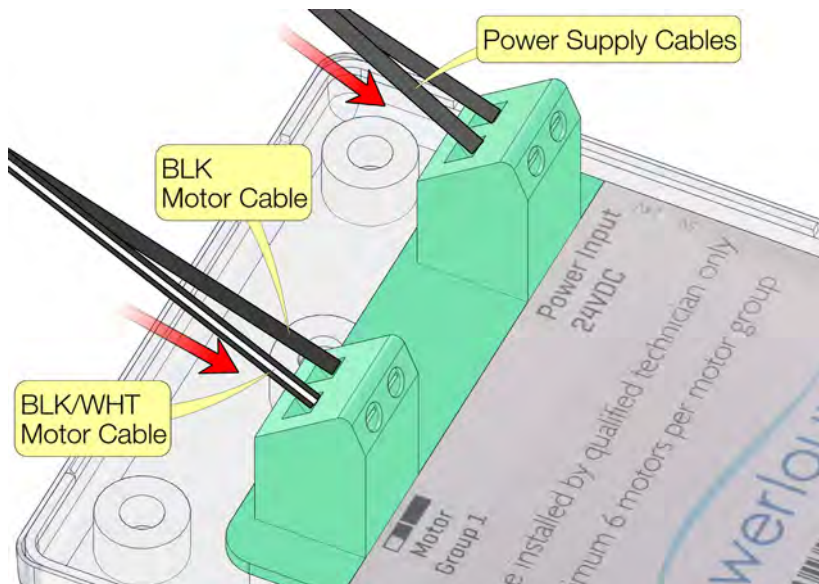


Fig. 23.4.4.5-1.2

Installation:

1. Remove the cover plate from new ACU.
2. Connect the power cables to the power input slots on ACU.
3. Connect the motor cables to the motor group slots. Ensure the BLK/WHT cable and BLK cable get into correct slot following the label on ACU. *Refer to Figure 23.4.4.5-1.2.*
4. Put the ACU into wall and fix the wall plate to wall with screws.
5. Put back the cover plate onto ACU.

Stronghold Pin Removal - 23.4.5.1-1



Removal:

1. From inside face of blade, insert the Paint Scraper into the gap between the clip and the blade, aligning the slot of Paint Scraper with the stronghold pin. *Refer to Figure 23.4.5.1-1.1.* Put a rag under the paint scraper to prevent scratches on the blade if the blades are coated.
2. Lever the clip away from the blade to unclip the stronghold pin from clip. *Refer to Figure 23.4.5.1-1.2.*
3. If it is difficult to unclip the pin, use the same Steps 1 - 2 from outer face of the blade.
4. Using a bladed knife between Stronghold Pin and clip, prise under the head of stronghold pin to take out the pin from clip. Take care not to damage the clip. *Refer to Figure 23.4.5.1-1.3.*

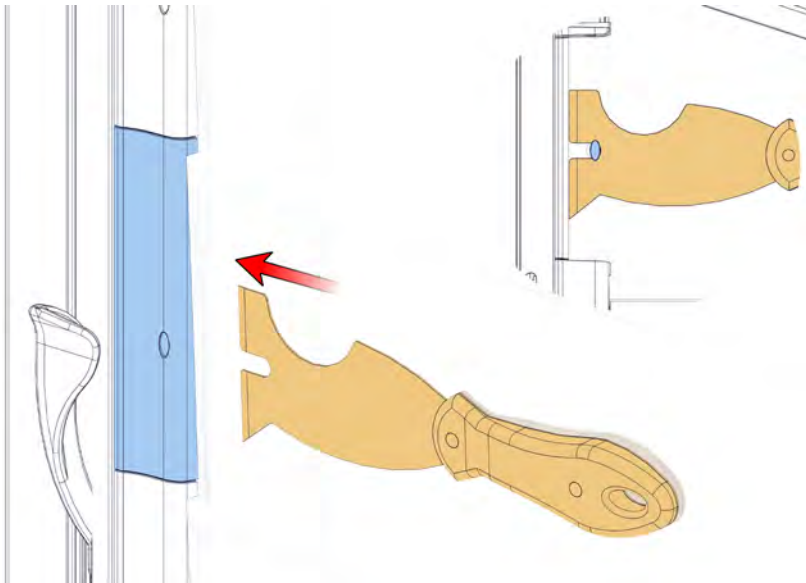


Fig. 23.4.5.1-1.1

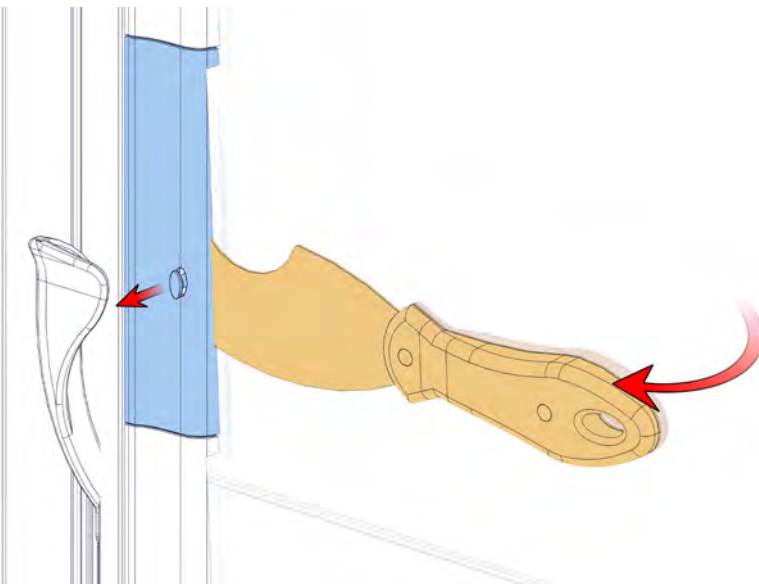


Fig. 23.4.5.1-1.2

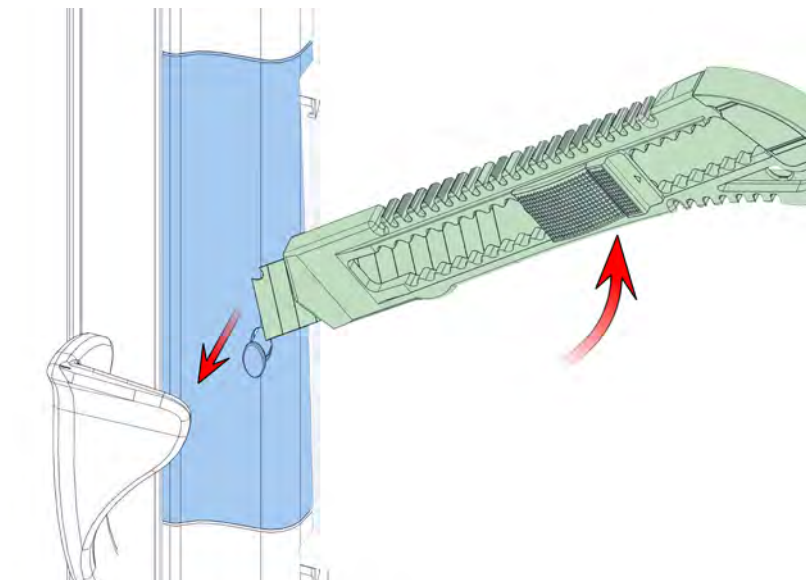


Fig. 23.4.5.1-1.3

IGLU Weatherstrip Insert Replacement - 23.4.6.1-1



Manual Component Form with IGLU Head Insert Component

Removal:

1. Open the window and remove the top two blades from the clips (refer to Section 23.4.6.2-1 for removing IGLU blades).
2. Removal of the seal from head insert: Using the Hook-end Screwdriver, pry one side of the IGLU seal up until it unclips from the retention feature on the insert. Then, continue removing the seal by hand until it is fully removed from the insert. *Refer to Figure 23.4.6.1-1.1.*
3. Insert the Hook-end Screwdriver into the gap between the weatherbar and the head insert from the inside of the frame at either end of weatherbar. Put a rag between the screwdriver and the paint surfaces. At the same time, use another hand to support and keep the weatherbar vertical to prevent deformation. *Refer to Figure 23.4.6.1-1.2.*
4. Carefully prise the insert from weatherbar until the insert is fully released.

Installation:

1. Ensure the orientation of the insert and locate the inside edge of the insert into the weatherbar, then use soft face mallet to engage the rear of the insert snap fit into the weatherbar.
2. Confirm the orientation of the seal, align the retention groove with the insert. Start from one jamb and engage the snap fit of the seal until it's fully engaged. *Refer to Figure 23.4.6.1-1.3.*

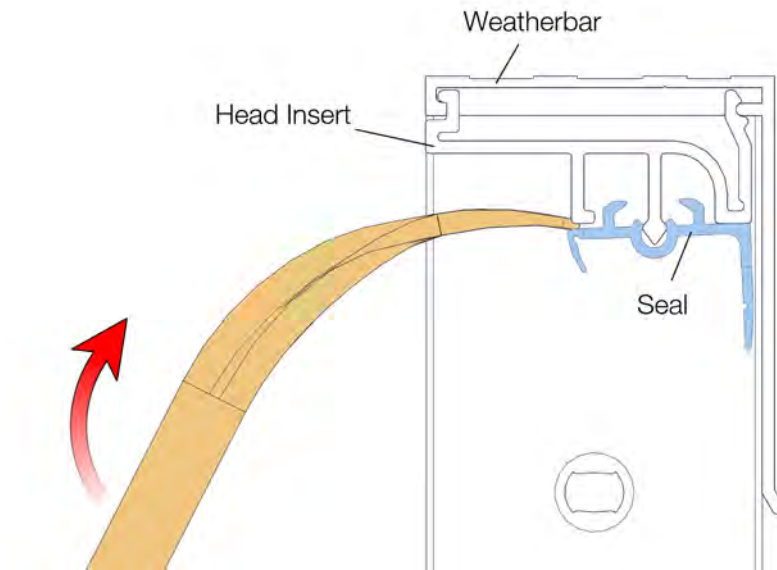


Fig. 23.4.6.1-1.1

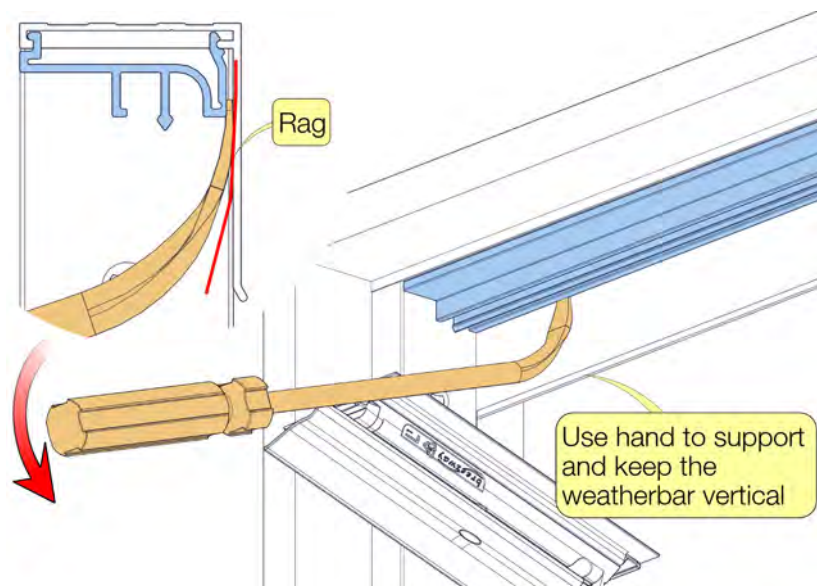


Fig. 23.4.6.1-1.2

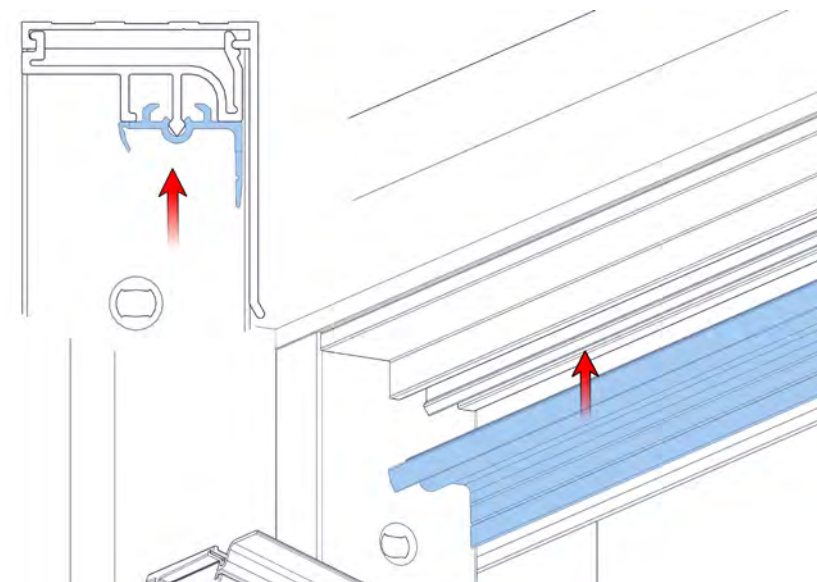


Fig. 23.4.6.1-1.3

IGLU Weatherstrip Insert Replacement - 23.4.6.1-1

Powerlouvre Component Form with IGLU Head Insert Easy CPL

Removal:

1. Open the window and remove the top two blades from the clips.
2. Remove the seal from head insert: Using the Hook-end Screwdriver, pry one side of the IGLU seal up until it unclips from the retention feature on the insert. Then, continue removing the seal by hand until it is fully removed from the insert. *Refer to Figure 23.4.6.1-1.4.*
3. Insert the Hook-end Screwdriver into the gap between the head and the head insert from the inside of the frame at either end of the head. Put a rag between the screwdriver and the paint surfaces. Extra care should be taken to ensure that the weatherstrip seal is not damaged by screwdriver. *Refer to Figure 23.4.6.1-1.5.*
4. Carefully prise the insert from weatherbar until the insert is fully released.

Installation:

1. Ensure the orientation of the insert and locate the inside edge of the insert into the head, Push upwards & outwards on the bottom of the insert at one end by hand first. If this method of engaging the snap fit proves difficult, use soft face mallet to engage the rear of the insert snap fit into the head. If this method of engaging the snap fit proves difficult, use flat screwdriver on the lip of the top edge of the outside vertical face and push upwards & inwards. Extra care should be taken to ensure that the weatherstrip seal is not damaged by screwdriver. *Refer to Figure 23.4.6.1-1.6.*
2. Confirm the orientation of the seal, align the retention groove with the insert. Start from one jamb and engage the snap fit of the seal until it's fully engaged. *Refer to Figure 23.4.6.1-1.7.*

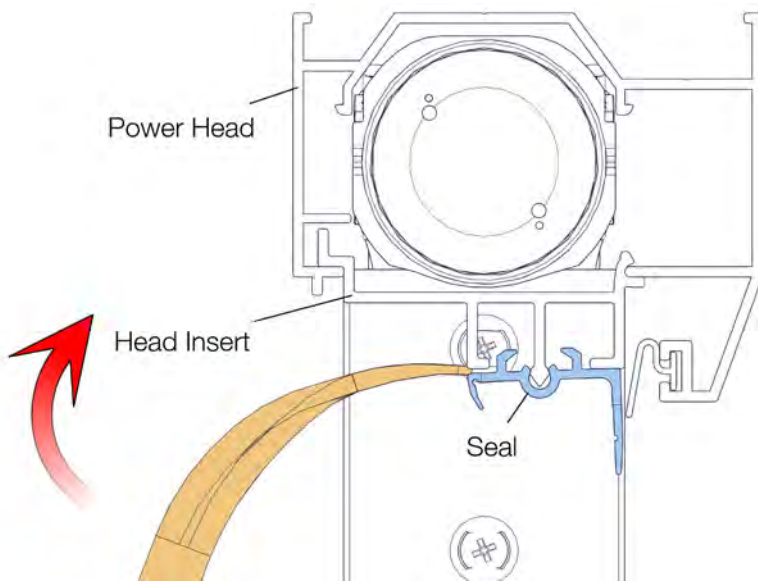


Fig. 23.4.6.1-1.4

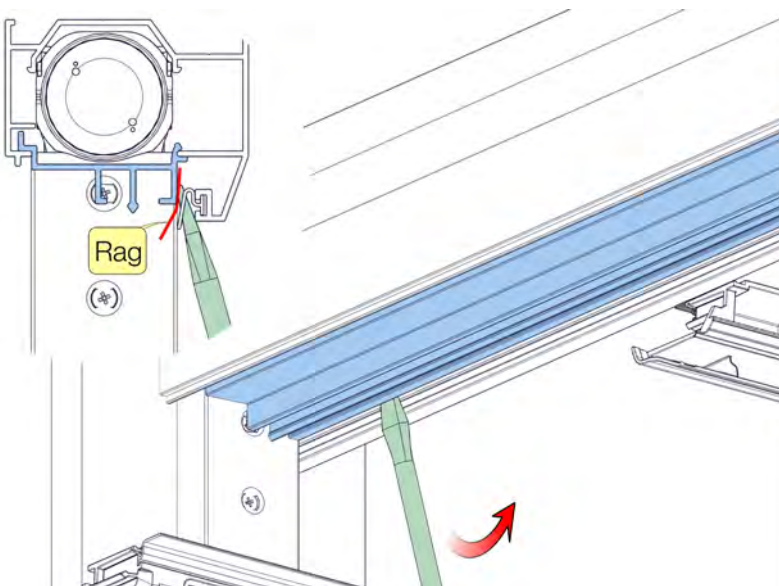


Fig. 23.4.6.1-1.5

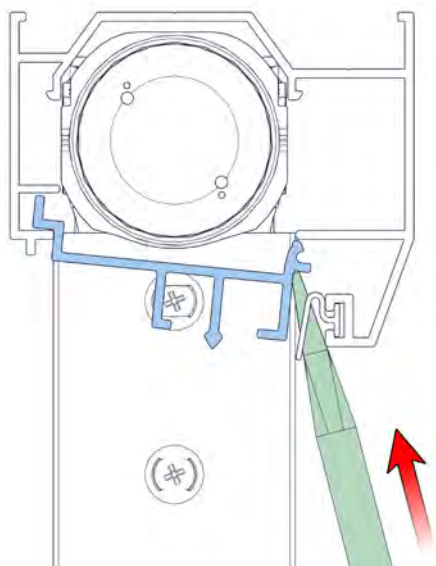


Fig. 23.4.6.1-1.6

IGLU Weatherstrip Insert Replacement - 23.4.6.1-1

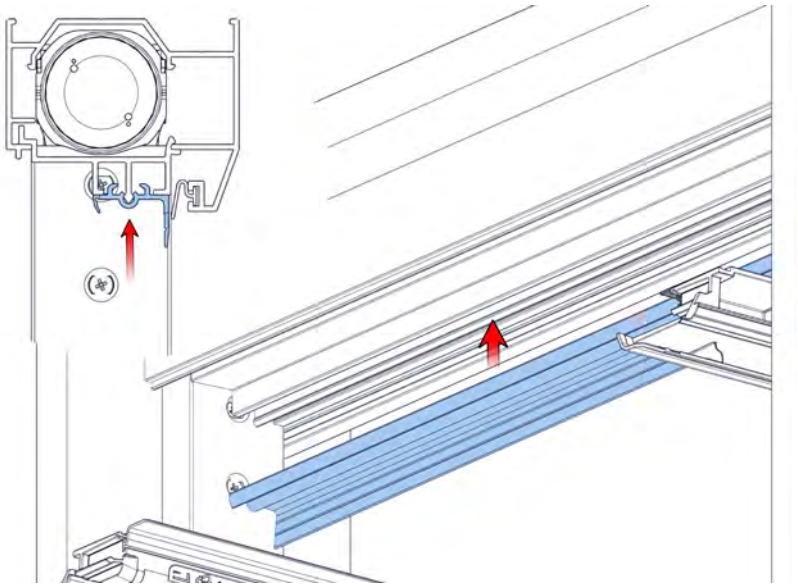


Fig. 23.4.6.1-1.7

IGLU Weatherstrip Insert Replacement - 23.4.6.1-1

Component Form with IGLU Sill Insert Component CPL

Removal:

1. Open the window and remove two bottom blades from clips.
2. Remove the seal from sill insert: Using the Hook-end Screwdriver, pry one side of the IGLU seal up until it unclips from the retention feature on the insert. Then, continue removing the seal by hand until it is fully removed from the insert. *Refer to Figure 23.4.6.1-1.8.*
3. Insert the Hook-end Screwdriver into the gap formed between the weatherbar and the insert from outside of frame at either end of the weatherbar. Put a piece of rag between the screwdriver and the paint surfaces. At same time use another hand to support and keep the weatherbar vertically. *Refer to Figure 23.4.6.1-1.9.*
4. Carefully prise the insert from weatherbar until the insert is fully released.

Installation:

1. With correct orientation of the insert, firstly locate the outer edge of the insert into outer edge of weatherbar, then use soft face mallet to strike one end of the insert into the weatherbar.
2. Confirm the orientation of the seal, align the retention groove with the insert. Start from one jamb and engage the snap fit of the seal until it's fully engaged. *Refer to Figure 23.4.6.1-1.10.*

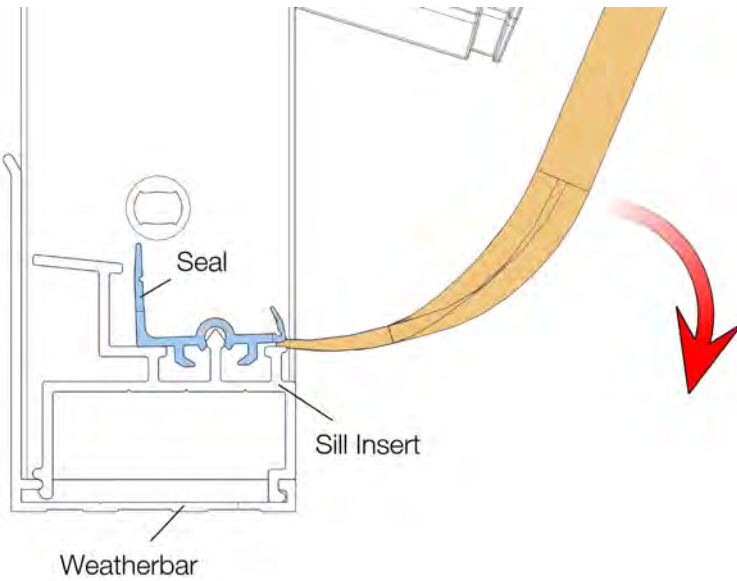


Fig. 23.4.6.1-1.8

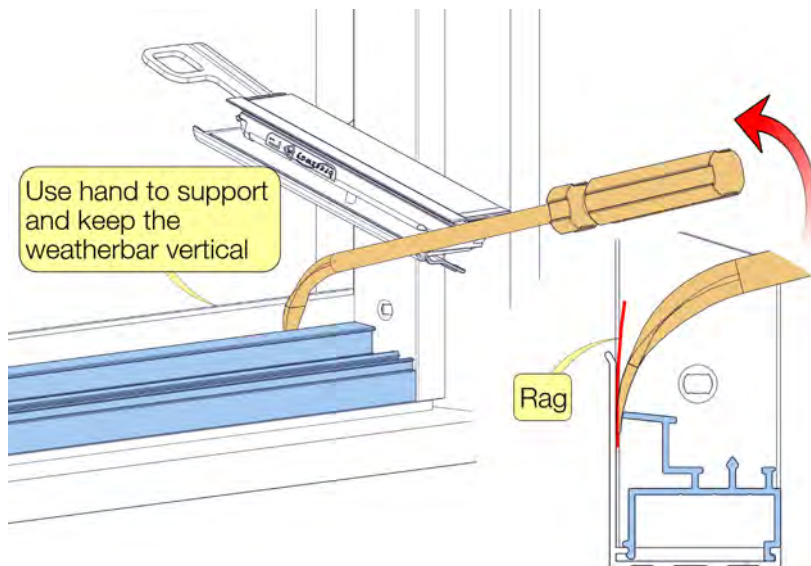


Fig. 23.4.6.1-1.9

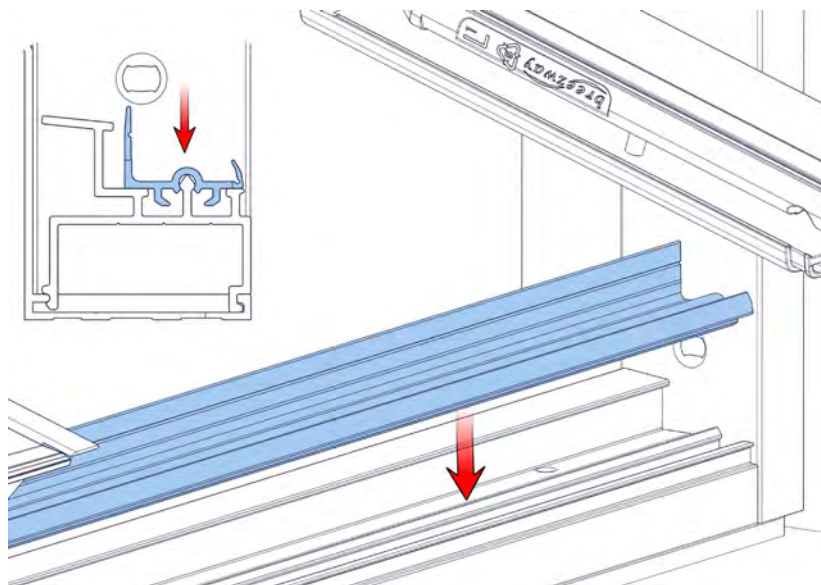


Fig. 23.4.6.1-1.10

IGLU Weatherstrip Insert Replacement - 23.4.6.1-1

Easyscreen with IGLU Head Insert Easy CPL

Removal:

1. Open the window and remove top blade from clips.
2. Removal of the seal from head insert: Using the Hook-end Screwdriver, pry one side of the IGLU seal up until it unclips from the retention feature on the insert. Then, continue removing the seal by hand until it is fully removed from the insert. *Refer to Figure 23.4.6.1-1.11.*
3. Use both hands to grip one end of the insert and pull inwards & downwards until the insert is fully released. *Refer to Figure 23.4.6.1-1.12.*

Installation:

1. With correct orientation of the insert, firstly locate the front edge of the insert into front of the head, then push upwards & outwards on inside vertical face of the insert at one end by hand. If difficult to assemble, use screwdriver on lip of top edge of inside vertical face and push upwards & inwards. *Refer to Figure 23.4.6.1-1.13.*
2. Confirm the orientation of the seal, align the retention groove with the insert. Start from one jamb and engage the snap fit of the seal until it's fully engaged. *Refer to Figure 23.4.6.1-1.14.*

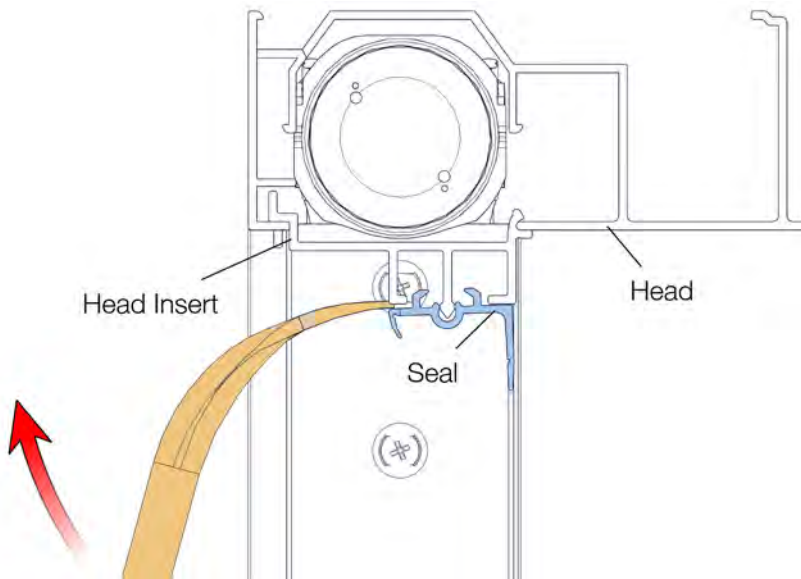


Fig. 23.4.6.1-1.11

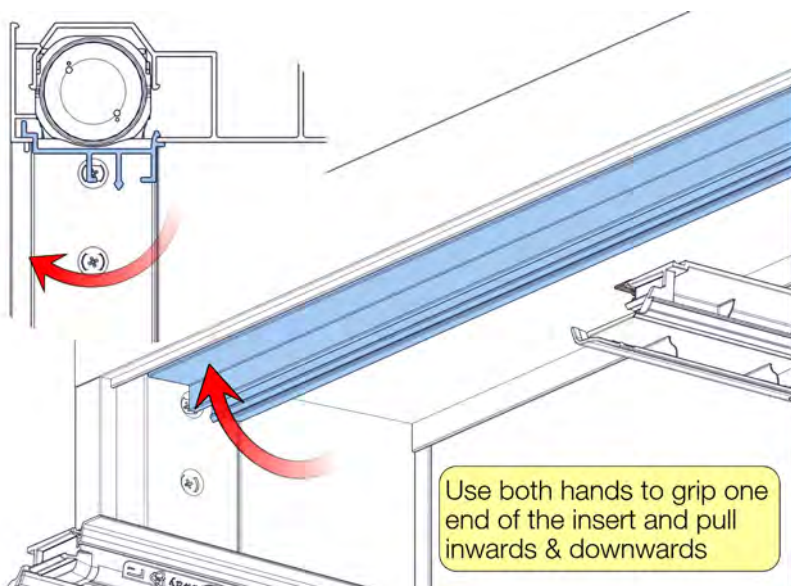


Fig. 23.4.6.1-1.12

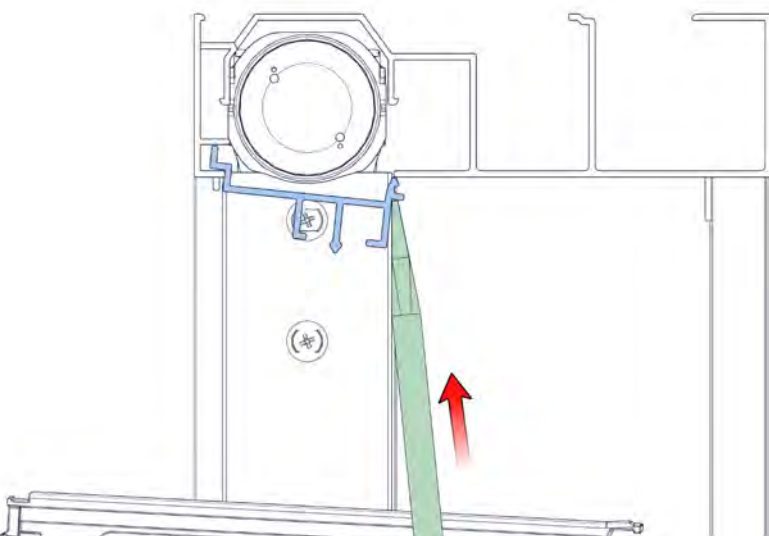


Fig. 23.4.6.1-1.13

IGLU Weatherstrip Insert Replacement - 23.4.6.1-1

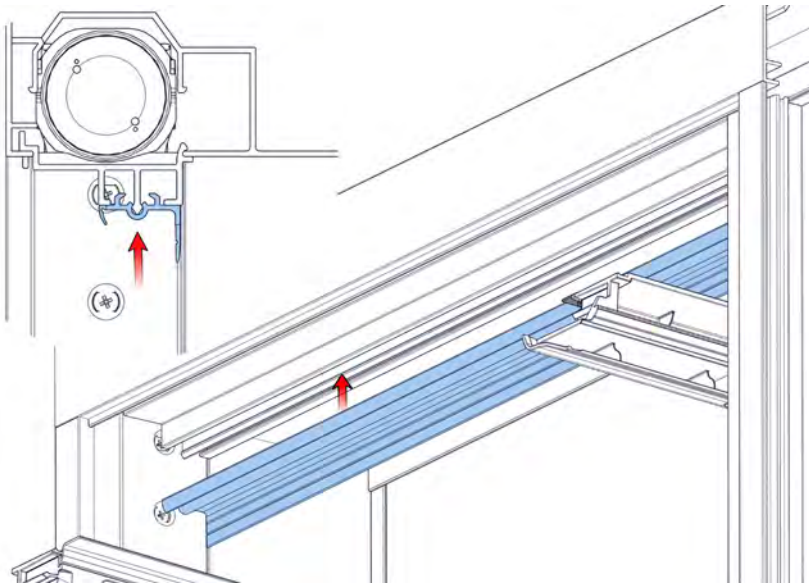


Fig. 23.4.6.1-1.14

IGLU Weatherstrip Insert Replacement - 23.4.6.1-1

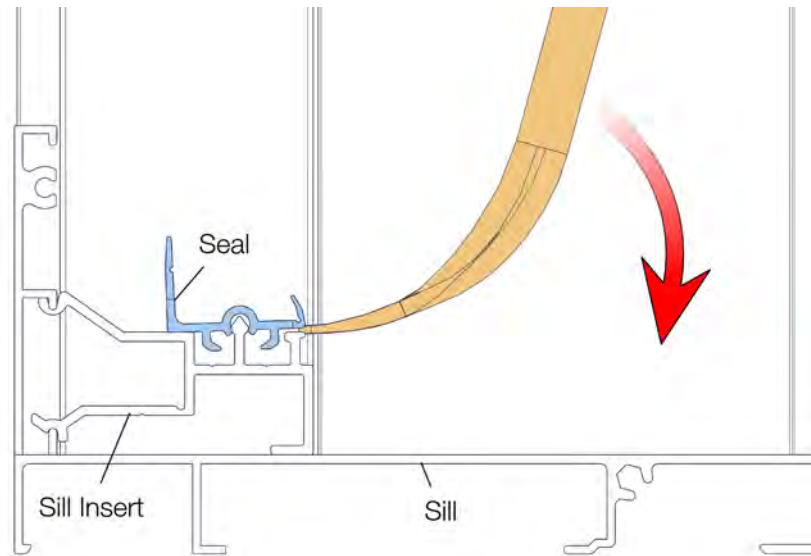


Fig. 23.4.6.1-1.15

Easyscreen with IGLU Sill Insert Easy IOS SL2

Removal:

1. Open the window and remove bottom two blade from clips.
2. Removal of the seal from sill insert: Using the Hook-end Screwdriver, pry one side of the IGLU seal up until it unclips from the retention feature on the insert. Then continue removing the seal by hand until it is fully removed from the insert. *Refer to Figure 23.4.6.1-1.15.*
3. Insert the Hook-end Screwdriver into gap formed between the sill and the insert from outside of the frame at either end of the sill. Put a rag between the screwdriver and paint surfaces. *Refer to Figure 23.4.6.1-1.16.*
4. Carefully prise the insert from the sill until the insert is fully released.

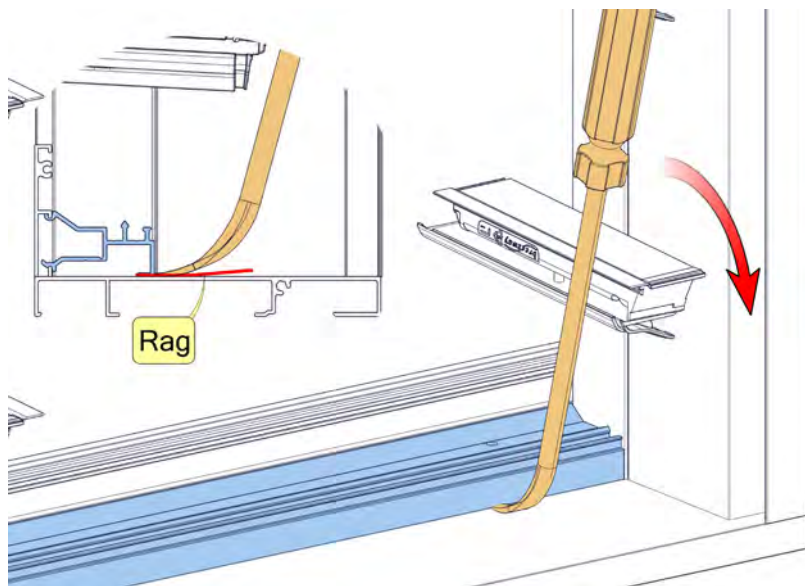


Fig. 23.4.6.1-1.16

Installation:

1. With correct orientation of the insert, firstly locate the top of the insert into sill, then use soft face mallet to strike one end of the insert into the sill.
2. Confirm the orientation of the seal, align the retention groove with the insert. Start from one jamb and engage the snap fit of the seal until it's fully engages along the entire length. *Refer to Figure 23.4.6.1-1.17.*

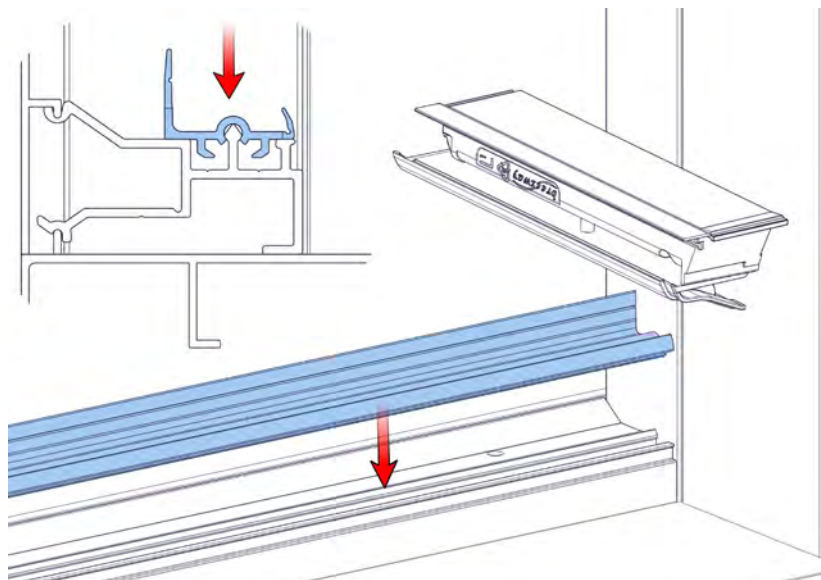


Fig. 23.4.6.1-1.17

IGLU Blade Replacement - 23.4.6.2-1

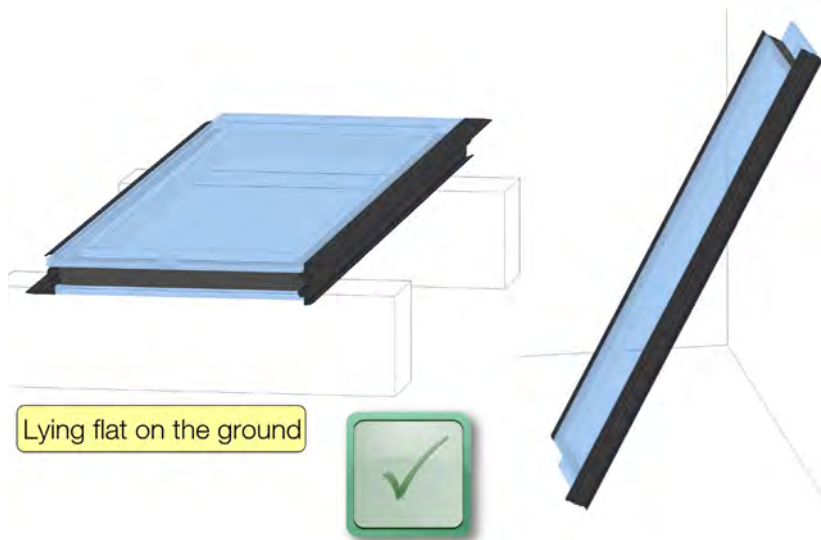


Fig. 23.4.6.2-1.1

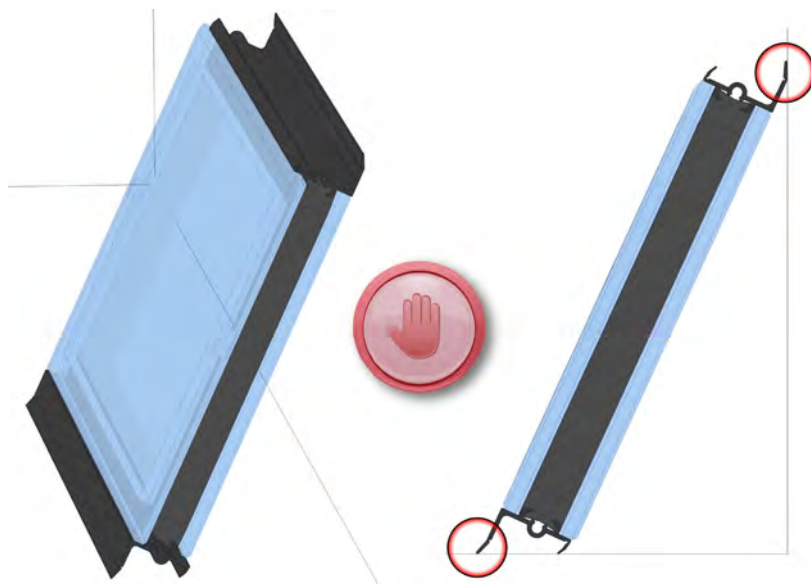


Fig. 23.4.6.2-1.2

Note:

When handling IGLU blades, be careful not to damage the embedded seal. Damaging the seal will require the blade to be replaced. Try to avoid touching the seals to reduce the risk of damage. When storing the blades, make sure they're either lying flat on the ground, or sitting on their short edge of the blade. *Refer to Figure 23.4.6.2-1.1.*

Make sure the embedded seals are not touching anything when the blades are being stored, or they may permanently deform. *Refer to Figure 23.4.6.2-1.2.*

Removal:

1. Fully open the blades. If the Powerlouvre motor stopped in the closed position, refer to **Section 23.4.6.3-1** for IGLU blade removal.
2. Remove SH pins from IGLU clips (refer to **Section 23.4.5.1-1**).
3. The top seal of the IGLU blade engages into the top of the clip, disengage from the clip by pulling the blade upwards with the window in an open position. Continue to pull evenly with both hands on the left and right of the blade until it slides free of the clip.

IGLU Blade Replacement - 23.4.6.2-1



Installation:

1. Spray soapy water under the clip seal to reduce the friction of the rubber.
2. Hold the blade close to the clips. *Refer to Figure 23.4.6.2-1.3.*
3. Engage one end of the blade into the clip and lift the clip seal over the external face of the blade on both sides before pushing the blade into position. *Refer to Figure 23.4.6.2-1.4.*
4. Once the blade is in position, push the top of the seal until the embedded blade seal 'clicks' into the top of the clip. *Refer to Figure 23.4.6.2-1.5 & Figure 23.4.6.2-1.6.*
5. Check to make sure the clip seal is flush with clip surface, and confirm the blade is engaged with the top of the clip on both sides. *Refer to Figure 23.4.6.2-1.7.*



Fig. 23.4.6.2-1.3

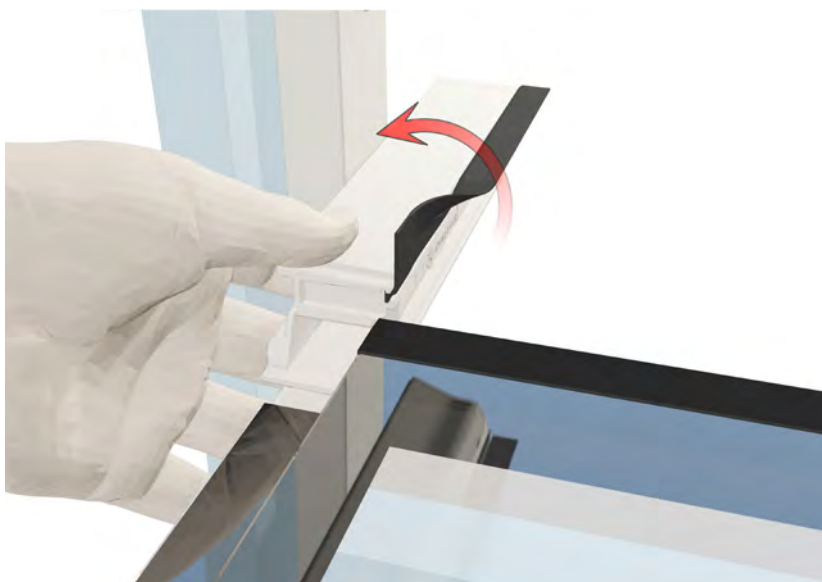


Fig. 23.4.6.2-1.4

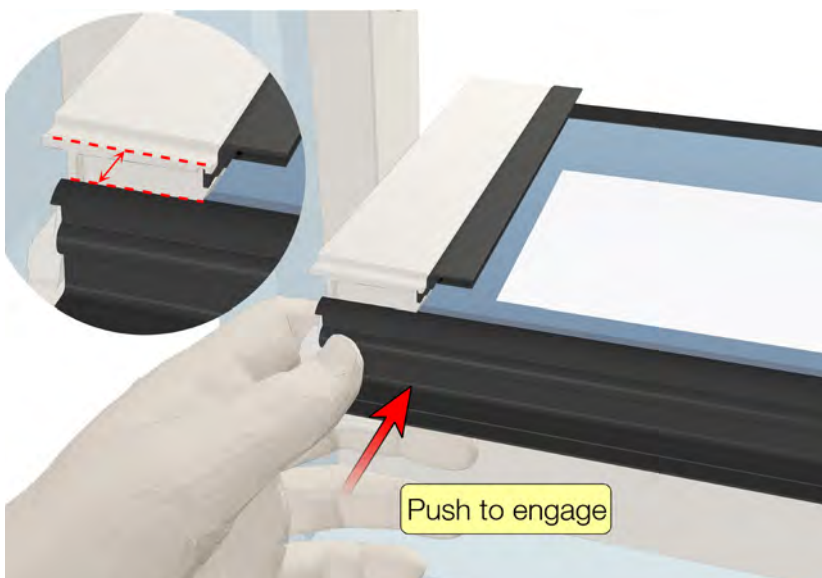


Fig. 23.4.6.2-1.5

IGLU Blade Replacement - 23.4.6.2-1



Fig. 23.4.6.2-1.6

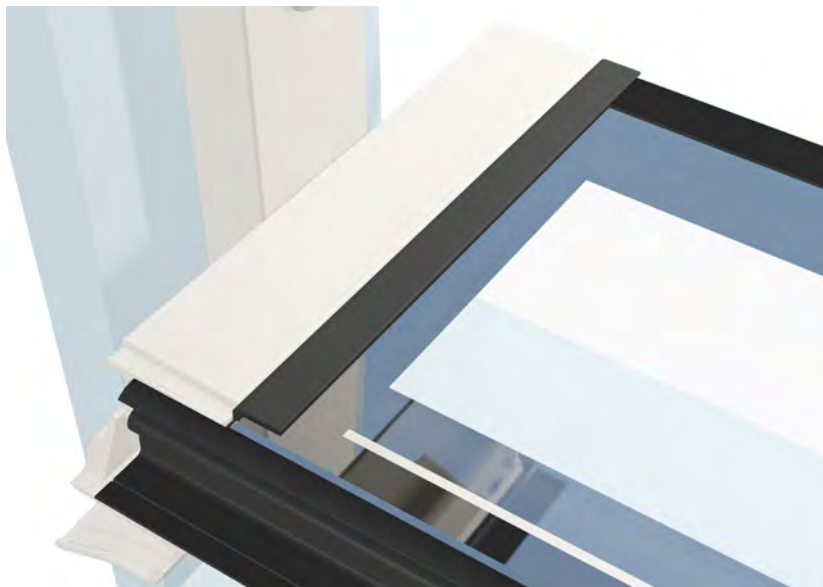


Fig. 23.4.6.2-1.7

IGLU Blade Removal for Power Window Stopped in Closed Position - 23.4.6.3-1

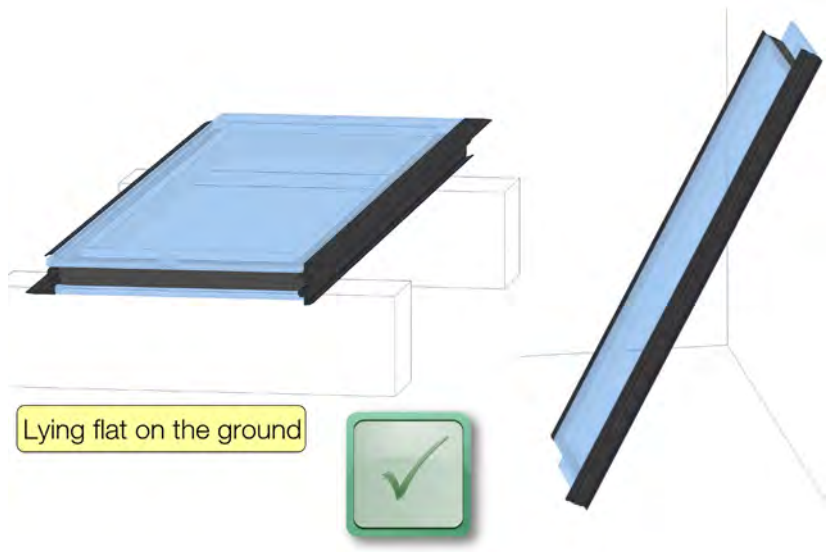


Fig. 23.4.6.3-1.1

Note:
 When handling IGLU blades, be careful not to damage the embedded seal. Damaging the seal will require the blade to be replaced. Try to avoid touching the seals to reduce the risk of damage. When storing the blades, make sure they're either lying flat on the ground, or sitting on their short edge of the blade. *Refer to Figure 23.4.6.3-1.1.*
 Make sure the embedded seals are not touching anything when the blades are being stored, or they may permanently deform. *Refer to Figure 23.4.6.3-1.2.*

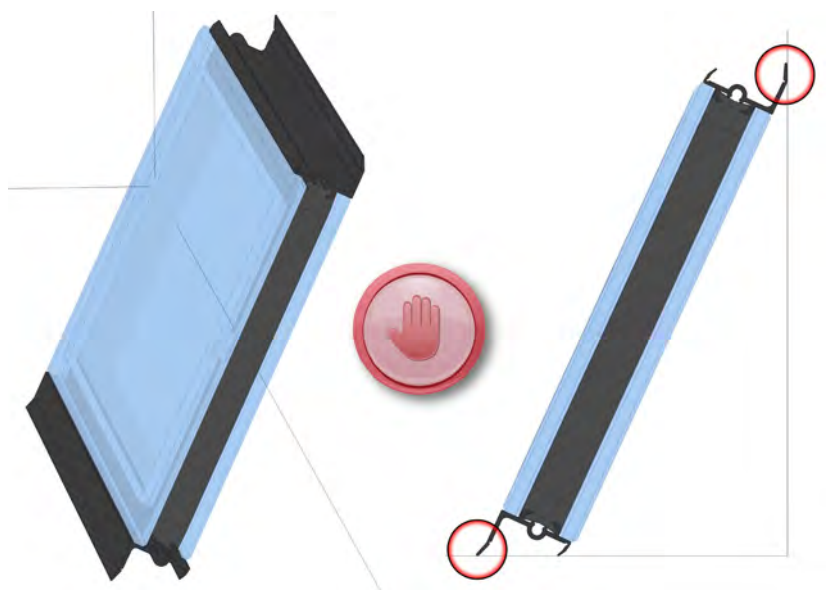


Fig. 23.4.6.3-1.2

IGLU Blade Removal for Power Window Stopped in Closed Position - 23.4.6.3-1



Removal of the top IGLU blade to access the head insert:

This method will allow the IGLU blade to be reused, but the top left clip required replacement (refer to **Section 23.4.1.1-1** for Gallery replacement and **Section 23.3.1.2-1** for Clip Replacement).

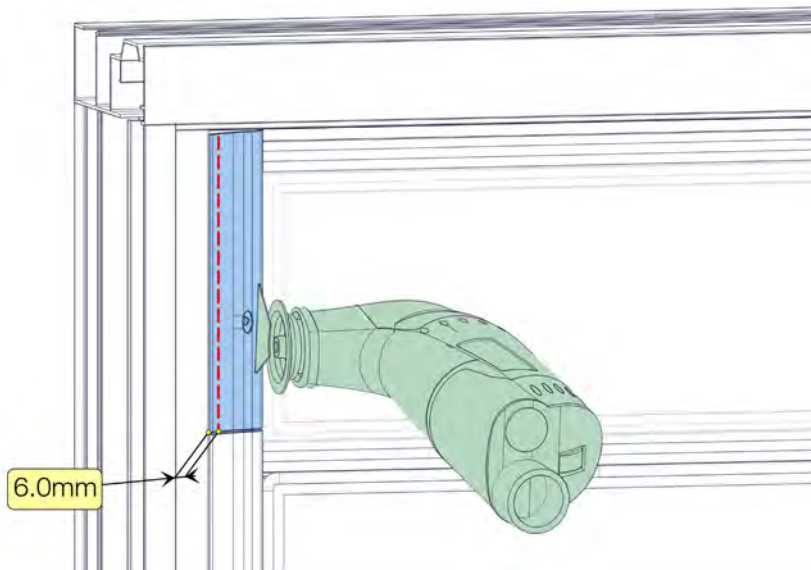


Fig. 23.4.6.3-1.3

1. Remove the stronghold pins from the clips (refer to **Section 23.4.5.1-1**).
2. On the inside of the window, use a multi tool to cut the top layer of the top left clip and bearing. Take care not to damage the blade or the embedded blade seal. *Refer to Figure 23.4.6.3-1.3.*
3. Once the pieces are removed from the clip, lever off the blade from the clip by pushing the bottom of blade to rotate it on the left side. Pull the left side of the blade until it clears the gallery and then slide the blade to the left until it pulls free of the clip on the right. *Refer to Figure 23.4.6.3-1.4.*

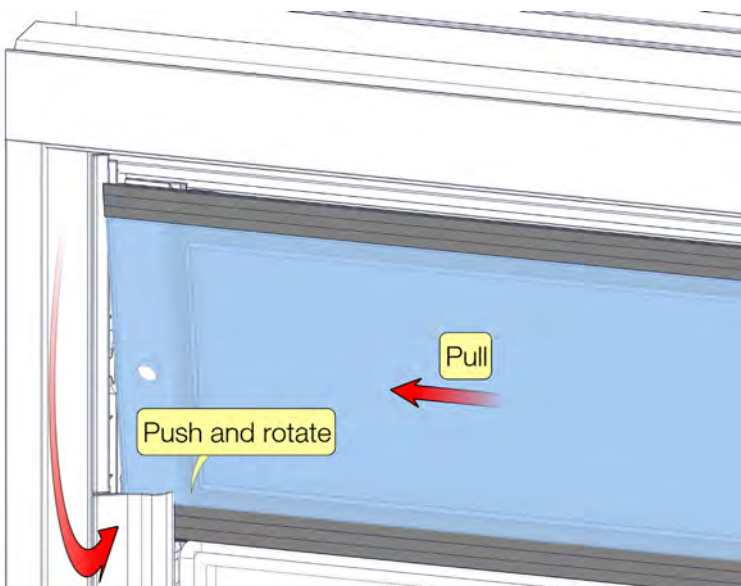


Fig. 23.4.6.3-1.4