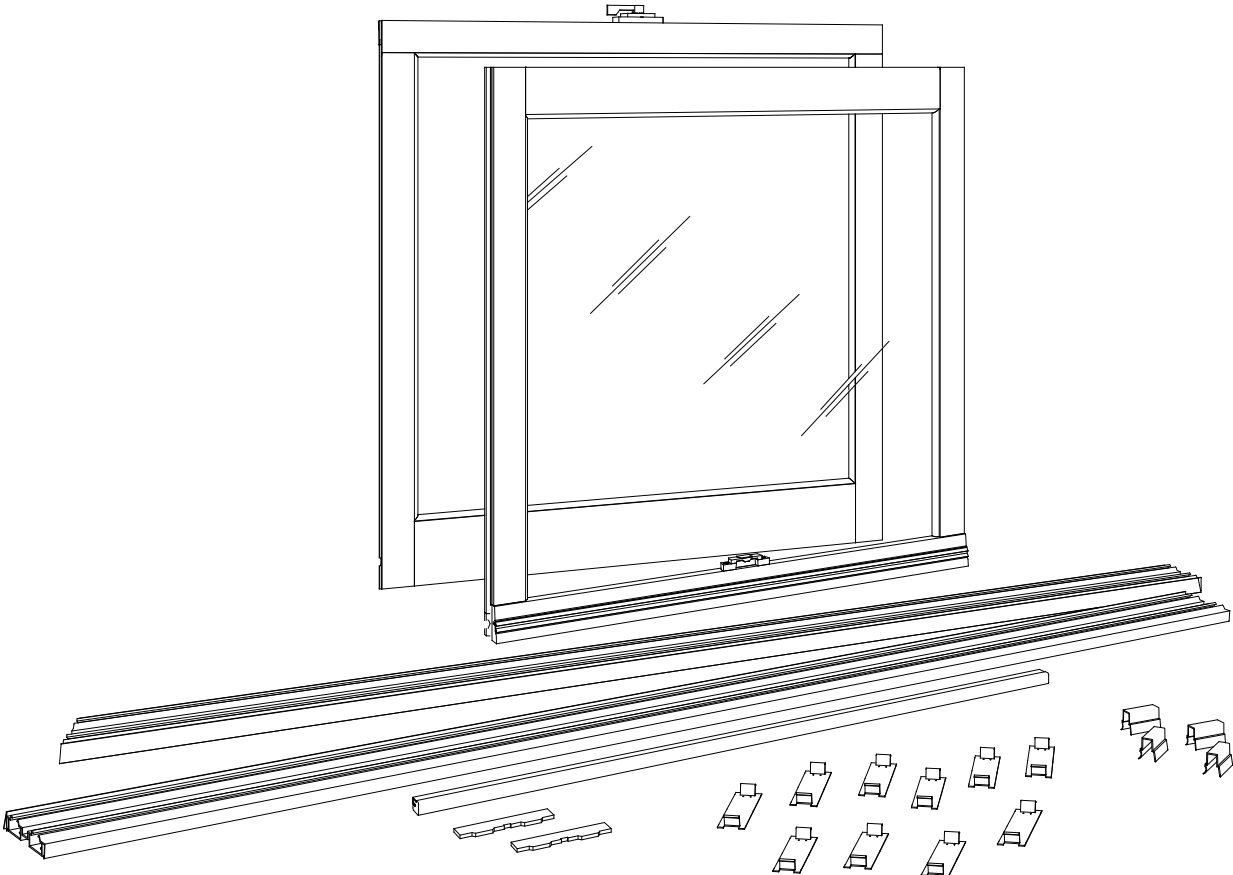


Single Hung Tilt Pac

Installation and Finishing Instructions



BEFORE YOU BEGIN

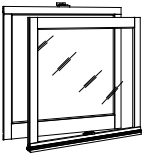
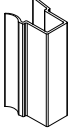
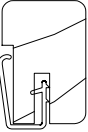
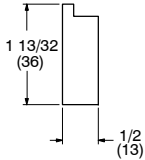
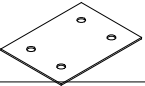
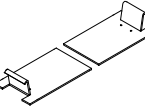
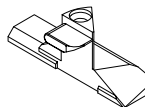
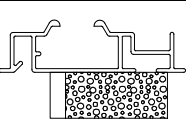
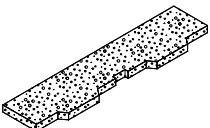
IMPORTANT: Read these instructions thoroughly before beginning to assemble and install a Tilt Pac. Failure to install as recommended will void any warranty, written or implied.

- It is the responsibility of the builder, installer and subcontractors to protect the interior and exterior of windows/doors from excessive contact with harsh chemical washes, construction material contamination and moisture. Damage to glazing, hardware, weatherstrip and cladding/wood can occur. Protect with painters tape and/or protective sheathing as required. Follow all guidelines regarding material use, preparation, personal safety and disposal.

- Alterations to Marvin products including window films, insulating or reflective interior window treatments or additional glazings can cause excessive heat buildup and/or condensation. This may lead to premature failures not covered under warranty by Marvin Windows and Doors.
- When preparing to finish the exterior of wood windows and doors fill all nail holes and staple holes with wood filler. Follow all guidelines enclosed (after warranty) and by others (from materials used) to prepare and finish.

WARNING: Practice safety! Wear safety glasses or goggles and appropriate hearing protection when installing or performing adjustments to a Marvin window or door product.

STANDARD PARTS SHIPPED WITH UNIT

ILLUSTRATIONS (not to scale)	DESCRIPTION AND COLOR	PART/PROFILE NUMBER
	Top and Bottom Sash Pair	Contact your Marvin dealer
	Vinyl sash stop V177	WH 11860114 BG 11860116
	Head Jamb Parting Stop Assembly	Contact your Marvin dealer
	Sash Opening Filler	W7091
	Stationary Sash Bracket	11040360
	Split Installation Clip Jamb Liner	WH 11900790 BG 11900795
 <i>Left hand shown</i>	Sash cam pivot pin with attaching screw - installed	RH 11869347 LH 11869348
	Single Hung Jamb Liner V892	WH 10529500 BG 10529501
	Foam Gasket	Wood 10500100 Clad 10500102

YOU WILL NEED TO SUPPLY

Screwdrivers (Flat and Phillips)	Hammer
10-15 finishing nails	Drill
3/32" drill bit	Nail set
Putty knife or pry bar	Pliers
2 pieces of scrap wood	Safety glasses
1 1/4" galvanized nails for brackets for vinyl jamb liner	
Six #6 x 1 1/2" wood screws (for optional half screen nosing)	

REPLACEMENT PARTS

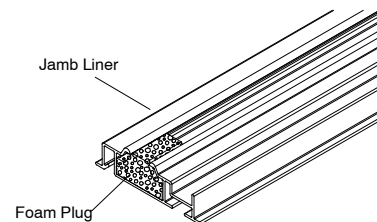
If replacement parts are needed, please contact your local Marvin Windows and Doors dealer.

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Optional Sash Retainer Plate	4

FOAM PLUGS

During shipping, the foam plugs located in the vinyl jamb liner may come loose. If so, reposition it in the bottom of the sash channel as shown.



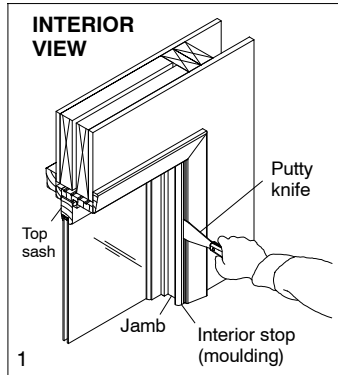
NOTE: Numbers listed in parentheses () are metric equivalents in millimeters rounded to the nearest whole number.

IMPORTANT: Read these instructions thoroughly before beginning to assemble and install a Tilt Pac. Failure to install as recommended will void any warranty, written or implied.

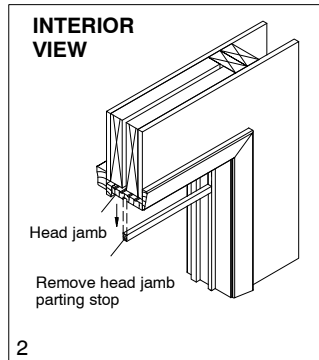
ATTENTION: Chemicals, solvents, paints and other harsh substances should never come in contact with the vinyl jamb liner of a Tilt Pac. To clean, use only warm soapy water. Specifications and technical data are subject to change without notice.

REMOVING THE SASH

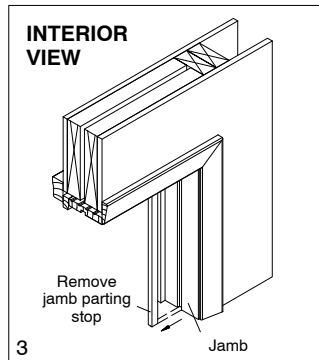
1. Remove the moulding from the side jambs using a putty knife or flat bar. Do not break or damage these pieces as they may be reused. See illustration 1.
2. Lift out the bottom sash.



3. Slide the top sash down to the sill and remove the part stop from the head jamb. See illustration 2.



4. Remove the part stops from both side jambs and remove the top sash from frame. See illustration 3.



IMPORTANT: Before proceeding, inspect existing frame for rot or deterioration of frame members and repair or replace as needed.

Check frame to ensure the sill, side, and head jambs are straight, level, and plumb. Measure frame diagonally to check frame for square. The frame **MUST** be corrected if any of the above conditions are not met.

Recheck sash opening width (inside of side jambs), height (head jamb to point where exterior of bottom sash contacted sill), and sill bevel (standard Marvin bevel is 14 degrees) to ensure Tilt Pac ordered will properly fit the opening.

PREPARING THE FRAME

5. Install the sash opening filler strip, butt it against the blind stop and the sill. Nail in place with finishing nails.

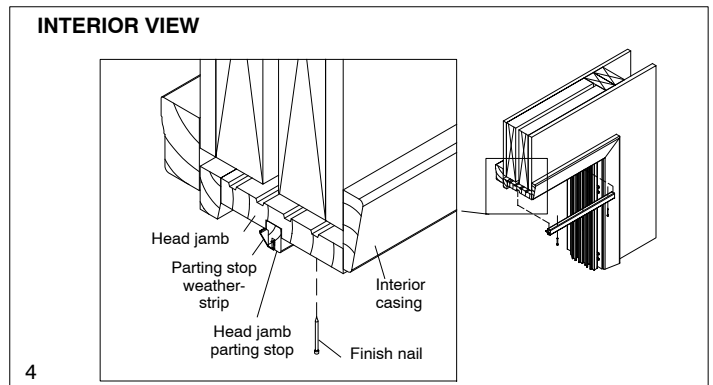
INSTALLING STATIONARY SASH

6. Attach sash brackets to the stiles of the top sash using screws provided. They should be centered on the stiles and must face the interior of the unit.

On units of 32" (813) glass size height and under, two brackets per side will be used. The top bracket will be 2" from the top of the sash, and the bottom bracket will be placed above the check rail.

On units of 33" (838) glass size height and over, three brackets will be used. The top and bottom brackets will be positioned the same as the smaller units. The center bracket will be centered between the top and bottom brackets.

7. Install the top sash above the sash opening filler and secure sash brackets to the jamb using screws provided.
8. Place the part stop into the head jamb with the weatherstripping facing the exterior of the building. Use small finish nails (not included) to fasten, nailing through the part stop into the head jamb. The Marvin head jamb part stop is 1/2" (6). In some older windows the groove that the part stop is inserted into is only 3/8" (10), therefore, the part stop may have to be ripped down to fit. See illustration 4.



INSTALLING BRACKETS FOR VINYL JAMB LINER

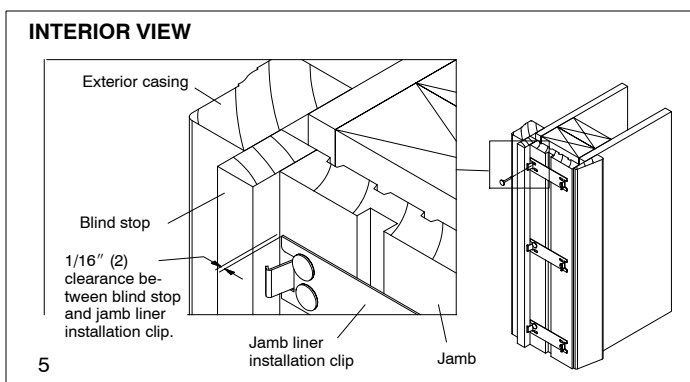
9. Lay a straight short piece of 2" (51) wide scrap wood along the face of the top sash and filler strip and scribe a line the length of the jamb. This will be used as a guide to position brackets for the vinyl jamb liners on the jamb.

Make sure the clip side of the bracket faces the interior of the window.

To install brackets for vinyl jamb liners on all units follow these procedures, then refer to instructions for appropriate glass size.

10. The top brackets should be placed 5" (127) below the head jamb or 5" (127) below the spring line on round top sash. The center bracket should be placed 2" (51) below the check rail. The bottom brackets should be placed 2" (51) above the sill. Do this for each unit.

On units with glass size height 40" (1016) and over, fourteen brackets will be provided, seven for each jamb. Evenly space the remaining brackets. See illustration 5.

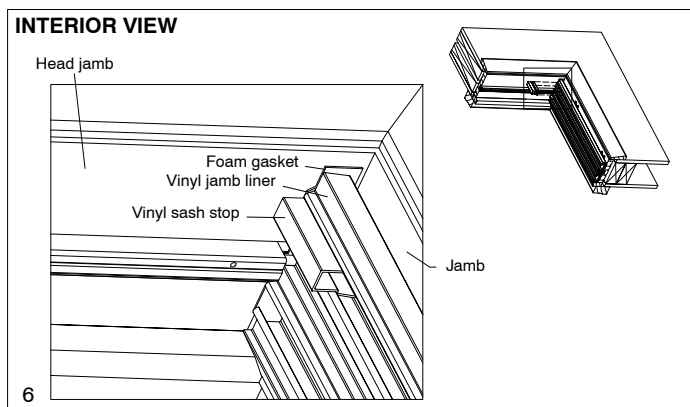


Jamb liner installation clip quantities

Call size	Quantity
20 and under	6
22-28	8
30 and over	10

INSTALLING VINYL JAMB LINER

11. Install the vinyl jamb liner by placing it in the channel along the sash and sash opening filler. The interior portion of the vinyl jamb liner is snapped into place over the metal brackets
12. Install the two vinyl sash stops (one per side) in the track at the top of each jamb liner. See illustration 6.



13. Install the wood jamb liner or sash stops that were removed earlier, using finishing nails. (Note: 1/4" (6) round moulding may be used in place of the wood jamb liner). Wood jamb liner and 1/4" (6) round moulding not provided.

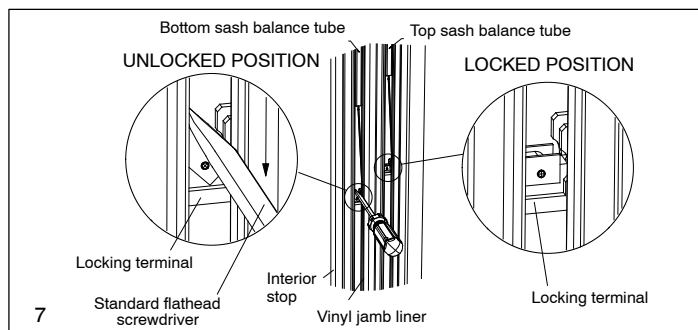
REMOVING VINYL JAMB LINER

14. If necessary to remove the vinyl jamb liner, the following procedures should be followed:

Place a putty knife or pry bar between the wood and vinyl jamb liner. They are not visible until you pry away the liner. (This will result in easy removal). The brackets are usually located about 4" to 6" (102-152) from the head jamb and 2" (51) from the sill. The remainders are located equally spaced between the sill and the head jamb brackets. Pry outward. This will loosen the vinyl jamb liner and usually the brackets. Repeat this procedure along the entire length of the jamb on the interior side. When removing the vinyl jamb liner, be careful not to damage the wood jamb liner.

INSTALLING OPERATING SASH

15. Using a flat screwdriver and holding firmly, pull down the two locking terminal assemblies located in vinyl jamb liners (1 per side) approximately 8" to 10" (203-254) from the sill. Engage in locked position by rolling the screwdriver counterclockwise. **BE SURE THEY ARE IN THE LOCKED POSITION BEFORE LETTING GO.** Immediate damage could occur if the locking terminal assemblies are not locked. See illustration 7.



16. **INSTALL THE BOTTOM SASH** with the help of another person. Keeping one side of the sash lower than the other, insert the metal cam pivot into the vinyl jamb liner track. The pivot should be positioned above the locking terminal assembly.
17. Place the metal cam pivot into the vinyl jamb liner track. The pivot should be positioned above the locking terminal assembly.
18. Level the front edge of the sash.
19. Tilt sash up and depress the vinyl jamb liner on both sides, easing the sash into position.
20. Once the sash is in position, slide it down until the cam pivots contact the locking terminal assemblies.
21. Check the tilt feature by pulling forward on the top corners of the bottom sash at the same time. This is done to assure clearance of the jamb moulding replaced in step 13.

OPTIONAL HALF SCREEN NOSING

22. Pre-drill the half screen nosing. Install it flush with the bottom of the checkrail and fasten into place with #6 X 1 1/2" wood screws.
23. Finish primed or bare wood surfaces as soon as possible after installation.

OPTIONAL SASH RETAINER PLATE INSTRUCTIONS

24. With the bottom sash in the installed position, slide both sash retainer plates tight against the vinyl liner. Secure each plate in place by installing the screw provided into the pre-drilled hold. Then tighten the existing screw in each sash retainer plate.

NOTE: After securing the sash retainer plates the bottom sash cannot be tilted. In order to tilt the bottom sash, remove the single screw and loosen the other one. Slide the retainer plate away from the vinyl jamb liner track. Remember to return the plates to the locked position, replace, and tighten screws. See illustration 8.

