

Hinge replacement locks in more profits — and praise — from your customers

by Bob Cronk, Vice President, Sales & Marketing, SELECT Products Limited

You're called to repair a lock on a store-front door.

Once there, you could simply replace the lock and be on your way. Instead, you take a closer look and discover worn spots on the latch, strike and jamb. And the door needs a push to close completely. Further inspection reveals the real cause of the failed lock — a worn-out pivot hinge that caused the door to sag and the locking mechanism to become misaligned.

Here's your chance to do more than just fix a lock.

Delivering total door service — in this case addressing hinge failure — allows you to make more money on the repair and make a long-term, satisfied customer by solving their problem for good.

When pivot or butt hinges fail, install a full surface geared continuous hinge and you'll ensure longer, more dependable performance. Geared continuous hinges stand up to heavy and high-traffic doors, giving years of trouble-free service because they don't tend to sag, bend or bind. As a result, door hardware is less likely to develop problems caused by misalignment. They distribute kick-back force along the entire door length when the door is opened too far — such as when doors are caught by the wind — preventing screws from loosening and bending hinge leaves. They also offer increased security since objects can't be inserted between the door and frame, allow easier alignment of electrical transfers and monitoring switches and prevent air infiltration by providing a seal from top to bottom of the door.

In addition, geared continuous hinges are available in custom anodizing and paint colors to match door and frame colors. So you can save the customer the cost of replacing expensive doors by matching the hinge to the door and frame appearance.



▲ Installing screw in frame leaf. Hinge is in open position, showing hinge bearings.

The next time you're called to fix a lock, take a look at the hinge. If you're unfamiliar with installing geared continuous hinges, you're missing a profitable opportunity. So here's a quick guide on how to install a full surface hinge for a typical retrofit application.

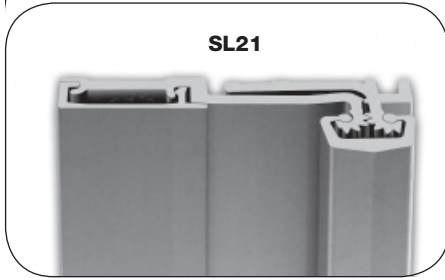
Use a few helpful tools. First, make sure to have a couple of items handy to make installation easier. Try wooden paint stirring sticks for shims, since they won't scratch the door or the frame, they're the right thickness needed and readily available.

TIP: Use double-stick tape to hold the shims in place while you mount the door in the frame. That way they won't fall out as you adjust the door.

When removing pivot hinges, you'll end up with a hole in the threshold where the pivot was mounted. Fill in the holes with caulk to keep out water. Use gray, silver or clear caulk on aluminum thresholds for a nicer appearance.

Remove the old hinges. Most of your time will be spent removing the old hinges. Butt hinges often have stripped screws that need to be drilled out and removed with channel locks. With pivot hinges, the bottom hinge is often hard to remove because of corrosion. The easiest way to remove it is to use a

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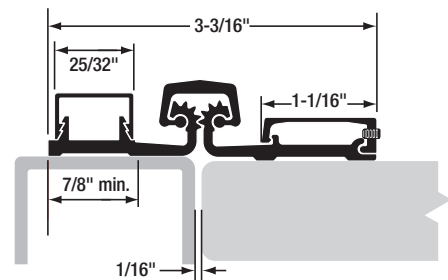
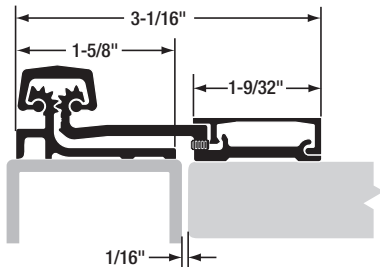
SL21

NOTE: Model SL21 requires repositioning of existing overhead closer(s) to match the swing clear pivot point of the hinge. Failure to do so will prevent the door from opening more than 70 degrees. Attach hinge leaf cover before reinstalling closer(s).

NOTE: Model SL57 requires a minimum 7/8" frame face width for mounting. On wider frames, mark a line at 1" to 1-5/16" from center of clearance between frame and closed door. Align the edge of the hinge frame leaf with mark.



SL57



Calculating Required Door Clearances

For Square and Beveled-Edge Doors

IMPORTANT: All standard length SELECT hinges are supplied slightly shorter than nominal door height to avoid threshold or flooring clearance problems.

IMPORTANT: SL21 and SL57 are non-handed and templated, and remain non-handed after cutting. Use the same hinge model for either right-hand or left-hand openings.

IMPORTANT: Refer to NFPA 80 manual for clearance requirements on fire-rated entrances.

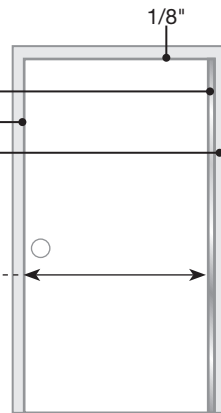
SINGLE DOOR:

Hinge side clearance	0"
Latch side clearance	1/8"
Frame variance clearance	1/16"

Total Width Clearance **3/16"**

To determine door width:

Subtract the Total Width Clearance from the width of the frame opening.



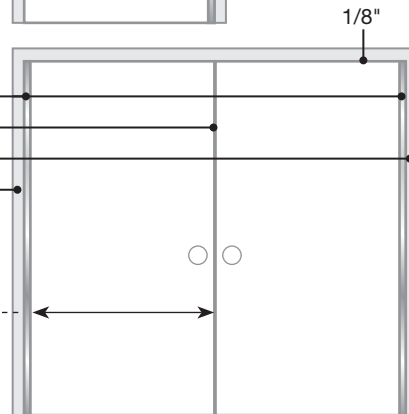
DOUBLE DOORS (PAIR):

Hinge side clearance (2x)	0"
Latch side clearance	3/16"
Frame variance clearance	1/16"
Frame variance clearance	1/16"

Total Width Clearance **5/16"**

To determine door width:

Subtract the Total Width Clearance from the width of the frame opening; divide the result by 2.



Important Warranty Information:

The following actions will void any warranty, expressed or implied:

- Failure to install the hinge according to the Installation Instructions supplied with every SELECT hinge.
- Use of fasteners other than those supplied with the hinge.
- Unauthorized field modifications, including alteration or removal of the factory-applied lubricant, altering the original finish or painting the hinge.

NOTE: For double-door entrances with a mullion between the pair of doors, calculate each door width using the Single Door clearances.

For double-door entrances with a mullion behind the pair of doors, calculate each door width using the Double Doors clearances.

Tools Needed

- Metal-cutting saw
- #13 or 3/16" drill bit
- 3/8" drill bit
- 5/32" drill bit (wood frames only)
- #3 Phillips drive
- 5/64" Allen wrench
- Hammer
- Shims

Parts Supplied

- #12-24x1/2" 410 SS thread-forming Phillips undercut flathead screws
- 1-1/2" barrel nuts (sexnuts)
- 1/4-20x1-1/16" shoulder screws
- Striker pins

Optional Parts

- #12x1-1/2" 410 SS Phillips undercut flathead wood screws
- 1-3/4" barrel nuts for 2" to 2-1/4" thick doors

How to Cut the Hinge to Fit

- Keep hinge in the "door closed" position (Fig. 1).
- Using a metal-cutting saw, begin the cut through the hinge cap first.
- Remove leaf covers by sliding off from uncut end of hinge.
- Reinstall any set screw bearing that may have been cut off.

A. Attach Hinge to Frame

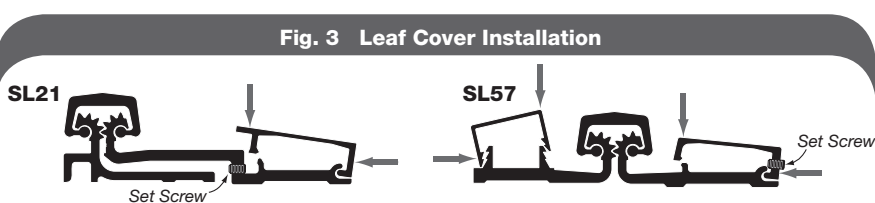
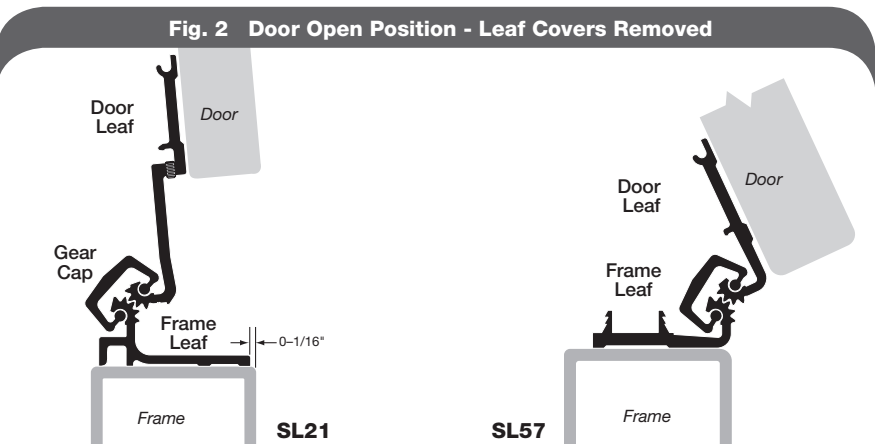
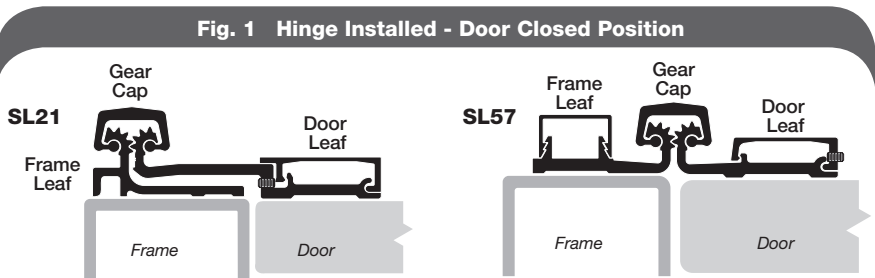
- Use shims to position the hinge 1/8" below the header to allow for door clearance.
- Hold hinge in the "door open" position (Fig. 2) and align the frame leaf with the inner edge of door frame or your alignment mark.
- Mark (or center punch) one hole at top and one hole at bottom of frame leaf. Drill holes at marked locations.
 - Metal door frame: Use a #13 (.185") or 3/16" (.188") drill bit.
 - Wood door frame: Use a 5/32" (.156") drill bit.
- Fasten frame leaf to door frame.
 - Metal door frame: Use #12-24 flat head screws provided.
 - Wood door frame: Use #12x1-1/2 flat head wood screws (provided upon request).

B. Prepare Door

- Shim door into opening to provide required clearances.
- With #3 Phillips drive, temporarily fasten the door to door leaf through at least two of the four locator holes with the pan head Tek (self-drilling) screws provided.
- Remove shims and check door clearances.

NOTE: Door may sag slightly when shims are removed. Note the amount of adjustment needed to bring door back into alignment.

- Mark locations for top and bottom barrel nuts on the door using 3/8" striker pin.



- Remove the door; drill two holes for barrel nuts with a 3/8" drill bit.

C. Attach Door to Hinge

- Fasten the door to the door leaf with the top and bottom barrel nuts and two 1/4-20 shoulder screws.
- Adjust frame leaf as needed to correct door alignment and assure proper door operation.
- Mark (or center punch) remaining frame leaf hole locations. Drill holes in frame through the frame leaf and secure with flat head screws.
- Mark remaining 3/8" holes on door through the door leaf. It is recommended that the door be removed and laid on horizontal surface to be sure holes are drilled squarely through both door faces.
- Secure door to door leaf with barrel nuts and 1/4-20 shoulder screws.

D. Install Leaf Covers

- Back out the set screws from side of door leaf cover with 5/64" Allen wrench (Fig. 3).
- Align the end of the leaf cover with the top end of the hinge.
- Starting from the top, apply pressure along the length of the cover,

NOTE: For added security, construction adhesive may be applied to inside of leaf cover before installing.

snapping it into place as you move downward (Fig. 3).

NOTE: SL57 frame leaf cover is a press fit. Use a hammer to tap cover into place, being sure to protect the surface of the cover from damage.

- Tighten set screws using 5/64" Allen wrench.

Reinforcing & Rivnuts®

No hinge reinforcement is necessary except on extremely high-frequency, extremely heavy or extra-wide doors. Rivnuts are recommended for use in the frame when the door exceeds 450 lb. (max. 600 lb.)

NOTE: Only SELECT steel Rivnuts are to be used with fire-rated SELECT hinges.

Grouted/Slushed-in Frames

For ease of installation, it is recommended some sort of mudguard be installed behind the frame. Do not use self-drilling, thread-forming screws to drill into grouted frames. If mudguards have not been used, carefully drill pilot holes through frame and remove grout for screw clearance. Do not oversize holes in frame.

Fire-Rated Hinges

All stock SELECT hinges are 90 minute UL-rated, without pins. Please contact SELECT for complete information about its fire-rated hinges.



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grinder to cut it off flush with the threshold. You can also use a hammer and strike the pin with a cold chisel. It should break off inside the threshold where it can remain to help fill in the hole it sits in. Fill the hole with caulk.

Cut the new hinge to fit. If the entrance you're repairing is shorter than 7', you may need to cut the hinge to fit. A metal-cutting saw with carbide blade works best. Place the outside (visible part) of the hinge facing up in the "door closed" position. Trim the bottom end of the hinge and cut through the gear cap first so you don't scratch the finish. Cut above or below bearings, not through them. Reinstall any set-screw bearing that may have been cut off.

Install the hinge. Use shims to position the door with 1/8" clearance all around (remember to use the double-stick tape). Surface mount the frame leaf to the door frame and then attach the door leaf to the door itself with the supplied fasteners. You can use either self-threading (if you prefer to drill holes) or self-



▲ Installing the bottom locator screw in the door leaf. Note the shim supporting the door, assuring proper threshold clearance.



▲ Drilling fastener hole through door leaf hole into face of door.



▲ Tapping in the barrel half of a through-bolt to secure the door leaf to the outside of the door.

drilling/self-threading fasteners. SELECT Products lets you order just what you need so you don't have to sort screws on-site.

Check for proper alignment and swing. Next, install barrel nuts (through-bolts) to prevent malicious screw removal or break-in by removing the surface screws. Drill holes and insert the barrel nut body on the outside and tighten the screw head from the inside.

TIP: When replacing a pivot hinge on a standard 7' opening, use an 85" hinge instead of 83" so it will cover the pivot hinge hole left in the top of the frame.

Attach leaf covers. Finally, attach the leaf covers to conceal the screw heads and barrel nuts. If necessary, back out the set-screws from the door leaf cover. Align the cover with the top of the hinge. Starting at the top, snap the cover into place. Tighten set-screws.

TIP: Use construction adhesive on the inside of the leaf covers for extra security.

Gain an extra source of profit. How much can you make on a job like this? In the example above, approximate costs are \$150 for the hinge, \$100 for the lock, \$5 in screws and about 2 man-hours in labor. Add your mark-up on material and labor costs, your service call fee and any incidentals, and this kind of job can be very profitable. You'd have to open about a dozen car doors in the same amount of time to earn that much. So carry around two full-surface hinges, such as the SL57, in your truck and you'll be ready to earn extra profit.

Once you install a couple of geared continuous hinges, you'll see what techniques work best for you (see www.select-hinges.com/applications.htm for a step-by-step guide). Just pay strict attention to the included instructions so you don't void the warranty. After proper installation, our Continuous Warranty™ means your customer will have a well-functioning door hinge for life. You'll have a customer for life, and likely many future job referrals.

