

# Swinging profits from hinge installations



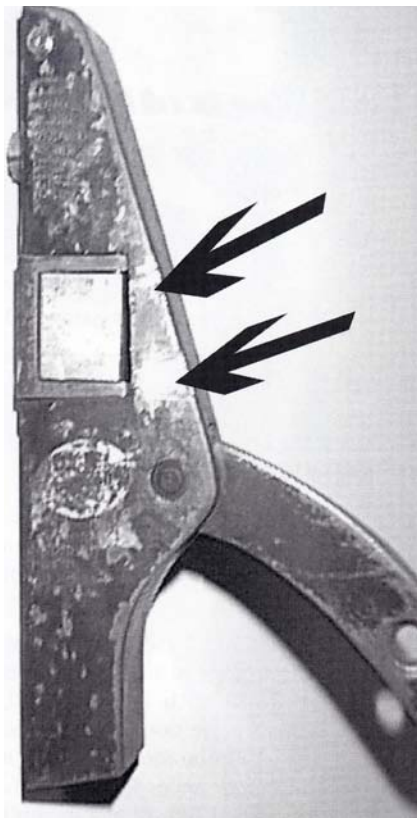
by Jake Jakubowski

If you've read any of my past articles, you know that one of the things that I advocate is total door service. You know, if you repair a lock, align a strike or adjust a closer, why not determine what might have caused the problem to begin with — and fix that while you're on the job site?

Of course, I know that this type of work is not for everyone. However, when you see how simple this is and figure out how many shekels a job like this can generate, you might consider doing total door service. Not everyday, maybe not on every job, but on days when things are a little on the slow side and it's been a day or two since you opened your last car or whatever, a job like this can be a welcome sight.

One of my regular customers called me the other day and told me the lock I had re-keyed a couple of months ago had quit working. The area manager asked me to come out to the store as quickly as possible since they couldn't lock the door. So, off I went.

The damage to the lock was extensive enough that I began to look for causes. Looking at the strike, I noticed some odd marks. Looking at the latch side of the device, I could see corresponding marks on the device and latch. Suspecting a sagging, or worn, pivot hinge, I was closing the door when I noticed that the latch side



1] Showing deep rub marks on the latch area.



2] Pressure points on door.

stile (the vertical aluminum tube) had a bow in it that forced the vertical plane of the door to the outside. The bow had about a 1-1/4" inch radius in it. In addition, the stile had a sort of hook, or twist, that forced it to rub against the latch side jamb as it closed (see photograph 1). I asked the store manager if they had to force the door shut when they closed and locked it. Yep!

Forcing the door closed and then forcing the cylinder to turn would easily account for the damage to the lock, and the fact that the latch could no longer be operated with the key. However, I knew there had to be a reason the

stile was forced out of alignment.

I stepped outside, closed the door to verify the misalignment and found the cause of the problem. About 10" up from the bottom of the door, on the hinge side, there was a common 4-1/2" butt hinge in bright brass (see photo 2, #2).

It seems that somewhere along the line, the bottom pivot gave out on the door and caused the door to drop away from the top pivot. The store manager, trying to solve an immediate problem and save some money, went down to Lowe's and bought the hinge, eight 1/4"-20x4" bolts, washers and nuts and "repaired" the door himself.

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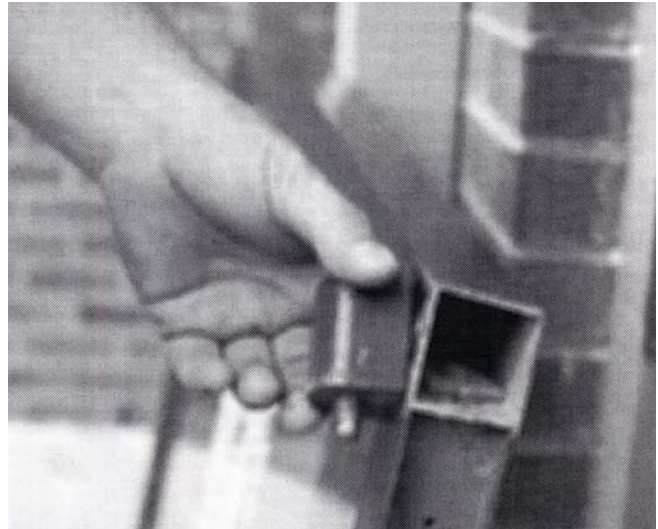
Although the manager's intentions were good, he didn't know you can't use a mortise hinge to fix a door that has pivot hinges on it, especially if you don't remove the pivots first. If you look at the butt hinge in photograph 2, you can see that it is placed flat against the jamb and the hinge-side stile of the door and bolted tight. That caused the door to bow and bind because the top pivot was offset. When the door was opened, the bind became worse (consequently the "bow" in the door I mentioned earlier) and that bind forced the panic device to rub the latch-side jamb and made it necessary to force the door closed when locking up.

Interestingly, if the door had glass in it rather than Plexiglas, the glass would have shattered because of the severity of the door bind.

**The first thing I did was to call the area manager and give him the news — it would be necessary to take the door down, remove the pivots (and bright brass hinge) and install a SELECT SL-57 continuous hinge and a new lock and closer.** I told the Area Manager how much the "fix" would cost. He agreed and I ordered the stuff I needed. I left and came back a couple of days later with my son Kelly to resolve the problem.

Once the mortise hinge (photograph 2, #2) was removed from the door, it was a simple matter to take the door down since the bottom pivot had long since broken (see photograph 3). Both the bottom and top pivot are held in place by either two bolts, which go through the face of the stile and can be accessed from the bottom and top of the stile, or two nuts on studs. The appropriate-sized box end wrench can be used to remove those bolts or nuts.

Photograph 4 shows the removal of the top pivot. Again, the bolts that secure that pivot are easily accessed from the top end of the stile.

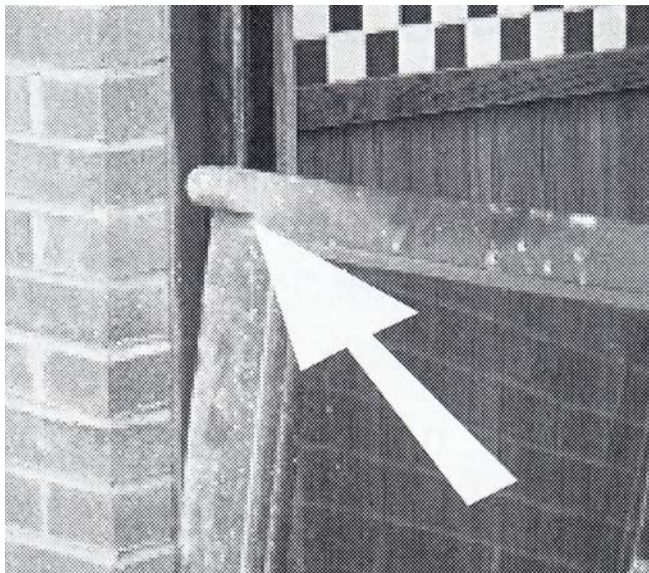


4] Removing top pivot.

The next step is cutting the SELECT hinge to size. This can easily be done with a hacksaw. Just measure the door, deduct about a 1/2" from the measurement, mark the hinge accordingly (while it's still folded like it was in the box) and cut the excess off. Next remove the two security cover plates (the inside one, next to the glass has three small Allen screws that hold it to the hinge) and set them aside.

I use double-faced carpet tape to hold the hinge in position on the edge of the door until a couple of self-drilling screws can be used to secure the position of the hinge on the door. Photograph 5 shows Kelly using a drill to set the screws that secure the hinge.

In photograph 6 Kelly is through drilling the hinge-side stile using the SELECT SL-57 as a template. These holes are drilled to 3/8" to accept sex bolts. After the



3] Bottom pivot.



5] Securing hinge with self-drilling screws.



holes are drilled we simply insert a sex bolt in the hole, and insert a “shouldered” 1/4-20 flat-head Philips screw from the opposite side and tighten them up with the DeWalt. SELECT supplies all the bolts, screws and such that you need for the average installation. However, I deviate on aluminum stile doors and use IQ-16x3/4" Pan Head, self-drilling screws to secure the hinge to the frame.

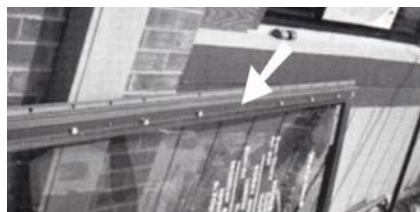
In photograph 7 you can see the blind ends of the sex bolts securing the hinge to the door. Notice that the arrow is pointing to an area that does not have a sex bolt in it. On the opposite (inside) stile the crossbar is mounted, and using a sex bolt in that area would interfere with the mounting of the crossbar. I simply use a 10-16 pan head self-drilling screw just below the hole (it's countersunk) to secure the hinge in that area. Although it's not shown until later, the security cover for the door leaf of the hinge is slid into place at this point and secured with the Allen screws provided.

*[NOTE: The prepped holes that are already on the jamb side of the hinge are counter sunk. Never use a pan head screw with its flat shoulder in a counter-sunken prep, as it will allow the hinge to move under stress. As can be seen later, I use the pan heads in between the prepped countersinks. That way, the pan heads are drawn up tight to the flat surface of the hinge and the chances of them working loose is minimal.]*

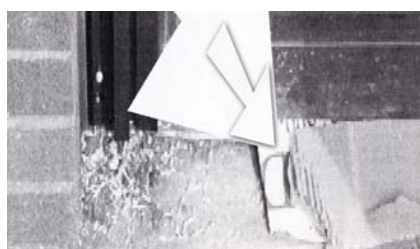
With the hinge firmly secured to the door, it's time to place the door back in the opening and attach the hinge to the frame. In photograph 8 the arrow points to some cardboard between the threshold and the bottom rail of the door. Those two pieces of cardboard are my “shims” for this particular job. In this case, two pieces of cardboard (cut from the packing carton of the hinge)



6] Drilling through holes for bolts.



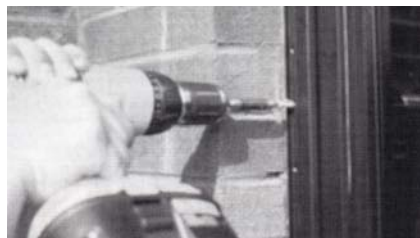
7] Hinge attached to door.



8] Using cardboard to shim door.



9] Drilling pilot holes.



10] Driving self-drilling screws.



11] Showing pan head screws.

were sufficient to raise the door to the exact level for proper operation.

When necessary, I also use wood, plastic and steel wedges or a couple of Stanley Wonder Bars to raise and hold the door in position. It all depends on the size and weight of the door. In this case with aluminum stiles and rails and a Plexiglas sheet rather than tempered glass, the door was light and easy to handle.

Photograph 9 shows my son drilling pilot holes for the self-drilling screws. What? Yeah, I know it sounds sort of redundant, but the photograph does show Kelly drilling 1/8" pilot holes in the jamb side of the hinge and frame. The reason is simple. The pilot hole accomplishes two goals. One, it keeps the screw from “walking” when trying to drill with it and two, it keeps the jamb leaf of the hinge from lifting once the screw penetrates the leaf, but has not yet cut through the aluminum jamb.

After you get a couple of screws in the leaf to hold it steady, you can drive the screws through both the leaf and the jamb with relative ease. Whenever I deal with a steel or wood door and a steel frame, I make it a practice to drill pilot holes.

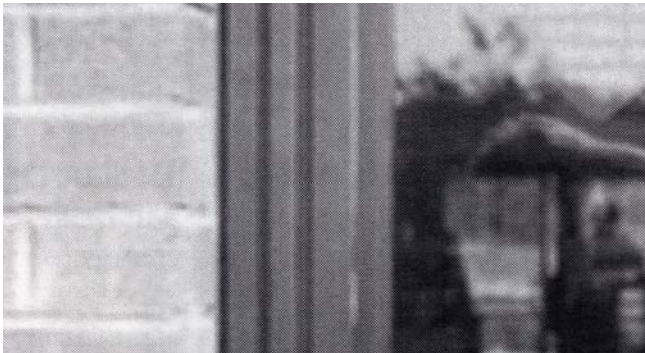
Once the pilot holes have been drilled (here, Kelly chose to drill all the screw locations), it's easy enough to drive the pan heads and securely attach the hinge leaf to the frame, as seen in photograph 10.

As a rule, I will put only about four screws, evenly spaced along the leaf of the hinge, and then check the door for ease of operation and alignment. That way, if there are any problems, they can be corrected before I finish screwing the jamb-side leaf down. Photograph 11 shows the pan heads equally spaced down the length of the hinge.

The hinge is now ready for the security cover. In photograph 12 Kelly is using a wooden wedge and a hammer to seat



12] Seating jamb-side security cover.



13] Security cover in place.

the security cover. This cover is a clip-on type and needs to be driven onto the hinge with a little bit of force. Of course, if you hit it directly with a hammer, it will distort, damage and deface the cover.

Photograph 13 shows the completed hinge with both security covers on them. Is that a third cover in the center of the hinge? Yep. That one never comes off the hinge and it covers the gears and bearings.

Photograph 14 shows the finished door after installing hardware. It looks much better without the brass hinge on it, don't you think? Better than the aesthetics, it works smoothly, as it should. **The best thing, in my opinion, about installing a continuous hinge on a storefront door is that even on the highest traffic doors, these hinges will give years and years of trouble-free service. Since they don't usually "sag," bend or bind, the other hardware on the door is less prone to problems caused by misalignment and hinge failure. I'd guess that Kelly and I have installed 60 or 70 of these hinges over the last few years (on narrow-stile glass doors) and have yet to have a callback due to failure!**



14] Finished door looking great and working as smoothly as it should. In the 60 to 70 doors we've installed over the last few years, we have yet to have a callback due to hinge failure.

Factoring in gas and labor, etc., I probably had a little more than \$370 in costs in the job. By the time I multiply my material and labor costs, add my service call fee and any "incidentals," a job like this becomes very, very profitable.

I will also tell you this — knowing the "average" fee charged by locksmiths in my area for opening cars, I would have had to open 10-15 cars in the hour and fifteen minutes it took Kelly and me to do this job and the hour driving time we spent getting there and back.

Additionally, we would have had to pay for our dinner, which was "comped" to us by the manager of the restaurant where we did the work!

So the next time you're on a re-key, or decide to file a strike because the door won't latch, take a look at the entire door, determine what is really causing the problem and tell the customer you can fix it. It's the best way I've ever found of shaking the shekel tree!

To find a SELECT Hinge dealer near you, call (800) 423-1174 or visit [www.select-hinges.com](http://www.select-hinges.com).

