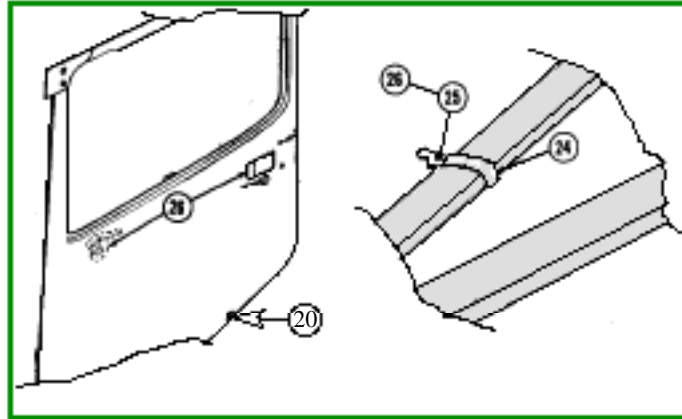


Cessna 120/140 Door Hold-Open Retainer

In the 120/140 parts manual, the door hold-open part is listed on Page 57 as Part Number A1663-017-1, Nut, Tinnerman Spring, Door Catch. On Figure 30, here is a tiny symbol which is meant to indicate this latch, though the representation is so poorly rendered that you won't be able to identify it. This image is shown on the left in the figure, and the matching part on the strut is on the right. In 2005, the new Tinnerman part number is C01663-017-1.



Stud Receivers

Here is what it looks like, and it is referred to as a Stud Receiver, listed in the Ball-Stud Fastener section of the Tinnerman catalog and web site. This is how they describe it, with a little modification to fit our usage: "Ball-Stud Fasteners are ideal for applications which require repeated disengagement between the stud and the fastener.....when latched, the spring legs continually bear in on the stud, thereby holding the door open".

The Tinnerman door hold open retainer is mounted to the door with two 1/8th inch rivets; the latch often fails less from usage than from corrosion weakening and misalignment of the strut portion so that it bears excessively on one of the two tabs of the Tinnerman. Although intended for rivet installation, short screws and nuts can be used; the short length is required to make sure the shanks of the screws do not strike the frame of the door opening. If 6-32 screws and flat nuts are used instead of the locking type, add a dab of Loctite™ to be sure the nuts stay put.

Always a mystery are the exceptions. My 120 doors have no holes for the latch and I wonder if the planes came that way. For mine, someone utilized standard cabinet latches...and they have the same lifetime problem...rust.

Whatever the finish on the Tinnerman part, paint it a couple of coats before you mount it on the plane. That way, it gets more protection between the door and the part (dissimilar metals) as well as having more protection on the exposed side. We used already-alodined 1/8-1/8th rivets which meant that touchup paint would stick to the rivets as well. If you insist on a part authorized for use on aircraft, you also invite the complexity and cost of the certification paperwork.

The standard finishes currently provided for part number C01663-017 are as follows:

- 1 Phosphate plus two coats olive drab paint. Color: Olive Drab
- 27 Plain Finish. Heat treated and dipped in soluble oil. Color:Black
- 3B Zinc Electroplate .00015 Minimum. Color:Silver
- 4 Phosphate plus special oil dip. Color: Black

The web site from which the figure and explanation were gleaned is: www.tinnerman.com. You can't determine dimensions or finish from the web site but you can download the dimensioned prints in .PDF form. The web site allows you to find a local source of Tinnerman parts. Other than that, one respondent noted that Avial has the parts, which means any FBO can order them.

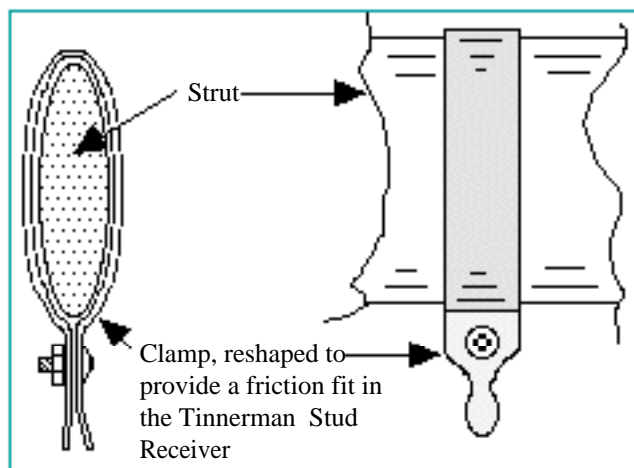
This table comes from the Tinnerman site. Note that the C01663SS-017 is a stainless steel version and so it would negate the hint above to always paint the part if you managed to get some of these. The 017 of the part number for our planes refers to the thickness of the material of the part and reflects its grasp strength. Do not assume that "stronger is better" because the "hold" force of this retainer combination affects the amount of force you have to apply to get the door to close; most want the door to close with the force of relatively low engine RPM's. If you were to use one of the stronger versions, then the force you apply to the window rim or inside handle can twist the door in a manner that would not be good!

2005 part number	Retention force, pounds
C01663-012	3.5
C01663-017 (Cessna 120/140 style)	8
C01663SS (Stainless Steel)	8
C01663-022	12
C01663-027	18
C01663SS-028	18
C01663-031	30



There are two "mating" parts which can be used. The Tinnerman stud receiver is designed to mate with a stud which looks like the figure at the left. Tinnerman no longer sells the ball studs, never made by them but at the end of the article more resources for them are listed. To use them, you will have to re-shape a clamp to mount them. Cessna's solution which is shown in the parts manuals is based on reshaping a clamp as well, indicated in the next figure.

A stainless steel clamp can be reshaped to fit over the strut, with the latch section of it formed with a file and sander so as to fit into and be retained by the Tinnerman half. The sketch illustrates the shape. If the tab portion which goes into the Tinnerman device is too wide you will need excessive force to mate the two parts as you try to close the door and again to separate them. Trim and adjust as needed to center the clamp end and get the retention you want. It is very easy to get the strut portion of the door holder off-center with respect to the Tinnerman, causing excess stress on one side of the Tinnerman or striking the door and ruining its finish. Make sure you align the strut portion so as to hit the Tinnerman in the middle of the stud receiver.



Tinnerman:

In August of 2005, an owner advised that the original part number of the Tinnerman was no longer valid. I accessed the Tinnerman website and found that all their part numbers had the zero added after the C.

From a note on the print for the stud receiver a reason for the addition of the zero was likely. They switched to a great drafting software package called PRO-E. PRO-E will reject any dimension in conflict when a part is combined with its mate, and at least one change due to that was listed on the print. It is common when a company changes dimensions or features of all their products to change one letter or digit of the part numbers; in this case, before they got all the parts changed, they could tell which had been re-drafted by the addition of the zero.

From Tinnerman:

If you require additional information, please contact us at 800.221.2344 (8am - 5pm EST)

Tinnerman Palnut Engineered Products, Inc. <http://www.tinnermanpalnut.com>

Ball studs are not manufactured by Tinnerman Palnut Engineered Products. At one time Tinnerman Palnut purchased and resold the ball studs, but have not done this in over 20 years. Our recommendation is to contact one of our authorized distributors, who currently stock and sell the ball stud products. (And that is why I could never find the "ball" dimensions).

Wurth/Adams Nut & Bolt – 800-786-0664 Minnesota

Advance Components – 800-275-7772 Texas

ILS/Arden Fasteners – 800-759-6336 Minnesota

Bolt Products – 800-423-6503 California

DB Roberts – 800-800-6887 Massachusetts

EFC International – 800-888-3326 Missouri

HW Eckhardt – 800-606-4466 California

If you would prefer contacting the manufacturer direct, our records show the following information:

Wood Seabring

13800 Enterprise

Cleveland, OH

216.267.3191 (Phone)

We were told that these are the brand names to look for in the hardware stores or fastener distributors: Dot Fasteners and Serv-A-Lite, both of which make parts which look like the earlier figure.

Neal Neal F. Wright COUGARNFW@AOL.COM

Filed as Cessna door holder august '05