



CLoc® SK213, SK215, SK245 Adjustable Receptacles

This family of adjusting receptacles for CLoc® 2000 and 4000 Series Fasteners were designed and patented in the early 1990s by Skybolt founder, Ned Bowers. The general properties of any 1/4-Turn

panel fastener require an inventory of fastener stud assembly lengths for every .030 in panel thickness variations. Imagine the typical engine cowling where two surfaces do not mate or face perfectly. It does not take much face misalignment (surfaces



SK245

SK215

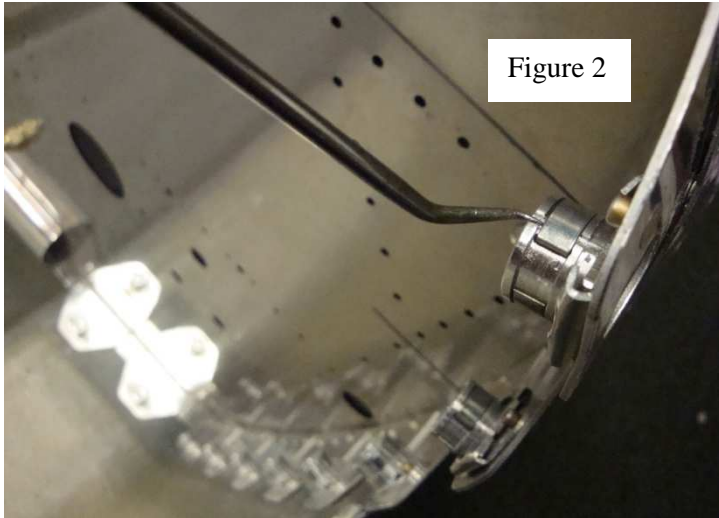
SK213

are angled) to eat up .030 of an inch. That is why grip charts can be very frustrating. In other words, .032 plus .032 can easily add up to .080 or more because of how the two panels face each other. That is why most aircraft IPC manuals simply state AR (as required) to describe a panel fastener. Simply stating in a parts manual that the cowling uses 10ea 40S5-4 studs when in reality, only -5 studs will work is not the best document to seek FAA approvals. So, many parts manuals simply state “AR”. Even the big aircraft manufactures cannot get it right by referencing a chart.

For 35 years, Skybolt has been inside and out of thousands of engine cowling applications; thus we found a need for the “Adjustable” concept in order to answer so many everyday problems associated with fastener design. Our designs have been so successful, even the military has figured out the cost benefit of “one size fits all” when it comes to field spares. Our original Dash 2/4 design remains the forerunner of our new design and kit business; in other words, it is our workhorse.

For now, we will describe the mechanics of the SK213-2; the SK215-4 and SK245-4 Receptacles –

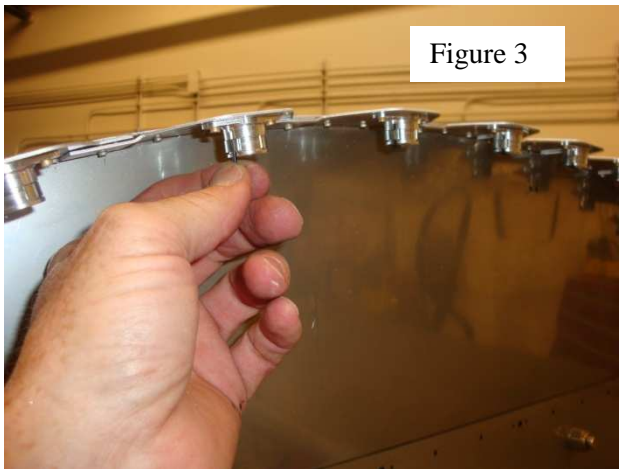
Before you begin installation, note the anti-lock rivet-pin installed at the back of the receptacle (Figure 1). This pin has one function: to allow for the initial adjustment setting. You will note that the inner member is free to rotate. It is important to note the orientation of the pin as you mount the receptacle. Obviously, it can be mounted orientated in two directions.



You want to mount the receptacle such that the pin, better worded, the locking clip “tang” is accessible as noted in Figure 2. After the initial adjustment, you will want ease of access to the locking clip if any further adjustment is required. In Figure 2, the black antilock pin has been removed (after adjustment the first time....and probably the last) and further adjustment is required. Note: the locking clip can be accessed from the face of the inside panel only if an access

offset hole was made prior to installation. After years of using and seeing these parts used in the field, few applications required front access, therefore, the offset hole is usually not required. In fact, with a curved pick tool, the re-adjustment process is easier from the back....as long as you mounted the receptacles oriented properly.

TIP – Even if the receptacle locking clip is not accessible from the back, it is possible to retract the locking clip by inserting the pick through the front via the groove between the insert and the outer barrel. The curved pick is more effective than a straight pick.



Once the receptacle is properly mounted and the fastener is installed in the outer panel, place the panel in position and lock the fastener into the receptacle. (If the insert is too far inside of the receptacle barrel, you may not be able to lock the fastener. Simply position the insert outward towards the surface). Once locked, continue to turn the fastener as if it is a simple machine screw. This will draw the fastener to the proper clamped and locked position which is approximately .020-.030 from fully bound (clamped).

With a quick push-turn motion (counterclockwise), unlock the fastener(s). Remove the panel for access to the receptacle(s) and remove the anti-lock pin as shown in Figure 3.

It is not required but good practice, pre-lock the insert by turning clockwise until the insert slot is as shown – at the 1:00 o'clock to the 7:00 o'clock position. You will feel and hear the insert lock. See Figure 4

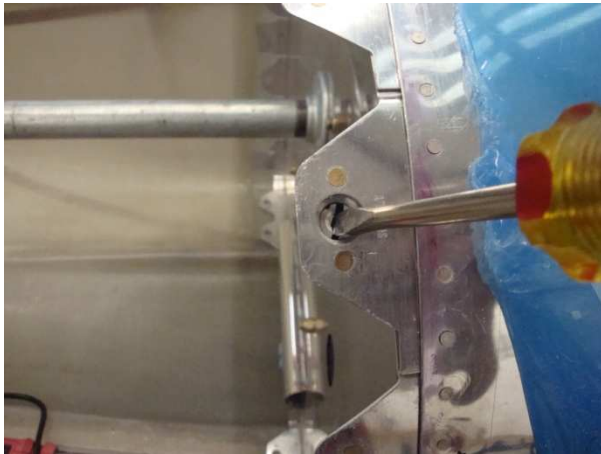


Figure 4

In Figure 5, with the outer panel removed, insert the curved pick tool into the rear groove to lift the locking clip and use a standard screwdriver to turn the insert accordingly. Remove the pick and check that the insert is locked.



Figure 5

You may find that, due to the memory in fiberglass, a perfect adjustment, after 6-months of use, a particular fastener may require an occasional adjustment, but as described it is very easy. You may also find that a fastening sequence can change a perfect adjustment to a not-so-perfect adjustment. Simply note which fastener requires adjustment and accomplish the next time the panel is removed.