

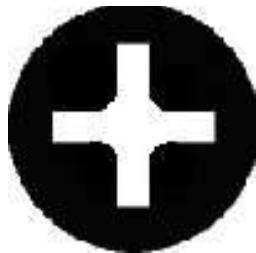
The front of George Wilder's RV8 was hit by a pigeon as he was driving at 50mph along a single carriageway. Fortunately on inspection he found no damage to the paintwork, but needed to remove and adjust the position of a headlight cowl on his RV8. Reading through the relevant RV8 Workshop Notes the authors refer to using a Phillips screwdriver and undoing the Phillips screws – RV8NOTE167 in Volume 6 and no doubt others. These screws are in fact Posidriv® screws. This may not be a distinction which someone without an engineering background may be aware. There are important differences between Phillips and Posidriv® and the use of the incorrect driver will cause damage to both screw head and driver. The crosshead screws on an RV8 are of the Posidriv® type and not a Phillips type as mentioned in the RV8 Workshop Notes. This note explains the differences between the two types of drive so you will be able to make sure you have the correct screwdriver for the job. The information below is taken from a useful website at www.instructables.com

Phillips Drive

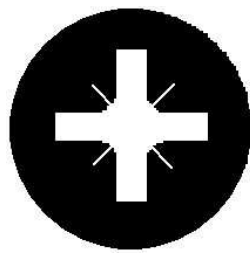
The Phillips system was invented for use in assembling aluminium aircraft, with the aim of preventing assemblers from tightening screws so tightly that the aluminium threads strip. The driver will cam out before that happens. The Phillips driver has four simple slots cut out of it, each slot is the result of two machining processes at right angles. The result of this process is that the arms of the cross are tapered and has slightly rounded corners in the tool recess. Phillips is designed so that when excess torque is applied it will then cam out rather than ream the recess and destroy the bit. The driver has a 57 degree point with a blunt tip, tapered wings. Identified in ANSI standards as type I.

Advantages & Disadvantages of Phillips

In all cross drive systems the driver will self-align with the fastener. The tapered design that allows camout can become a problem as the tooling that forges the recess in the head of the screws begins to show signs of wear. The recess becomes more and more shallow, which means the driver will bottom out too soon and will cause the driver to cam out early. Another problem is even though the ease to insert, Phillips screws can be tough to get back out. The main disadvantage is the screwdriver pops out too readily, stripping the screw, gouging the work, and in general transferring all the problems that were formerly with the slot design. Consumers are likely to think that any screw head with a cross drive recess is a Phillips, which can lead to problems.



Phillips



Posidriv®

Posidriv®

Posidriv was jointly patented by the Phillips Screw Company and American Screw Company in the USA. Developed by GKN in the 1960s, the recess is licensed from Trifast PLC in the rest of the world. It is the de facto standard in Europe and most of the Far East, where Phillips is almost nonexistent. The proper Pozidriv screws have a flatter bottom to the socket, and steeper sides, so the driver doesn't cam out as easily. The name is thought to be an abbreviation of positive drive.

Posidriv is similar in appearance to the classic Phillips crosshead, but in fact is substantially different. On close examination you will notice a second set of cross-blades at the root of the large cross-blades. These added blades are for identification and match the additional markings on the head of Pozidriv screws, known as "tick" marks, single lines at 45 degrees to the cross recess. So, the marks are for identification purpose. Pozidriv also does not have the rounded corners that the Phillips screw drive has. The tip or the driver is blunt which also helps it to seat better into the recess in the screw, unlike the Phillips which comes to a sharper point.

Identified in ANSI standards as type IA, Pozidriv screws can be turned by Phillips screwdrivers, although they should not be used as they tend to ride out of the recess and round the corners of both the tool and screw recess, but Pozidriv drivers won't turn Phillips screws.

Advantages and Disadvantages of Pozidriv

The largest advantage it offers is that, when used with the correct tooling in good condition, it does not cam out, allowing great torque to be applied. The chief disadvantage of Pozidriv screws is that they are visually quite similar to Phillips, so many people are unaware of the difference or do not own the correct drivers for them, and use incorrect screwdrivers. This results in difficulty in unscrewing the screw and in damage to the slot, rendering any subsequent use of a correct screwdriver unsatisfactory.

ANSI is the American National Standards Institute www.ansi.org