

Phillips, JIS, and VamPLIER™

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Motorcycle restoration hobbyist. Tool junkie. Seldom is there a less-defined difference between two, apparently separate descriptions of someone. Another, less pleasant similarity: both have been known to run red-faced and wild-eyed from the shop, pulling their hair and yelling incoherently. In doing so, those new neighbors, the ones who thought you were so nice, lock the doors and draw the blinds, thoroughly spooked.

What could possibly cause such odd behavior?

One simple three-word phrase: stripped screw head. **(PHOTO 1)**

In this article we'll explore one of the best practices to prevent stripping a screw head to begin with and a fine tool that might save one's sanity when a stripped head is beyond use.

There are many cross-recess designs that are superficially similar to each other. This really complicates choosing the correct driver bit. This article will focus on JIS cross-recess driver bits that precisely fit the screw heads found on our beloved bikes, versus the common (and commonly misused) Phillips bits.

To the best of my knowledge, the screws on almost all Japanese bikes are of a cross-recess design referred to as JIS (Japanese Industrial Standard) or, more correctly, JIS B 1012:1985. This JIS specification defines the dimensions, geometry, and measuring method for the cross-recess formed on the heads of machine screws, wood screws, tapping screws, and the like. At a glance, a JIS cross-recess looks like a Phillips cross-recess, but the mating JIS head and driver tip is of different geometry than that of the Phillips design. JIS and Phillips are only superficially similar. **(PHOTO 2)**

The Phillips design displays a tenden-

cy for the driver tip to "cam out" of a Phillips screw head as increasing torque is applied. This tendency to cam out is a throwback to the original design by John P. Thompson, later perfected by Henry F. Phillips (Phillips Screw Company) in the early twentieth century. Whether the tendency to cam out was originally intended by the designers is a matter of some debate.

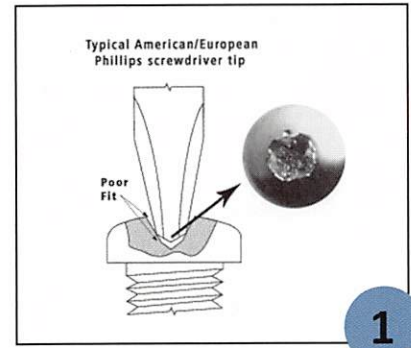
The tips of JIS screwdrivers are precisely designed to tightly fit a JIS cross-recess and not to cam out of a JIS screw head as torque is applied. JIS cross-recess heads are usually identifiable by a single dot (or rarely an "X") to one side of the cross slot. **(PHOTO 3)**

A Phillips tip will bottom out in a JIS cross-recess, not engaging the full area of the recess and thereby exacerbating the tendency to cam out, inflicting damage in doing so. The fact that some Japanese screws seem to be made of case-hardened peanut butter only serves to make the task of damaging the JIS cross-recess by using a Phillips tip that much easier. Note that a JIS tip fits a Phillips head much better than vice-versa. **(PHOTO 4)**

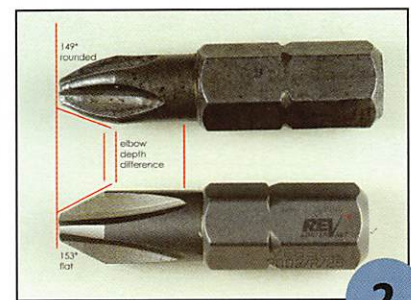
Don't know for sure if a screw and driver are correctly matched? Insert a JIS driver into a horizontal JIS screw. If the driver hangs there without being supported, they're matched. **(PHOTO 5 & PHOTO 6)**

When confronted with a minimally damaged JIS cross-recess, oftentimes dipping the tip of JIS driver in valve lapping compound will result in enough bite to successfully remove the screw. But then, we've all seen the screw head that presents a featureless, conical depression that's...er...depressing. How to remove it?

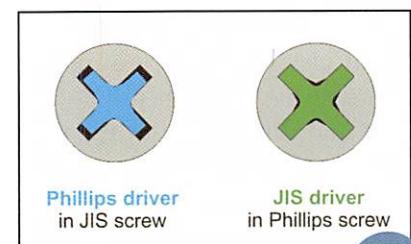
Many of us have resorted to all manner of shenanigans trying to remove a



Poor fit



Note that the gentle radius of the wings may or may not be present on a Phillips tip.



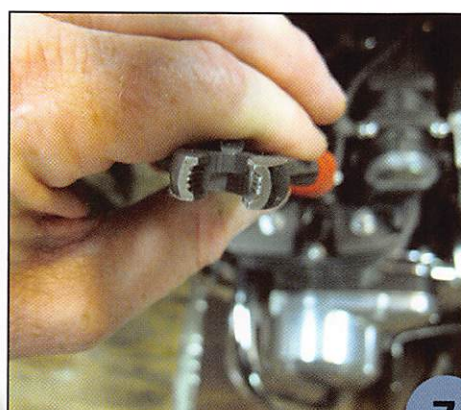
Fit



5



6






7



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How Does VamPLIERS™ Technology Work?

Both vertical and horizontal serrations grasp a screw head without slipping.

Ordinary pliers	“Vertical serration”	“Maximizes the contact”
 <p style="text-align: center;">Screw head</p> <p style="font-size: small;">Ordinary pliers jaws are lined with horizontal serrations. When you grasp and turn a screw head with ordinary pliers, the jaws slip and the screw remains stuck.</p>	 <p style="text-align: center;">Screw head</p> <p style="font-size: small;">VAMPLIERS™ specially-designed jaws generate gripping power.</p>	 <p style="font-size: small;">VAMPLIERS™ perfectly-fit serration maximizes the contact with no slip.</p>

9

screw with a severely damaged recess. Drill/easy-strip...I mean easy-out is tedious and only sometimes effective, but of no use on small screws, such as those on handlebar switchgear. The application of straight-jaw pliers in an attempt to grasp the outside of the curved head might work. Might not, too. Cut a slot in the remains to try with a straight blade? Even if one can, indeed, obtain a purchase on the head with enough power to turn the fastener, what if the head simply twists off of the screw shank?

Enter the VamPLIER™. I saw one of these (I think the 7”) reviewed in *Motorcycle Consumer News*, and they gave it a very good review. Tool-junkie me, I bought a set of four. VamPLIER™ tools are, indeed, designed with the removal of damaged fasteners in mind. The serrations and dimensions of the jaws are such that a fastener (truss, round, or pan head screws; threaded shaft or nut) can be easily gripped, enabling the application of significant twisting force to attempt removal. The patented

design of vertical and horizontal serrations inside the jaws bite into screw heads, threaded shanks, and nuts of various shapes without slipping. They aren’t magic but are far superior to conventional straight-jaw pliers for gripping nuts and threaded shafts or studs. Choose the right size for the job. They are made in Japan of very high quality tool steel. Anyone who appreciates fine, high quality tools will be satisfied with any of these pliers. The fit and finish are beautiful works of industrial art. There’s no discernible slop in the pivot, and the jaw serrations meet precisely and evenly. They have comfortable handles and are the first tool I reach for when the damaged/seized fastener is appropriate for the use of a VamPLIER™.

(PHOTOS 7, 8, & 9)

Due mostly to the success I’ve had using VamPLIERS™, my level of fastener-discontent has receded to pre-puberty levels. In other words, lids to jelly jars are now among my most challenging tasks.

VamPLIERS™ are available from Amazon. They’re pricey, but truly good tools always are. With respectful care, I predict they’ll last many lifetimes. They are apparently the same tool as “Engineer Screw Pliers,” also made in Japan and available from Amazon. I have not tried any of the Engineer Screw Pliers, but judging by the similarities, purchasing on price alone may be a consideration.

JIS screwdrivers are available from a variety of sources. Vessel is a common, high-quality brand.

Perhaps, in time, the neighbors will realize that “that guy” living across the street, that nut holding the handlebars, hasn’t run screaming from the dungeon-level entrance to his house for a while. They might observe him on the front porch, calmly and happily eating toast with jelly. And they might actually come outside once again.

To learn more about the wide variety of “cross-head” screws, go to: <http://www.instructables.com/id/When-a-Phillips-is-not-a-Phillips/>. ●