

Addendum: YICS vs. non-YICS engines ID

A number of people have inquired about the differences in YICS vs. non- YICS engines, and specifically how to positively identify them. So here you go:

YICS stands for the **Yamaha Induction Control System** and is a performance and fuel-efficiency-enhancing cylinder head design that promotes better and more complete combustion chamber "filling" and "mixing", and thus better combustion efficiency via a cast-in, full-length, 10mm diameter chamber within the back top edge of the cylinder *jugs* connected to special passageways within the cylinder **head**. This chamber is sealed with a small hex-headed bolt ("plug") and sealing washer at each end, and within the chamber has 4 individual tiny holes (or "sub-intake ports", as Yamaha calls them) that lead up into the cylinder head's main intake passageway.

YICS made its first appearance on various 1981 XJ-series models, and was used until 1986.

YICS was used on:

- * all XJ550 models
- * all 1982-up XJ650 Maxim and Turbo models
- * all XJ700 air-cooled models
- * all XJ750 air-cooled models
- * XJ900RK
- * XJ1100 models.
- * other non-XJ engines

Strangely, the 1980-81 XJ650 Maxim and XJ650 Midnight Maxim models, as well as the 1982 XJ650RJ Seca models, did **NOT** use the YICS system. It has also been reported by some owners that some very early model 1982 XJ650 Maxim models did not use the YICS system. We say "strangely" since the YICS system was actually developed and put into use in 1980 on other models, but never made it onto the 650cc engines until 1982.

The only real "maintenance" that needs to be performed directly on the TICS system is the periodic clean-out of the YICS chamber and their feed ports, which can get plugged by carbon after years of use. Take a look for yourself:

www.youtube.com/watch?v=7SnIGMIGLho

To aid in the identification of these engines, we present you with the following visual cues for determining the pedigree of your engine:

a) **Most** YICS-engined bikes have front lower (oil pump) covers on both sides that features a red, rectangular "YICS" emblem in them below the cast-in YAMAHA wording....the XJ700 air-cooled models being an exception to this rule. Non-YICS engines have the oil pump covers with only the YAMAHA wording (or no wording at all) cast into the cover, as can be seen below. Note that since all of these covers can be fitted to any XJ550 – XJ900 engines, the presence or absence of a YICS cover is **not** a definitive indication of what style engine you have:



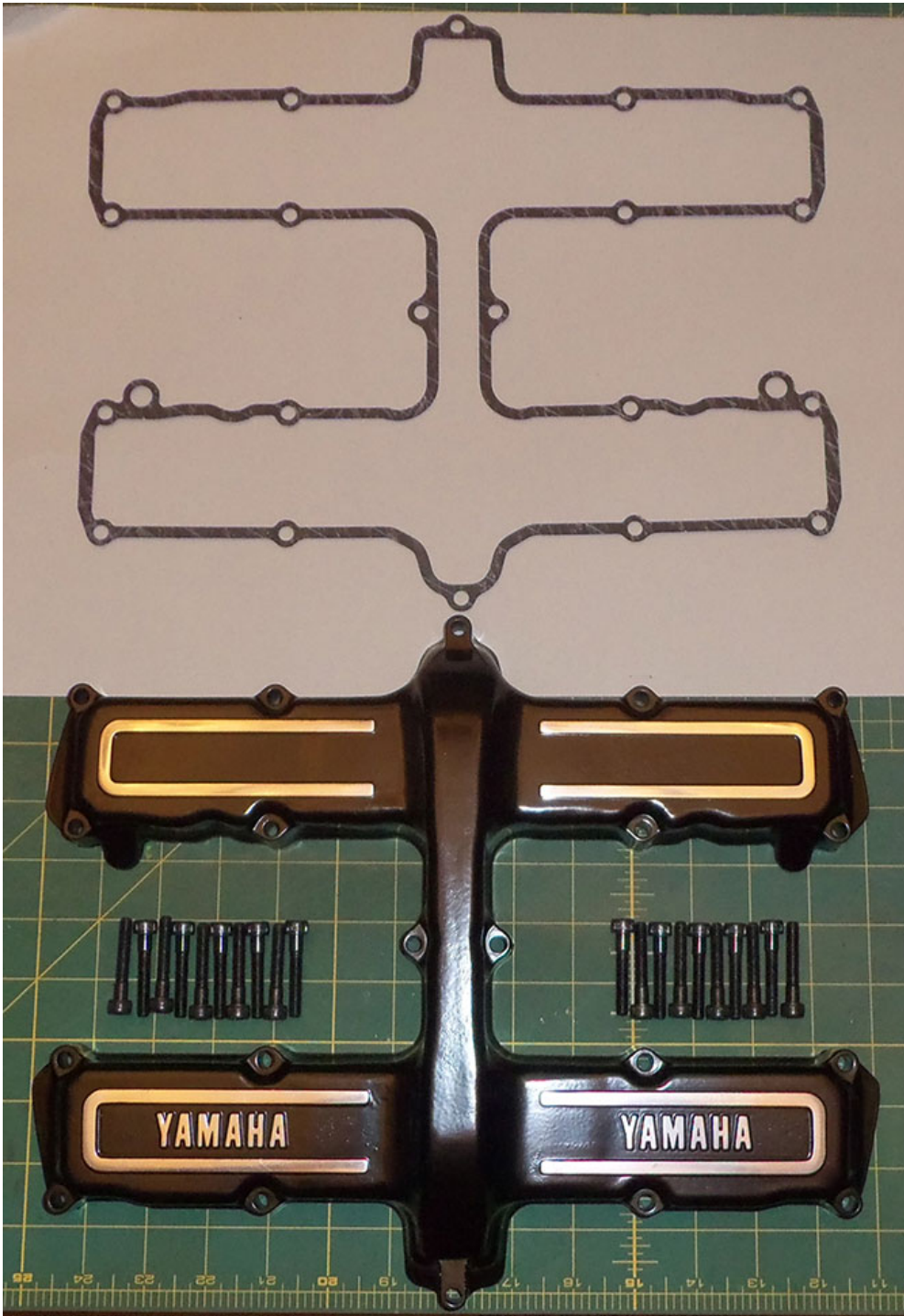
b) YICS-engined bikes use a valve cover that has the word YICS cast into the top surface, while non-YICS models are blank or are cast "YAMAHA" (or "YAMAHA 5VALVE" on 700-X/750-X models) on the valve cover.

c) YICS-engined bikes have the valvecover secured to the cylinder head via a total of 12 bolts (and each of these bolts has a special cone-shaped rubber "pressure washer" under each bolt head). Non-YICS engines use 20 bolts to secure the valvecover, and no "pressure washers" on the bolts. There are, of course, exceptions: the XJ650 Turbo engine and the XJ1100 engines; while they are YICS engines, they use 20 bolts instead of 12, and thus no pressure washers.

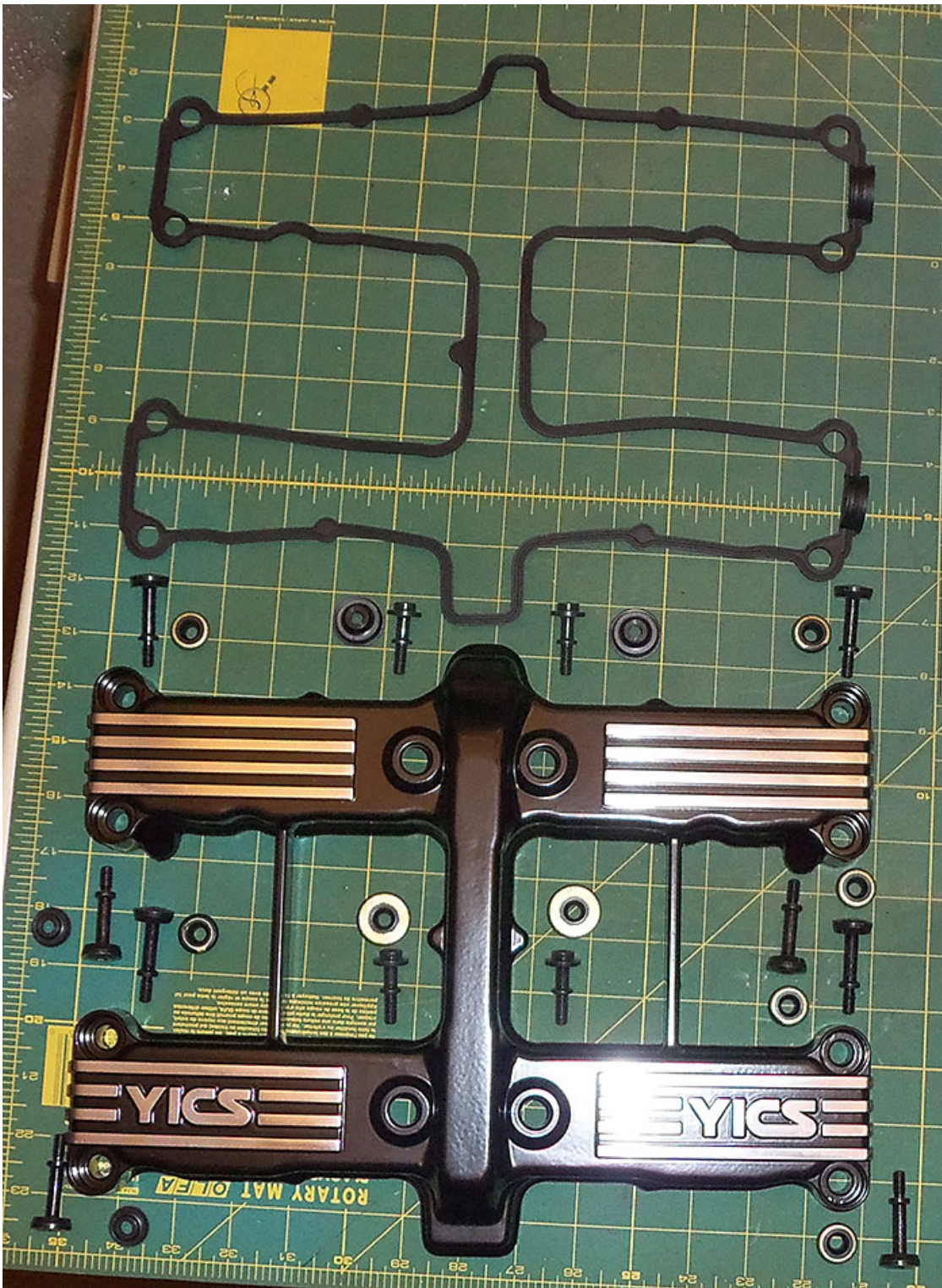
d) YICS-engines use a soft, spongy-rubber valvecover gasket (except, of course, the XJ650 Turbo and XJ1100 engines), while the non-YICS engines use a flat "paper" gasket (except for the XJ700-water-cooled engines; they are not a YICS engine, but they too use a soft rubber valve cover gasket and pressure washers.

In the images below you can spot the differences between the non-yics cover, bolts, and gaskets:

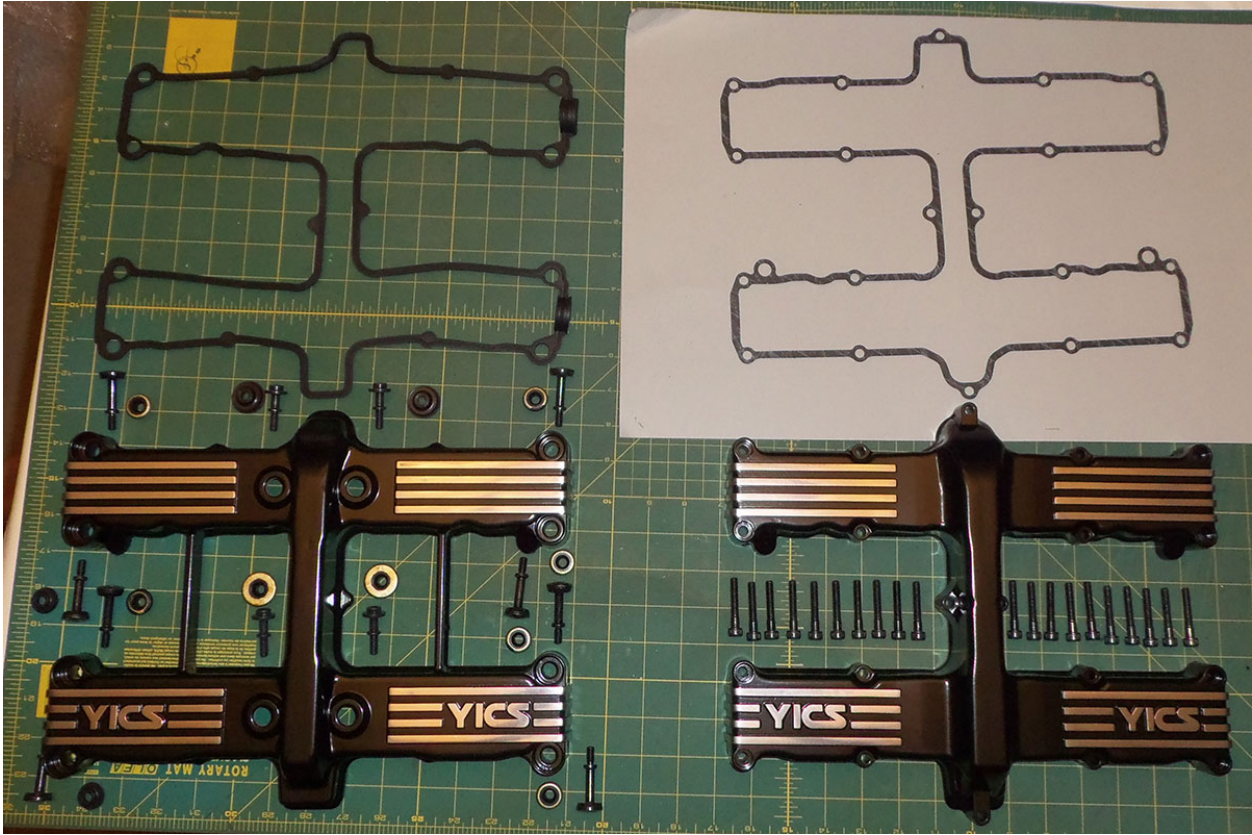
1) below is the non-YICS cover as used on 1980-81 XJ650 Maxim and 1982 XJ650RJ Seca engines.
NOTE: 20 total mounting bolts, flat “paper” gasket, and no rubber “pressure washers” on the bolts:



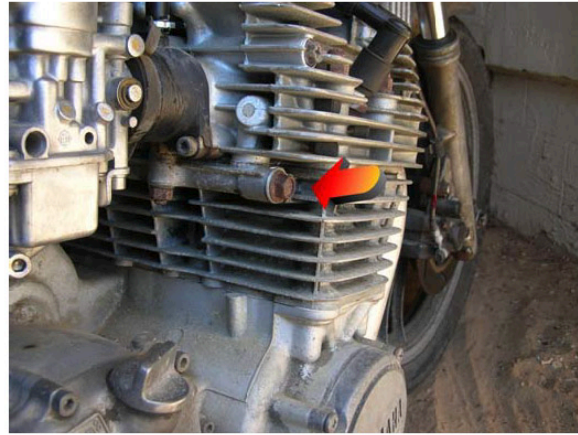
2) a YICS cover used on most YICS-equipped engines. Note the 12 special flanged bolts, their pressure washers, and the molded rubber gasket.



3) YICS cover (on the right) that is unique to the XJ650 Turbo models (XJ1100 engines used a similar-appearing cover, but it is much larger/wider). Note that the cover on the right uses the same 20 securing bolts and the same flat “paper” valvecover gasket as the non-yics covers. On the left is the identical cover, but designed for the engines using the molded rubber valvecover gasket and the rubber “pressure washers”.



e) YICS-equipped engines have a full-length chamber cast into the rear, top section of the cylinder **jugs**, sealed off by a bolt (and crush washer) at each end of this chamber. Non-YICS engines have no such port.



Professional tip: just look for the word YICS on the valvecover, it's the easiest way.....although, it IS possible that you could come across an XJ650 Turbo (YICS) valvecover on a non-yics XJ650 (1980-81 Maxim and 1982 XJ650RJ Seca) engine, the chances of that happening are between slim and none.....!

The most important point to remember:

The pronunciation of "YICS" is "yiks", not "yikes!", no matter what anyone else tells you!

YICS engine ID guide.word