

END THE
BENT-ARM BLUES

POWER VALVE TRICKS

FOR THE YZ125 & 250

*Cut down on noise, power loss,
and wear with a few trick parts*

By the *Dirt Bike* Staff, with a little help from RJR



No doubt about it, the Yamaha Power Valve System (YPVS) is a good idea. By using the system to vary the height of the exhaust port, Yamaha engineers were able to build an engine that delivers lots of low-end torque while still having the ability to provide plenty of horsepower at top revs.

Generally speaking, the system is well thought-out and constructed, except for one major flaw that has been cropping up on a few 250s lately. Specifically, the arm that actuates the Power Valve linkage has been bending, which alters the port timing and doesn't allow the bike to run as strongly as it could.

Naturally, there is a cure; and, lucky for us, it's not an expensive one. Rick Jones, of RJR Products, has been fiddling with the Power Valve since it first landed on these shores, and recently showed us the cure for Power Valve problems.

FRICION IS A NO-NO

The first thing you may notice about the Power Valve-equipped YZs is the noise. If you listen closely to one while it's running, you can hear a distinct buzz from the spinning parts of the unit. In this case, friction is causing the noise; if left unchecked, it will cause the parts to wear rapidly and cost a certain amount of horsepower loss.

Reducing this friction problem is easy. First, pull off the engine cover on the Power Valve side and remove the centrifugal drive for the valve. It'll come right out with the side cover, and you can lift it out of its bearing and pull it away from the linkage arm.

What you now have in your hand is the

heart of the Power Valve unit, and the thing that's creating all the noise. With the large round cup end facing up, compress the spring and pull out the pin that holds the assembly together. Do it over a bench so you don't lose any parts. Carefully set aside the cup and balls and related parts, remove all the washers, bushings and bearings from the shaft, and set them out in a line.

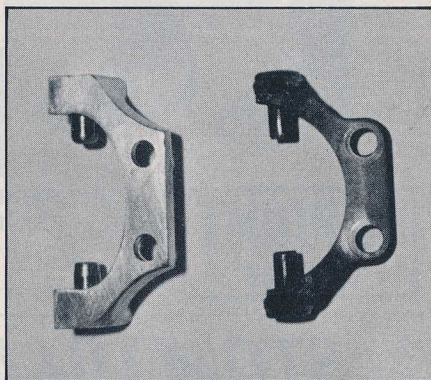
You will notice that on one side of the slot that the linkage arm rides in there is a caged bearing with a washer on either side, while on the other side of the slot there is a solid bushing and 2 washers. This is the cure: throw away the solid bushing and replace it with another bearing identical to the one on the other side. If your dealer doesn't have the bearing, don't fret—it's a common size. The same bearing serves

duty as a throw-out bearing on a Suzuki RM250 or 125 clutch. The Suzuki part number is 09263-15003.

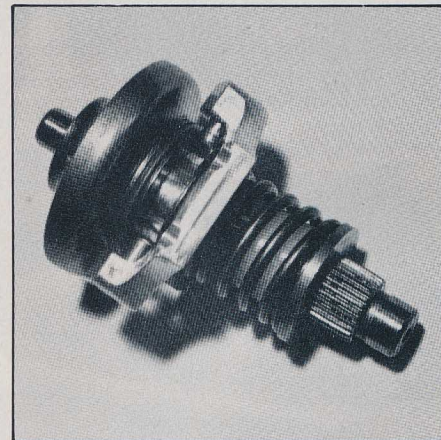
With the bearing installed, the Power Valve will run quieter and much more freely. One word of warning, however. These bearings are not made to last forever, and they don't. Plan on removing your Power Valve assembly on a regular basis and inspecting it for wear.

BENDING AND TWISTING

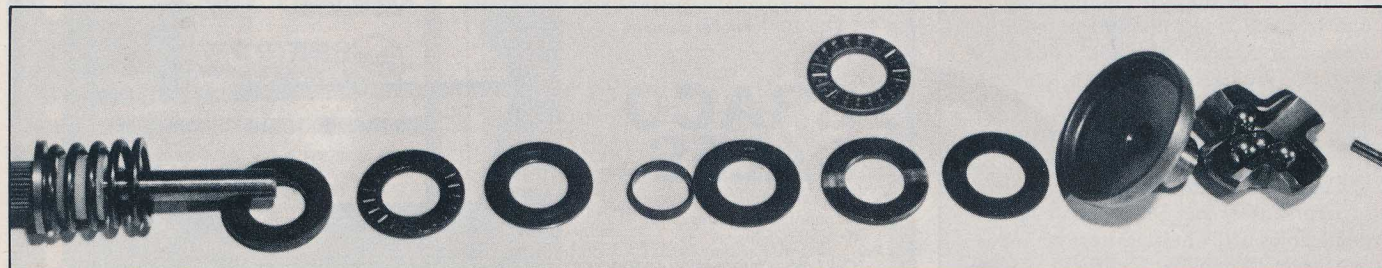
Problem number 2: The arm that fits into the slot on the centrifugal assembly is made out of flimsy, cold-rolled steel and has a tendency to bend. Once bent, the timing is thrown off and the engine doesn't rev out as far as it should. Also, a number of the arms we've seen have also twisted, as well as bent, which puts the contact pins



Stock vs. Trick. The machined-aluminum arm is much more resistant to bending.



The RJR aluminum arm uses a larger spacer between the bearings.



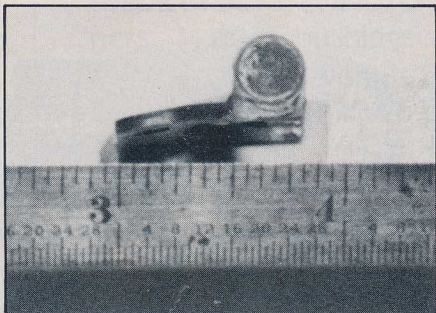
Trick fix #1: — Parts of the drive unit laid out in order of assembly. The extra bearing is shown above the thrust washer it replaces. Don't expect these bearings to live forever — check them often.

out of line and causes the whole assembly to wear rapidly.

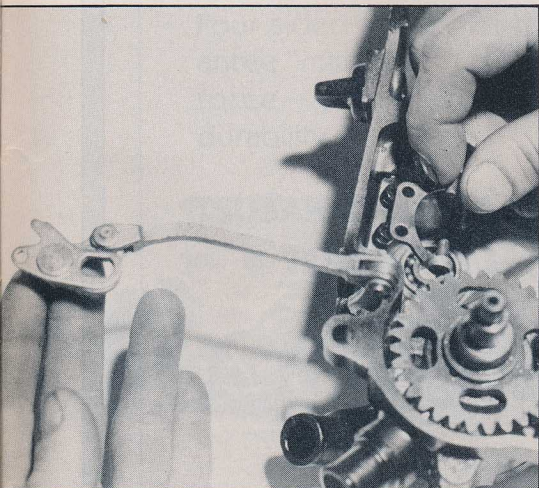
This is not good. The cure is a thicker arm. If you don't want to spend any money on it, braze a small piece of steel to one side of the arm to give it more strength. This is the bogus way out, though, and we don't recommend it. RJR has come up with a machined-aluminum arm to replace the stocker, and it will not bend or twist. Along with the arm, RJR supplies a different spacer ring to widen the contact slot on the assembly so the unit can accommodate the larger contact pins on the new arm. This spacer also increases the spring preload on the unit, which is fine. A recent Yamaha Service Bulletin suggests the addition of a washer on the far side of the spring to increase preload—with the RJR spacer and arm, this isn't necessary.

One more tip: A number of local racers have complained that the 250 doesn't rev out enough to suit them. The cure is to advance the Power Valve timing as far as it can go—loosen the adjustment nut and slide it as far as possible to the right of the slot. This will allow the 250 to pick up a few more rpm on top.

For more information on the RJR Power Valve kit, including price and availability, contact: RJR Products, 22612 Burbank Boulevard, Woodland Hills, California; (213)710-1106. □



If you look really closely, you can see how much the stock arm bent after only two races. When the arm bends it retards the Power Valve timing, and the bike doesn't rev out as far as it should.



The rest of the assembly is reasonably sturdy. All linkage pivot points should be lubricated with something superslippery, such as Bel-Ray Anti-Seize.

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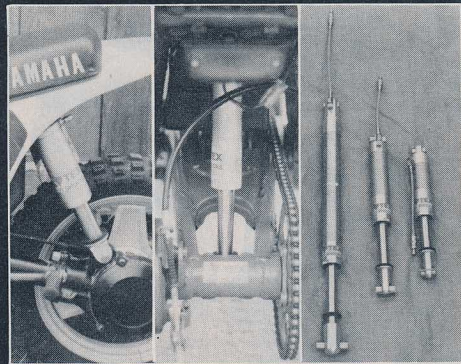
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