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MiscRes: Magazine Articles

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Bad XL Vibes?" The Fisher Damper Vibe-Buster

TECH & HOW-TO

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HOW TO

BAD XL VIBES?

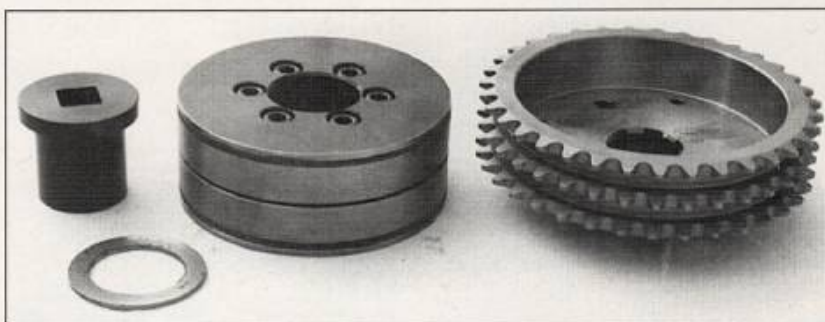
The Fisher Damper Vibe-Buster

Text and photos by Stephanie Feld

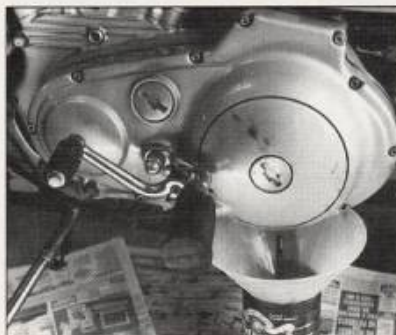
Doug Fisher International (DFI) has been producing vibration dampers for Harley-Davidsons for close to a decade. I've only talked to a handful of people who've tried a DFI damper, but they all seemed very pleased with the way the devices work. I ask you, if Fisher's Vibration Dampers are so great, why doesn't everybody have one? Well, personally, I think it's the price. Customers have no problem coughing up \$1000 for a big, shiny, chromed billet wheel. After all, it's real pretty, they know what it's gonna do (roll and glitter) and it's BIG. A DFI Vibration Damper isn't chrome (you can't even see it once it's installed), it fits in the palm of your hand, and it has a suggested retail price of \$415. Yipes! After we revive the customers, they always ask the same thing: for that kind of money, does it work? Hey, who's willing to ante up that kind of dough to find out?

Okay, that's my job. Those of you who are regular readers know that I'm on a mission. I want to help all of you stamp out Bad Sportster Vibes. To that end, I installed a Fisher Vibration Damper in my 1986 Sportster. Before I put the DFI damper in, I removed all other balancers from my Sportster, reinstalled the stock primary adjuster, and made some careful notes about the road speeds and rpms where my bike would become uncomfortable due to vibration. The DFI numbers that we'll get to in a moment reflect the changes found with the Damper and a filed-down stock primary adjuster shoe installed; no other balancers were on the bike.

Another point to note is that the Fisher Damper changes the primary ratio slightly. The stock engine sprocket is a 34-tooth unit while the Fisher sprocket has 35 teeth. This will drop the rpms at a



1 Here's the Doug Fisher Vibration Damper for four-speed Sportsters, dismantled. From left to right, here's the nut, washer (which goes under head of nut), friction damping device, and 35-tooth sprocket.



2 As for the installation, first things first! Drain the primary fluid. While it's draining, remove the seat and disconnect the battery.



4 Next, take off the nut on the end of the chain tensioner stud.

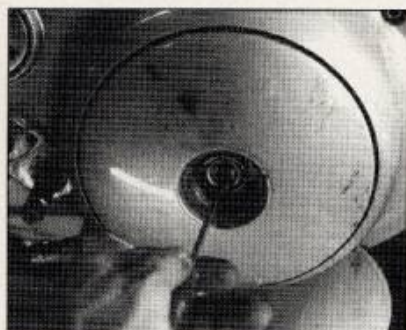


3 Then you can remove the shift lever and footpeg.



5 The old 'Chevy tool' is used to remove the clutch adjuster plug.

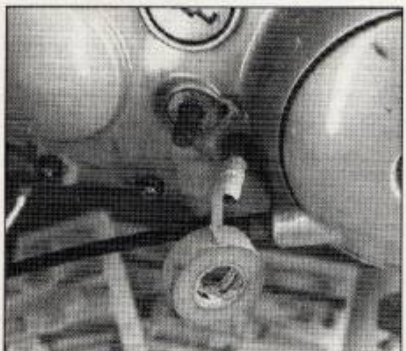
given road speed only 50-100 rpm; which is virtually unnoticeable. However, the larger diameter of the sprocket means that it cannot be installed with a new primary chain. It simply won't fit. The primary chain has to



6 You can now remove the clutch adjustment plug, spring, and outer "nut." Turn the adjustment screw to the right until the inner "nut" comes off the adjustment screw.



7 Don't forget to back off the adjustment on the primary tension screw.



8 Here's a neat trick I learned from Tod: wrap a couple of turns of electrical tape around the shifter shaft splines before removing the primary cover. With the sharp splines covered, you can usually reuse the shifter shaft seal. But if you have any doubts about the seal, replace it now. It's easier.

have a few thousand miles on it to fit over the new sprocket. My primary chain had clocked about 13,000 miles when I installed the Damper and there was plenty of slack left in the chain.

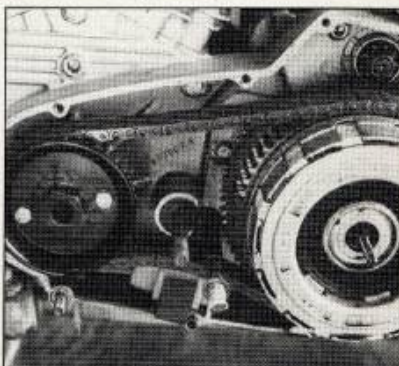
One last thing before we get to the riding. Let's check the manufacturer's claims. According to a brochure produced by DFI, its product will reduce vibration and stop your mirrors from shaking. That's all that DFI actually claims the unit will do (Doug Fisher himself says to expect a perceived 50% to 60% reduction in vibes on the highway over 2500 rpm.) The brochure also reprints some testimonials from various magazines and customers who rave things like, "the customer felt a subjective 75% reduction..." and, "about a 50% reduction in vibration and a noticeable increase in acceleration"(huh?) or how about, "...now there is no numbness. Acceleration is unbelievable." Remember, these are testimonials. Not claims by the manufacturer.

Okay, here's how it went with my Sportster. After a very simple installation (the only special tools I needed were an impact gun and 1-1/4" socket) I couldn't wait to try out my new toy. The first rides were made in warm weather, without a windshield. (More on that later.) I found I had gained five to 10 mph of comfort around town. Then I took the Sportster out on the highway and ran it up to 65 mph (very smooth!) then 70 mph (still smooth) then 75 mph (lord help me, there's still no real vibration.) At that point I had to put my feet back on the passenger pegs to cheat the wind. I pushed the Sportster up to 80 mph and was absolutely elated to still be comfortable. It was unbelievable, 85, 90, and the bike was still a joy to ride at those speeds. Of course, my license wasn't going to last long doing that so I backed the speed off to 80 mph and held it there for about 10 miles before I hit traffic. I rode the bike for two days without a windshield, but then the weather turned and I was forced to reinstall my Plexifairing (aka "the barn door") to make those 45 degree mornings bearable. That's when things got really wierd. Suddenly, I found I didn't like to push the bike over 75 mph; the day before, 80 mph had been nirvana. What had happened? Was the Damper suddenly not working? After two weeks and 800 miles, I've come up with some theories to explain the speed reduction. First, with the huge

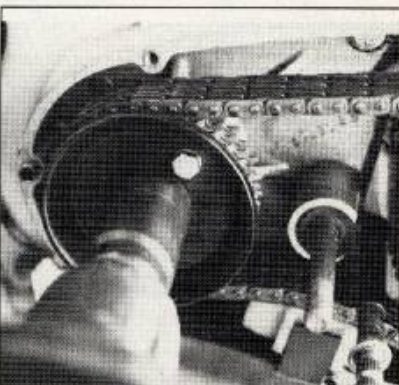
windshield installed, all the noise from the Sportster's engine stays inside of the fairing. At 75 mph the engine is turning 3500 rpm and things are getting pretty noisy down below. Instead of blowing back in the



9 Now you can remove all the screws holding the primary cover in place. If the cover sticks when you try to remove it, you can tap it gently with a rubber mallet to loosen it up. Never pry at the edges of the cover with a screwdriver — unless you like a leaky primary.



10 With the cover off, the previously installed sprocket balancer and chain tensioner are clearly visible. Both will be removed in order to install the Fisher damper.



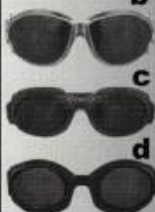
11 An impact wrench and 1-1/4" socket are needed to remove the engine sprocket nut.

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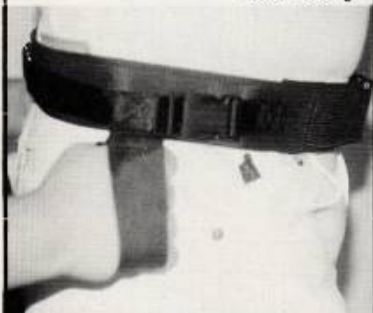
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windstream, all that noise is going right into my head and causing me to feel that the engine is working harder than it was without the windshield. Secondly, I've found that the vibration coming through the handlebars and footpegs is virtually gone even at high rpms; all that remains are tiny pulses very much like the fine bubbles in a bottle of good French champagne. When bigger vibes do well up, they come through the gas tank

and through the center of the seat. When riding without the fairing at higher speeds I put my feet back on the passenger pegs which reduces my contact with both the gas tank and the center of the seat. Therefore I don't feel the vibes that come from those contact points and can ride at much higher speeds.

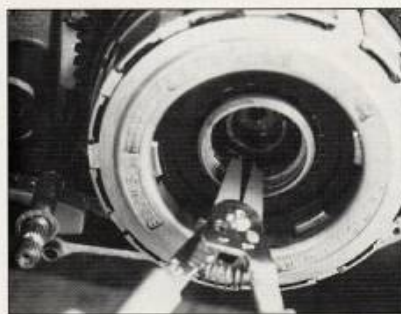
As for my personal conclusions, in first and second gear, my "gotta shift" points are now five mph higher than they were in stock trim. That's not bad for a product that doesn't claim to do anything at less than highway speeds! In third gear I can run the bike out to 10 mph over stock and maintain that speed without things being too buzzy. In fourth I can also run the Sportster 10 mph faster than I could before and the bike is extremely smooth. At less than 3500 rpm, it's nearly as smooth as my FXR. At 15 mph above the old shift point things are getting buzzy through the seat and gas tank. I couldn't maintain that pace for more than a



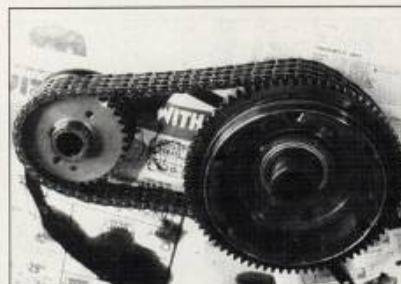
12 The clutch assembly can be removed in one piece. Do this by first removing the snap ring that holds the clutch adjusting screw and guide in place.



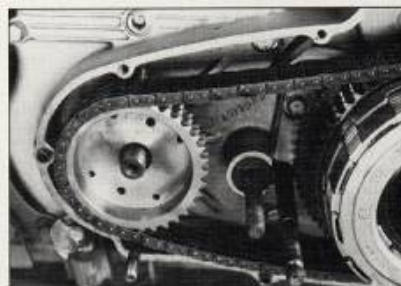
13 Then grab the adjusting screw and pull the adjuster assembly out of the hub.



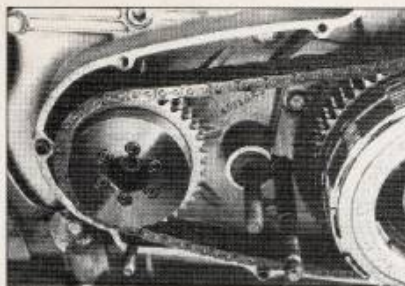
14 Another snap ring is under the adjuster assembly. To remove this one you'll need a pair of large snap ring pliers. Spread the snap ring and remove it from the clutch hub.



15 Now you can just grab the engine sprocket in your left hand and the clutch assembly in your right. The whole business comes off along with the primary chain. Here's the whole assembly flipped over to inspect the rotor magnets. Knock wood; 15,000 miles and they still look like new.



16 Reassembly time! Swap the stock engine sprocket for the Fisher 35-tooth unit. Reinstall the new sprocket, chain and clutch as they came off; in one piece. Note that the primary chain should have a few thousand miles on it before the larger sprocket will fit.

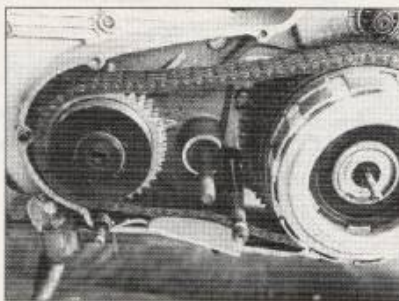


17 With the sprocket in position, the damper assembly slips into the center of the sprocket with the bolt heads facing out. Look at the bottom loop of the primary chain. It's 13,000 miles old and obviously in need of some tensioning, but it's too tight to fit the stock primary shoe in place.

few minutes. As for Fisher's claim about the mirrors, they haven't really improved. I still can't tell if that's a cop behind me or a car with a bicycle rack — until the red lights come on. Then again, having crystal-clear mirrors is not something I really care about.

So, would I say the Fisher Damper is worth a little over \$400? Well, it's the only product I know of that will give my Sportster

HOT XL BAD XL VIBES?



18 Here's the damper nut installed on the shaft and tightened with the impact wrench. I had to trim about an 1/8-inch off the bottom of the stock primary shoe with a really coarse file to get the fit just right. Doug Fisher tells me that trimmed primary shoes are now shipped along with the four-speed Sportster dampers. The clutch and primary cover can now be reinstalled in the reverse of the order of disassembly. Then fill the primary cover with new transmission lube, adjust the clutch and primary chain, and reconnect the battery. Hopefully, the test ride will make it all worth it. (It should!)

10 miles per hour more useable top end without sacrificing punch off the line. Installation was clean and simple and after 800 miles I've yet to encounter a single unpleasant side effect. Now that I've had one for a while, I certainly wouldn't give it up. Is it worth \$415 to you? I can't say. All I can do is report my findings as accurately as I can and remind you that Harleys vary so wildly in vibration that a product that makes a middling-sized difference in my bike could very well make a huge difference in yours! Fisher Dampers are available through Custom Chrome, Drag Specialties, and Nempco dealers for both four- and five-speed Sportsters 1977 to present. If you're interested, follow along with the photos to see how easy the installation is. ■

SOURCES

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