

Suspension Options for Cruisers

by Dave Moss

MANY MOTORCYCLES HAVE VERY limited suspension adjustability. In some cases that adjustability is so minimal it is hardly worth the effort involved. Cruisers are an excellent example (especially older models) where the only adjustability can be a very small amount of preload adjustment available in the rear shock. Given this, it seems that there is very little that can be done to improve the suspension and overall ride characteristics of the cruiser bike, but this is not the case.

Forks

In many cases (especially with older bikes), the easiest way to improve what you have is to replace the OEM oil with a greater weight oil, typically 20W or 30W. The greater viscosity will reduce the speed at which the fork hits bottom by providing greater resistance during fork travel. You can also play with oil volume/height to further provide assistance to abate bottoming the fork. This should be done by incrementally adding 5cc of oil until you have alleviated or minimized bottoming as best as possible. What must be avoided is having too much oil in the fork as this will take away suspension travel and cause the fork to hydro lock. No matter what you try at that point, the fork will never bottom out.

Damping-rod type forks allow simple removal of the damping assembly without having to separate the chrome sliding tube from the lower leg. Those feeling much more adventurous can remove the damping rod from the forks and close down the number of open holes in the damping rod by brazing some or all of them closed. That will improve suspension action by improved oil flow management. It ensures that oil does not easily flow unrestricted through many open holes. The gains are not necessarily substantial, but they are tangible. There is something of a research project in doing this due to the number of holes and their diameter, so it is best to leave one hole in the damping rod open

and go from there. Note that you will not lose any plushness in the fork, but this procedure will remove the mushy or spongy feeling the fork gives.

Another alternative is an emulator. This nifty little device works (in a damping rod fork) by sitting on the damping rod between it and the spring. The emulator has some valving shims captured within a brass retainer. There is an allen bolt and lock nut that allows you to apply varying degrees of pressure on the shims to further control oil flow. There are on average up to five settings with five being the firmest. Again, this can be rather experimental depending on how you ride. The more-aggressive rider will need the firmer settings due to the downward force created from hard braking and higher cornering speeds.

Using the appropriate straight-rate fork spring and preload spacer (for your weight) will make the most significant difference, as would installing progressive springs for older models. Alternate springs will affect what you do with oil volume and emulators because an appropriate spring will eliminate the need for increased oil volumes to manage travel (not to mention that the forks will not bottom out by hand with the correct spring in place).

For riders who are considering transplanting a different set of forks onto a cruiser in order to have adjustability in compression, rebound, and preload, there are many important factors that come into play. First and foremost, it is essential to retain the stock steering stem as this will allow the retention of stock bearings and races. Triple clamps should mate with the steering stem and should fit in the correct position. Hopefully, a spacer (to fit between the head bearing lock nuts and the upper triple clamp) will not need to be machined. The surrogate forks must be the same length as the OEM forks so that stock geometry is retained. Normally this requires that you have the axle, wheel, fender, and brake calipers for those forks. It can be quite an undertaking, but in some cases the transplant can be a bolt-on job requiring no special spacers, machine work, or other special items other than a hydraulic press for the removal and refitting of the stock steering stem.

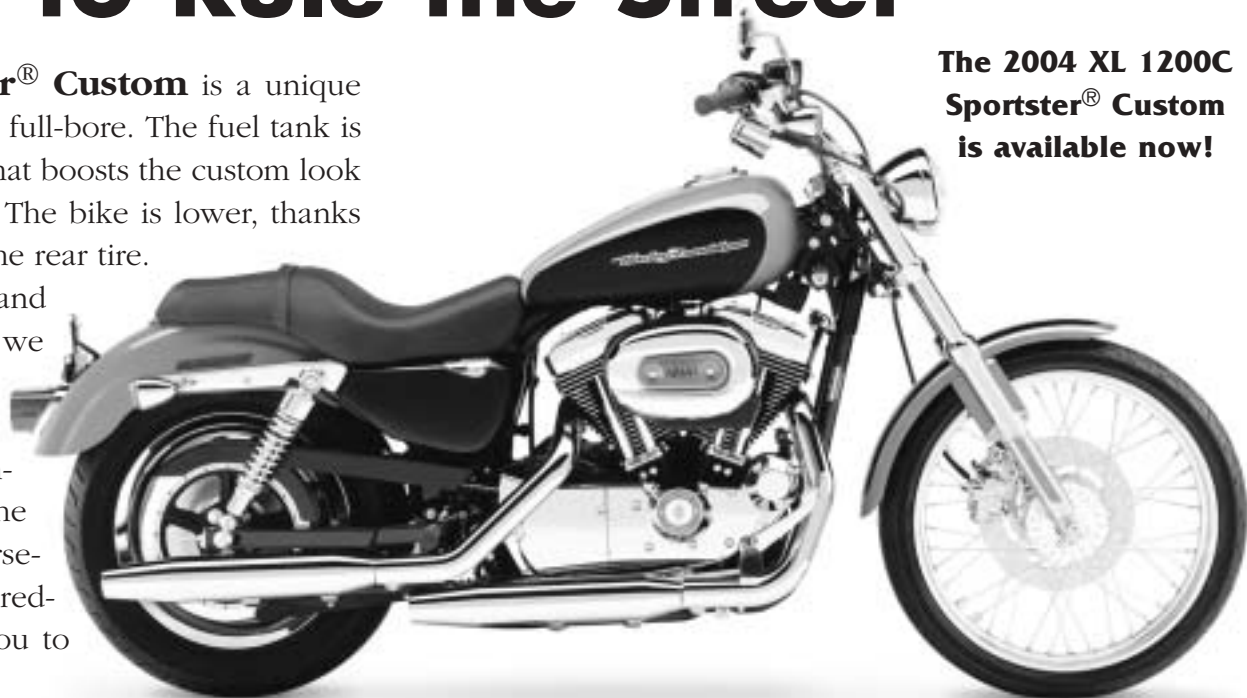
Shocks

Many cruisers have solo shocks hidden underneath the bike or visible pairs
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of simple ramp adjuster shocks. In some cases preload is manipulated by using the provided OEM tool, or in other instances by turning lock nuts. The preload adjustability is normally used when setting sag or to compensate for the weight of a passenger in order to retain stock geometry. Ramp adjusters make that an easy adjustment. As preload is the only option, it is logical to acquire and install the correct shock spring for your weight to make sure that the rear does not sag excessively.

In most cases rebound and compression damping are not available. Only select models provide this adjustability, one being Yamaha's Road Star Warrior which also carries sportbike-style, upside-down forks. We quickly come back to the same transplant scenario as with the forks. Fortunately the change is not as complicated with the shock because there are only a couple of things to check—the actual length of the shock from upper to lower bolt hole and that the transplant uses the same outer diameter bolts. The aluminum body must have the same or smaller width at the mounting points because a larger width would require machine work to the frame of the motorcycle in order to make it fit correctly.

As an alternate to “normal” shock absorbers, there are many other types available in the aftermarket. These can range from air shocks (where the pounds per square inch pressure is varied internally by adding or subtracting air) to completely serviceable shocks with piggyback nitrogen reservoirs.

The comfort and quality of your cruiser riding experience can be enhanced substantially—you don't need to accept what you get from the factory. But if you like the ride you have, enjoy it! **FZ**

Dave Moss started riding in 1974. He currently works with Bay Area Yamaha (formerly Redwood City Yamaha) helping new bike owners set up their bikes as well as providing chassis geometry/suspension classes for customers at the dealership and at track day events with local groups.

Pulp Friction

Roland Brown writes, “In just ten years the two-wheeled world was transformed from a monochrome scene of traditional single- and twin-cylinders—as served up by American manufacturers for several decades—to a colorful riot...of all shapes, sizes and origins. Japan led the way, of course.”

From the pages of *Superbikes of the Seventies*, we relive how a contagious passion for speed created a charge for raw horsepower. Now traditional frame designs based upon steel-tube, twin-shock layouts that had been designed for fifty horsepower two-cylinder engines, would find themselves stretched beyond expected capabilities. Riders would have to wait for the next decade, the eighties, when lessons of chassis innovations pioneered by masters like Messrs. Bimota and Magni would be grasped by others and then absorbed into mass production.

Certainly the 1970s experiments in performance, power, and speed that Honda, drawing from its ample racing heritage, kick started are directly responsible for many of the refinements motorcyclists enjoy today. If there was an end to this compete-or-die era, then the “final statement” could only have been Kawasaki's monstrous six, the Z1300.

Brown quotes the October 1970 issue of *Superbike*: “Will there ever be another motorcycle like the Z1300? Will another manufacturer ever have the audacity to let such an outrageous machine escape from the drawing board onto the streets?...I doubt it...The 1300's in a class of its own and will probably will remain so forever.”

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The Z1300 added water-cooling and shaft drive to a six-cylinder DOHC configuration that Honda had pioneered a year earlier. At a time when oil was in scarce supply and Germany had banned motorcycles with over 100 BHP on tap, many labeled the Big Z as “outrageous” and an “overkill” that might result in a permanent ban on motorcycles. Never a fast seller, the Kawi nonetheless remained in production for nine years. Despite its weight and limitations, the big cruiser was remarkably sure-footed once planted into a curve. Although Brown jokes that “trying to change its direction brought to mind one of the Kawasaki group's container ships,” he found handling “improbably good for such a gigantic machine.” Today he looks back and wonders what all the fuss was about.

Where were you in the seventies? If this dynamic period of moto-progress and transformation somehow passed you by, then by all means lay your hands on a volume of *Superbikes of the Seventies* and venture back in time. Roland Brown's research is a smooth and steady ride through the era of motorcycling's great leap forward. **FZ**