

4
FREE BIKES
SEE INSIDE

YAMAHA YZ125E: 11 GRAND GASSER

DIRT BIKE

IND
34355

APRIL 1978 • \$1.00 UK60p

**RED ROOSTER
HONDA CR250R**

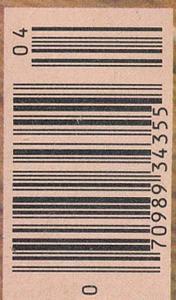
TESTS:

- **HERCULES 250 ISDT**
- **SUZUKI RM80C**
- **YAMAHA SR500**

**CHUCK SUN
ON THE
RISE**



TOMMY CROFT



TRAINING WITH BRAD LACKEY
FIX FLATS WITH LESS FUSS
KYB PRO-LINE SUSPENSION

DIRT BIKE

VOLUME EIGHT NUMBER FOUR
APRIL 1978

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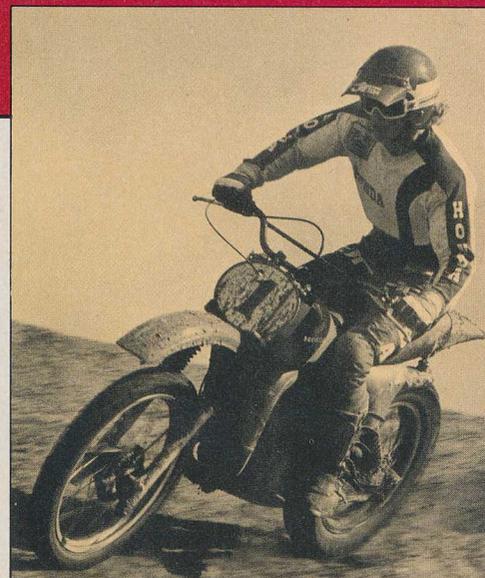
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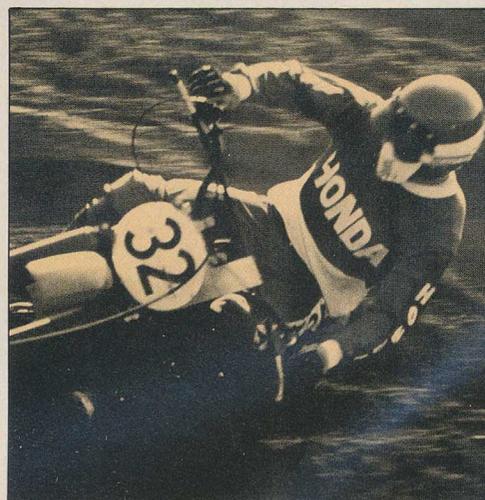
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ON THE COVER:
Tommy Croft and the Big Red Machine
that Cincinnati didn't build.
Photo by Len Weed.

NEXT ISSUE ON SALE APRIL 20

Product Evaluation

KYB PRO-LINE PNEUMATIC SUSPENSION SYSTEM

Works-type suspension systems for your scooter

By the Staff of DIRT BIKE

□ The quest to find the one ultimate in wheel control and overall handling through the development of suspension systems is running wide open. More development has occurred in the last three years than in all the preceding years since somebody decided that rigid wasn't the hot setup for a racing motorcycle.

All of the major race teams are running 10 to 12 inches of the most zoot-plush travel this side of Zeppelinheim. Today's hotter production mini-racers are getting more suspension travel front and rear than some world class motocrossers had five years ago.

We're not just talking about more millimeters of travel, but of more millimeters of super-fine-tuned wheel control. Wheel control that would have been virtually Buck-Rogers-in-the-25th-century a few years ago. Here we are, smack in the middle of an ultra-fine-tuning era with many motorcycle components, sprinkled with occasional major breakthroughs. And boy, are we loving every second of it.

KYB Corporation of America, a division of Kayaba Industry Company of Japan, was gracious enough to present us with a set of their new Pro-Line front and rear suspension units. Kayaba manufactures production as well as race team suspension for Kawasaki and Suzuki, and forks for Yamaha. The forks we're testing here are the exact same units that were found on most of Harley-Davidson's race machinery last year.

The springless, pneumatic remote reservoir rear shock absorbers feature several outstanding qualities including a nearly infinite number of adjustment combinations, most of which are made externally. To date they are available as bolt-on accessories for '76 CR250 Hondas, '77 250 and 390 CR Husqvarnas, '76 and '77 250 and 400 MC5 KTMs, '76 and '77 AW250, 400 and 450 Maicos, '76 1/2 and '77 GP11 Ossas and '76 and '77 RM250B/C and 370B Suzukis. The 13.7-inch are \$265 and the 14.5- and 15.3-inch shocks sell for \$275.

As you can see in the drawing, the Pro-Line rear cushions use air in the bottom — or unsprung portion of the shock — to take the place of conventional metal springs. Changing the

pressure in the air spring chamber is much the same as a preload adjustment on a conventional shock absorber, except you can reach the precise setting you desire because there are many preload adjustments that are attainable *between* the adjustments normally available with springs.

In addition, many different progressive spring characteristics can be had by adjusting the air spring chamber volume. By using the same chamber pressure and going to a larger volume adjustment plug, you can increase the spring rate at the final stages of compression. Changing the volume plug has the same effect as changing a mechanical spring on a conventional shock to one that has a different progression rate. So if you're landing too hard off the jumps, you can go to one of three other plugs which will give you from five to 15 cc less volume in the air chamber.

It's as simple as that. All it takes is a little fiddling if you change the volume plugs, an accurate pressure gauge (which comes with the units) and a good tire pump to facilitate pressure adjustments. We found that 50 pounds with the zero volume plug was the perfect happy medium for all of our test riders and for the varying courses we tested on.

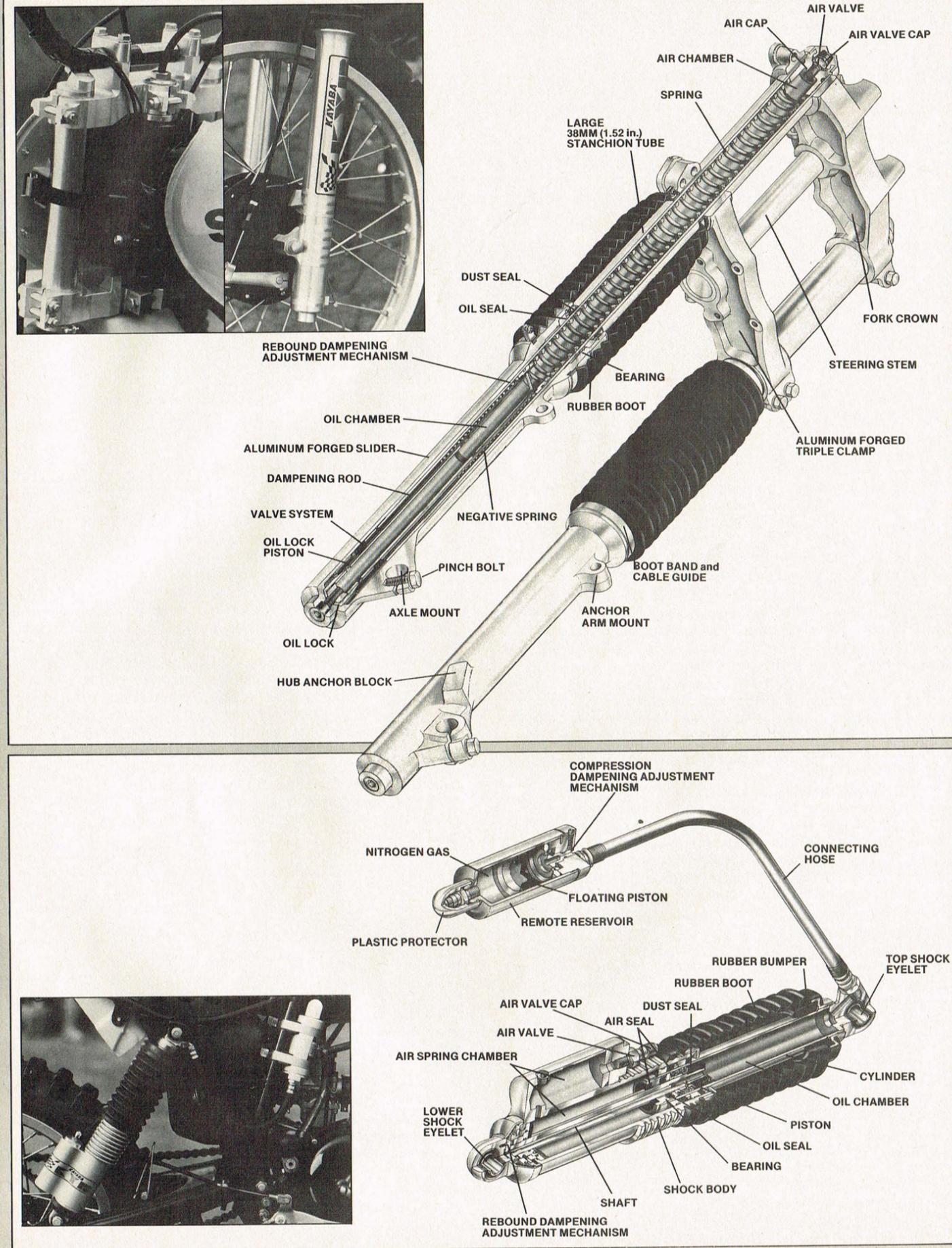
The shocks abound in adjustability. Both compression and rebound dampening can be adjusted to any one of four settings — with the shocks installed on the motorcycle. No disassembly whatsoever.

Insert a screwdriver blade into the notched shaft at the bottom of each reservoir, turn it 90 degrees at a time, and select which of the four compression dampening settings is desired.

A thumbscrew, shrouded by a rubber dirt cover at the base of each shock body, can be turned to one of four detented and numbered positions for rebound dampening adjustments.

What could be simpler? We found that the number one compression and number three rebound settings were the hot numbers.

Another unique feature of the shocks is the upper cylinder seals, housed on the inside. Conventional external positioning permits accumulated imperfections in the exposed surface to lead to possible premature seal wear and a loss of pressure.



KYB PRO-LINE



Very clever indeed. Many attractive features in a single lightweight and very trick-looking shock absorber.

The Pro-Line forks are *basically* the same fine Kayaba air/spring units found on the latest production Kawasakis, Suzukis and Yamahas available today.

Upon closer scrutiny you'll find beefy 38mm stanchion tubes which should keep flexing to a bare minimum even on landings from the highest of high skyshots. Internally, there is a whopping 187mm (7.4 inches) of slider overlap at full extension for maximum stability and strength. The suspension stroke length on these honeys is a full ten inches.

Just the appearance of these outstanding-looking, shining metal beauties with their crowns and legs machined from solid billets of aluminum alloy brought drooling, wide-eyed moto maniacs to our pits in droves. They'd bloody their fingers dragging them across the sharply machined edges and corners while droning: "Factory works, works factory." It was disgusting. Although the first few systems manufactured are very "worksish" looking, the folks at KYB are quick to admit that an increased demand for the units will force them to go to slightly thicker and heavier as well as not so trick-looking castings to cut costs.

Unlike original equipment forks, the KYB Pro-Line units have an internally adjustable rebound dampening provision. As in the stock Kayabas, air is used in conjunction with springs to support the motorcycle. Fine tuning is done by varying air pressure settings. The rate of progression in the spring characteristics is controlled by adjustments in air chamber volume by varying the level of the oil.

Our final figures were 11 to 14 pounds of air with the oil level 150mm from the top of the tubes.

Compression dampening is controlled by the viscosity of oil used. We stuck with the 15-weight KYB oil that was supplied with the forks.

As with the shocks, a good-quality pressure gauge is supplied for making minute adjustments. In addition, a huge syringe-type device is also supplied to aid in getting exactly the same oil level in each fork tube.

After removing the bars, fork caps and springs, and compressing the forks fully, a long adjusting tool can be inserted into each leg to locate one of four spring-loaded and detented rebound adjustments. Our findings in this area concurred with those of Bengt Aberg, who was sporting the KYBs in the Trans-AMA series. The number two or second highest rebound dampening position is without a doubt the zoot-capri orifice.

These forks are currently available for the machines listed for the rear cushions, with the exception of the Honda and

Ossa. The sets for the Suzuki, KTM and Husky include triple clamps to accept the large 38mm tubes and sell for \$465, while the others come without clamps for \$330.

So what do we really have here?

Well, after a very thorough, extensive and exhausting testing program, we've come up with all the information you'll need to get your tricked-out suspension system in the ballpark to enjoy its full potential. The super-fine-tuning is up to you.

All in all, when properly adjusted, both the shocks and forks (individually) perform noticeably better than the stock components which came on our test RM250C. We used the Suzuki simply because KYB had units readily available to fit it. We say "noticeably" better than stock. That is not to say *much* better, merely better. We say individually because a curious thing takes place when you install both the shocks and forks on a Suzuki. In spite of the fact that Kayaba makes the stock components for the machine, they have chosen to make the shocks 3/8-inch shorter than stock while the forks are 1/4-inch longer even with the tubes touching the bars. The result is more rake and a partial loss of that loose, easy-to-turn feeling that RM owners have come to love. The only simple solution (aside from changing the shock mount positions) is to sit farther up on the tank. It's not really too bad, but they could have made the shocks just a little longer than stock and they'd have it wired.

Then too, the forks that come stock on some of the machines they make accessory forks for are not all that shabby to begin with. In fact, some production forks work very well and most riders probably wouldn't benefit much from the Pro-Line units. They're for the all-out privateer who spares no expense to get the very best for his scoot. But hurry, so you can scoop up the hand-machined version. Just the looks alone are enough to get you into the first turn first. Think about it. If they're good enough for Bengt Aberg . . .

As for the shocks, like we said earlier, they are lightweight and easily adjustable to precise settings for varying terrain conditions. Hopefully the shocks for the other brands will be closer to the length required.

Once we got the front and rear dampening adjustments dialed in, none of our test riders felt a need to change the settings. This suggests that Kayaba could save a considerable amount of time and money by offering the units pre-tuned. But, just because we were not faced with conditions that called for other adjustment requirements does not mean that they do not exist.

If you would like further information on these systems you should contact KYB Corporation of America, 207 Eisenhower Lane South, Lombard, Illinois 60148; (312) 620-5555. ■