



The
XLTS
Maicos

More Is Better

If more is better
than this Maico,
with an all-time most
in suspension travel,
should be best.

By Dave Holman



• Harold "Doc" Holladay is slight, strong, sincere and a member of Local 364 of the Pipe Fitters and Welders Union. He welds and fits during the day. At night and on the weekends he works in his motorcycle shop, Holladay Cycle, located in Rialto, California. Doc sells Maicos—sort of. He'll tell you in a manner too honest to believe that the 250 "just ain't got enough horsepower—you'd best get a 400." You already like the 400? Best try a 450. You're a first-time motocrosser? Have a look at something of the Japanese persuasion. In the passageway between the front of the shop and the service area two Coopers reside forlornly, gathering dust. Doc'd like to get out from under them—but he'd only sell them to someone who knows exactly what they are, and what to expect. A grinding, profit-oriented, high-pressure salesman? Not quite.

Doc is an innovator; three of his innovations stand in his shop like ostriches in a hen-house. He calls them the XLTs, for Extra-Long-Travel-Suspension. He does not volunteer a huge amount of information, but when asked specific questions he responds with a welter of technical detail and carefully-reasoned theory.

He has on hand two Maicos with eleven inches of travel, and one with nine inches of travel. Why? Simple—more is better. Not long ago Maicos came with six up front and four at the back; then seven in front and six at the rear; and currently 8.7 inches of front wheel movement and 7.5 inches in back. "So what's wrong with a little more?" asks Doc. He justifies this exorbitance by pointing out that the more willingly the wheels stay on the ground, the more accelerating and stopping traction the bike will have around a given lap of a given motocross track. Additionally, ultra-long and ultra-soft suspension units reduce pilot fatigue.

At the time of Cycle's interview, Holladay's suspension innovations were, for the most part, beyond the testing stage. The three bikes he has built thus far are being raced successfully almost every weekend to prove fabrication and design concepts. Doc starts out with a box-stock Maico with the latest 8.75-inch-travel, internal spring fork. The stanchions are set aside, and specially-made chromemoly tubes, which are three inches longer, replace them. Damper rods, also specially machined out of chromemoly by Doc, are made to the exact length necessary to accommodate 11-inches of travel. Damping washers and holes are modified or made to more closely match the action of the last external-spring Maico fork.

The longer stanchion tubes and damper rods keep the tire clear of the front fender when bottomed. Most importantly, when used with the modified sliders, they allow the stanchions to fit into the sliders (at full extension) the same distance as stock. Most fork lengthening projects (using stock stanchion tubes and longer damper rods) dangerously reduce the stanchion-in-slider distance and greatly diminish fork integrity.

To create compression space for the stanchions, the sliders are extended at their bases. Extending the sliders at their lowest point (rather than at the top) is the safest method, because the least amount of stress occurs at the bottom. To accomplish this the



Extremely long fork travel was obtained with lengthened stanchion tubes, damper rods, and sliders.



Early Maico fork legs were shortened, slip shock eyes added, and fit on a specially modified swing-arm.



Lower slider ends were threaded and had special extensions screwed on, then bell-arc welded in place.



A more conventional experimental long-travel bike uses these 15-inch DBP shocks ahead of the axle.



The fork is nitrogen-charged to 40-70 psi, and needs lock-screwed rings to retain the hydraulic fluid.



Ordinary tire valve stems in the fork caps allow 30-second changes in pressurization for ride control.

XLTS Maicos

extenders onto the modified Maico fork legs. Prototype extenders were epoxied onto the sliders, but Holladay has since welded the extenders in place after threading.

With the 11-inch fork assembly fabricated, Doc ran into problems acquiring the springs he desired. Short-run spring costs were totally prohibitive; pneumatic pressurization proved to be an economical and simple alternative. The fork caps were simply drilled and common valve stems installed. Aware of the problems with pressurized air (moisture content and ambient variances), nitrogen was the logical gas to use. Special tanks and

regulators were made to assure pressurization accuracy not possible with ordinary tire air gauges.

At the rear, the XLTS concept involved far more fabrication and design engineering. The forklegs used in back were the early external-spring Maico units because of their lighter weight and smaller size. The tubes were shortened six inches and the standard 7 1/2-inch travel dimension retained. Special top eyes double as fork (shock) caps, and fit in the stock Maico upper damper mounts. As with the front, pressurized nitrogen provides the springing with an inter-lock line fitted to the stanchions to equalize filling and give slightly more gas volume.

Actually, the suspension modifications were the easy part of the XLTS Maicos. Almost never-ending problems have occurred with the geometry at the rear end. Doc's uncanny ability to fabricate and build works-like brackets is most evident when looking closely at the beautifully-made swing arm/bottom fork leg mounts. By locating the fork legs aft of the axle, a 40° suspension angle was acquired—which has proved to enhance rear wheel action compared to forward-mount shock systems. Bending or fracturing of the bracket or swing arm has never occurred.

During the many test outings with the original 11-inch bike, chain problems were a never-ending plague. Inherent with Maicos is an 8-inch span between the swing arm pivot and countershaft sprocket centers. This design feature is a nagging problem for normally-suspended bikes, because of the dimensional variance between the rear wheel axle and countershaft centers as the swing arm moves up and down. With 11-inches of travel, the problem became almost diabolical.

Guides of all types and shapes were tried—all refused to keep the chain on the sprockets. Various spring-loaded tensioners, along with guides, were tried. The chain would stay on track longer but would still come off or break. Finally, Holladay fabricated his own full-length chain guide, which kept the chain from whipping side-to-side. But chains still broke—now by wadding up on the top side of the countershaft sprocket.

Instead of spring-loaded tensioners, Holladay then innovated a mechanical lever-type rubbing block that pivots off the front of the swing arm. Its simplicity makes it effective and dependable. When the swing arm is down (with the chain at its loosest position), the tensioner is pressing up on the chain's lower run. As the swing arm rises, tightening the chain, the tensioner pivots down, releasing its pressure on the chain.

Along with the sequence of problem-solving involved with the chain, other dilemmas came about. The XLTS Maico acquired an abominable hunger for rear sprockets. Various after-market alloy sprockets were tried—none lasted longer than one race-day. The chain wore through the teeth and bent them over like tree limbs in a wind storm. Stock steel rear wheel sprockets had to be used, which now last through a number of race days. Initial problems with the front and rear fork seals were almost expected. Some of

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bases of the sliders are machined smooth (concentric with the internal bore) and threaded externally. Doc then makes extension caps out of aluminum billet stock, machines the inside the same diameter as the slider bore, threads the upper section, drills damper bolt retainer holes, and screws the



This elaborate chain guide is necessary to control the slack, side whip and keep the links on the sprockets.



Aircraft hoses interconnect the rear fork/shock legs; the cool stays cooler in the airbox from air flow.



When the axle drops down this ball bearing roller lifts up, which makes it an automatic chain tensioner.

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the stock Maico seals popped up out of their press-fit recesses, others folded the sealing lips inside-out from the tremendous internal pressure that built up at full compression. Interlock lines on the front fork were disarranged, because the failure of one leg would cause the complete collapse of the other. All-rubber hydraulic seals were installed, with a retaining ring above them. The rings, held in place with allen screws, solved the seal problems.

While I am not absolutely convinced that air suspension is better, in all respects, than conventional suspension (springs don't leak), Doc's 11-inch XTLS Maicos are impressive. Prior to riding the XLTs, my experience with air forks had been less than inspiring. An afternoon spent on the 400 and 450cc 11-inches and the 400cc nine-inch left me questioning my biases.

During our afternoon ride, I had a chance to watch Doc's "wrecking crew" flog all three Maicos with no problems other than a broken experimental chain on one bike. Upon meeting Holladay's son Rory, I also mused about the resemblance between him, 6 feet three, 145 pounds, and the XLTs. Rory's stringy stature allows him to swing his leg over the Maicos without a milk crane, and his feet can skim the ground lightly in turns.

Doc's second team rider is quite another story. A portly young man, Mark Klefer (referred to affectionately as "little fat kid") is the real tiger of the trio. Mark's sub-six-foot frame stretches to climb aboard the XTLS Maicos, and his legs protrude out as counterbalances in turns—his feet seldom feel terra firma.

For me, a long-time Maico fan, the first ride on the XLTs was awkward, and left me trying to understand if nearly a foot of suspension travel was really... well, necessary. In a straight line the tallness of the XLTs bikes is noticeable. But slipping through whoop-de-doo is different. Very different. Though I never became nearly as accomplished with the bikes as Rory or Mark, I found myself attacking the bumps faster and faster each lap. The limits of the suspension are phenomenal—definitely beyond my capabilities.

Both 11-inch bikes were set up too stiff for as fast as I cared to ride them. While the air pressure in the forks was being changed (pressures from 45 to 70 psi front and 45 to 55 rear are used), I rode the nine-inch bike, which used the same type front suspension but 16-inch-long S&W gas shocks at the rear. This bike reflected a more logical progression in suspension travel. The fork worked with the same uncanny consistency as the others, but the rear end was soft and responsive to trail undulations.

Ironically, Doc doesn't ride much, and only rarely does he pilot his XLTs Maicos. His desert and TT races days are far behind him, as are the old Greenies and BSA he once rode. Holladay does all these innovations, owns the shop and plays team manager. Sure, he will be delighted to sell you one of the XLTs kits, but his heart and drive is with the bikes and the kids, not the business. For Doc, more is always better. And surprisingly, the XLTs are better. *



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