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ON THE COVER: Jim Holley was told to kiss the CR300's front fender. He tried, but almost got his face slapped. Photo by The Lump. Design by DeWest. Grayson Goodman holeshots Daytona on this page. Separation by Valley Film.



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THE STRAHO MOTOR

RIDING BACK TO THE FUTURE

We're not as far advanced as we think

By Joe Kosch

You're a leader. You had a deposit with your dealer for the latest in a long line of new bikes months before the '91 models came out. When it comes to dirt bikes, if you're going to ride it, it's got to be state-of-the-art.

Sorry to be the ones to break the news to you, but if you bought a '91 thinking you were getting NASA-level technology, you might want to have a seat. Many of the trick features on your new bike showed up on motorcycles in the '20s. Today's best ideas are really yesterday's best ideas, just developed a little. For that matter, tomorrow's technology is likely to be yesterday's technology, too. There's not much chance of a truly new idea popping up at all because somebody in history has probably thought of everything we can think of. With that in mind, let's see where the trick ideas in dirt biking came from.

- Liquid cooling, we tend to think, is a fairly recent development in dirt bike design. It's not that hard to recall how strange cylinders without fins looked when they appeared on many of the '81 motocross 125s.

◀ *The '15 Cyclone is famous for being the first motorcycle to be named Cyclone, more than a half-century before Suzuki's better-known but less-loved TM400 Cyclone. It's also the earliest overhead-cam-engine motorcycle.*

Perimeter frames aren't that new, either. "Czech out" this perimeter-framed Jawa from '66. ▼



Today's fastest four-stroke race bikes use four valves per cylinder, just like the '72 XL250 and some '14 Indians.

◀ *If your dealer doesn't have a decent selection of 19" rear knobbies by now, he's seriously behind the times. The Francis Barnett 200 needed a 19" rear tire in '53!*

Water cooling has been a feature of motorcycle design a bit longer, though—almost 100 years longer. The Butler, an English motorcycle, used liquid cooling as early as 1884. Not only was it the first liquid-cooled motorcycle, it was one of the first motorcycles . . . period!

- We've come to think of cylinders with iron liners as being about as outdated as the solid iron cylinders that preceded them, but our trick hard-coated linerless cylinders are not such a new idea either. Yamaha's '74 YZs had chrome bores but NSU of Germany used them for its light street bike, the Quickly, 20 years earlier.

- Yamaha introduced another technical mainstay of modern dirt bikes, the reed valve intake, on their '72 DT2. Suzuki brought case-reed induction to the modern dirt bike world on their '76 RMs. Those, as far as we know, were the first motorcycle applications of reeds, but we know of Evinrude outboard motors that used case reeds in the '50s.

- If your bike has a power valve you're justified in thinking it's trick and reasonably modern. Yamaha's '82 YZ125 and 250 were the first dirt bikes to have this technology, but it came first on road racers.

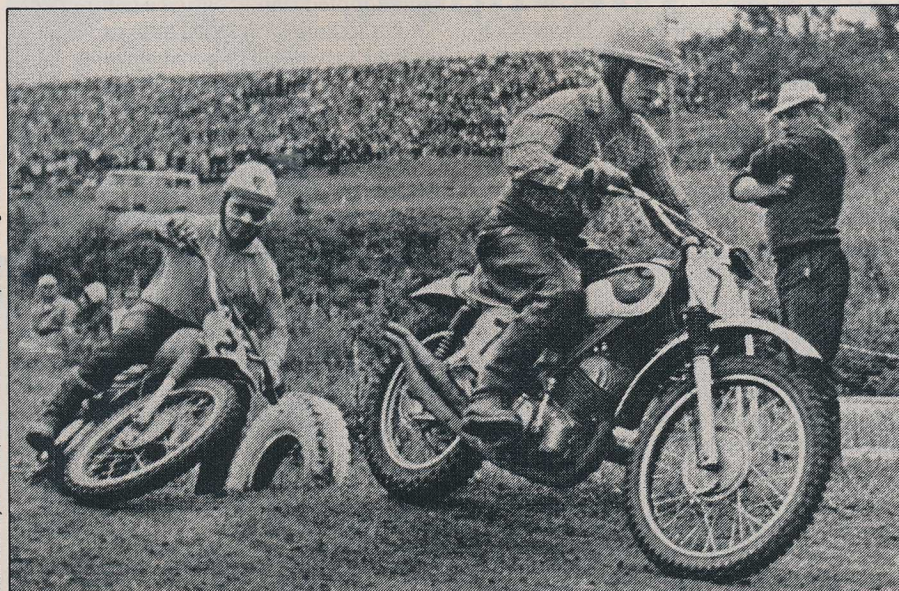
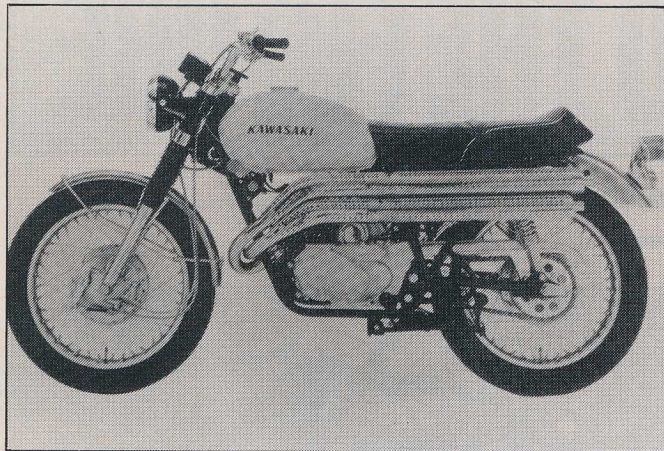
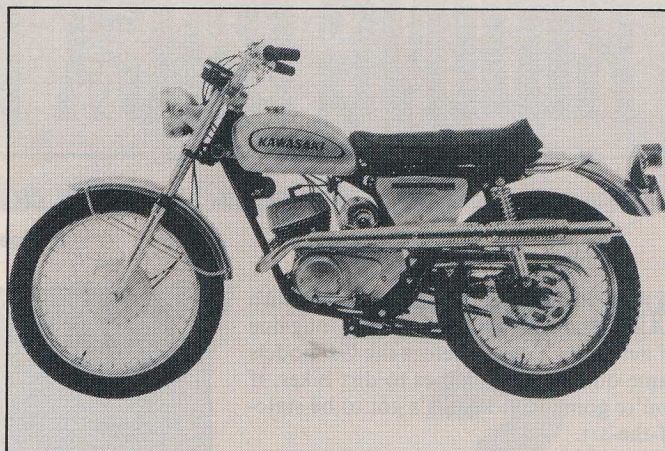


Photo courtesy Len Weed, from "Motocross Techniques, Training and Tactics."

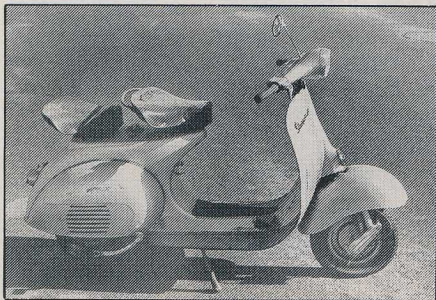
FAMOUS FIRSTS



Kawasaki's '69 A7SS made history for what it didn't have. Its all-electronic ignition made contact points and mechanical advance systems instantly obsolete.



What would riding have been like if dirt bikes had gas shocks in '68? Ask the people who bought Kawasaki Bushwhackers; they know.



What could this gem possibly have that we consider trick today? A flat slide carb.

- Round-slide carburetors have gradually disappeared since flat slides showed up on Suzuki's '81 RM motocrossers. Funny they didn't just stay out of the picture when the first flat slide Dellortos were used in the '50s on Vespa scooters.

- You probably don't brag about how trick your bike's foam air filter is, but it's a fairly recent development. Racing legend Dave Ekins, now president of Sunline, and technical wizard Jack Krizman, inventor of one of the best spark arrester designs, put their heads together and invented the first foam filters in the late '60s. The filters showed up first on Harley-Davidson's '69 Baja 100.

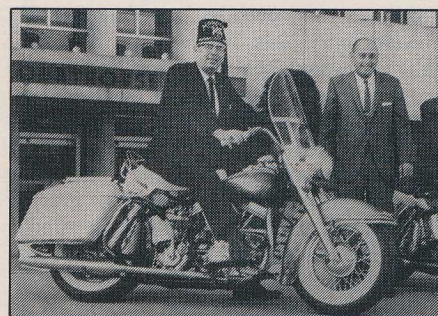
- Modern electronic ignitions make most of us forget what contact points were like. Some early versions had a "black box" to control the advance curve and points to trig-



Harley-Davidson hasn't left its mark in the dirt bike world with too many technical innovations, but their Baja 100's foam air filter kept the little bike roosting in conditions that left paper filter-equipped machines of its day dead on the trail.

ger the ignition—all the headaches of both systems! Kawasaki's '69 A7SS350 had the first all-electronic ignition.

- Young riders' jaws dropped in awe when we ran photos of Honda's experimental automatic transmission CR250 in our July '90 issue, but for many the idea only seemed strange because it was on a Honda. Auto-



Today's most aggressive supercross riders have found extra-wide pegs a necessity for the stadium tracks' massive jumps. Imagine the air these Harley riders must have gotten to need the massive footboards they used.

matic transmissions have been part of the modern dirt bike scene since Rokon released its 340 auto in '74, but they'd been using the same transmission technology years before that on their Mototractor utility woods bikes. No single manufacturer can claim to have had the first automatic, because several firms adopted similar systems before 1920.

- For technically-minded four-stroke fans, pushrod valve trains started showing their age from the time Honda released its overhead-cam '61 Trail Cub. *Truly* technically-minded four-stroke riders went out and bought the '15 Cyclone, the first overhead cam four-stroke. Thumper riders have looked upon four-valve cylinder heads as a techni-

THE WHEEL THING WE'RE RUNNING OUT OF SIZES

- Trick new wheel sizes may be the most frequently recycled "innovations" in dirt biking. Nineteen-inch rear wheel are the rage these days, a trend that appears to have been

started by Yamaha's '89 YZs. If there's any credit to be given for use of this wheel size on a dirt bike, it's got to go to the '53 Francis-Barnett, which looks to be among the first dirt bikes with a 21-inch front wheel as well. Knobby tires as we know them today were invented by Dunlop and were available as early as '47.

Some manufacturers thought they were advancing dirt bike design by dredging ob-

scure wheel diameters from the past and fitting them to modern machines. All they did was award themselves the wheel-size booby prize. Honda's ridiculous 23-inch front wheels from '79 come to mind, and who could forget the 17-inch donuts that came on the '79 Huskies? If history is any guide, motorcycle designers only have these spasms of wheel diameter delirium every ten years, so we should be safe until 1999. •

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Some trick, modern features of today's dirt bikes, like the variable exhaust port introduced to the public in '82, are truly trick and modern. Others, like liquid cooling, are trick but came in around 1884.

cal must-have since another Honda, the four-valve, single-cylinder '72 XL250, appeared. Indian felt the same in '14 when it introduced its first four-valve motorcycle.

(By now it should be clear that, in motorcycle engine design, there's not much that's truly new. Chassis design looks like a different matter entirely, but some of today's most clever concepts appeared long ago.)

- Most of today's cutting edge race bikes use inverted forks but today's beginning riders, not top-level racers, were given the first opportunity to experience this feature in '68 on Honda's first Mini-Trail 50. Riders of '09 Merklers enjoyed inverted forks before any others.

- Offset axle forks, a feature often thought to be a late '60s Maico idea, are common to most serious dirt bikes. They were first used on Royal Enfield motorcycles in '46.

- Externally adjustable suspension isn't as recent an idea as it might seem. Kawasaki's Hatta fork-equipped two-stroke bikes of the early '70s had adjustable spring preload and could be used in a leading axle, inline axle or trailing axle configuration. However, many '20s motorcycles had adjustable friction dampers on their forks.

- Nitrogen shocks made their debut as original equipment on Kawasaki's '68 Bushwhacker 175. Shocks with external preload go back to the Triumphs of the late '50s. We had to wait a while for external damping adjustment. It didn't show up until Yamaha incorporated a single-knob compression and rebound adjuster on the full-sized '77 YZs. Yamaha was the first to offer the shock body design we now consider state-of-the-art, the integral reservoir "piggyback" type, on their '74 motocrossers. They were called Thermal-Flow shocks and we doubt anyone who rode a bike with them would have considered them the shock of the future.

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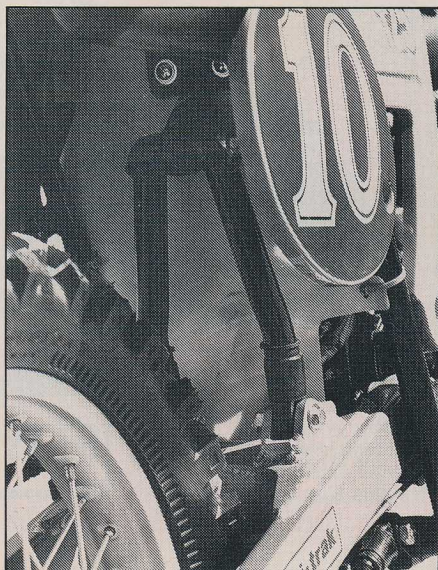
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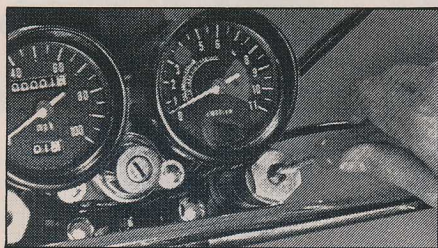


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Where's the link? The first mass-produced, linkage-operated rear suspension was Kawasaki's Uni-Trak. The link teetered on a pivot at the tail of the frame backbone between these steel tubes and the shock.



We never realized how good we had it. Kawasaki's dual-sport bikes had forks with externally adjustable preload in '72.

- We often think of Yamaha's '75 mono-shocks as being the first machines to mount a single rear damper toward the center of the frame, but Merkel first used this type of shock positioning in '03.

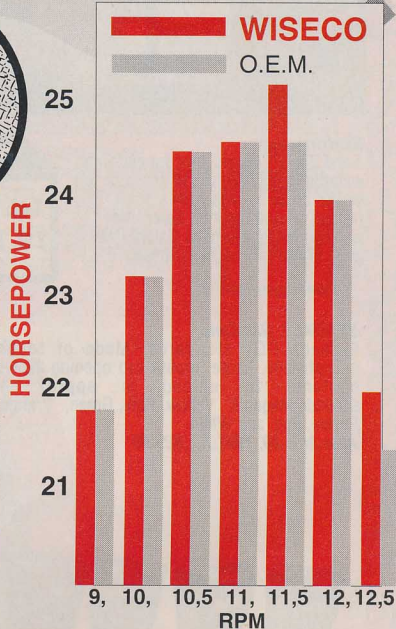
- Linkage-operated suspension is one of the few ideas that has its roots in modern dirt biking. In '79 Kawasaki equipped its KDX175 with the Uni-Trak system, sending the motorcycle industry into a linkage-crazed frenzy.

- Another Kawasaki innovation, the perimeter frame for dirt bikes, isn't nearly as original or as much an influence on other manufacturers. It first appeared on Jawa motocrossers in the mid-'60s. One of the nicer things that came with Kawasaki's perimeter-framed bikes were the extra-wide footpegs, another clever but hardly original idea, as anyone who has seen a footboard-equipped '40s Harley-Davidson will know.

- It's hard to believe Rokon had disc brakes in the early '70s and it took until '83 for them to show up on popular motocross machines. Kawasaki's full-sized KXs got discs that year, as did KTM's 495MX. Too bad nobody in the dirt bike world noticed MV Agusta's disc brake-equipped motorcycles in the late '60s. □

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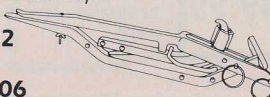
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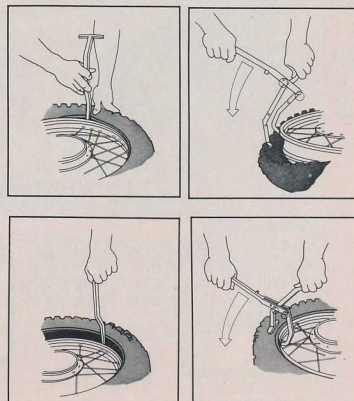
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