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JUNE 2005 VOLUME 37, NO. 6



LIFE-SAVING FRAME STRAIGHTENING TECHNOLOGY

BACK ON THE ROAD

Crash Damage Repair

BY ERNIE LOPEZ ■ PHOTOGRAPHY: ERNIE LOPEZ/DAVE CIESIELSKI



1

We got started at Fullerton H-D by rolling the crashed bike up onto the lift. The guys helped out by removing the seat and the headlight bezel. A lift-jack was placed under the frame to get the front wheel up so that the front end could turn left to right to facilitate the measurement.



2

This is the bracket part of the MAX system. It works in conjunction with the infrared target bracket to measure the bike. It connects the swingarm pivots to the steering head electronically.



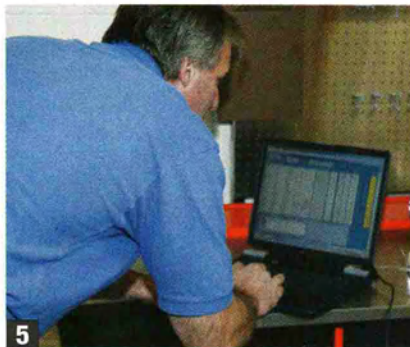
3

Here, Dave attached the bracket on the bike. In this case, it attached in the bolt holes directly above the swingarm pivots.



4

Next, Dave connected the target bracket to the steering head on the bike. This is how the system checks for perpendicularity between the swingarm pivots and the steering head.



5

Dave selected the make, model, and year from the database of over 1,000 motorcycle specs in the MAX. The system prompted Dave to adjust various things while the bracket projected infrared beams for the cameras. The system calculates the information it receives into a true measurement. The measurement is compared to the index data and the deviations are noted.

A whole shit-load of letters asking about crashed or damaged bikes landed on my desk. Back in January 2004, I was riding my dad's Road King back from a tech shoot when a jackass driving a big linen truck filled with dirty table cloths and shit-filled work pants came flying off the freeway and ran a red light. By the time I screeched to a stop, I was under the front tire with the Road King sitting on my chest. Gas soaked my pants. Even with gas soaking my crotch, I worried about getting my dad's bike back on the road.

Over the next few days I fought my insurance company and the other guy's carrier. At first, it looked as if it would be a normal claim and the bike would be fixed and back on the road with the old man at the helm. But then the bad phone calls started. My dad's carrier explained that I was not on the policy and even though he had full coverage, it was not full. I called my carrier, who pointed at a seemingly insignificant, and therefore unnoticed, clause stipulating coverage is exempted on bikes whose ownership is claimed by someone else but are stored in my house. I even tried my homeowner's insurance, but no luck. The next call was placed to the trucker's company, and without even a blink, they told me to go "you know" myself. So let me say, "Check your insurance policy!"

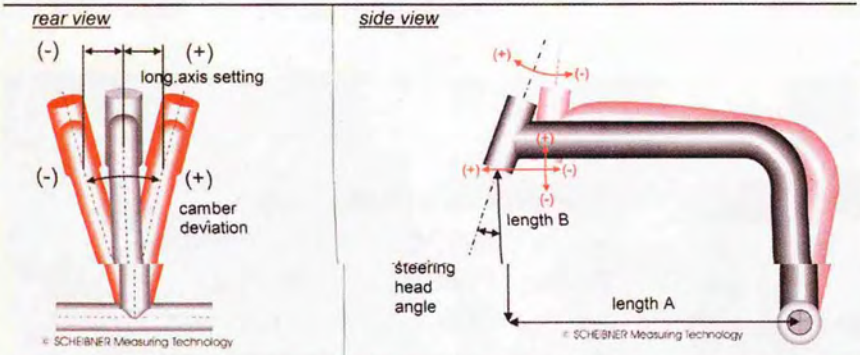
This returns us to the letters part of the story. Most asked about frame straightening. Well, we always say that you should have a pro-shop or a factory dealer handle it. We have a good relationship with Harley-Davidson Anaheim-Fullerton, in Fullerton, California, and when we told Service Manager Colby Craddock what we had in mind and how we wanted to show the safe and right way to do this, he jumped on board. We pulled the bike off the truck and placed it on the lift with the help of Ray Colbeth, the shop's crashed-bike repair expert and service specialist. This is *HOT BIKE* though, and most dealers don't have precision frame straightening equipment. It's our job to find the hottest, most high-tech frame-straightening capabilities on the planet.

We discovered a little-known, best-kept secret in the industry, a shop by the name of Crash Damage Repair in El Segundo, ►

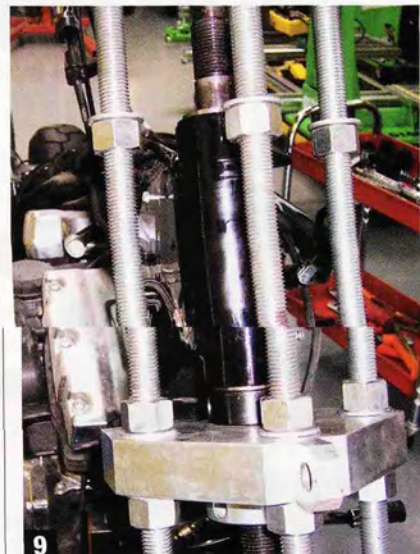
Scheibner m.a.x.		list of protocols	select index data	printout	back to main menu
customer HOT BIKE MAGAZINE					
vehicle HARL FD FLHR FIN: km:					
results The frame is recommended as true ☐ yes ☒ no					
CRASH DAMAGE REPAIR CAN FIX THIS FRAME. PLEASE CALL DAVE@310-414-0052.					
measurement 2/4/2005 1:01:15 PM m.a.x. 8042 22120 1054					
main frame					
index data	meas.val.	deviations	rec.tol.	ok?	
camber (°)	0.00	-0.89	+/- 0.30	no	symmetric correction (mm) 0.0
st. head angle (°)	25.00	24.24	+/- -0.76	no	
length A (mm)	944.2	944	+/- 3.0	yes	correction of mounting h. (mm) 0.0
length B (mm)	401.8	401.0	+/- 1.0	yes	
long axis set. (mm)	0.0	13.3	+/- 4.0		
tall					
offset tail (mm)	no measurement				
swing arm					
offset rear w. (mm)	0.0	-3.7	+/- 10.0		
distortion (°)	0.00	0.82	+/- 0.40	no	
misalignment (°)	0.00	-0.09	+/- 0.40		

This is what the printout the system provides looks like — the moment of truth. In this case, it showed that my Road King is out 0.89 of a degree, which translates to 3/4 inch where the tire touches the road and the rake is short about 3/4 degree. Please note that rake in this case is frame angle and not chassis rake.

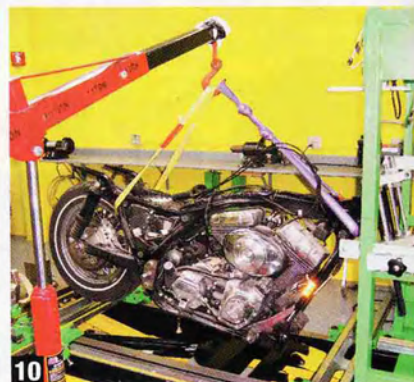
California. Dave Ciesielski, the owner, has been in business for over four years, mostly servicing the sport-bike industry with state-of-the-art technology that can save the headache of having to buy a new frame for a crashed bike. Much like the Dynamometer revolutionized tuning and high-performance setup by providing objective, repeatable measurements, Dave's new technology, the Scheibner MAX, is proving to do the same. Its opto-electronic cameras and infrared lights, along with a database of factory specs on more than 1,000 bikes, eliminate human error to make it a superior choice. No other frame-straightening or measurement system compares because this equipment is an integrated system that checks the bike while it's still in the jig. This setup is the first of its kind in America. **HB**



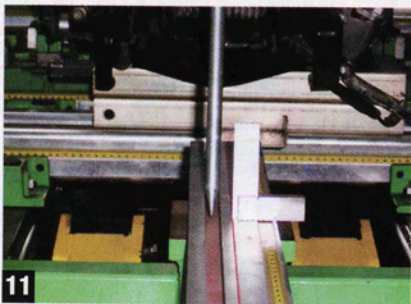
This printout explains what all the plus and minus info refers to in the first printout. At this point, the frame will need to be straightened, and Dave will have to take the bike to his shop and strap it in the jig.



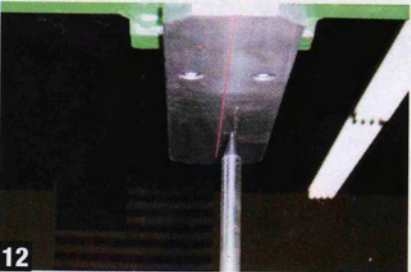
After the front end and the steering head bearings were removed, Dave installed two bushings to accept the steering head tool.



The bike was then placed on the jig with the help of a large cherry picker. The bike was suspended by the tooling of the jig and supported in the front by a jack. ►



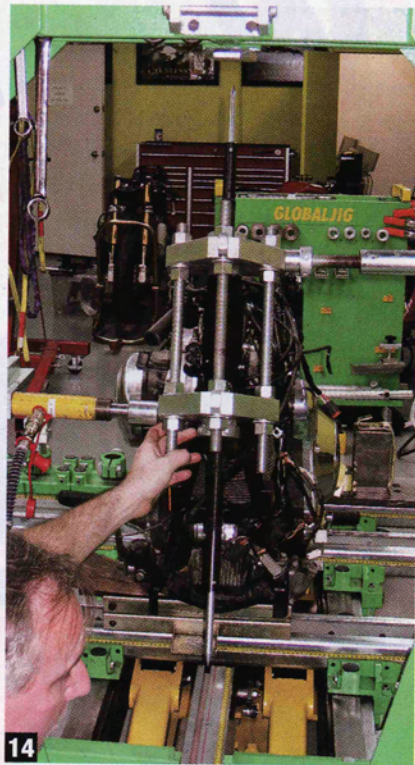
11
The bike was centered up in the jig and the steering head tool pointers line up with reference marks at the top and bottom. As you can plainly see, the steering head is off by 0.89 degree or about 3/4 inch. If not put back into place, the front tire won't track in a straight line. The rider will always fight the handlebars.



12
Here's the top pointer with the bike in the center of the jig. You can clearly see how far off the frame is. Note: it's the other side of the red line.



13
Dave got ready to straighten the frame with a hydraulic pump. The idea is to push the bottom of the neck back to the center of the frame while keeping the top stationary. When straightening a frame, you must go past the elastic state and into the plastic state of the metal in order to correct or change it. There is an art to this.



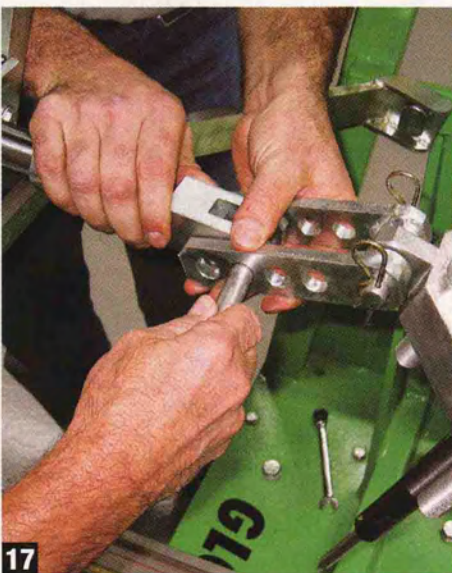
14
Bending was handled slowly with a handheld pump so Dave could monitor the changes as they occurred. ►



Here is the top mark lined up...



...and here is the bottom mark lined up.



After both the top and bottom marks lined up, Dave fixed the steering head angle. He started by hooking up the other hydraulic cylinder that pulled the bottom of the steering head out 0.76 degree and the stop that will hold the top of the steering head while he does the pull.

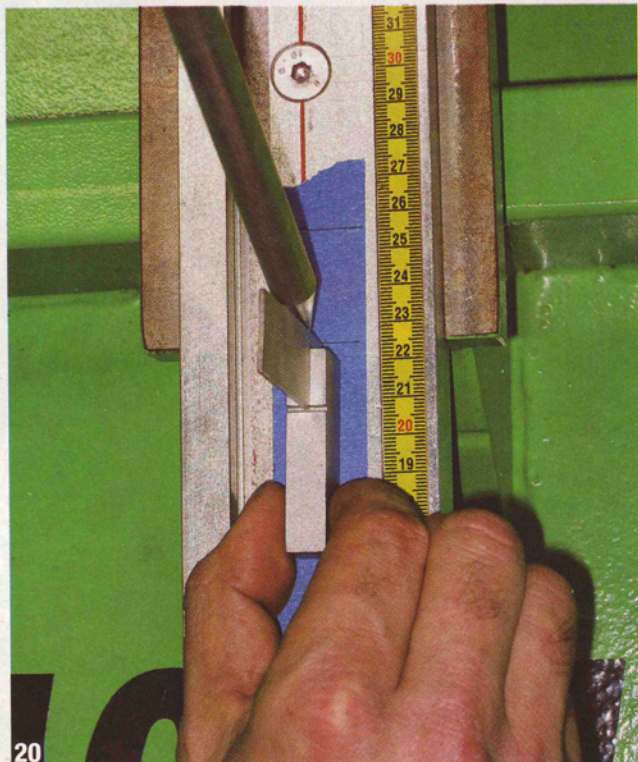


Dave made two reference marks on a piece of tape, one for where the steering head was and one for where it would need to go. In this case, just short of 7/10 inch. ►



19

And just like the first adjustment, this one needed to go slow.



20

Once the steering head was pulled out as far as needed, Dave re-checked all his reference marks to make sure the first adjustment was still straight. ►



With the bike still in the jig, Dave re-measured the bike with MAX. The MAX calculates the new measurements against the factory specs. This time, it turned out that the bike was better than new. He provided me with another printout of the work showing all the corrections and adjustments he just made. Check next issue as we repair and replace sheetmetal.

SOURCES

CRASH DAMAGE REPAIR

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