



WRENCHIN'

TIME TO GET GREASY



AS A GROUP, SPORT COMPACT ENTHUSIASTS TEND TO SPEND A LOT OF MONEY TRYING TO ACHIEVE PERFECT HANDLING IN THEIR RIDES. IT'S COMMON TO FIND VEHICLES SPORTING EVERY KIND OF AFTERMARKET JUICE AVAILABLE—SPRINGS, SHOCKS, TIE BARS, ANTI-ROLL BARS, polyurethane bushings—just to smooth out its behavior while maneuvering.

Many times, though, even the best of suspension and handling parts need plenty of adjustment or to be exposed to extremes, or both, to show any real benefit. And rarely do any of these parts show improvement under normal types of driving.

Luckily most Hondas handle pretty well right off the lot, or at least well enough to satisfy the average consumer. If you're reading this magazine, chances are you're not interested in stock. You've probably whipped your buggy around a few turns in your day and are still looking for that one bolt-on that will give you total confidence through any curve.

Enter Korbach Performance, makers of Frame Locks for sixth-gen. ('96-'00) Civic coupes and sedans, a unique product that turns the car's front bumper beam from a vibrational liability into a structural asset. The science behind the product is straightforward: the geometry of the bumper beam/frame rail joint is weak because the attachment to the beam is made with thin, 2.5mm flanges that flare out laterally from the front of each rail. The vibrating forces exerted on the front structure as the car drives over road surface imperfections are significant, as are the forces of the 500-pound engine bouncing on the mounts that are directly attached to the rails. Since these inputs are transmitted through the weak flanges, the car responds by shaking as it's driven.

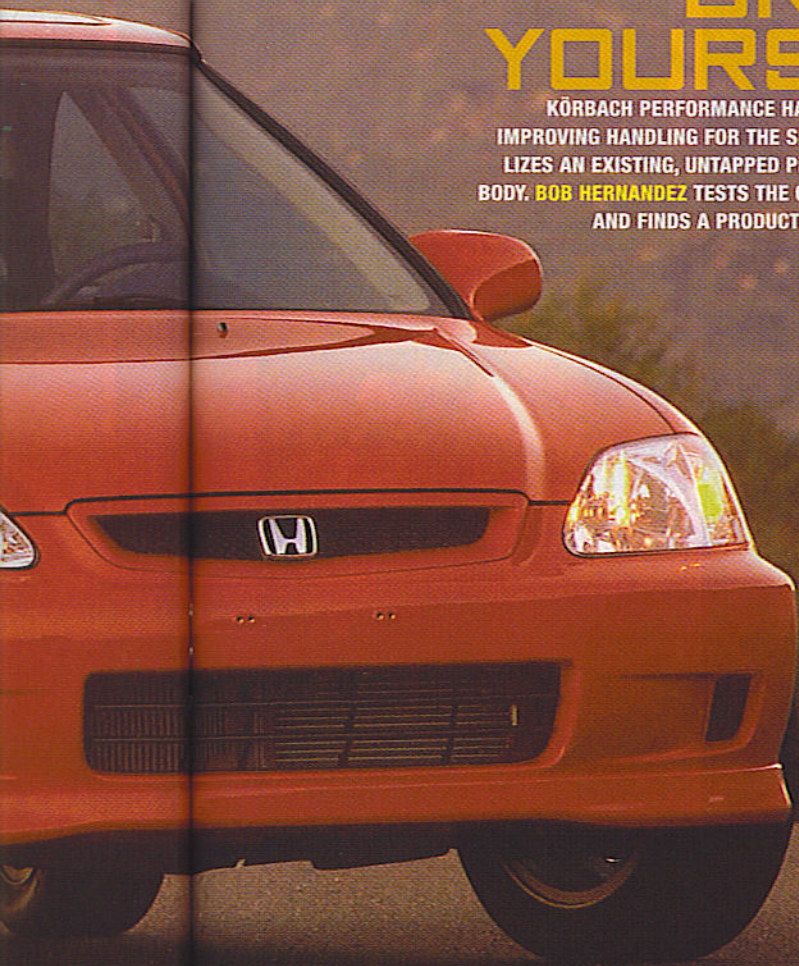
The bumper beam, meanwhile, is essentially a piece of dead weight shaking at the extreme end point of the car. The fact that it's cantilevered so far forward actually multiplies the vibrational forces back to the driver.

A static analogy to this would be the force multiplication of using a crowbar.

A small crowbar at the end. The front end point knows of the driver are transmitted. Since together structural bumps the bumper chassis, beam and

BRACE YOURSELF

KÖRBACH PERFORMANCE HAS A WHOLE NEW TAKE ON IMPROVING HANDLING FOR THE SIXTH-GEN. CIVIC THAT UTILIZES AN EXISTING, UNTAPPED PIECE OF THE ECONO-BOX'S BODY. **BOB HERNANDEZ** TESTS THE COMPANY'S FRAME LOCKS AND FINDS A PRODUCT DESERVING OF THE HYPE.



PHOTOGRAPHY: BOB HERNANDEZ

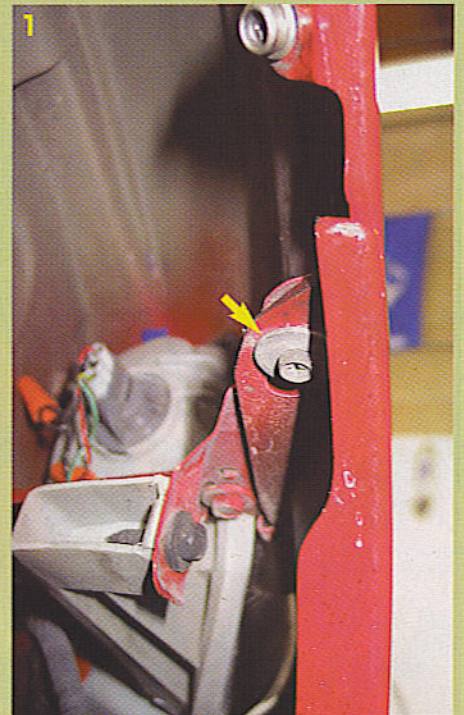
gen. ('96-'00) front bumper ce behind the ame rail joint thin, 2.5mm orating forces ce imperfec- bouncing on uts are trans- s it's driven. weight shak- everted so far iver. ng a crowbar.

A small force at the end of the long part of a crowbar results in a large force at the short end. The same is true dynamically with the front end of the car. There's a dynamic fulcrum point known as a vibrational node just forward of the driver. Shaking forces from the bumper are transmitted and amplified to the cabin.

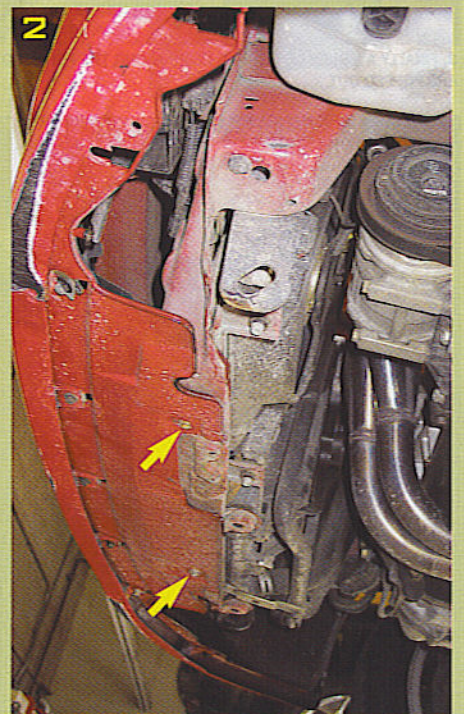
Since the frame rails aren't effectively tied together at the bumper, it's an inefficient structure and therefore responds to road bumps and engine torque. Frame Locks use the bumper beam as part of the front-end chassis, employing brackets to tie the bumper beam and beam extensions to the frame rails

and essentially making the bumper beam a load-bearing part of the chassis. The engineers at Korbach believe the Frame Locks stiffen and solidify the front end of the car and minimize the frame's lateral flex.

Sounds like a whole bunch of black magic, but when the guys at Korbach asked if we wanted try out their product we figured there was no better way to get to the truth. We lined up MD Automotive in Westminster, Calif., to do the work and received donor cars from former Club Si moderator Jimmy Dinh and our own production coordinator Bill Klein. The install took a little over an hour.



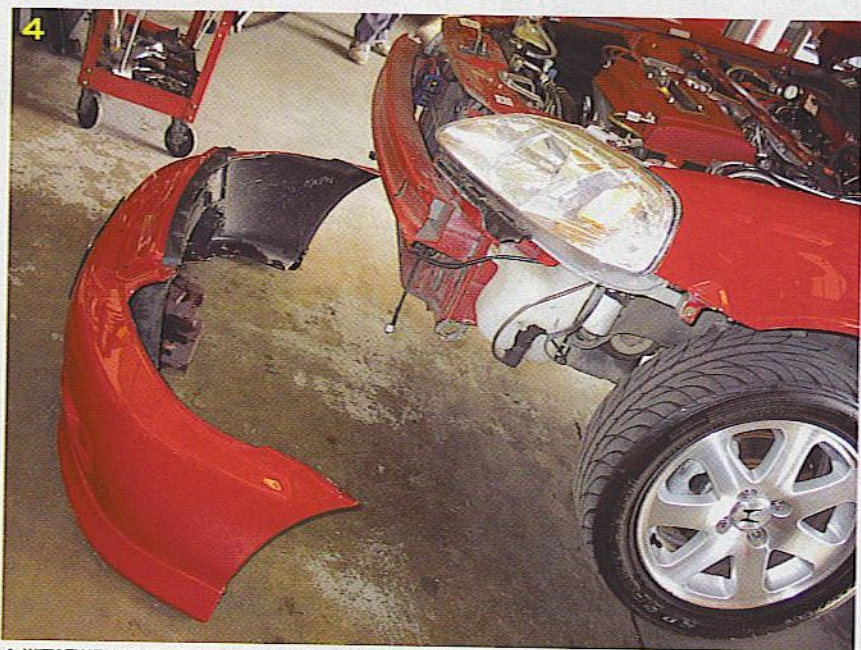
1. TO GET TO THE BUMPER BEAM AND FRAME RAIL ENDS, THE FRONT BUMPER FASCIA FIRST NEEDS TO BE REMOVED. AFTER SOME POKING AROUND WE FIND AN 8MM SCREW IN EACH FORWARD WHEEL WELL THAT SECURES THE BUMPER IN PLACE, PART OF A MYRIAD OF FASTENERS FOR THE FASCIA.



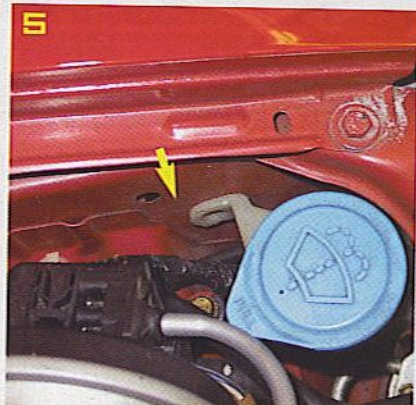
2. UNDER THE FASCIA IS A PAIR OF 10MM BOLTS ATTACHING IT TO THE UNDERCARRIAGE OF THE CIVIC.



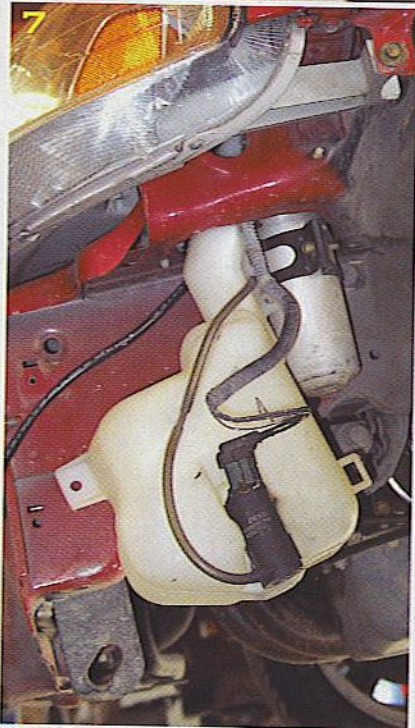
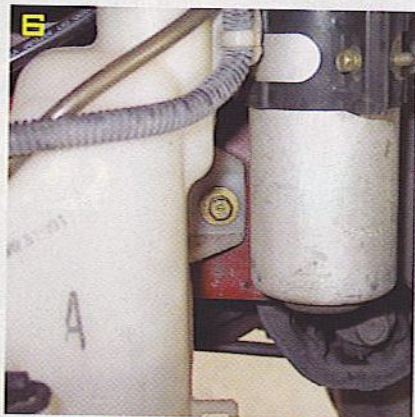
3. FINALLY A SERIES OF BUMPER CLIPS ALONG THE FORWARD SEAM WHERE THE HOOD AND FRONT-END MEET ARE POPPED OUT.



4. WITH THAT, AND SOME WIGGLING, WE PULL OFF THE FASCIA.



5. THE INSTRUCTIONS TELL US WE NEED TO DROP THE WIPER FLUID RESERVOIR A FEW INCHES JUST FOR THE INSTALLATION PROCESS, SO WE FIRST UNSCREW THE UPPER MOUNTING BOLT FROM THE SIDE OF THE ENGINE COMPARTMENT.



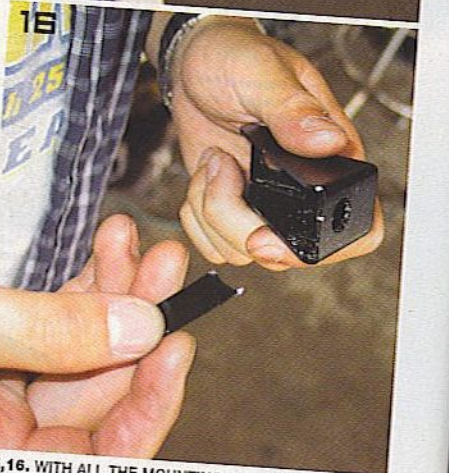
6,7. THEN WE GET AT THE TWO OTHER MOUNTING BOLTS ON EITHER SIDE OF THE TANK. THEY FASTEN THE RESERVOIR TO THE OUTSIDE OF THE DRIVER'S SIDE FRAME RAIL.



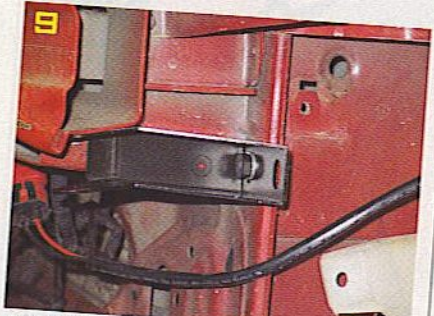
8. THE LAST FASTENERS TO COME OUT ARE TWO BUMPER BEAM EXTENSION LOWER MOUNTING BOLTS FOUND AT EACH FRAME RAIL END ON THE OUTSIDE OF EACH EXTENSION. THE BOLTS ARE REMOVED BECAUSE THE HOLES WILL BE USED IN THE INSTALLATION OF THE FRAME LOCKS.



11,12. KÖRBACH SAYS TO DRILL OUT ALL THE PILOT HOLES WITH A 5/32-INCH BIT, MAKING HOLES IN THE BOTTOM OF THE BUMPER BEAM, THE BEAM EXTENSIONS AND THE FRAME RAILS.



15,16. WITH ALL THE MOUNTING POINTS DRILLED OUT WE PREP THE BRACKETS FOR FINAL ASSEMBLY, REMOVING THE BREAKAWAY PIECES ON EACH BRACKET.



9. THE MOCK-UP PORTION OF THE INSTALL IS ESPECIALLY CRITICAL BECAUSE THE FRAME LOCKS ARE MEANT TO BE ORIENTED IN A VERY SPECIFIC WAY. MOUNT THE BRACKETS INCORRECTLY, NAMELY BY HAVING TOO MUCH OF A GAP BETWEEN SURFACES, AND THEIR EFFECTIVENESS IS COMPROMISED.

ESSENTIALLY YOU WANT THE BACK OF THE FRONT BRACKET BUTTING UP AGAINST THE BUMPER EXTENSION AND THE TOP FORWARDMOST TIP OF THE BRACKET PRESSED UP AGAINST THE BOTTOM OF THE BUMPER BEAM. ONCE WE GET THE PROPER FITMENT, WE LOCK THE BRACKET INTO POSITION WITH A SUPPLIED BOLT AND WASHER. WE'LL START DRILLING PILOT HOLES FOR THE OTHER MOUNTING BOLTS IN A SECOND. FIRST...



13. WITH THE PILOTS MADE, WE UNBOLT THE BRACKETS AND PUT THEM ASIDE. WE THEN BUST OUT A 3/8-INCH DRILL BIT AND FIRST OPEN UP THE PILOT HOLES UNDER THE BUMPER BEAM.



10. THE REAR BRACKET IS TEMPORARILY INSTALLED. WE'RE TOLD TO POSITION IT SO IT'S AGAINST THE FRAME RAIL END. ONCE IT'S LINED UP PROPER IT'S BOLTED IN PLACE WITH THE INCLUDED HARDWARE. AGAIN WE PAY CLOSE ATTENTION TO ELIMINATING ANY GAPS IN BETWEEN THE BRACKET AND THE FRAME.



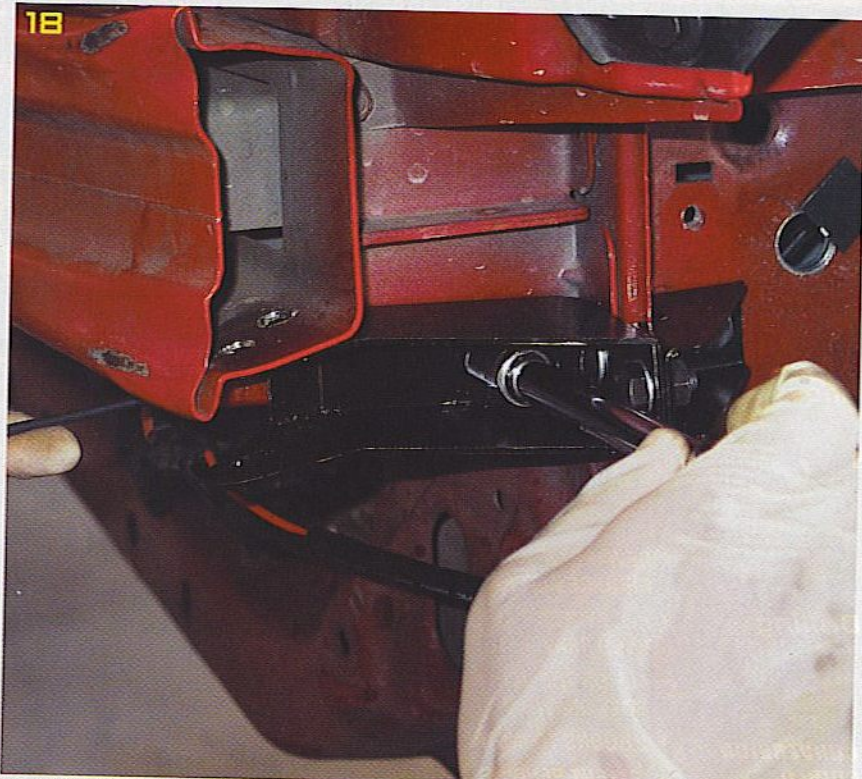
14. THE OTHER PILOT HOLES ON THE RAIL AND EXTENSION ARE ALSO OPENED UP TO 3/8 INCH. THE ONLY PILOT NOT OPENED UP TO THAT SIZE IS THE HOLE FURTHEST BACK ON THE FRAME RAIL - THAT ONE IS ENLARGED TO 5/8 INCH WITH AN APPROPRIATELY SIZED BIT.



17. THE BRACKETS ARE THEN BOLTED BACK IN PLACE, BUT THE FASTENERS ARE ONLY MADE HAND TIGHT UNTIL THE REST OF THE MOUNTING HARDWARE CAN BE SECURED. THIS WOULD NORMALLY BE SOMETHING OF A CHALLENGE SINCE ONE OF THE MOUNTING POINTS IS ON THE FRAME RAIL AND THE OTHER IS ON THE BUMPER EXTENSION AND NEITHER SEEMS EASILY ACCESSIBLE FROM BEHIND. TO REMEDY THIS, KÖRBACH INCLUDES A COUPLE OF "STICK NUTS," NUTS ATTACHED TO SMALL METAL STICKS THAT ALLOW YOU TO FISH THE NUT BEHIND THE BOLT. FOR THE REAR BRACKET AN ANGLED STICK NUT PASSES THROUGH THE 5/8-INCH HOLE DRILLED EARLIER, WITH THE NUT LINED UP BEHIND THE MOUNTING BOLT AND THE BOLT TIGHTENED HAND TIGHT.

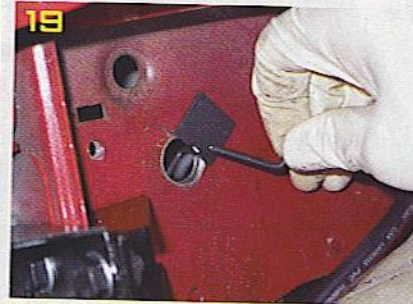
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18. ANOTHER STICK NUT IS USED FOR FASTENING THE FRONT BRACKET. IT'S INSERTED THROUGH THE OPENING IN THE BUMPER BEAM EXTENSION.

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19. IF USED CORRECTLY PART OF THE STICK FROM EACH STICK NUT SHOULD BE PROTRUDING A LITTLE. THESE LENGTHS ARE EASILY REMOVED WITH A PAIR OF PLIERS OR EVEN YOUR BARE HANDS.

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20. AN ANTI-CRUSH PIECE IS INSERTED IN THE FORWARD BRACKET AND HELD IN PLACE BY A PAIR OF BOLTS THAT PASS THROUGH THE BOTTOM OF THE BRACKET AND SECURE THE BRACKET TO THE BOTTOM OF THE BUMPER BEAM.

STYLE SHÖP



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KÖNIG



NEW TROUBLE

Wheels You Gotta' Have.

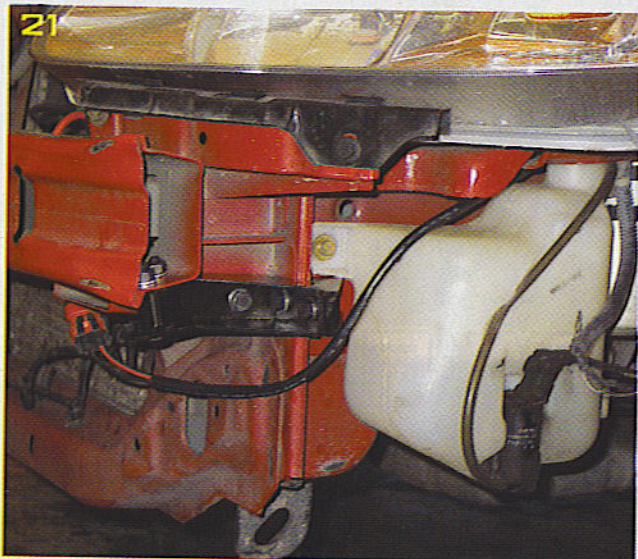
NEW

NEW

15, 17, 18

STICK FROM
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21, 22. ALL THE HARDWARE IS TORQUED DOWN ONE LAST TIME BEFORE THE RESERVOIR AND FASCIA ARE REINSTALLED. OWNER JIMMY DINH CAN'T WAIT TO TAKE IT FOR A TEST DRIVE.



With the Frame Locks dialed in we tested the cars on city streets. Well, the difference was like night and day. In fact, rarely do we encounter an after-market handling product that delivers what it claims so immediately. The Frame Locks affected the cars right off the bat, regardless of speed or road setting. The Civics felt abundantly more solid over all conditions. On round-about freeway on-ramps, the vehicles were undaunted by lateral acceleration, and mid-corner braking and throttle lift-off did little to unplant them either. Even over bumpy roads and train tracks, the cars handled better. The newfound solidity translated to a much smoother ride and improved steering feel. The owners of our test Civics were equally pleased.

In fact, we asked Dinh for his impressions and he gushed, "I took [the Civic] out on a familiar mountain road where I know all the twists, bumps, and potholes by heart. I couldn't believe the improvement; it was like a different car! Every turn was smooth and solid. The bumpy parts definitely felt less bumpy too. I took a high-speed turn and felt no [frame] twisting whatsoever. Some of the dips in the road were severe, but with the Frame Locks installed, the car felt great."

"THE CIVICS FELT ABUNDANTLY MORE SOLID OVER ALL CONDITIONS."

Currently Korbach only makes the Frame Locks for the '96-to-'00 Civic, but the company plans to develop and introduce similar offerings for other Honda models. Expect to pay around \$245 for the Frame Locks, although if you act quickly the company is selling them for \$195 through October. **ST**

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