

Hiding In Plain Sight

There's a difference between stealthy and invisible. K40 has just defined it.

BY STAN RARDEN AND PAUL ZAZARINE

Back in the mid-'60s, when law enforcement radar units were just coming into use, we of the performance-car persuasion felt an Orwellian sort of uneasiness, now that those black-and-whites on the overpasses could (it was said) read our speed with the accuracy of NORAD watching a fleet of Soviet bombers orbiting the Arctic Circle. Over time, though, we found out that those first-generation roadside radars, which looked like rural mailboxes, had roughly the same ability to determine a car's speed as did a mailbox. After a hundred magazine exposés (and a few comical court appearances by some poor, under-trained state troopers), pretty soon everyone knew that claims of these units' abilities were, in a word, overstated. In fact, in one widely publicized test (in Virginia, of all places), a motorcycle officer, using the standard-issue handheld radar gun, clocked a two-bedroom brick house at 77 MPH.



PHOTOS: PAUL ZAZARINE

1 Here is our system – the Undetectable Dual Remote radar receivers, the Laser DefuserPlus units, the license plate frames (which we didn't use) and all the cabling and Warning Pod alarm modules.

2 The control knob, which selects the sensitivity, from "city" to "highway" to "off" was concealed cleanly inside the console compartment using the 12-volt accessory plug.

3 This is the Undetectable's rear radar receiver bolted to the supplied mounting straps. These straps allow the installer to custom mount the unit anywhere.

4 Doug Gibson of Ultimate Audio in Orlando cut this clean opening in the fascia behind the Corvette's front license plate cover and hid the Undetectable's front radar receiver here.



But too soon did we throw caution to the wind and resume driving as though Big Brother wasn't watching. Like all things electronic, the next generation of speed detection equipment was many times more accurate, and the training courses for motor officers much more comprehensive. Traffic court judges began to consider radar evidence conclusive, and state and local coffers brimmed with increased speeding-fine revenues. All through the '70s, from CB radios to just flat outrunnin' the county mounties, life for speed-limit scofflaws became a cat-and-mouse game of "now you see me, now you don't." Thanks to the 55 MPH speed limit, dozens of small electronic companies hit the market with various counter-measures, which ranged in effectiveness from not-at-all to quite good, with the high end of the scale being able to see Smokey several miles away.

TODAY'S DETECTION TECHNOLOGY: Fast-forward 20 years to today, where the vast array of radio signals in the air these days, everything from cell phones to OnStar communications, has changed the scenario completely. The consumer electronics industry now produces several effective radar detection systems, so to maintain their "edge," the police have expanded their surveillance spectrum to include laser-speed measurement in addition to X, K and Ka-band radar. These new police laser guns operate by sending a pulsed beam of light toward your car which reflects off your vehicle back to the laser gun. The gun then determines the speed of your vehicle based on a time-over-distance calculation. This is all done at the speed of light, or 186,000 miles per second. Also, unlike radar, which emits a wide beam of energy that

illuminates your car and any other vehicle in its path, laser light is a sharply focused beam. When the fuzz target your car, they hit your car... not the four others in the adjacent lanes. Traffic court judges are not likely to hear arguments how it wasn't you speeding, it was the guy in the other lane. Bottom line—if you get targeted by the deadly quick and accurate police laser, even with the best combination radar and laser detector, you're caught.

THE LASER DISAPPEARING ACT: In view of these latest developments, our staffers, who are not totally unfamiliar with traffic court, always have an eye out for technology that can give the mice a leg up on the cat. Just lately we've discovered an item which looks like it might be helpful in this area. It's from K40 Electronics, and based on our tests, it just might put the fun back into driving. It's called the Laser DefuserPlus™, and after a day of putting this thing through its paces, we came away feeling as though our car had become a lot less visible to laser speed detection.

GETTING STEALTHY: Just so no one could accuse us of trying to sneak by the law with an inconspicuous car, our test vehicle was a Torch Red '97 Corvette. To ensure we'd be warned of any of The Man's speed detection devices, we stuffed this cop magnet with the K40-2000P Undetectable Dual (front and rear receivers) Remote Radar System along with the centerpiece of our "avoidance" system, K40's Laser DefuserPlus.

Radar operates by sending out electromagnetic emissions, and as such is regulated by the FCC. However, laser

LIVING WITH K40

It's ironic that just before we installed the K40, I had recently gotten a ticket that I considered rather dubious. I had been "painted" on the Interstate with a Lexus that was passing me on the left. While I was running about 8 mph over the posted speed, the Lexus was popping along at about 20 over the limit. The cop chose to stop the red Corvette, although he had actually read the gray Lexus.

While that is the inequity of radar detection, what we were most intrigued with was the laser detector. We've witnessed state troopers parked at 10-degree angles to the roadway and sighting down speeders with laser and feasting on the guilty as they unknowingly approach a nest of troopers ready to dispense justice. We wanted to see if it was possible to have a fighting chance against the pinpoint laser beam.

During the data acquisition phase of our article on the K40, I was impressed by the systems ability to "jam" the laser, allowing me adequate time and distance to pull the Corvette's speed down to a legal level. In some cases, the DefuserPlus "jammed to the gun" and blocked a reading right up to the point we drove past the laser gun.

Since the installation and testing, I've racked up several thousand miles, giving us plenty of real-world testing of the K40 systems. At first, as with any new technology, we were a little apprehensive about trusting it. That changed as we learned to ferret out the spurious signals and understand the messages being signaled to us from the LEDs and the chirps from the pods.

Granted, the K40 system is expensive and elaborate, but for those of us libertarians who refuse to bend under the restrictive speed limits placed on the Interstate, it's worth every penny. Consider it a long-term investment. The money spent to install the system will be paid back over time in the form of no tickets and no increased insurance premiums. That's worth the cost of admission alone.





5



6



7



8

5 Here is the Warning Pod module, with audible and visual alarm signals, to let you know whether Smokey Bear is in front of you or shooting you in the back with radar or laser.

6 See 'em? There's a Laser DefuserPlus unit inside each grill slit. With radar detection behind the license plate cover, we're sweeping the whole highway in front of us. Clean!

7 For those who prefer a permanent installation instead of the removable Warning Pod modules, K40 offers these LEDs which can be neatly mounted in the dash, as shown here in this mid-year gauge cluster.

8 LTI's Marksman 20/20 is the most commonly used laser gun utilized by police. If you drive without a Laser DefuserPlus and go up against one of these, get ready to bring your wallet to court.

LASER DEFUSERPLUS TEST RESULTS

RUN #	BEGINNING SPEED/ REDUCED SPEED OBTAINED (MPH)	DISTANCE READING (MPH)	SPEED WHEN READING OBTAINED (ft)
Baseline test	55	1009	54
1	55 / 45	817	34
2	55 / 45	827	29
3	65 / 45	292 *	42 *
4	55 / 45	244	35
5	55 / 45	87	28**
6	55 / 45	105	25***
7	65 / 45	178	38+
8	55 / 45	221	36+
9	70 / 40	192	27+
10	46	992	46 ++
11	45 / 35	1023	42 ++
12 (rear shot)	45 / 35	Jammed gun	Jammed gun
13 (rear shot)	50 / 35	Jammed gun	Jammed gun

* front DefuserPlus units adjusted for better coverage

** Laser Gun aimed directly at passenger-side DefuserPlus

***Laser gun aimed directly at driver's side DefuserPlus

+Corvette Enthusiast editor operating laser gun

++Baseline test with rear DefuserPlus inoperative to verify laser gun operation

speed detection guns emit light, which is a commodity regulated by the Food and Drug Administration (don't ask us... it's the government). The law has a little problem with "radar jammers" which emit spurious radar signals from your car, so radar protection consists of detection only. On the other hand, when the Laser DefuserPlus detects laser speed-detection signals, it sends back a calibrated laser signal directly back to the gun, which produces an "scanning error" message. This isn't just a warning device. This is a COUNTER-MEASURE!

Our system's installation was performed by Doug Gibson of Ultimate Audio in Orlando, Florida, who immediately calmed any fears we had about any of the components disturbing the C5's looks. The procedure took the better part of the day, and is best left to someone who has done one of these before. K40 will be happy to provide you with a list of recommended installers. For example, Doug already knew that since radar emissions penetrate fiberglass and plastic, the rear radar receiver would fit and function nicely in the space behind and below the port outboard taillight, and the front receiver would work best when mounted behind the front license plate cover.

This required cutting a hole in the front fascia, which doesn't show once the license plate cover is replaced, but is further proof that this really isn't a job for a rookie installer.

If we were required to run a front license plate, we'd have to find a different mount for the front radar receiver, since the metal license plate would "shield" the receiver. However, in this particular situation we were able to install the receiver in what we think is the optimum location.

After mounting these receivers, the cabling was routed cleanly to 12V power, the alarm module and the system's control knob, which Doug cleverly concealed inside the console compartment. This three-position knob is used to turn the system on, select its sensitivity for city or highway driving, and adjust volume.

Once we were protected from radar, the Laser DefuserPlus system went in. The DefuserPlus unit is normally mounted on a license plate frame (supplied with the unit), but the configuration of the Corvette's front and rear license tags required a custom solution. Since the DefuserPlus requires an installation that is perfectly perpendicular to the plane of the road, using K40's license plate mount wouldn't

K40 UNDETECTABLE 2000 RADAR RECEIVER

RUN #	SPEED (MPH)	RADAR GUN LOCK SPEED	ALARM RECEIVED	DISTANCE READING OBTAINED
1 (FRONT)	35	TEST	2,450 FT	
2 (FRONT)	35	37	"	< 1,000 FT
3 (REAR)	50	50	"	1,500 FT
4 (FRONT)	50	50	"	1,500 FT

*Total effective warning distance greatly hampered by the road length we tested on, which 2,450 feet. K40 has documentation from independent tests that shows their detection range is two miles (10,560 feet), or seven times the normal targeting distance of radar.

work. Nor would hiding the DefuserPlus directly behind the cover since it requires an unobstructed "view." Instead, our forward warning system consisted of two of the small, black DefuserPlus units mounted in the left and right grill openings. This allowed each unit to be mounted precisely parallel to the ground (necessary for optimum performance), and not block the center-mounted radar receiver. Also, mounting the front DefuserPlus units in the grille slits renders them nearly invisible, but still allows them to receive and react to incoming police laser signals. We couldn't use the DefuserPlus license plate mount around back either, since the frame's angle placed the receiver's angle at roughly 30 degrees vertical to the road, which would diminish efficiency. K40 includes a bracket that we were able to fabricate a mount with, using the lower license-plate lounting screws.

The final touch was to install the system's audio and visual alerts inside the car. Instead of choosing K40's slick but permanent separate component LED and speaker set-up, we elected to go with K40's small, unobtrusive Warning Pods mounted with double-stick tape to the inside top of the windshield pillars. Each Pod contains a piezo speaker and LED that visually and audibly signal the driver that Smokey's measuring us for a party invitation. The Pod on the left pillar signals the presence of frontal radar emissions, and the right Pod tells us someone just "took our picture" from the rear. There are even different audible and visual warning signals to indicate X, K or Ka radar. Both units lighting up simultaneously told us we were being pinpointed with laser. So far, we were really

impressed. We were now protected from radar and lasers, front and rear, at least in theory. The whole point of onboard detection is to "see" the speed-checkers before their radar and laser guns get a return from our car, giving us time to slow down and avoid a roadside conversation with Mr. Bear. Now we had to find out if everything worked.

PUTTING K40 TO THE TEST: First we checked out the Undetectable radar system. By law, radar detection units are detectors ONLY—they merely sound the alarm when they receive emissions from a speed-detection radar gun. Our front and rear receivers "saw" the radar gun at a distance of 2,450 feet, sounding the alarm well in time for us to brake before the gun registered our speed. In three tests, the radar gun registered a speed reading on our Corvette at 1,500 feet, giving us nearly a 1,000-foot advance warning. It should be pointed out that the Undetectable radar system's total effective warning distance was greatly hampered by the road length we were testing on, which in this case was the same 2,450 feet. K40 has documentation from tests performed by Speed Measurement Laboratories Inc. that show the Undetectable's detection range of police radar is two miles (10,560 feet) or seven times the normal targeting distance of radar.

To verify the accuracy of the Laser DefuserPlus, we used the standard of the speed-detection industry, and the laser gun most commonly in use with law enforcement agencies, the LTI Marksman 20/20. This unit is normally triggered at ranges between 800 and 1,200 feet, with around 1000 feet being

Take Corvette Enthusiast for a Test Drive!

6
AWESOME
issues
only

\$14.97!

Call
800-448-3611
to place your
order
or write to:

**Corvette
Enthusiast
Dept. TK40
PO BOX 926
Sidney, OH 45365**



Offer good in U.S. only.
TK40

Take **Corvette Enthusiast** for a **Test Drive!**

**6
AWESOME
issues
only**

\$14.97!

Call
800-448-3611
to place your
order
or write to:

**Corvette
Enthusiast
Dept. TK40
PO BOX 926
Sidney, OH 45365**



Offer good in U.S. only.
TK40

optimum distance-to-target. Having laid out a measured course on a low-traffic city street (where there would be the presence of all sorts of real-world spurious emissions for our onboard K40 units to receive, decipher and reject), once again we set out to determine how much advance warning we could get between the time the laser alarm went off in the cockpit and the gun registered our speed. Our results were gratifying.

On the first two test runs, we approached the laser gun at 55 mph, which was triggered at 1000 feet. When the alarm sounded in the cockpit, our driver reduced his speed from 55 to 45 mph. When the gun finally received a speed return from our car (at a distance of 817 feet), the gun registered 34 mph, proving the DefuserPlus units were "jamming" the laser gun. We then angled the front DefuserPlus units outboard slightly to have a better view of the road and repeated the test. This time, approaching the laser gun at 65 mph, when the alarm sounded we braked to 45 mph before the gun received a reading. The gun saw the C5 at 292 feet, showing our speed at 42 miles per hour. A repeat of the same test resulted in the gun seeing us at 244 feet, showing our speed at 35 miles per hour! We just dodged a ticket for sure!

The improvement in performance after the slight adjustment in the DefuserPlus units shows that proper installation and system tuning makes a huge difference in its effectiveness. This is another reason why you'll want to consult an experienced installer. After all, it's your driver's license.

We continued to play with the Laser DefuserPlus for the better part of the day, "shooting" our Corvette approaching and going away, at various speeds and distances to the gun. The units from K40 never failed to detect the presence of either radar or laser signals, and always alarmed in plenty of time for us to brake and save a trip to traffic court.

If you write to K40 Electronics or visit their website, www.k40.com, they'll shower you with everything you ever wanted to know about radar and laser speed detection, and plenty of technical detail about how their products work. Most of it is extremely interesting reading if you're contemplating installing a system like this. We recom-

mend doing as much research as you can before you buy, because a vital part of any system is confidence that it'll perform for you. After our testing, our confidence level in our system is very high, and so, evidently, is K40's. They certify that if you get a radar or laser ticket with one of their properly operating systems in your car, they'll pay the fine. That's confidence!

THE BOTTOM LINE: We hasten to point out that driving above the posted speed limits will get you into some sort of trouble eventually, no matter how many detection devices you're armed with, and we also strongly encourage you to behave in a courteous, law-abiding fashion when in traffic. After all, aren't we all sick of newspaper editorials about those punks in their bright red Corvettes driving unsafely? Nonetheless, there are those of us who genuinely enjoy driving, and Heaven knows there are some roads in this lovely country which seem to have been made for us and our Corvettes. When we find ourselves in those surroundings, a system like K40's Laser DefuserPlus and Undetectable Dual Remote Radar might just be some handy equipment to have onboard. While the system may seem a touch expensive for some (our tested K40 radar detection and laser detector/defuser system runs about \$1600 installed), it's a cheap price to pay to ensure your license is intact to enjoy driving that Corvette. ■

FOR YOUR INFORMATION

K40 ELECTRONICS

Dept. CE

600 Tollgate Road

Elgin, IL 60123

(800) 323-6768

www.k40.com

ULTIMATE AUDIO

Dept. CE

4978 West Colonial Drive

Orlando, FL 32808

(407) 298-3040