

SPECIAL SECURITY TEST

BREAKING IN IS HARD TO DO

Exclusive real-world tests: We simulate three vehicle break-ins to see how well security systems from Code Alarm, Clifford, and Python can stop a thief. **by Micah Sheveloff**



IF I WERE GOING TO TEST peanut butter and jelly sandwiches, I'd eat them. Oh, sure, I'd analyze the ratio of peanut butter to jam and make sure the bread was fresh, but, to really appreciate the flavor and the texture, I'd have to take a BIG bite. Only then could I describe the PB&J experience with greater accuracy.

Car-security systems deserve the same "real-world" drill, though it's admittedly difficult to simulate the "taste" of a thief in action. To evaluate the effectiveness of a security system, I've always relied on the quality of the product, followed by a complete installation in someone's daily driver. Still, the biggest drawback is that I don't get to see how these alarms actually fare against a determined car thief, the truest and most rigorous benchmark of any car-security device. That's why we decided to round up two experienced car-alarm installers—namely Lee Steiner and Kevin Klisus from Alarms On The Move, a shop just a few minutes north of my own shop, Audio Coupe, in Fairfield,

Connecticut—and have them pose as thieves for a day.

We bought three used cars to be guinea pigs for the installs and break-ins. Sure, it would've been nice to have gotten the top 3 cars on the Most Stolen Vehicles list on page 60, but, hey, we don't exactly have the same budget that our sister publication *Car and Driver* has. Anyway, the three tests you're about to read follow the standard style of the no-nonsense reviews that appear in my regular Security column, while the pictures and captions over the course of the next 10 pages show step by step how—and how fast (or slow)—

our two "thieves" broke into each vehicle. Now let's get down to business!

CODE ALARM ELITE 3100

Some cars are born classics; others are embarrassed to be seen on the highway. For the purpose of testing the Code Alarm Elite 3100 (\$349 uninstalled), I selected a four-door banana yellow '78 Chrysler LeBaron with a butterscotch-colored vinyl top. To give the poor beast some credit, its famous 318 V-8 engine started immediately, and the car felt pretty darn solid for its age.

The Code Alarm Elite 3100 system in-

SECURITY SPECIAL

CODE ALARM VITALS

PRICE: \$349 uninstalled. **WARRANTY:** Lifetime; \$1,000 anti-theft guarantee.
MANUFACTURER: Code Alarm, Dept. CSR, 950 E. Whitcomb Ave., Madison Heights, MI; 800-421-3209. **WEB SITE:** www.code-alarm.com.



CODE ALARM Elite 3100



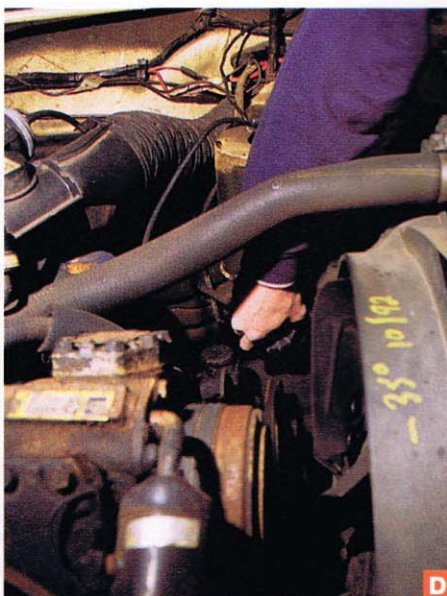
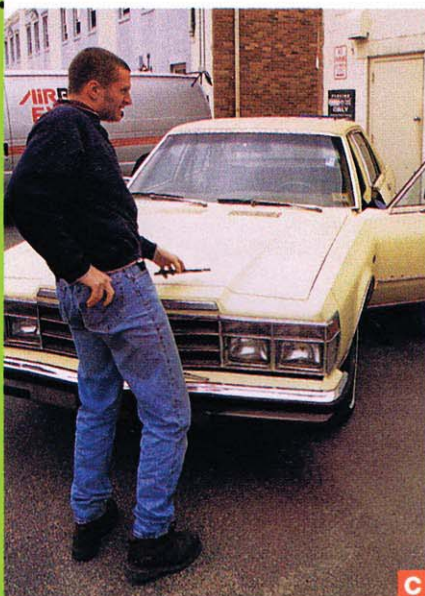
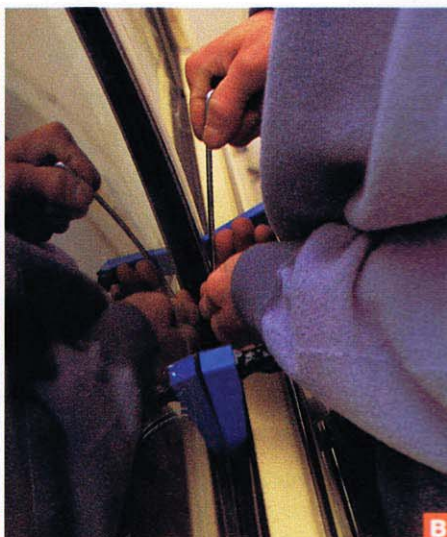
cluded two remote transmitters, a main control unit, a siren, shock sensor, valet switch, LED, and some installation parts. The 3100 also came with two manuals; one dedicated to installation, the other for the end user. Installer James Samudosky noted that the harness and main plug were solid and of good quality, and all of the wiring plugged into one side of the brain. (It's usually easier to hide the control unit in a tight spot when all of the system's wires attach to one side, rather than sticking out in every direction.) After a close examination of the installation manual, Samudosky removed several interior panels from the LeBaron, allowing him to plan out an installation strategy to keep the security components and wiring out of sight.

The 3100 is installation-friendly, con-

taining on-board relays for many commonly used features such as lock/unlock and parking-light flash. These internal relays reduce the complexity of the wiring and thus save install time. Although Samudosky found the schematics in the instructions to be quite clear, he did have a few minor criticisms. There were two wires marked light blue that were clearly dark blue. Also, some of the wires in the harness were too short to reach their termination points, and had to be extended. Not a huge problem, but a little more wire length would ensure that there was enough to work with in all cars. Furthermore, the range-extending antenna for the remote controls has an annoying design. It comes attached to the brain, making running the cable up to the windshield nearly impossible. Samudosky opened

the control unit and unplugged the antenna so that he could work with the cable and conceal it properly without the alarm brain dangling from the other end. The antenna cable was routed to where the control unit would be hidden, ready to be plugged back in once the rest of the install had been completed.

Code Alarm's shock sensor, known as the IR-s, was mounted to a steel brace in the dash, and the main control unit was concealed high above and behind the heater controls. Even if a thief knew where the brain was, he'd need special tools and several minutes to get to it. The siren was mounted below the battery tray and completely out of sight. The momentary-type valet switch was concealed in and above the ashtray, and the red flashing LED was mounted in plain sight next

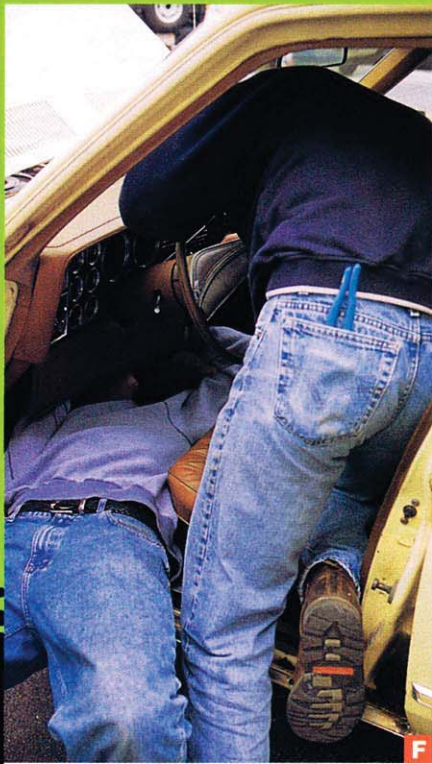


BREAK-IN #1: '78 Chrysler LeBaron/ CODE ALARM ELITE 3100

LEBARON LANDSCAPE: Steiner and Klisus planned their attack on the Code Alarm-protected LeBaron to minimize the time the siren would sound. Klisus uses a wedge tool to force the window away from the door frame (A) and to make the latch mechanism visible, allowing him to hook the lock rod and unlock the door (B). As soon as he opens the door (in about 40 seconds), the siren yells ferociously. Steiner, meanwhile, is at the ready as Klisus gains entry to pop the hood (C). Steiner's mission is to find the siren and silence it, and he swiftly determines that it's under the battery. He thrusts his hand into the dark recess, feeling around for it (D). Once Steiner gets a grip on the siren, he yanks up on it, displacing the battery and ripping the siren loose from its mount (E). One snip with his cutters results in the sound of silence, a mere 15 seconds after the alarm began to sound. Our efforts to conceal the siren proved inadequate. Steiner had accomplished his task too quickly.



PHOTOS BY JIM RAYCROFT

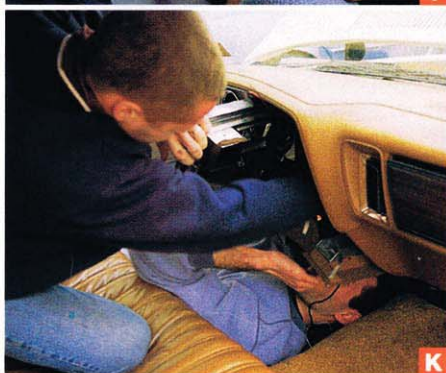
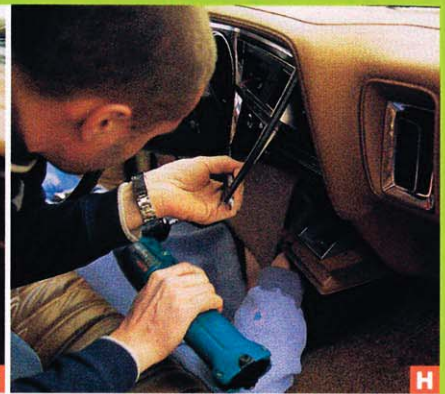


CABIN FEVERISH: With Klisus underneath the driver's side of the dash searching for the alarm's brain, Steiner enters the Le-Baron's cabin, ready for his next task (F).

to the radio. Samudosky took special care to conceal his ignition and starter-kill connections because this older car was uncluttered under the dash, making any alterations more obvious. His strategy was to follow the harness away from the ignition switch where it curved around behind the dash structure. In this concealed area, he made the necessary connections and then wrapped them in 3M 33-plus tape to give the appearance that nothing had been done at all. The execution of this critical step is what will determine the effectiveness of any security system when confronted with the prying eyes of an experienced thief.

Samudosky next sat with the well-written owner's manual and tested the operation of the system and its various features. Code Alarm's IR-s shock sensor is world-class. It gave uniform protection around the vehicle, and we couldn't get a single false alarm out of it. The remotes were also great. The buttons were clearly marked, and a little red LED nestled at the top flashed to confirm button activation.

Arm and disarm can be done with or without confirmation chirps. Pressing the remote button once will select the silent mode. Pressing the same button again



TRASHED TRIM: Thieves generally expect the alarm to be under the dash on the driver's side. Frustrated that there's no sign of it, the boys stop and listen for the relay inside the brain that flashes the lights, hoping the sound will reveal the alarm's location (G). Steiner works furiously with the powered screwdriver to loosen the dash trim (H), thinking the alarm is behind the radio. The clock is ticking, so once the trim is loose, he tears at it and cracks it in half (I). With the dash trim destroyed, the radio's mounting bolts are exposed. Not every crook carries a 10-millimeter socket, but our expert thieves have the right tools. Out come the bolts, and out comes the Chrysler radio (J). Steiner locates the hidden treasure deep in the dash behind the radio. Sticking his arm into the dash almost up to his elbow to get at the brain (K), he must disable the alarm to start the car. It's already taken several minutes since the siren was stopped to reach this point. (Few thieves, mind you, are willing to stay so long at the party and risk being caught.) Success! Steiner shows off the disconnected brain (L). Total time to this point is 4:25—an absolute *eternity* for a thief. Steiner and Klisus disable the system, thus making the ignition switch vulnerable. Instead of smashing the steering column as a thief would in mere seconds, I hand Steiner the key and he starts the car. Total elapsed time: 4:53. It's important to note that it took two career alarm installers with a range of tools almost 5 minutes to "steal" this car. These guys weren't holding back; they were tearing out panels and being quite violent trying to speed up the theft process. Also, the 15 seconds it took to beat the siren was weak at best; bad job on our part with the siren's installation—but, thanks to this simulation, we'll know what to do better next time.



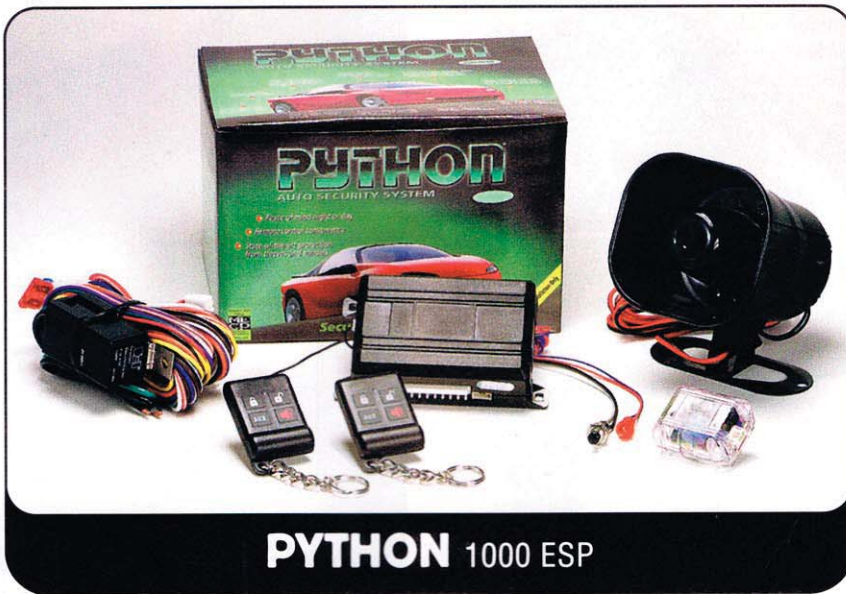
within 20 seconds activates the chirps. This user option is a nice feature. Disarming the system activates the interior light for safe entry into the car, and the parking lights flash to confirm both arm and disarm commands.

The Elite 3100 provided excellent performance and seems to be a good value as a full-featured security system. Other than the few criticisms mentioned earlier, installer Samudosky felt that the 3100 was installation friendly and well built. Based on my use of the system as I tested it in the LeBaron, I'd have to agree.

PYTHON 1000 ESP

The Python 1000 ESP (\$297 uninstalled) is a full-featured security system. In order to provide adequate protection for its intended protectee, an '88 Chevrolet Caprice four-door sedan, we added a dual-stage shock sensor, field-disturbance sensor, and a back-up power supply for the entire alarm. Why all the effort? Older Chevrolet steering columns and ignition switches are vulnerable to even a rookie thief. These vehicles are easy to hot-wire and be driven away in just a few seconds. Our objective, then, was to provide effective security for this decade-old family cruiser and make it tough to steal.

The 1000 ESP package includes two remote controls, a siren, a valet switch, and an LED, along with the compact main control unit and the necessary wiring and hardware. In addition, there was the 520T back-up battery, the 504D dual-stage shock sensor and the 508D field-disturbance sensor. We were glad to have the field-disturbance sensor because the Caprice had no pin switches in the rear doors. (Pin switches turn on a car's interior courtesy light, and they also trigger the alarm system.) Chevy didn't feel compelled to provide light for those entering through the back doors. If the thief knew that the rear doors were unprotected, he could enter the car without setting off the alarm. The field-disturbance sensor was the solution; it looks for movement in-



PYTHON 1000 ESP

side the vehicle and sounds the alarm.

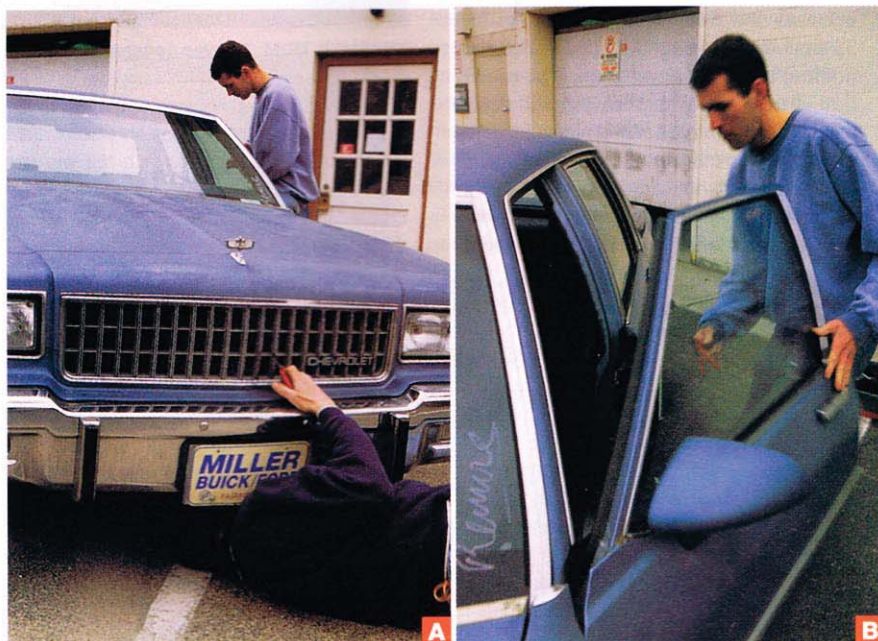
Samudosky found the instructions for the 1000 ESP to be clear and instructive. All of the wiring was clearly marked, although the plugs that attach the wires and sensors to the brain were wimpy. Any stress or yanking on these plugs would certainly have caused them to break or become unplugged. The rest of the accessories were of excellent quality, although

the LED was big and unsightly once mounted on the dash. An improvement would be a smaller light that could be flush mounted for those customers more particular about their car's interior.

Starting under the hood, Samudosky removed the car's battery, exposing a hollow area inside the passenger's side fender. This seemed to be an ideal hiding place for the siren, because once the bat-

BREAK-IN #2: '88 Chevrolet Caprice/PYTHON 1000 ESP

CHEVY DUTY: When the starting gun sounded for the second break-in, Klisus went at the Caprice's door lock while Steiner dove underneath the front end, looking for the Python's siren (A). Uh oh—it took Klisus just 13 seconds to gain entry into the Caprice (B).

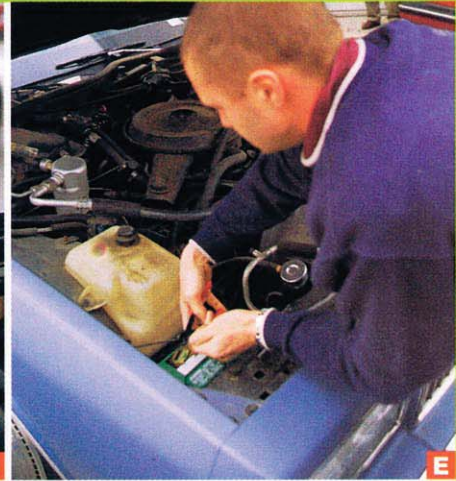
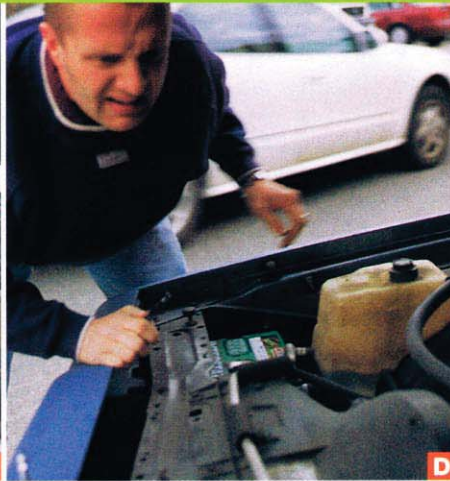


PYTHON VITALS

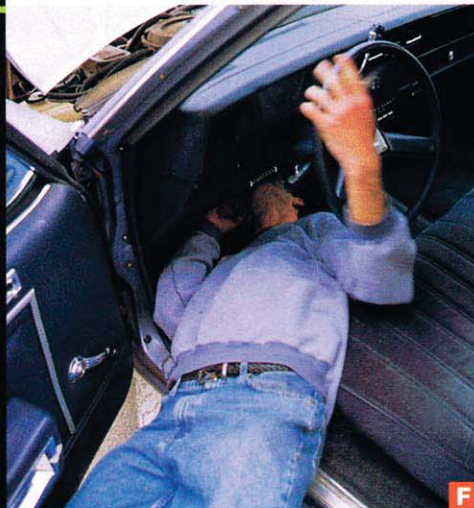
PRICE: \$297 uninstalled. **WARRANTY:**

Lifetime for main unit; 1 year for transmitters. **MANUFACTURER:** Python by Directed Electronics (DEI), Dept. CSR, 1 Viper Way, Vista, CA 92083; 760-598-6200.

WEB SITE: www.directed.com.



SILENCE OF THE ALARM: Klisus yanked on the Caprice's hood latch so that Steiner could gain access to the source of the noise (C). Steiner, by now visibly frustrated, tries to locate the siren (D). Because the siren has been cleverly tucked inside the right fender by installer James Samudsky, the origin of the sound is tough to pinpoint. For 37 seconds—practically a lifetime—the siren screamed its warning tone. At long last, Steiner shoves his hand into the recess and tears at the siren, producing the power wire (E). Using wire cutters, he finally mutes the alarm.



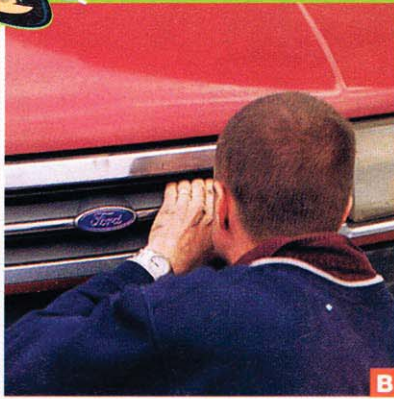
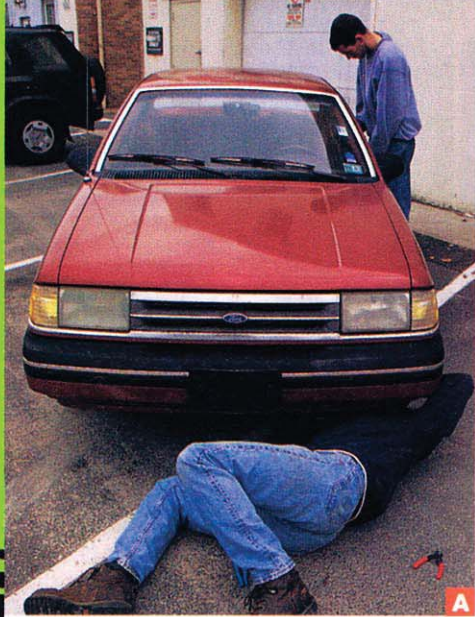
DASHED HOPES: Meanwhile, Klisus dives under the driver's side of the dash (F), searching for something, anything: brain, wires, sensor... but comes up empty. Remember: The first place thieves look is under the dash on the driver's side. But this system is well hidden, and it's costing our thieves valuable time.

tery was secured back in its place, the siren would be inaccessible. Next, Samudsky looked for a concealed area for the brain inside the car. He removed the dash top and found ample space in the center above the radio and heater controls, away from where a thief might look. There was also enough room for Samudsky to mount both sensors to a steel brace, the starter-kill relay, and the backup battery, all in the same previously unused cavity. The beauty of this installation strategy was that all of these alarm components would be completely inaccessible without



RIPPED OFF: Listening for the Python's clicking light-flash relay, the duo rip out the glove box to find the brain. Don't forget, the car won't start until the alarm is defeated. Taking a cue from the LeBaron install, the boys tear out the radio (G), thinking the brain might be there—but it isn't, so the hunt continues. Klisus and Steiner ditch the tactful approach and simply tear off the dash (H, I). Thieves prefer not to be this destructive if the car is being stolen as a parts donor; however, as more time passes, desperate measures become necessary. With the right side of the dash now destroyed, Klisus accesses the Python brain and unplugs it (J). Finally, 3:20 from the start of the theft attempt, the alarm is disabled. The ignition switch is now vulnerable. An experienced thief would next pop out the GM switch in a few seconds and have the car running, but we left the ignition key for Klisus rather than have him smash the steering column. The difference between using the key and popping the switch is 10 to 15 seconds. So, at 3:25 into the heist, the big, bad Caprice is finally running.

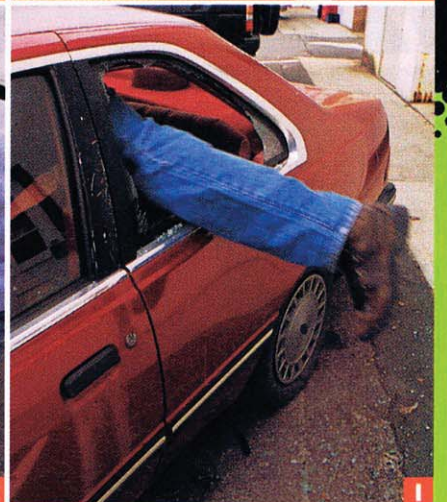
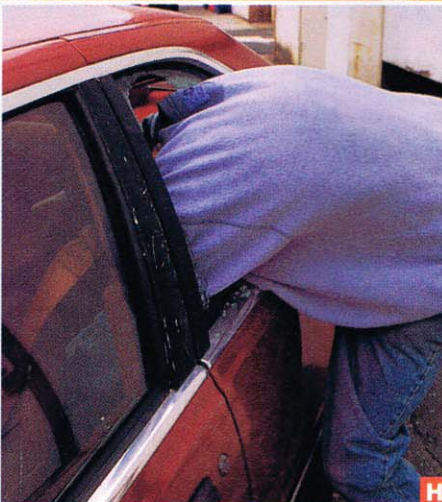
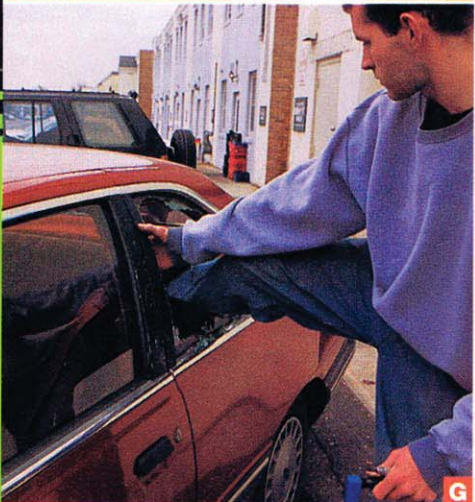
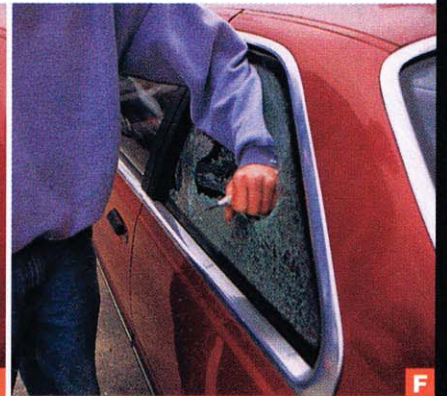
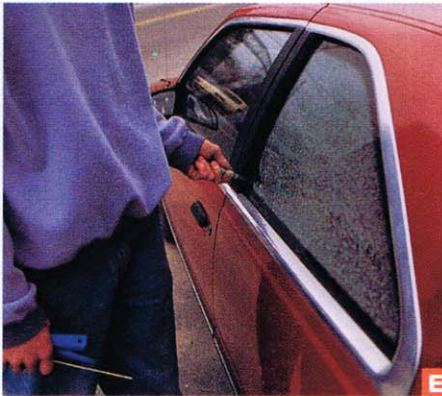
BREAKING IN IS HARD TO DO



BREAK-IN #3: '89 Ford Tempo/ CLIFFORD INTELLIGUARD 6000

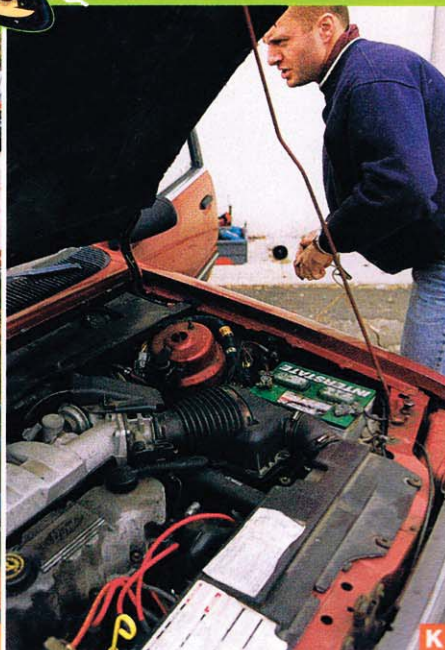
TEMPO FUGIT: Steiner goes under the nose of the Tempo, looking for the Clifford system's siren, while Klisus tries the door lock (A). His attempt to pry at the glass triggers the glass sensor, and the siren begins to screech. Finding nothing underneath, Steiner peers through the front grille, looking for a way to open the hood (B). As Klisus struggles with the door lock, Steiner grimaces and tries to get the hood open, forcing his pliers through the front grille to snip away some grille teeth (C). Anything to get at that blasted, blasting siren!

SECURITY SPECIAL



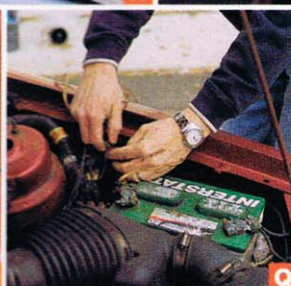
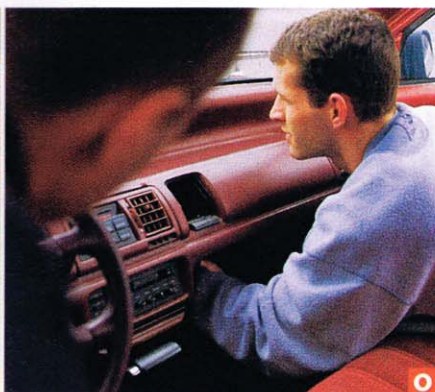
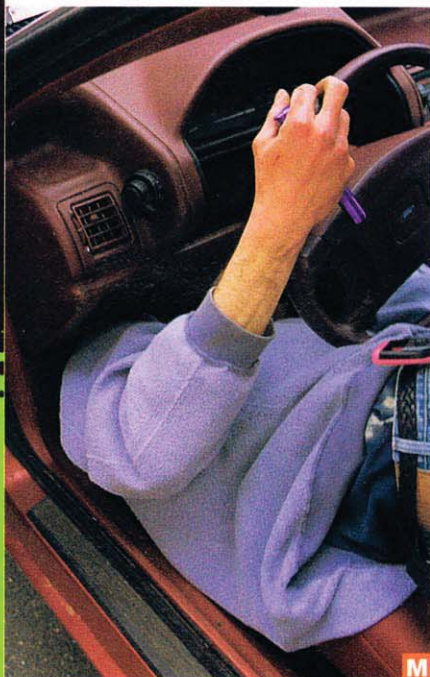
GLASS KICKER: The minute mark passes and Klisus still can't beat the Tempo's door lock. He decides to use a spring-loaded center punch on the corner of the rear side window (D). As the sharp point shoots out of the punch, the glass shatters instantly and with hardly any noise (E). Klisus uses his forearm to clear the automotive safety glass out of his way (F), but manages to draw blood from a slice on his hand. Impatient, Klisus clears out the glass more quickly with his boot (G), covering the back seat and floor with chunks of glass. Once the opening is cleared, he dives in the vehicle head-first (H), as if swallowed by a ferocious beast, with only one leg visible as he slithers into the Tempo (I). He then climbs into the front seat in one swift motion, desperately seeking to find the Clifford alarm. It's taken 1:15 to get into the Tempo, significantly more time than it took to break into the other cars.

BREAKING IN IS HARD TO DO



HOOD WINKED: Finally, Kliskus opens the front door of the Tempo from the inside and pulls the hood release, enabling Steiner to better hunt for the siren (J). Steiner hears the siren near the door of the driver's side of the firewall, and the search is on (K). Tearing away the plastic trim by the windshield wipers, Steiner locates the siren and snips the cord (L). To his horror, it keeps blaring, because it's a Clifford self-powered siren with an internal battery. Unfortunately, we didn't charge the siren before this test, so it only sounded for a few seconds. Normally, the product screams on its own power for up to 5 minutes. Even with our installation blunder, the siren is only silenced after an endless 2:15!

SECURITY SPECIAL



A VIEW TO A DUAL KILL: After ripping out an air vent and finding nothing (M), Kliskus searches behind the glovebox (N), listening for the ticking light-flash relay. Hearing something, he thrusts both hands deep into the dash, feeling for the alarm brain (O). Got it! The Clifford brain is located and disabled in a total time of 4:00 (P). Again, we left the ignition key instead of having our duo smash apart the steering column. Once Kliskus had the Clifford alarm disabled, Steiner was at the starter solenoid under the hood with a jumper wire (Q, R). Power to the start lug on the solenoid immediately gets the engine to crank, but it won't run because of the dual kill system the Clifford uses. Even with the brain disconnected, the car won't function. As Steiner stares puzzledly at the Tempo, Kliskus tries turning the key to start while the jumper is in place. Now the Tempo starts; however, it'll only run if Kliskus holds the ignition switch in the start mode. It's taken 3:50 to get the engine fired up. Now, though, it's my turn to be confused. With Clifford's dual-kill system, the car should *not* be running! After the test, I discovered that there's more than one ignition circuit, and, in my installation, I disabled the one that leaves the car vulnerable when the key is in the crank mode. My installation error! In fairness to Clifford, had I not made this mistake, several more minutes would have been necessary to get the Tempo running.

BREAKING IN IS HARD TO DO



PROCEDURES

I wanted this test to represent a worst-case scenario. Our two experienced alarm installers were instructed to break into the vehicles any way they could—no holds barred, with the exception of leaving the steering columns intact.

The installs were not your typical 1- or 2-hour “see you after lunch”-type jobs. Approximately 7 to 8 hours were spent on each car, exactly as I would’ve done for any of my paying customers. That’s why several minutes were required to beat the systems, instead of the 30 seconds or less it would’ve taken if the systems were “easily” located. Keep in mind that 4 minutes of elapsed entry time is an eternity to a car thief. Many of them would’ve given up and run off long before then, fearing detection or apprehension. This test clearly illustrates the value of paying for a quality security-system install.

CONCLUSIONS

This test was an enormous learning experience for all of us. My staff and I came away with new ideas such as using multiple sirens, as we saw how uncomfortable the thieves were until the alarms were silenced. Steiner and Klisus are, as we mentioned earlier, pro alarm installers, and, therefore, provided valuable insights into things which

	CAR 1: 1978 Chrysler LeBaron CODE ALARM ELITE 3100	CAR 2: 1988 Chevy Caprice PYTHON 1000 ESP	CAR 3: 1989 Ford Tempo CLIFFORD INTELLIGUARD 6000
ENTERED THE VEHICLE	0:40	0:13	1:15
SILENCED THE SIREN	0:55	0:50	2:15 ¹
BYPASSED THE SYSTEM	4:25	3:20	4:00
STARTED THE ENGINE	4:53	3:25	3:50 ²
GAVE UP	—	—	—
CARNAGE FACTOR	Cracked dash trim around radio and gauges	Right side of dash destroyed	Shattered glass
NOTES All times are elapsed time for each task. 1. Back-up siren invoked. 2. Had to hold key in start position.			

could occur during an actual break-in. They showed up with no knowledge of what was installed in the cars. The story would not have been successful without their efforts and insights. This test illustrates that not only is the technology available to properly protect your ride, but that, even more critical, the installation itself plays a key role in slowing (or even deterring) thieves—a telling reminder to consumers shopping for a car-security system. —MS

SECURITY SPECIAL

Day light.



By day it's warm, metallic and cool.

- 47 watts x 4 MOS - FET High Power
- Dual pre-outs and subwoofer output
- Removable faceplate
- CD Changer Control

the thief first having to remove the entire top section of dashboard.

Following the thorough Python installation manual, Samudosky wired the system, using split-loom covering or vinyl wrap to ensure that all of the wiring blended in with the factory harnesses. Special care was taken to camouflage the starter circuit behind a piece of sound-deadening material and out of sight. Keeping such connections hidden may determine the ability of the system to actually prevent a thief from driving off with the vehicle. Samudosky then completed all of the required wiring for the 1000 ESP and its accessories. The valet switch was mounted so that it could be pushed by extending a finger through a hole in the roof of the glove box. All that was visible anywhere in the car was the red LED, mounted prominently on the dash. Samudosky prepared to test the system and adjust both sensors.

Everything worked perfectly, right from the start. The Python remotes armed and disarmed the system with impressive range, providing power door-lock control as well. Siren chirps, silent mode, or panic could be selected by pressing different

buttons on the remote. Zone bypass was also accessible from the remote. Pressing the "arm" button a prescribed number of times allows the car's owner to select which sensors are either on or bypassed. This flexibility may be useful in extreme weather or in a tight parking area where a nudge of the bumper is anticipated. Courtesy-light illumination upon disarm was a nice added touch. The starter interrupt wouldn't allow the car to start once the system had been armed. Simply trying to start the car with the system armed triggered the siren. The back-up battery system was particularly impressive. If the Caprice's battery is disconnected with the 1000 ESP armed, the back-up system immediately takes over and the siren is triggered. All functions of the Python remain active, including the critical starter kill. Samudosky couldn't find any instructions pertaining to the adjustment of the dual-stage shock sensor; however, he finally located a tiny adjuster on the sensor itself. Once tuned, the two zones (warning and full alarm) worked well. The field-disturbance sensor came with excellent instructions and worked exceptionally well, covering any intrusion

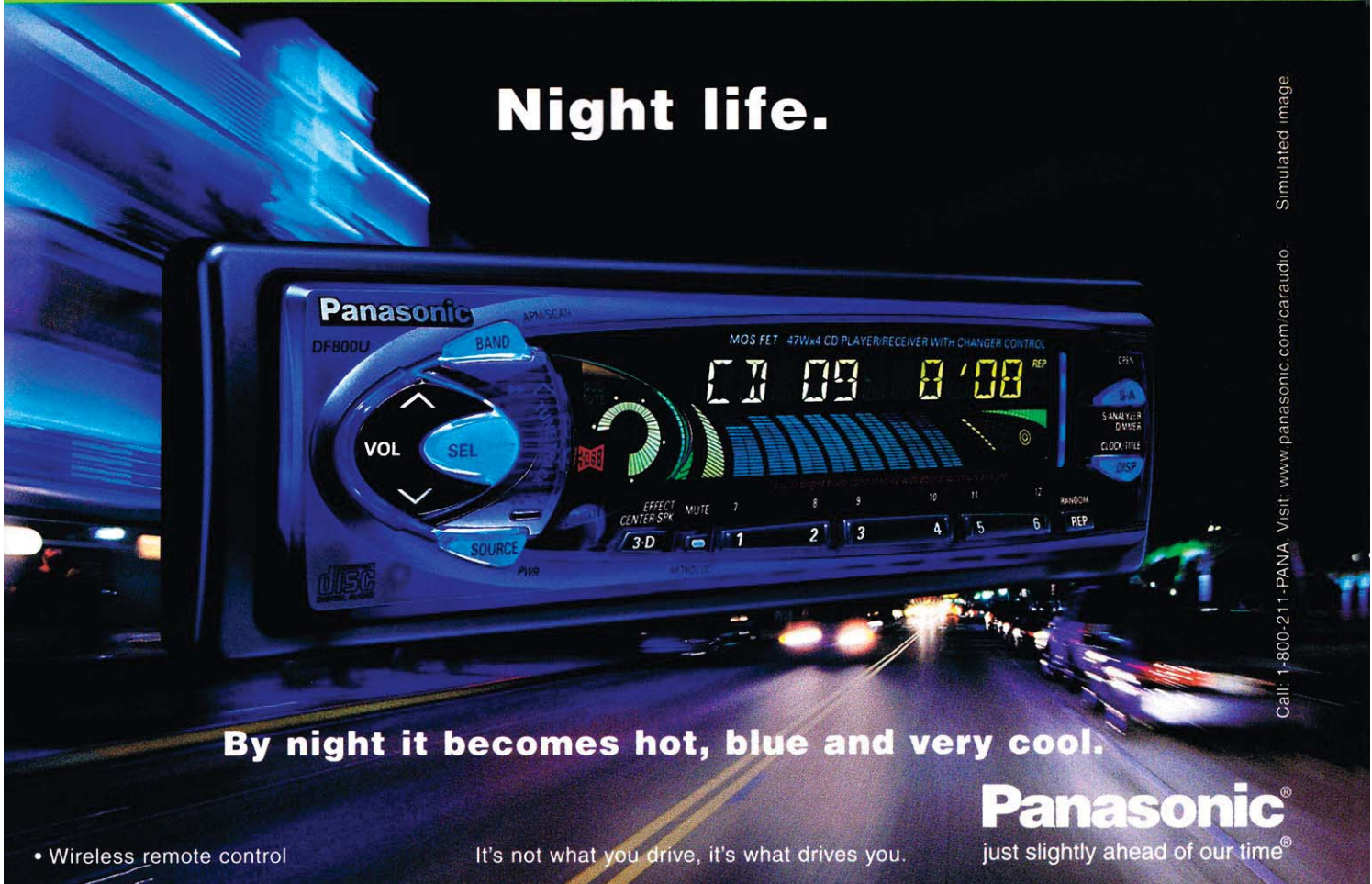
through the vulnerable rear doors. The valet switch can be used to disarm the 1000 ESP if the remote is lost or broken. The ignition key must be on, and the button pressed a secret number of times (1-5 are the options) within 15 seconds after the ignition is activated. The sequence and timing combined with a well-hidden switch make it tough for a thief to use the valet button to override the Python system.

The Python 1000 ESP is an excellent security system. Once again, the time and effort taken by the installer to conceal the wiring and components will determine how well it protects the car; however, I was impressed by the technology and design of the Python system. While I'd love to see better-quality plugs and a less-bulbous LED, it's clear that this system will provide superior vehicle protection if installed carefully.

CLIFFORD INTELLIGUARD 6000

If you were headed out for a Sunday afternoon of drag racing, you wouldn't have much success setting a new track record with an '89 Ford Tempo two-door automatic, that's for sure. Its fuel-injected

Night life.



By night it becomes hot, blue and very cool.

Panasonic
just slightly ahead of our time®

• Wireless remote control

It's not what you drive, it's what drives you.

Call: 1-800-211-PANA. Visit: www.panasonic.com/caraudio. Simulated image.



four-cylinder engine is efficient and reliable, but it clearly isn't a muscle car. Then again, it's not supposed to be. The purpose behind the design of the Tempo is to start and run every day and ensure that you make your commute to work safely. Yes, the Tempo is a practical little car, but even practical cars get stolen. Therefore, I thought the little red Ford would be the perfect car to install and test the Clifford IntelliGuard 6000.

One characteristic of many Fords is that the starter solenoid (a big switch used to feed battery power to the starter motor) is located under the hood. Most other car manufacturers stick the solenoid piggyback on top of the starter motor, which is usually buried and hard to access. In the Tempo, the darn thing is right next to the battery, so it couldn't possibly be more convenient for car thieves. They'll smash the ignition switch and then touch two metal posts on the solenoid together with a screwdriver and—bingo—the car is running. Buh-bye! The Clifford IntelliGuard 6000 (\$239 uninstalled) seemed to be the perfect choice of car alarm to combat this problem because it features a dual-kill system that interrupts both starter and ignition circuits, making the all-too-convenient solenoid in the Tempo less of a liability. The 6000 is one of Clifford's G4 Series products, which can be mated with an accessory data cable and linked to a laptop computer. This CliffNet Wizard technology allows the installer to quickly access all of the programming parameters in the 6000's main microprocessor, making customer-requested adjustments a snap. Auto-arming on/off, siren duration, and ignition auto-lock are just a few of the many parameters accessible through the Wizard.

The IntelliGuard 6000 kit, like all Clifford products, doesn't come with installation instructions; authorized Clifford dealers are provided with the information in a binder and on CD-ROM. Included with the 6000 system are a compact control unit, two remote controls, a main wiring harness, a range-extending antenna, a siren, LED, Plainview valet switch, two different sensors, and a bag of install goodies. Everything appeared to be of excellent quality, especially the main harness. It utilized a sturdy plug to attach to the control unit, and all wires plugged in on one side of the brain. The 6000 kit includes both a dual-zone shock sensor and



CLIFFORD IntelliGuard 6000

a glass-break sensor, which is an electronic ear listening for certain frequencies (like the specific sound of shattering glass). The one optional accessory we added to the 6000 package was the Clifford 60-589 Smart Siren (\$69), which is self-powered with an internal battery. If power to the alarm is interrupted while the alarm is armed, the siren will sound under its own power. If the alarm were to be disarmed or in the valet mode and the power interrupted, the siren would remain silent. (I know a lot of auto mechanics out there are cheering right about now because this system won't scream at them while they work on the vehicle.)

There weren't many hiding places for the brain inside the Tempo, but Samudsky found a location behind the glove box under some insulation and as far toward the firewall as possible. Under the Tempo's hood, Samudsky hunted for a place to hide the Smart Siren. He felt that the space available was too out in the open and exposed; however, he noticed a

cavity beneath the windshield wipers, and removed the piece of trim to access the area. There was ample room for the siren, and enough exposure to the outside to ensure that it would be heard loud and clear. Samudsky mounted the siren and ran the wire through a grommet into the passenger compartment. The wire disappeared behind the siren so that there was no easy way it could be cut.

Clifford uses a coded valet system, which means there's no need to hide the valet switch. Samudsky mounted it alongside the LED on the face of the dashboard. He was able to locate the "ear" for the glass-break sensor at the base of the windshield facing rearward, and the shock sensor was attached to a steel brace. Samudsky took special care in concealing the starter- and ignition-interrupt connections. He unwrapped the cloth tape on the Ford harness and made his connections where the ignition harness merged with another, much larger group of wires. He was then able to replace the original cloth tape, making it appear as though nothing was added.

All of the features of the 6000 worked as soon as we inserted the fuse in the main power feed. Samudsky had run the power wire directly to the battery (per Clifford's instructions, they want the most stable source of 12 volts possible);

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CLIFFORD VITALS

PRICE: \$239 uninstalled. **WARRANTY:**

Lifetime for original car owner; \$2,000 anti-

theft guarantee. **MANUFACTURER:**

Clifford, Dept. CSR, 20750 Lassen St.,
Chatsworth, CA 91311; 818-709-7551.

WEB: www.clifford.com.

BREAKING IN IS HARD TO DO



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however, to conceal the connection and the fuse holder, he used the battery feed to the starter solenoid as a source instead. He was able to hide the wire and the fuse behind the large, loomed harnesses around the solenoid. I had a tough time finding it—and I knew where it was supposed to be!

Samudosky found it easy to adjust both sensors, tuning them to provide ample protection without the risk of false alarms. The shock sensor's outer zone would set off a 1-second blast of the siren for minor impacts, and the inner zone would trigger a full alarm resulting from a serious whack. The glass-break sensor had no difficulty in detecting my wedding ring hitting against any of the car's windows. Once the sensors were calibrated, we armed the 6000 and disconnected the car's battery. The Smart Siren came to life, sounding the alarm. The big test was to see if the dual-kill system prevented the car from starting when the terminals on the solenoid were shorted together. I armed the system and turned on the ignition with the key (simulating the action of a thief smashing the switch and activating the ignition). The siren sounded immediately, and installer Mike DeTuzzi (wearing geeky-looking protective earwear) used a short piece of wire to connect the 12-volt supply from the battery to the start lug on the solenoid. The engine cranked furiously, but it wouldn't turn over. Victory!

I like the IntelliGuard 6000. It has the right features and appears well built. The dual-kill system is a legitimate step towards stopping a thief from driving off with your car. The Tempo is a perfect car to illustrate why installation quality is so vital to the effectiveness of any car alarm. If the critical components of the alarm were in plain sight, the thief would disable this advanced technology as quickly as if there were no system at all. It took time and creative effort to install the IntelliGuard 6000 discreetly, giving Clifford's technology and the red Tempo a fighting chance against the perils of the underworld. ■

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