The 2001 Mitsubishi Montero Limited Not Acceptable

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SUV tips up severely in our emergency avoidance-maneuver test.

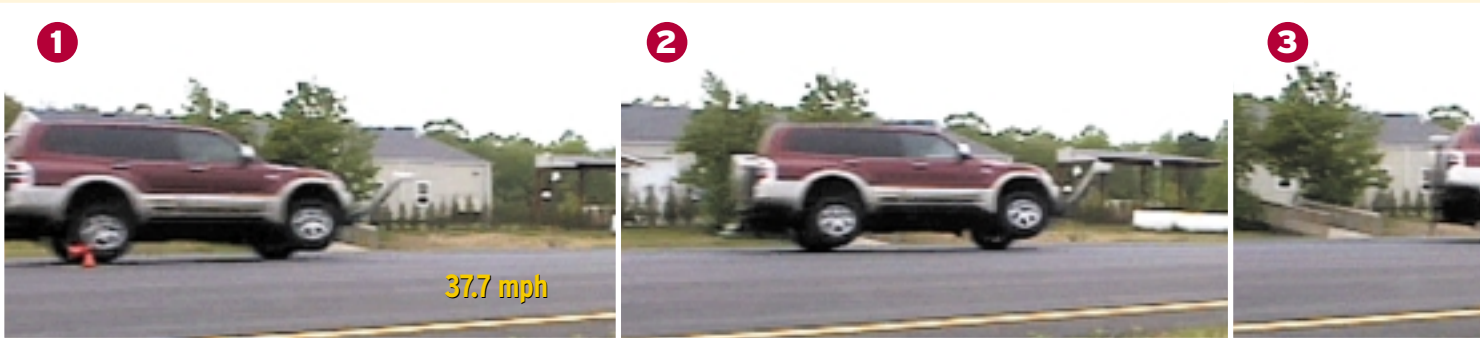
We had high expectations when we started track testing the redesigned 2001 *Mitsubishi Montero Limited*. Since buying a new model in August 2000, we'd put almost 7,000 miles on the vehicle and our evaluations had been mostly positive. In a brief description in our annual auto issue (April 2001), prior to track testing, we said, "Routine handling is sound if unexceptional, and the ride is compliant and well controlled." As part of a group of seven sport-utility vehicles we were testing for the September issue, it could have been one of the higher rated models.

Then something unexpected happened. In May, in one of our regular track tests for SUVs, minivans, and pickups—a short-course double-lane-change emergency-avoidance maneuver—the *Montero Limited*, in 8 out of 9 runs at or faster than 36.7 mph, tipped up on two wheels during a sharp right turn. In one run at 37.7 mph, it tipped up so far that the safety outriggers contacted the ground (see below). Without the outriggers, we believe, the *Montero* would likely have rolled over. (We attach outriggers to all SUVs and four-wheel-drive pickups for this test to protect our drivers.)

That day we ran the six other similar-sized SUVs through the same short-course test. None exhibited tip-ups or other unusual behaviors, even at speeds exceeding 38 mph. The SUVs were the *Dodge Durango*, *Ford Explorer*, *GMC Envoy*, *Jeep Grand Cherokee*, *Nissan Pathfinder*, and *Toyota 4Runner*.

Our avoidance maneuvers are designed to simulate real-world emergencies in which a driver steers sharply left into an adjacent lane—to avoid hitting an obstacle or person in the road—then quickly back to the right to avoid oncoming traffic, and left again

The short-course test

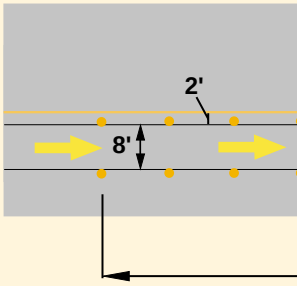


Of 21 completed runs made in Consumer Reports' short-course avoidance-maneuver test by our three test engineers, our first sample of the 2001 *Mitsubishi Montero Limited* tipped up on two wheels in 8 out of 9 runs conducted at 36.7 mph or faster. In one run at 37.7 mph (shown above), the vehicle tipped up so far that the safety outriggers contacted the ground. If not for the outriggers, we believe the vehicle would likely have rolled over.

The illustration (right) shows the layout of the short course; the numbers show the approximate positions of the *Montero* that correspond with the accompanying photographs.

Consumer Reports' avoidance-maneuver test is designed to simulate an emergency in which a driver needs to suddenly steer around an unexpected obstacle in the road, such as a child chasing a ball, a car pulling into your lane, or an object dropping off another vehicle in front of your car. We consider vehicles that tip up severely in our testing to be exhibiting dangerous behavior.

Avoidance-maneuver



into the original lane (see the illustration below).

We run two types of avoidance maneuvers: short- and long-course tests (see "Our Avoidance-Maneuver Tests," page 24). In both, a vehicle is driven at progressively faster speeds so that we can assess its handling characteristics under emergency-avoidance conditions. The speed at which a test vehicle completes the short course is not as important as what happens when it exceeds its handling limits. Typically, the vehicle will slide or skid sideways, knocking over cones. In most circumstances, this is a more controllable situation than a tip-up or rollover.

Sliding or skidding sideways at their handling limit is what happened with each of the other six SUVs tested on the same day as the *Montero Limited.* It is highly unusual for a vehicle in our tests to tip up on two wheels. Tipping up severely, we believe, demonstrates unsafe performance.

Of the 118 vehicles we have tested on the short course in the past 13 years, only the *Suzuki Samurai*, in 1988; the *Isuzu Trooper* and its twin, the *Acura SLX*, in 1996; and now the *Montero Limited* tipped up so severely as to be judged Not Acceptable.

Because of this behavior, we bought a second 2001 *Montero Limited* (one manufactured ten months after the first test vehicle). A recognized vehicle-dynamics expert, R. Wade Allen, was asked to assess our test results and to drive the two *Monteros* along with other test vehicles. Allen has done significant work in the area of rollover dynamics for the National Highway Traffic Safety Administration (NHTSA) and other research for the auto industry. He was an expert witness for Consumers Union, publisher of CONSUMER REPORTS, in the lawsuit brought against it by Isuzu, and has been an expert witness for consumers injured or killed in rollover crashes.

Both *Monteros* tipped up severely when Allen tested them in the short course, and both, we believe, would likely have rolled over if not for the safety outriggers.

Because of its demonstrated instability in our handling tests, we are rating the 2001 *Montero Limited* Not Acceptable. This rating does not apply to previous *Montero* models or to the *Montero Sport*, which are different vehicles. We did not test the *XLS*, another trim line of the 2001 *Montero.*

TESTING THE 2001 MONTERO LIMITED

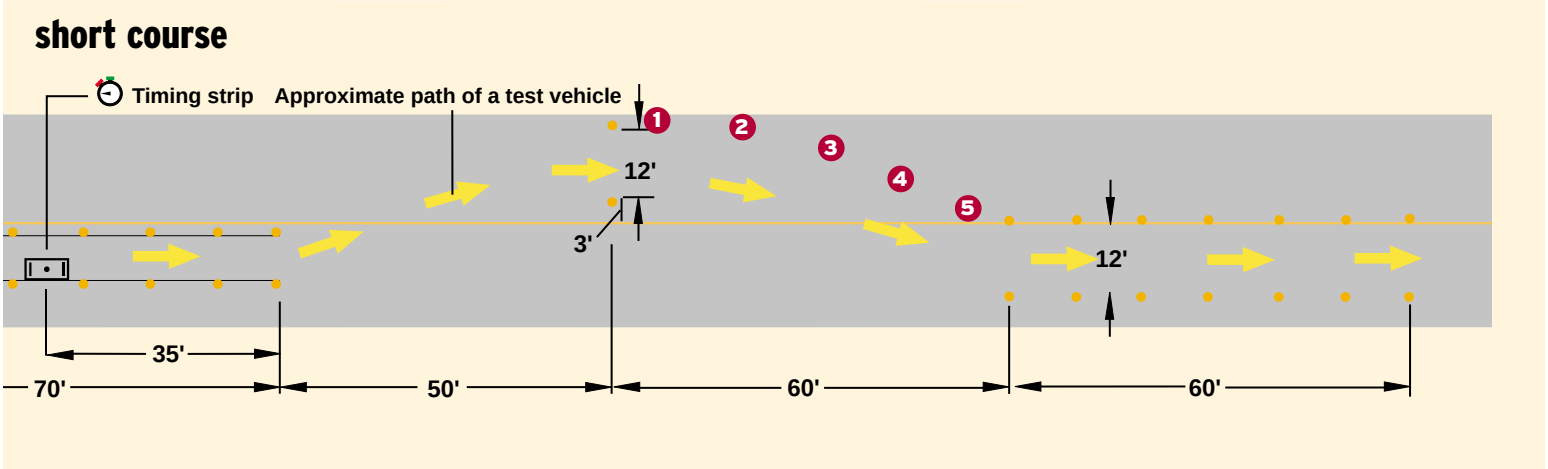
The *Montero* underwent a major redesign for 2001, its first since 1992. In contrast to the previous version, which is based on a trucklike body-on-frame design, the 2001 model uses a more carlike unibody construction and fully independent suspension, which typically can improve the ride and handling. The 2001 version went on sale in February 2000. According to Mitsubishi, as of the end of May 2001, 29,253 *Monteros* had been sold in the U.S.

We bought our first test vehicle (a two-tone red one) from a dealer in Connecticut. Built in May 2000, it was a *Limited* model, which, according to Mitsubishi's projections, will account for about 80 percent of *Montero* sales. The vehicle underwent the normal check-in procedure conducted by our auto-test staff prior to testing.

In our early pretrack-test evaluations, while being driven on an everyday basis, this *Montero* received favorable comments for its versatile interior, comfortable seating, good visibility, and seven-passenger capacity. Our testers noted that it provided a reasonably good ride and sound routine handling, but leaned noticeably when cornering.

As with all vehicles in this test group, three CONSUMER REPORTS test engineers drove the red *Montero* through the short-course avoidance-maneuver test. Of 21 completed short-course runs conducted by our test engineers, 9 were at or above 36.7 mph. In 8 of those runs, both right wheels lifted off the ground. And in one of those runs, the red *Montero* tipped up so severely that we believe it would likely have rolled over if not for the safety outriggers. At these speeds or higher, all six of the other SUVs we tested performed without a tip-up (a two-wheel lift).

We bought the second *Montero Limited* (a silver SUV built in March 2001) also in Connecticut. We gave it our regular inspec-



Our avoidance-maneuver tests

HOW THE TESTS ARE CONDUCTED

Our double-lane-change avoidance maneuvers are designed to simulate real-world situations in which a driver needs to suddenly steer around an obstacle in the road. They are not designed to elicit a rollover, but we consider vehicles that tip up severely in our tests to be exhibiting dangerous behavior.

We conduct two types of avoidance maneuvers: "long" and "short" course tests. In the long course, a test vehicle is driven through a 240-foot-long course, marked with small pliable traffic cones, at progressively faster speeds until we can establish the maximum speed at which it can navigate the course without hitting cones. This defines its handling limits. The vehicle is also rated on how stable, predictable, and forgiving it is.

Because taller vehicles are inherently more prone to tipping up, we also run SUVs, minivans, and pickups on the short course to uncover any unusual handling problems. This course's overall length is the same as the long course, but the cones are repositioned so that the vehicles are driven through a sharper series of turns.

In each test run, the engineer steers the vehicle through an entry lane. Then, while coasting with his feet off the brake and accelerator pedals, he steers sharply left into an adjacent lane—as if to avoid hitting an obstacle—and then quickly back to the right, and left to return into the original lane.

To protect our test engineers from possible rollover injury on the short course, all SUVs and four-wheel-drive pickups are equipped with a pair of aluminum safety outriggers attached to the vehicle's frame, front and rear. In our view, the use of our outriggers does not increase the likelihood that a vehicle will tip.

To ensure the validity and reliability of test results, all SUVs, minivans, and pickups in each group are driven through the short course by the same three test engineers, on the same day, and on the same track.

Previous ratings of vehicles as Not Acceptable due to severe tip-ups in our avoidance-maneuver tests (the *Suzuki Samurai, Isuzu Trooper,* and its twin the *Acura SLX)* have led to the filing of defamation and disparagement lawsuits against Consumers Union. A suit filed by Isuzu went to trial in 2000. Consumers Union won a jury verdict and was awarded its court costs of more than $100,000. A suit filed by Suzuki was dismissed before trial; again CU was awarded court costs. Suzuki's appeal is pending.

WHAT THE CRITICS SAY

Our tests have been criticized by NHTSA and some manufacturers as not being representative of a real-life situation and because different drivers may steer differently. Some critics have suggested that consistent results in these kinds of tests can be achieved only through the use of computer-controlled steering in the tested vehicles.

In 1997, when denying CU's petition to investigate the stability of the *Isuzu Trooper*, NHTSA stated: "The CU short course test, as conducted by CU, does not provide a sufficient scientific basis on which to determine the existence of a safety-related defect."

WHAT WE SAY

We believe that the avoidance-maneuver tests we conduct provide consistent results and closely simulate a real-world situation in which a driver needs to suddenly steer around an obstacle in the road. In our view, the tests are repeatable and valid. And like all our testing, we conduct them in an unbiased, independent manner so that consumers have the best product information we can provide.

We regard unstable behavior in our emergency-handling tests as serious, and believe that consumers benefit from this information when deciding which vehicle to buy.

Avoidance-maneuver tests similar to those used by CU have also been used by auto manufacturers and automotive researchers.

Similar tests were challenged in a 1996 rollover suit in Indiana *(Ammerman v. Ford)* involving the *Ford Bronco II.* Rejecting the challenge, the court found that tests of a vehicle's ability to handle emergencies—extreme conditions seldom experienced by drivers or vehicles—are critical because emergencies, while rare, do occur in the real world. The court further emphasized that extreme steering responses by the driver to emergency situations must be taken into account by manufacturers to ensure the safety of their vehicles.

The court cited documents submitted to NHTSA in 1973 by Ford. Those documents stated: "Passenger cars must be 'forgiving' of all manner of 'unskilled' driver situations that precipitate wild, panic maneuvers of drivers of widely varying abilities. Ford passenger cars are designed to 'forgive' or, in the extreme, to 'slide-out' rather than roll over on flat, level pavement."

tion and then drove it for almost 300 miles to break it in. It was at this point that Allen, the vehicle-dynamics consultant, took several test vehicles, including both *Monteros,* through the short course on the same day.

He drove the *Jeep Grand Cherokee* and the *Nissan Pathfinder* and experienced no tip-ups. Then, driving the red *Montero,* he found that the vehicle "demonstrated reasonable handling" up to about 36 mph. But in a run at 37.8 mph it tipped up severely, causing the outriggers to contact the track surface.

While driving the silver *Montero,* he completed 15 runs at progressively faster speeds without incident. But at 39.4 mph, the vehicle lifted its two right wheels slightly at the same section of track where the red *Montero* had tipped up. As he steered back into the original lane, the *Montero's* left wheels tipped up severely. Again, the safety outriggers kept it from rolling over completely. But it tipped up onto the outriggers with such force that the vehicle lifted off the ground and suffered extensive damage to its right wheels when it landed. This precluded any further testing of that vehicle.

In Allen's report, he noted that both *Monteros* "exhibited good handling qualities prior to limit maneuvering." Referring to the final run of the silver vehicle, Allen wrote, "The loss of directional control and oversteer [rear-end sliding] during the turn into the exit lane was quite dramatic and followed quite directly by the clockwise rolling motion to tip up. I don't believe there was any possibility of regaining control at this point. Without outriggers the vehicle would have completely rolled over."

THE DANGER OF ROLLOVER

We have found no reports of rollover crashes involving the 2001 *Montero,* but we believe our test results point to an unnecessary risk.

Taller vehicles such as SUVs have a higher center of gravity, which makes them more top-heavy and more susceptible to rolling over than lower vehicles such as sedans. This is why NHTSA requires that all SUVs with a wheelbase of 110 inches or less display a warning label. The one in the *Montero* reads, "Warning: Higher rollover risk. Avoid abrupt maneuvers and excessive speed."

Labels aside, an emergency can require unavoidable, abrupt maneuvers to prevent a collision. Under those circumstances, some vehicles handle better than others. Our tests are designed to compare handling in these situations.

THE SECOND SAMPLE We purchased a second *Montero Limited* model that had been built ten months after our first sample. It was driven by a vehicle-dynamics expert serving as our consultant. At a run of 39.4 mph, the right-side wheels lifted slightly. Then, as he steered back into the original lane, the *Montero* tipped up severely (above).

A rollover can occur when a driver steering around an unexpected obstacle loses control of the vehicle. Most rollovers occur when a vehicle trips over a curb or other obstacle.

According to the Insurance Institute for Highway Safety (IIHS), an insurance-industry organization, "In 1999, about half of all deaths in utility vehicles occurred in single vehicle rollovers, compared to about 20 percent in cars." Because rollovers account for such a disproportionate percentage of SUV deaths, Consumers Union has called on the government to develop realistic rollover tests, with the results made available to consumers.

Last January, NHTSA implemented its first rollover rating for passenger vehicles. Called the Rollover Resistance Rating, this five-star system is based on static measurements of a vehicle's dimensions and is intended to provide an estimate of rollover risk in a single-vehicle accident. (A list of vehicles that have been rated so far can be found at the NHTSA web site, *www.nhtsa.dot.gov.)* As of mid-June, the 2001 *Montero* had not yet been rated. Mitsubishi says that the static stability factor of the 2001 *Montero* is approximately 1.15, which would result in a three-star rating, similar to that of many other SUVs. We consider this rating system inadequate because it isn't based on tests of a moving vehicle and can't account for what could be critical differences in emergency handling caused by suspension design, tires, steering response, or the presence of a stability-control system.

In October 2000, Congress directed NHTSA to develop and implement a dynamic rollover test by November 2002. Currently in the planning stages, this would be based on actual on-road handling tests. Consumers Union supports this approach.

RECOMMENDATIONS

What should a consumer do?

If you're shopping for an SUV, we advise you not to buy the 2001 *Montero Limited* until this safety problem has been corrected. In our opinion, there are safer choices.

For current *Montero Limited* owners, we urge you to always wear your safety belt, drive with caution, and not carry cargo on top of the vehicle. This raises a vehicle's center of gravity, which can increase the risk of rollover. Remember that even carrying passengers or a large load of cargo stacked high raises the center of gravity. Unfortunately, there's no way to ensure that you won't suddenly be confronted with an obstacle in the road that could expose you to a situation in which the *Montero Limited* could tip up, as in our test.

We believe that Mitsubishi should issue a recall and improve the vehicle's stability. In this way, it would follow the example set in 1997 by Daimler-Benz, now Daimler-Chrysler, which owns a 37.3 percent stake in Mitsubishi Motors Corp. When the European *Mercedes-Benz A-Class* was found to roll over in tests conducted by a Swedish automotive magazine, Daimler-Benz voluntarily recalled the vehicle and corrected the problem.

Materials related to this report are available on our web site at *www.ConsumerReports.org.*

Mitsubishi's response

Given the seriousness of our findings, the day after we tested the second *Montero,* and two weeks before our press date, we invited Mitsubishi Motor Sales of America to our auto-test facility. There, its representatives were able to inspect our track and vehicles, view videotape of the testing, and give us an initial response.

In an e-mail follow-up, Mitsubishi stressed its commitment to safety, saying: "We have devoted thousands of hours to designing and testing the 2001 Montero Limited, including a full range of tests for handling and stability safety that are well known and widely used in the industry. All of these tests validated the 2001 Montero Limited's stability and safety."

Mitsubishi said CU's questions prompted it to assess "all relevant engineering, design and test data" documenting the vehicle's safety; to determine whether there were "complaints, claims or lawsuits relevant to rollover crashes" (it says it found none); and to return to its test track to "conduct extensive retesting." The e-mail said Mitsubishi had hired Carr Engineering to "conduct a full range of independent tests, including the CU avoidance maneuver." (Carr has served as expert witness for car manufacturers, including Isuzu in its 1997 lawsuit against CU.) The result, Mitsubishi said, was to "validate our confidence in this vehicle."

The e-mail went further. It described CU's methods as "unscientific and unreliable." It said that CU's test engineers "created an outcome that misrepresents the stability" of the *Montero Limited.* The e-mail also maintained that CU "made significant changes in its protocol that affected the outcome."

In a later mailing and in a subsequent visit to our Yonkers, N.Y., office, senior Mitsubishi officials showed videotaped and photographic material that, they said, contradicts the results of our tests. This material included the following:

- Video of a 2001 *Montero Limited* being driven by Carr Engineering through "CU avoidance-maneuver testing" without tipping.
- Video of tests conducted by Mitsubishi Motors Corp. (MMC) in Japan in January 2000 and in June 2001.
- An animated re-creation of our silver *Montero's* last run. This re-creation, Mitsubishi said, was based on skid marks and other "physical evidence." According to Mitsubishi, it proves that the driver forced a tip-up by driving the vehicle beyond the parameters of the short course.

But CU notes that, in fact, the Carr Engineering tests do not show the vehicle's behavior when exceeding its handling limits.

The video of last year's MMC tests fails to provide data crucial for judging their relevance to our own testing. Video of the recent June testing does not include a CU-type avoidance maneuver.

Finally, video records of our tests show that Mitsubishi's animated re-creation incorrectly represents the path actually followed by our silver vehicle. In fact, it was driven in the prescribed manner in accordance with our protocols.

We have made no changes in those protocols that would affect any outcomes. We believe the tests of the 2001 *Montero Limited* and the six other SUVs are valid and were performed professionally, objectively, and without bias.

July 2004 NEWS UPDATE: Suzuki and Consumers Union Agree on Dismissal of Lawsuit

We want to thank our readers who have supported Consumers Union throughout the course of this litigation. The case has been dismissed by joint agreement, and it cannot be re-filed. We no longer suggest that you write to Suzuki or General Motors about the case. CU continues to stand fully behind its testing and report on the Samurai, has issued no retraction or correction, and has paid nothing to Suzuki. Click on this link to see the full text of the **Joint Public Statement** announcing the resolution of the case.