

# Recipe for a crash test.

*(Don't try this at home)*

So, you're interested in preparing a crash test? Well, with the steps listed below, a degree in engineering, a healthy dose of research sponsorship and a world-class testing facility, you're on your way to wrecking a vehicle and perhaps discovering what it takes to keep motorists safe.

Engineers at the Texas Transportation Institute's (TTI) Proving Grounds Research facility say the first step is to find an appropriate vehicle.

STEP 1



TTI regularly crashes 1,800-lb Geo Metros (within 6 model years), single-cab three-quarter ton GM pickups, which weigh in at roughly 4,500 lb, or F-700, U-Haul-type trucks that tip the scales at a hefty 15,000-lb. No salvage or rebuilt vehicles are allowed. TTI uses vehicle wholesalers who compete against each other on cost for vehicles that meet TTI specs. The wholesaler brings the vehicle to TTI once a price is agreed upon.

STEP 2

Next it's important to get the vehicle in good operating condition. Suitable tires are fitted, the front end is aligned if needed and sometimes a disabled engine



is repaired to speed up moving the vehicle into place for the crash test.

STEP 3

Then, the welders take over. They weld a tow hook under the front of the vehicle, and install machined assemblies on either



the left or the right front spindle. Meaning, this is the anchor point where a cable system is attached in order to guide the vehicle into impact. Workers strip out most of the occupant compartment seats and carpet. In some cases researchers mount instruments to the raw metal inside the now sparsely decorated vehicle.

STEP 4

Remove the fuel and/or fuel tank. Finish putting the instrumentation (to measure results) in the vehicle. Ballast



to make sure the vehicle is the proper test weight, then apply measurement stickers all over the exterior. These are used to measure speed and displacement on high-speed video and 16 mm film.

STEP 5

Very large vehicles are driven to their doom by remote control. However, most vehicles are propelled to impact with a tow cable. A tow cable hooks to the front of a vehicle. Then, a cable is attached to the tow hook. The cable loops around two pulleys on the ground, and then it hooks to a tow truck driving the opposite direction and anchored to the ground. The system of



pulleys double the speed of the towed vehicle, so the vehicle crashes into an obstacle at twice the speed of the towing truck. Meaning, if the tow truck is traveling 15 MPH the vehicle being towed into the crash is traveling at 30 MPH. Just prior to impact, both the guide and tow cables are released.

STEP 6

The spectacular end of the crash test is only the beginning of a detailed analysis of crash photos and videos and an intensive study of the crash data supplied by instruments on the wrecked vehicle.



#### MORE INFORMATION

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