

Damage to the car was a little greater but not too much.

Now here is our semirigid system. That would be blocked-out metal beam. Here at this same 65 miles an hour and 25° angle of collision, you will notice there is little tendency for the car to roll, because of the blocked-out feature. The exit angle is about 15° .

Here the side thrust on Sam is somewhat greater than it was in the last test.

The deceleration on Sam was 7 to 12 g's in this case, which we considered to be tolerable, however, quite high.

As you can see in the impact, the energy was divided between the railing and the automobile. Here again is a semirigid system. However, this has a little more stiffness in it than the blocked-out metal beam.

Mr. CONSTANDY. Is this a bridge rail?

Mr. BEATON. This is a bridge rail, right, used primarily on interchange structures.

[Narration continued:] Acceleration here is a little higher. The reflection angle was somewhat greater; it was 25° . The early decelerations on Sam are greater, as you can see.

Mr. CONSTANDY. More energy is taken up in damage to the car.

Mr. BEATON (continuing). Here is a test of several bridge rails, all the scenes from now on are some of our earlier bridge rail tests. Here we were trying to determine the proper designs, proper height. This happens to be a very lightly designed straight wall, on which we were attempting to find out further information.

This was our early standard design. It was a massive-looking bridge rail. You can see we went right on through it. This shows an experimental ballister design, which while it tested out all right, we never did adopt.

This is one of our standard bridge rails we use at present, whenever we want a safety walkway. This is the same design, however, without a walkway in front of it.

This is the New Jersey median barrier developed for use in narrow medians, and we tested it in our latest series.

This concrete rail failed because it was too low. The punch of the car is concentrated too close to the unsupported edge, and there is insufficient strength to retain this height and it went straight through.

This is lightly designed concrete wall. It failed and the car rolled off of it and rolled over. And this is typical of any barrier that allows the car to roll into it.

Now, in the next shot I will show what happens when you do not block out a wall and you allow the wall to deflect and allow the car to roll into the wall.

This is a very typical roll. That is why we block out our median barriers.

This is our current design of solid bridge rail. Lateral decelerations are relatively high any time you use a rigid barrier. However, rigid barrier is necessary when you do not have space on the other side to accept the deflections of other types of barriers.

Sam lost his head in this one, but this was not primarily due to the type of collision. He had a helmet on and it tripped up on high antenna; Sam has a very limited lateral movement in his neck, so it trapped and it was not necessarily indicative of the crash.