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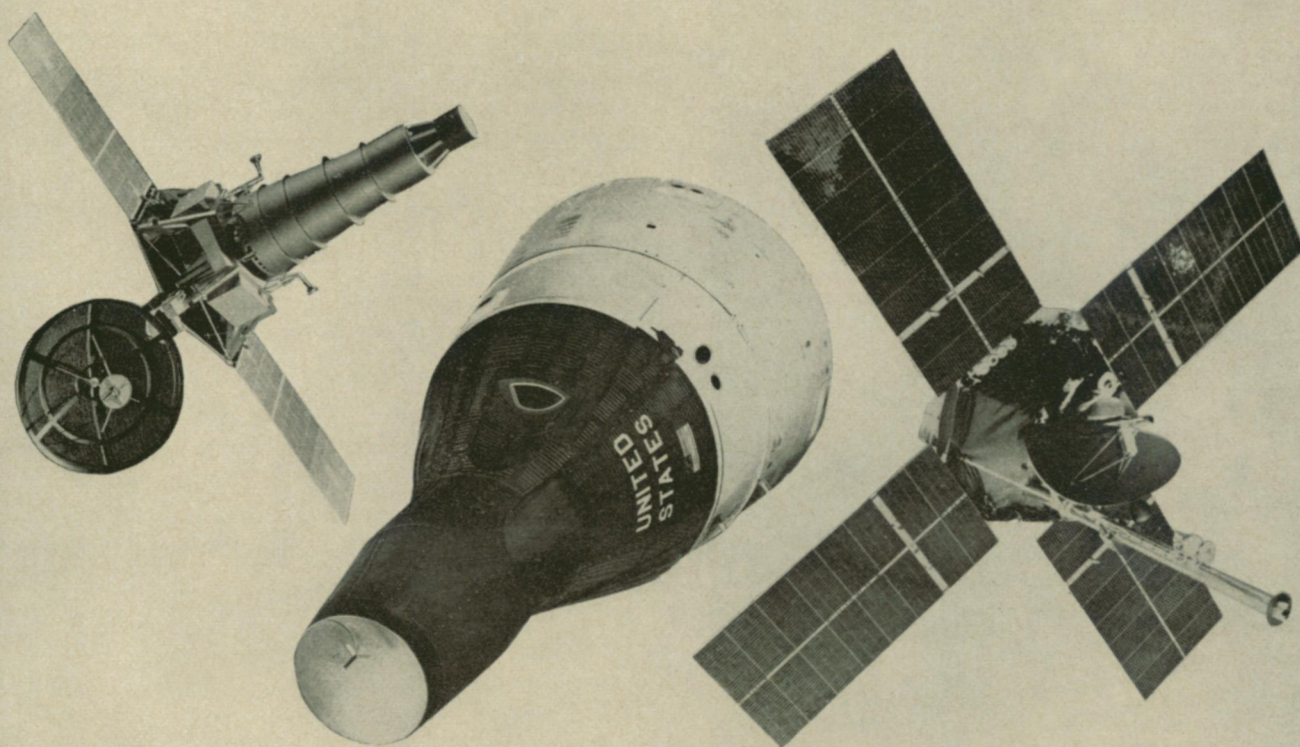
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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Companions in Space

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A SCIENCE SERVICE PUBLICATION

How does a driver handle an automobile?

What combination of directional control characteristics is best used by the driver?

At least 27 interacting design parameters . . . inertias, masses, mass distributions, wheelbase, tire design, steering ratio, roll centers . . . affect the directional control of a car.

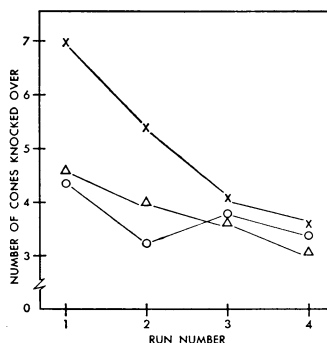
Fortunately, our researchers have developed equations to approximate these in a simplified mathematical model and have successfully described responses of many distinctly different vehicle configurations by this technique.

Using this information, GM Research engineers and psychologists are studying driver responses with the aid of a car having variable stability and control. Directional control characteristics can be varied quickly. Easily. Through a maze of potentiometers, vehicle motion sensors, and servos in the steering system, this car can assume the driving characteristics of just about any standard vehicle, or act like no car ever built. It can seem like a compact car . . . or a heavily loaded station wagon.

In a pilot study, the variable car was adjusted to represent each of three vehicles to drivers who took it through a narrow winding course. One interesting result: For significantly different vehicle handling characteristics, driver performance was nearly the same after only a short learning period—excellent evidence of the human operator's great adaptability.

Learning to understand such complex interactions of man and his machines is one continuing objective of General Motors research in depth.

General Motors Research Laboratories Warren, Michigan



Road data for three simulated vehicles. Averages for drivers traveling 30 mph through course marked by traffic cones.

