AUTO SAFETY

Washington Yields on Standards

The anguished cry of the automaker faced with proposed new federal safety standards, a cry heard clearly all the way from Detroit to Washington, is receiving a soft answer from the Capital.

And proposed federal safety standards, ranging from interior design to placement of parking lights, will be modified.

Dr. William Haddon Jr., director of the National Highway Safety Agency set up by Congress last session, says the standards were meant to be modified. They were promulgated in December precisely for the purpose of getting comment on them soon enough for possible revisions before they must, under law, go into effect at the end of January. Both the new rules themselves and the timetable for application are open to "any well-documented suggestion," Dr. Haddon says.

He won't say which of the proposed standards are to be reviewed, but is expected to accommodate industry objections or a significant number. Ford, Chrysler and American Motors have all damned the new guidelines. The automobile manufacturers have until January 3 to suggest changes.

Of the 23 requirements, the car makers seek changes in 13. Their objections cover both content and time; their troubles include trying to decide how long are the arms of a very short woman, where an active child is likely to wander to inside an automobile and how much time they ought to have to take these into account.

A requirement of a dual-cylinder brake system that would, at any time, remain at least 40 percent effective was attacked by both AMC and Ford. They cited studies by Northwestern University and the Texas Department of Traffic Safety that show "the required deceleration rate cannot be secured even with infinite brake capacity." To design for it could cause a car to go out of control, they said.

The auto makers object also to proposals to protect people in the "second collision," when a person hits the interior of the car. Requirement of padding throughout the "child-impact area"—anywhere a child not wearing a seat belt might be thown in an accident —would mean that instrument panels, among other parts, would have to be redesigned. "For a part like this," the Ford spokesman said, "we require one full year—after design, drafting and die model fabrication are completed—to tool up for production. Most of this time—30 weeks—is devoted to tool construction. This period cannot be condensed for the simple reason that the tool and die industry is already working at full overtime capacity."

American Motors objects to a standard that requires motor-driven windshield wipers and washers, instead of its present vacuum-operated system.

The Haddon proposals require that controls for lights, wipers and the like be accessible not only to average persons, but to small women as short as 4 feet, 11 inches. The companies say they have no way to figure arm and shoulder lengths for such a woman.

The car makers who have spoken object to the proposal that parking lights cannot be lower than 20 inches from the ground. On many 1968 and 1969 cars already planned, the lights are in the bumper, below 20 inches.

"Is it a sensible use of our national resources to scrap our tools for bumpers and to rework our tools for major body panels to move a parking light four-tenths of an inch in one case and 2.6 inches in another?" asked AMC vice president Victor G. Raviolo.

Most of Ford's turn signal lamps are 17 inches above ground. Raising them three inches, the company said, would involve tearing up $200 million worth of tooling for the 1969 models, and simply could not be done on the 1968 line.

The Haddon proposals grew out of General Services Administration rules for the cars it buys for the federal government.

METALLURGY

SST's Skin Bears Watching

For the last half decade, two platoons of scientists and engineers have been fighting it out on the West Coast, trying to design a supersonic passenger jet that will fly higher and faster than any commercial aircraft ever built. Yet after spending tens of millions of dollars on research and development, they are still largely flying blind.

The daily grind of a passenger plane will expose the SST to stresses that even military supersonic jets have not faced. And new stresses create new problems.

The hero of the story, the designers hope, will be titanium.

Titanium is one of the biggest reasons that the U.S. SST, although two years behind the Anglo-French Concorde and twice as expensive, is still likely to outsell it four to one. The Concorde is being made of aluminum. It was designed to fly at 2.2 times the speed of sound, and at speeds greater than that its structural members will simply become too soft to hold the plane together reliably.

The U.S. version will not only hold 100 more passengers and fly almost three times as far, but it will do it at more than 1,800 m.p.h.—Mach 3.

Titanium is lighter than steel and stronger than aluminum. It's the best there is. But like any metal used in aircraft, it will crack, corrode or simply wear out when punished too hard by its environment and by the stresses of flight and of the aircraft design. In the SST, it will be punished unmercifully. In fact, maintenance schedules may well be shortened to allow more frequent checks of the planes' skin condition than are made today, because of areas of titanium technology that are still unknown.

One of titanium's big enemies is salt. Tiny cracks appear in titanium sections exposed to salt and moisture, and the cracking gets worse as the temperature rises. This could be of particular concern if sonic-boom noise forces the SST's to be held to overwater routes and so confined to coastal airports where salt is always present. The effect of salt accumulated on the ground will be aggravated by the heat of friction in the air, which may be more than 500 degrees on leading wing edges.

Another troublemaker for titanium is oxygen. At room temperatures, the exposed surfaces of a piece of titanium oxidize, or rust, as soon as they are exposed to air. Fortunately, the oxide coating acts as perfect insulation to keep the rest of the metal from oxidizing away. Titanium is actually so ready to combine with oxygen that without the oxide layer it would literally burn up.