

The data indicated no clear effect of the revised test seat assembly on measured seat back rotation in rear-facing tests. In tests using the newborn dummy and two different rear-facing infant-only child restraints, the seat back rotation angle increased by 19.8 percent over that measured in the comparable compliance test in one, and decreased by 7.6 percent in the other. When the same infant-only seats were tested rear facing with the 9-month-old dummy, the restraint that had previously shown increased seat back rotation with the newborn dummy decreased by 5.4 percent over that measured in the comparable compliance test, while the restraint that had shown decreased seat back rotation with the newborn dummy increased by 1.7

percent over that measured in the comparable compliance test. In all cases, the measured seat back rotation was well under the FMVSS No. 213 limit of 70°.

Tests were conducted using the revised test seat assembly on three different rear-facing convertible child restraints with the newborn dummy. In each case, the measured seat back rotation angle was well below the FMVSS No. 213 limit.

PAX also conducted tests of two different rear-facing convertible child restraints with the 9-month-old dummy using the revised test seat assembly. In each of these tests, the seat back rotation increased by at least 20 percent over that measured in the comparable FMVSS No. 213 compliance tests

conducted on the existing test seat assembly. Again, however, the rotation was within the allowable limits.

*ii. HIC Measurements.* Generally speaking, HIC increased in tests with the Hybrid II 3-year-old dummy, and decreased in tests with the 6-year-old.

Sled tests were conducted using the revised test seat assembly with the Hybrid II 3-year-old dummy in forward-facing convertible restraints, and in forward-facing hybrid boosters using the restraint's internal harness (in the toddler seat mode), and with the Hybrid II 6-year-old dummy in both backless and high back belt-positioning booster restraints. The HIC measured in these tests is compared to the HIC measured in NHTSA compliance tests of the same model child restraints in Table 2 below.

TABLE 2.—HIC IN TESTS OF FORWARD-FACING CHILD RESTRAINTS

Child restraint	Type	Dummy (Hybrid II)	HIC <sub>15</sub> Test seat assembly		Change (%)
			Existing	Revised	
Cosco Touriva .....	Convertible .....	3-year .....	500	703	+40.6
Century Accel .....	Convertible .....	3-year .....	480	627	+30.5
Century Breverra .....	Hybrid Booster .....	3-year .....	659	670	+1.6
Cosco High Back Booster .....	Hybrid Booster .....	3-year .....	535	446	-16.6
Cosco Grand Explorer .....	Backless BPB .....	6-year .....	438	267	-39.0
Cosco Grand Explorer .....	Backless BPB .....	6-year .....	438	328	-25.1
Century Breverra .....	High-back BPB .....	6-year .....	308	209	-32.0
Cosco High Back Booster .....	High-back BPB .....	6-year .....	399	381	-4.6

The effect of the revised seat assembly on HIC measurements appear to be varied, and largely dependent on the dummy used in the testing. In three of four tests conducted with the 3-year-old dummy, the measured HIC was higher using the revised test seat assembly as compared to compliance tests performed on the existing test seat assembly. This includes both tests conducted using forward-facing convertible restraints, and one of two tests using a forward-facing hybrid booster with its internal harness system.

However, in each of four tests conducted with the 6-year-old dummy, two each with backless boosters and high back boosters, the measured HIC was lower than in the identical compliance tests conducted on the existing test seat assembly. Overall, some measurements differed by as much as  $\pm 40$  percent between tests conducted on the two different test seat assemblies. All HIC measurements were well within the existing limit of 1000.

*iii. Chest Acceleration.* Chest acceleration measurements were

recorded using the Hybrid II 3- and 6-year-old dummies in the same series of tests outlined in Table 2 above. Table 3 details the recorded chest acceleration in these tests as well as the comparable compliance tests of the identical child restraints. The measured chest accelerations decreased in each of the tests using the 3-year-old dummy in the revised test seat assembly. The measured chest accelerations generally increased in tests using the 6-year-old dummy in the revised test seat assembly.

TABLE 3.—CHEST ACCELERATION IN TESTS OF FORWARD-FACING CHILD RESTRAINTS

Child restraint	Type	Dummy (Hybrid II)	Chest acceleration (g)— Test seat assembly		Change (%)
			Existing	Revised	
Cosco Touriva .....	Convertible .....	3-year-old	42	40.4	-3.8
Century Accel .....	Convertible .....	3-year-old	46	26.8	-41.7
Century Breverra .....	Hybrid Booster .....	3-year-old	40	29.2	-27.0
Cosco High Back Booster .....	Hybrid Booster .....	3-year-old	44	41.6	-5.5
Cosco Grand Explorer .....	Backless BPB .....	6-year-old	44	49.2	+11.8
Cosco Grand Explorer .....	Backless BPB .....	6-year-old	44	38.6	-12.3
Century Breverra .....	High-back BPB .....	6-year-old	33	35.1	+6.4
Cosco High Back Booster .....	High-back BPB .....	6-year-old	40	42.4	+5.5