

As of August 24, 2009, the U.S. Code of Federal Regulations, Part 572, Subpart V has been updated in response to petitions for change to the 2006 regulations governing the SID-IIs Build Level 'D' (SID-IIsD) anthropomorphic test device (ATD).

This technical bulletin is meant to serve as a brief summary of the changes set forth in the National Highway Traffic Safety Administration's (NHTSA) response to the petitions for change to the 2006 introduction of the SID-IIs into the regulatory system. The full response can be found at the website: <http://www.regulations.gov/> (Search Term: "sid-iis" and/or Document ID: NHTSA-2009-0002-0020).

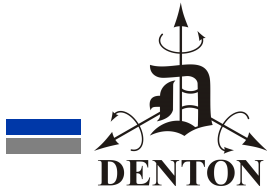
The following component parts have been changed in the 2009 "Final rule, response to petitions for reconsideration, technical amendment":

Description	Quantity	Part Number
Head Skin	1	180-1002
Iliac Wing, Left	1	180-4322-1
Iliac Wing, Right	1	180-4322-2
Rib Pad Assembly	2	180-3628
Nut, Hex Jam 5/8-18 Lock Nut	2	9010538
Femur Holding Shaft	2	180-4402

Table 1 - SID-IIsD Component Changes (P/N: 180KIT-D-D FINAL)

Summary of Component Changes:

- Head Skin:** The molded skin thickness was changed from 0.480 ± 0.030 inches to 0.51 ± 0.05 inches to ensure that the assembly's performance would meet the test specification.
- Iliac Wing:** The material formulation used in molding the iliac wings was changed from material #2 to material #3. The new design also incorporates integral standoffs. *Note:* In NHTSA's 2006 Final Rule a 0.070" thick steel backer plate was added between the molded iliac wings and the iliac load cells. This backer plate continues to be used in the 2009 version of SID-IIsD.
- Rib Pad Assembly:** The lower rib pad design was changed to include reinforcing aluminum inserts, which provide a more secure attachment to the spine box.
- Hex Jam Locknut:** The description of the hex jam locknut was corrected on the NHTSA drawings.
- Femur Holding Shaft:** The diameter of the femur holding shaft was changed from $0.49 +0.000 / -0.002$ inches to 0.498 ± 0.001 inches to create a better fit between the shaft and the femur bearing.



In addition, the following changes were made to the certification test specifications:

Summary of Test Corridor Changes:

SID-ILsD (49 CFR Part 572, Subpart V)	Previous 2006 Final Rule		Current 2009 Final Rule	
	Specification Lower	Upper	Specification Lower	Upper
Head - Lateral				
Temperature (C°)	20.6	22.2	No Changes	
Humidity (%RH)	10	70		
Resultant Acceleration (g)	115	137		
Oscillation (%)	0	15		
Fore-Aft Acceleration (g)	-15	15		
Neck				
Temperature (C°)	20.6	22.2	No Changes	
Humidity (%RH)	10	70		
Velocity (m/s)	5.51	5.63		
Pendulum Impulse at 10 ms (m/s)	2.20	2.80		
Pendulum Impulse at 15 ms (m/s)	3.30	4.10		
Pendulum Impulse at 20 ms (m/s)	4.40	5.40		
Pendulum Impulse at 25 ms (m/s)	5.40	6.10		
Pendulum Impulse between 25 & 100 ms (m/s)	5.50	6.20		
D Plane Rotation (deg)	71	81		
Time Maximum Rotation (ms)	50	70		
Moment about Occipital Condyle (Nm)	-44	-36		
Moment Decay to Zero (ms)	102	126		
Shoulder				
Temperature (C°)	20.6	22.2	No Changes	
Humidity (%RH)	10	70		
Velocity (m/s)	4.3	4.5	4.2	4.4
Probe Acceleration (g)	14	18	13	18
Shoulder Deflection (mm)	30	37	28	37
Upper Spine Acceleration - T1 (g)	17	19	17	22



Summary of Test Corridor Changes (cont.)

SID-ILsD (49 CFR Part 572, Subpart V)	Previous 2006 Final Rule		Current 2009 Final Rule	
	Specification Lower	Upper	Specification Lower	Upper
Thorax with Arm				
Temperature (C°)	20.6	22.2	No Changes	
Humidity (%RH)	10	70		
Velocity (m/s)	6.6	6.8		
Peak Probe Acceleration (g)	31	36	Removed	
Peak Probe Acceleration after 5 ms (g)	NA	NA	30	36
Upper Rib Displacement (mm)	26	32	25	32
Mid Rib Displacement (mm)	30	36	No Changes	
Lower Rib Displacement (mm)	32	38		
Upper Spine Acceleration - T1 (g)	34	43		
Lower Spine Acceleration - T12 (g)	28	35	29	37
Shoulder Deflection (mm)	31	40	No Changes	
Thorax without Arm				
Temperature (C°)	20.6	22.2	No Changes	
Humidity (%RH)	10	70		
Velocity (m/s)	4.2	4.4		
Probe Acceleration (g)	14	18	No Changes	
Upper Rib Displacement (mm)	33	40		
Mid Rib Displacement (mm)	39	45	No Changes	
Lower Rib Displacement (mm)	36	43	35	43
Upper Spine Acceleration - T1 (g)	14	17	13	17
Lower Spine Acceleration - T12 (g)	7	10	7	11
Abdominal				
Temperature (C°)	20.6	22.2	No Changes	
Humidity (%RH)	10	70		
Velocity (m/s)	4.3	4.5	4.2	4.4
Probe Acceleration (g)	12	16	No Changes	
Upper Abdominal Rib Deflection (mm)	39	47	36	47
Lower Abdominal Rib Deflection (mm)	37	46	33	44
Lower Spine Acceleration (g)	11	14	9	14



Summary of Test Corridor Changes (cont.)

SID-IIsD (49 CFR Part 572, Subpart V)	Previous 2006 Final Rule		Current 2009 Final Rule	
	Lower	Upper	Lower	Upper
Pelvis - Acetabulum				
Temperature (C°)	20.6	22.2	No Changes	
Humidity (%RH)	10	70		
Velocity (m/s)	6.6	6.8		
Peak Pendulum Acceleration (g)	38	47		
Peak Pelvis Acceleration (g)	41	50	Removed	
Peak Pelvis Acceleration after 6 ms (g)	NA	NA	34	42
Peak Acetabulum Force (kN)	3.8	4.6	3.60	4.30
Pelvis - Iliac				
Temperature (C°)	20.6	22.2	No Changes	
Humidity (%RH)	10	70		
Velocity (m/s)	4.2	4.4		
Peak Pendulum Acceleration (g)	34	40	36	45
Peak Pelvis Acceleration (g)	27	33	28	39
Peak Iliac Force (kN)	3.7	4.5	4.10	5.10

Table 2 - SID-IIsD Test Corridors

There was also a change in the required wait times between consecutive tests for the Pelvis Impacts (Acetabulum and Iliac):

Test Component	Previous 2006 Final Rule	Current 2009 Final Rule
Pelvis Impact, Acetabulum	0.5 hours	2 hours
Pelvis Impact, Iliac	1 hour	2 hours

Table 3 - Test Wait Times

Conversion Kits

Denton offers the following conversion kits:

Conversion Type	Kit Part Number
SID-IIs Build Level 'C' to 'D' (2009)	180KIT-C-D (includes potentiometers)
SID-IIs Build Level 'C' to 'D' (2009)	180KIT-C-D W/O POTS (does not include potentiometers)
SID-IIs Build Level 'D' (2006) to 'D' (2009)	180KIT-D-D FINAL

Table 4 - SID-IIs Conversion Kit Part Numbers

Please contact Denton ATD, Inc. at (248) 852-5100 or info@radenton.com for additional information.