

Test Program: Hybrid III 50th Percentile Male Head Drop Test

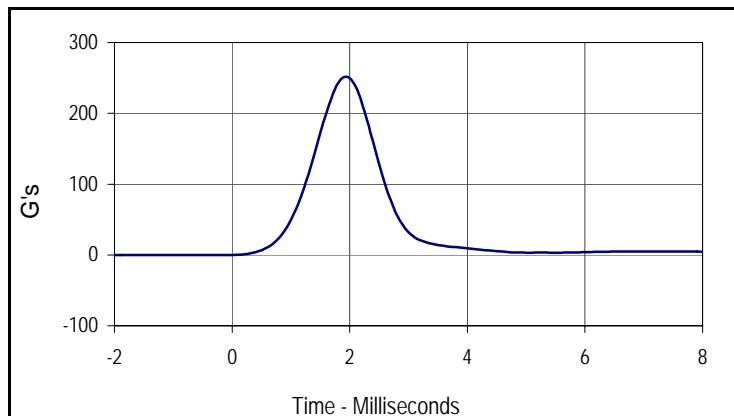
Test Date: 11/29/07

ATD Serial No.: 034

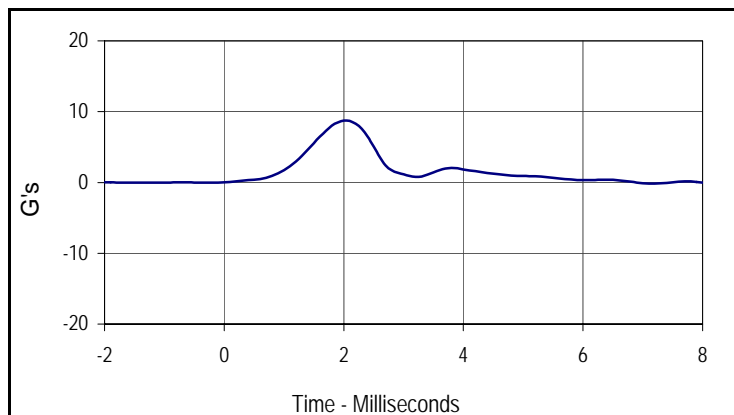
Test I.D.: HD11E



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	251.0	Pass
Peak Lateral Acceleration	G's	≤15.0	8.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
251.0	1.9	0.0	-1.8



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
8.7	2.0	0.0	-1.2

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

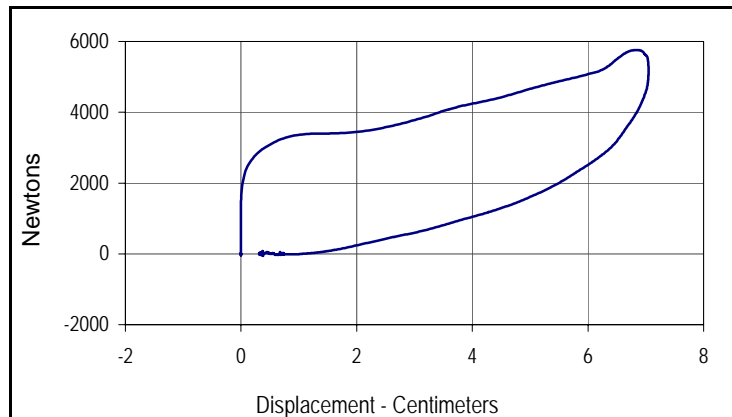
Test Date: 11/29/07

ATD Serial No.: 034

Test I.D.: CH11E



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.62	Pass
Peak Probe Force	Newtons	5159 to 5893	5755	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	7.05	Pass
Internal Hysteresis	%	69 to 85	71.8	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	71.8
Peak Probe Force		Peak Chest Deflection	
5755		7.05	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

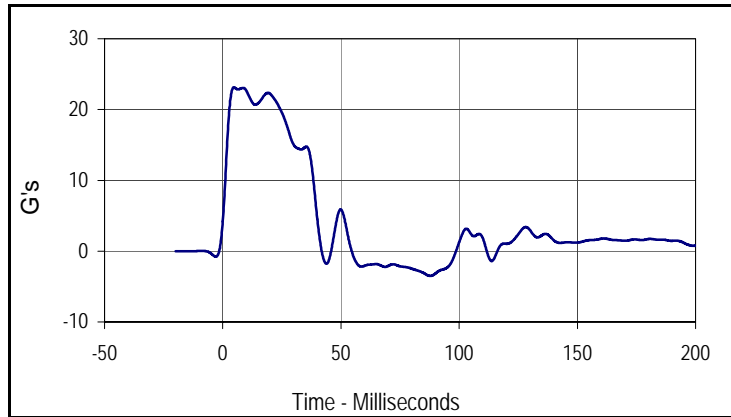
Test Date: 11/29/07

ATD Serial No.: 034

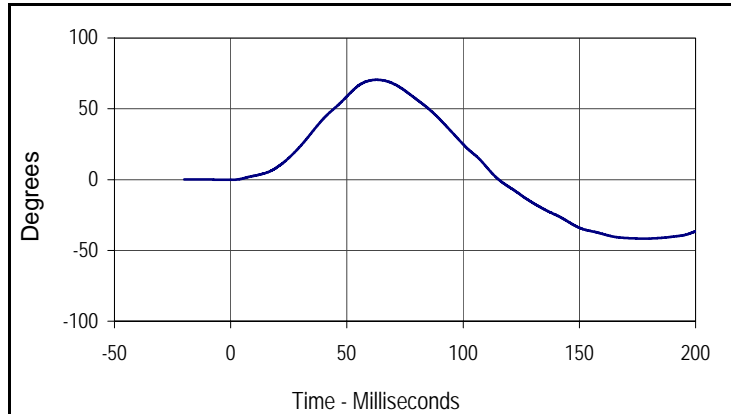
Test I.D.: NF11E



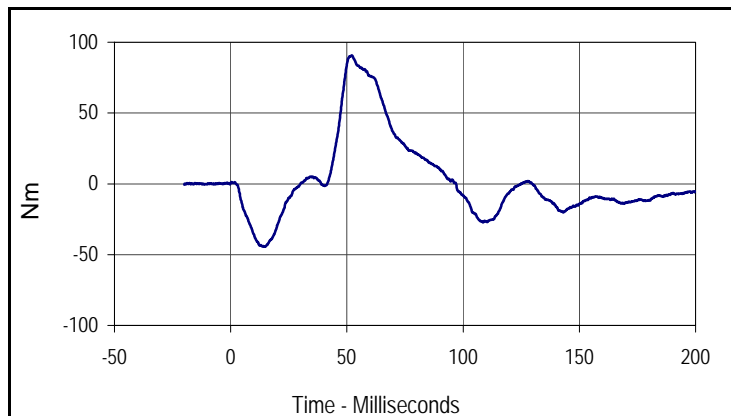
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.05	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	22.6	Pass
	20 Msec.	G's	17.6 to 22.6	22.2	Pass
	30 Msec.	G's	12.5 to 18.5	15.0	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	15.0	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	39.9	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	70.5	Pass
	Time	Msec.	57.0 to 64.0	62.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	115.4	Pass	
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	90.7	Pass
	Time	Msec.	47.0 to 58.0	52.1	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	97.0	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.1	4.7	-3.5	87.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
70.5	62.7	-41.6	178.6



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
90.7	52.1	-44.4	14.7

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

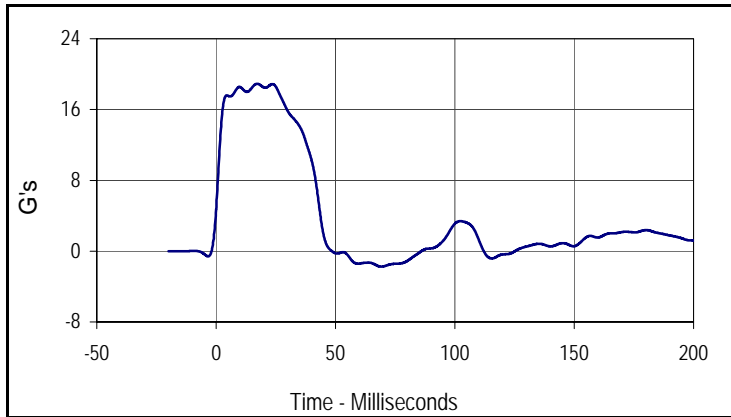
Test Date: 11/29/07

ATD Serial No.: 034

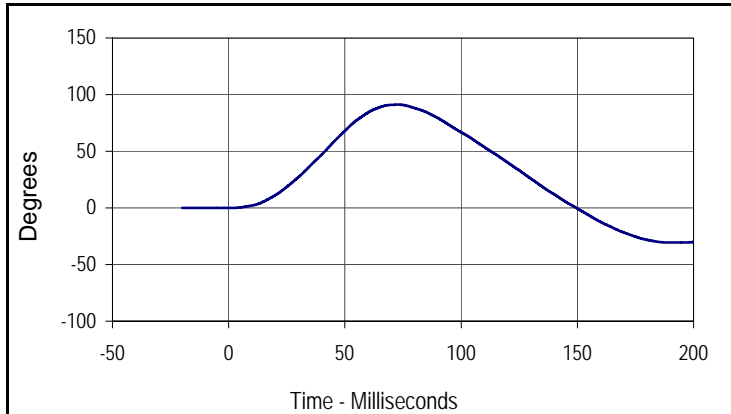
Test I.D.: NE11E



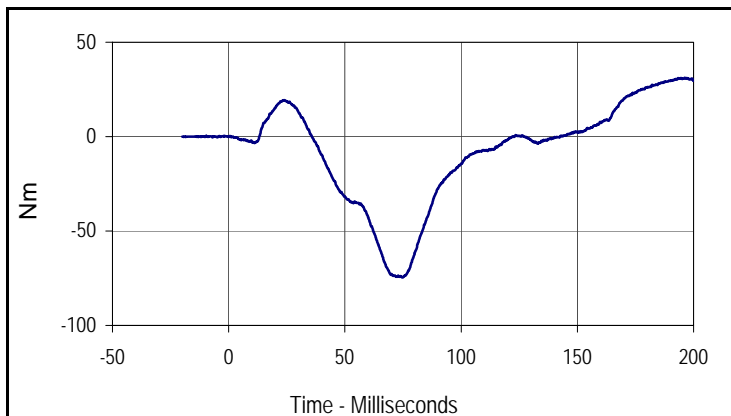
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.16	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.5	Pass
	20 Msec.	G's	14.0 to 19.0	18.5	Pass
	30 Msec.	G's	11.0 to 16.0	15.8	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	15.8	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	43.2	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	91.1	Pass
	Time	Msec.	72.0 to 82.0	72.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	149.6	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-74.5	Pass
	Time	Msec.	65.0 to 79.0	74.7	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	142.7	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
18.9	17.2	-1.8	69.1



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
91.1	72.7	-30.6	192.0



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
31.2	196.2	-74.5	74.7

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 11/29/07

ATD Serial No.: 034

Test I.D.: LK11E , RK11E

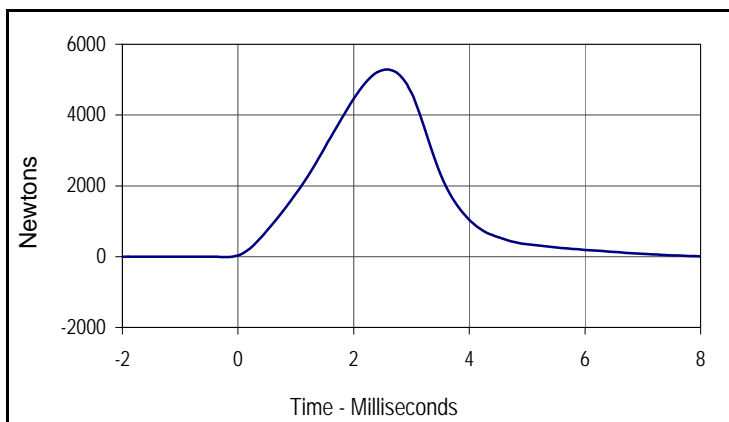


Left Knee

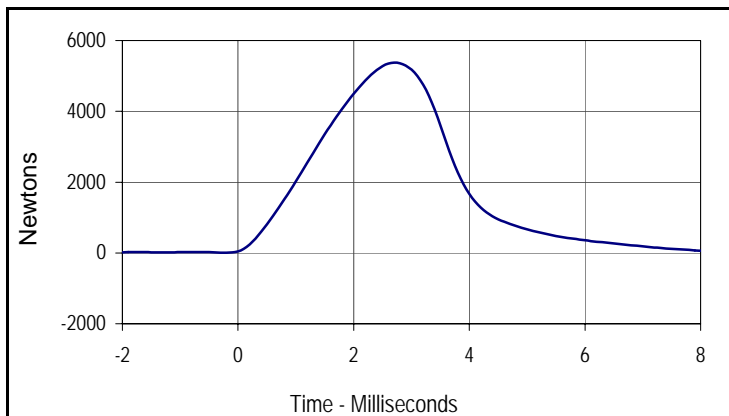
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force	Newtons	4715 to 5782	5284	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5375	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5284.0	2.6	-14.2	-0.2



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5374.5	2.7	-2.6	9.8

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 11/29/07

ATD Serial No.: 034

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	880	Pass
B - Shoulder pivot height	mm	505 to 521	507	Pass
C - "H" point height	mm	84 to 89	86	Pass
D - "H" point from seat back	mm	135 to 140	138	Pass
E - Shoulder pivot from back	mm	84 to 94	89	Pass
F - Thigh clearance	mm	140 to 155	150	Pass
G - Elbow back to wrist pivot	mm	290 to 305	295	Pass
H - Skull cap to back line	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	340	Pass
J - Elbow rest height	mm	190 to 211	210	Pass
K - Buttock to knee length	mm	579 to 604	585	Pass
L - Popliteal length	mm	429 to 455	443	Pass
M - Knee pivot height	mm	485 to 500	487	Pass
N - Buttock popliteal length	mm	452 to 477	461	Pass
O - Chest depth	mm	213 to 229	224	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	430	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference	mm	970 to 1001	993	Pass
Z - Waist circumference	mm	836 to 866	860	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	227	Pass
Overall Test Results				Pass

Test Program: Hybrid III 50th Percentile Male Head Drop Test

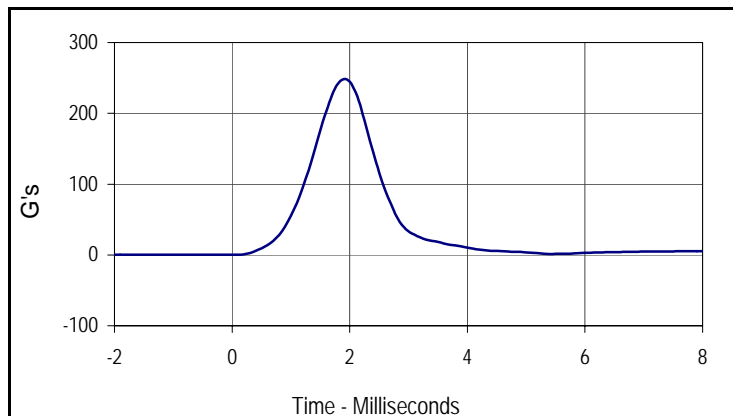
Test Date: 11/29/07

ATD Serial No.: 035

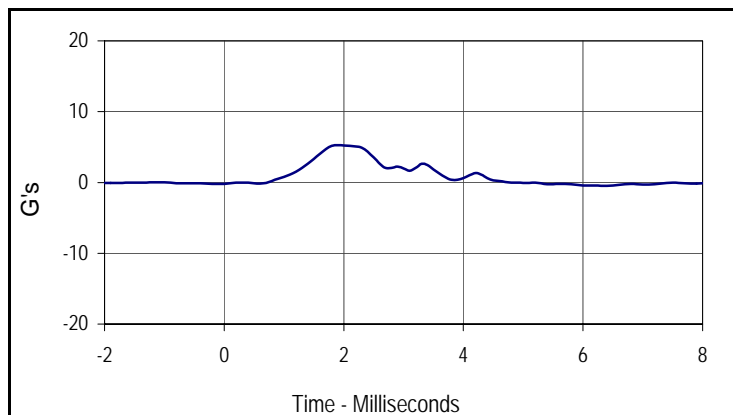
Test I.D.: HD11F



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	248.7	Pass
Peak Lateral Acceleration	G's	≤15.0	5.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
248.7	1.9	0.1	-1.4



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
5.3	1.9	-0.4	6.0

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

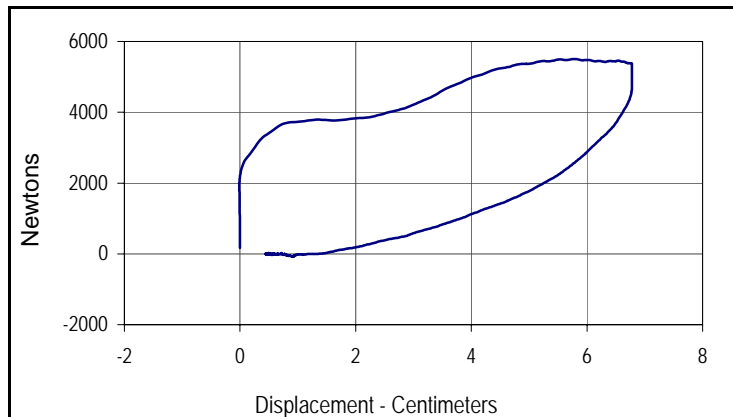
Test Date: 11/29/07

ATD Serial No.: 035

Test I.D.: CH11F



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.64	Pass
Peak Probe Force	Newtons	5159 to 5893	5507	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.78	Pass
Internal Hysteresis	%	69 to 85	74.5	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	74.5
Peak Probe Force		Peak Chest Deflection	
5507		6.78	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

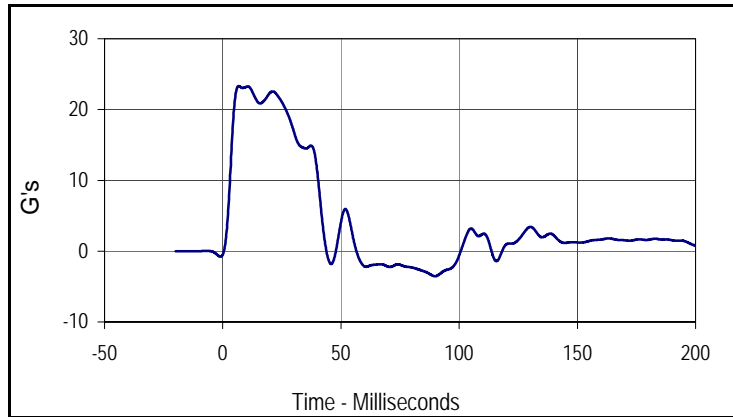
Test Date: 11/29/07

ATD Serial No.: 035

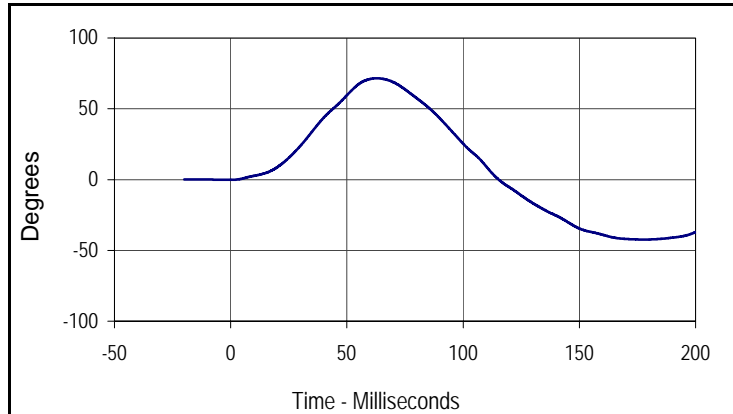
Test I.D.: NF11F



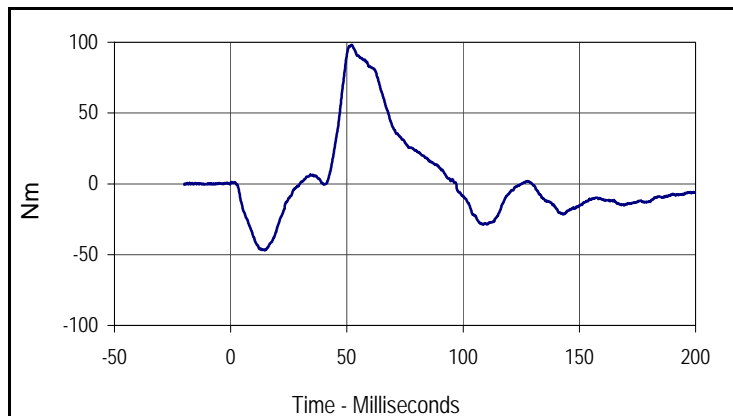
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.07	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.2	Pass
	20 Msec.	G's	17.6 to 22.6	22.4	Pass
	30 Msec.	G's	12.5 to 18.5	17.0	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	17.0	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	41.9	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	71.6	Pass
	Time	Msec.	57.0 to 64.0	62.8	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	115.3	Pass	
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	98.1	Pass
	Time	Msec.	47.0 to 58.0	52.1	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	97.0	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.3	6.7	-3.5	89.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
71.6	62.8	-42.3	178.6



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
98.1	52.1	-47.0	14.7

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

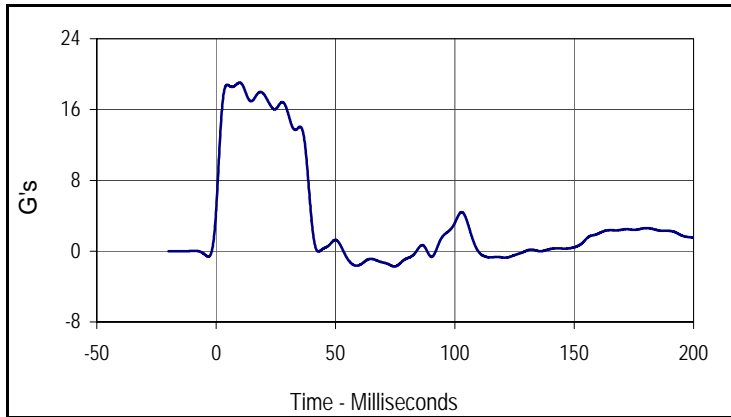
Test Date: 11/29/07

ATD Serial No.: 035

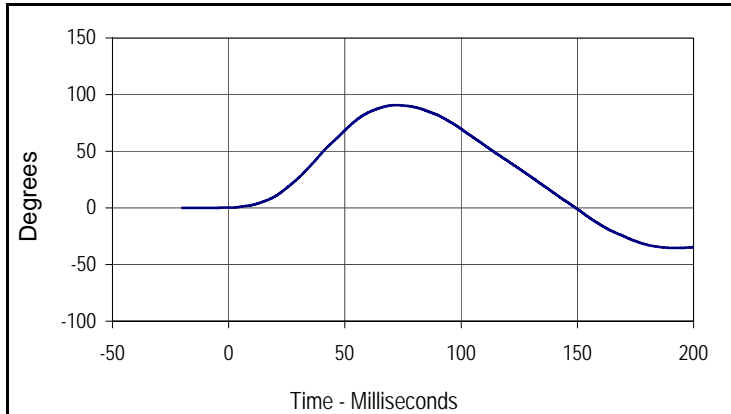
Test I.D.: NE11F



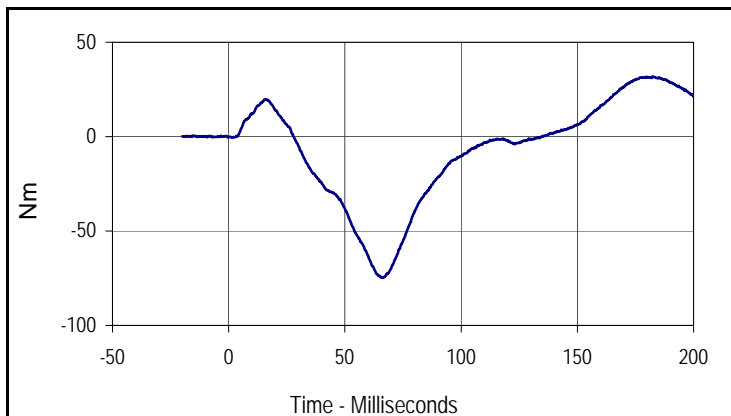
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.01	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.0	Pass
	20 Msec.	G's	14.0 to 19.0	17.7	Pass
	30 Msec.	G's	11.0 to 16.0	15.7	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	15.7	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	39.5	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	90.7	Pass
	Time	Msec.	72.0 to 82.0	72.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	149.3	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-74.8	Pass
	Time	Msec.	65.0 to 79.0	65.9	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	134.8	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.0	9.9	-1.7	74.6



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
90.7	72.0	-35.4	192.3



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
31.9	182.4	-74.8	65.9

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 11/29/07

ATD Serial No.: 035

Test I.D.: LK11F , RK11F

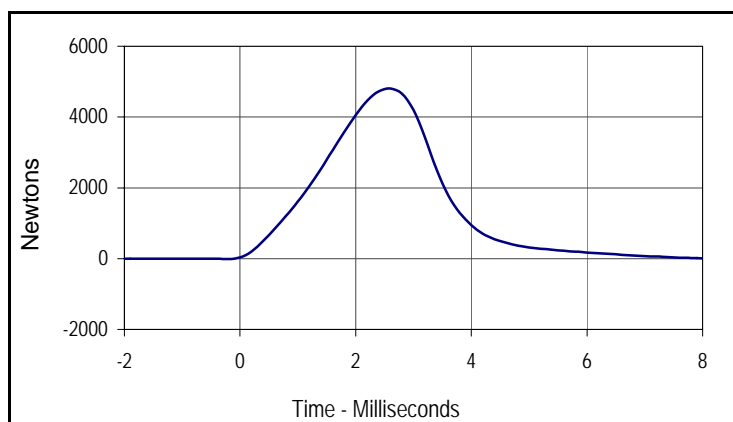


Left Knee

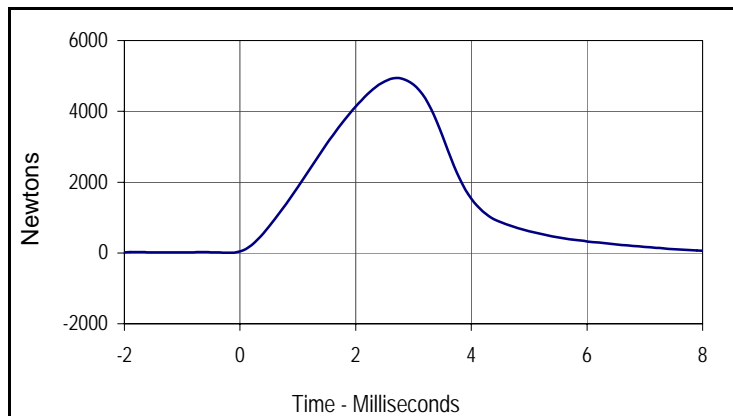
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.12	Pass
Peak Probe Force	Newtons	4715 to 5782	4804	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.12	Pass
Peak Probe Force	Newtons	4715 to 5782	4939	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4803.5	2.6	-12.8	-0.2



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
4938.7	2.7	-2.4	9.7

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 11/29/07

ATD Serial No.: 035

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	883	Pass
B - Shoulder pivot height	mm	505 to 521	510	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	138	Pass
E - Shoulder pivot from back	mm	84 to 94	89	Pass
F - Thigh clearance	mm	140 to 155	150	Pass
G - Elbow back to wrist pivot	mm	290 to 305	296	Pass
H - Skull cap to back line	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	336	Pass
J - Elbow rest height	mm	190 to 211	208	Pass
K - Buttock to knee length	mm	579 to 604	590	Pass
L - Popliteal length	mm	429 to 455	439	Pass
M - Knee pivot height	mm	485 to 500	495	Pass
N - Buttock popliteal length	mm	452 to 477	472	Pass
O - Chest depth	mm	213 to 229	219	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	424	Pass
W - Foot breadth	mm	91 to 107	102	Pass
Y - Chest circumference	mm	970 to 1001	997	Pass
Z - Waist circumference	mm	836 to 866	862	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	229	Pass
Overall Test Results				Pass

Test Program: Dummy Damage Checklist
 ATD Serial No.: 034

Test Date: 11/29/07
 Test I.D.: N/A



GENERAL	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
OTHER		
CHEST DISPLACEMENT ASSEMBLY		
Bent shaft		X
Slider arm riding correctly, in track		X
TRANSDUCER LEADS		
Torn cables		X
ACCELEROMETER MOUNTINGS		
Check for secure mounting		X
KNEES		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
LIMBS		
Check for normal movement and adjustment		X
PELVIS		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:

Test Program: Dummy Damage Checklist
 ATD Serial No.: 035

Test Date: 11/29/07
 Test I.D.: N/A



GENERAL	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
OTHER		
CHEST DISPLACEMENT ASSEMBLY		
Bent shaft		X
Slider arm riding correctly, in track		X
TRANSDUCER LEADS		
Torn cables		X
ACCELEROMETER MOUNTINGS		
Check for secure mounting		X
KNEES		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
LIMBS		
Check for normal movement and adjustment		X
PELVIS		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:
