DATA SHEET 7

DUMMY POSITIONING IN VEHICLE

FRONT SEAT MEASUREMENT TABLE

	DRIVER (Serial No)	PASS. (Serial No)
WA		
SWA		
SCA		
SA		
HZ		
НН		
HW		
HR		
NR	ANGLE	(NA)
CD		
CS		
RA		
KDL	ANGLE (KDA)	
KDR		ANGLE (KDA)
PA		
TA		
KK		
ST	ANGLE	ANGLE
SK	ANGLE	ANGLE
SH	ANGLE	ANGLE
SHY		
HS		
HD		
AD		

DESCRIPTIONS OF DUMMY MEASUREMENTS

When a level is to be used, it is to ensure that the line containing the two points described is either parallel or perpendicular to the ground. If a measurement to be made is less than 10 inches ignore the directions to use a level and approximate a level measurement. Also, when a measurement is to be taken to or from the center of a bolt on the dummy, take the measurement from the center of the bolt hole if the bolt is recessed.

The following measurements are to be made within a vertical longitudinal plane.

- * HH Head to Header, taken from the point where the dummy's nose meets his forehead (between his eyes) to the furthest point forward on the header.
- * HW Head to Windshield, taken from the point where the dummy's nose meets his forehead (between his eyes) to a point on the windshield. Use a level.
 - HZ Head to Roof, taken from the point where the dummy's nose meets his forehead (between his eyes) to the point on the roof directly above it. Use a level.
- * CS Steering Wheel to Chest, taken from the center of the steering wheel hub to the dummy's chest. Use a level.
- * CD Chest to Dash, place a tape measure on the tip of the dummy's chin and rotate five inches of it downward toward the dummy to the point of contact on the transverse center of the dummy's chest. Then measure from this point to the closest point on the dashboard either between the upper part of the steering wheel between the hub and the rim, or measure to the dashboard placing the tape measure above the rim, whichever is a shorter measurement. See photograph.
 - RA Steering Wheel Rim to Abdomen, taken from the bottommost point of the steering wheel rim horizontally rearward to the dummy. Use a level.
 - NR Nose to Rim, taken from the tip of the dummy's nose to the closest point on the top of the steering wheel rim. Also indicate the angle this line makes with respect to the horizontal (NA).

^{*} Measurement used in Data Tape Reference Guide

*1 KDL, KDR Left and Right Knees to Dashboard, taken from the center of the knee pivot bolt's outer surface to the closest point forward acquir

knee pivot bolt's outer surface to the closest point forward acquired by swinging the tape measure in continually larger arcs until it contacts the dashboard. Also reference the angle of this measurement with respect to the horizontal for the outboard knee

(KDA). See photograph.

SH, SK, ST Striker to Hip, Knee, and Head, these measurements are to be taken in the X-Z plane measured from the forward most center point on the striker to the center of the H-point, outer knee bolt, and head target. When taking this measurement a firm device that can be rigidly connected to the striker should be used. Use a level. The angles of these measurements with respect to the horizontal should also be recorded. The measurement in the Y (transverse) direction from the striker to the H-point should also be taken (SHY). See photograph.

The following measurements are to be made within a vertical transverse plane.

HS Head to Side Window, taken from the point where the dummy's nose meets his forehead (between his eyes) to the outside of the side window. In order to make this measurement, roll the window down to the exact height which allows a level measurement. Use a level. See photograph.

* AD Arm to Door, taken from the outer surface of the elbow pivot bolt on a Hybrid II dummy to the first point it hits on the door. In the case of a Hybrid III dummy, measure from the bolt on the outer biceps. When a SID is used make the measurement from the center of the bottom of the arm segment where it meets the dummy's torso.

* HD H-point to Door, taken from the H-point on the dummy to the closest point on the door. Use a level.

* HR Head to Side Header, measure the shortest distance from the point where the dummy's nose meets his forehead (between his eyes) to the side edge of the header just above the window frame, directly adjacent to the dummy.

Striker to H-point, taken from a rod rigidly connected to the forward most center point on the striker to the H-point. Use a level. See photograph.

* Measurement used in Data Tape Reference Guide

SHY

¹ Only outboard measurement is referenced in Data Tape Reference Guide

KK

Knee to Knee, for Hybrid II dummies measure the distance between knee pivot bolt head outer surfaces. For Hybrid III dummies measure the distance between the outboard knee clevis flange surfaces. (This measurement may not be exactly transverse)

Angles

SA Seat Back Angle, find this angle using the instructions provided by the manufacturer. If the manufacturer doesn't provide **clear** instructions contact the COTR.

PA Pelvic or Femur Angle, taken by inserting the pelvic angle gauge into the H-point gauging hole on the SID or the Hybrid III dummies and taking this angle with respect to the horizontal. Measure the angle of the line connecting the H-point hole and the outer knee pivot bolt hole on a Hybrid II dummy with respect to the horizontal, to find the femur angle.

SWA Steering Wheel Angle, find this by placing a straight edge against the steering wheel rim along the longitudinal plane. Then measure the acute angle of the straight edge with respect to the horizontal.

SCA Steering Column Angle, measured with respect to the horizontal by placing an inclinometer on the center of the underside of the steering column.

NA Measure the angle made when taking the measurement NR with respect to the horizontal.

KDA Knee to Dash Angle, the angle that the measurement KD is taken at with respect to the horizontal. Only get this angle for the outboard knee. See photograph.

WA Windshield Angle, place an inclinometer along the transverse center of the windshield exterior (measurement is made with respect to horizontal).

The Tibial Angle, use a straight edge to connect the dummy's knee and ankle bolts. Then place an inclinometer on the straight edge and measure the angle with respect to the horizontal.



ST – STRIKER TO HEAD MEASUREMENT

ST.-- STRIKER TO HEAD ANGLE

CD - CHEST TO DASH

1

CD - CHEST TO DASH



SH – STRIKER TO H-POINT
MEASUREMENT

SH - STRIKER TO H-POINT
ANGLE

SK – STRIKER TO KNEE MEASUREMENT

SK – STRIKER TO KNEE ANGLE



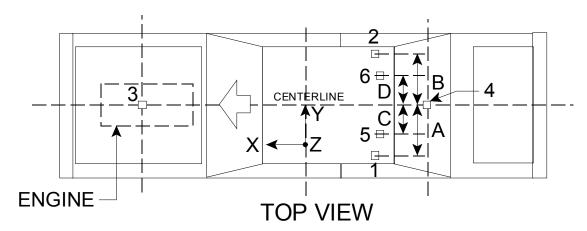
HS -HEAD TO SIDE WINDOW

SHY – STRIKER TO H-POINT (Y DIRECTION)

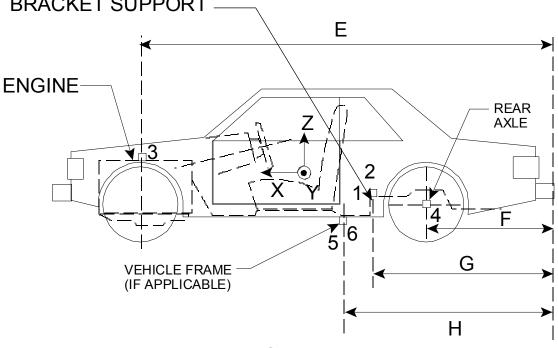
KDL/KDR - KNEE TO DASH

KDA – KNEE TO DASH ANGLE

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



REAR SEAT CUSHION ASSY. FRONT ATTACHMENT BRACKET SUPPORT



LEFT SIDE VIEW

DATA SHEET 8

DIMENSION	LENGTH (inches)
А	
В	
С	
D	
E	
F	
G	
Н	

LOCATI ON NO.	DESCRIPTION		MAXIMUN	/I VALUE	:
		X-	msec.	X +	msec.
1	Rear Seat X-Member @ Left Side				
2	Rear Seat X-Member @ Right Side				
3	Top of Engine Block				
4	Rear Axle				
5	Left Vehicle Frame (if applicable)				
6	Right Vehicle Frame (if applicable)				

REMARKS:

NOTE: THE FOLLOWING TEST DATA PLOTS WILL BE INCLUDED IN EACH FINAL TEST REPORT with the test vehicle NHTSA number and date of impact test appearing on each plot:

D-1 Driver dummy head lateral acceleration D-2 Driver dummy head vertical acceleration D-3 Driver dummy head vertical acceleration D-4 Driver dummy head resultant acceleration D-5 Driver dummy chest longitudinal acceleration D-6 Driver dummy chest lateral acceleration D-7 Driver dummy chest vertical acceleration D-8 Driver dummy chest resultant acceleration D-9 Driver dummy left femur load D-10 Driver dummy right femur load D-11 Driver dummy chest deflection (Part 572 Subpart E dummy) D-12 Driver dummy upper neck bending moment D-13 Driver dummy upper neck bending moment D-14 Driver dummy upper neck bending moment D-15 Driver dummy upper neck shear force D-16 Driver dummy upper neck shear force D-17 Driver dummy upper neck bending moment about occipital condyle	Ya A _z A _r A _z A _z A _z A _r A _r A _r M _z F _r F _r Mx My My Fx Fy Fz
P-1 Passenger dummy head longitudinal acceleration	•
P-2 Passenger dummy head lateral acceleration	
P-3 Passenger dummy head vertical acceleration	
P-4 Passenger dummy head resultant acceleration	
P-5 Passenger dummy chest longitudinal acceleration	
P-6 Passenger dummy chest lateral acceleration	
P-7 Passenger dummy chest vertical acceleration	
P-8 Passenger dummy chest resultant acceleration	A _r
P-9 Passenger dummy left femur load	
P-10 Passenger dummy right femur load	F _r
P-11 Passenger dummy chest deflection (Part 572 Subpart E dummy)	
P-12 Passenger dummy upper neck bending moment	
P-13 Passenger dummy upper neck bending moment	•
P-14 Passenger dummy upper neck bending moment	
P-15 Passenger dummy upper neck shear force	
P-16 Passenger dummy upper neck shear force	-
P-17 Passenger dummy upper neck axial load	Fz
P-18 Passenger dummy upper neck bending moment	N.4
about occipital condyle	Mocy

TEST VEHICLE AND SLED ACCELERATION PLOTS SHALL ALSO BE INCLUDED.

Each plot shall be on an $8\frac{1}{2}$ inch by 11 inch page with a scale that does not exceed the maximum value by more than 10%.

DATA SHEET 9 CAMERA LOCATIONS

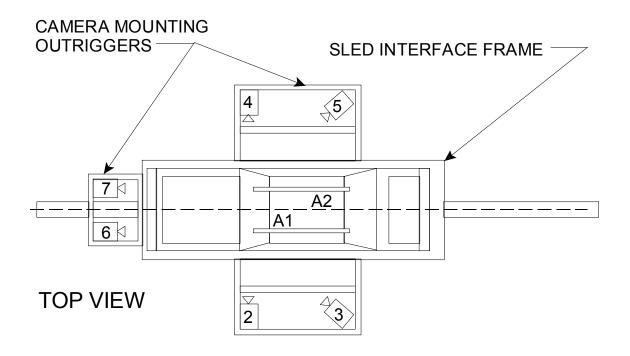
VEH. NHTSA No.: C	; TEST DATE:	;	TIME:
VEH. YEAR/MAKE/MODE	L/BODY STYLE:		

CAMERA NO.	VIEW	CAMERA POSITIONS		NS (in.) *	ANGLE (deg.)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		Х	Y	Z				
1	Left Side View							24
2	Left Side View							
3	Left Side View							
4	Right Side View							
5	Right Side View							
6	Front View Driver							
7	Front View Pass.							

X - film plane to monorail centerlineY - film plane to barrier faceZ - film plane to ground

REMARKS:

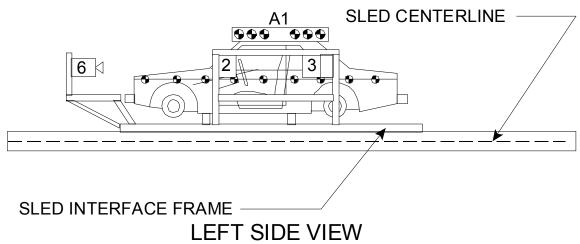
CAMERA POSITIONS FOR SLED TEST



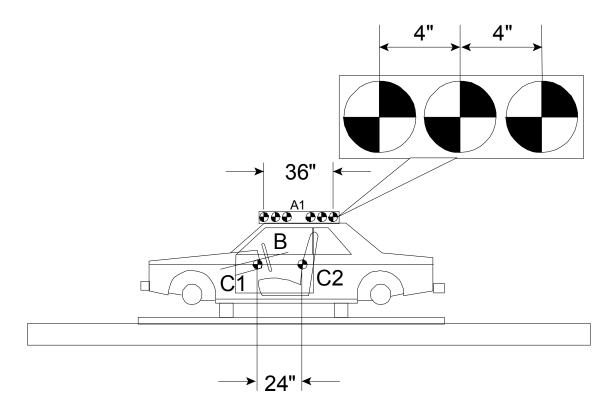
CAMERA FRAME RATES:

#1 = 24 fps All Others = 1,000 fps

1 REAL TIME CAMERA



REFERENCE PHOTO TARGETS



LEFT SIDE VIEW

DATA SHEET 10 LAP BELT LOCKABILITY

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic locking retractors. (S7.1.1.5(c))

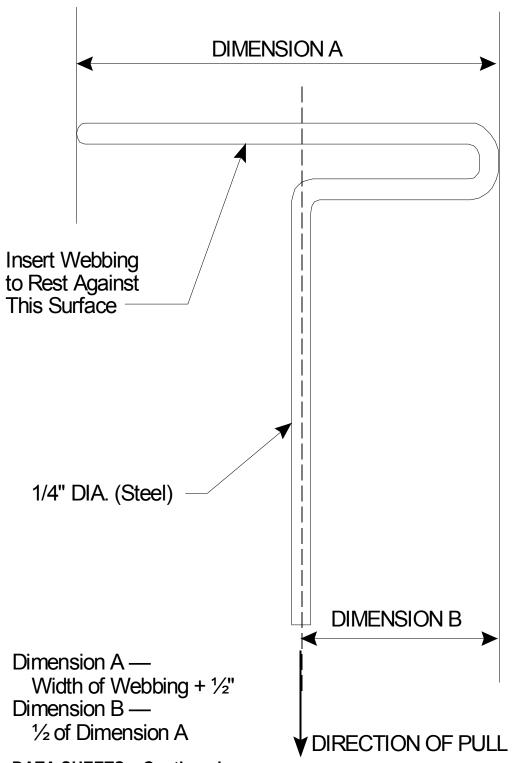
NHTS	SA NO. C	Technician	Date	
DESI	GNATED SEATING	POSITION (DSP):		
1.	Record test seat po (S7.1.1.5(c)(1)) (Any position is acc			
2.	Buckle the seat beli	t. (S7.1.1.5(c)(1))		
3.	Complete any procellocking feature. (S7		e vehicle owner's manual to a	ctivate any
4.	adjusted to forward	-facing consist of a locking nicle user to the seat belt we	forward-facing seat or seat the device that does NOT have to be be be found to be the best of the be	be
5.	adjusted to forward	ortion of the seat belt in the	forward-facing seat or seat the device that does NOT require	
		Yes-Pass	No-FAIL	
6.			n to activate the locking featuracing seat or seat that can be	
		Yes	No	
	If YES , go to 6.1. If	f NO , go to 7.		

6.1

	remove the child restraint s	system. (S7.1.1.5(o))
	Ye:	s-Pass	No-FAIL
7.	Locate a reference point A on the	seat belt buckle.	(S7.1.1.5(c)(2))
8.	Locate a reference point B on the other end of the lap belt or lap be		
9.	Adjust the lap belt or lap belt portion procedures recommended in the so that the webbing between point belt system. (S7.1.1.5(c)(2))	vehicle owner's ma	nual to activate any locking feature
10.	Measure and record the distance centerline of the webbing for the I (S7.1.1.5(c)(2))	•	
	Measured distance between A an	d B	inches
11.	Readjust the belt system so that that is 5 inches or more shorter the (S7.1.1.5(c)(3))		
12.	To the lap belt or lap belt portion of pounds using the webbing tension plane parallel to the longitudinal a reference point of the designated direction toward the front of the ved degrees nor more than 15 degrees	n pull device in Figuria ixis of the vehicle a seating position. A whicle with a force a	ure 5. Apply the load in a vertical nd passing through the seating Apply the preload in a horizontal application angle of not less than 5
	Measured force application angle		(spec. 5 - 15 degrees)

Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to

WEBBING TENSION PULL DEVICE



13.	Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and Binches								
14.	Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing.(S7.1.1.5(c)(5))								
	Record onset ra	te	_lb/sec (spec. 10 to 50 l	b/sec)					
	Measured distar	nce between A an	nd B	_inches (S7.1.1.5(c)(6))					
15.	Subtract the me or less? (S7.1.1		rom the measurement in	n 13. Is the difference 2 inches					
	13-14=	_inches	Yes-Pass	No-FAIL					
16.	Subtract the me or more? (S7.1.		rom the measurement in	n 14. Is the difference 3 inches					
	10-14=	_inches	Yes-Pass	No-FAIL					
	DK6.								

REMARKS:

DATA SHEET 11

AIR BAG LABELS

NHTS	A NO.	Technician	_ Date
1.	Air Ba	ng Maintenance Label and Owner's Manual Instructions: (S4.5.1(a))
1.1		Does the manufacturer recommend periodic maintenance air bag? Yes (Go to 1.2) No (Go to 2)	ce or replacement of the
	1.2	Does the Vehicle have a maintenance or replacement la	bel? _Yes-Pass No-FAIL
	1.3	· ·	date) mileage) late on certification label l date)
	1.4	Is the label permanently affixed within the passenger con	mpartment? Yes-Pass No-FAIL
	1.5	Is the label lettered in English?	Yes-Pass No-FAIL
1.6		Is the label in block capitals and numerals?	_Yes-PassNo-FAIL
	1.7	Are the letters and numerals at least 3/32 inches high?	Yes-Pass No-FAIL
	1.8	Does the owner's manual set forth the recommended so or replacement?	
I.	Does	the owner's manual: (S4.5.1(f))	Yes-Pass No-FAIL
	2.1	Include a description of the vehicle's air bag system in a format?	n easily understandableYes-Pass No-FAIL
	2.2	Include a statement that the vehicle is equipped with an lap/shoulder belt at the front outboard seating positions?	•

	2.3	Include a statement that the air bag is a supplemental restraint at the front outboard seating positions?
		Yes-Pass No-FAIL
	2.4	Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash? Yes-PassNo-FAIL
	2.5	Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to insure maximum safety protection for those occupants? Yes-PassNo-FAIL
	2.6	Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate? Yes-Pass No-FAIL
3.	Does	the vehicle:
	3.1	Provide an automatic means to ensure that the air bag does not deploy when a child seat or child with a total mass of 30 kg or less is present on the front outboard passenger? YesNo
	3.2	Incorporate sensors, other than or in addition to weight sensors, which automatically prevent the passenger air bag from deploying in situations in which it might have an adverse effect on infants in rear-facing child seats, and unbelted or improperly belted children? YesNo
	3.3	Have a passenger air bag designed to deploy in a manner that does not create a risk of serious injury to infants in rear-facing child seats, and unbelted or improperly belted children? YesNo
	Label	to 3.1, or 3.2, or 3.3, the vehicle is not required to have a Sun Visor Warning (S4.5.1(b)), an air bag alert label (S4.5.1(c) or a label on the dash (S4.5.1(e) and check sheet is complete. (S4.5.1) If no to 3.1, 3.2, and 3.3, go to 4.
4.	Sun \	/isor Warning Label
	4.1	Is the label permanently affixed (may be permanent marking or molding) to either side of the sun visor at each front outboard seating position with an air bag? (S4.5.1(b)(2))
		Driver side Yes-Pass No-FAIL
		Passenger side N/A Yes-Pass No-FAII

	· · · ·							
4.2	Does the label conform in content (vehicles without back seats may omit the statement: "The BACK SEAT is the SAFEST place for children." (S4.5.1(b)(2)(v))) to the label shown in either Figure 6a or 6b as appropriate at each front outboard seating position with an air bag? (S4.5.1(b)(2))							
	4.2.1	Dual air bags	s N/A					
			Driver side	Yes-Pass _	_No-FAIL			
			Passenger side	Yes-Pass _	_No-FAIL			
	4.2.2 Vehicle with driver air bag ONLY - either 4.2.2.1 or 4.2.2.2 is applica not both. (S4.5.1(b)(2)(iv))							
		4.2.2.1	Does the label conform in content either Figure 6a or 6b as appropria		n in			
			ounce in gard on an or an approprie		N/A			
			Driver side	Yes-Pass _	_No-FAIL			
		4.2.2.2	Does the label conform in content Figure 6a where the label can be no pictogram and the message text m	nodified to omit th				
		DEAT	H or SERIOUS INJURY can occur.					
		AL	as far back as possible from the air WAYS use SEAT BELTS and CHIL e BACK SEAT is the SAFEST place	D RESTRAINTS.				
					N/A			
			Driver side	Yes-Pass _	_No-FAIL			

Figure 6a (S4.5.1(b)(2))

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

ARTWORK BLACK WITH WHITE BACKGROUND

CIRCLE AND LINE RED WITH WHITE BACKGROUND

BOTTOM TEXT BLACK -WITH RED BULLETS ON WHITE BACKGROUND

TOP TEXT AND SYMBOL -BLACK WITH YELLOW BACKGROUND

AWARNING



DEATH or SERIOUS INJURY can occur

- Children 12 and under can be killed by the air bag
- The BACK SEAT is the SAFEST place for children
- NEVER put a rear-facing child seat in the front
- Sit as far back as possible from the air bag
- ALWAYS use SEAT BELTS and CHILD RESTRAINTS

SUN VISOR LABEL	VISIBLE WHI	EN VISOR IS IN DOWN POSITION	15.	DATA
LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK			SHEE	TSContinu
ARTWORK BLACK WITH WHITE BACKGROUND		BOTTOM TEXT BLACK WITH RED BULLETS ON WHITE BACKGROUND	ed	
CIRCLE AND LINE RED WITH WHITE BACKGROUND		TOP TEXT AND SYMBOL BLACK WITH YELLOW BACKGROUND		
A	DEATH or S • Children 12 a • The BACK SE	RNING SERIOUS INJURY can occur nd under can be killed by the air bag EAT is the SAFEST place for children rear-facing child seat in the front unless		
		k as possible from the air bag SEAT BELTS and CHILD RESTRAINTS		

Figure 6b (S4.5.1(b)(2))

4.3	Is the label heading area yellow with the word "warning" and the alert symbol in black? (S4.5.1(b)(2)(i))
	Driver sideYes-Pass No-FAIL
	Passenger side No air bag Yes-Pass No-FAIL
4.4	Is the message white with black text? (S4.5.1(b)(2)(ii))
	Driver sideYes-Pass No-FAIL
	Passenger side No air bag Yes-Pass No-FAIL
4.5	Is the message area at least 30 cm ² ? (S4.5.1(b)(2)(ii)) Actual message areacm ²
	Driver sideYes-Pass No-FAIL
	Passenger side No air bag Yes-Pass No-FAIL

4.6

		(S4.5.1(b)(2)(iii) & (S4.5.1(b)(2)(iv))
		For vehicles with driver side air bag ONLYN/A
		Driver sideYes-Pass No-FAIL
		Passenger side No air bag Yes-Pass No-FAIL
	4.7	Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii)) Actual diametermm
		For vehicles with driver side air bag ONLYN/A
		Driver sideYes-Pass No-FAIL
		Passenger side No air bag Yes-Pass No-FAIL
	4.8	Is the same side of the sun visor to which the sun visor label is affixed free of other information with the exception of an air bag maintenance label? (S4.5.1(b)(3))
		Driver sideYes-Pass No-FAIL
		Passenger side No air bag Yes-Pass No-FAIL
	4.9	Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label or the utility vehicle label? (S4.5.1(b)(3))
		Driver sideYes-Pass No-FAIL
		Passenger side No air bag Yes-Pass No-FAIL
5.	Air Ba	ag Alert Label
	5.1	Is the Sun Visor Warning Label visible when the sun visor is in the stowed position?
		Driver side YesNo If yes, go to 6.
		Passenger side No air bagYes No
	5.2	Does the label conform in content to the label shown in Figure 6c? (S4.5.1(c)(2))
		Driver side Yes-Pass No-FAIL
		Passenger side No air bag Yes-Pass No-FAIL

Is the pictogram black with a red circle and slash on a white background?

5.3	Is the message area black with yellow text? (S4.5.1(c)(2)(i)					
	Driver side Yes-Pass No-FAIL					
	Passenger side No air bag Yes-Pass No-FAIL					
5.4	Is the message area at least 20 cm ² ? (S4.5.1(c)(2)(i)) Actual message areacm ²					
	Driver sideYes-Pass No-FAIL					
	Passenger side No air bag Yes-Pass No-FAIL					
5.5	Is the pictogram black with a red circle and slash on a white background?					
	(S4.5.1(c)(2)(ii)) For vehicles with driver side air bag ONLYN/A					
	Yes-Pass No-FAIL					

__ Yes-Pass __**No-FAIL**

Yes-Pass No-FAIL

15.

6.5

DATA SHEETS....Continued 5.6 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2)(ii)) Actual diameter _____mm For vehicles with driver side air bag ONLY N/A Yes-Pass No-FAIL SUN VISOR LABEL VISIBLE WHEN VISOR IS IN UP POSITION (S4.5.1(c)(2))Figure 6c CIRCLE AND LINE RED WITH WHITE BACKGROUND **TEXT YELLOW WITH BLACK BACKGROUND** ARTWORK BLACK WITH WHITE BACKGROUND 6. Label On the Dash 6.1 Does the vehicle have a passenger side air bag? Yes No If no, this check sheet is complete. 6.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)) Yes-Pass No-FAIL 6.3 Does the label conform in content (vehicles without back seats may omit the statement: "The back seat is the safest place for children 12 and under." (S4.5.1(e)(iii))) to the label shown in Figure 7?(S4.5.1(e)) Yes-Pass No-Fail 6.4 Is the heading area yellow with the word "warning" and the alert symbol in black? (S4.5.1(e)(i)

Is the message white with black text? (S4.5.1(e)(ii))

Is the message area at least 30 cm²? (S4.5.1(e)(ii))
Actual message area _____ cm² ___ Yes-Pass ___**No-FAIL** 6.6

Figure 7 (S4.5.1(e))

REMOVABLE LABEL ON DASH

LABEL OUTLINE AND HORIZONTAL LINE BLACK

BOTTOM TEXT BLACK WITH WHITE BACKGROUND

TOP TEXT AND SYMBOL BLACK WITH YELLOW BACKGROUND

AWARNING

Children Can Be KILLED or INJURED **by Passenger Air Bag**The back seat is the safest place for children 12 and under.

Make sure all children use seat belts or child seats.