637984

FINAL REPORT NUMBER 225-MGA-05-007

SAFETY COMPLIANCE TESTING FOR FMVSS 225
"Child Restraint Anchorage Systems"

TOYOTA MOTOR MANUFACTURING
2005 TOYOTA TACOMA
NHTSA No. C55106

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Date: July 19, 2005
Report Date: August 3, 2005

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6111 (NVS-220)
WASHINGTON, D.C. 20590

Prepared By: _____
Melanie Schick, Project Engineer

_____
Brad Reaume, Test Personnel

_____
Helen A. Kaleto, Laboratory Manager

Approved By: _____

Approval Date: 08/03/2005

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: Amanda Prescott

Acceptance Date: _____

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 225-MGA-05-007	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 225 Compliance Testing of a 2005 Toyota Tacoma, NHTSA No. C55106		5. Report Date August 3, 2005 6. Performing Organization Code MGA	
7. Author(s) Helen A. Kaleto, Laboratory Manager Melanie Schick, Project Engineer Brad Reaume, Test Personnel		8. Performing Organization Report No. 225-MGA-05-007	
9. Performing Organization Name and Address MGA Research Corporation 446 Executive Drive Troy, Michigan 48083		10. Work Unit No. 11. Contract or Grant No. DTNH22-02-D-11043	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 Seventh Street, SW Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report 14. Sponsoring Agency Code NVS-220	
15. Supplementary Notes			
16. Abstract A compliance test was conducted on the subject 2005 Toyota Tacoma, NHTSA No. C55106, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-225-01 for the determination of FMVSS 225 compliance. The test was conducted at MGA Research Corporation in Troy, Michigan on July 19, 2005. Test failures identified were as follows: S9.2.1: When measured with the CRF, the 2nd row right outboard seating position pitch angle was 0.8°, which does not meet the requirement of 15° ± 10°. The data recorded indicates that the 2005 Toyota Tacoma tested does not appear to meet the requirements of FMVSS 225.			
17. Key Words Compliance Testing Safety Engineering FMVSS 225 2005 Toyota Tacoma		18. Distribution Statement Copies of this report are available From: NHTSA Technical Reference Division, Mail Code: NPO-230 400 Seventh Street, SW, Room PL-403 Washington, D.C. 20590 Telephone No. (202) 366-4946	
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Form DOT F 1700.7 (8-70)

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1.0 PURPOSE AND PROCEDURE

PURPOSE

The child restraint anchorage testing results presented in this report are part of the Federal Motor Vehicle Safety Standard (FMVSS) No. 225 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-02-D-11043. The purpose of the testing was to determine if the subject vehicle, a 2005 Toyota Tacoma, NHTSA No. C55106 meets the performance requirements of FMVSS No. 225, "Child Restraint Anchorage Systems."

PROCEDURE

This testing was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure TP-225-01 (4/11/05) and MGA's Laboratory Test Procedure, MGATP225GOV (2/24/05).

The front occupant compartment consisted of two (2) adjustable outboard bucket seats and the rear occupant compartment consisted of 2nd row flip-over jump seats. The 2nd row right outboard seating position was equipped with a child restraint anchorage system (one tether and two lower anchorages). The 1st row right outboard seating position was equipped with a child restraint anchorage system (one tether and two lower anchorages). The 1st row right outboard seating position was tested with the SFADII fixture.

2.0 COMPLIANCE TEST AND DATA SUMMARY

TEST SUMMARY

The testing was conducted at MGA in Troy, Michigan on July 19, 2005.

Based on the test results, the 2005 Toyota Tacoma does not appear to comply with S9.2.1 of FMVSS No. 225 for this test.

The SFADII at the 1st row right outboard seating position sustained a maximum force of 15,229 N and held the required load for 2 seconds.

DATA SUMMARY

Strength and displacement summary data are provided below. Data for the configuration and the location of each child restraint anchorage system are provided in Section 5.0. Photographs are found in Section 6.0 and test plots are found in Section 7.0.

Table 1. Summary Data for Strength and Displacement

MGA Test #	Fixture Type	Test Configuration	Seating Position	Max. Load (N)	Displacement (mm)
SB5262	SFAD II	Forward w/Tether	1st Row RH 2-Way Manual Fold Flat	15,229	N/A

N/A indicates that the displacement criteria does not apply to this test.

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2005 Toyota Tacoma
VEH. NHTSA NO.	C55106
VIN	5TETX22N55Z034410
COLOR	White
VEH. BUILD DATE	01/05
TEST DATE	July 19, 2005
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Melanie Schick, Brad Reaume, Kenney Godfrey

GENERAL INFORMATION:

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Toyota Motor Manufacturing, California, Inc.

Date of Manufacture: 01/05; VIN: 5TETX22N55Z034410

GVWR: 2199 kg; GAWR FRONT: 1079 kg

GAWR REAR: 1217 kg

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 200 kPa REAR: 220 kPa

Recommended Tire Size: P21570R15

Recommended Cold Tire Pressure:

FRONT: 200 kPa REAR: 220 kPa

Size of Tire on Test Vehicle: P21570R15

Type of Spare Tire: P21570R15

VEHICLE CAPACITY DATA:

Type of Front Seats: Bench ____; Bucket _X_; Split Bench ____

Number of Occupants: Front _2_; Middle N/A; Rear _2_; TOTAL _4_.

4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

MGA Research Corporation 446 Executive Drive Troy, Michigan 48083	
Test Equipment Used for Testing	**Calibration Due Date**
MGA Hydraulic Test Frame	N/A
One (1) Load Cell 10,000 lb Capability	S/N 251 (10/18/05)
String Potentiometer	N/A
Hydraulic Pump	N/A
MGA CRF Fixture	N/A
MGA SFADI	N/A
MGA SFADII	N/A
MGA 2-Dimensional Template	N/A
Linear Scale	S/N TPM508 (05/24/06)
MGA Data Acquisition System	N/A
Digital Calipers	S/N MGA00305 (03/22/06), S/N MGA00053 (08/23/05)
Force Gauge	S/N MGA00516 (05/25/06)
Inclinometer (Digital)	S/N MGA00034 (08/23/05)
Coordinate Measurement Machine (CMM)	S/N S08059801273 (08/26/05)

5.0 DATA

Table 3. Child Restraint Tether Anchorage Configuration

Seating Position		Permit the attachment of a tether hook	Accessible without the need for any tool other than a screwdriver or coin	Ready for use without the need for any tools	Sealed to prevent the entry of exhaust fumes
Front Row	LH	N/A	N/A	N/A	N/A
	RH	Yes	Yes	Yes	Yes
Second Row	LH	N/A	N/A	N/A	N/A
	RH	Yes	Yes	Yes	Yes
Third Row		N/A	N/A	N/A	N/A

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225-01.

REMARKS: The 2005 Toyota Tacoma, NHTSA No. C55106, has an airbag on/off switch meeting the requirements of S4.5.4 of Standard No. 208 (§571.208).

Table 4. Child Restraint Lower Anchorage Configuration

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION						
		FRONT ROW		SECOND ROW		THIRD ROW
		I/B	O/B	I/B	O/B	
Above anchorage, permanently marked with a circle not less than 13 mm in Dia.; and whose color contrasts with its background; and its center is not less than 50 mm and not more than 100 mm above the bar, and in the vertical longitudinal plane that passes through the center of the bar.	LH	N/A		N/A		N/A
	RH	57.0	54.2	N/A		
Each of the bars is visible, without the compression of the seat cushion or seat back, when the bar is viewed, in a vertical longitudinal plane passing through the center of the bar, along a line marking an upward 30 degree angle with a horizontal plane.	LH	N/A		N/A		N/A
	RH	No		Yes		
Diameter of the bar (mm)	LH	N/A		N/A		N/A
	RH	5.97	5.97	5.97	6.00	
Inspect if the bars are straight, horizontal and transverse	LH	N/A		N/A		N/A
	RH	Yes		Yes		
Optional Marking: At least one anchorage bar (when deployed for use, if storable anchorages), one guidance fixture, or one seat marking is visible.	LH	N/A		N/A		N/A
	RH	N/A		N/A		
Optional Marking: If guidance fixtures are used, the fixture(s) must be installed.	LH	N/A		N/A		N/A
	RH	N/A		N/A		
Measure the distance between Point "Z" of the CRF and the center of the anchorage bar (mm)	LH	N/A		N/A		N/A
	RH	65		20		
Measure the distance between the SRP to the center of the anchorage bar (mm)	LH	N/A		N/A		N/A
	RH	179		N/A		

Table 4. Child Restraint Lower Anchorage Configuration (continued)

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION					
		FRONT ROW		SECOND ROW		THIRD ROW
		I/B	O/B	I/B	O/B	
Inspect if the centroidal longitudinal axes are collinear within 5 degrees	LH	N/A		N/A		N/A
	RH	Yes		Yes		
Inspect if the inside surface of the bar that is straight and horizontal section of the bars, and determine they are not less than 25 mm, but not more than 60 mm in length (mm).	LH	N/A		N/A		N/A
	RH	31.8	31.8	36.6	36.6	
Inspect if the bars can be connected to, over their entire inside length by the connectors of child restraint system.	LH	N/A		N/A		N/A
	RH	Yes		Yes		
Measure the distance between the center of the length of one bar to the center of the length of the other bar. The requirement is 280 mm ± 1 mm (mm).	LH	N/A		N/A		N/A
	RH	280		280		
Inspect if the bars are an integral and permanent part of the vehicle.	LH	N/A		N/A		N/A
	RH	Yes		Yes		
Inspect if the bars are rigidly attached to the vehicle. If feasible, hold the bar firmly with two fingers and gently pull.	LH	N/A		N/A		N/A
	RH	Yes		Yes		

REMARKS: The 2005 Toyota Tacoma, NHTSA No. C55106, has an airbag on/off switch meeting the requirements of S4.5.4 of Standard No. 208 (§571.208).

PITCH, YAW, & ROLL INFORMATION

SEAT POSITION	PITCH (deg)	YAW (deg)	ROLL (deg)
1st Row Right	15.0	No Data	0.2
2nd Row Right	0.8	No Data	0.0

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225-01.

REMARKS: The required pitch for the 2nd row right seating position is 15° ± 10°.

Table 5. Tether Location and Dimensional Measurements

SEAT POSITION FOR TETHER		TETHER ANCHORAGE LOCATION Located in the required zone?
Front Row	LH	N/A
	RH	Yes
Second Row	LH	N/A
	RH	Yes
Third Row		N/A

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225-01.

REMARKS: NONE

Table 6. Tether Anchorage Static Loading and Displacement

SEAT POSITION		Seat, Seat Back, & Head Restraint Positions			Type of SFAD Used	Angle (deg)	Initial Location (mm)	Onset Rate (N/sec.)	Force Applied (N)	Max. Load (N)	Final Location (mm)	Horiz. Displ. (mm)
		Seat	Seat Back	Is There a H/R?								
Front Row	LH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RH	Full Rearward	Most Upright	Yes	II	11	N/A	537	15,000	15,229*	N/A	N/A
Second Row	LH	Flip-Over	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RH	Flip-Over	Fixed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Third Row		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: (1) AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225-01.

REMARKS: * Applied force exceeded the force specified in the test procedure.

4.0 PHOTOGRAPHS

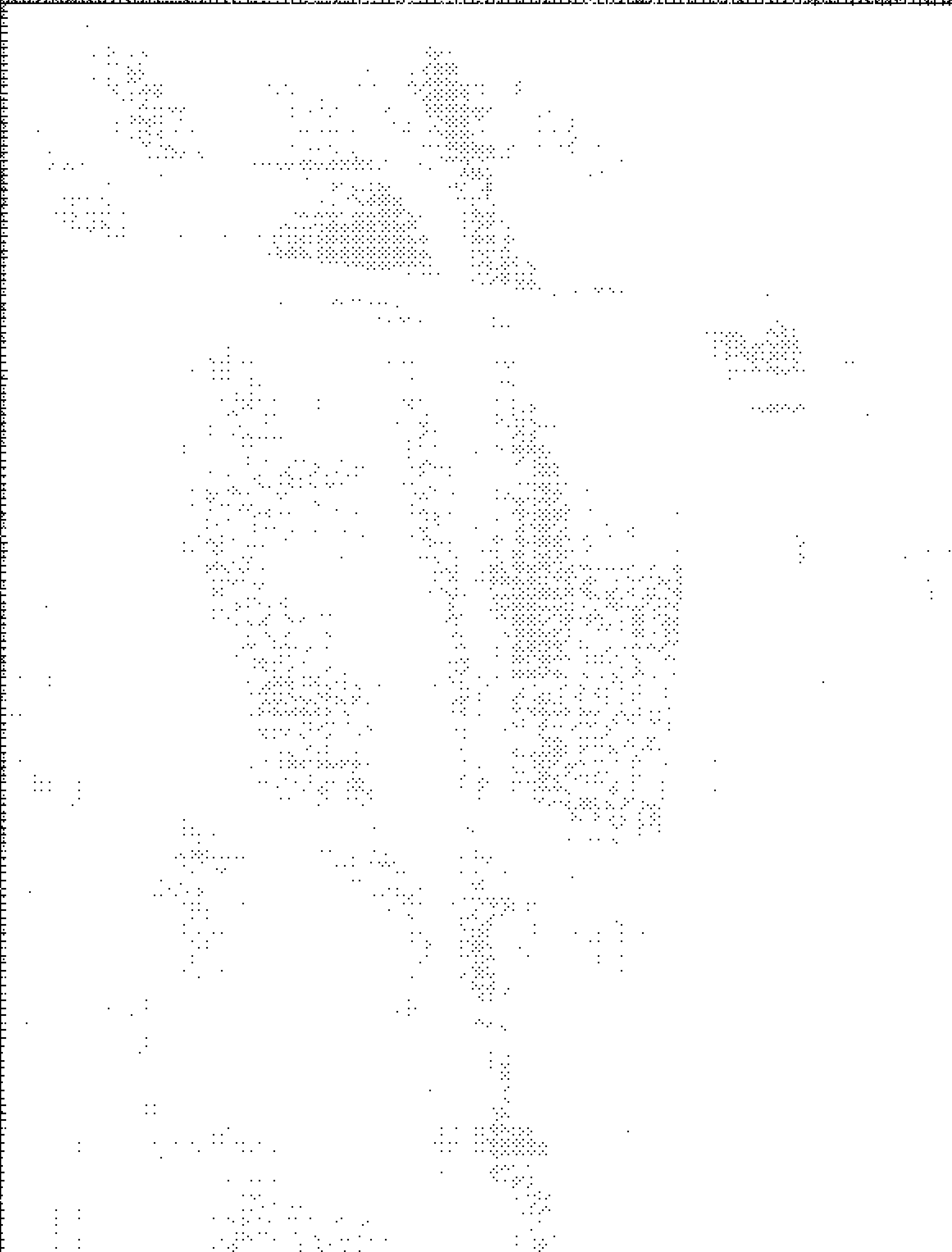
4.1 [illegible]

6.3 Rear View

6.3 ¾ Front left view

6.3 Test vehicle's certification label.

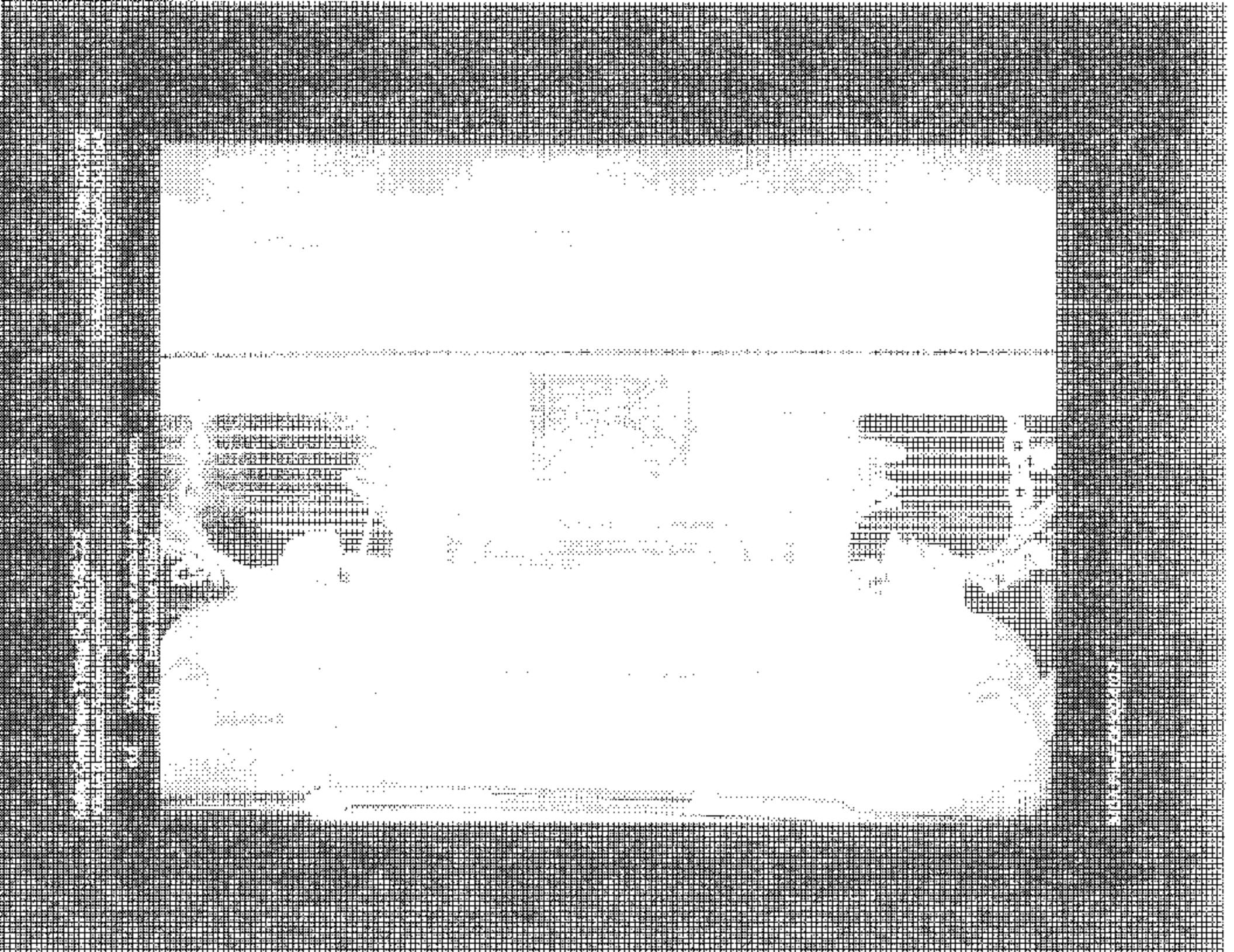
6.3.1 Certification label photo #1



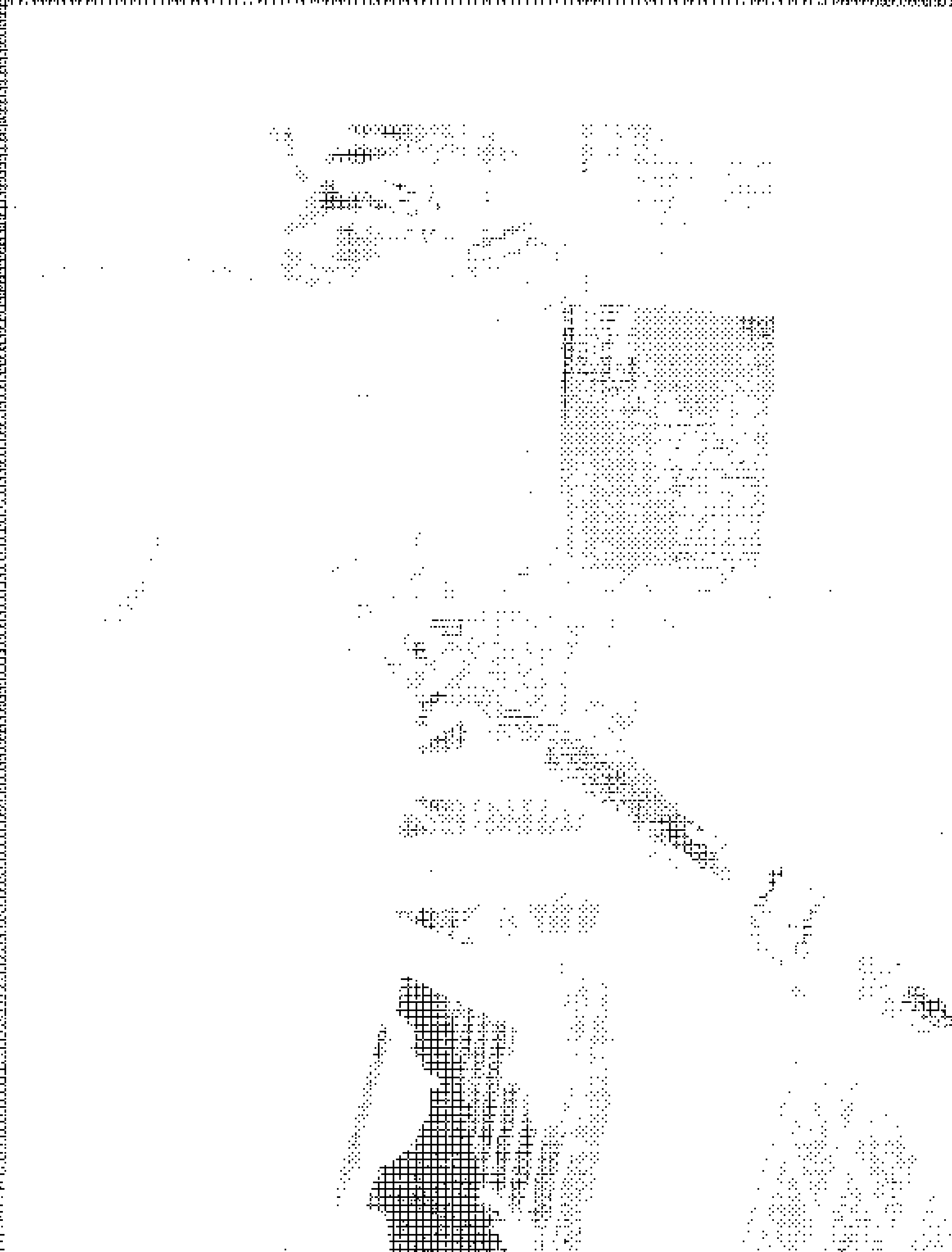
6.5.2 Certification label photo #2

6.5.3 Tire information label photo #1

6.3.4 The information label photo #2

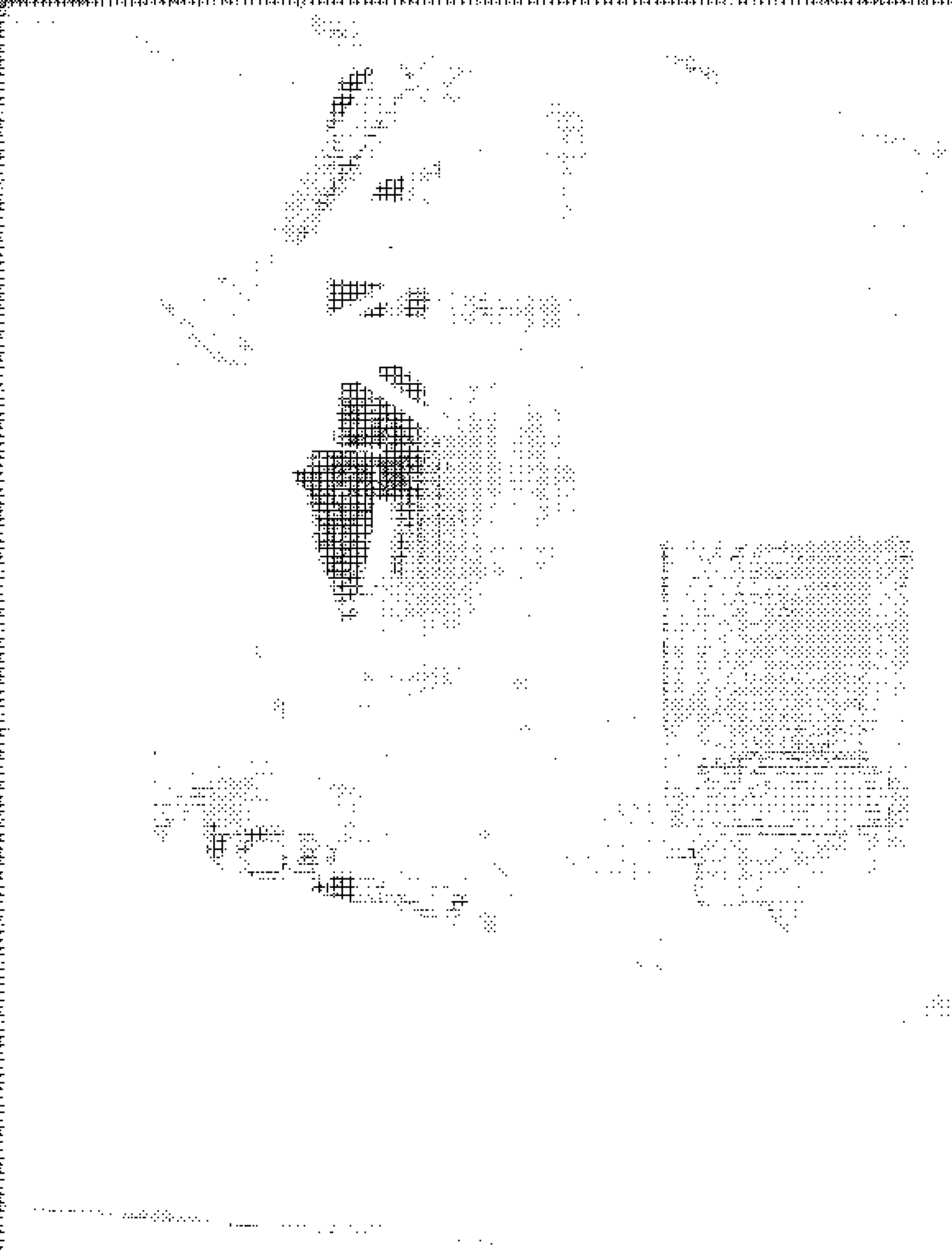


6.4.2 Left front

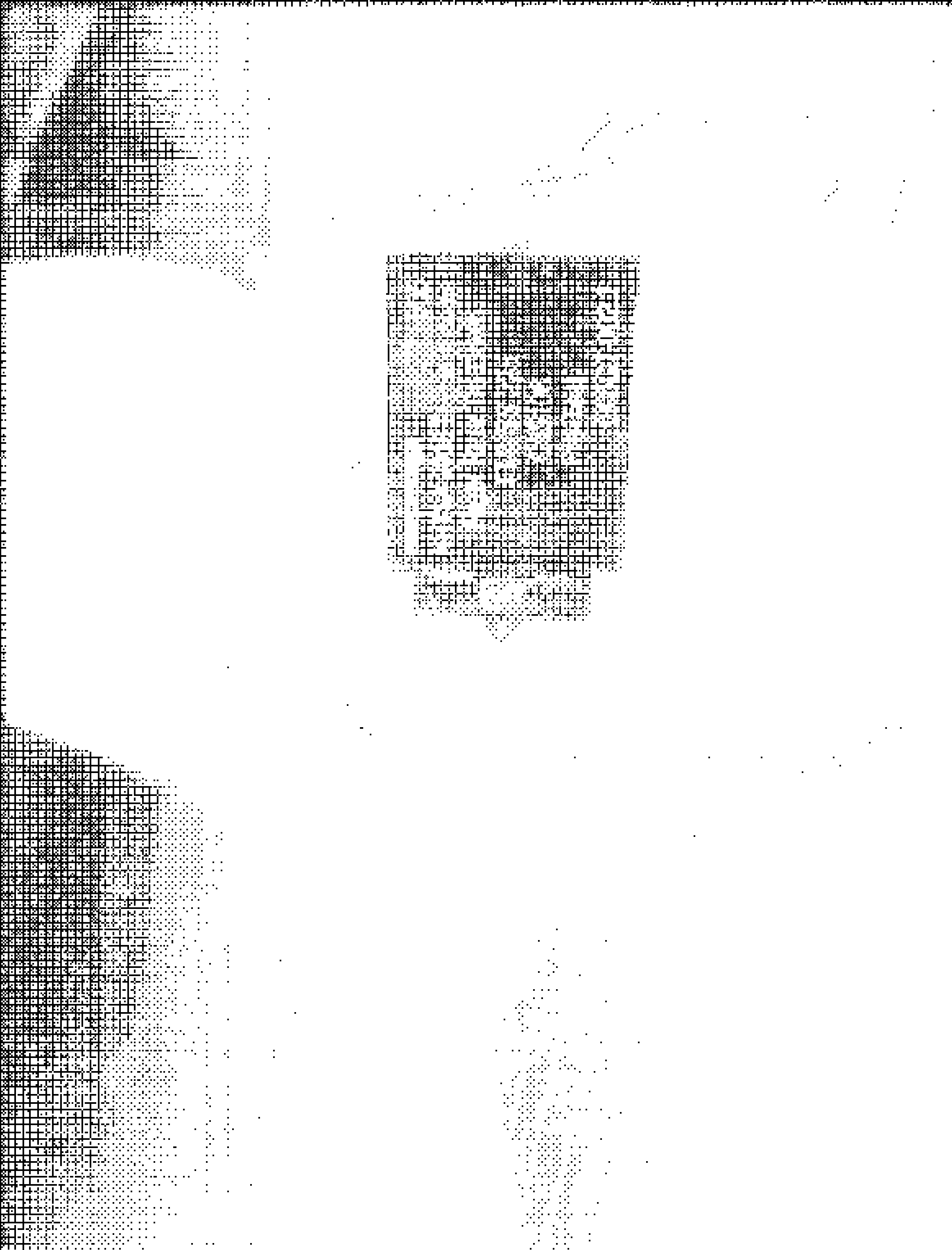


6.6.3 Left rear

6.5.4 Right front

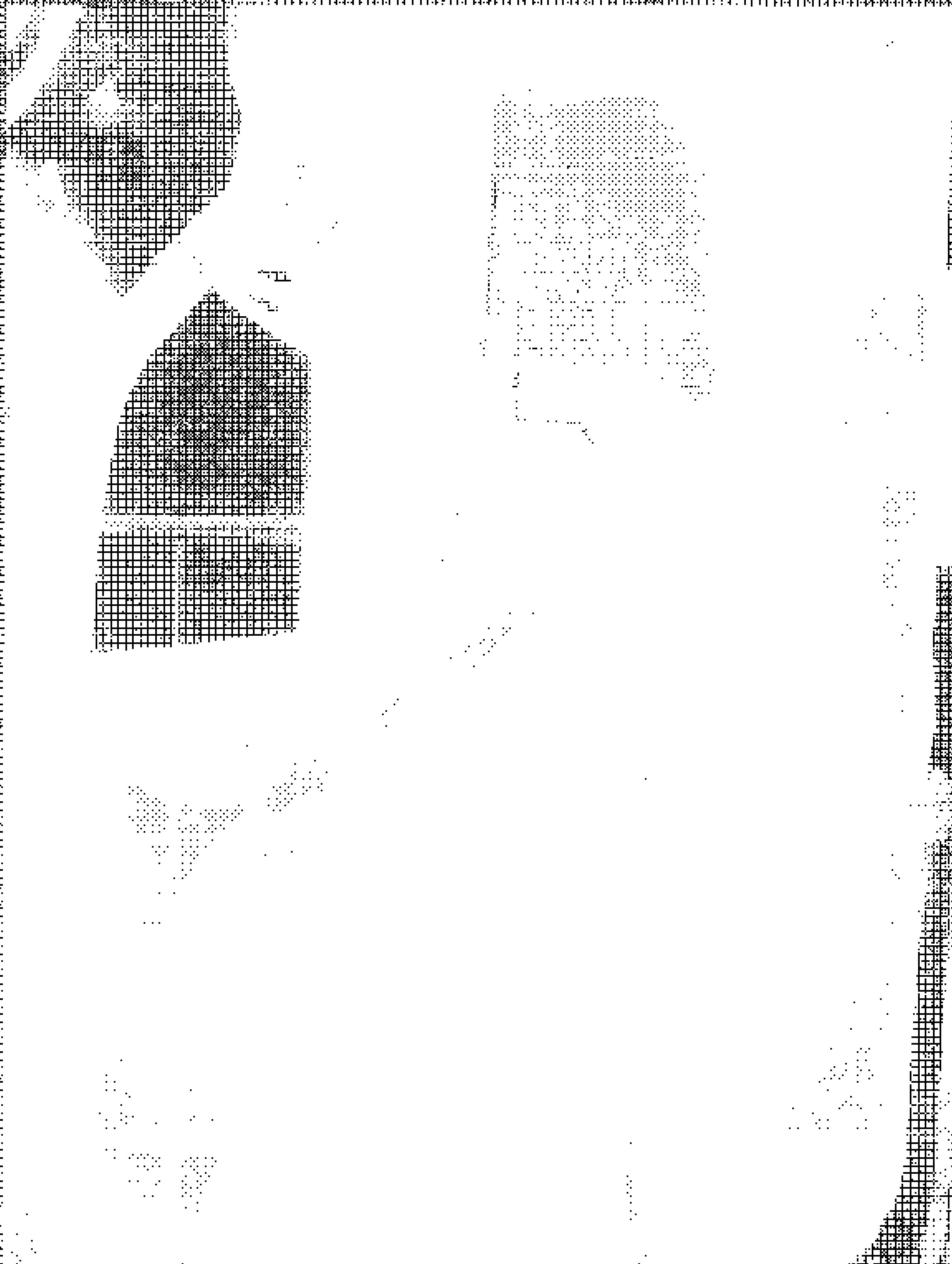


6.6.5 Right rear



6.7 2-dimensional template

6.7.1 Position #1



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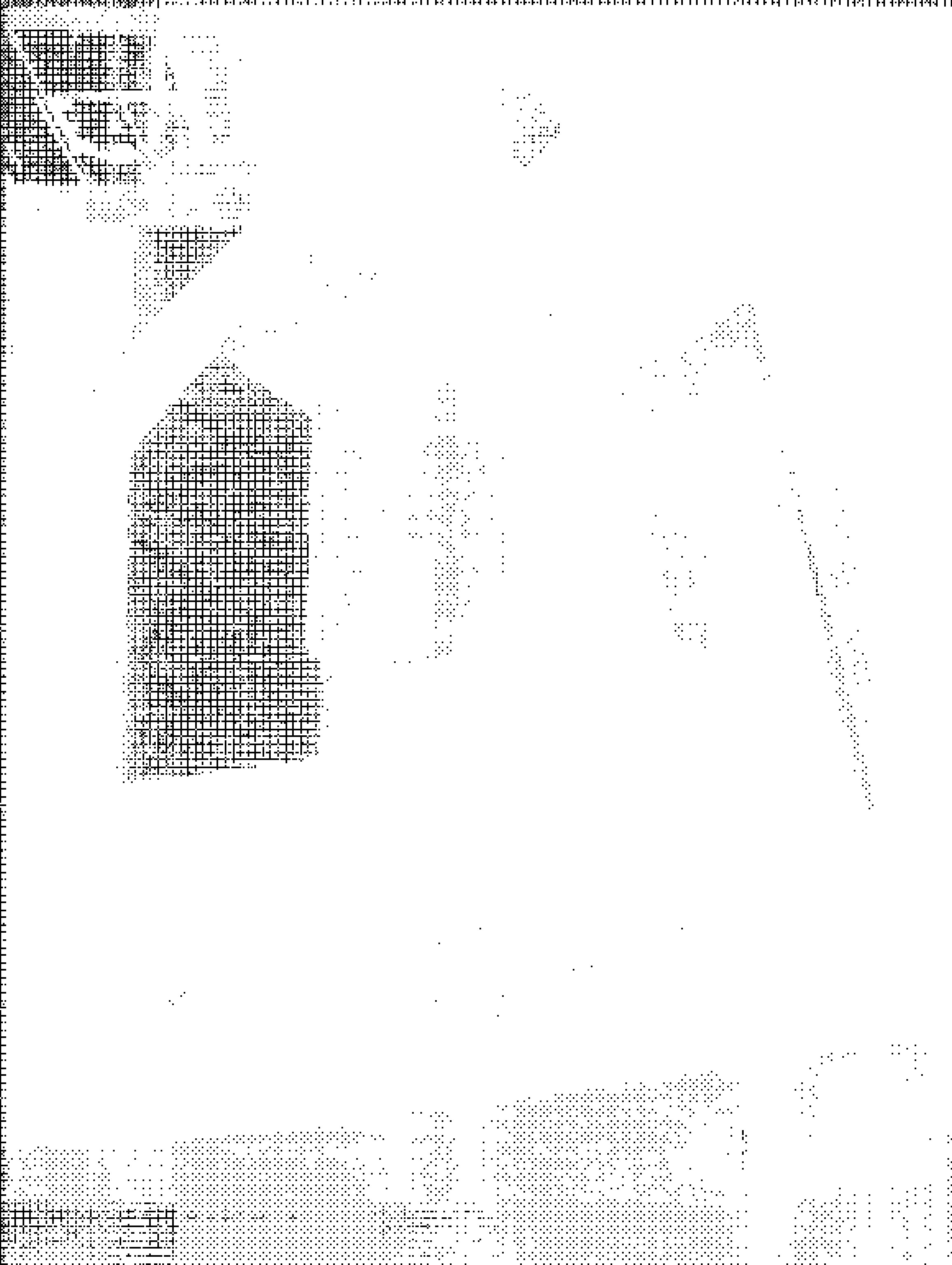
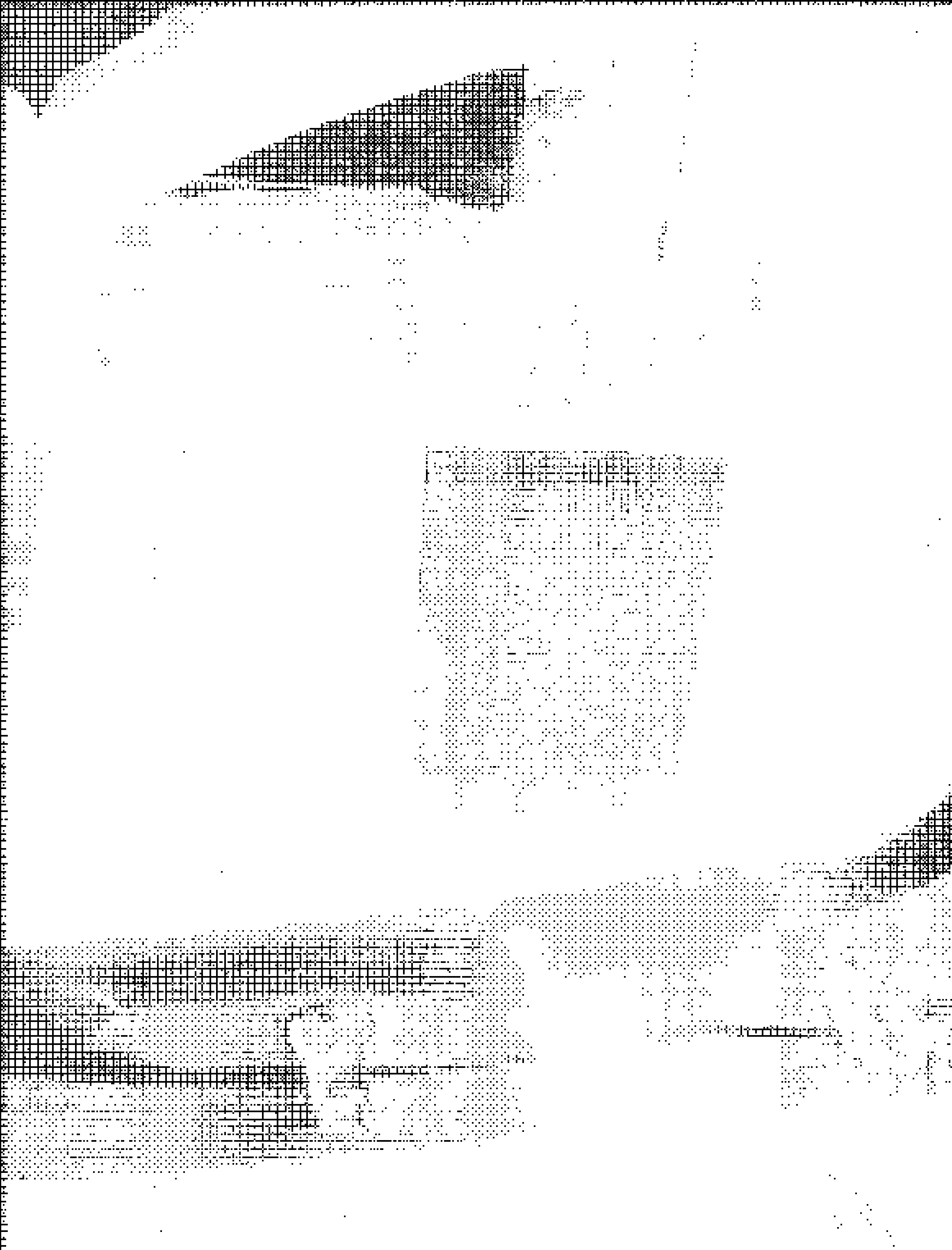


6.1.7 1st row … photo #2

6.3.3 [illegible] row [illegible] photo #3

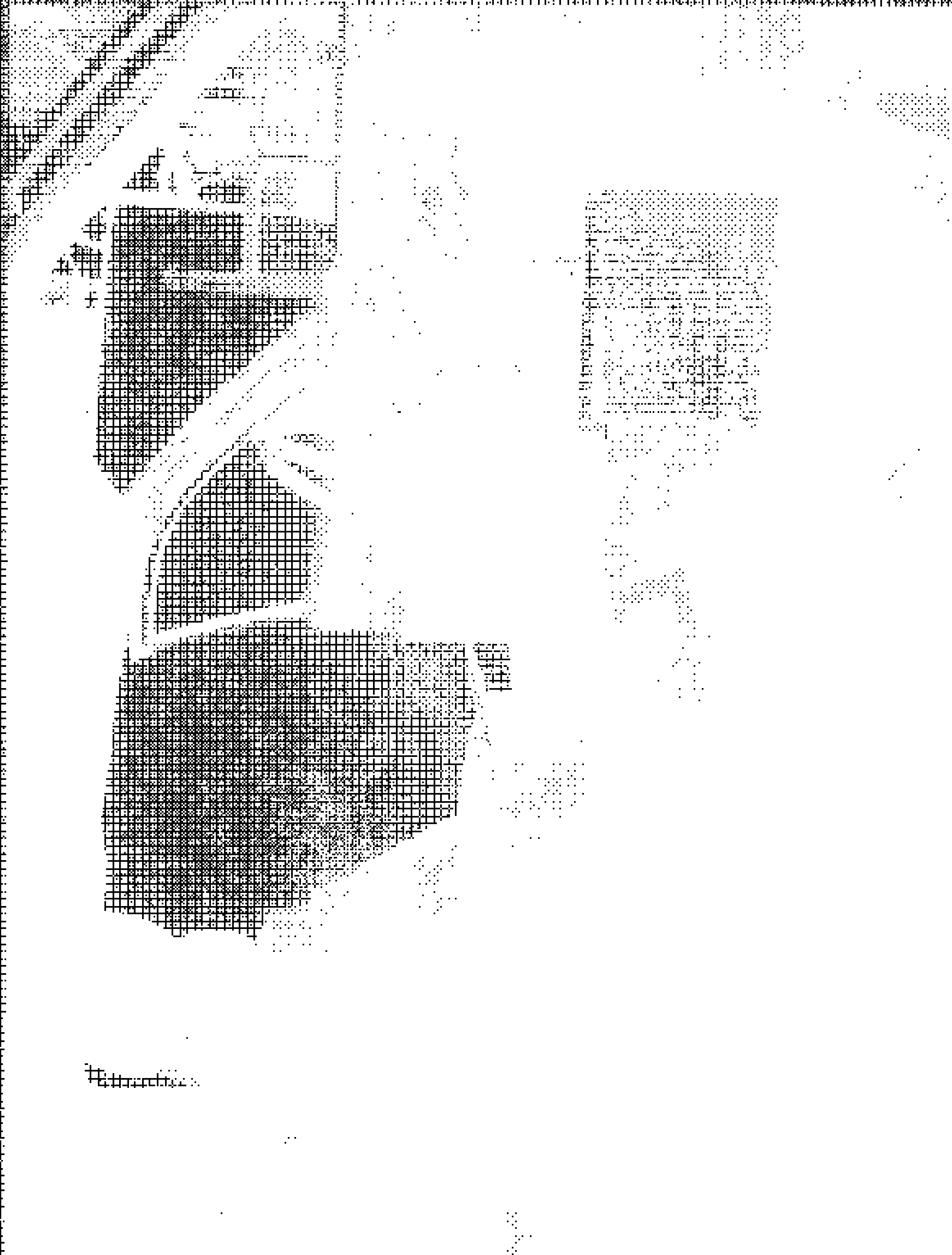
6.8.4 2nd row IEH photo #1



6.8.6 2nd row [illegible] (photo #3)

6.8.2 ¾ Front right view of SEATS

6.30 Pre-test views of each child restraint anchorage system installed on the vehicle



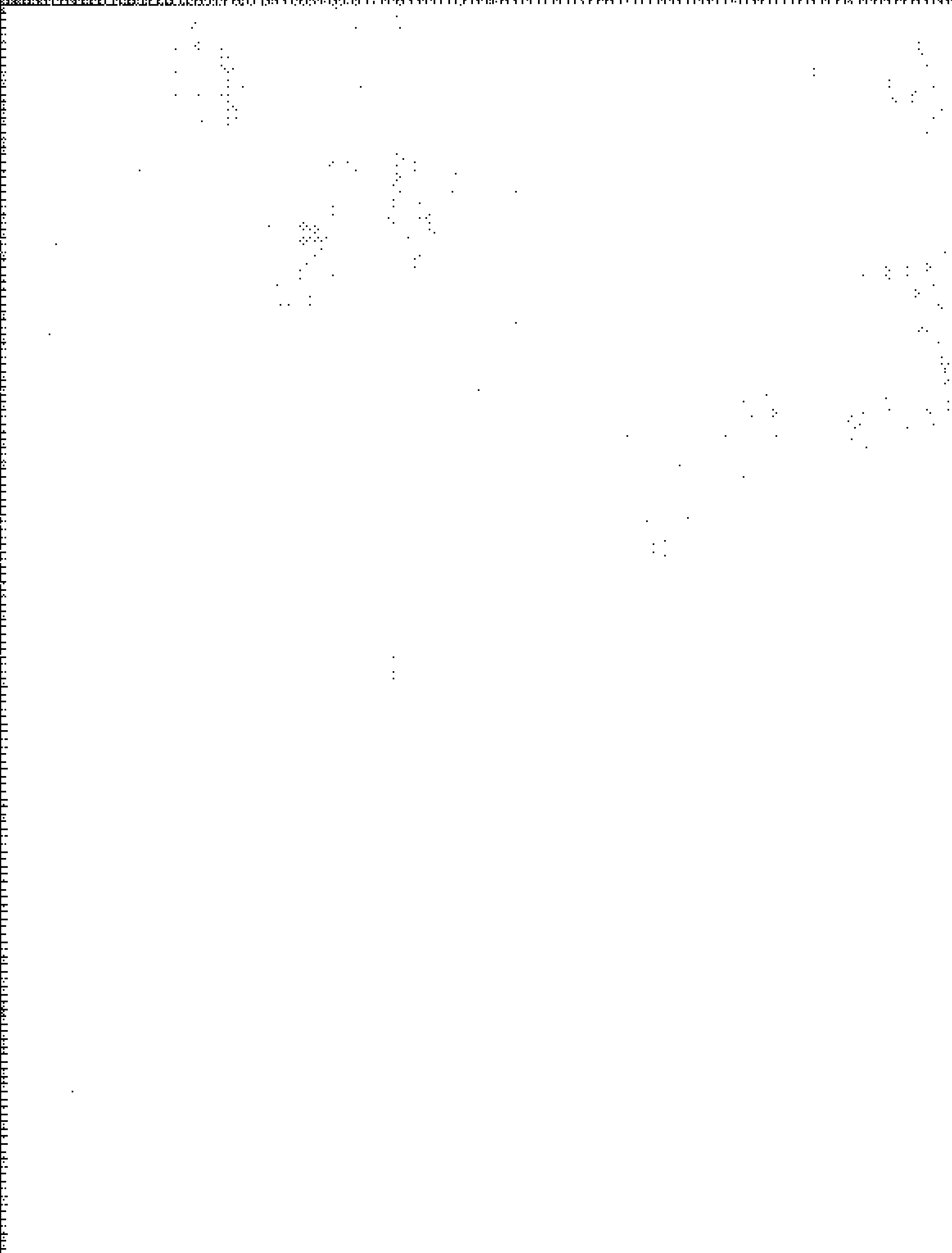
5.10.2 - Pre-test photo #2 of [illegible]

[illegible] Pre-test photo [illegible]

6.1 Post-test condition of each child restraint anchorage system installed in the vehicle

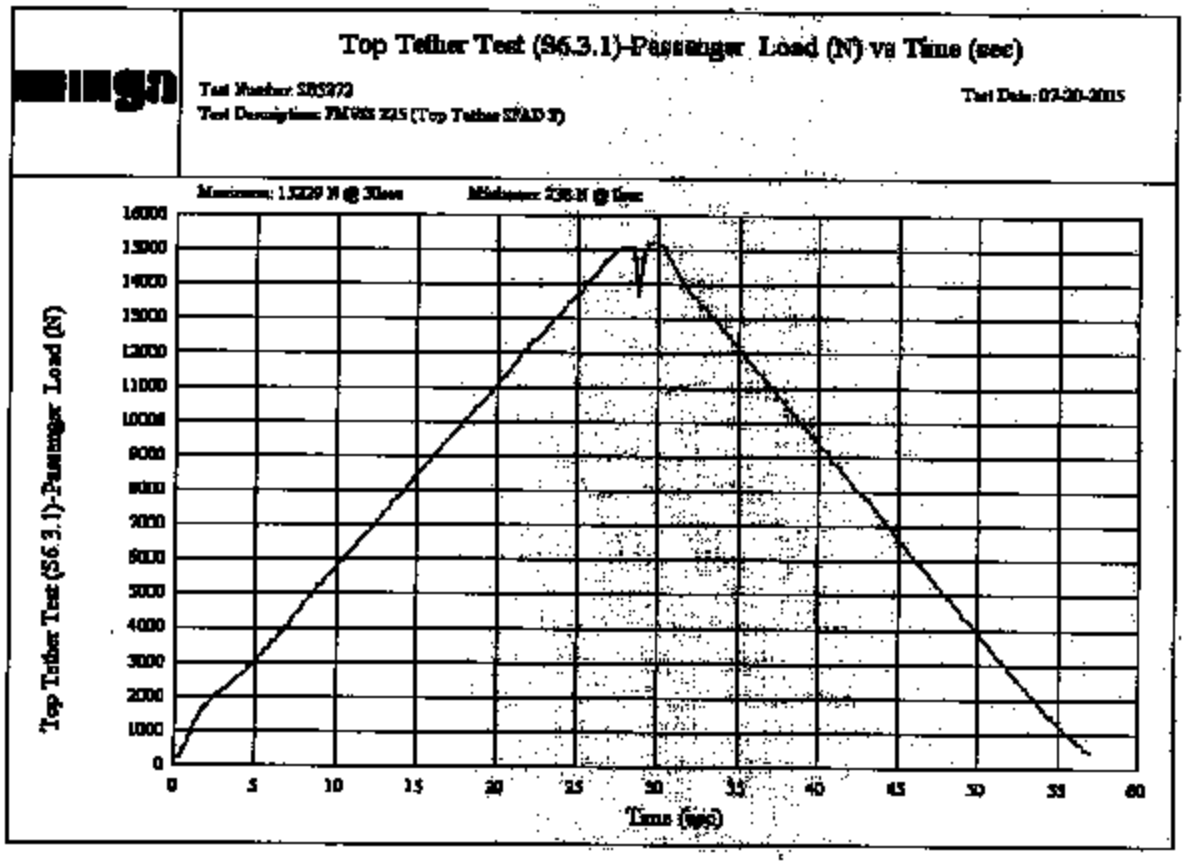
[illegible]

[illegible]



[illegible]

7.0 PLOTS


Top Tether Test (S6.3.1)-Passenger Load (N) vs Time (sec)
Test Date: 07-20-2015
Top Tether Test (S6.3.1)-Passenger Load (N)
Time (sec)

8.0 REPORT of VEHICLE CONDITION

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT No.: DTNH22-02-D-11043 DATE: July 19, 2005

From: MGA Research Corporation, 446 Executive Drive, Troy, MI 48083

To: NHTSA, OVSC, NVS-220

The following vehicle has been subjected to compliance testing for FMVSS No. 201U and 225

The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager (NAD0-30), with a copy to the OVSC COTR. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

VEH. MOD YR/MAKE/MODEL/BODY: 2005 Toyota Tacoma

VEH. NHTSA NO.: C55106 VIN: 5TETX22N55Z034410

COLOR: White

ODOMETER READINGS: ARRIVAL 39 miles Date: 03/17/05

COMPLETION 42 miles Date: 07/19/05

PURCHASE PRICE: $18,000 DEALER'S NAME: LaFontaine Motors, Inc.

ENGINE DATA: 4 Cylinders 2.7 Liters ____ Cubic Inches

TRANSMISSION DATA: ____Automatic X Manual No. of Speeds 5

FINAL DRIVE DATA: X Rear Drive ____ Front Drive ____4 Wheel Drive

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT:

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Melanie Schick, Brad Reaume, Kenney Godfrey

X	Air Conditioning		Traction Control	X	Clock
X	Tinted Glass		All Wheel Drive		Roof Rack
X	Power Steering	X	Speed Control	X	Console
X	Power Windows		Rear Window Defroster	X	Driver Air Bag
X	Power Door Locks		Sun Roof or T-Top	X	Passenger Air Bag
	Power Seat(s)		Tachometer		Front Disc Brakes
X	Power Brakes	X	Tilt Steering Wheel		Rear Disc Brakes
X	Antilock Brake System	X	AM/FM/Compact Disc		Other

REMARKS:

Salvage only.

Equipment that is no longer on the test vehicle as noted on previous pages:

All equipment inventoried and placed in vehicle.

Explanation for equipment removal:

Front seats, windshield, and instrument panel were removed before conducting the test.

Test Vehicle Condition:

Salvage only.

RECORDED BY: Melanie Schick, Kenney Godfrey DATE: July 19, 2005

APPROVED BY: Brad Reaume

8.0 NOTICE OF TEST FAILURE

16. FORMS

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LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.: 225 TEST DATE: 7/19/05

LABORATORY: MGA Research Corporation

CONTRACT NO.: DTNH22-02-D-11043 ; DELV. ORDER NO.: _____

LABORATORY PROJECT ENGINEER'S NAME: Helen Kaiser

TEST VEHICLE MAKE/MODEL/BODY STYLE: 2005 Toyota Tacoma C-Cab Pickup Truck (Access Model)

VEHICLE NHTSA NO.: C55106 VIN: 5TETX22N557Ø34419

VEHICLE MODEL YEAR: 2005 ; BUILD DATE: 01/05

TEST FAILURE DESCRIPTION: When measured with the CRF, the 2nd Row right outboard seating position pitch angle was 0.8°, which does not meet the requirement of 15° ± 10°.

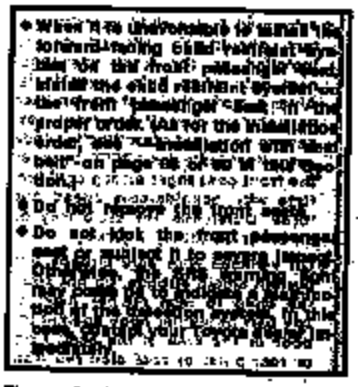
S225 REQUIREMENT, PARAGRAPH S9.2.1

NOTIFICATION TO NHTSA (COTR): Amanda Prescott

DATE: 8/1/05 BY: Melanie Schick

REMARKS:

APPENDIX A
OWNERS MANUAL CHILD RESTRAINT SYSTEMS



The front passenger occupant classification indicator light may indicate "ON" (the front passenger airbag and side airbag on the front passenger seat may deploy) even if observing the above cautions, when a child sits in, or a forward-facing child restraint system is installed on the front passenger seat. Refer to all the cautions in this section and "Child restraint" on page 86.

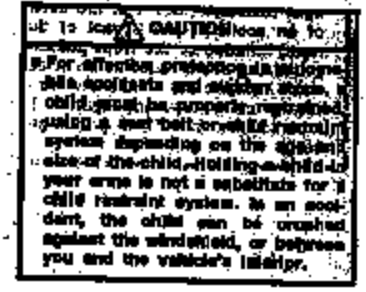
Child restraint—
—Child restraint precautions

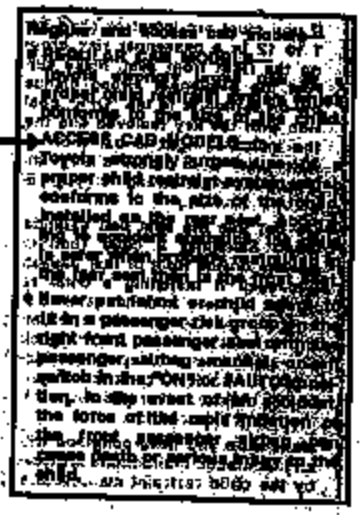
Toyota strongly urges the use of appropriate child restraint systems for children.

The laws of all 50 states in the U.S.A. and Canada now require the use of a child restraint system.

Your vehicle conforms to SAEJ1819.

If a child is too large for a child restraint system, the child should sit in the rear seat and must be restrained using the vehicle's seat belt. See "Seat belts" on page 43 in this section for details.





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- Do not use the seat belt extender when installing a child restraint system on the front of your passenger seat. If installing a child restraint system with the seat belt extender connected to the seat belt, the seat belt will not properly secure the child restraint system, which could cause death or serious injury to the child or other passengers in the event of collision.
- Make sure you have complied with all installation instructions provided by the child restraint manufacturer and that the system is properly secured. If it is not secured properly, it may cause death or serious injury to the child in the event of a sudden stop or accident.

—Child restraint system

A child restraint system for a small child or baby must itself be properly restrained on the seat with the lap portion of the lap/shoulder belt. You must carefully consult the manufacturer's instructions which accompany the child restraint system.

To provide proper restraint, use a child restraint system following the manufacturer's instructions about the appropriate age and size of the child for the child restraint system.

Install the child restraint system correctly following the instructions provided by its manufacturer. General directions are also provided under the following illustrations.

The child restraint system should be installed on the rear seat if your vehicle is equipped with rear seats. According to accident statistics, the child is safer when properly restrained in the rear seat than in the front seat.

When not using the child restraint system, keep it secured with the seat belt or place it somewhere other than the passenger compartment. This will prevent it from injuring passengers in the event of a sudden stop or accident.

—Types of child restraint system

Child restraint systems are classified into the following 3 types depending on the child's age and size.

(A) Infant seat
(B) Convertible seat
(C) Booster seat

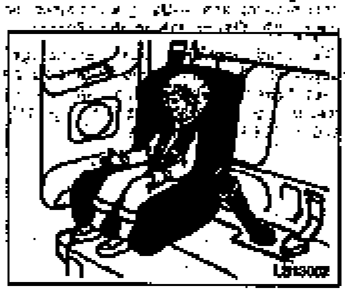
Install the child restraint system following the instructions provided by its manufacturer.

Your vehicle has anchor brackets for securing the top strap of a child restraint system.

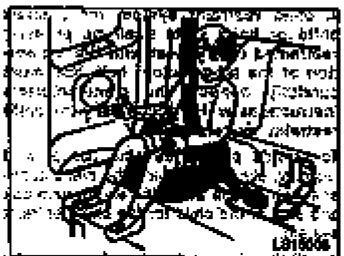
For instructions about how to use the anchor bracket, see "—Using a top strap" on page 109, 112 or 115 in this Section.

The child restraint lower anchorages approved for your vehicle may also be used. See "—Installation with child restraint lower anchorages" on page 117, 120 or 123 in this Section.

(A) Infant seat



(B) Convertible seat

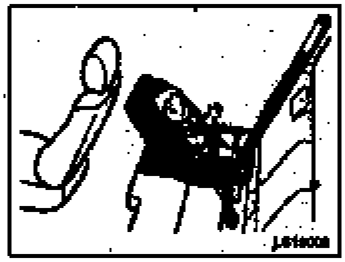


(C) Booster seat

—Installation with seat belt (regular and access cab models)

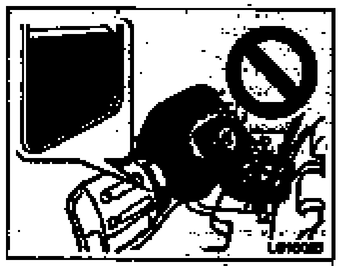
WHEN INSTALLING ON THE REAR SEAT (access cab models)

Flip up the bottom cushion before installing the child restraint system.

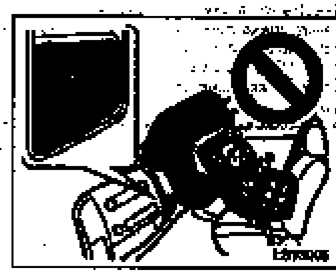


(A) INFANT SEAT INSTALLATION

An infant seat must be used in rear-facing position only.



Bench seat

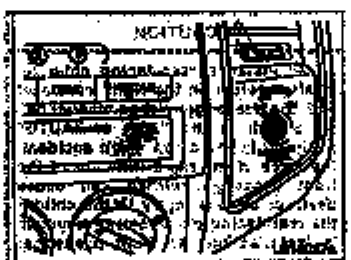


Separate seats

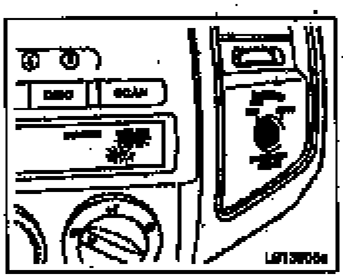
⚠ CAUTION

Never install a rear-facing child restraint system on the right front seat [illegible] the passenger [illegible] in the event of an accident, the force of the rapid inflation of the front passenger airbag can cause death or serious injury to the child if the rear-facing child restraint system is installed on the front passenger seat.

89



Bench seat

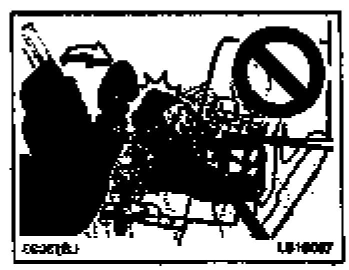


Separate seats

When you install a rear-facing child restraint system which belongs to a [illegible] group on the right front seat, [illegible] passenger [illegible] For details [illegible] on page [illegible] in this [illegible]

The [illegible] comes on when the system [illegible]

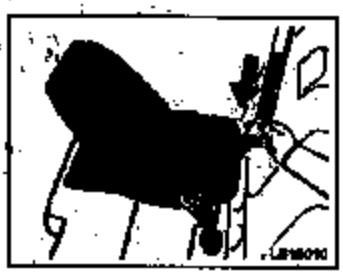
[illegible]



[illegible]

90

1. Run the lap and shoulder belt through or around the infant seat following the instructions provided by its manufacturer and insert the tab into the buckle taking care not to twist the belt. Keep the lap portion of the belt tight.



2. Fully extract the shoulder belt to put it in the lock mode. When the belt is then retracted even slightly, it cannot be extended.

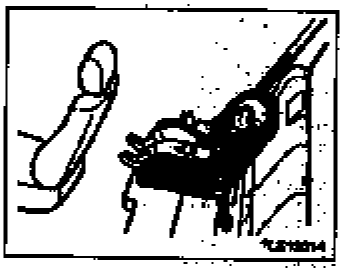
To hold the infant seat securely, make sure the belt is in the lock mode before letting the belt retract.

B1

3. While pressing the infant seat firmly against the seat cushion and seatback, let the shoulder belt retract as far as it will go to hold the infant seat securely.

4. To remove the infant seat, press the buckle release button and allow the belt to retract completely. The belt will move freely again and be ready to secure an adult or older child passenger.

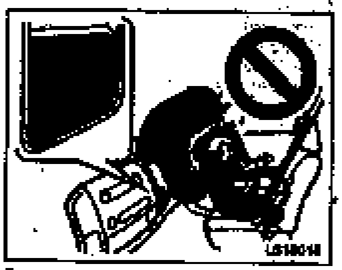
B2



(3) CONVERTIBLE SEAT INSTALLATION

A convertible seat must be used in forward-facing or rear-facing position depending on the age and size of the child. When installing, follow the manufacturer's instruction about the applicable age and size of the child as well as directions for installing the child restraint system.

Bench seat



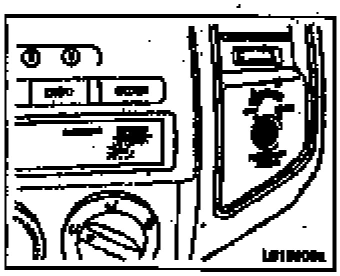
Separate seats

⚠ CAUTION

... death or serious injury to the child ... installed on the front passenger ...

93

Bench seat

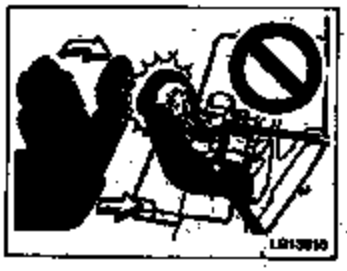


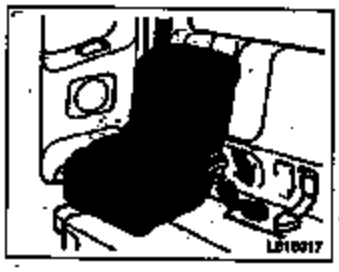
Separate seats

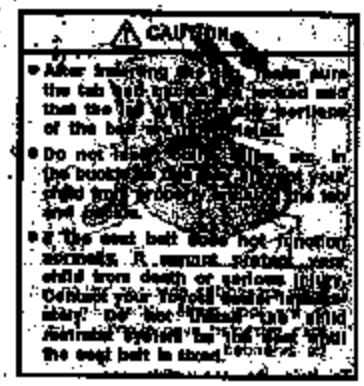
94

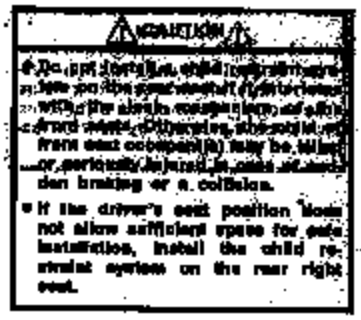
When you install a rear-facing child restraint system which belongs to a passenger ... group on ... turn the passenger airbag ... on ... page ... in this ...

The ... on when the system is off.

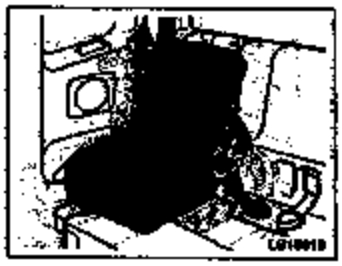


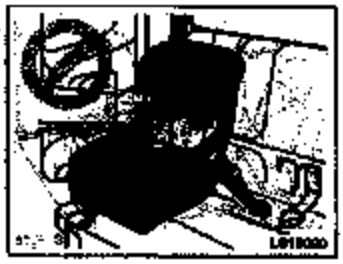




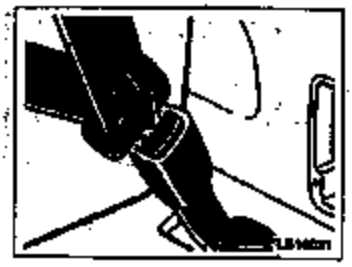


1. Run the lap and shoulder belt through or around the convertible seat following the instructions provided by its manufacturer and insert the tab into the buckle taking care not to twist the belt. Keep the lap portion of the belt tight.





To hold the convertible seat securely, make sure the belt is in the lock mode before letting the belt retract.



4. To remove the convertible seat, press the buckle release button and allow the belt to retract completely. The belt will move freely again and be ready to work for an adult or older child passenger.

(C) BOOSTER SEAT INSTALLATION

A booster seat must be used in forward-facing position only.

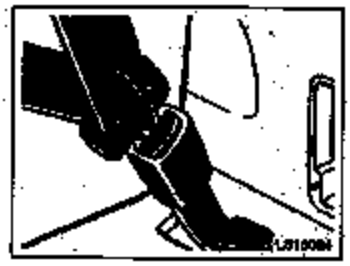
97

1. Sit the child on the booster seat. Run the lap and shoulder belt through or around the booster seat and across the child following the instructions provided by the manufacturer and insert the tab into the buckle taking care not to twist the belt.

Make sure the shoulder belt is correctly across the child's shoulder and that the lap belt is positioned as low as possible on the child's hips. See "Seat belts" on page 43 in this Section for details.

98

—Installation with seat belt (double cab models)

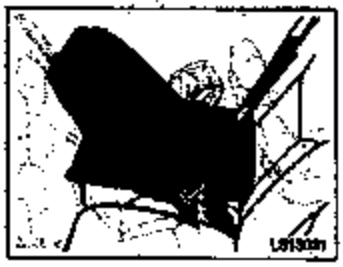


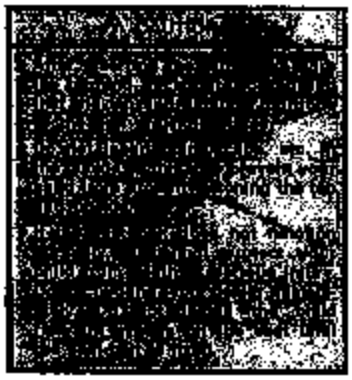
2. To remove the child restraint system, press the buckle release button and allow the belt to retract.

(A) INFANT SEAT INSTALLATION

An infant seat must be used in rear-facing position only.

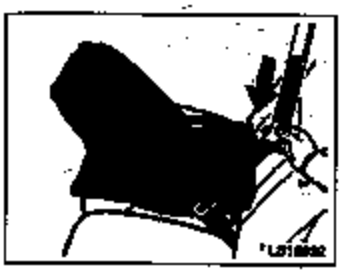
99





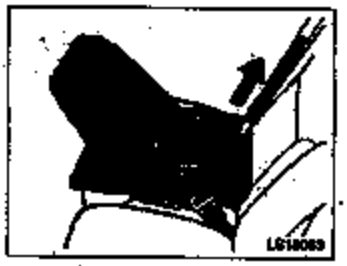
1. Run the lap belt portion of the belt through or around the infant seat following the instructions provided by its manufacturer and insert the tab into the buckle taking care not to twist the belt. Keep the lap portion of the belt tight.

100

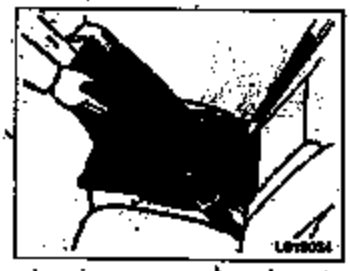


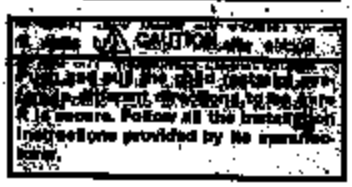
2. Fully extend the shoulder belt to put it in the lock mode. When the belt is then retracted even slightly, it cannot be extended.

To hold the infant seat securely, make sure the belt is in the lock mode before letting the belt retract.

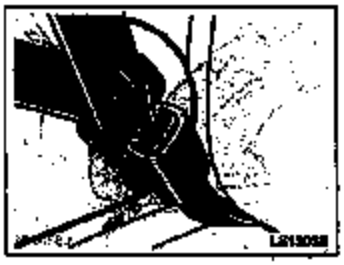


3. While pressing the infant seat firmly against the seat cushion and seatback, let the shoulder belt retract as far as it will go to hold the infant seat securely.





101



4. To remove the infant seat, press the buckle release button and allow the belt to retract completely. The belt will move freely again and be ready to [illegible] for an adult or older child passenger.

(B) CONVERTIBLE SEAT INSTALLATION

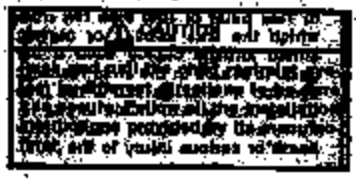
A convertible seat may be used in forward-facing or rear-facing positions, depending on the age and size of the child. When installing, follow the manufacturer's instructions about the applicable age and size of the child as well as directions for installing the child restraint system.

Install the child restraint system on the front passenger seat only when it is unavoidable. Your vehicle is equipped with a front passenger occupant classification system. In order to activate the [illegible] system properly, install the forward-facing child restraint system on the front passenger seat in the following order:

1. Turn the ignition key to the "ON" position.
2. Move the front passenger seat to the rearward position.
3. Put the child restraint system on the front passenger seat without putting your weight on the front passenger seat.
4. Insert the seat belt tab into the seat belt buckle.
5. Fully extend the shoulder belt to put it in the lock mode. When the belt is then retracted even slightly, it cannot be extended. To hold the seat securely, make sure the belt is in the lock mode before letting the belt retract.

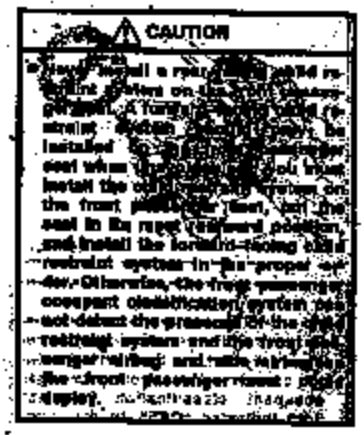
102

6. While pressing the convertible seat firmly against the seat cushion and seatback, let the shoulder belt retract as far as it will go to hold the convertible seat securely.



7. Put a child on the child restraint system and secure the child, complying with the instructions provided by the child restraint system manufacturer.

The front passenger occupant classification indicator light should indicate "OFF" when the ignition key is in the "ON" position and the child is in the child restraint system after following these procedures. The "OFF" indicator indicates the SRS front passenger airbag and side airbag on the passenger side will not deploy. If the indicator light indicates "ON", remove the child restraint system and reinstall it with the ignition key in the "ACC" or "LOCK" position. If the indicator light still indicates "ON" when the ignition key is turned to the "ON" position, then the SRS front passenger airbag and side airbag on the passenger side may deploy in an accident. Do not drive the vehicle in this condition. Remove the child restraint system and contact your Toyota dealer.



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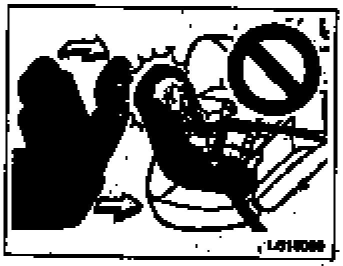
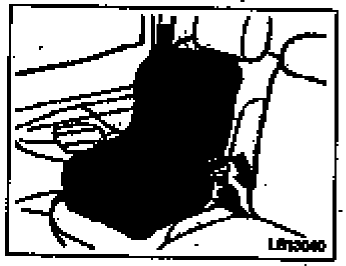
104



- Do not install a child restraint [illegible] ... [illegible] braking or a collision. [illegible] does not allow sufficient space for safe installation, install the child restraint system on the rear right seat. Child restraint system installed on the rear seat should not contact the front seatbacks.



1. Run the lap and shoulder belt through or around the convertible seat following the instructions provided by its manufacturer and insert the tab into the buckle taking care not to twist the belt. Keep the lap portion of the belt tight.

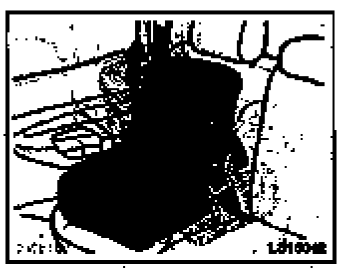
⚠ CAUTION

- After inserting [illegible] sure the tab [illegible] locked and that the [illegible] portion of the belt [illegible].
- Do not [illegible] etc. in the buckle [illegible] your child [illegible] tab and buckle.
- If the seat belt [illegible] function normally, it cannot protect your child from death or serious injury. [illegible] restraint system [illegible] the seat belt is fixed.

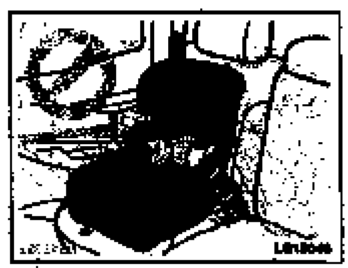
105

2. Fully extend the shoulder belt to put it in the lock mode. When the belt is then retracted even slightly, it cannot be extended.

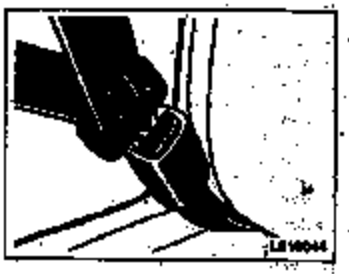
To hold the convertible seat securely, make sure the belt is in the lock mode before letting the belt retract.



3. While pressing the convertible seat firmly against the seat cushion and seatback, let the shoulder belt retract as far as it will go to hold the convertible seat securely.



[illegible]



4. To remove the convertible seat, press the buckle release button and allow the belt to retract completely. The belt will move freely again and be ready to work for an adult or older child passenger.

(C) BOOSTER SEAT INSTALLATION

A booster seat must be used in forward-facing position only.

⚠ CAUTION

- A forward-facing child restraint system should be allowed to be installed on the front passenger seat only when it is unoccupied. Always move the seat as far back as possible, because the front passenger airbag could inflate with considerable speed and force. Otherwise, the child may be killed or seriously injured.

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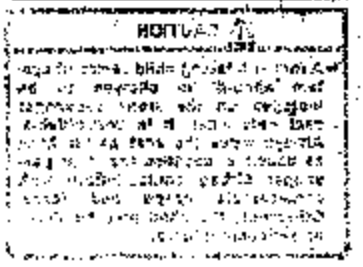
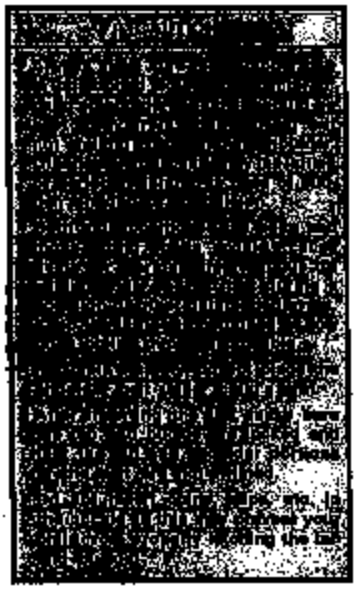
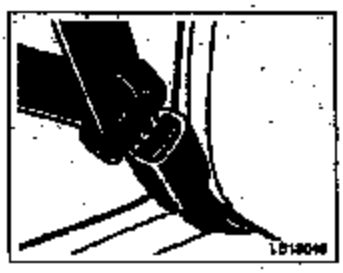


1. Sit the child on a booster seat, run the lap and shoulder belt through or around the booster seat and secure the child following the instructions provided by its manufacturer and insert the tab into the buckle taking care not to twist the belt.

Make sure the shoulder belt is correctly across the child's shoulder and that the lap belt is positioned as low as possible on the child's hips. See "Seat belts" in this Section for details.

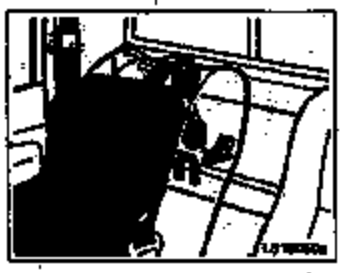


108



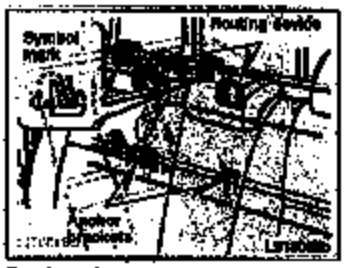
2. To remove the child restraint system, press the buckle release button and allow the belt to retract.

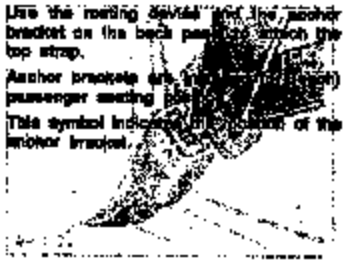
—Using a top strap (regular cab models)



Follow the procedure below for a child restraint system that requires the use of a top strap.

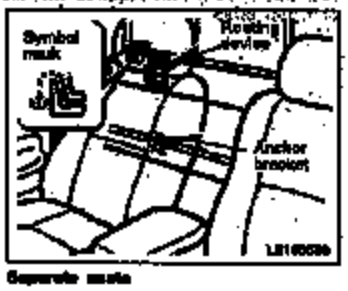
109



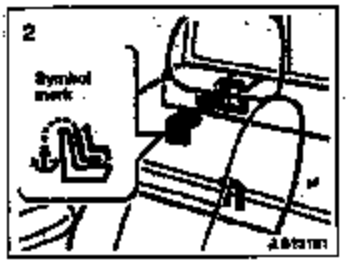


TO USE THE ANCHOR BRACKET:

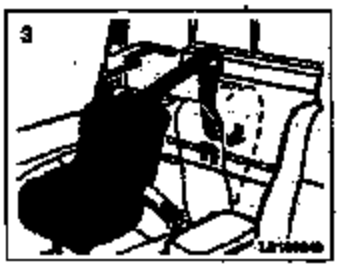
1. Remove the passenger head restraint.



110



2. Lightly push down on the top surface of the routing device cover with the symbol mark shown in the illustration, then pull it forward to remove.

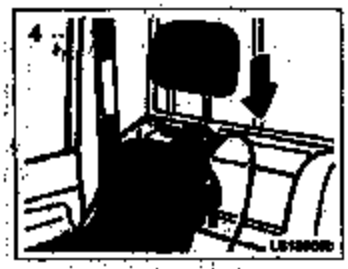


3. Pull the seatback release lever and swing the seatback forward slightly.

Route the top strap through the routing device as shown in the illustration.

Latch the hook onto the anchor bracket.

Restore the seatback to upright position.



4. Fix the child restraint system with the seat belt and tighten the top strap.

Replace the passenger seat restraint.

Store the removed cover in a safe place such as the glove box.

Be sure to replace the cover when the anchor bracket is not in use.

For instructions on installing the child restraint system, see "Child restraint" on page 86 in this Section.

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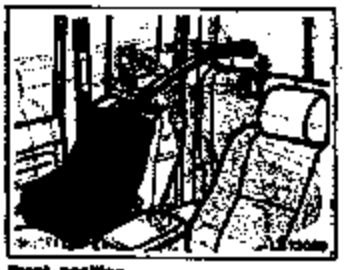
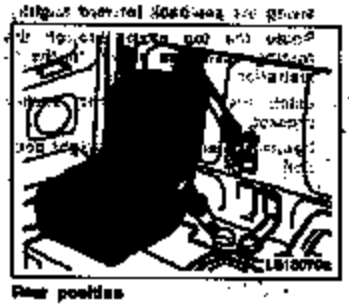
—Using a top strap (access cab models)



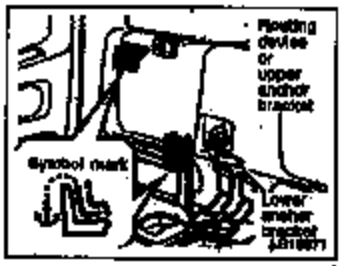
Front position



Rear position

Follow the procedure below for a child restraint system that requires the use of a top strap.

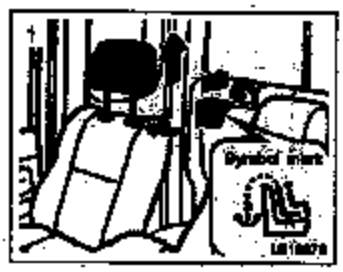
112



Use the routing device and the anchor bracket to attach the top strap.

Upper anchor bracket is installed for front passenger's seating position, lower anchor bracket is installed for right-rear seating position.

This symbol indicates the locations of user ready anchor bracket.



TO USE THE ANCHOR BRACKET:

Front position—

1. Remove the passenger head restraint.

   Lightly push down on the top surface of the anchor bracket cover with the symbol mark shown in the illustration, then pull it forward to remove.

2. Fix the child restraint system with the seat belt.

   Latch the hook onto the anchor bracket on the back panel and tighten the top strap.

For instructions on installing the child restraint system, see "Child restraint" on page 65 in this section.

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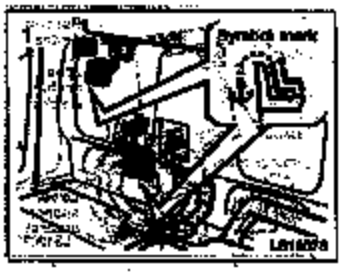
4. Replace the head restraint.

Store the removed cover in a safe place such as the glove box.

Be sure to replace the cover when the anchor bracket is not in use.



Rear position—

1. Upper anchor bracket

   Lightly push down on the top surface of the upper anchor bracket cover with the symbol mark shown in the illustration, then pull it forward to remove.

   Lower anchor bracket

   Pull up the lower anchor bracket.

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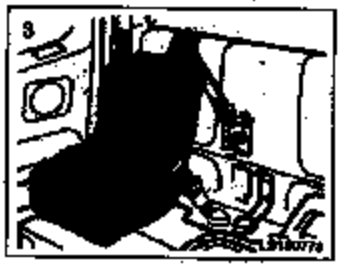
2. Fix the child restraint system with the seat belt.

   Route the top strap through the routing device as shown in the illustration.

For instructions on installing the child restraint system, see "Child restraint" on page 86 in this Section.

⚠ CAUTION

Make sure the top strap is not twisted.



3. Latch the hook onto the rear lower anchor bracket and tighten the top strap.

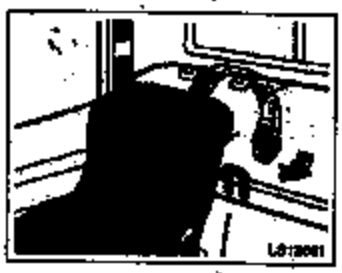
Store the removed covers in a safe place such as the glove box.

Be sure to replace the covers when the anchor bracket is not in use.

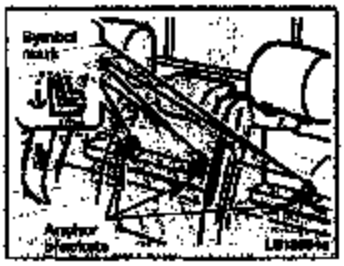
⚠ CAUTION

Make sure the top strap is correctly attached, and check that the child restraint system is stable by shaking and pulling it in different directions. Follow all the installation instructions provided by its manufacturer.

—Using a top strap (double cab models)



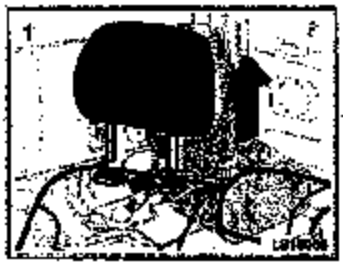
Follow the procedure below for a child restraint system that requires the use of a top strap.



Use the anchor bracket on the back panel to attach the top strap.

Anchor brackets are installed for each rear seating position.

This symbol indicates the location of the anchor bracket.

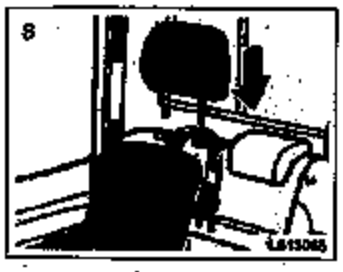


TO USE THE ANCHOR BRACKET:

1. Remove the head restraint.

2. Pull the shoulder belt strap and swing the seatback forward slightly, then latch the hook onto the anchor bracket.

   Return the seatback to its original position.

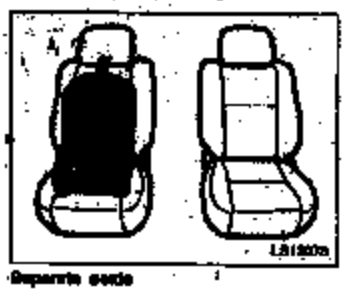


3. Fit the child restraint system with the seat belt and tighten the top strap.

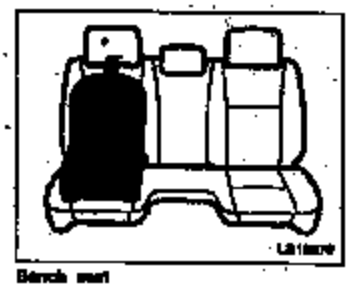
Replace the head restraint.

For instructions on installing the child restraint system, see "Child restraint" on page 95 in this Section.

—Installation with child restraint lower anchorages (regular cab models)



Separate seats



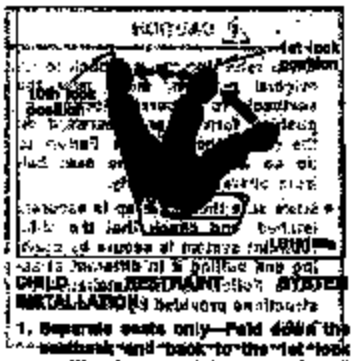
Bench seat

117

Lower anchorages for the child restraint systems complying with the FMVSS225 or CMVSS225 specifications are installed in the right passenger's seating position.

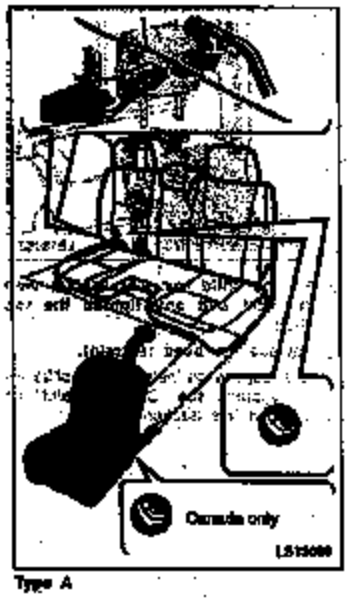
The anchorages are located in the gap between the seat cushion and seatback of the right side of the seat as shown in the illustration.

Child restraint systems complying with the FMVSS210 or CMVSS210 specification can be fixed to these anchorages. In this case, it is not necessary to fix the child restraint system with a seat belt on the vehicle.



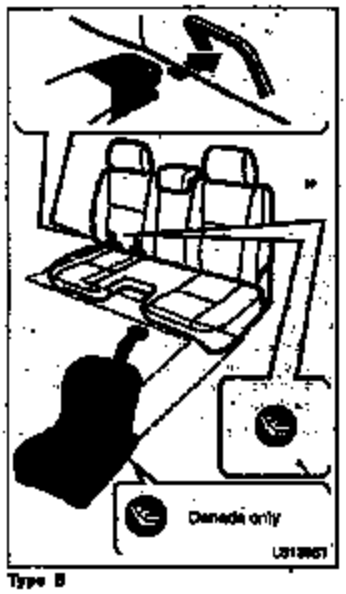
1. Separate seats only—Fold down the seatback and back to the 1st lock position (most upright position) until it locks into place. Adjust the seatback to the 10th lock position.

Make sure the seatback is locked securely.



Type A

118



Type B

2. Widen the gap between the seat cushion and seatback slightly and confirm the position of the lower anchorages near the buttons on the seatback.
3. Type A—Latch the hooks of lower straps onto the anchorages and tighten the lower straps.

   Type B—Latch the buckles onto the anchorages.

For owners in Canada—The symbol on a child restraint system indicates the presence of a lower connector system.

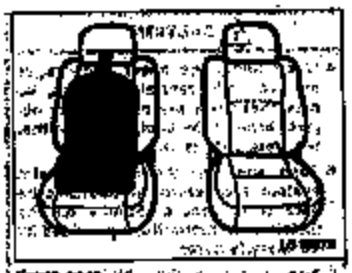
If your child restraint system has a top strap, it should be anchored. (For the installation of the top strap, see "—Using a top strap" on page 109 in this Section.)

For installation details, refer to the instruction manual equipped with each product.

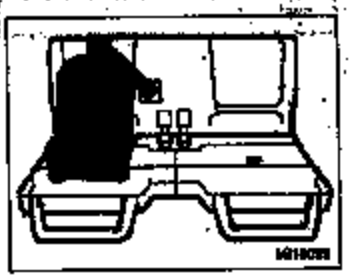
CAUTION

- When using the lower anchorages for the child restraint system, be sure that there are no [illegible] objects around the child restraint system so that the seat belt is not [illegible].
- Push and pull the child restraint system in different directions to be sure it is secure. Follow all the installation instructions provided by the manufacturer.
- After securing the child restraint system, never slide or recline the seat.

—Installation with child restraint lower anchorages (access cab models)



Front seat



Rear seat

Lower anchorages for the child restraint systems complying with the FMVSS225 or CMVSS210.2 specifications are installed in the seat.

Front seat—

The anchorages are installed in the gap between the seat cushion and seatback of the seat as shown in the illustration.

Rear seat—

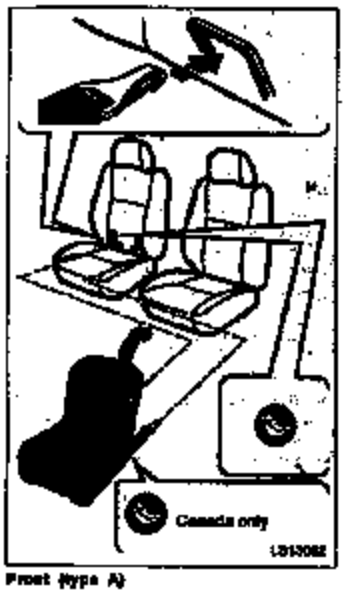
The anchorages are located at the base of the seatback as shown in the illustration.

Child restraint systems complying with the FMVSS225 or CMVSS210 specifications can be fixed to these anchorages. In this case, it is not necessary to fix the child restraint system with a seat belt on the vehicle.

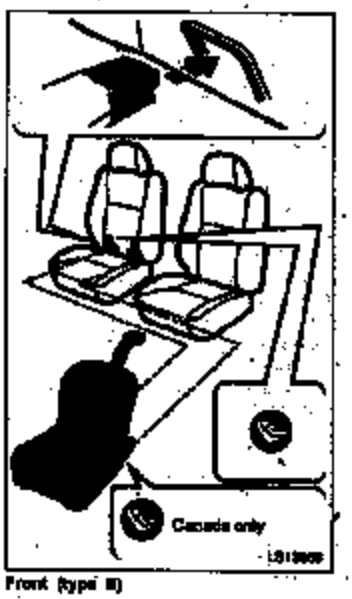
CHILD RESTRAINT SYSTEM INSTALLATION

1. Front seat—Fold down the front seat cushion and back to the 1st lock position (most upright position) until it locks into place. Adjust the seatback to the 10th lock position.

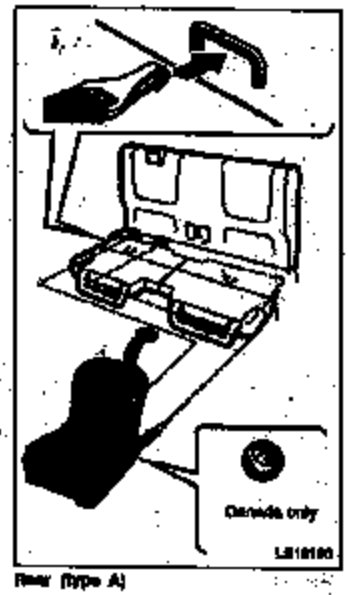
Make sure the seatback is locked securely.



Front (type A)

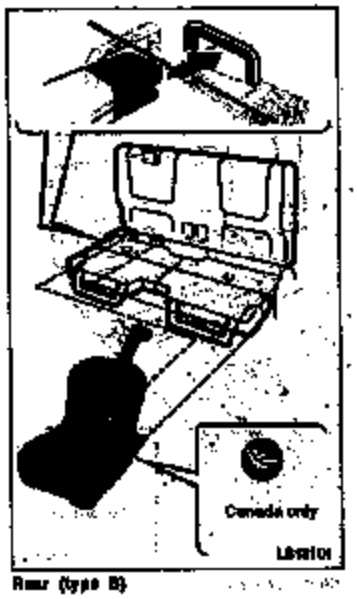


Front (type B)



Rear (type A)

121



Rear (type B)

Front seat—

2. Widen the gap between the seat cushion and backrest slightly and centre the position of the lower anchorages. Near the junction on the seatbelt.

2. Type A—Latch the hooks of lower straps onto the anchorages and tighten the lower straps.

Type B—Latch the buckles onto the anchorages.

Rear seat—

Type A—Latch the hooks of lower straps onto the anchorages and tighten the lower straps.

Type B—Latch the buckles onto the anchorages.

For owners in Canada—The symbol on a child restraint system indicates the presence of a lower connector system.

If your child restraint system has a top strap, it should be anchored. (For the installation of the top strap, see "—Using a top strap" on page 118 in this Section.)

For installation details, refer to the instruction manual supplied with your product.

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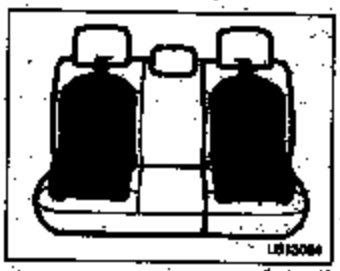
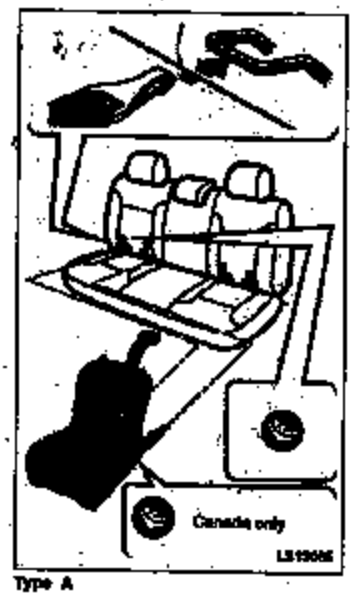
—Installation with child restraint lower anchorages (double cab models)



Lower anchorages for the child restraint systems complying with the FMVSS225 or CMVSS810.2 specifications are installed in the rear seat.

The anchorages are installed in the gap between the seat cushion and seatback of both outside rear seats as shown in the illustration.

Child restraint systems complying with the FMVSS213 or CMVSS213 specification can be fixed with these anchorages. In this case, it is not necessary to fix the child restraint system with a seat belt on the vehicle



Type A

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CHILD RESTRAINT SYSTEM INSTALLATION

1. Widen the gap between the seat cushion and seatback slightly and confirm the position of the lower anchorages near the bumper on the seatback.
2. Type A—Latch the buckle of lower strap into the anchorages and tighten the lower straps.

   Type B—Latch the buckles onto the anchorages.

For owners in Canada—The symbol on a child restraint system indicates the presence of a lower connector system.

If your child restraint system has a top strap, it should be anchored. (For the installation of the top strap, see "Using a top strap" on page 116 in this section.)

For installation details, refer to the instruction manual equipped with each product.

Type B

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APPENDIX B
MANUFACTURER'S DATA (OVSC FORM 14)

TOYOTA'S RESPONSE TO NHTSA'S REQUEST FOR 2005MY FMVSS TEST VEHICLE INFORMATION

The requested information is provided as shown in the table below.

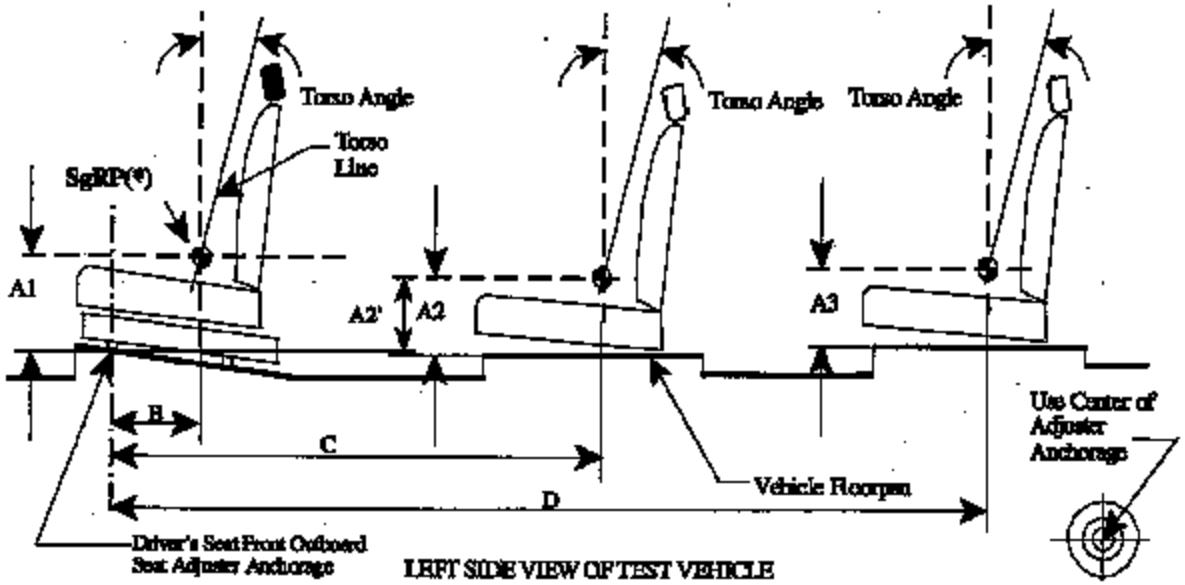
Make Model	Body Type	FMVSS No.	Form No.	Attachment No.
Scion tC	3-dr Hatchback	135	13	Attachments 1-1, 1-2**
		225	14	Attachment 2-1, 2-2**
		202	4	Attachment 3**
Scion xB	4-dr Van	225	14	Attachment 4-1, 4-2**
		201	5	Attachment 5
Toyota Avalon	4-dr Sedan	110	NA	
		207	4	Attachment 6*
Toyota Tacoma	2-dr PU	225	14	Attachment 7-1, 7-2
Toyota Matrix	4-dr MPV	124	12	Attachment 8-1 through 8-19
		301R	1	Attachment 9-1, 9-2, 9-3, 9-4**

* Confidentiality Requested
** Provided on September 10

Attachment 7-1
FORM 14
Page 1 of 11

SEAT REFERENCE POINT (SgRP) AND TORSO ANGLE DATA
FOR FMVSS 225
(All dimensions in mm[1])

Model Year: 2005 ; Make: TOYOTA ; Model: TACOMA ; Body Style: 2Door Pick Up (C-CAB)
Seat Style: Front row: Separate ; Second row: N/A ; Third row: N/A



LEFT SIDE VIEW OF TEST VEHICLE

(*): In case of manual seat, front seat position is 3 notches forward from the rear most.
In case of power seat, front seat position is 45mm forward along seat rail from the rear most.

Attachment 7-1
FORM 14
Page 2 of 11

Table 1. Seating Positions[1] and Torso Angles

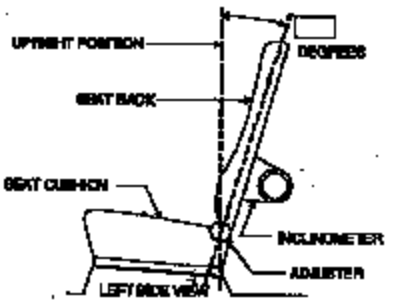
		Left (Driver Side)	Center (if any)	Right
A1		219.9	N/A	209.9
A2' (*)		N/A	N/A	N/A
A3		N/A	N/A	N/A
B		397.6	N/A	397.6
C		N/A	N/A	N/A
D		N/A	N/A	N/A
Torso Angle (degree)	Front Row	19° (4 notches or 8° back from 1st lock position of seat back)	N/A	21° (5 notches or 10° back from 1st lock position of seat back. Note difference from Nominal Riding Position)
	Second Row	N/A	N/A	N/A
	Third Row	N/A	N/A	N/A

Note: 1. All dimensions are in mm. If not, provide the unit used.

(*):A2' are the dimensions from the driver's seat front outboard seat adjuster anchorage.

Attachment 7-1
FORM 14
Page 3 of 11

NOMINAL DESIGN RIDING POSITION – For adjustable driver, passenger, 2nd row and 3rd row seat backs, describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent if applicable. Indicate if applicable, how the detents are numbered (Is the first detent "0" or "1"?). Indicate if the seat back angle is measured with the dummy in the seat.



Seat back angle for driver's seat = 19° degrees
Measurement Instructions:
4 notches (8 degrees) backward from first lock position of seat back

See Attachment 7-2

Seat back angle for passenger's seat =31°degrees
Measurement Instructions:
10 notches (20 degrees) backward from first lock position of seat back

See Attachment 7-2

Seat back angle for 2nd row seat = ___degrees
Measurement Instructions:

N/A

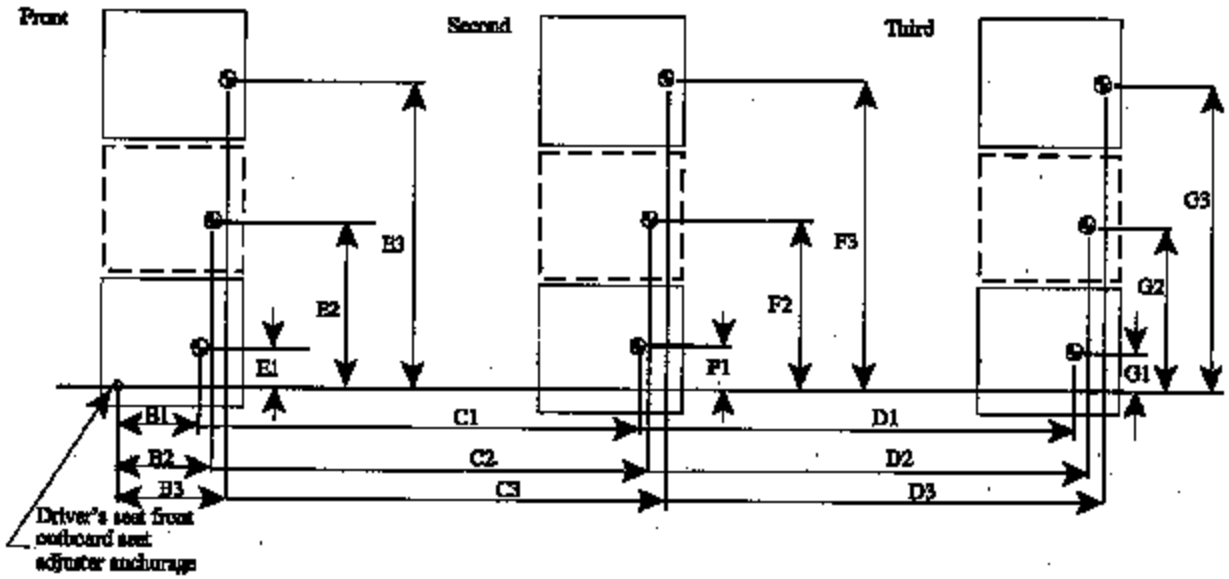
Seat back angle for 3rd row seat = ___ degrees
Measurement Instructions:

N/A

Attachment 7-1
FORM 14
Page 4 of 11

SEATING REFERENCE POINT
FOR FMVSS 225
(All dimensions in mm)
(Note: The Child Restraint Anchorage Location determines the 225 SgRP locations)

Model Year: 2005 ; Make: TOYOTA ; Model: TACOMA ; Body Style: 2Door Pick Up (C-CAB)
Seat Style: Front row: Separate ; Second row: N/A ; Third row: N/A



Attachment 7-1
FORM 14
Page 5 of 11

Table 2. Seating Reference Point and Tether Anchorage Locations

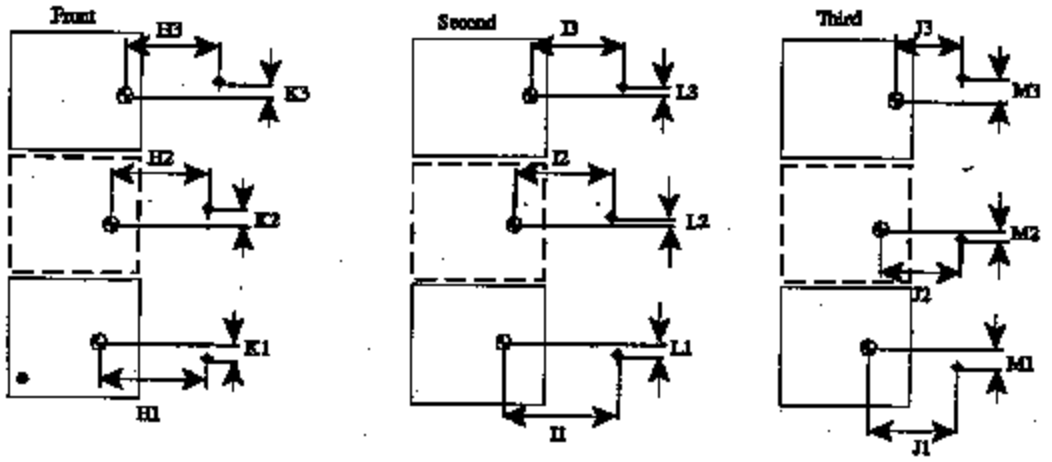
Seating Reference Point (SgRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	397.6
	H	219.7
	B2	N/A
	B2	N/A
	B3	397.6
	B3	984.7
Second Row	C1	N/A
	F1	N/A
	C2	N/A
	F2	N/A
	C3	N/A
	F3	N/A
Third Row	D1	N/A
	G1	N/A
	D2	N/A
	G2	N/A
	D3	N/A
	G3	N/A

Note: 1. Use the center of anchorage.

Attachment 7-1
FORM 14
Page: 6 of 11

TETHER ANCHORAGE LOCATIONS
FOR FMVSS 225
(All dimensions in mm)

Model Year: 2005 ; Make: TOYOTA ; Model: TACOMA ; Body Style: 2Door Pick Up (C-CAB)
Seat Style: Front row: Separate ; Second row: N/A ; Third row: N/A



⊖: SgRP
✦: Tether anchorage

Note: 1. The location shall be measured at the center of anchorage.

Attachment 7-1
FORM J4
Page 7 of 11

Table 3. Seating Reference Point and Tether Anchorage Locations

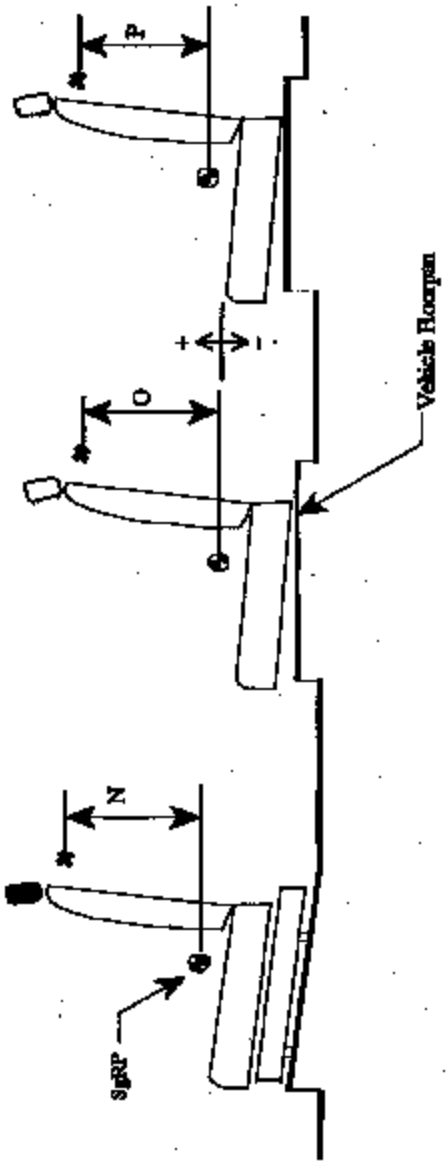
Seating Reference Point (SgRP)	Distance from SgRP	
Front Row	H1	N/A
	K1	N/A
	H2	N/A
	K2	N/A
	H3	846.6
	K3	-7.5
Second Row	I1	N/A
	L1	N/A
	I2	N/A
	L2	N/A
	I3	N/A
	L3	N/A
Third Row	J1	N/A
	M1	N/A
	J2	N/A
	M2	N/A
	J3	N/A
	M3	N/A

Note: 1. Use the center of anchorage.

Attachment J-1
FORM 14
Page 8 of 11

TETHER ANCHORAGE LOCATIONS - VERTICAL
FOR FMVSS 225
(All dimensions in mm)

Model Year: 2005 ; Make: TOYOTA ; Model: TACOMA ; Body Style: 2Door Pick Up (G-CAB)
Seat Style: Front row: Separate ; Second row: N/A ; Third row: N/A



LEFT SIDE VIEW OF TEST VEHICLE

Table 4. Vertical Dimension For The Tether Anchorage

Seating Row	Vertical Distance from Seating Reference Point	
Front Row	N1 (Driver)	N/A
	N2 (Center)	N/A
	N3 (Right)	491.8
Second Row	O1 (Left)	N/A
	O2 (Center)	N/A
	O3 (Right)	N/A
Third Row	P1 (Left)	N/A
	P2 (Center)	N/A
	P3 (Right)	N/A

Note: 1. All dimensions are in mm. If not, provide the unit anchorage.

Attachment 7-1
FORM 14
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Test Procedures Used for Compliance Tests

Lower Anchorages

For each seating location in each row record applicable FMVSS Section		FMVSS 225 Section(s)			
Block 1		Lower anchorage dimension certification method used (Enter applicable section used in block 1 of each position by circling A or B) A) 9.1.1 or B) 15.1.2.1			
Block 2		Lower anchorage location (Enter applicable section used in block 2 by circling A or B) A) 9.2.1 or B) 15.1.2.2 (also provide roll and yaw angles) pitch _____° roll _____° yaw _____°			
Block 3		Lower anchorage marking (Enter applicable section used in block 3 by circling A or B) A) 9.5 or B) 15.4			
Block 4		Strength requirement (Enter applicable section used in block 4 by circling A or B) A) Section 9 or B) Section 15			
Front	Driver	N/A			
	Center (if any)	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Right (if any)	Block 1 (A) B	Block 2 (A) B Pitch 36.5 °, Roll 0.1 °, Yaw 8.6 °	Block 3 (A) B	Block 4 (A) B
Second	Left	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Center	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Right (if any)	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
Third	Left	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Center	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Right	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
Fourth	Left	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Center	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Right	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B

Attachment 7-1
FORM 14
Page 11 of 11

Test Procedures Used for Camolliance Tests

Tether Anchorages

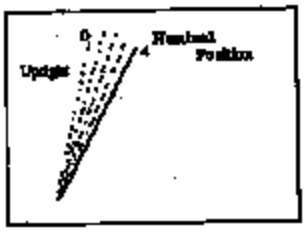
For each seating location list each row record applicable FMVSS Section		FMVSS Section(s) - Req.		
Block 1		Tether anchorage location certification method used (Enter applicable section used in block 1 by circling A, B, C, D, E or F) A) 6.2.1 B) 6.2.1.1 C) 6.2.1.2 D) 6.2.2 E) 6.2.2.1 F) 6.2.2.2		
Block 2		Number of tether anchorages based upon the applicable section (Enter applicable section used in block 2 by circling A or B) A) 4.4 B) 4.5		
Block 3		Tether anchorage strength requirement (Enter applicable section used in block 3 by circling A, B, or C) A) 6.3.1 B) 6.3.2 C) 6.3.4		
Front	Driver	N/A		
	Center (if any)	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Right (if any)	Block 1 (A) B C D E F	Block 2 (A) B	Block 3 (A) B C
Second	Left	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Center	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Right	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
Third	Left	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Center	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Right	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
Fourth	Left	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Center	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Right	Block 1 A B C D E F	Block 2 A B	Block 3 A B C

Attachment 7-2
FORM 14
Page 1 of 1

Designated Seat Back Positions

(1) Driver

Recline to the 4th notch rearward from the most upright position.



(2) Passenger

Recline to the 10th notch rearward from the most upright position.

Supplementary explanation for the front seat adjustment:

The headrest angle is 82.0 degrees from the side sill panel when a dummy is not placed in the seat.