Vehicle Safety Compliance Testing for FMVSS 208
for Occupant Crash Protection
Sled Test

Fuji Heavy Ind. LTD Japan
2003 Subaru Forester
NHTSA Number: C35503
TRC Inc. Test Number: S030530

Transportation Research Center Inc.
10820 State Route 347
East Liberty, OH 43319

Test Date: May 30, 2003
Report Date: June 19, 2003

Final Report

Prepared For:
U. S. Department of Transportation
National Highway Traffic Safety Administration
Office of Enforcement
Office of Vehicle Safety Compliance (NVS-220)
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NHTSA No. C35503

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7. Author(s)
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16. Abstract
An FMVSS 208 Section 13 compliance sled test was conducted on a 2003 Subaru Forester Station Wagon, NHTSA No.C35503, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208S-01 for the determination of FMVSS 208 compliance. Possible test failures identified were as follows:

The airbag warning label message area measures 29 cm².

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Compliance Sled Testing
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<th>Photograph Title</th>
<th>Page</th>
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</thead>
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Purpose

This Federal Motor Vehicle Safety Standard (FMVSS) 208 compliance sled test is part of the FMVSS compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by the Transportation Research Center Inc. (TRC Inc.) under Contract No. DTNH22-98-D-01055. The purpose of this test was to determine if the subject vehicle, a 2003 Subaru Forester Station Wagon, NHTSA No.C35503, meets the performance requirements of FMVSS 208, " Occupant Crash Protection," in the impact simulation sled test mode.
Test Procedure

This test was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure No. TP-208S-01, dated January 15, 1998. Data was obtained relative to FMVSS 208, “Occupant Crash Protection,” performance.

The sled test vehicle was instrumented with four (4) accelerometers to measure longitudinal accelerations. The sled was instrumented with one (1) longitudinal accelerometer, which is prefiltered with an analog filter to 200 Hz as an integral part of the sled firing circuit, and two (2) additional accelerometers: the primary accelerometer for pulse and integrated velocity determination and a backup accelerometer. In addition, the sled was instrumented with one (1) light trap to measure velocity and three (3) airbag firing timing circuits.

The sled test vehicle contained two (2) Part 572 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedure specified in Appendix B of the Laboratory Test Procedure. The dummies were not restrained by seat belts.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations; chest deflection potentiometers; left and right femur load cells to measure axial forces; and upper neck load cells to measure longitudinal, lateral, and vertical forces and moments.

The forty-one (41) data channels were digitally sampled at 12,500 samples per second and processed per Sections 11.7 through 11.9 of the Laboratory Test Procedure.

The sled test event was recorded by one (1) real-time motion picture camera and six (6) high-speed motion picture cameras. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera.
### Test Results Summary

This FMVSS 208 compliance sled test was conducted by TRC Inc. on May 30, 2003.

The test vehicle, a 2003 Subaru Forester Station Wagon, NHTSA No. C35503, does appear to comply with the performance requirements of FMVSS 208 in the impact simulation sled test mode as measured by Hybrid III 50th percentile male dummies.

<table>
<thead>
<tr>
<th></th>
<th>FMVSS 208 Max. Allowable Injury Assessment Values</th>
<th>Driver</th>
<th>Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIC</td>
<td>1000</td>
<td>193</td>
<td>164</td>
</tr>
<tr>
<td>Chest g</td>
<td>60 g</td>
<td>37.2</td>
<td>35.8</td>
</tr>
<tr>
<td>Chest Displacement</td>
<td>3 inches</td>
<td>1.5</td>
<td>0.6</td>
</tr>
<tr>
<td>Left Femur</td>
<td>2250 lbs</td>
<td>1010</td>
<td>1274</td>
</tr>
<tr>
<td>Right Femur</td>
<td>2250 lbs</td>
<td>1454</td>
<td>1185</td>
</tr>
<tr>
<td>Neck Extension</td>
<td>57 Nm</td>
<td>5.1</td>
<td>7.6</td>
</tr>
<tr>
<td>Neck Flexion</td>
<td>190 Nm</td>
<td>32.0</td>
<td>37.7</td>
</tr>
<tr>
<td>Neck Tension</td>
<td>3300 N</td>
<td>1186</td>
<td>639</td>
</tr>
<tr>
<td>Neck Compression</td>
<td>4000 N</td>
<td>104</td>
<td>749</td>
</tr>
<tr>
<td>Neck Shear</td>
<td>3100 N</td>
<td>599</td>
<td>948</td>
</tr>
</tbody>
</table>

The subject vehicle, a 2003 Subaru Forester, NHTSA No. C35503, does not appear to meet all other FMVSS 208 requirements for which it was tested. The possible test failure identified was as follows:

- The vehicle’s air bag warning message label area measures 29 cm\(^2\)

The sled test vehicle was equipped with air bags at the driver and passenger seating positions. The dummies were not restrained by seat belts. The sled carriage was accelerated to 17.7 g with an integrated velocity change of 29.7 mph. The primary and secondary stages of the air bags were triggered at 20.16 milliseconds after 0.5 g acceleration was measured by the firing circuit. Following subsequent digital data processing and filtering the acceleration signal to Channel Class 60, the primary and secondary air bag event trigger signals were 20.72 ms after the 0.5 g acceleration level was indicated.
Sled Test Summary

NHTSA number: C35503
Test type: FMVSS 208 Alternate Sled Test
Test date: 05/30/03
Test time: 10:54
Ambient temperature at impact area: 70.5°F

Vehicle year/make/model/body style: 2003/Subaru/Forester/Station Wagon

**Dummy Info:**

- Driver #229
  - Type: Hybrid III
  - Location: Left Front
  - Restraint: Airbag
  - Number of data channels: 15

- Front Passenger #230
  - Type: Hybrid III
  - Location: Right Front
  - Restraint: Airbag
  - Number of data channels: 15

**Number of Cameras:**

- Real-time: 1
- High-speed: 6

**Door Opening Data:**

- Left Front: Easy
- Right Front: Easy

**Front Seat Data:**

- Seat track failure: None
- Seat back failure: None

**Visible Dummy Contact Points:**

- Head: Airbag, sun visor
- Chest: Airbag
- Left knee: Knee bolster
- Right knee: Knee bolster

- Airbag
- Airbag
- Knee bolster
- Knee bolster
- Glove box
- Glove box
General Test and Vehicle Parameter Data for the Sled Test Vehicle

Test Vehicle Information:

Vehicle year/make/model/body style: 2003/Subaru/Forester/Station Wagon
Color: Pacific Blue Pearl
VIN: JF1S63623G761962
NHTSA number: C35503

Engine data:
Placement: Inline
Cylinders: 4
Displacement: 2.5

Transmission data: 5_speed, X_manual, _automatic, _overdrive
Final drive: _fwd, _rwd, X_4wd

Date vehicle received: 4/25/2003
Odometer reading: 64

Dealer's name and address:
Byers Imports
401 N. Hamilton Road
Columbus, Ohio 43213

Major Options:
Power steering Yes Other: None
Power brakes Yes
Power windows Yes
Air conditioning Yes
Power door locks Yes

Remarks:
General Test and Vehicle Parameter Data for the Sled Test Vehicle, Cont'd.

Data from Vehicle's Certification Label:
Vehicle manufactured by: Fuji Heavy Ind. LTD Japan
Date of manufacture: 01/03
VIN: JF1SG63623G761962
GVWR: 4150 lbs
GAWR: Front: 2050 lbs
       Rear: 2200 lbs

Data from Vehicle's Tire Placard:
Tire pressure with maximum capacity vehicle load:
   Front: 44 psi
   Rear: 44 psi
Recommended tire size: P215/60R16
Load range: N/A
Recommended cold tire pressure:
   Front: 29 psi
   Rear: 36 psi
Size of tires on vehicle: P215/60R16
Spare tire: P215/60R16
Vehicle capacity data:
   Type of front seats: Bucket
   Number of occupants:
      Front: 2
      Rear: 3
      Total: 5

Remarks:
General Test and Vehicle Parameter Data for the Sled Test Vehicle, Cont'd.

Weight of test vehicle as received (with maximum fluids):

<table>
<thead>
<tr>
<th></th>
<th>Right front</th>
<th>855.4 lbs</th>
<th>Right rear</th>
<th>684.5 lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Left front</td>
<td>882.9 lbs</td>
<td>Left rear</td>
<td>719.8 lbs</td>
</tr>
<tr>
<td>Total front weight</td>
<td>1738.3 lbs</td>
<td></td>
<td>(55.3% of total vehicle weight)</td>
<td></td>
</tr>
<tr>
<td>Total rear weight</td>
<td>1404.3 lbs</td>
<td></td>
<td>(44.7% of total vehicle weight)</td>
<td></td>
</tr>
<tr>
<td>Total delivered weight</td>
<td>3142.6 lbs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight
UDW = Unloaded Delivered Weight (3142.6 lbs)
DSC = Designated Seating Capacity (5)
VCW = Vehicle Capacity Weight (900 lbs/410 kg)
RCLW = VCW - (65 kg x DSC) = 154.3 lbs

Target test weight = UDW + RCLW + (Number of Hybrid III dummies x 167 lbs per dummy)

Target test weight = 3142.6 + 154.3 + 334 = 3630.9 lbs

Weight of test vehicle with two dummies and 154.4 lbs of cargo weight:

<table>
<thead>
<tr>
<th></th>
<th>Right front</th>
<th>936.9 lbs</th>
<th>Right rear</th>
<th>846.6 lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Left front</td>
<td>955.7 lbs</td>
<td>Left rear</td>
<td>891.8 lbs</td>
</tr>
<tr>
<td>Total front weight</td>
<td>1892.6 lbs</td>
<td></td>
<td>(52.1% of total vehicle weight)</td>
<td></td>
</tr>
<tr>
<td>Total rear weight</td>
<td>1738.4 lbs</td>
<td></td>
<td>(47.9% of total vehicle weight)</td>
<td></td>
</tr>
<tr>
<td>Total test weight</td>
<td>3631.0 lbs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

Weight of ballast secured in vehicle cargo area: 0 lbs
Components removed to meet target test weight: N/A
General Test and Vehicle Parameter Data for the Sled Test Vehicle, Cont'd.

Test Vehicle Attitude:
As delivered door sill angle: 0.2° Nose down
As tested door sill angle: 0.1° Nose up
Fully loaded door sill angle: 0.4° Nose up
Vehicle Wheelbase: 99.4 inches

Fuel System Data:
Fuel system capacity from owner's manual: 15.9 gallons
Useable capacity figure furnished by COTR: 15.9 gallons

Remarks: The roll angle measurements were within 1 inch of each other.
The left and right side measurements were 34.5 inches and 34.5 inches respectively.
Post-Impact Data

Test number: S030530
NHTSA number: C35503
Test date: 05/30/03
Test time: 10:54
Test type: FMVSS 208 Alternate Sled Test
Impact angle: 0°
Ambient temperature at impact area: 70.5° F
Temperature in occupant compartment: 70.5° F

Sled carriage velocity:
Integrated velocity from the integration of the entire sled acceleration: 29.7 mph
Measured velocity from the light trap device attached to the sled (backup): 29.4 mph
Specified integrated velocity range: 28 to 30 mph

Sled carriage acceleration:
Acceleration: 17.7 g
Specified acceleration range: 16.0 g - 18.2 g

Sled carriage acceleration duration:
Time from T-0(-0.5 g) to 0.0 g: 125.1 ms
Specified acceleration duration: 120 - 130 ms

The sled acceleration curve was within the specified corridor.
Seat and Steering Column Positioning Data

Vehicle: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Nominal Design Riding Position:

Driver Seat: 8\textsuperscript{th} locking position from upright
Passenger Seat: 8\textsuperscript{th} locking position from upright

Seat Fore and Aft Positions:

Driver Seat: Mid; 9\textsuperscript{th} of 17 positions
Passenger: Mid; 9\textsuperscript{th} of 17 positions

Steering Column Adjustments:

The steering column was set to the middle of the geometric range of travel.
### Dummy Measurement Data for Front Seat Occupants

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type of Measurement</th>
<th>Driver (Serial #229)</th>
<th>Passenger (Serial #230)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA</td>
<td>Windshield angle</td>
<td>35.5°</td>
<td>N/A</td>
</tr>
<tr>
<td>SWA</td>
<td>Steering wheel angle</td>
<td>64.9°</td>
<td>N/A</td>
</tr>
<tr>
<td>SCA</td>
<td>Steering column angle</td>
<td>25.1°</td>
<td>N/A</td>
</tr>
<tr>
<td>SA</td>
<td>Seat back angle</td>
<td>8th position</td>
<td>8th position</td>
</tr>
<tr>
<td>HZ</td>
<td>Head to roof</td>
<td>8.7 in</td>
<td>8.5 in</td>
</tr>
<tr>
<td>HH</td>
<td>Head to header</td>
<td>16.9 in</td>
<td>16.7 in</td>
</tr>
<tr>
<td>HW</td>
<td>Head to windshield</td>
<td>24.9 in</td>
<td>25.0 in</td>
</tr>
<tr>
<td>HR</td>
<td>Head to side header</td>
<td>8.9 in</td>
<td>8.9 in</td>
</tr>
<tr>
<td>NR</td>
<td>Nose to rim</td>
<td>17.5 in</td>
<td>N/A</td>
</tr>
<tr>
<td>NA</td>
<td>Nose to rim angle</td>
<td>12.8°</td>
<td>N/A</td>
</tr>
<tr>
<td>CD</td>
<td>Chest to dash</td>
<td>21.3 in</td>
<td>21.7 in</td>
</tr>
<tr>
<td>CS</td>
<td>Steering wheel to chest</td>
<td>14.1 in</td>
<td>N/A</td>
</tr>
<tr>
<td>RA</td>
<td>Rim to abdomen</td>
<td>8.5 in</td>
<td>N/A</td>
</tr>
<tr>
<td>KDL</td>
<td>Left knee to dash</td>
<td>8.1 in</td>
<td>6.6 in</td>
</tr>
<tr>
<td>KDR</td>
<td>Right knee to dash</td>
<td>7.7 in</td>
<td>7.2 in</td>
</tr>
<tr>
<td>KDA</td>
<td>Outboard knee to dash angle</td>
<td>28.4°</td>
<td>20.5°</td>
</tr>
<tr>
<td>PA</td>
<td>Pelvis angle</td>
<td>21.5°</td>
<td>22.8°</td>
</tr>
<tr>
<td>TA</td>
<td>Tibia angle</td>
<td>34.1°</td>
<td>42.3°</td>
</tr>
<tr>
<td>KK</td>
<td>Knee to knee</td>
<td>12.0 in</td>
<td>10.6 in</td>
</tr>
<tr>
<td>ST¹</td>
<td>Striker to head</td>
<td>22.6 in</td>
<td>22.2 in</td>
</tr>
<tr>
<td></td>
<td>Striker to head angle</td>
<td>-88.8°</td>
<td>-89.9°</td>
</tr>
<tr>
<td>SK¹</td>
<td>Striker to knee</td>
<td>19.3 in</td>
<td>20.2 in</td>
</tr>
<tr>
<td></td>
<td>Striker to knee angle</td>
<td>2.8°</td>
<td>5.1°</td>
</tr>
<tr>
<td>SH¹</td>
<td>Striker to H-point</td>
<td>6.3 in</td>
<td>6.2 in</td>
</tr>
<tr>
<td></td>
<td>Striker to H-point angle</td>
<td>-36.0°</td>
<td>-37.2°</td>
</tr>
<tr>
<td>SHY</td>
<td>Striker to H-point (Y dir.)</td>
<td>9.6 in</td>
<td>9.3 in</td>
</tr>
<tr>
<td>HS</td>
<td>Head to side window</td>
<td>12.4 in</td>
<td>11.9 in</td>
</tr>
<tr>
<td>HD</td>
<td>H-point to door</td>
<td>5.4 in</td>
<td>5.0 in</td>
</tr>
<tr>
<td>AD</td>
<td>Arm to door</td>
<td>3.2 in</td>
<td>4.0 in</td>
</tr>
</tbody>
</table>

The seat back angle (SA°) is measured relative to vertical.
All other angles are measured relative to horizontal.
¹A negative angle indicates the measurement point was located below the striker.
Dummy Measurement Locations for Front Seat Occupants
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 diagram.

* **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
Descriptions of Dummy Measurements, Cont’d.

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 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 diagram.

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 diagram.

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 diagram.

* 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.

* Measurement used in Data Tape Reference Guide
1 Only outboard measurement is referenced in Data Tape Reference Guide
Descriptions of Dummy Measurements, Cont’d.

SHY 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 diagram.

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 Pelvis 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 diagram.

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

TA Tibia 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.

* Measurement used in Data Tape Reference Guide
Vehicle Accelerometer Placement

Side View

Bottom View

(X) + Longitudinal
(Y) + Lateral
**Vehicle Data Summary and Accelerometer Locations**

<table>
<thead>
<tr>
<th>TEST NUMBER: S030530</th>
<th>X</th>
<th>Y</th>
<th>POSITIVE DIRECTION</th>
<th>NEGATIVE DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. LOCATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 SLED ACCELERATION</td>
<td>165.6 in</td>
<td>-1.0 in</td>
<td>0.5 g @ 128.2 ms</td>
<td>17.7 g @ 57.7 ms</td>
</tr>
<tr>
<td>PRIMARY</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 SLED ACCELERATION</td>
<td>165.6 in</td>
<td>-1.0 in</td>
<td>0.6 g @ 128.2 ms</td>
<td>17.8 g @ 57.4 ms</td>
</tr>
<tr>
<td>BACKUP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REDUNDANT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 SLED VELOCITY</td>
<td></td>
<td></td>
<td>0.1 mph @ 2.6 ms</td>
<td>29.4 mph @ 126.8 ms</td>
</tr>
<tr>
<td>MEASURED INTEGRATED²</td>
<td></td>
<td></td>
<td>---</td>
<td>29.7 mph @ 124.9 ms</td>
</tr>
<tr>
<td>4 LEFT REAR SEAT</td>
<td>70.4 in</td>
<td>-15.4 in</td>
<td>1.4 g @ 128.8 ms</td>
<td>18.5 g @ 55.4 ms</td>
</tr>
<tr>
<td>CROSSMEMBER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LONGITUDINAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 RIGHT REAR SEAT</td>
<td>70.3 in</td>
<td>15.2 in</td>
<td>1.6 g @ 129.0 ms</td>
<td>18.5 g @ 55.1 ms</td>
</tr>
<tr>
<td>CROSSMEMBER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LONGITUDINAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 TOP ENGINE</td>
<td>142.9 in</td>
<td>5.9 in</td>
<td>2.3 g @ 130.2 ms</td>
<td>17.7 g @ 51.0 ms</td>
</tr>
<tr>
<td>LONGITUDINAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 REAR AXLE</td>
<td>35.4 in</td>
<td>0.0 in</td>
<td>3.4 g @ 131.9 ms</td>
<td>18.4 g @ 65.7 ms</td>
</tr>
<tr>
<td>LONGITUDINAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Vehicle Data Summary and Accelerometer Locations, Cont'd.

<table>
<thead>
<tr>
<th>TEST NUMBER: S030530</th>
<th>POSITIVE DIRECTION(^1)</th>
<th>NEGATIVE DIRECTION(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. LOCATION</td>
<td>X</td>
<td>Y</td>
</tr>
<tr>
<td>8 DRIVER PRIMARY AIRBAG EVENT</td>
<td>1.0 volt @ 20.7 ms</td>
<td>---</td>
</tr>
<tr>
<td>9 PASSENGER PRIMARY AIRBAG EVENT</td>
<td>1.0 volt @ 20.7 ms</td>
<td>---</td>
</tr>
<tr>
<td>10 PASSENGER SECONDARY AIRBAG EVENT</td>
<td>1.0 volt @ 20.7 ms</td>
<td>---</td>
</tr>
</tbody>
</table>

**REFERENCE:**
- X: + FORWARD FROM VEHICLE REAR SURFACE
- Y: + RIGHTWARD FROM SLED CARRIAGE CENTERLINE

\(^1\) Sign convention per SAEJ211 March 1995.
\(^2\) No positive data in time frame of interest.
REFERENCE PHOTO TARGETS

LEFT SIDE VIEW
Camera Positions

Top View

Camera Frame Rates:
#1 = 24 fps
All Others = 1,000 fps

Real-Time Camera

Left Side View
Motion Picture Camera Locations

Vehicle year/make/model/body style: 2003/Subaru/Forester/Station Wagon

<table>
<thead>
<tr>
<th>Camera Number</th>
<th>View</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th>Camera Angle</th>
<th>Film Plane to Head Target</th>
<th>Camera Lens</th>
<th>Film Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Real-time pre-doc./panning</td>
<td>93.0 in</td>
<td>313.7 in</td>
<td>44.7 in</td>
<td>-1.3°</td>
<td>293.5 in</td>
<td>Zoom</td>
<td>24 frames/s</td>
</tr>
<tr>
<td>2</td>
<td>Left side view wide</td>
<td>70.1 in</td>
<td>-72.9 in</td>
<td>51.9 in</td>
<td>-0.6°</td>
<td>58.5 in</td>
<td>8 mm</td>
<td>1015 frames/s</td>
</tr>
<tr>
<td>3</td>
<td>Left side view over shoulder</td>
<td>97.8 in</td>
<td>-49.7 in</td>
<td>59.0 in</td>
<td>-14.2°</td>
<td>35.9 in</td>
<td>8 mm</td>
<td>1000 frames/s</td>
</tr>
<tr>
<td>4</td>
<td>Right side view wide</td>
<td>72.7 in</td>
<td>74.1 in</td>
<td>51.0 in</td>
<td>-2.6°</td>
<td>59.1 in</td>
<td>8 mm</td>
<td>990 frames/s</td>
</tr>
<tr>
<td>5</td>
<td>Right side view over shoulder</td>
<td>99.6 in</td>
<td>49.0 in</td>
<td>58.4 in</td>
<td>-12.5°</td>
<td>36.3 in</td>
<td>8 mm</td>
<td>N/A frames/s</td>
</tr>
<tr>
<td>6</td>
<td>Front view - driver</td>
<td>26.2 in</td>
<td>-13.8 in</td>
<td>51.3 in</td>
<td>-4°</td>
<td>59.4 in</td>
<td>8 mm</td>
<td>1000 frames/s</td>
</tr>
<tr>
<td>7</td>
<td>Front view - passenger</td>
<td>26.3 in</td>
<td>13.3 in</td>
<td>51.3 in</td>
<td>-3.9°</td>
<td>59.8 in</td>
<td>8 mm</td>
<td>997 frames/s</td>
</tr>
<tr>
<td>8</td>
<td>Real-time post-doc./panning</td>
<td>93.0 in</td>
<td>313.7 in</td>
<td>44.7 in</td>
<td>-1.3°</td>
<td>293.5 in</td>
<td>Zoom</td>
<td>24 frames/s</td>
</tr>
</tbody>
</table>

1. X: Film plane to front of sled
   Y: Film plane to sled centerline
   Z: Film plane to top of sled

2. Angle: Film plane of camera downward from horizontal plane

3. Did not run
FMVSS 208 Occupant Injury Data

Vehicle: 2003/Subaru/Forester/Station Wagon NHTSA No.: C35503  Date: 05/30/03

<table>
<thead>
<tr>
<th>Maximum Acceleration Values: (g)</th>
<th>Driver Dummy #229</th>
<th>Passenger Dummy #230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Channel X</td>
<td>-39.9</td>
<td>-32.3</td>
</tr>
<tr>
<td>Head Channel Y</td>
<td>-7.4</td>
<td>-15.4</td>
</tr>
<tr>
<td>Head Channel Z</td>
<td>19.4</td>
<td>24.5</td>
</tr>
<tr>
<td>HEAD RESULTANT</td>
<td>42.2</td>
<td>36.8</td>
</tr>
<tr>
<td>Chest Channel X</td>
<td>-36.6</td>
<td>-34.3</td>
</tr>
<tr>
<td>Chest Channel Y</td>
<td>6.1</td>
<td>-4.5</td>
</tr>
<tr>
<td>Chest Channel Z</td>
<td>11.1</td>
<td>16.3</td>
</tr>
<tr>
<td>CHEST RESULTANT</td>
<td>37.6</td>
<td>36.5</td>
</tr>
</tbody>
</table>

Head Injury Criteria (HIC) Values:

<table>
<thead>
<tr>
<th>HIC</th>
<th>193</th>
<th>164</th>
</tr>
</thead>
<tbody>
<tr>
<td>t_1 (ms)</td>
<td>95.040</td>
<td>90.000</td>
</tr>
<tr>
<td>t_2 (ms)</td>
<td>131.040</td>
<td>126.000</td>
</tr>
</tbody>
</table>

The maximum HIC time interval from t_1 to t_2 is 36 milliseconds.

Chest Injury Criteria (Clip) Values:

<table>
<thead>
<tr>
<th>CLIP (g)</th>
<th>37.2</th>
<th>35.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>t_1 (ms)</td>
<td>96.938</td>
<td>95.280</td>
</tr>
<tr>
<td>t_2 (ms)</td>
<td>99.898</td>
<td>98.240</td>
</tr>
<tr>
<td>Chest Deflection (in)</td>
<td>1.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>
### FMVSS 208 Occupant Injury Data, Cont’d.

Vehicle: 2003/Subaru/Forester/Station Wagon  
NHTSA No.: C35503  
Date: 05/30/03

<table>
<thead>
<tr>
<th>Max. Compressive Femur Forces:</th>
<th>Driver Dummy #229</th>
<th>Passenger Dummy #230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Side (lbs)</td>
<td>1010</td>
<td>1274</td>
</tr>
<tr>
<td>Right Side (lbs)</td>
<td>1454</td>
<td>1185</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neck Injury Criteria:</th>
<th>Driver Dummy #229</th>
<th>Passenger Dummy #230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Flexion Bending Moment (N-m)</td>
<td>32.0</td>
<td>37.7</td>
</tr>
<tr>
<td>Peak Extension Bending Moment (N-m)</td>
<td>5.1</td>
<td>7.6</td>
</tr>
<tr>
<td>Peak Axial Tension (N)</td>
<td>1186</td>
<td>639</td>
</tr>
<tr>
<td>Peak Axial Compression (N)</td>
<td>104</td>
<td>749</td>
</tr>
<tr>
<td>Peak Positive X-axis Shear (N)</td>
<td>599</td>
<td>948</td>
</tr>
<tr>
<td>Peak Negative X-axis Shear (N)</td>
<td>265</td>
<td>387</td>
</tr>
</tbody>
</table>
FMVSS 208 Seat Belt Warning System Check

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503 Technician: Steve Bell Date: 05/05/2003

Complete the following to determine which seat belt warning system option (S7.3(a)(1) or S7.3(a)(2)) is used. (Manufacturers may use either option.)

A. With occupant in driver’s position and lap belt in stowed position and ignition switch placed in “Start/On” position:

A.1 S7.3(a)(1)
Time duration of audible warning signal = 4 to 8 seconds

Time duration of reminder light operation = (no less than 60 seconds)

A.2 S7.3(a)(2)
Time duration of audible warning signal = 6 seconds
(4 to 8 seconds) (see 49 USC § 30124)

Time duration of reminder light operation = 6 seconds
(4 to 8 seconds)

B. With occupant in driver’s position and lap belt in use and the ignition switch placed in “Start/On” position:

B.1 S7.3(a)(1)
Time duration of audible warning signal = (audible warning should not operate)

Time duration of reminder light operation = (reminder light does not operate)

B.2 S7.3(a)(2)
Time duration of audible warning signal = 0 seconds
(audible warning should not operate)

Time duration of reminder light operation = 6 seconds
(4 to 8 seconds)

C. Note wording of visual warning:
Fasten Seat Belt
Fasten Belt
Symbol 101  ☒
FMVSS 208 Readiness Indicator

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503          Technician: Steve Bell          Date: 05/05/2003

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement (11/8/94 legal interpretation).

Is the system totally mechanical?  ☑ Yes;  ☐ No

Describe the location of the readiness indicator: Left side of instrument panel

Is the readiness indicator clearly visible to the driver?  ☑ Yes;  ☐ No

Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided?  ☑ Yes;  ☐ No
FMVSS 208 Air Bag Labels

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NIHTSA No.: C35503       Technician: Steve Bell       Date: 05/05/2003

1. Air Bag Maintenance Label and Owner's Manual Instructions:
    1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?
        ☐ Yes (Go to 1.2)
        ☑ No (Go to 2)

    1.2 Does the Vehicle have a maintenance or replacement label?
        ☐ Yes-Pass       ☑ No-Fail

    1.3 Does the label contain one of the following?
        ☐ Yes-Pass       ☑ No-Fail
        ☐ Schedule on label specifies month and year
        ☐ Schedule on label specifies vehicle mileage
        ☐ Schedule on label specifies interval measured from date on certification label

    1.4 Is the label permanently affixed within the passenger compartment?
        ☐ 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-Pass       ☑ No-Fail

    1.7 Are the letters and numerals at least 3/32 inch high?
        ☐ Yes-Pass       ☑ No-Fail

    1.8 Does the owner's manual set forth the recommended schedule for maintenance or replacement?
        ☐ Yes-Pass       ☑ No-Fail

2. Does the owner's manual: (§4.5.1 (f))

    2.1 Include a description of the vehicle's air bag system in an easily understandable format?
        ☑ Yes       ☐ No-Fail

    2.2 Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating positions?
        ☑ Yes       ☐ No-Fail
FMVSS 208 Air Bag Labels, Cont'd.

2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating positions?
   ☒ Yes ☐ 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 ☐ No-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 ☐ No-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 ☐ 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 seat?
   ☐ Yes ☒ No

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 seat, and unbelted or improperly belted children?
   ☐ Yes ☒ No

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?
   ☐ Yes ☒ No

If yes to 3.1, or 3.2, or 3.3, the vehicle is not required to have a Sun Visor Warning Label (S4.5.1(b)), an air bag alert label (S4.5.1(c)) or a label on the dash (S4.5.1(e)) and this check sheet is complete. (S4.5.1) If no to 3.1, 3.2, and 3.3, go to 4.
4. Sun Visor 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?

- Driver side  Yes-Pass  No-Fail
- Passenger side  Yes-Pass  No-Fail

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.”) (§4.5.1(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? (§4.5.1(b)(2))

4.2.1 Dual air bags

- Driver side  Yes-Pass  No-Fail
- Passenger side  Yes-Pass  No-Fail

4.2.2 Vehicles with driver air bag ONLY - either 4.2.1 or 4.2.2 is applicable, not both. (§4.5.1(b)(2)(iv))

4.2.2.1 Does the label conform on content to the label shown in either Figure 6a or 6b as appropriate?

- N/A
- Driver side  Yes-Pass  No-Fail

4.2.2.2 Does the label conform in content to the label shown in Figure 6a where the label can be modified to omit the pictogram and the message may read:

DEATH or SERIOUS INJURY can occur.

- Sit as far back as possible from the air bag.
- ALWAYS use SEAT BELTS and CHILD RESTRAINTS.
- The BACK SEAT is the SAFEST place for children.

- N/A
- Driver side  Yes-Pass  No-Fail
**FMVSS 208 Air Bag Labels, Cont'd.**

**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**

---

**WARNING**

**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.

---

*Figure 6a (§4.5.1(b)(2))*
SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION
LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

ARTWORK BLACK WITH WHITE BACKGROUND
BOTTOM TEXT BLACK WITH RED BULLETS ON WHITE BACKGROUND

CIRCLE AND LINE RED WITH WHITE BACKGROUND
TOP TEXT AND SYMBOL BLACK WITH YELLOW BACKGROUND

WARNING

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 unless air bag is off
- Sit as far back as possible from the air bag
- ALWAYS use SEAT BELTS and CHILD RESTRAINTS

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

4.3 Is the driver side label heading area yellow with the word “warning” and the alert symbol in black? (S4.5.1.(b)(2)(i))

- Driver side: ☒ Yes-Pass ☐ No-Fail
- Passenger side: ☒ Yes-Pass ☐ No-Fail

4.4 Is the message white with black text? (S4.5.1(b)(2)(ii))

- Driver side: ☒ Yes-Pass ☐ No-Fail
- Passenger side: ☒ Yes-Pass ☐ No-Fail
- No air bag: ☐ No-Fail

4.5 Is the message area at least 30 cm²? (S4.5.1(b)(2)(ii))

- Actual message area, driver side: 29 cm² ☒ Yes-Pass ☐ No-Fail
- Actual message area, passenger side: 29 cm² ☐ No-Fail

- Driver side: ☐ No air bag ☒ Yes-Pass ☐ No-Fail
- Passenger side: ☐ No air bag ☒ Yes-Pass ☐ No-Fail
4.6 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(b)(2)(iii)) & (S4.5.1(b)(2)(iv))
   For vehicles with driver side air bag ONLY
   Driver side ☒ Yes-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 diameter, driver side 30 mm
   Actual diameter, passenger side 30 mm
   For vehicles with driver side air bag ONLY
   Driver side ☐ No air bag ☒ Yes-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)) and/or a rollover warning label specified in 49CFR Part 575 (S575.105)?
   Driver side ☒ Yes-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?
   Driver side ☒ Yes-Pass ☐ No-Fail
   Passenger side ☐ No air bag ☒ Yes-Pass ☐ No-Fail

5. Air Bag Alert Label

5.1 Is the Sun Visor Warning Label visible when the sun visor is in the stowed position?
   Driver ☐ No
   Passenger ☒ Yes

If yes, go to 6

5.2 Does the label conform in content to the label shown in Figure 6c? (S4.5.1(c)(2))
   ☐ No-Fail

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN UP POSITION

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

![Air Bag Warning Label](image)
FMVSS 208 Air Bag Labels, Cont'd.

5.3 Is the message area black with yellow text? (S4.5.1(c)(2)(i))
   □ Yes-Pass  □ No-Fail

5.4 Is the message area at least 20 cm²? (S4.5.1(c)(2)(i))
   Actual message area = cm² □ 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 ONLY □ N/A
   □ Yes-Pass  □ No-Fail

5.6 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2)(ii))
   Actual diameter is mm
   For vehicles with driver side air bag ONLY □ N/A
   □ Yes-Pass  □ No-Fail

6. Label On the Dash
6.1 Does the vehicle have a passenger air bag?
   □ Yes  □ No
   If no, this checklist 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

BOTTOM TEXT BLACK WITH WHITE BACKGROUND

TOP OF TEXT AND SYMBOL BLACK WITH YELLOW BACKGROUND

⚠️ WARNING

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.
6.4 Is the heading area yellow with the word “warning” and the alert symbol in black? (S4.5.1(e)(i))
☑ Yes-Pass ☐ No-Fail

6.5 Is the message white with black text? (S4.5.1(e)(ii))
☑ Yes-Pass ☐ No-Fail

6.6 Is the message area at least 30 cm²? (S4.5.1(e)(ii))
Actual message area 31.36 cm²
☑ Yes-Pass ☐ No-Fail
FMVSS 208 Rear Outboard Seating Position Seat Belts

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503               Technician: Ronald D. Stoner               Date: 05/30/03

Do all rear outboard seating positions have type 2 seat belts?

☒ Yes; ☐ No; ☐ N/A (No Back Seat)

If No, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a type 2 belt was not installed.
FMVSS 208 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 retractors. (S7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503 Technician: Steve Bell Date: 05/05/2003

Designated Seating Position: Right Front

☒ 1. Record test seat position: Mid
   (S7.1.1.5(c)(1)) (Any position is acceptable.)

☒ 2. Buckle the seat belt. (S7.1.1.5(c)(1))

☒ 3. Complete any procedures recommended in the vehicle owner’s manual to activate any locking feature. (S7.1.1.5(c)(1))

☒ 4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle? (S7.1.1.5(a)) ✔ Yes-Pass ☐ No-Fail

☒ 5. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing? (S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail

☒ 6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
   If yes, go to 6.1. If no, go to 7. ☒ Yes ☐ No

6.1 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 remove the child restraint system. (S7.1.1.5(b)) ☒ Yes-Pass ☐ No-Fail
FMVSS 208 Lap Belt Lockability, Cont’d.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503  Technician: Steve Bell  Date: 05/05/2003

Designated Seating Position: Right Front

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 attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))

10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 48.8 inches.

11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 10 degrees. (Spec. 5–15 degrees)

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 B 14.6 inches.
FMVSS 206 Lap Belt Lockability, Cont’d.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503  Technician: Steve Bell  Date: 05/03/2003
Designated Seating Position: Right Front

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 rate 25 lbs/sec (spec. 10 ~ 50 lb/sec)
The measured distance between A and B is 14.8 inches (S7.1.1.5(c)(6))

15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

14-13 = 0.2 inches  Yes-Pass  No-Fail

16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14 = 34.0 inches  Yes-Pass  No-Fail

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Diagram:

- Insert webbing to rest against this surface
- 1/4" Diameter
- Direction of Pull
- Dimension A: Width of Webbing + 1/2"
- Dimension B: 1/4" at Dimension A
FMVSS 208 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 retractors. (S7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503 Technician: Steve Bell Date: 05/05/2003
Designated Seating Position: Left Rear

☐ 1. Record test seat position: Fixed (S7.1.1.5(c)(1)) (Any position is acceptable.)

☐ 2. Buckle the seat belt. (S7.1.1.5(c)(1))

☐ 3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))

☐ 4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle? (S7.1.1.5(a)) ☑ Yes-Pass ☐ No-Fail

☐ 5. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing? (S7.1.1.5(a)) ☑ Yes-Pass ☐ No-Fail

☐ 6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
If yes, go to 6.1. If no, go to 7. ☑ Yes ☐ No

6.1 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 remove the child restraint system. (S7.1.1.5(b)) ☑ Yes-Pass ☐ No-Fail
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503 Technician: Steve Bell Date: 05/05/2003

Designated Seating Position: Left Rear

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 attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))

10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 49.6 inches.

11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 10 degrees. (Spec. 5~15 degrees)

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 B 19.3 inches.
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503 Technician: Steve Bell Date: 05/05/2003
Designated Seating Position: Left Rear

\( \star 14. \) 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 retractor is 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 rate 25 lbs/sec (spec. 10 - 50 lb/sec)

The measured distance between A and B is 19.5 inches (S7.1.1.5(c)(6))

\( \star 15. \) Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5 (c)(7))

14-13 = 0.2 inches  \( \star \) Yes-Pass \( \square \) No-Fail

\( \star 16. \) Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14 = 30.1 inches. \( \star \) Yes-Pass \( \square \) No-Fail
FMYSS 208 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 retractors. (S7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503 Technician: Steve Bell Date: 05/05/2003

Designated Seating Position: Center Rear

1. Record test seat position: Fixed (S7.1.1.5(c)(1)) (Any position is acceptable.)

2. Buckle the seat belt. (S7.1.1.5(c)(1))

3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))

4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle? (S7.1.1.5(a)) Yea-Pass No-Fail

5. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing? (S7.1.1.5(a)) Yea-Pass No-Fail

6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?

   If yes, go to 6.1. If no, go to 7.

   6.1 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 remove the child restraint system? (S7.1.1.5(b)) Yea-Pass No-Fail
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503 Technician: Steve Bell Date: 05/05/2003

Designated Seating Position: Center Rear

☒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 attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

☒9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))

☒10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 58.9 inches.

☒11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

☒12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 10 degrees. (Spec. 5~15 degrees)

☒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 B 28.7 inches.
FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503    Technician: Steve Bell    Date: 05/05/2003

Designated Seating Position: Center Rear

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 rate 25 lbs/sec (spec. 10 ~ 50 lbs/sec)
The measured distance between A and B is 29.1 inches (S7.1.1.5(c)(5))

15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5 (c)(7))

14-13 = 0.4 inches

☐ Yes-Pass    ☐ No-Fail

16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14 = 29.8 inches.

☐ Yes-Pass    ☐ No-Fail
FMVSS 208 Lap Belt Lockability

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (§7.1.1.5)

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 retractors. (§7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503 Technician: Steve Bell Date: 05/05/2003

Designated Seating Position: Right Rear

1. Record test seat position: Fixed
   (§7.1.1.5(c)(1)) (Any position is acceptable.)

2. Buckle the seat belt. (§7.1.1.5(c)(1))

3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (§7.1.1.5(c)(1))

4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle? (§7.1.1.5(a))
   ✔ Yes-Pass   ☐ No-Fail

5. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inventing, twisting or deforming of the belt webbing? (§7.1.1.5(a))
   ✔ Yes-Pass   ☐ No-Fail

6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
   If yes, go to 6.1. If no, go to 7.
   ✔ Yes   ☐ No

6.1 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 remove the child restraint system? (§7.1.1.5(b))
   ✔ Yes-Pass   ☐ No-Fail
PMVSS 208 Lap Belt Lockability, Cont’d.

Vehicle: Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503                              Technician: Steve Bell                  Date: 05/05/2003

Designated Seating Position: Right Rear

☒7. Locate a reference point A on the seat belt buckle. (§7.1.1.5(c)(2))

☒8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (§7.1.1.5(c)(2))

☒9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (§7.1.1.5(c)(2))

☒10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (§7.1.1.5(c)(2)) Measured distance between A and B 49.7 inches.

☒11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (§7.1.1.5(c)(3))

☒12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (§7.1.1.5(c)(4)) Measured force application angle 10 degrees. (Spec. 5–15 degrees)

☒13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (§7.1.1.5(c)(4)) Measured distance between A and B 19.4 inches.
F MVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
NHTSA No.: C35503  Technician: Steve Bell  Date: 05/05/2003

Designated Seating Position: Right Rear

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 rate 25 lbs/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is 29.6 inches (S7.1.1.5(c)(6))

15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

14-13 = 0.2 inches  Yes-Pass  No-Fail

16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14 = 30.1 inches.  Yes-Pass  No-Fail
FMVSS 208 Seat Belt Comfort And Convenience Test

Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: C35503
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
Designated Seating Position Tested: Left Rear
Date of Comfort and Convenience Check: 05/05/2003
Technician Performing Check: Steve Bell
GVWR: 4150 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Does the vehicle incorporate a webbing tension-relieving device?
   - Yes—go to latchplate access
   - No—continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)
   - Check
   - N/A

3. If separately adjustable in a vertical direction, the seats are at the lowest position.
   - Check
   - N/A

4. Place adjustable seat backs in the manufacturer’s nominal design riding position in the manner specified by the manufacturer.
   - Check
   - N/A

5. Place any adjustable anchorages at the manufacturer’s nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.
   - Check
   - N/A
6. Place each adjustable head restraint in its highest adjustment position. □ Check □ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3) □ Check □ N/A

8. Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure. □ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy’s chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy’s chest. At that point pull the belt webbing out 3 inches from the dummy’s chest and release until it is within one inch from the dummy’s chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy’s chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.542 pounds. □ 0.0 to 0.7 pounds - Pass □ greater than 0.7 pounds - FAIL*

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.
Test Vehicle NHTSA No.: C35503
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
Designated Seating Position Tested: Center Rear
Date of Comfort and Convenience Check: 05/05/2003
Technician Performing Check: Steve Bell
GVWR: 4150 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Does the vehicle incorporate a webbing tension-relieving device?
   - [ ] Yes-go to latchplate access
   - [x] No-continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)
   - [ ] Check
   - [x] N/A

3. If separately adjustable in a vertical direction, the seats are at the lowest position.
   - [ ] Check
   - [x] N/A

4. Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.
   - [ ] Check
   - [x] N/A

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.
   - [ ] Check
   - [x] N/A

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6. Place each adjustable head restraint in its highest adjustment position.
   ☑ Check
   ☐ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)
   ☑ Check
   ☐ N/A

8. Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure.
   ☑ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy’s chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy’s chest. At that point pull the belt webbing out 3 inches from the dummy’s chest and release until it is within one inch from the dummy’s chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy’s chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.539 pounds.
   ☑ 0.0 to 0.7 pounds - Pass
   ☐ greater than 0.7 pounds - FAIL*

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.
FMVSS 208 Seat Belt Comfort And Convenience Test

Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: C35503
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
Designated Seating Position Tested: Right Rear
Date of Comfort and Convenience Check: 05/05/2003
Technician Performing Check: Steve Bell
GVWR: 4150 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Does the vehicle incorporate a webbing tension-relieving device?
   Yes-go to latchplate access
   No-continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)

   Check
   N/A

3. If separately adjustable in a vertical direction, the seats are at the lowest position.

   Check
   N/A

4. Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

   Check
   N/A

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.

   Check
   N/A
6. Place each adjustable head restraint in its highest adjustment position.  
   ☒ Check  
   ☐ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)  
   ☐ Check  
   ☒ N/A

8. Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure.  
   ☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy’s chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy’s chest. At that point pull the belt webbing out 3 inches from the dummy’s chest and release until it is within one inch from the dummy’s chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy’s chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.543 pounds.  
   ☒ 0.0 to 0.7 pounds - Pass  
   ☐ greater than 0.7 pounds - FAIL*

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.
Test Vehicle NHTSA No.: C35503
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
Designated Seating Position Tested: N/A, vehicle is a passenger car
Date of Comfort and Convenience Check: 05/05/2003
Technician Performing Check: Steve Bell
GVWR: 4150 pounds

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Position the seat in its forward most adjustment position. □ Check

2. Position the test dummy using the procedures in Appendix B of the Laboratory Test Procedure. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position.) □ Check

3. Position the adjustable seat belt anchorage in the manufacturer’s nominal design position for a 50th percentile adult male occupant. □ Check

4. Attach the inboard and outboard reach string following the instructions on Figure 1C of the Laboratory Test Procedure. □ Check

5. Place the latch plate in the stowed position. □ Check

6. Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy’s arms. Is the latchplate within the reach envelope?
   □ Yes-Pass; □ No-Fail

7. Using the clearance test block, specified in Figure 2C of the Laboratory Test Procedure, determine if there is sufficient clearance between the vehicle seat and the side of vehicle to allow the test block to move unhindered to the latchplate or buckle.
   □ Yes-Pass; □ No-Fail

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Test Vehicle NHTSA No.: C35503
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
Designated Seating Position Tested: N/A, vehicle is a passenger car
Date of Comfort and Convenience Check: 05/05/2003
Technician Performing Check: Steve Bell
GVWR: 4150 pounds

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Is the vehicle a passenger car or walk-in van-type vehicle?  
   □ Yes  
   □ No
   If yes, go to seat belt guides and hardware.

2. Adjustable seats are in the adjustment position midway between the forwardmost and rearmost positions. If an adjustment position does not exist midway between the forwardmost and rearmost positions, the nearest adjustment position to the rear of the midpoint is used. (S8.1.2)  
   □ Check

3. If separately adjustable in a vertical direction, the seats are at the lowest position.  
   □ Check

4. Place any adjustable seat backs in the manufacturer’s nominal design riding position in the manner specified by the manufacturer.  
   □ Check

5. Place any adjustable anchorages at the manufacturer’s nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.  
   □ Check

6. Place each adjustable head restraint in its highest adjustment position.  
   □ Check
FMVSS 208 Seat Belt Comfort and Convenience Test Summary, Cont'd.

Retraction (S7.4.5)

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3) □ Check

8. Use anthropomorphic test dummies whose arms have been removed and position the dummies in the front outboard designated seating positions according to instructions in Appendix B of the Laboratory Test Procedures. □ Check

9. Restrain the dummies using the belt systems for the position being tested. □ Check

10. Stow outboard armrests that are capable of being stowed. □ Check

11. Check the statement that applies to this test vehicle:

   (A) The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latchplate is released. □ Pass

   (B) The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latchplate is released. □ Pass

   (C) Neither A or B apply. □ Fail

12. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed? □ Yes-Pass; □ No-Fail

13. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated? □ N/A □ Yes-Pass; □ No-Fail
Test Vehicle NHTSA No.: C35503
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
Designated Seating Position Tested: Left Rear
Date of Comfort and Convenience Check: 05/05/2003
Technician Performing Check: Steve Bell
GVWR: 4150 pounds

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

The requirements for accessibility DO NOT APPLY to:

A. Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4.6.1(b)).
B. Seats which are removable.
C. Seats that are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above, determine the following:

1. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
   - Yes: go to 2.
   - No: this form is complete.

2. Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
   - Yes-Pass;
   - No-Fail

3. Are the remaining two seat belt parts accessible under normal conditions?
   - Yes-Pass;
   - No-Fail
4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:

   (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched.

   □ Check

   (B) The seat is moved to any position to which it is designed to be adjusted.

   □ Check

   (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position.

   □ Yes-Pass; □ No-Fail

5. Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)?

   □ Yes-Pass; □ No-Fail

   N/A-No armrest
Seat Belt Guides And Hardware (S7.4.6)

Test Vehicle NHTSA No.: C35503
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
Designated Seating Position Tested: Center Rear
Date of Comfort and Convenience Check: 05/05/2003
Technician Performing Check: Steve Bell
GVWR: 4150 pounds

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

The requirements for accessibility DO NOT APPLY to:

A. Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4.6.1(b)).

B. Seats which are removable.

C. Seats that are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above, determine the following:

1. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
   - Yes: go to 2.
   - No: this form is complete.

2. Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
   - Yes-Pass:
   - No-Fail

3. Are the remaining two seat belt parts accessible under normal conditions?
   - Yes-Pass:
   - No-Fail
4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:

   (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched.  
       ☑ Check

   (B) The seat is moved to any position to which it is designed to be adjusted.  
       ☑ Check

   (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position.  
       ☒ Yes-Pass; ☐ No-Fail

5. Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)?  
   ☐ Yes-Pass; ☐ No-Fail
   N/A-No armrest
FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Seat Belt Guides And Hardware (§7.4.6)

Test Vehicle NHTSA No.: C35503
Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon
Designated Seating Position Tested: Right Rear
Date of Comfort and Convenience Check: 05/05/2003
Technician Performing Check: Steve Bell
GVWR: 4150 pounds

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

The requirements for accessibility **DO NOT APPLY** to:

A. Seats whose seat cushions are movable so that the seat back serves a function other than seating (§7.4.6.1(b)).

B. Seats which are removable.

C. Seats that are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above, determine the following:

1. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?  
   □ Yes: go to 2.  
   □ No: this form is complete.

2. Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?  
   □ Yes-Pass;  □ No-Fail

3. Are the remaining two seat belt parts accessible under normal conditions?  
   □ Yes-Pass;  □ No-Fail
4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:
   (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. ☒ Check

   (B) The seat is moved to any position to which it is designed to be adjusted. ☒ Check

   (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. ☒ Yes-Pass; ☐ No-Fail

5. Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)? ☐ Yes-Pass; ☐ No-Fail

   N/A-No armrest
LOCATION OF ANCHORING POINTS FOR LATCHPLATE REACH LIMITING CHAINS OR STRINGS TO TEST FOR LATCHPLATE ACCESSIBILITY

PART 572E DUMMY

50th Percentile Dummy Seated in Foremost Seat Adjustment Position

Centerline

Attach the outboard reach string (19.125" long) at the base of the head on centerline

Seat plane is 90 degrees to the torso line

Rear View

Laboratory Test Procedure Figure 1C
USE OF CLEARANCE TEST BLOCK
TO DETERMINE HAND/ARM ACCESS

CLEARANCE TEST BLOCK

NOTE: CORNERS ARE ROUNDED OFF TO REDUCE SNAGGING

TYPICAL ARM REST

FRONT VIEW OF VEHICLE

Laboratory Test Procedure Figure 2C
Appendix A

Photographs
Figure A-2: Pre-Test Right Side View of Test Vehicle Mounted to Test Bed
Figure A.5: Post-Foot Wounddress Vess
Figure A-26: Post Test Steering Column Linkage in Engine Compartment View
Appendix B

Data Plots
CHANNEL: DABET1  FILTER: CH. CLASS 1000

TRC NUMBER: S030530F

FMVSS 208 SLED TEST

TEST NUMBER: S030530

VOLTAGE (V x 10^2)

TIME (MS)

PEAK DATA: 1.00 V @ 20.77 MS; 0.00 V @ -20.00 MS
C35503 / 2003 SUBARU FORESTER
TOP ENGINE X-AXIS ACCELERATION
FMVSS 208 SLED TEST
TEST NUMBER: S030530

TRC NUMBER: S030530F

CHANNEL: TEXP
FILTER: CH CLASS GO

PEAK DATA: 2.33 G @ 130.24 MS, -17.63 G @ 51.04 MS
Driver head Y-axis acceleration

FMVSS 238 sled test

Test number: S030530

Channel: HEDY61
Filter: CH CLASS 1800
Peak data: +49 G @ 214.56 ms; -742 G @ 121.44 ms
C35503 / 2003 SUBARU FORESTER
DRIVER NECK MOMENT ABOUT Y AXIS
FMVSS 208 SLED TEST
TEST NUMBER: S030530

CHANNEL: NEKVH1  FILTER CH. CLASS 800
PEAK DATA: 37.78 N m @ 134.32 MS, -4.38 N m @ 255.12 MS

FORCE (N)
C35503 2003 SUBARU FORESTER
DRIVER CHEST DEFLECTION
FMVSS 208 SLED 'EST

TEST NUMBER: S030530

TRC NUMBER: S030530F

CHANNEL C35503 FILTER CH CLSS C00

DEAK DATA 0 00 IN @ 33.92 MS, 1 54 IN @ 120.88 MS

DISPLACEMENT LIN X 10^-6

-129

-102

-75

-48

-21

0
C35503 - 2003 SUBARU FORESTER
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION

TRC NUMBER: S030530F
FMVSS 200 SLED TEST
TEST NUMBER: S030530

ACCELERATION (G x 10^-1)

B-36

CHANNEL: NEGXC2
FILTER: CH. CLASS 1000

PEAK DATA: 214.6 G @ 15.24 MS; -32.30 G @ 19.60 MS
C35503 - 2003 SUBARU FORESTER
RIGHT FRONT PASSENGER CHEST DEFORMATION
FMVSS 208 SLED TEST

TRA UNIT: S030530

DISPLACEMENT (IN. X 10^-2)

CHANNEL: C5TXD2  FILTER CH CLASS 600
PEAK DATA: 0.02 IN @ 51.68 MS; 0.60 IN @ 128.32 MS

TIME (MS)
Appendix C

Manufacturer's Vehicle Information
Front seats

- Never adjust the seat while driving to avoid the possibility of loss of vehicle control and of personal injury.
- Before adjusting the seat, make sure the hands and feet of rear seat passengers are clear of the adjusting mechanism.
- Seatbelts provide maximum restraint when the occupant sits well back and upright in the seat. To reduce the risk of sliding under the seatbelt in a collision, the front seatbacks should be always used in the upright position while the vehicle is running. If the front seatbacks are not used in the upright position in a collision, the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.

Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater. For that reason, we strongly recommend that ALL children (including those in child seats and those that have outgrown child restraint devices) sit in the REAR seat properly restrained at all times in a child restraint device or in a seatbelt, whichever is appropriate for the child's age, height, and weight. Secure ALL types of child restraint devices (including forward facing child seat) in the REAR seats at all times.

NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions. For instructions and precautions concerning child restraint systems, see the "Child restraint systems" section in this chapter.

Fore and aft adjustment

Pull the lever upward and slide the seat to the desired position. Then release the lever and move the seat back and forth to make sure that it is securely locked into place.
■ Reclining the seatback

Pull the reclining lever up and adjust the seatback to the desired position. Then release the lever and make sure the seatback is securely locked into place.

The seatback placed in a reclined position can spring back upward with force when released. When operating the reclining lever to return the seatback, hold it lightly so that it may be raised back gradually.

To prevent the passenger from sliding under the seatbelt in the event of a collision, always put the seatback in the upright position while the vehicle is in motion. Also, do not place objects such as cushions between the passenger and the seatback. If you do so, the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.

1-4

■ Seat height adjustment (driver's seat)

1) Turn the dial backward to lower the seat.
2) Turn the dial forward to raise the seat.

Use the adjusting dial to adjust the height of the seat.

■ Lumbar support

Pull the lever forward or backward. Pulling the lever forward will increase the amount of support for your lower back.

CONTINUED

C-3
Head restraint adjustment

To raise the head restraint, pull it up. To lower it, push the head restraint down while pressing the release button on the top of the seatback. The head restraint should be adjusted so that the center of the head restraint is closest to the top of the occupant's ears.

Never drive the vehicle with the head restraints removed because they are designed to reduce the risk of serious neck injury in the event that the vehicle is struck from the rear.

NOTE
If the seatback is reclined rearward to the same level as the rear seat cushion with the head restraint removed, a wide flat bed is made available.

1. Slide the front seat forward as far as possible.
2. Pull off the head restraint while pressing the release button.
3. Recline the seatback rearward up to the lowest position. Remember to reinstall the head restraint whenever the seatback is raised back.

Active head restraint

The front seats of your vehicle are equipped with active head restraints. They automatically tilt forward slightly in the event the vehicle is struck from the rear, decreasing the amount of rearward head movement and thus reducing the risk of whiplash. For maximum effectiveness the head restraint should be adjusted so that the center of the head restraint is closest to the top of the occupant's ears.

CAUTION
- Each active head restraint is effective only when its height is properly adjusted and the user sits in the correct position on the seat.
- Each active head restraint is designed to work only once. If your vehicle is involved in a rear-end collision, have an authorized SUBARU dealer inspect the active head restraints.
- The active head restraints may not operate in the event the vehicle experiences only a slight impact in the rear.
- The active head restraints may be damaged if they are pushed hard from behind or subjected to shock. As a result, they may not function if the vehicle suffers a rear impact.
Seat, seatbelt and SRS airbags

Seat heater (if equipped)

The seat heater operates when the ignition switch is either in the “ACC” or “ON” position.

To turn on the seat heater, push the “LO” or “HI” position on the switch, as desired, depending on the temperature. Selecting the “HI” position will cause the seat to heat up quicker.

1) HI — Rapid heating
2) LO — Normal heating

The indicator located on the switch comes on when the seat heater is in operation. When the vehicle’s interior is warmed enough or before you leave the vehicle, be sure to turn the switch off.

**CAUTION**

- There is a possibility that people with delicate skin may suffer slight burns even at low temperatures if he/she uses the seat heater for a long period of time. When using the heater, always be sure to warn the persons concerned.

- Do not put anything on the seat which insulates against heat, such as a blanket, cushion, or similar items. This may cause the seat heater to overheat.

**NOTE**

- Use of the seat heater for a long period of time while the engine is not running can cause battery discharge.
- When cleaning the seat, do not use benzine, paint thinner, or any similar materials.

Rear seats

Seatbelts provide maximum restraint when the occupant sits well back and upright in the seat. Do not put cushions or any other materials between occupants and seatbacks or seat cushions. If you do so, the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.

- CONTINUED -
Never stack luggage or other cargo higher than the top of the seatback because it could tumble forward and injure passengers in the event of a sudden stop or accident.

Headrest adjustment

- Rear windows side seating position

To raise the headrest, pull it up. To lower it, push the headrest down while depressing the release button on the top of the seatback.

When the seats are not occupied, lower the headrest to improve rearward visibility.

Rear center seating position

To raise the headrest, pull it up. To lower it, push the headrest down while pressing the release button on the top of the seatback.

When the rear-center seating position is occupied, place the headrest in its highest position. When the rear center seating position is not occupied, lower the headrest to improve rearward visibility.

Folding down the rear seatback
Seat, seatbelt and SRS airbags

1. Lower the headrests.
2. Unlock the seatback by pulling the release knob and then fold the seatback down.

To return the seatback to its original position, raise the seatback until it locks into place and make sure that it is securely locked.

※ After returning the rear seatback to its original position, make certain that the shoulder belts are fully visible.
※ Never allow passengers to ride on the folded rear seatback or in the cargo area. Doing so may result in serious injury or death.
※ Secure lengthy items properly to prevent them from shooting forward and causing serious injury during a sudden stop.

Seatbelts

※ Seatbelt safety tips

- All persons in the vehicle should fasten their seatbelts BEFORE the vehicle starts to move. Otherwise, the possibility of serious injury becomes greater in the event of a sudden stop or accident.
- All belts should fit snugly in order to provide full restraint. Loose-fitting belts are not as effective in preventing or reducing injury.
- Each seatbelt is designed to support only one person. Never use a single belt for two or more persons— even children. Otherwise, in an accident, serious injury or death could result.
- Replace all seatbelt assemblies including retractors and attaching hardware worn by occupants of a vehicle that has been in a serious accident. The entire assembly should be replaced even if damage is not obvious.
- Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater. For that reason, we strongly recommend that ALL children (including those in child seats and those that have outgrown child restraint devices) sit in the REAR seat properly restrained at all times in a child restraint device or in a seatbelt, whichever is appropriate for the child's height and weight.

Secure ALL types of child restraint devices (including forward facing child seats) in the REAR seats at all times.

NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions. For instructions and precautions concerning the child restraint system, see the "Child restraint systems" section in this chapter.

▼ Infants or small children

Use a child restraint system that is suitable for your vehicle. See information on “Child restraint systems” in this chapter.

▼ Children

If a child is too big for a child restraint system, the child should sit in the rear seat and be restrained using the seatbelts. According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions. Never allow a child to stand up or kneel on the seat.

If the shoulder portion of the belt crosses the face or neck, adjust the shoulder belt anchor height (windowside seating positions only) and then if necessary move the child closer to the belt buckle to help provide a good shoulder belt fit. Care must be taken to securely place the lap belt as low as possible on the hips and not on the child's waist. If the shoulder portion of the belt cannot be properly positioned, a child restraint system should be used. Never place the shoulder belt under the child's arm or behind the child's back.

- CONTINUED -
Expectant mothers need to use the seatbelts. They should consult their doctor for specific recommendations. The lap belt should be worn securely and as low as possible over the hips, not over the waist.

**Emergency Locking Retractor (ELR)**

The driver's seatbelt has an Emergency Locking Retractor (ELR). The emergency locking retractor allows normal body movement but the retractor locks automatically during a sudden stop, impact, or if you pull the belt very quickly out of the retractor.

**Automatic/Emergency Locking Retractor (A/ELR)**

Each passenger's seatbelt has an Automatic/Emergency Locking Retractor (A/ELR). The Automatic Locking Retractor normally functions as an Emergency Locking Retractor (ELR). The A/ELR has an additional locking mode, "Automatic Locking Retractor (ALR) mode" intended to secure a child restraint system. When the seatbelt is once drawn out completely and is then retracted even slightly, the retractor locks the seatbelt in that position and the seatbelt cannot be extended. As the belt is retracting, clicks will be heard which indicate the retractor functions as an ALR. When the seatbelt is retracted fully, the ALR mode is released.

When securing a child restraint system on the rear seats by the use of the seatbelt, the seatbelt must be changed over to the Automatic Locking Retractor (ALR) mode.

When the child restraint system is removed, make sure that the seatbelt retracts fully and the retractor returns to the Emergency Locking Retractor (ELR) mode.

For instructions on how to convert the retractor to the ALR mode and restore it to the ELR mode, see the "Child restraint systems" section in this chapter.

**Seatbelt warning light and chime**

Your vehicle is equipped with a seatbelt warning device at the driver's seat, as required by current safety standards. This device causes the seatbelt warning light on the instrument panel to light up for about six seconds when the ignition switch is turned to "ON" to remind the driver to wear the seatbelt. If the driver's seatbelt is not fastened, a warning chime sounds at the same time.

**Fastening the seatbelt**

- Never use a belt that is twisted or reversed. In an accident, this can increase the risk or severity of injury.
- Keep the lap belt as low as possible on your hips. In a collision, this spreads the force of the lap belt over stronger hip bones instead of across the weaker abdomen.
- Seatbelts provide maximum restraint when the occupant sits well back and upright in the seat. To reduce the risk of sliding under the seatbelt in a collision, the front seatbacks should be always used in the upright position while the vehicle is running. If the front seatbacks are not used in the upright position in a collision, the risk of sliding under the lap belt and the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.
- Do not put cushions or any other materials between occupants and seatbacks or seat cushions. If you do so, the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.
Never place the shoulder belt under the arm or behind the back. If an accident occurs, this can increase the risk or severity of injury.

**CAUTION**

Metallic parts of the seatbelt can become very hot in a vehicle that has been closed up in sunny weather; they could burn an occupant. Do not touch such hot parts until they cool.

▼ Front seatbelts

1. Adjust the seat position:
   - **Driver’s seat:** Adjust the seatback to the upright position. Move the seatback as far from the steering wheel as practical while still maintaining full vehicle control.
   - **Front passenger’s seat:** Adjust the seatback to the upright position. Move the seat as far back as possible.
2. Sit well back in the seat.
3. Pick up the tongue plate and pull the belt out slowly. Do not let it get twisted. If the belt stops before reaching the buckle, return the belt slightly and pull it out more slowly. If the belt still cannot be unlocked, let the belt retract slightly after giving it a strong pull, then pull it out slowly again.

4. Insert the tongue plate into the buckle until you hear a click.

5. To make the lap part tight, pull up on the shoulder belt.
6. Place the lap belt as low as possible on your hips, not on your waist.

▼ Adjusting the front seat shoulder belt anchor height

The shoulder belt anchor height should be adjusted to the position best suited for you.
To lower the anchor height, push the release button and slide the anchor down.
To raise the anchor height, slide the anchor up. Pull down on the anchor to make sure that it is locked in place.
Always adjust the anchor height so that the shoulder belt passes over the middle of the shoulder without touching the neck.
When wearing the seatbelts, make sure the shoulder portion of the webbing does not pass over your neck. If it does, adjust the seatbelt anchor to a lower position. Placing the shoulder belt over the neck may result in neck injury during sudden braking or in a collision.

**Unfastening the seatbelt**

Push the button on the buckle.
Before closing the door, make sure that the belts are retracted properly to avoid catching the belt webbing in the door.

**Rear seatbelts (except rear center seatbelt)**
1. Sit well back in the seat.
2. Pick up the tongue plate and pull the belt out slowly. Do not let it get twisted. If the belt stops before reaching the buckle, return the belt slightly and pull it out more slowly. If the belt still cannot be unlocked, let the belt retract slightly after giving a strong pull on it, then pull it out slowly again.
3. Insert the tongue plate into the buckle until you hear a click.

**Adjusting the rear seat shoulder belt anchor height (window-side seating positions only)**

4. To make the lap part tight, pull up on the shoulder belt.
5. Place the lap belt as low as possible on your hips, not on your waist.

The shoulder belt anchor height should be adjusted to the position best suited for you.
To lower the anchor height, push the release button and slide the anchor down.
To raise the anchor height, slide the anchor up. Pull down on the anchor to make sure that it is locked in place.
Always adjust the anchor height so that the shoulder belt passes over the middle of the shoulder without touching the neck.
When wearing the seatbelts, make sure the shoulder portion of the webbing does not pass over your neck. If it does, adjust the seatbelt anchor to a lower position. Placing the shoulder belt over the neck may result in neck injury during sudden braking or in a collision.

Unfastening the seatbelt

Push the button on the buckle. Before closing the door, make sure that the belts are retracted properly to avoid catching the belt webbing.

Fastening the seatbelt with the webbing twisted can increase the risk or severity of injury in an accident. When fastening the belt after it is pulled out from the retractor, especially when inserting the connector’s tongue plate into the mating buckle (on right-hand side), always check that the webbing is not twisted.

Be sure to fasten both tongue plates to the respective buckles. If the seatbelt is used only as a shoulder belt (with the connector’s tongue plate not fastened to the connector’s buckle on the right-hand side), it cannot properly restrain the wearer in position in an accident, possibly resulting in serious injury or death.

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1. Pull out the seatbelt slowly from the overhead retractor.

2. Pass the seatbelt through the seatbelt comfort guide located beside the headrest.

3. After confirming that the webbing is not twisted, insert the connector (tongue) attached at the webbing end into the buckle on the right-hand side until a click is heard.
   If the belt stops before reaching the buckle, return the belt slightly and pull it out more slowly. If the belt still cannot be unlocked, let the belt retract slightly after giving it a strong pull, then pull it out slowly again.

4. Insert the center seatbelt tongue plate in the center seatbelt buckle marked "CENTER" on the left-hand side until it clicks.
5. To make the lap part tight, pull up on the shoulder belt.
6. Place the lap belt as low as possible on your hips, not on your waist.

Unfastening the seatbelt

Push the release button of the center seatbelt buckle (on the left-hand side) to unfasten the seatbelt.

NOTE
When the seatback is folded down for greater luggage space, it is necessary to disconnect the connector.

1. Insert a key or other hard pointed object into the slot in the connector (buckle) on the right-hand side and push it in, and the connector (tongue) plates will disconnect from the buckle.

2. Allow the retractor to roll up the belt. You should hold the webbing end and guide it back into the retractor while it is rolling up. Neatly store the tongue plates in the recess in the retractor and then insert the connector (tongue) plate into the slot located at the front of the recess.
Seat, seatbelt and SRS airbags

**Seatbelt maintenance**
To clean the seatbelts, use a mild soap and lukewarm water. Never bleach or dye the belts because this could seriously affect their strength.

Inspect the seatbelts and attachments including the webbing and all hardware periodically for cracks, cuts, gashes, tears, damage, loose bolts or worn areas. Replace the seatbelts even if only minor damage is found.

**CAUTION**
- Keep the belts free of polishes, oils, chemicals and particularly battery acid.
- Never attempt to make modifications or changes that will prevent the seatbelt from operating properly.

**Front seatbelt pretensioners**
The driver's and front passenger's seatbelts have a seatbelt pretensioner. The seatbelt pretensioners are designed to be activated in the event of an accident involving a moderate to severe frontal collision.

The pretensioner sensor also serves as the frontal SRS airbag sensor. If the sensor detects a certain predetermined amount of force during a frontal collision, the front seatbelt is quickly drawn back in by the retractor to take up the slack so that the belt more effectively restrains the front seat occupant.

When a seatbelt pretensioner is activated, an operating noise will be heard and a small amount of smoke will be released. These occurrences are normal and not harmful. This smoke does not indicate a fire in the vehicle.

Once the seatbelt pretensioner has been activated, the seatbelt retractor remains locked. Consequently, the seatbelt can not be pulled out and retracted and therefore must be replaced.

**NOTE**
- Seatbelt pretensioners are not designed to activate in minor frontal impacts, in side or rear impacts or in roll-over accidents.
- The driver's seat and passenger's seat pretensioners and frontal SRS airbag operate simultaneously.
- Pretensioners are designed to function on a one-time-only basis. In the event that a pretensioner is activated, both the driver's and front passenger's seatbelt retractor assemblies must be replaced only by an authorized SUBARU dealer.
- When replacing seatbelt retractor assemblies, use only genuine SUBARU parts.
- If either front seatbelt does not retract or cannot be pulled out due to a malfunction or activation of the pretensioner, contact your SUBARU dealer as soon as possible.

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Seat, seatbelt and SRS airbags

• If the front seatbelt retractor assembly or surrounding area has been damaged, contact your SUBARU dealer as soon as possible.
• When you sell your vehicle, we urge you to explain to the buyer that it has seatbelt pretensioners by alerting him to the contents of this section.

To obtain maximum protection, the occupants should sit in an upright position with their seatbelts properly fastened. Refer to the “Seatbelt” section in this chapter.
• Do not modify, remove or strike the front seatbelt retractor assemblies or surrounding area. This could result in accidental activation of the seatbelt pretensioners or could make the system inoperative, possibly resulting in serious injury. Seatbelt pretensioners have no user-serviceable parts. For required servicing of front seatbelt retractors equipped with seatbelt pretensioners, see your nearest SUBARU dealer.
• When discarding front seatbelt retractor assemblies or scrapping the entire car due to collision damage or for other reasons, consult your SUBARU dealer.

A diagnostic system continually monitors the readiness of the seatbelt pretensioner while the vehicle is being driven. The seatbelt pretensioners share the control module with the SRS airbag system. Therefore, if any malfunction occurs in a seatbelt pretensioner, the SRS airbag system warning light will illuminate. The SRS airbag system warning light will show normal system operation by lighting for about 6 seconds when the ignition key is turned to the “ON” position.

The following components are monitored by the indicator:
• Front sub sensor (Right hand side)
• Front sub sensor (Left hand side)
• Airbag control module (including impact sensors)
• Seatbelt pretensioner (driver's side)
• Seatbelt pretensioner (Passenger's side)
• All related wiring
• And all other airbag components

In the event of a malfunction indicated by any of the following, the vehicle should be taken promptly to your nearest SUBARU dealer to have the system checked. Unless checked and repaired, the seatbelt pretensioners and SRS airbag will not function reliably:
• Flashing or flickering of the indicator light.
• No illumination of the warning light when the ignition switch is first turned to the "ON" position.
• Continuous illumination of the warning light.
• Illumination of the warning light while driving.

System servicing

- When discarding a seatbelt retractor assembly or scrapping the entire car damaged by a collision, consult your SUBARU dealer.

Tampering with or disconnecting the system's wiring could result in accidental activation of the seatbelt pretensioner and/or SRS airbag or could make the system inoperative, which may result in serious injury. The wiring harnesses of the seatbelt pretensioner and SRS airbag systems are covered with yellow insulation and the connectors of the system are yellow for easy identification. Do not use electrical test equipment on any circuit related to the seatbelt pretensioner and SRS airbag systems. For required servicing of the seatbelt pretensioner, see your nearest SUBARU dealer.

CAUTION

The front sub sensors are located near the bottom of the radiator and the SRS airbag control module including the impact sensors is located under the center console. If you need service or repair in those areas or near the front seatbelt retractors, we recommend that you have an authorized SUBARU dealer perform the work.

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NOTE
If the front part of the vehicle is damaged in an accident to the extent that the seatbelt pretensioner does not operate, contact your SUBARU dealer as soon as possible.

Precautions against vehicle modification

CAUTION
Do not perform any of the following modifications. Such modifications can interfere with proper operation of the seatbelt pretensioners.
- Attachment of any equipment (brush bar, winch, skid plate, etc.) other than SUBARU genuine accessory parts to the front end.
- Modification of the suspension system or front end structure.
- Installation of a tire of different size and construction from the tires specified on the tire placard attached to the driver’s door jamb.

Always consult your SUBARU dealer if you want to install any accessory parts to your vehicle.

Child restraint systems

Infants and small children should always be placed in an infant or child restraint system in the rear seat while riding in the vehicle. You should use an infant or child restraint system that meets Federal Motor Vehicle Safety Standards or Canada Motor Vehicle Safety Standards, is compatible with your vehicle and is appropriate for the child’s age and size. All child restraint systems are designed to be secured in vehicle seats by lap belts or the lap belt portion of a lap/shoulder belt (except those covered under the section in this manual, entitled “Installation of child restraint systems by use of lower and tether anchorages”).

Children could be endangered in an accident if their child restraints are not properly secured in the vehicle. When installing the child restraint system, carefully follow the manufacturer’s instructions.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.

All U.S. states and Canadian provinces require that infants and small children be restrained in an approved child restraint system at all times while the vehicle is moving.

WARNING

Never let a passenger hold a child on his or her lap or in his or her arms while the vehicle is moving. The passenger cannot protect the child from injury in a collision, because the child will be caught between the passenger and objects inside the vehicle. Additionally, holding a child in your lap or arms in the front seat exposes that child to another serious danger. Since the SRS airbag deploys with considerable speed and force, the child could be injured or even killed.

Children should be properly restrained at all times. Never allow a child to stand up, or to kneel on any seat. Unrestrained children will be thrown forward during sudden stop or in an accident and can be injured seriously. Additionally, children standing up or kneeling on or in front of the front seat are exposed another serious danger. Since the SRS airbag deploys with considerable speed and force, the child could be injured or even killed.

CONTINUED
Seat, seatbelt and SRS airbags

Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater.

For that reason, be sure to secure ALL types of child restraint devices (including forward-facing child seats) in the REAR seats at all times. You should choose a restraint device which is appropriate for the child’s age, height and weight. According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.

**SINCE YOUR VEHICLE IS EQUIPPED WITH A PASSENGER'S SRS AIRBAG, NEVER INSTALL A REARWARD-FACING CHILD SAFETY SEAT IN THE FRONT PASSENGER'S SEAT, DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.**

- Child restraint systems and seatbelts can be-

...come hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check the child restraint system before you place a child in it.

- Do not leave an unsecured child restraint system in your vehicle. Unsecured child restraint systems can be thrown around inside of the vehicle in a sudden stop, turn or accident; it can strike and injure vehicle occupants as well as result in serious injuries or death to the child.

**Installing child restraint systems with seatbelt**

1. Set the child restraint system in the seating position.
2. Run the lap and shoulder belt through or around the child restraint system following the instructions provided by its manufacturer. If the shoulder belt goes in front of the child's face or neck, put it behind the child restraint system.
3. Insert the tongue plate into the buckle.
4. Take up the slack in the lap belt.
5. Pull out the seatbelt fully from the retractor to change the retractor over from the Emergency Lock-

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Seat, seatbelt and SRS airbags

Installing Retractor (ELR) to the Automatic Locking Retractor (ALR) function. Then, allow the belt to rewind into the retractor. As the belt is rewinding, clicks will be heard which indicate the retractor functions as ALR.

6. Before having a child sit in the child restraint system, move it back and forth to check if it is firmly secured. Sometimes a child restraint can be more firmly secured by pushing it down into the seat cushion and then tightening the seatbelt.

7. Pull at the shoulder portion of the belt to confirm that it cannot be pulled out (ALR properly functioning).

If the child restraint system requires a top tether, latch the hook onto the top tether anchor and tighten the top tether. See the "Top tether anchorages" for additional instructions.

8. To remove the child restraint system, press the release button on the seatbelt buckle and allow the belt to retract completely. The belt will return to the ELR mode.

If you have any question concerning this type of child restraint system, ask your SUBARU dealer.

NOTE
When the child restraint system is no longer in use, remove it and restore the ELR function of the retractor. That function is restored by allowing the seatbelt to retract fully.

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Installation of child restraint systems by use of lower and tether anchorages

Some types of child restraint systems can be installed on the rear seat of your vehicle without use of the seatbelts. Such child restraint systems are secured to the designated anchorages provided on the vehicle body.

Your vehicle is equipped with four lower anchorages (bars) and three upper anchorages (tether anchorage) for accommodating such child restraint systems.

The lower anchorages (bars) are used for installing a child restraint system only on the rear seat window-side seating positions. For each window-side seating position, two lower anchorages are provided.

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The tether anchorages (upper anchorages) are provided for all the seating positions (middle and both window-side ones) of the rear seat.

You will find marks " ◆ " at the bottom of the rear seat seatbacks. These marks indicate the positions of the lower anchorages (bars).

Each lower anchorage is located where the seat cushion meets the seatback.

1. Use the " ◆ " marks to locate the two lower anchorages (bars) for the position where you want to install the child restraint system.
2. While following the instructions supplied by the child restraint system manufacturer, connect the connectors of the child restraint system to the lower anchorages.
3. When the connectors are fastened, make sure that the adjacent seatbelts are not caught.
4. After installing the child restraint system, check to ensure that it is held securely in position. If it is not held tight and secure, the danger of your child suffering personal injury in the event of an accident may be increased.

When you install a child restraint system, follow the manufacturer's instructions supplied with it. After installing the child restraint system, check to ensure that it is held securely in position. If it is not held tight and secure, the danger of your child suffering personal injury in the event of an accident may be increased.

If you have any question concerning this type of child restraint system, ask your SUBARU dealer.
Top tether anchorages

Anchorage location

1) For left seat
2) For center seat

3) For right seat

Three anchorages, i.e., one for the right, center and left positions, are already installed on the rear edge of the roof. Open the cover flaps to use the anchorages.

To hook the top tether

1. Remove the rear seat headrest at the seating position where the child restraint system has been installed with the seatbelt or lower anchorages; lift up the headrest while pressing the release button. Store the headrest in the cargo area. Avoid placing the headrest in the passenger compartment to prevent it from being thrown around in the passenger compartment in a sudden stop or a sharp turn.

SRS airbag (Supplemental Restraint System airbag)

SRS: This stands for supplemental restraint system. This name is used because the airbag system supplements the vehicle's seatbelts.

Vehicle with driver's and front passenger's SRS airbags and lap/shoulder restraints.

Your vehicle is equipped with a supplemental restraint system in addition to a lap/shoulder belt at each front seating position.

The supplemental restraint system (SRS) consists of two airbags (driver's and front passenger's frontal airbags) or four airbags (driver's and front passenger's frontal airbags and driver's and front passenger's side airbags).

These SRS airbags are designed only as a supplement to the primary protection provided by the seatbelt.

- To obtain maximum protection in the event of an accident, the driver and all passengers in the
vehicle should always wear seatbelts when the vehicle is moving. The SRS airbag is designed only as a supplement to the primary protection provided by the seatbelt. It does not do away with the need to fasten seatbelts. In combination with the seatbelts, it offers the best combined protection in case of a serious accident. Not wearing a seatbelt increases the chance of severe injury or death in a crash even when the car has the SRS airbag.

For Instructions and precautions concerning the seatbelt system, see the "Seatbelt" sections in this chapter.

- Do not sit or lean unnecessarily close to the SRS airbag. Because the SRS airbag deploys with considerable speed — faster than the blink of an eye — and force to protect in high speed collisions, the force of an airbag can injure an occupant whose body is too close to SRS airbag. It is also important to wear your seatbelt to help avoid injuries that can result when the SRS airbag contacts an occupant not in proper position such as one thrown forward during pre-accident braking.

Even when properly positioned, there remains a possibility that an occupant may suffer minor injury such as abrasions and bruises to the face or arms because of the SRS airbag deployment force.

- The SRS airbags deploy with considerable speed and force. Occupants who are out of proper position when the SRS airbag deploys could suffer very serious injuries. Because the SRS airbag needs enough space for deployment, the driver should always sit upright and well back in the seat as far from the steering wheel as practical while still maintaining full vehicle control and the front passenger should move the seat as far back as possible and sit up right and well back in the seat.

- Do not place any objects over or near the SRS airbag cover or between you and the SRS airbag. If the SRS airbag deploys, those objects could interfere with its proper operation and could be propelled inside the car and cause injury.

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Seat, seatbelt and SRS airbags

Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater.

For that reason, we strongly recommend that ALL children (including those in child seats and those that have outgrown child restraint devices) sit in the REAR seat properly restrained at all times in a child restraint device or in a seatbelt, whichever is appropriate for the child’s age, height and weight.

Secure ALL types of child restraint devices (including forward-facing child seats) in the REAR seats at all times.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.

For instructions and precautions concerning the child restraint system, see the "Child restraint systems" section in this chapter.

- NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD’S HEAD TOO CLOSE TO THE SRS AIRBAG.

- Never allow a child to stand up, or to kneel on the front passenger's seat, or never hold a child on your lap or in your arms. The SRS airbag deploys with considerable force and can injure or even kill the child.

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CONTINUED
Seat, seatbelt and SRS airbags

**CAUTION**

- When the SRS airbag deploys, some smoke will be released. This smoke could cause breathing problems for people with a history of asthma or other breathing trouble. If you or your passengers have breathing problems after SRS airbag deploys, get fresh air promptly.
- A deploying SRS airbag releases hot gas. Occupants could get burnt if they come into direct contact with the hot gas.

**NOTE**

When you sell your vehicle, we urge you to explain to the buyer that it is equipped with SRS airbags by alerting him to the applicable section in this owner's manual.

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1) Airbag control module (including impact sensors)
2) Airbag module (driver's side)
3) Airbag module (passenger's side)
4) Front sub sensor (left hand side)
5) Front sub sensor (right hand side)
6) Side airbag module (driver's side if equipped)
7) Side airbag module (passenger's side if equipped)
8) Side airbag sensor (driver's side)
9) Side airbag sensor (passenger's side)
10) Airbag wiring
11) Seatbelt pretensioner (driver's side)
12) Seatbelt pretensioner (passenger's side)

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SRS frontal airbag

The driver's SRS frontal airbag is stowed in the center portion of the steering wheel. The passenger's SRS frontal airbag is stowed near the top of the dashboard under an "SRS AIRBAG" mark.

In a moderate to severe frontal collision, the driver's and front passenger's SRS frontal airbags deploy and supplement the seatbelts by reducing the impact on the driver's and front passenger's head and chest.

SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.

NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT SEAT. DOING SO RISKS

Never allow a child to stand up, or to kneel on the front passenger's seat. The SRS airbag deploys with considerable force and can injure or even kill the child.

Never hold a child on your lap or in your arms. The SRS airbag deploys with considerable force and can injure or even kill the child.

The SRS airbag deploys with considerable speed and force. Occupants who are out of proper position when the SRS airbag deploys could suffer very serious injuries. Because the SRS airbag needs enough space for deployment, the driver should always sit upright and well back in the seat as far from the steering wheel as practical while still maintaining full vehicle control and the front passenger should move the seat as far back as possible and sit upright and well back in the seat.

It is also important to wear your seatbelt to help...
Seat, seatbelt and SRS airbags

Avoid injuries that can result when the SRS airbag contacts an occupant not in proper position such as one thrown toward the front of the car during pre-accident braking.

Do not attach accessories to the windshield, or fit an extra-wide mirror over the rear view mirror. If the SRS airbag deploys, these objects could become projectiles that could seriously injure vehicle occupants.

Do not put any objects over the steering wheel pad and dashboard. If the SRS frontal airbag deploys, those objects could interfere with its proper operation and could be propelled inside the vehicle and cause injury.

Operation:

A

1

B

2

A: Driver's side
B: Passenger's side
1) SRS AIRBAGs deploy as soon as a collision occurs.
2) After deployment, SRS AIRBAGs start to deflate immediately so that the driver's vision is not obstructed.

- CONTINUED -

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S930530
The SRS airbag can function only when the ignition switch is in the "ON" position.

If the sensors detect a certain predetermined amount of force during a frontal collision, the control module sends signals to the frontal airbag modules instructing them to inflate the SRS frontal airbags. Then both airbag modules produce gas, which instantly inflates driver's and passenger's SRS frontal airbags. After the deployment, the SRS airbags immediately start to deflate so that the driver's vision is not obstructed. The time required from detecting impact to the deflation of the SRS airbag after deployment is shorter than the blink of an eye.

The front passenger's SRS frontal airbag deploys together with driver's SRS frontal airbag even when no one occupies the front passenger's seat.

Although it is highly unlikely that the SRS airbag would activate in a non-accident situation, should it occur, the SRS airbag will deflate quickly, not obscuring vision and will not interfere with the driver's ability to maintain control of the vehicle.

When the SRS airbag deploys, a sudden, fairly loud inflation noise will be heard and some smoke will be released. These occurrences are normal result of the deployment. This smoke does not indicate a fire in the vehicle.

CAUTION
Do not touch the SRS airbag system components around the steering wheel and dashboard with bare hands right after deployment. Doing so can cause burns because the components can be very hot as a result of deployment.

The SRS frontal airbag is designed to deploy in the event of an accident involving a moderate to severe frontal collision. It is basically not designed to deploy in lesser frontal impacts because the necessary protection can be achieved by the seatbelt alone. Also, it is basically not designed to deploy in side or rear impacts or in roll-over accidents because deployment of the SRS frontal airbag would not help the occupant in those situations. The SRS airbag is designed to function on a one-time-only basis.

SRS airbag deployment depends on the level of force experienced in the passenger compartment during a collision. That level differs from one type of collision to another, and it may have no bearing on the visible damage done to the vehicle itself.

▼ When will the SRS frontal airbag most likely deploy?

A head-on collision against a thick concrete wall at a vehicle speed of 12 to 19 mph (20 to 30 km/h) or higher activates the SRS frontal airbag. The SRS frontal airbag will also be activated when the vehicle is exposed to a frontal impact similar in fashion and magnitude to the above-mentioned collision.

▼ At what other times might the SRS frontal airbag deploy?

The SRS frontal airbag may be activated when the vehicle sustains a hard impact in the undercarriage area from the road surface (such as when the vehicle...
Seat, seatbelt and SRS airbags

plunges into a deep ditch, is severely bumped or knocked hard against an obstacle on the road such as a curb.

\( \nabla \) When is the SRS frontal airbag unlikely to deploy?

There are many types of collisions which might not necessarily require SRS frontal airbag deployment. If the vehicle strikes an object, such as a telephone pole or sign pole, or if it slides under a truck's load bed, or if it sustains an oblique offset frontal impact, the SRS frontal airbag may not deploy depending on the level of accident forces involved.

\( \nabla \) When will the SRS frontal airbag not deploy?

The SRS frontal airbag is basically not designed to deploy if the vehicle is struck from side or from behind, or if it rolls onto its side or roof, or if it is involved in a low-speed frontal collision.

1) First impact
2) Second impact

In an accident where the vehicle is impacted more than once, the SRS frontal airbag deploys only once.

Example: In the case of a double collision, first with another vehicle, then against a concrete wall in immediate succession, once the SRS frontal airbag is activated on the first impact, it will not be activated on the second.

SRS side airbag (If equipped)
The SRS side airbag is stored in the door side of each
The SRS side airbag is designed as only a supplement to the primary protection provided by the seatbelt. It does not do away with the need to fasten seatbelts. It is also important to wear your seatbelt to help avoid injuries that can result when an occupant is not seated in a proper upright position.

Do not sit or lean unnecessarily close to either front door. The SRS-side airbag is stored in both front seat seatbacks next to the door, and it provides protection by deploying rapidly (faster than the blink of an eye) in the event of a side impact collision. However, the force of SRS side airbag deployment may cause injuries if your head or other body parts are too close to the SRS side airbag.

Do not rest your arm on either front door or its internal trim. It could be injured in the event of SRS side airbag deployment.

--- CONTINUED ---
Never allow a child to kneel on the front passenger's seat facing the side window or to wrap his/her arms around the front seatback. In the event of an accident, the force of the SRS side airbag deployment could injure the child seriously because his/her head or arms or other body parts are too close to the SRS side airbag. Since your vehicle is also equipped with a passenger's SRS frontal airbag, children aged 12 and under should be placed in the rear seat anyway and should be properly restrained at all times.

Do not attach accessories to the door trim or near either SRS side airbags and do not place objects near the SRS side airbags. In the event of the SRS side airbag deployment, they could be propelled dangerously toward the vehicle's occupants and cause injuries.

Do not put any kind of cover or clothes or other objects over either front seatback and do not attach labels or stickers to the front seat surface or near the SRS side airbag. They could prevent proper deployment of the SRS side airbag, reducing protection available to the front seat's occupant.

Operation:

A) SRS side airbag deploys as soon as a collision occurs.
B) SRS side airbag protects the front passenger's head.

CONTINUED→
Seat, seatbelt and SRS airbags

and chest.
(C) After deployment, SRS side airbag starts to deflate immediately.

The SRS side airbag can function only when the ignition switch is in the "ON" position.

The driver's and front passenger's SRS side airbags deploy independently of each other since each has its own impact sensor. Also, the SRS side airbag deploys independently of the frontal airbags in the steering wheel and instrument panel.

An impact sensor is incorporated into each of the vehicle's center pillars. If either sensor detects a certain predetermined amount of force during a side impact collision, the control module sends a signal to the side airbag module or the impacted side of the vehicle, instructing it to inflate the SRS side airbag. Then, the side airbag module produces gas, which instantly inflates the SRS side airbag. After the deployment, the SRS side airbag immediately starts to deflate. The time required from detecting impact to deflation of the SRS side airbag after deployment is shorter than the blink of an eye.

The SRS side airbag deploys even when no one occupies the seat on the side on which an impact is applied.

When the SRS side airbag deploys, a sudden, fairly loud inflation noise will be heard and some smoke will be released. These occurrences are normal results of the deployment. This smoke does not indicate a fire in the vehicle.

**CAUTION**

Do not touch the SRS side airbag system components around the front seatback with bare hands right after deployment. Doing so can cause burns because the components can be very hot as a result of deployment.

The SRS side airbag is designed to deploy in the event of an accident involving a moderate to severe side impact collision. It is basically not designed to deploy in lesser side impact. Also, it is basically not designed to deploy in frontal or rear impacts because SRS side airbag deployment would not help the occupant in those situations.

Each SRS side airbag is designed to function on a one-time-only basis.

SRS side airbag deployment depends on the level of force experienced in the passenger compartment during a side impact collision. That level differs from one type of collision to another, and it may have no bearing on the visible damage done to the vehicle itself.

▼ When will the SRS side airbag most likely deploy?

A severe side impact near the front seat activates the SRS side airbag.
When is the SRS side airbag unlikely to deploy?

1) The vehicle is involved in an oblique side-on impact.
2) The vehicle is involved in a side-on impact in an area outside the vicinity of the passenger compartment.
3) The vehicle strikes a telephone pole or similar object.
4) The vehicle is involved in a side-on impact from a motorcycle.
5) The vehicle rolls onto its side or roof.

There are many types of collisions which might not necessarily require SRS side airbag deployment. In the event of accidents like those illustrated, the SRS side airbag may not deploy depending on the level of accident forces involved.

When will the SRS side airbag not deploy?

1) The vehicle is involved in frontal collision with another vehicle (moving or stationary).
2) The vehicle is struck from behind.
The SRS side airbag is basically not designed to deploy if the vehicle is involved in a frontal collision or is struck from behind. Examples of such accidents are illustrated.

1) First impact
2) Second impact

In an accident where the vehicle is struck from the side more than once, the SRS side airbag deploys only once.

Example: In the case of a double side impact collision, first with one vehicle and immediately followed by another from the same direction, once the SRS side airbag is activated on the first impact, it will not be activated on the second.

**SRS airbag system monitors**

A diagnostic system continually monitors the readiness of the SRS airbag system while the vehicle is being driven. The SRS airbag system warning light "AIRBAG" will show normal system operation by lighting for about 8 seconds when the ignition key is turned to the "ON" position.

The following components are monitored by the indicator:
- Front sub sensor (Right hand side)
- Front sub sensor (Left hand side)

**SRS airbag system servicing**

- Airbag control module (including impact sensors)
- Frontal airbag module (Driver's side)
- Frontal airbag module (Passenger's side)
- Side airbag sensor (Driver's side - if equipped)
- Side airbag sensor (Passenger's side - if equipped)
- Side airbag module (Driver's side - if equipped)
- Side airbag module (Passenger's side - if equipped)
- Seatbelt pretensioner (Driver's side)
- Seatbelt pretensioner (Passenger's side)
- All related wiring

In the event of a malfunction indicated by any of following, the vehicle should be taken promptly to your nearest SUBARU dealer to have the system checked. Unless checked and repaired, the SRS airbags will not function reliably:
- Flashing or flickering of the indicator light.
- No illumination of the warning light when the ignition switch is first turned to the "ON" position.
- Continuous illumination of the warning light.
- Illumination of the warning light while driving.

**CAUTION**

If you need service or repair in areas listed below, we recommend that you have an authorized SUBARU dealer perform the work. The SRS airbag control module, impact sensors and airbag modules are stored in these areas:
- Under the center console
- Near the bottom of the radiator
- Steering wheel and column and nearby areas
- Top of the dashboard on front passenger's
Seat, seatbelt and SRS airbags

- Each front seat and nearby area (for vehicles with SRS side airbags only)
- Inside each center pillar

side and nearby areas

In the event that the SRS airbag is deployed, replacement of the system should be performed only by an authorized SUBARU dealer. When the components of the SRS airbag system are replaced, use only genuine SUBARU parts.

To ensure their long-term reliability, the SRS airbags must be inspected by a SUBARU dealer ten years after the date of manufacture, which is shown on the certification plate attached to the driver's door jamb.

NOTE

In the following cases, contact your SUBARU dealer as soon as possible.
- The front part of the vehicle was involved in an accident in which the SRS frontal airbags did not deploy.
- The pad section of the steering wheel or front passenger's frontal airbag cover is scratched, cracked, or otherwise damaged.

In addition, if your vehicle is equipped with SRS side airbags, contact your SUBARU dealer as soon as possible in the following cases.
- Either center pillar or a nearby area of the vehicle was involved in an accident in which the SRS side airbag did not deploy.
- The fabric or leather of either front seatback is cut, frayed, or otherwise damaged.

Precautions against vehicle modification

- To avoid accidental activation of the system or rendering the system inoperative, which may result in serious injury, no modifications should be made to any components or wiring of the SRS airbag system. This includes the following modifications:
  - Installation of custom steering wheels
  - Attachment of additional trim materials to the dashboard
  - Installation of custom seats (for vehicles with SRS side airbags only)
  - Replacement of seat fabric or leather (for vehicles with SRS side airbags only)
  - Installation of additional fabric or leather on the front seat (for vehicles with SRS side airbags only)

Do not perform any of the following modifications. Such modifications can interfere with proper operation of the SRS airbag system.
- Attachment of any equipment (brush bar, winches, snowplow, skid plate, etc.) other than SUBARU genuine accessory parts to the front end.
- Modification of the suspension system or front end structure.
- Installation of a tire of different size and construction from the tires specified on the tire placard attached to the driver's door jamb.
- Attachment of any equipment (side steps or side sill protectors, etc.) other than SUBARU genuine accessory parts to the side body (for vehicles with side airbags only).

Always consult your SUBARU dealer if you want to install any accessory parts to your vehicle.
Appendix D

Miscellaneous Test Information
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