## 17.2 Emergency Tensioning Retractor

### 17.2 Model 140

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Diagnostics Functional control

Seat belts, belt latch, belt tension reduction feature, belt height adjustment

Component locations

Figure 1

1 Seat belt
2 Seat belt latch
3 Seat belt height adjustment
4 Seat belt automatic reel
5 Cable (Seat belt height adjustment)
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Diagnostics  Functional control  Seat belts, belt latch, belt tension reduction feature, belt height adjustment

Conduct the mechanical and electrical functional tests of the seat belt tensioner:

- After an accident
- After deployment of the seat belt tensioner
- After replacement of the seat belt tensioner

Testing the seat belt tension reduction feature and the seat belt height adjustment is also described in this chapter on seat belt tensioner (ETR).
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### Diagnostics

<table>
<thead>
<tr>
<th>Test step/scope of test</th>
<th>Test condition</th>
<th>Nominal value</th>
<th>Possible cause/remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>⇒ 1 Testing the free movement of the seat belts and the seat belt automatic reels (Driver, front passenger, rear seats)</td>
<td>Pull the seat belt outward (figure 1, item 1) slowly and with constant force, then release.</td>
<td>The seat belt can be pulled out and the automatic reel pulls it back in again.</td>
<td>Seat belt twisted or folded. Defective automatic reel (91–0625–0630)</td>
</tr>
<tr>
<td>⇒ 2 Testing seat belt latch (Driver, front passenger, rear seats)</td>
<td>Pull the seat belt (figure 1, item 1) abruptly outward.</td>
<td>Seat belt is locked by the automatic reel.</td>
<td>Defective automatic reel (91–0625–0630)</td>
</tr>
<tr>
<td>⇒ 3 Testing seat belt tension reduction feature (Driver, front passenger, rear seats)</td>
<td>Turn the ignition key to position 1. Sit in the driver's and/or front passenger's seat, pull out the seat belt. Latch the seat belt. Pull the seat belt out again.</td>
<td>When the seat belt is pulled out the normal retraction force is applied. When the seat belt is latched there is a reduced retraction force.</td>
<td>Seat belt twisted or folded. Defective automatic reel (91–0625–0630) Defective seat belt latch, Defective automatic reel.</td>
</tr>
<tr>
<td>⇒ 4 Testing seat belt height adjustment Driver, front passenger</td>
<td>Adjust the driver and/or front passenger seat forward. Backward.</td>
<td>Seat belt height adjustment adjusts itself upward. Downward.</td>
<td>Defective seat height adjuster (91–0639)</td>
</tr>
</tbody>
</table>

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1) Seat belt tension reduction feature in rear seat only with individual power seats or available with power seat back adjustment.
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## Diagnostics Troubleshooting chart

<table>
<thead>
<tr>
<th>Complaint</th>
<th>Possible cause</th>
<th>Remedy/test step ¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>After an accident both belt tensioners are released or not released.</td>
<td>Left seat belt tensioner, Right seat belt tensioner</td>
<td>23 ⇒ 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23 ⇒ 2</td>
</tr>
<tr>
<td>Seat belt cannot be pulled out.</td>
<td>Seat belt twisted</td>
<td>11 ⇒ 1</td>
</tr>
<tr>
<td></td>
<td>Seat belt automatic reel defective</td>
<td></td>
</tr>
<tr>
<td>After latching the seat belt the retraction force is not reduced.</td>
<td>Seat belt latch or seat belt automatic reel defective</td>
<td>11 ⇒ 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 ⇒ 1</td>
</tr>
<tr>
<td>Seat belt height adjustment does not work.</td>
<td>Cable not connected. Defective seat belt height adjuster</td>
<td>11 ⇒ 4</td>
</tr>
</tbody>
</table>

¹) Observe Preparation for Test, see 22.
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Electrical testing program  Component locations

Figure 1

K18/4  Driver seat belt adjustment solenoid
K18/5  Front passenger seat belt adjustment solenoid
N2/1   ETR control unit
R12/1  Left front emergency tensioning retractor (ETR) squib
R12/2  Right front emergency tensioning retractor (ETR) squib
S68/9  Drive seat belt buckle switch (belt position/convenience)
S68/10 Front passenger seat belt buckle switch (belt position/convenience)
X4/17  Terminal block, terminal 15C
X11/7  Test connection, ETR
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Preparations for testing

1. Ignition: OFF
2. Expose and disconnect test connection, ETR (X11/7) in the front passenger legroom (figure 1, 24).
3. Connect socket box with test wiring harness according to connection diagram (figure 1, 23).

Electric wiring diagrams:
See “Electric Troubleshooting Manual, Model 140”

Description: Group
Model 140 91

Note on the column Test equipment/test connection
The letters or numbers in parentheses, such as ⇒ 1.0 (B.1) mean:
B = connector B
1 = Socket 1 in electrical wiring diagram

Special Tools

35-pin socket box
Test cable
Electrical connecting set

124 589 00 21 00
140 589 11 63 00
201 589 00 99 00
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#### Electrical test program

#### Preparations for testing

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multimeter</td>
<td>Fluke 23 DB</td>
</tr>
<tr>
<td></td>
<td>Sun, DMM-</td>
</tr>
</tbody>
</table>
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Electrical test program

Preparations for testing

Socket box connection diagram

Figure 1

002 Test cable
003 Multimeter
004 Socket box
X11/7 Test connection, ETR
### Electric test program Testing the seat belt tensioning system

<table>
<thead>
<tr>
<th>Test step</th>
<th>Scope of test</th>
<th>Test equipment/test connection</th>
<th>Test condition</th>
<th>Nominal value</th>
<th>Possible cause/remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>⇒ 1.0</td>
<td><strong>Left front emergency tensioning retractor (ETR) squib (R12/1)</strong></td>
<td>X11/7 9 → 10 (B.1) → (B.2)</td>
<td>Ignition: <strong>OFF</strong> Disconnect test connection, ETR (X11/7) (24, figure 1)</td>
<td>2–5 Ω</td>
<td>Wiring Left seat belt tensioner (91-0630)</td>
</tr>
<tr>
<td>⇒ 2.0</td>
<td><strong>Right front emergency tensioning retractor (ETR) squib (R12/2)</strong></td>
<td>X11/7 11 → 12 (B.3) → (B.4)</td>
<td>Ignition: <strong>OFF</strong> Disconnect test connection, ETR (X11/7) (24, figure 1)</td>
<td>2–5 Ω</td>
<td>Wiring Right seat belt tensioner (91-0630)</td>
</tr>
</tbody>
</table>
### Electrical test program  Testing the seat belt tension reduction feature (driver, front passenger)

<table>
<thead>
<tr>
<th>Test step</th>
<th>Scope of test</th>
<th>Test equipment/ test connection</th>
<th>Test condition</th>
<th>Nominal value</th>
<th>Possible cause/remedy</th>
</tr>
</thead>
</table>
| ⇒ 1.0     | **Voltage supply, seat belt latch switch**  
Driver, front passenger)  
S68/9, S68/10 |  
K18/4 and/or  
K18/5  
1 \( \rightarrow \)  
(B) \( \rightarrow \)  
2 \( \rightarrow \)  
(B) | Remove the B-pillar cover.  
Unplug the connector for the seat belt tension reduction feature actuator at the seat belt automatic reel.  
Ignition: **ON**  
Seat belt **not** latched.  
Seat belt **latched**. | 0 V  
11–14 V | Wiring  
Seat belt latch (S68/9, S68/10) |
| ⇒ 1.1     | **Actuator, seat belt tension reduction feature**  
driver (K18/4)  
front passenger (K18/5) |  
K18/4 and/or  
K18/5  
1 \( \rightarrow \)  
(B) \( \rightarrow \)  
2 \( \rightarrow \)  
(B) | Remove the B-pillar cover.  
Unplug the connector for the seat belt tension reduction feature actuator. | 50–60 Ω | Defective seat belt automatic reel (91–0630) |
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### Electrical test program

<table>
<thead>
<tr>
<th>Test step</th>
<th>Scope of test</th>
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<th>Test condition</th>
<th>Nominal value</th>
<th>Possible cause/remedy</th>
</tr>
</thead>
</table>
| ⇒ 2.0     | **Voltage supply, seat belt latch switch** \(^1\)  
Right, left rear seat (S68/11, S68/12) | K18/6 and/or K18/7  
1 ← — — — — 2 | Remove the B-pillar cover.  
Unplug the connector for the seat belt tension reduction feature actuator at the seat belt automatic reel.  
Ignition: ON  
Seat belt not latched.  
Seat belt **latched**. | 0 V  
11–14 V | Wiring  
Seat belt (S68/11, S68/12) |
| ⇒ 2.1     | **Actuator, seat belt tension reduction feature** \(^1\)  
Left rear seat (K18/6)  
Right rear seat (K18/7) | K18/6 and/or K18/7  
1 ← — — — — 2 | Unplug the connector for the seat belt tension reduction feature actuator. | 50–60 Ω | Defective seat belt automatic reel (91–0630) |

\(^1\) Seat belt tension reduction feature in rear seat only with individual power seats or available with power seat back adjustment.
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Electrical test program

Testing the seat belt tension reduction feature (driver, front passenger)

Figure 1
X11/7 Test connection, ETR

Figure 2
X4/17 Terminal block, terminal 15c

Figure 3
W12 Ground, center console
W26 Ground, SRS control unit