

Pinpoint Test - DTC: H

B0070:11, B0070:12, B0070:13, B0070:1A

Refer to Wiring Diagrams Cell 46 for schematic and connector information.

Normal Operation and Fault Conditions

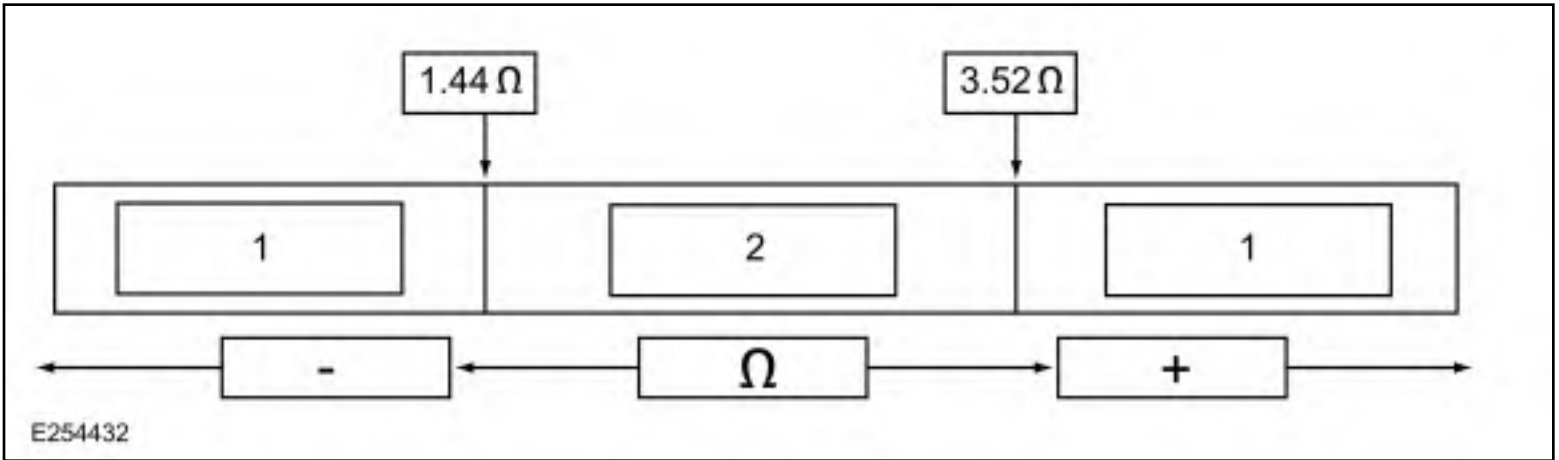
The RCM continuously monitors the driver safety belt anchor pretensioner circuits for the following faults:

- Resistance out of range
- Unexpected voltage
- Short to ground
- Faulted driver safety belt anchor pretensioner

If a fault is detected, the RCM stores DTC B0070:11, B0070:12, B0070:13 or B0070:1A in memory and sends a message to the IPC to illuminate the airbag warning indicator.

The RCM analyzes the deployment loop resistance to determine if a fault exists. The value displayed in the PID is the deployment loop resistance measured by the RCM. If the value displayed is lower or higher than the desired range (refer to diagram below), the RCM can set a DTC. As the deployment loop resistance drifts farther outside the desired range, the chance for a DTC increases. Small variations in resistance can occur due to the effect of road vibrations on terminal fit. Crimps and terminals can be affected by stress and harness movement and can cause an increase in resistance due to wire strain. These variables can result in an intermittent fault. For this reason, the test requires the PID value to be within the desired range before the fault is considered repaired, regardless if the module is reporting an on-demand DTC at the time of diagnosis. Following this direction helps make sure that minor changes in resistance do not create a repeat concern. This test uses process of elimination to diagnose each part of the deployment loop circuit including:

- Wiring
- Connections
- Driver safety belt anchor pretensioner
- RCM



Item	Description
1	May set DTC
2	Desired range

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B0070:11	Driver Seatbelt Pretensioner "A" Deployment Control: Circuit Short to Ground	A fault is indicated when the RCM senses a short to ground on either driver safety belt anchor pretensioner circuit for more than 6 seconds.
B0070:12	Driver Seatbelt Pretensioner "A" Deployment Control: Circuit Short to Battery	A fault is indicated when the RCM senses a short to voltage on either driver safety belt anchor pretensioner circuit for more than 6 seconds.
B0070:13	Driver Seatbelt Pretensioner "A" Deployment Control: Circuit Open	A fault is indicated when the RCM measures more than the desired resistance between the driver safety belt anchor pretensioner circuits for more than 6 seconds.

B0070:1A	Driver Seatbelt Pretensioner "A" Deployment Control: Circuit Resistance Below Threshold	A fault is indicated when the RCM measures less than the desired resistance between the driver safety belt anchor pretensioner circuits for more than 6 seconds.
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Possible Sources

- Wiring, terminals or connectors
- Driver safety belt anchor pretensioner
- RCM

PINPOINT TEST A : B0070:11, B0070:12, B0070:13 AND B0070:1A



WARNING: Incorrect repair techniques or actions can cause an accidental Supplemental Restraint System (SRS) deployment. Never compromise or depart from these instructions. Failure to precisely follow all instructions could result in serious personal injury from an accidental deployment.

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

NOTE: Most faults are due to connector and/or wiring concerns. Carry out a thorough inspection and verification before proceeding with the pinpoint test.

NOTE: Only disconnect or reconnect SRS components when instructed to do so within a pinpoint test step. Failure to follow this instruction may result in incorrect diagnosis of the SRS.

NOTE: Always make sure the correct SRS component is being installed. Parts released for other vehicles may not be compatible even if they appear physically similar. Check the part number listed in the Ford parts catalog to make sure the correct component is being installed. If an incorrect SRS component is installed, Diagnostic Trouble Codes (DTCs) may set.

NOTE: The SRS must be fully operational and free of faults before releasing the vehicle to the customer.

A1 RETRIEVE RCM (RESTRAINTS CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

-  **WARNING:** Before beginning any service procedure in this section, refer to Safety Warnings in section 100-00 General Information. Failure to follow this instruction may result in serious personal injury.

REFER to: [Pyrotechnic Device Health and Safety Precautions](#) (100-00 General Information, Description and Operation).

- Ignition ON.
- Using a diagnostic scan tool, perform RCM self-test.

Was DTC B0070:11, B0070:12, B0070:13 and B0070:1A retrieved on-demand during self-test?

Yes	This fault cannot be cleared until it is corrected and the DTC is no longer retrieved on-demand during self-test. If DTC U3003:16 or U3003:17 is also retrieved on-demand, REFER to: Pinpoint Test - DTC: AN, Raptor (501-20B Supplemental Restraint System, Diagnosis and Testing). If DTC U3003:16 or U3003:17 is not retrieved on-demand during self-test, DIAGNOSE the driver safety belt anchor pretensioner Diagnostic Trouble Codes (DTCs). For DTC B0070:13 or B0070:1A, GO to A2 For DTC B0070:11, GO to A8 For DTC B0070:12, GO to A10
No	This is an intermittent fault when present as a CMDTC only. If DTC U3003:16 or U3003:17 is also retrieved on-demand, REFER to: Pinpoint Test - DTC: AN, Raptor (501-20B Supplemental Restraint System, Diagnosis and Testing). If DTC U3003:16 or U3003:17 is not retrieved on-demand during self-test, DIAGNOSE the driver safety belt anchor pretensioner Continuous Memory Diagnostic Trouble Codes (CMDTCs). For DTC B0070:13 or B0070:1A, GO to A13 For DTC B0070:11, GO to A14 For DTC B0070:12, GO to A15

A2 CHECK THE DRIVER SEATBELT ANCHOR PRETENSIONER DEPLOYMENT CONTROL (DEPLOY_29_RES) PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool, view RCM Parameter Identifications (PIDs).
- Monitor and record the resistance value displayed by the DEPLOY_29_RES PID.

Does the PID value read between 1.44 and 3.52 ohms?

Yes	GO to A12
No	GO to A3

A3 CHECK THE DRIVER SEATBELT ANCHOR PRETENSIONER DEPLOYMENT CONTROL (DEPLOY_29_RES) PID (PARAMETER IDENTIFICATION) WHILE CARRYING OUT THE HARNESS TEST

- While monitoring the DEPLOY_29_RES PID, carry out the harness test of the driver safety belt anchor pretensioner circuits and accessible connectors (including any inline connectors) by wiggling and flexing the wire harness and connectors frequently. Record the resistance value indicated by the PID.

Does the PID value read between 1.44 and 3.52 ohms while carrying out the harness test?

Yes	DEPOWER the SRS and REPAIR the connector, terminals or wire harness as needed. Refer to Wiring Diagrams Cell 5 for schematic and connector information. GO to A17
No	For PID value less than 1.44 ohms, GO to A4 For PID value greater than 3.52 ohms, GO to A6

A4 CHECK THE DRIVER SAFETY BELT ANCHOR PRETENSIONER DEPLOYMENT CONTROL DTC (DIAGNOSTIC TROUBLE CODE) FOR A FAULT STATUS CHANGE (LOW RESISTANCE INDICATED)

NOTE: This pinpoint test step attempts to change the fault reported by the RCM by inducing a different fault condition. If the reported fault changes, this indicates the RCM is functioning correctly and is not the source of the fault.

- Ignition OFF.
- Depower the SRS.
REFER to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Disconnect Driver Safety Belt Retractor C323B.
- Repower the SRS. **Do not** prove out the SRS at this time.
REFER to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Ignition ON.
- Using a diagnostic scan tool, perform RCM self-test.
- **DIAGNOSTIC TIP:** When viewing Diagnostic Trouble Codes (DTCs) with the driver safety belt anchor pretensioner disconnected, an open circuit fault is normally retrieved.

Did the on-demand DTC change from B0070:1A to B0070:13?

Yes	GO to A11
No	GO to A5

A5 CHECK FOR A SHORT BETWEEN THE DRIVER SAFETY BELT ANCHOR PRETENSIONER CIRCUITS

- Ignition OFF.
- Depower the SRS.
REFER to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Disconnect RCM C310A and C310B.

Is the resistance greater than 10,000 ohms?

Yes	GO to A12
No	REPAIR the circuit(s). Refer to Wiring Diagrams Cell 5 for schematic and connector information. GO to A17

A6 CHECK THE DRIVER SAFETY BELT ANCHOR PRETENSIONER CIRCUITS FOR AN OPEN

- Ignition OFF.
- Depower the SRS.
REFER to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Disconnect Driver Safety Belt Retractor C323B.
- Disconnect RCM C310A and C310B.

Are the resistances less than 0.5 ohm?

Yes	GO to A7
No	REPAIR the circuits. Refer to Wiring Diagrams Cell 5 for schematic and connector information. GO to A17

A7 CHECK THE DRIVER SAFETY BELT ANCHOR PRETENSIONER DEPLOYMENT CONTROL DTC (DIAGNOSTIC TROUBLE CODE) FOR A FAULT STATUS CHANGE (OPEN INDICATED)

NOTE: This pinpoint test step attempts to change the fault reported by the RCM by inducing a different fault condition. If the reported fault changes, this indicates the RCM is functioning correctly and is not the source of the fault.

- Connect RCM C310A and C310B.
- Repower the SRS. **Do not** prove out the SRS at this time.
REFER to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Ignition ON.
- Using a diagnostic scan tool, perform RCM self-test.
- **DIAGNOSTIC TIP:** When viewing Diagnostic Trouble Codes (DTCs) with the driver safety belt anchor pretensioner circuits shorted together, a low resistance fault is normally retrieved.

Did the on-demand DTC change from B0070:13 to B0070:1A?

Yes	REMOVE the fused jumper wire and GO to A11
No	REMOVE the fused jumper wire and GO to A12

A8 CHECK THE DRIVER SAFETY BELT ANCHOR PRETENSIONER DEPLOYMENT CONTROL DTC (DIAGNOSTIC TROUBLE CODE) FOR A FAULT STATUS CHANGE (SHORT TO GROUND INDICATED)

NOTE: This pinpoint test step attempts to change the fault reported by the RCM by inducing a different fault condition. If the reported fault changes, this indicates the RCM is functioning correctly and is not the source of the fault.

- Ignition OFF.
- Depower the SRS.
REFER to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Disconnect Driver Safety Belt Retractor C323B.
- Repower the SRS. **Do not** prove out the SRS at this time.
REFER to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Ignition ON.
- Using a diagnostic scan tool, perform RCM self-test.
- **DIAGNOSTIC TIP:** When viewing Diagnostic Trouble Codes (DTCs) with the driver safety belt anchor pretensioner disconnected, an open circuit fault is normally retrieved.

Did the on-demand DTC change from B0070:11 to B0070:13?

Yes	GO to A11
No	GO to A9

A9 CHECK THE DRIVER SAFETY BELT ANCHOR PRETENSIONER CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Depower the SRS.
REFER to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Disconnect RCM C310A and C310B.

Are the resistances greater than 10,000 ohms?

Yes	GO to A12
No	REPAIR the circuit(s). Refer to Wiring Diagrams Cell 5 for schematic and connector information. GO to A17

A10 CHECK THE DRIVER SAFETY BELT ANCHOR PRETENSIONER CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Depower the SRS.
REFER to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Disconnect Driver Safety Belt Retractor C323B.
- Disconnect RCM C310A and C310B.
- Repower the SRS. **Do not** prove out the SRS at this time.
REFER to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit(s). Refer to Wiring Diagrams Cell 5 for schematic and connector information. GO to A17
No	GO to A12

A11 CONFIRM THE DRIVER SAFETY BELT ANCHOR PRETENSIONER FAULT

NOTE: Make sure all SRS components and the RCM electrical connectors are connected before carrying out the self-test. If not, Diagnostic Trouble Codes (DTCs) will be recorded.

- Ignition OFF.
- Depower the SRS.
REFER to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Connect Driver Safety Belt Retractor C323B.
- Repower the SRS. **Do not** prove out the SRS at this time.
REFER to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Ignition ON.
- Using a diagnostic scan tool, perform RCM self-test.

Was the original DTC retrieved on-demand during self-test?

Yes	INSTALL a new driver safety belt anchor pretensioner (includes anchor pretensioner). REFER to: Front Seatbelt Retractor and Pretensioner - SuperCab (501-20A Seatbelt Systems, Removal and Installation). REFER to: Front Seatbelt Retractor and Pretensioner - SuperCab (501-20A Seatbelt Systems, Removal and Installation). REFER to: Front Seatbelt Retractor and Pretensioner - SuperCrew (501-20A Seatbelt Systems, Removal and Installation). GO to A17
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No	In the process of diagnosing the fault, the fault condition has become intermittent. Do not install any new SRS components at this time. Install SRS components only when directed to do so in the pinpoint test. For DTC B0070:13 or B0070:1A, GO to A13 For DTC B0070:11, GO to A14 For DTC B0070:12, GO to A15
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A12 CONFIRM THE RCM (RESTRAINTS CONTROL MODULE) FAULT

NOTE: Make sure all SRS components and the RCM electrical connectors are connected before carrying out the self-test. If not, Diagnostic Trouble Codes (DTCs) will be recorded.

- Ignition OFF.
- Depower the SRS.
REFER to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Connect Driver Safety Belt Retractor C323B (if previously disconnected).
- Connect RCM C310A and C310B (if previously disconnected).
- Repower the SRS. **Do not** prove out the SRS at this time.
REFER to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Ignition ON.
- Using a diagnostic scan tool, perform RCM self-test.

Was the original DTC retrieved on-demand during self-test?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new RCM. REFER to: Restraints Control Module (RCM) (501-20B Supplemental Restraint System, Removal and Installation). GO to A17
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No	In the process of diagnosing the fault, the fault condition has become intermittent. Do not install any new SRS components at this time. Install SRS components only when directed to do so in the pinpoint test. For DTC B0070:13 or B0070:1A, GO to A13 For DTC B0070:11, GO to A14 For DTC B0070:12, GO to A15
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A13 CHECK THE DRIVER SEATBELT ANCHOR PRETENSIONER DEPLOYMENT CONTROL (DEPLOY_29_RES) PID (PARAMETER IDENTIFICATION) FOR AN INTERMITTENT LOW RESISTANCE OR OPEN CIRCUIT FAULT

- Using a diagnostic scan tool, view RCM Parameter Identifications (PIDs).
- While monitoring the DEPLOY_29_RES PID, attempt to recreate the fault by wiggling connectors (including any inline connectors) and flexing the wire harness frequently. Record the resistance value indicated by the PID.

Does the PID value read between 1.44 and 3.52 ohms?

Yes	The fault is not present and cannot be recreated at this time. Do not install any new SRS components at this time. Install SRS components only when directed to do so in the pinpoint test. GO to A16
No	DEPOWER the SRS. REFER to: Supplemental Restraint System (SRS) Depowering (501-20B Supplemental Restraint System, General Procedures). REPAIR as necessary. Refer to Wiring Diagrams Cell 5 for schematic and connector information. GO to A17

A14 CHECK THE DRIVER SAFETY BELT ANCHOR PRETENSIONER DEPLOYMENT CONTROL CIRCUITS FOR AN INTERMITTENT SHORT TO GROUND FAULT

- Attempt to recreate the fault by wiggling connectors (including any inline connectors) and flexing the wire harness frequently.
- Using a diagnostic scan tool, perform RCM self-test.

Was DTC B0070:11 retrieved on-demand during self-test?

Yes	DEPOWER the SRS and REPAIR as necessary. Refer to Wiring Diagrams Cell 5 for schematic and connector information. GO to A17
No	The fault is not present and cannot be recreated at this time. Do not install any new SRS components at this time. Install SRS components only when directed to do so in the pinpoint test. GO to A16

A15 CHECK THE DRIVER SAFETY BELT ANCHOR PRETENSIONER DEPLOYMENT CONTROL CIRCUITS FOR AN INTERMITTENT SHORT TO BATTERY FAULT

- Ignition OFF.
- Depower the SRS.
REFER to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Disconnect Driver Safety Belt Retractor C323B.
- Repower the SRS. **Do not** prove out the SRS at this time.
REFER to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Ignition ON.
- Attempt to recreate the fault by wiggling connectors (including any inline connectors) and flexing the wire harness frequently.
- Using a diagnostic scan tool, perform RCM self-test.

Was DTC B0070:12 retrieved on-demand during self-test?

Yes	DEPOWER the SRS and REPAIR as necessary. Refer to Wiring Diagrams Cell 5 for schematic and connector information. GO to A17
No	The fault is not present and cannot be recreated at this time. Do not install any new SRS components at this time. Install SRS components only when directed to do so in the pinpoint test. GO to A16

A16 CHECK THE HARNESS AND CONNECTORS

- Ignition OFF.
- Depower the SRS.
REFER to: [Supplemental Restraint System \(SRS\) Depowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Disconnect Driver Safety Belt Retractor C323B.
 - Inspect connector(s) (including any inline connectors) for corrosion, loose or spread terminals and loose or frayed wire connections at terminals.
 - Inspect wire harness for any damage, pinched, cut or pierced wires.
 - Inspect RCM C310A and C310B Connector Position Assurance (CPA) lever/lock for correct operation.
 - Inspect Driver Safety Belt Anchor Pretensioner C323B and make sure the Connector Position Assurance (CPA) tabs are not broken and the clip is not damaged.

Were any concerns found?

Yes	REPAIR as necessary. Refer to Wiring Diagrams Cell 5 for schematic and connector information. GO to A17
No	The fault is not present and cannot be recreated at this time. Do not install any new SRS components at this time. Install SRS components only when directed to do so in the pinpoint test. GO to A17

A17 CHECK FOR ADDITIONAL SRS (SUPPLEMENTAL RESTRAINT SYSTEM) DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition OFF.
- Reconnect all SRS components (if previously disconnected).
- If previously directed to depower the SRS, repower the SRS. Do not prove out the SRS at this time.
REFER to: [Supplemental Restraint System \(SRS\) Repowering](#) (501-20B Supplemental Restraint System, General Procedures).
- Ignition ON.
- **NOTE:** *When selecting Restraints from the Self Test menu, DTCs are retrieved from the RCM, OCSM and BECMB.*

Using a diagnostic scan tool, carry out RCM self-test.

Are any RCM, OCSM and/or BECMB Diagnostic Trouble Codes (DTCs) retrieved on-demand during self-test?

Yes	Do not clear any Diagnostic Trouble Codes (DTCs) until all Diagnostic Trouble Codes (DTCs) have been resolved. DIAGNOSE and REPAIR the Diagnostic Trouble Codes (DTCs). REFER to: Airbag Supplemental Restraint System (SRS) (501-20B Supplemental Restraint System, Diagnosis and Testing). REFER to: Airbag Supplemental Restraint System (SRS) - Raptor (501-20B Supplemental Restraint System, Diagnosis and Testing).
No	The repair is complete. RETURN the vehicle to the customer.