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1993 FORD Mondeo Wagon OEM Service and Repair Workshop Manual

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Sample

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Yes	REPAIR the circuit. Refer to Wiring Diagrams Cell 5for schematic and connector information. GO to X12

No	GO to X9

X9 CHECK THE RCM (RESTRAINTS CONTROL MODULE)

NOTE

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

- Ignition OFF.
- Depower the SRS (supplemental restraint system) .
  REFER to: Supplemental Restraint System (SRS) Depowering(501-20B Supplemental Restraint System, General Procedures).
- Connect: RCM (restraints control module) C310A and C310B.
- Repower the SRS (supplemental restraint system) .
  Do not
  prove out the SRS (supplemental restraint system) 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 (restraints control module) self-test.
- **DIAGNOSTIC TIP:**
  When viewing Diagnostic Trouble Codes (DTCs) with the PAD (passenger airbag deactivation) indicator disconnected, open circuit faults are normally retrieved for the 'ON' LED (light emitting diode) and the 'ON' LED (light emitting diode) control circuits.

Did the on-demand DTC (diagnostic trouble code) change from B1202:12 to B1202:13?

Yes	INSTALL a new PAD (passenger airbag deactivation) indicator. GO to X12

Sample

	REFER to: Restraints Control Module (RCM) (501-20B Supplemental Restraint System, Removal and Installation). GO to X12

No	In the process of diagnosing the fault, the fault condition has become intermittent. Do not install any new SRS (supplemental restraint system) components at this time. Install SRS (supplemental restraint system) components only when directed to do so in the pinpoint test. GO to X11

X11 CHECK FOR AN INTERMITTENT FAULT

- Ignition OFF.
- Connect: PAD (passenger airbag deactivation) Indicator C930 (if previously disconnected).
  - 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 (restraints control module) C310A and C310B Connector Position Assurance (CPA) lever/lock for correct operation.
  - Repair any concerns found.
    Refer to Wiring Diagrams Cell 5for schematic and connector information.
- Connect
  all
  previously disconnected components and connectors.
- Ignition ON.
- Using a diagnostic scan tool, perform RCM (restraints control module) self-test.

Was DTC (diagnostic trouble code) B1202:11, B1202:12 or B1202:13 retrieved on-demand during self-test?

Yes	This fault cannot be cleared until it is corrected and the DTC (diagnostic trouble code) is no longer retrieved on-demand during self-test. For DTC (diagnostic trouble code) B1202:11, GO to X2 For DTC (diagnostic trouble code) B1202:12, GO to X8 For DTC (diagnostic trouble code) B1202:13, GO to X4

No	CHECK for causes of intermittent open, short to ground or short to voltage on the PAD (passenger airbag deactivation) indicator circuit. ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition frequently. ACTIVATE other systems in the same wire harness. Do not install any new SRS (supplemental restraint system) components at this time. Install SRS

Sample

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

Normal Operation and Fault Conditions REFER to: Airbag and Seatbelt Pretensioner Supplemental Restraint System (SRS) - System Operation and Component Description (501-20B Supplemental Restraint System, Description and Operation).

The RCM (restraints control module) continuously monitors the driver side airbag circuits for the following faults:

- Resistance out of range
- Unexpected voltage
- Short to ground
- Faulted driver side airbag

If a fault is detected, the RCM (restraints control module) stores DTC (diagnostic trouble code) B1404:11, B1404:12, B1404:13 or B1404:1A in memory and sends a message to the IPC (instrument panel cluster) to illuminate the airbag warning indicator.

The RCM (restraints control module) analyzes the deployment loop resistance to determine if a fault exists. The value displayed in the PID (parameter identification) is the deployment loop resistance measured by the RCM (restraints control module). If the value displayed is lower or higher than the desired range (refer to diagram below), the RCM (restraints control module) can set a DTC (diagnostic trouble code). As the deployment loop resistance drifts farther outside the desired range, the chance for a DTC (diagnostic trouble code) 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 (parameter identification) value to be within the desired range before the fault is considered repaired, regardless if the module is reporting an on-demand DTC (diagnostic trouble code) 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 side airbag
- RCM (restraints control module)

Sample

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 (supplemental restraint system) components when instructed to do so within a pinpoint test step. Failure to follow this instruction may result in incorrect diagnosis of the SRS (supplemental restraint system) .

NOTE

Always make sure the correct SRS (supplemental restraint system) 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 (supplemental restraint system) component is installed, Diagnostic Trouble Codes (DTCs) may set.

NOTE

Sample

Access the RCM (restraints control module) and monitor the DEPLOY_10_R (Driver Side Airbag Deployment Control Resistance) (mOhm) PID (parameter identification)
- Monitor and record the value of the PID (parameter identification) .

Does the PID (parameter identification) value read between 1.7 and 2.98 ohms?

Yes	GO to Y12

No	GO to Y3

Y3 CHECK THE DRIVER SIDE AIRBAG DEPLOYMENT CONTROL RESISTANCE (DEPLOY_10_R) PID (PARAMETER IDENTIFICATION) WHILE CARRYING OUT THE HARNESS TEST

- Using the diagnostic scan tool,
  Access the RCM (restraints control module) and monitor the DEPLOY_10_R (Driver Side Airbag Deployment Control Resistance) (mOhm) PID (parameter identification)
- While monitoring the PID (parameter identification) , carry out the harness test of the driver side airbag circuits and accessible connectors (including any inline connectors) by wiggling and flexing the wire harness and connectors frequently.

Does the PID (parameter identification) value stay between 1.7 and 2.98 ohms while carrying out the wiggle test?

Yes	DEPOWER the SRS (supplemental restraint system) and REPAIR the connector, terminals or wire harness as needed. REFER to: Supplemental Restraint System (SRS) Depowering (501-20B Supplemental Restraint System, General Procedures). Refer to Wiring Diagrams Cell 5for schematic and connector information. GO to Y17

No	For PID (parameter identification) value less than 1.7 ohms, GO to Y4 For PID (parameter identification) value greater than 2.98 ohms, GO to Y6

Y4 CHECK THE DRIVER SIDE AIRBAG DEPLOYMENT CONTROL DTC (DIAGNOSTIC TROUBLE CODE) FOR A FAULT STATUS CHANGE (LOW RESISTANCE INDICATED)

NOTE

Sample

C3051-1	Ω	C3051-2

Is the resistance greater than 10,000 ohms?

Yes	GO to Y12

No	REPAIR the circuit(s). Refer to Wiring Diagrams Cell 5for schematic and connector information. GO to Y17

Y6 CHECK THE DRIVER SIDE AIRBAG CIRCUITS FOR AN OPEN

- Ignition OFF.
- Depower the SRS (supplemental restraint system) .
  REFER to: Supplemental Restraint System (SRS) Depowering(501-20B Supplemental Restraint System, General Procedures).
- Disconnect Driver Side Airbag (Inline) C3051 .
- Disconnect RCM (restraints control module) C310A and C310B .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C310B-40	Ω	C3051-1
C310B-39	Ω	C3051-2

Are the resistances less than 0.5 ohm?

Yes	GO to Y7

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

Sample

Y8 CHECK THE DRIVER SIDE AIRBAG 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 (restraints control module) by inducing a different fault condition. If the reported fault changes, this indicates the RCM (restraints control module) is functioning correctly and is not the source of the fault.

- Ignition OFF.
- Depower the SRS (supplemental restraint system) .
  REFER to: Supplemental Restraint System (SRS) Depowering(501-20B Supplemental Restraint System, General Procedures).
- Disconnect Driver Side Airbag (Inline) C3051 .
- Repower the SRS (supplemental restraint system) .
  Do not
  prove out the SRS (supplemental restraint system) 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 (restraints control module) self-test.
- **DIAGNOSTIC TIP:**
  When viewing Diagnostic Trouble Codes (DTCs) with the driver side airbag disconnected, an open circuit fault is normally retrieved.

Did the on-demand DTC (diagnostic trouble code) change from B1404:11 to B1404:13?

Yes	GO to Y11
No	GO to Y9

Y9 CHECK THE DRIVER SIDE AIRBAG CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Depower the SRS (supplemental restraint system) .
  REFER to: Supplemental Restraint System (SRS) Depowering(501-20B Supplemental Restraint System, General Procedures).
- Disconnect RCM (restraints control module) C310A and C310B .
- Measure:

Sample

C3051-1	V	Ground
C3051-2	V	Ground

Is any voltage present?

Yes	REPAIR the circuit(s). Refer to Wiring Diagrams Cell 5for schematic and connector information. GO to Y17
No	GO to Y12

Y11 CONFIRM THE DRIVER SIDE AIRBAG FAULT

NOTE

Make sure all SRS (supplemental restraint system) components and the RCM (restraints control module) electrical connectors are connected before carrying out the self-test. If not, Diagnostic Trouble Codes (DTCs) will be recorded.

- Ignition OFF.
- Depower the SRS (supplemental restraint system) .
  REFER to: Supplemental Restraint System (SRS) Depowering(501-20B Supplemental Restraint System, General Procedures).
- Prior to reconnecting any previously disconnected SRS (supplemental restraint system) component:
  - Inspect connector(s) (including any inline connectors) for pushed-out, loose or spread terminals and loose or frayed wire connections at terminals.
  - Inspect wire harness for any damaged, pinched, cut or pierced wires.
  - Inspect RCM (restraints control module) C310A and C310B Connector Position Assurance (CPA) lever/lock for correct operation.
  - Repair any concerns found.
    Refer to Wiring Diagrams Cell 5for schematic and connector information.
- Connect Driver Side Airbag (Inline) C3051 .
- Repower the SRS (supplemental restraint system) .

Sample

- Inspect connector(s) (including any inline connectors) for pushed-out, loose or spread terminals and loose or frayed wire connections at terminals.
- Inspect wire harness for any damaged, pinched, cut or pierced wires.
- Inspect RCM (restraints control module) C310A and C310B Connector Position Assurance (CPA) lever/lock for correct operation.
- Repair any concerns found.
  Refer to Wiring Diagrams Cell 5for schematic and connector information.

- Connect Driver Side Airbag (Inline). C3051 .
- Connect RCM (restraints control module) C310A and C310B (if previously disconnected).
- Repower the SRS (supplemental restraint system) .
  Do not
  prove out the SRS (supplemental restraint system) at this time. For vehicles equipped with the police package,
  REFER to: Supplemental Restraint System (SRS) Repowering(501-20B Supplemental Restraint System, General Procedures).
- Ignition ON.
- Using a diagnostic scan tool, perform RCM (restraints control module) self-test.

Was the original DTC (diagnostic trouble code) retrieved on-demand during self-test?

Yes	CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or FSA (Field Service Action) . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new RCM (restraints control module) . REFER to: Restraints Control Module (RCM) (501-20B Supplemental Restraint System, Removal and Installation). GO to Y17
No	In the process of diagnosing the fault, the fault condition has become intermittent. Do not install any new SRS (supplemental restraint system) components at this time. Install SRS (supplemental restraint system) components only when directed to do so in the pinpoint test. For DTC (diagnostic trouble code) B1404:13 or B1404:1A, GO to Y13 For DTC (diagnostic trouble code) B1404:11, GO to Y14 For DTC (diagnostic trouble code) B1404:12, GO to Y15

Y13 CHECK THE DRIVER SIDE AIRBAG DEPLOYMENT CONTROL RESISTANCE (DEPLOY_10_R) PID (PARAMETER IDENTIFICATION) FOR AN INTERMITTENT LOW RESISTANCE OR OPEN CIRCUIT FAULT

Sample