

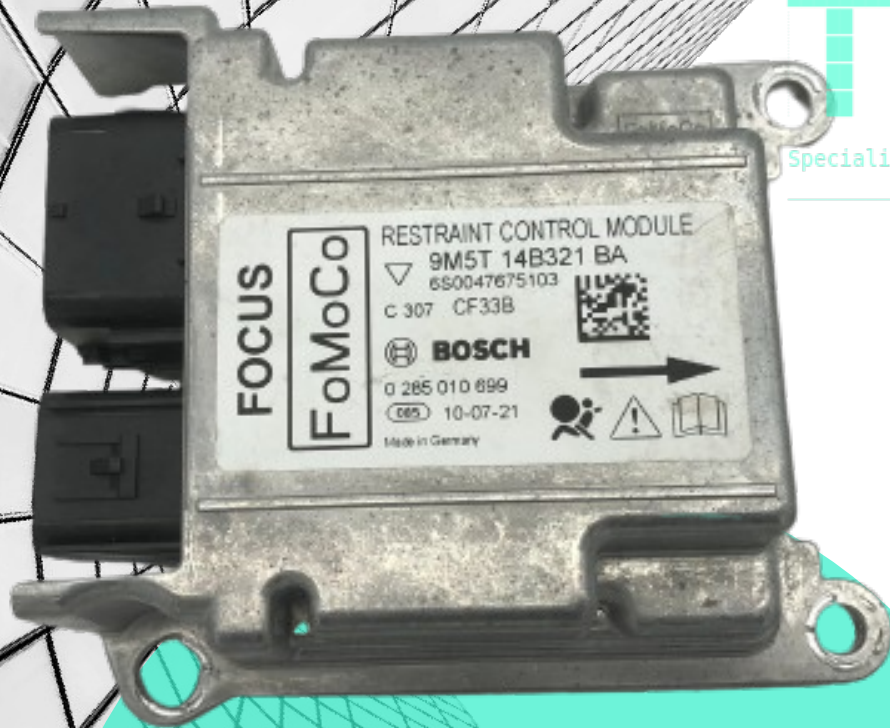
Tester Present



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TESTER PRESENT

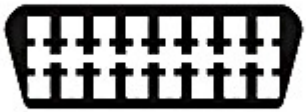
Specialist Automotive Solutions - Advanced Vehicle Diagnostics, CAN Interfacing, Crash Data Recovery, Technical Support



CRASH DATA RETRIEVAL

RESTRAINTS CONTROL MODULE

Tester Present



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RESTRAINTS CONTROL MODULE CRASH DATA RETRIEVAL

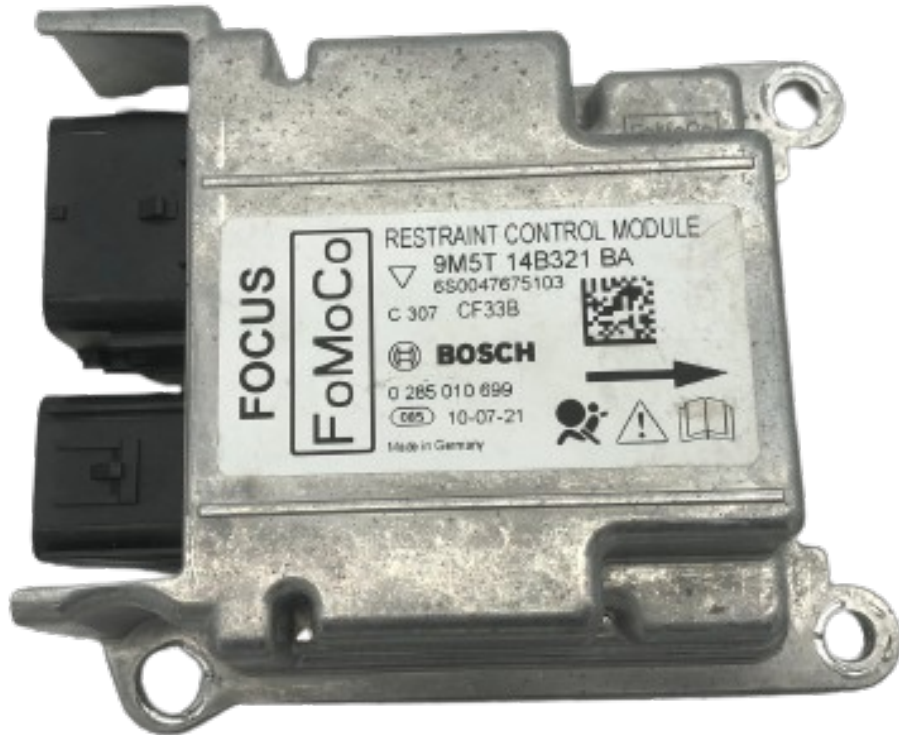


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ABOUT ME

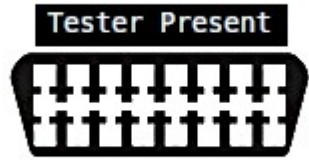
ELECTRONIC CONTROL UNITS

RESTRAINTS CONTROL MODULE

EVENT DATA RECORDER

REPORT

SUMMARY



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RESTRAINTS CONTROL MODULE CRASH DATA RETRIEVAL

ABOUT ME

- Jack Leighton, 33 years old
- Heavy Vehicle Mechanic
- Background in Mining & Automotive Industries
- Car Hacker, Reverse Engineer & Automotive Software Developer
- Formerly employed at Bosch Automotive Service Solutions as a Technical Support Officer
- Publishes software & code on Github under the name Jakka351
- Started Tester Present in December 2023 providing Advanced Vehicle Diagnostics, CAN Interfacing Solutions, Crash Data Retrieval and Technical Support for the Automotive Industry

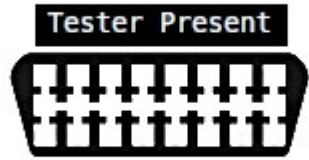


Specialist Automotive Solutions testerPresent.com.au

Advanced Vehicle Diagnostics
CAN Interfacing
Crash Data Recovery
Technical Support Service

Jack Leighton
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jackleighton@testerpresent.com.au

*Diagnostic Service 0x3E **Tester Present** is the signal that is sent by a test device via CANbus to an ECU signaling it to maintain its current diagnostic state while a diagnostic session is active between tester and ECU as stipulated in ISO14230 & ISO14229.*

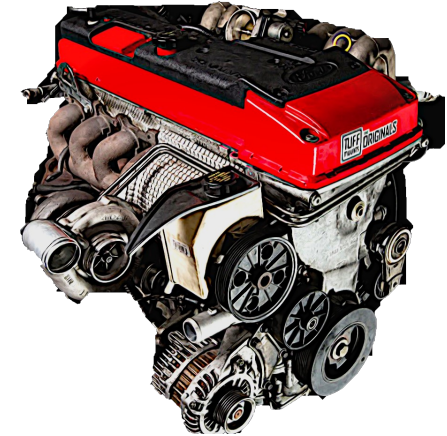


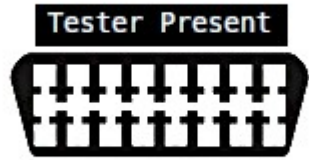
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RESTRAINTS CONTROL MODULE CRASH DATA RETRIEVAL

WHAT IS AN ECU?

- ELECTRONIC CONTROL UNIT
- Engine ECU Controls Operation via Driver & Sensor Inputs, Controls Air and Fuel metering into engine.
- Modern Vehicles contain approximately 100 ECUs.
- Crash Data is specific to the Airbag ECU – also called the Restraints Control Module, some Vehicle OEMs also have a data recorder in the PCM (Powertrain Control Module)
- Restraints Control Module acts as a Data Recorder in the Event of a collision or near collision event. It is essentially the same as a Black Box on an Aeroplane.
- Data is constantly broadcast on the CANbus vehicle network between different ECUs. **The Restraints Control Module will save this data in the event of a collision or near collision event.**



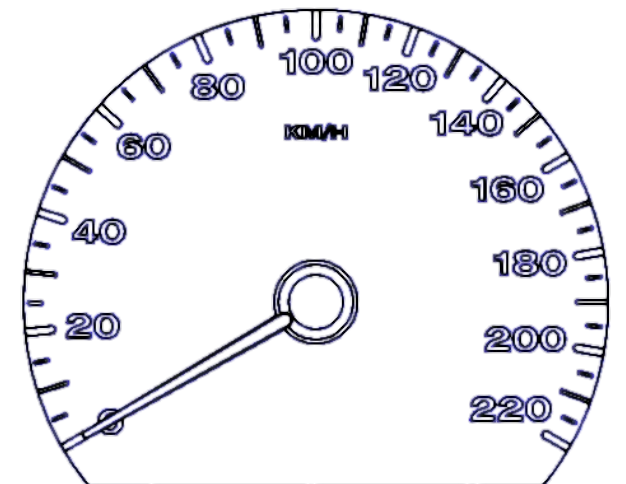


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RESTRAINTS CONTROL MODULE CRASH DATA RETRIEVAL

DATA RECORDED BY ECU

- Vehicle Speed
- Engine RPM
- Throttle Position
- Brake status (On/Off)
- Longitudinal Delta V – Forward Acceleration
- Steering Input
- Lateral Delta V – Left & Right Acceleration
- Yaw Rate
- Angular Rate (clockwise rotation)
- Seatbelt Status
- Airbags Deployed (Deployment or Non Deployment Event)
- Seat Track position status
- Airbag Fault Light Status
- Odometer value at time of event
- Vehicle Identification Number
- Supply Voltage to ECU at time of event
- Tyre pressure before and during collision event





RESTRAINTS CONTROL MODULE CRASH DATA RETRIEVAL

RETRIEVING THE DATA

- Most common method for retrieving the saved collision event data is via the DLC port (Diagnostic Link Connector) commonly referred to as the OBD2 port.
- The data is transferred from the Restraints Control Module to the Tester via the CANbus
- Directly connecting to the Restraints Control Module
- Bosch CDR Tooling uses a J2534 device and Bosch Software to pull the data and covers almost every make and model of vehicle
- Tesla EDR is done with Tesla Specific software and a USB2CAN interfaces as Teslas do not have a standard OBD2 port as they do not require emissions testing
- Vehicle OEMs (Original Equipment Manufacturers) use this data as feedback for their vehicle safety systems to monitor & improve how these systems operate in real world collisions

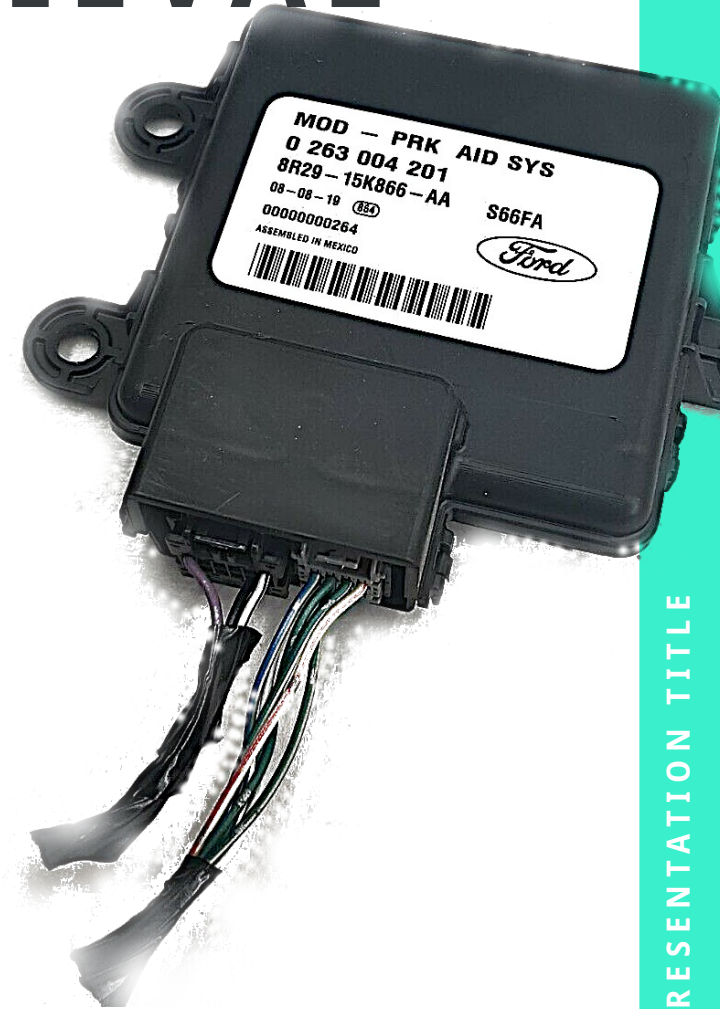




RESTRAINTS CONTROL MODULE CRASH DATA RETRIEVAL

REPORT

The data retrieved from the Restraints Control Module is then compiled into a report for the customer, which cleanly and clearly presents the data.



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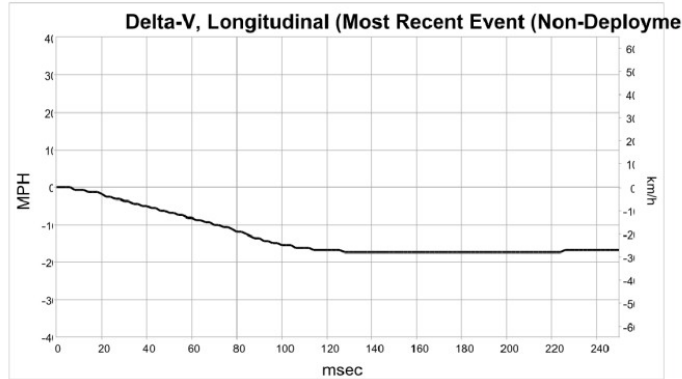
RESTRAINTS CONTROL MODULE CRASH DATA RETRIEVAL

REPORT



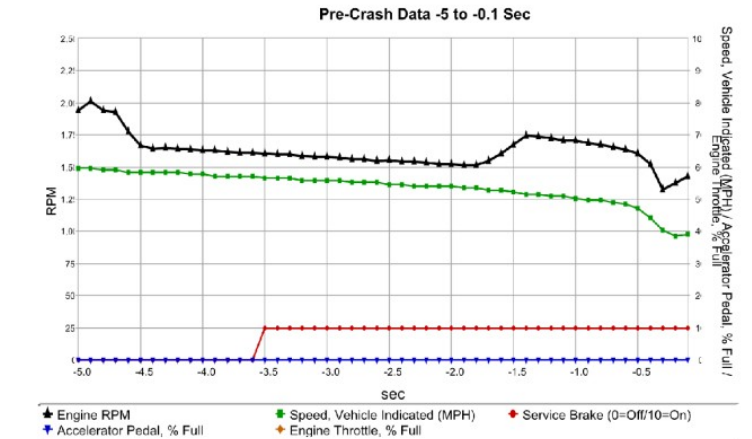
Longitudinal Crash Pulse (Most Recent Event (Non-Deployment))

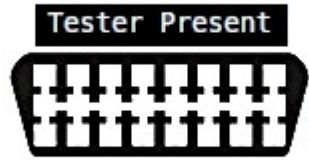
Delta-V, Longitudinal, Recorder Status Complete



Longitudinal Crash Pulse (Most Recent Event (Non-Deployment))

Time (msec)	Delta-V, Longitudinal (MPH [km/h])	Time (msec)	Delta-V, Longitudinal (MPH [km/h])	Time (msec)	Delta-V, Longitudinal (MPH [km/h])
0	0 [0]	100	-16 [-25]	200	-17 [-28]
2	0 [0]	102	-16 [-25]	202	-17 [-28]
4	0 [0]	104	-16 [-25]	204	-17 [-28]
6	0 [0]	106	-16 [-26]	206	-17 [-28]
8	-1 [-1]	108	-16 [-26]	208	-17 [-28]
10	-1 [-1]	110	-16 [-26]	210	-17 [-28]
12	-1 [-1]	112	-16 [-26]	212	-17 [-28]
14	-1 [-2]	114	-17 [-27]	214	-17 [-28]
16	-1 [-2]	116	-17 [-27]	216	-17 [-28]
18	-1 [-2]	118	-17 [-27]	218	-17 [-28]
20	-2 [-3]	120	-17 [-27]	220	-17 [-28]
22	-2 [-4]	122	-17 [-27]	222	-17 [-28]
24	-2 [-4]	124	-17 [-27]	224	-17 [-28]
26	-3 [-5]	126	-17 [-27]	226	-17 [-27]
28	-3 [-5]	128	-17 [-28]	228	-17 [-27]
30	-4 [-6]	130	-17 [-28]	230	-17 [-27]
32	-4 [-6]	132	-17 [-28]	232	-17 [-27]
34	-4 [-7]	134	-17 [-28]	234	-17 [-27]
36	-4 [-7]	136	-17 [-28]	236	-17 [-27]
38	-5 [-8]	138	-17 [-28]	238	-17 [-27]
40	-5 [-8]	140	-17 [-28]	240	-17 [-27]
42	-6 [-9]	142	-17 [-28]	242	-17 [-27]
44	-6 [-9]	144	-17 [-28]	244	-17 [-27]
46	-6 [-10]	146	-17 [-28]	246	-17 [-27]
48	-6 [-10]	148	-17 [-28]	248	-17 [-27]
50	-7 [-11]	150	-17 [-28]	250	-17 [-27]
52	-7 [-11]	152	-17 [-28]	252	-17 [-27]
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58	-8 [-13]	158	-17 [-28]	258	-17 [-27]
60	-8 [-13]	160	-17 [-28]	260	-17 [-27]
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92	-14 [-23]	192	-17 [-28]	292	-17 [-27]
94	-14 [-23]	194	-17 [-28]	294	-17 [-27]
96	-15 [-24]	196	-17 [-28]	296	-17 [-27]
98	-15 [-24]	198	-17 [-28]	298	-17 [-27]
				300	-17 [-27]





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RESTRAINTS CONTROL MODULE CRASH DATA RETRIEVAL

USE CASE FOR CRASH DATA

- Police investigating a vehicle collision
- Accurate data for digital re-creation of a collision event
- As evidence in a court of law about a vehicle collision
- Verification of witness statements about collision
- Confirming manually calculated speeds, distances & force
- Determining the number of occupants in a vehicle
- Determining if seat belts were being worn before a collision
- Identifying fraudulent insurance claims – Brakes not engaged before collision, rear ended vehicle traveling in reverse at time of collision



Tester Present



Specialist Automotive Solutions

CRASH DATA RETRIEVAL

SUMMARY

Tester Present – Specialist Automotive Solutions is based out of Melbourne in Victoria but offers the Crash Data Retrieval service across Australia.

Please Contact Jack for further information, enquiries, demonstrations or quotations.



THANK YOU

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Specialist Automotive Solutions

testerPresent.com.au

**Advanced Vehicle Diagnostics
CAN Interfacing
Crash Data Recovery
Technical Support Service**

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