Warning lamps, Dash Messages and Diagnostics during collision repairs.

Why we need to scan, analyze, clear codes and perform calibrations before and after a collision repair especially if there are No warning lamps!

- Dash warning lights usually only alert drivers to current Emissions, Safety Systems or Maintenance intervals.
- Some higher end models have more elaborate message centers that can tell the operator more but most don’t
- The dash lights are not diagnostic. As a result their presence or absence cannot be relied upon to determine repair estimates or if a system is operating properly
- The effects of low battery voltage on seat occupant sensor or steering angle calibrations and other body control functions.
- Disabled systems due to a stored code, incomplete reset or calibration.
- Some warning lights can be cleared with certain number of key strokes, or battery disconnection even if the system is not repaired. These faults will most likely re-appear after the vehicle is operated or the vehicle may not respond properly during an emergency maneuver.
- Warning lights may not illuminate until the vehicle is driven a specified distance.

There are plenty of faults that do give us warning lamps and symptoms when modules are replaced or there are current open circuits to sensors and components. It’s the ones that don’t immediately warn us of a problem that will cause us the most pain. We must be aware of and looking at these.

Below is a scan report on a vehicle with no warning lamps on after repairs being prepared for delivery back to the owner. The results of this scan session and re-sets performed illustrates nicely why we cannot rely on warning lamps or messages to know the vehicle is ok and in pre-loss condition.

<table>
<thead>
<tr>
<th>2014 BMW 335I</th>
<th>VIN: WBA3B9G53EN</th>
<th>Current Odometer 3,279</th>
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<tbody>
<tr>
<td><strong>Service Description:</strong> Completion/Calibration Scan</td>
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**SHOP REPORTS:** Warnings: NO

**Recommendation(s):**
- Complete vehicle road test with systems function checks before delivery to customer
- Verify no malfunction lamps/messages return and all accessories function properly
- If warning lamps or malfunctions return contact CDS Immediately for re-scan

**Performed full vehicle scan “health check” 19 modules reporting with 50 faults stored in 10 modules.**

**FRONT ELECTRONIC MODULE (FEM):**
- 03000E  Power window, driver’s door: line disconnection
- 03000F  Power window, driver’s door: line disconnection
- 8040B7  Deactivation of terminal 15: upper startability limit reached
- 8040B9  Deactivation of terminal 30B: upper startability limit reached
- 8040BD  Reset or deactivation of terminal 30F
- 80410B  Aerial on driver’s side: line disconnection
- 804168  Driver’s door contact: short circuit to B+ or line disconnection
- 80416A  Door contact, driver’s side, rear: short circuit to positive or open circuit
- 80418A  Turn indicator, front left, faulty
- 8041A8  Welcome light, repeat interlock, active
- 8041B2  Startability limit reached with lights active during stationary operation
- 8041B6  LWR system faulty
- 8041BA  AHL system faulty
- D90D07  Switch block on driver’s door: no LIN component
- D90D0A  Exterior mirror, left (LIN): No LIN-slave
- D90D16  Light operating unit (BEL), (LIN): Wrong variant installed
• D90D2F  Headlight driver module (TMS) left (LIN): No LIN-slave

INTEGRATED CHASSIS MANAGEMENT (ICMQL):
• D01646  Message (angle, accelerator pedal, 40.1.4) missing, receiver ICM, transmitter DME/DDE
• D014F6  Instrument panel interface (kilometre reading/range, 276.4.8): Signal invalid
• D018E1  Message (torque, crankshaft 1, 40.1.4) missing, receiver ICM, transmitter DME/DDE
• D01557  Message (wheel torque, engine 1, 41.3.4) missing, receiver ICM, transmitter DME/DDE

INTEGRATED CHASSIS MANAGEMENT (ICMQL) - continued
• D01558  Message (wheel torque, engine 2, 41.3.4) missing, receiver ICM, transmitter DME/DDE
• D0156D  Message (wheel torque, engine 3, 61.3.4) missing, receiver ICM, transmitter DME/DDE
• D01570  Message (wheel torque, engine 4, 40.3.4) missing, receiver ICM, transmitter DME/DDE
• D01B3F  Message (wheel torque, engine 5, 40.3.4) missing, receiver ICM, transmitter DME/DDE
• D01A08  Message (wheel torque, engine 6, 61.3.4) missing, receiver ICM, transmitter DME/DDE

ELECTROMECHANICAL POWER STEERING (EPS):
• D51C12  No message (setpoint, share, steering torque, driver, 68.0.2), receiver EPS, transmitter ICM
• D51C20  No message (setpoint, steering torque, driver, actuator 68.0.2) receiver EPS, transmitter ICM
• D514E8  No message (actual steering angle, front axle, 57.1.2), receiver EPS, transmitter ICM
• D514EE  ICM interface (actual steering angle, front axle, 57.1.2): Signal invalid
• D51A53  ICM interface (actual steering angle, front axle, 57.1.2): Signal invalid
• D514B8  No message (vehicle speed, 55.3.4), receiver EPS, transmitter ICM
• D514BE  ICM interface (vehicle speed, 55.3.4): Signal invalid
• D51A3E  ICM interface (vehicle speed, 55.3.4): Signal invalid

REAR ELECTRONIC MODULE (REM):
• 03010C  Power window, rear door on driver's side: Hall effect sensor, short circuit to B+
• 03010D  Power window, rear door on driver's side: Hall effect sensor, short circuit to B+
• 03010E  Power window, rear door on driver's side: line disconnection
• 03010F  Power window, rear door on driver's side: line disconnection
• 804872  Brake light, left, faulty
• 804876  Turn indicator, rear left, faulty

DIGITAL ENGINE ELECTRONICS (MOTOR):
• 138104  Exhaust flap, activation: Line disconnection
• 138102  Exhaust flap, activation: Short circuit to earth
• 213901  Power management: Reduction or shutdown of individual current consumers
• 213601  Power management, standby current violation

INSTRUMENT PANEL CONTROL UNIT (KOMBI):
• E12C1D  JBE interface (afterrunning period, terminal 30, fault-controlled, 0x3AC): Signal invalid
• E12C1A  CAS/FEM interface (central locking and lid status, 0x2FC): Signal invalid

CENTRAL GATEWAY MODULE (ZGW):
• CD0487  ZGM: Synchronisation process for FlexRay failed

CRASH SAFETY MODULE (AIRBAG):
• 930A57  Airbag sensor, front left door: Communication fault

FUNCTION CENTRE, ROOF (FZD):
• 801A55  DWA: The alarm has been activated

INTEGRATED AUTOMATIC HEATING / AIR CONDITIONING (KLIMA):
• 801228  Blower output stage: Blower output reduction due to power management

Performed full vehicle scan, system resets and calibrations, cleared all fault memory and performed rescans. No faults returned. See recommendations.
The Body Shop may be unaware of any symptoms at all. These symptoms will be noticed by the vehicle owner or warning lights will occur soon after delivery causing the customer to return to the body shop, or bring the vehicle into a dealer for warranty repairs.

Examples of problems that do not illuminate a warning light:

- Auto/Express Widows
- Window Indexing
- Mirror Functions
- Satellite Radio Reception
- Passive Entry
- Hands Free Calling,
- Parking Assist
- Object Detection
- Puddle Lamps
- Auto A/C Blower Functions
- Passenger Presence

Notice this vehicle is very low mileage and still under Manufacture Warranty. With all codes left in the system this vehicle was not in pre-loss condition, and had not been verified as having a clean health check of the electronic systems to be returned into service.

When a vehicle is brought to a Dealer workshop for subsequent services or repairs after a collision repair, the vehicle will be scanned as the diagnostic/service procedures dictate. The left over data and codes will cause the Dealer to review and possibly void warranty coverage or relate any defects (Symptoms or warning lamps) to the collision repair without diagnosing an issue to the actual root cause. Misdiagnosis and estimates for repairs already completed can also happen. At a minimum all systems would need to be cleared/re-set and vehicle re-evaluated for any accurate diagnostic routines to be performed. Performing a post Collision Repair Scan, with recalibrations and programming as needed will eliminate these issues from arising and insure the vehicle will perform its best and hopefully avoid another collision event entirely!

This vehicle had codes set for steering angle position, torque management, and engine control functions. Again no warning lights/messages, but performance and possible safety functions can be affected. Most OEM service manuals state to perform an air bag system tests and/or calibration checks with a diagnostic system (Scan Tool) even if there was no deployment after a collision event.

Why it Matters to us

- Safety and satisfaction benefits to customers, shops and insurers
- We can’t keep waiting for a dash light to come on to tell us there is a problem
- customers should not need to return and tell us what is not working
- We can’t afford to compromise or endanger our customer’s vehicle systems from working properly

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