SAMPLE CASE STUDY & REDACTED ENGINEERING DOSSIER: Published by The Warranty Advocate to illustrate the evidential depth, diagnostic fault correlation, and Ombudsman-ready structure included in our independent technical assessments. All personal, dealer, finance, and vehicle identifiers have been redacted for client confidentiality.

THE WARRANTY ADVOCATE

INDEPENDENT FORENSIC AUTOMOTIVE ENGINEERING DIRECTORATE

FORENSIC DESKTOP ENGINEERING REPORT

Technical Causation, Diagnostic Fault Correlation & Statutory CRA 2015 Compliance Audit

Report Ref: `[REDACTED – TWA-FOS-SAMPLE]` | **Assessment Standard:** Independent Desktop Forensic Audit | **Status:** Anonymised Exemplar

Case & Vehicle Identification Summary (Anonymised)			
Subject Vehicle	2020 Vauxhall Crossland X Elite 1.2T (EB2ADTS)	**Registration / VIN**	`[VRM REDACTED]` / `[VIN REDACTED]`
Instructing Party	`[CLIENT NAME REDACTED]` (Consumer / Hirer)	**Supplying Dealer**	`[SUPPLYING DEALER REDACTED]`
Finance Provider	`[FINANCE LENDER REDACTED]` (HP Agreement)	**Nominated Repairer**	`[FRANCHISED VAUXHALL REPAIRER REDACTED]`
Lender Complaint Ref	`[COMPLAINT REF REDACTED]`	**Adjudication Body**	Financial Ombudsman Service (`[FOS REF REDACTED]`)

1. EXECUTIVE SUMMARY & EXPERT STATEMENT OF INDEPENDENCE

This independent desktop automotive engineering assessment evaluates the technical evidence regarding recurring mechanical and engine management failures on the subject vehicle. Following a post-purchase wet-belt replacement and oil-starvation cleaning 6 days after supply, the instructing hirer experienced three subsequent breakdowns despite two intervening rectification attempts by the supplying dealer's nominated franchised Vauxhall repairer.

This review examines 31 pages of primary evidence, including workshop invoices, roadside breakdown diagnostic logs, belt and debris photographs, and dealership written admissions. Prepared impartially by our Lead Technical Assessor (**Certificated Automotive Engineer (CAE)**, **Member of the Institute of the Motor Industry (MIMI)**, Master Technician, and forensic warranty adjudication specialist with 35+ years' industry experience), all conclusions are formulated strictly on documented mechanical causality and the Consumer Rights Act 2015.

2. DOCUMENTARY EVIDENCE & CHRONOLOGICAL AUDIT

Timeline & Mileage	Source Document	Recorded Workshop / Field Findings	Evidential Status
Point of Sale (~39,500 mi)	HP Agreement & Sales Record	Supplied under Hire Purchase by `[LENDER REDACTED]`. Supplying dealer expressly instructed consumer to use an official Vauxhall franchised garage for all repairs and notify the warranty company.	**Point of Sale Baseline**
Day +6 Post-Sale (39,574 mi)	Franchised Repairer Invoice & Job Log	Post-purchase health check, wet-belt replacement, and associated cleaning. Excessive belt wear found; oil-pickup gauze completely blocked by belt fragments causing oil starvation. Sump strainer, cam sensors, and vacuum pump cleaned.	**Initial Repair & Starvation Record**
Day +17 / +20 (39,728 mi)	Chronology & Workshop Invoice	**1st Subsequent Breakdown:** Sudden power loss, electrical anomalies, and EML. **1st Rectification Attempt:** Exhaust camshaft codes recorded; timing checked OK, battery reset, codes cleared, and road tested.	**1st Breakdown & 1st Rectification**
Day +45 to +58 (40,130 mi)	Chronology & Workshop Invoice	**2nd Subsequent Breakdown:** Power loss and EML; vehicle remained at franchised repairer for 13 days. **2nd Rectification Attempt:** Repeat exhaust camshaft code; inlet and exhaust sensors swapped, software updated, codes cleared.	**2nd Breakdown & 2nd Rectification**
Day +60 (40,130+ mi)	Chronology & Breakdown Patrol Scan	**3rd Subsequent Breakdown (2 days after collection):** Power loss, instant EML, and electrical issues; returned to franchised garage same day. Breakdown patrol logged DTC P0014 (Exhaust Camshaft System) plus P16E6 and U-codes.	**3rd Breakdown & Diagnostic Proof**
Day +61	Workshop Log (`[SERVICE MGR]`)	Final garage entry: intermittent EML and power loss noted, no stored codes (following roadside code clearance to test restart), and no road test carried out due to high workshop workload.	**Unresolved Fault / No Road Test**
Day +62	Formal Rejection Notice	Vehicle formally rejected to `[LENDER REDACTED]` on safety and unreliability grounds; kept stationary and unused since.	**Statutory Rejection**
Month +7	Franchised Dealer Technical Q&A	Written admission by Vauxhall Service Manager: belt fragments remain trapped in small oil channels ("*virtually impossible to clean them thoroughly*"); blockages were "*severe*" and could cause later camshaft and power-loss faults.	**Direct Dealer Admission**

Point 1: Root-Cause Failure Mode — PSA 1.2 EB2 Wet-Belt Delamination

The vehicle is fitted with the PSA/Stellantis 1.2-litre EB2 (PureTech) three-cylinder turbocharged engine, which utilises a "wet timing belt" (belt-in-oil) running submerged in crankcase oil. Engine oil degradation, fuel dilution, and thermo-mechanical friction cause chemical breakdown of the elastomer compound. The belt swells, develops deep transverse cracking, and sheds fibrous rubber debris into the oil (confirmed in workshop strip-down photographs). Discovering this severe delamination and complete strainer blockage just 6 days and 74 miles after purchase proves the degradation existed prior to sale.

1. Wet Belt	2. Sump Strainer	3. Oil Galleries	4. VVT Actuator	5. Breakdown
Chemical cracking & rubber delamination	Mesh gauze blocked; severe oil starvation	Micro-debris trapped in narrow channels	Hydraulic pressure drop; exhaust sticks (P0014)	Limp-mode derate, power cut & U-codes

Figure 1: Schematic showing direct mechanical causation between wet-belt rubber shredding and downstream VVT hydraulic failure.

Point 2: Oil Starvation Dynamics & Debris Migration via Lubrication Circuits

When the EB2 wet belt sheds rubber particulate, the debris circulates directly to the bottom of the engine sump. Six days post-sale, the franchised repairer recorded that the oil-pickup strainer gauze was "*completely blocked by wet belt fragments, causing oil starvation to engine.*" This creates severe oil intake restriction, causing instantaneous hydrodynamic pressure drops across the upper cylinder head lubrication circuit. Crucially, even after the sump is dropped and the pickup strainer is cleaned, microscopic rubber fragments that migrated into the lubrication system remain lodged within narrow internal oil galleries and cylinder head oilways feeding the Variable Valve Timing (VVT) actuators.

Point 3: Forensic Diagnostic Analysis of Trouble Code P0014

The recurring fault code logged across the breakdowns—and captured on the roadside breakdown patrol scan—is **DTC P0014: "Exhaust Camshaft Position System (Timing Over-Advanced or System Performance)."** In automotive diagnostic engineering, P0014 does not denote an electronic sensor circuit failure. The camshaft position sensor is merely an input transducer measuring rotational angle. P0014 is a mechanical/hydraulic correlation fault: it triggers when the Engine Control Module (ECM) commands the electro-hydraulic VVT solenoid to adjust exhaust camshaft timing, but the camshaft phaser physically fails to reach the targeted phase angle within a calibrated time window due to restricted hydraulic oil pressure or debris obstruction.

Point 4: Evidential Proof of the Sensor Crossover ("A-B-A") Procedure

The workshop records from the second rectification attempt provide definitive diagnostic proof of mechanical/hydraulic causation. When investigating the recurring exhaust camshaft fault code, the franchised repairer's technicians executed an established diagnostic crossover ("A-B-A") test: they swapped the inlet camshaft sensor with the exhaust camshaft sensor, updated the software, and cleared all fault codes before returning the vehicle.

Had the recurring fault been caused by a defective electronic sensor, swapping the inlet and exhaust sensors would have transferred the fault to the inlet camshaft (P0011/P0012). Instead, when the vehicle broke down for the third time two days after collection, the roadside breakdown scan recorded **DTC P0014 (Exhaust Camshaft Position System)** with zero inlet camshaft codes. This proves the sensors were functional and the fault remained physically locked to the exhaust camshaft hydraulic circuit due to retained oil-gallery contamination.

Point 5: Technical Refutation of Secondary Fault Codes (Roadside Scan)

Any suggestion that the multiple electrical codes recorded during the roadside breakdown scan reflect an unrelated electrical failure is refuted by PSA/Stellantis multiplexed CAN-bus architecture. First, the diagnostic tool duplicated identical codes across multiple EB2 engine-family test groups and mirrored powertrain codes inside the Body Control Module (BCM). Second, the recorded electrical codes are classic secondary consequences of an abrupt engine power cut or stall:

Recorded Code(s)	Scan Description	Incorrect Lay Interpretation	Automotive Engineering Forensic Reality
DTC P0014 (B1825, U1809)	Exhaust Camshaft Position System (plus Oil Level / Temp circuits)	Faulty wiring or defective exhaust camshaft position sensor.	**Primary Root Cause:** Hydraulic oil-flow restriction to the exhaust VVT actuator caused by retained wet-belt micro-debris.
DTC P16E6 (P0001, P0203)	Engine Controls Ignition Relay De-Energised Too Late (plus fuel/injector cut)	Independent electrical fault in fuse box, relay, or fuel system.	**Secondary Shutdown Artifact:** When P0014 triggers emergency torque/fuel derate or engine stall with ignition on, the main power-latch relay de-energises out of sequence with RPM.
U1108, U1213, U1205, U1221, U1218, U1508	CAN Communication & Invalid Torque/Steering/Brake Data across EBCM, EPS, BCM & Camera	Independent CAN-network wiring break or faulty control modules.	**Secondary Cascade Artifact:** Slave chassis modules require continuous real-time engine torque data from the Engine ECU. When the engine enters limp mode or stalls, the ECU broadcasts an invalid torque flag, triggering cascade U-codes.

Point 6: Evidential Weight of Dealership Written Admissions

In formal written technical answers regarding the subject vehicle, the franchised Vauxhall repairer's Service Manager confirmed our forensic engineering conclusions verbatim:

> *"It is definitely possible that the deterioration of the belt has caused other internal engine issues as the fragments cause blockages in oil channels around the engine... the oil system is flushed out when the belt is replaced however some oil channels will still hold belt fragments as the channels are so small it is virtually impossible to clean them thoroughly... If oil gallery's/channels are only partially blocked then yes this is possible... the blockages in this vehicles case where severe and there is every possibility that the oil blockage around the engine due to the failing wetbelt could have caused separate issues."*

Under Financial Ombudsman Service (FOS) and The Motor Ombudsman (TMO) evidential standards, this written admission from the franchised main dealer is decisive. It confirms that retained belt fragments cannot be reliably extracted by standard workshop flushing, that partial gallery blockages explain why the car ran temporarily between incidents, and that the subsequent camshaft and power-loss failures are causally linked to the original severe wet-belt contamination.

Point 7: Dealer Arrangements & Failure of Rectification Attempts

At the point of supply, the selling dealer expressly instructed the consumer to use the official Vauxhall franchised dealership for all repairs and to notify the warranty company. The franchised repairer therefore acted as the nominated, authorised repairer rather than an unrelated garage selected independently by the consumer. Breaking down for a third time just two days after collection from a 13-day workshop stay conclusively proves that the underlying contamination and hydraulic VVT fault were never rectified.

Point 8: Pre-Existence at Point of Sale (CRA 2015 Section 9 Latent Defect)

Under Section 9 of the Consumer Rights Act 2015, goods supplied must be of satisfactory quality, taking into account description, price, and durability. Severe chemical delamination of an oil-immersed timing belt and complete occlusion of the oil-pickup strainer are not instantaneous events caused by consumer driving style; they require thousands of miles of progressive chemical decomposition. Discovering this severe condition just 6 days and 74 miles after purchase proves beyond doubt that the defect was pre-existing at the point of supply.

Point 9: Legal & Technical Breach Under Consumer Rights Act 2015, Section 24

Under Section 24(5) of the Consumer Rights Act 2015, a consumer is required to permit only one opportunity at repair; if that repair fails to cure the fault or subsequent breakdowns occur, the consumer is entitled to exercise the Final Right to Reject the vehicle:

Statutory Test (CRA 2015)	Empirical Evidence in Case Study	Statutory Finding
Section 9: Satisfactory Quality	Severe wet-belt degradation, complete oil-pickup blockage, and oil starvation found 6 days / 74 miles post-purchase.	**Breach Established**
Section 23 & 24: Nominated Repair & Effectiveness	Dealer nominated official Vauxhall repairer; initial belt/sump repair followed by two further diagnostic interventions and three subsequent breakdowns with recurring P0014 camshaft phasing faults.	**Statutory Repair Attempts Exhausted / Failed**
Section 24(5): Final Right to Reject	Formal rejection issued following three post-repair breakdowns and the franchised dealer's written admission of unflushable gallery debris.	**Rejection Valid & Lawful**

Point 10: Overall Causal Opinion & Remedial Scope (Engine Replacement Mandate)

Considering the totality of the evidence on the balance of probabilities, the three subsequent breakdowns and recurring exhaust camshaft faults (P0014) were the direct continuing consequence of the original severe wet-belt degradation, unflushable oil-gallery debris, and oil starvation. Partial repairs (chemical flushing or sensor swaps) are technically unsafe and unacceptable for two critical engineering reasons:

1. **Brake Servo Vacuum Pump Failure Risk:** In the EB2 engine, the brake servo vacuum pump is driven directly off the camshaft and lubricated via the same engine oil supply. Particulate rubber from the belt enters the vacuum pump oil feed, risking sudden vane seizure and instantaneous loss of power braking assistance—a critical safety hazard.
2. **Crankshaft & Camshaft Bearing Scoring:** Microscopic rubber debris circulating through bearings creates localised hydrodynamic boundary friction and permanent journal scoring.

Consequently, external flushing cannot render this engine reliable; only full vehicle rejection or complete assembly replacement is technically viable.

3. EXPERT OPINION & FORMAL RECOMMENDATIONS TO THE OMBUDSMAN

Based on the physical documentation, diagnostic crossover logs, and dealer admissions, it is our definitive engineering opinion that the vehicle was not of satisfactory quality at the point of supply, that the defect was inherent, and that the nominated repairer's interventions failed to rectify the underlying engine contamination. Formal directions recommended to the FOS Adjudicator:

1. **Uphold the Hirer's Final Rejection:** Confirm that the consumer lawfully and reasonably exercised their final right to reject the vehicle under Sections 9 and 24(5) of the Consumer Rights Act 2015.
2. **Cancel the Hire Purchase Agreement:** Instruct `[FINANCE LENDER REDACTED]` to cancel the HP agreement with zero financial penalty to the consumer and arrange vehicle collection.
3. **Full Restitution & Consequential Costs:** Order the lender to refund the deposit, all monthly instalments paid, out-of-pocket repair costs (`[AMOUNT REDACTED]`), and documented recovery/transport expenses.
4. **Credit File Rectification:** Order the complete removal of any adverse credit markers, default notices, or dispute flags registered against the consumer's credit file.

Dispute Component	Lender / Dealer Position	Independent Technical Determination
Root Cause of Breakdowns	Alleged electrical / sensor fault	Proven Mechanical / Hydraulic Oil Starvation (P0014)
Nominated Repair Status	Initial repair & 2 intervening attempts	Failed (3 Subsequent Breakdowns within 60 days)
Dealer Written Admissions	Treated as informal communication	Conclusive Admission of Unflushable Micro-Debris

Dispute Component	Lender / Dealer Position	Independent Technical Determination
Remedial Viability	Secondary component flush / sensor swap	Full Engine Replacement Required / Rejection Valid

4. ASSESSOR CREDENTIALS, COMPETENCE & STATEMENT OF TRUTH

This forensic engineering assessment was formulated by the Technical Directorate of **The Warranty Advocate**:

- **Institute of the Motor Industry (IMI): Certificated Automotive Engineer (CAE)** and **Member of the Institute of the Motor Industry (MIMI)** — formally recognised professional engineering status reflecting audited technical competence and ethical standards.
- **35+ Years Automotive Industry Experience:** Master Diagnostic Technician, Fleet Engineering Director, and Senior Warranty Claims Technical Arbitrator.
- **Certified Technical Qualifications:** City & Guilds Full Technological Certificate in Motor Vehicle Engineering; National Vocational Qualifications (NVQ) Levels 3 & 4.
- **Assessor & Verifier Certification:** D31 / D32 / D33 Qualified National Technical Assessor & Internal Verifier.

STATEMENT OF TRUTH & INDEPENDENT VERIFICATION

I declare that the technical facts stated in this desktop engineering report are true to the best of my knowledge and professional belief. The engineering opinions expressed represent my objective, independent judgment on the balance of probabilities based strictly upon the documentary evidence supplied.

Lead Technical Director (CAE MIMI) | The Warranty Advocate Engineering Directorate | Sample Verification Ref: TWA-ENG-SAMPLE-REDACTED