

**Investigation
of
Amy Amy's 2002 Dodge Intrepid Breakdown**

By:

Steven Becker
Vehicle Expert

Month 3, 20**

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Report

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A. INTRODUCTION

Amy Amy was driving her 2002 Dodge Intrepid on Month 3, 20**, near *****, Wisconsin when her engine failed. Amy claims that an improper repair from Auto Shop caused the engine failure.

The purpose of my investigation was to determine if Amy's Dodge engine failed from an improper repair.

B. MATERIALS AVAILABLE FOR REVIEW

1. Transcript of the **/3/20** deposition of Amy Amy
2. Transcript of the **/14/20** deposition of Duane Duane
3. Transcript of the **/14/20** deposition of Stephen Stephen
4. Repair Estimate of **/4/20** from Claim Service
5. Statement Summary of */24/20** from Amy Amy
6. Transcript of the **/17/20** Insurance Interview of Amy Amy
7. Various Maintenance records of the 2002 Dodge Intrepid
8. My inspection of Amy's Dodge on October 8, 20**

C. BACKGROUND NARRATIVE

Amy Amy testified that she experienced a loss of engine power when driving at highway speed. Amy's Dodge was taken to *****'s Auto Salvage in *****, Wisconsin where it has been stored outside. The Claim Service repair estimate indicates an engine replacement is required. The odometer reading from the repair estimate is 99,332 miles.

The maintenance records show:

Don Transmission on **/27/20** changed the Solenoid, Range switch, and flushed the transmission fluid.

Goodyear Auto Service Center on **/17/20** changed two tires.

Auto Shop on **/20/20** performed a wheel alignment and replaced the adjusting sleeves. On **/29/20** the oil, oil filter and air filter were changed.

On **/1/20** Amy took the Dodge to Auto Shop with a no start complaint. Auto Shop changed the cam sensor, spark plugs, water pump, chain guide, tensioner, and changed the oil and filter.

Amy Amy testified:

- The incident occurred Month 20** to a 2002 Dodge Intrepid that she bought in 2005 with 40,000 to 60,000 miles. (AM 5-7)

- She thought it had no problems prior to her purchase. (AM 8)
- She paid about \$10,000 for the vehicle. (AM 10)
- She got her vehicle back from not starting on Month 1st. (AM 19-20, 36)
- She thinks Auto Shop may have changed the oil incorrectly. (AM 22-23)
- Auto Shop was where she mainly had work done on the Dodge. (AM 29)
- She is seeking reimbursement from Progressive for the Month 1st engine work invoice for \$1600. (AM 32-33)
- She never had problems with the car. (AM 36)
- She does not change oil herself and knows that it should be changed every 3000 miles, every 2 to 3 months. (AM 36)
- In November her Dodge would not start, and she had it towed to Auto Shop. (AM 36)
- She drove to work twice 7 minutes each way, then from LaCrosse to Sparta (about 30 miles). (AM 40)
- While driving back from Sparta on the Interstate everything just shut off and she coasted to the side of the road. (AM 40)
- She had not notice, no shaking or noise. She was half way back near West Salem. (AM 41)
- The Dodge was towed to Auto Shop and then to her stepdad's business. (AM 42)
- Her attorney had Claims estimate repair work. Auto Shop called it a total loss, offering to take it to a junkyard. (AM 45-46)
- It was not covered under insurance due to the issue being wear and tear. (AM 49)

Stephen Stephen testified:

- He is a fabricator of hot rods and antique cars. (SW 3)
- He works for Claim since 1985 performing damage appraisal. (SW 4, 6)
- He has taught auto body repair for 15 years at Northeast Iowa Community College. (SW 5, 7-8)
- He had an ASE master certification until 2005. (SW 9-10)
- He recommended that the oil filter be looked at and to look for an oil spray pattern on the bottom of the Dodge. (SW 11-12)
- He did not review the oil filter when he came to his conclusions, but it looked like he thought it would. (SW 14-15)
- He knew Auto Mall had done service on the Dodge and it was a very well maintained vehicle. He did not know the mileage. (SW 17)
- His experience tells him that all well maintained car give good service well past 200,000 miles. (SW 17)
- He had not seen the vehicle or the photos, but may have had some photos. (SW 22)
- His conclusions are possibilities. (SW 24)
- He eliminated loose drain plug, loose oil filter, leaking gasket. (SW 25-26)
- Double oil filter gasket is possible as it would result in sudden loss of oil after a few hundred miles. (SW 28-29)

- It could be they did not put enough oil in, low oil, as Amy stated the oil pressure light flickered briefly and went out. (SW 29)
- Overheating is unlikely as her indicator light did not come on and set a trouble code in the computer. (SW 32)
- Metal chips in the filter are from low oil chewing up the bearings. (SW 33)
- The problem is not a recall issue, as only a small percentage of vehicles actually have those issues. (SW 34-35)
- Oil sludge is not likely as the oil change should have showed evidence of an issue. (SW 36)
- He does not believe that Intrepids have an oil sludge issue in general. (SW 37)

Duane Duane testified:

- He works at LA Claims, Independent Adjusting Services for 5 years. (DS 3)
- Was an estimator for State Farm for 9 years. (DS 3)
- His duty is to appraise damage and determine if a vehicle is repairable. (DS 4)
- Was a body shop manager at Eversole Collision. (DS 4)
- He learned causation over the years by working in the business. (DS 7)
- He did estimating for Claims. (DS 8)
- He observed the vehicle and determined what caused the incident. (DS 9)
- His opinion is that the only way for Amy's Dodge to fail after having an oil change a few hundred miles ago is a loss of oil from an oil change. (DS 10)
- A lack of oil or low oil does not lubricate the cylinders and the piston seizes up. (DS 11)
- An engine gets low on oil if oil is not put in or leaks out. (DS 13)
- He does not know the age or miles on the Dodge. (DS 15)
- He looked at the vehicle, but could not get underneath or open the hood. (DS 17)
- He looked underneath the Dodge while it was on fork lift, took off the oil filter and found metal particles. (DS 18)
- The metal shavings came from the rod bearings and other things. (DS 19)
- He took photos of the Dodge while at *****'s in *****. (DS 21)
- There was coolant in the cooling system. (DS 22)
- He looked at the maintenance records. (DS 23)
- He has no knowledge about Dodge Intrepids with an oil sludge issue. (DS 26)

D. INSPECTION

The VIN 2B3HD46R42H172228, is a 2002 Dodge Intrepid four door sedan with a 2.7 liter gas engine. Photos of the inspection are in Attachment A. There were parts removed prior to my inspection including:

- Bumper.
- Intake.

- Intake manifold and throttle body.
- Oil filter.
- Hoses and lines were cut to the valve covers.
- Fluid catch material was on the ground.

The removed oil filter was opened and clean. There were small metal flakes on the filter membrane evenly distributed.

The battery was dead (0 Volts), and driver's door interior lock was disabled.

The dipstick was dry and cleaned.

The air filter was nearly new.

The throttle body was clean and functioning.

The accessory drive belts were both clean and tight, but the crank damper could not be turned.

The cooling system review showed black buildup on radiator pressure cap, the overflow had fluid, and the radiator had fluid.

The oil fill cap had light black deposits that were nearly dry.

The spark plugs from the right (passenger bank) and rear left cylinder had light black carbon on the central electrodes with oil on the threads

The right valve cover bolts were tight and there were no oil leaks. The cut hoses allowed in air and moisture that caused the cam shafts to rust. The oil was clean with shallow pools in most bolt heads and corners. Rockers and rollers were clean and bright with no discoloration. The timing chain was clean and oiled with no discoloration. A sample of the oil indicates some oil sludge.

There are holes in the side of the oil pan and engine block middle, with the oil blown out and evidenced rearward on the remainder of vehicle underbody.

The oil pan bolts were tight.

The oil pan gasket was retained in the oil pan. There were no visible leaks from gasket area except at the hole in pan

The drain plug was tight with the oil fill level to the hole in the oil pan. The oil appeared clean while draining with no burnt smell. The oil in the catch pan has some coolant or watery substance.

The oil pan was discolored with brown stains on the pan walls. Some of the oil showed a watery substance and a thick sludge in bottom was a quarter inch thick containing metal flakes. There were various broken aluminum pieces and a piece of a connecting rod. There was a hole in middle of the pan that was 2 to 3 inches wide on passenger side. There was a linear 1/2 inch cut on driver's side of the pan through the gasket.

The oil pick up tube has an oil drip on it, and there was oil on and in tube. There was no discoloration on the tube.

The engine block bottom center was broken outward, and a hole broken outward in the passenger side material removed from compressor bracket. The driver's side had a 1/2 inch wide jagged cut. No other damage was observed on the cylinder walls.

On the crank shaft there was some oil on the lobes and bearings. Some of the lobes and connecting rod bearing inner race were rusted.

The connecting rod was connected to the wrist pin in the piston at the top and broken at the lower end. It had an oil drip on the end of the hanging rod. The broken piece in the oil pan was a powdered-metal forging with a split end broken in half (other piece missing). The bearing race

was clean, with light scoring and no gouging or discoloration.

E. ANALYSIS

The metal flakes on the oil filter are indicative of oil flow to convey the flakes to the filter. Oil was observed on the timing chain, in pools on the valve cover, a drip at the bottom of the broken cylinder connecting rod, and in the oil pan up to the level of the damage holes in the pan. There was no obvious evidence of oil leakage prior to the hole in the oil pan.

There was no evidence of excessive heat build up on the timing chain, valve rockers and rollers, or the broken connecting rod bearing cap.

The oil sludge buildup was not sufficient to prevent oil from flowing and was not the cause of this incident.

There was evidence of some oil and coolant exchange from the black buildup on the radiator cap, and watery substance in the drained oil.

The evidence of oil in the pan and on the valve train, along with the clean bearing surfaces and the lack of discoloration indicate that oil was lubricating the engine. The connecting rod failed and then damaged the engine block, bearing cap, and oil pan. The moving piston and rod caused damage to the engine block and cylinder. All of the subsequent damage then caused the engine to seize. The connecting rod is under stress from piston motion. The rod compresses and stretches with every rotation. The rod can break as a result of these stresses and manufacturing defects. This is consistent with the piston in Amy's Dodge being near the top of the cylinder and the upper end of the rod remaining attached to the wrist pin in the piston. The moving vehicle continues to rotate the crank shaft. The lower end of the rod then contacts the oil pan and sides of the engine block, breaking the larger bolted bearing cap section of the rod. The oil drains out the large holes and the other cylinders will rapidly seize from lack of oil.

Stephen and Duane are wrong in concluding that Amy's Dodge engine seized due to low or lack of oil. Low oil was the result of a failure of the connecting rod that caused the oil loss and then seized the engine. If the engine lost oil, the crank bearing journals underneath the connecting rod would have been gouged. Metal particles in the oil filter are only conveyed to the oil filter as a result of oil flowing to the filter. The bearings were in good condition for the mileage of the vehicle, but regular wear, aluminum flash, and the damage to the engine from the broken rod would cause metal particles to reach the oil filter before the oil went out the holes in the engine block and oil pan.

Amy's breakdown was caused by a connecting rod failure and not an improper oil change.

F. FINDINGS

Within the bounds of reasonable professional certainty, and subject to change if additional information becomes available it is my opinion that:

1. The damage to the Dodge's 2.7 Liter engine was caused by a broken connecting rod.
2. The damage to the Dodge's 2.7 Liter engine was not caused by a defective oil change

by Auto Shop.

Steven Becker

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APPENDIX A



Photo 1 – Vehicle



Photo 2 – Engine compartment





Photo 3 – Oil Filter

Photo 4 – Radiator Cap



Photo 5 – Oil Fill Cap



Photo 6 – Engine Oil Dipstick





Photo 7 – Air Filter

Photo 8 – Spark Plug

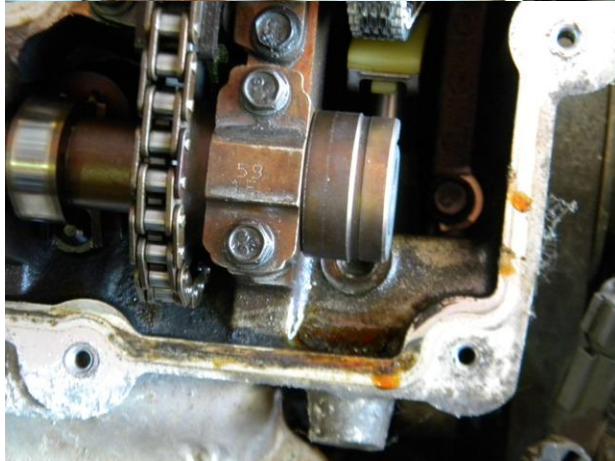


Photo 9 – Engine with Valve Cover Removed

Photo 10 – Cam shaft

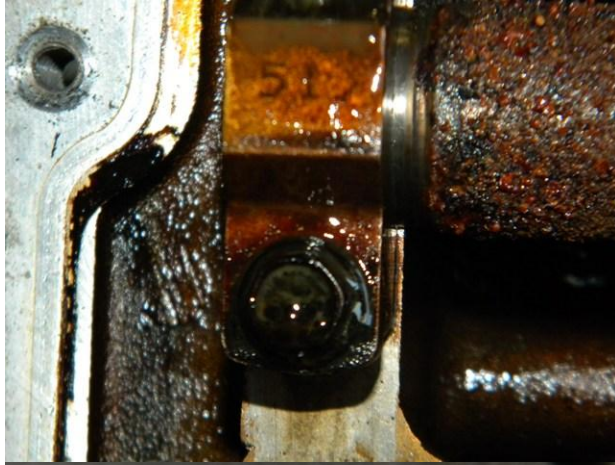


Photo 11 – Cam Shaft Bearing Cap



Photo 12 – Timing Chain



Photo 13 – Rocker Arm and Roller



Photo 14 – Oil with sludge





Photo 15 – Oil Pan passenger side

Photo 16 – Oil Pan Drivers side

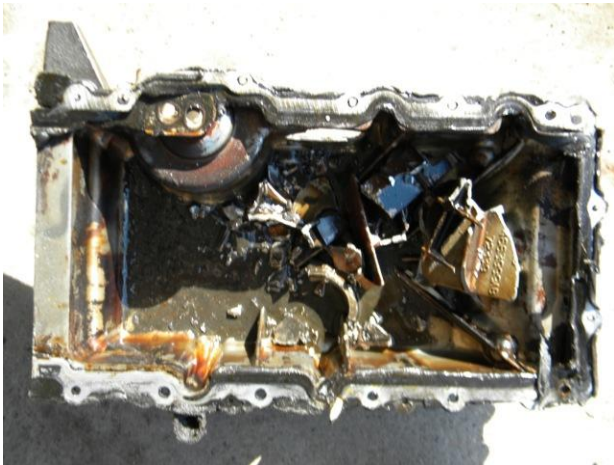


Photo 17 – Oil Pan



Photo 18 – Oil Pan Sludge

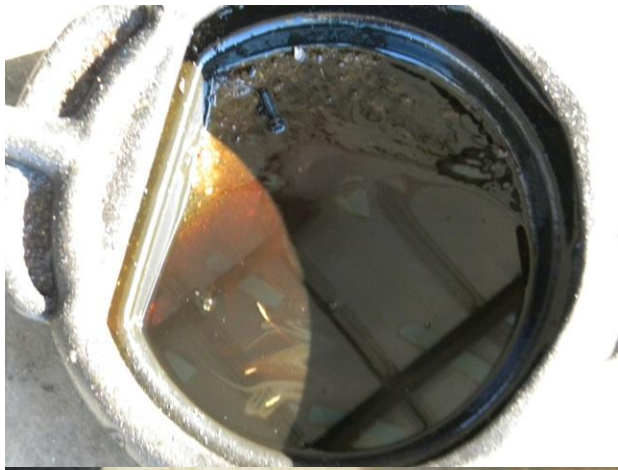


Photo 19 – Oil from Oil Pan



Photo 20 – Connecting Rod from Oil Pan

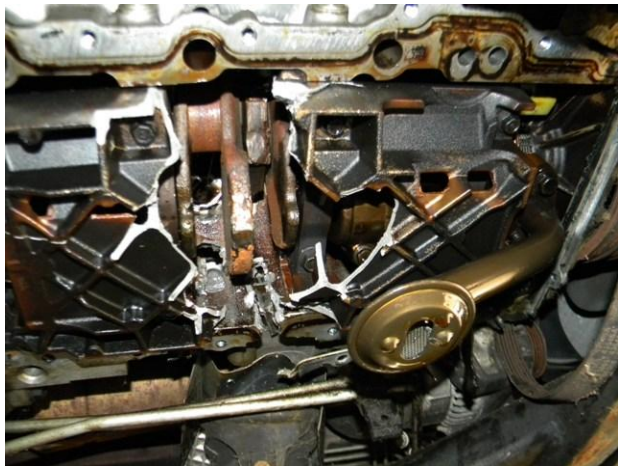




Photo 21 – Engine bottom Drivers side

Photo 22 – Engine bottom Drivers side



Photo 23 – Crank Shaft Lobes

Photo 24 – Connecting Rod