

CASE STUDY: HONDA ODYSSEY 3.5-LITER V6 I-VTEC

Client Success Story – Used Engine Part



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USED ENGINE PART
Quality At Best Price

Client Overview

Client Name: Aiden Lucas

Location: Phoenix, Arizona

Client Background

With the client being a family man from Phoenix, he uses his 2010 Honda Odyssey to get to and from work, carry the kids to and from school, and for long journeys. Once past the 180,000-mile mark, the factory engine started giving signs of wear: hard starts, misfires, and really poor fuel economy. Other than that, the van was worth keeping, and so he wouldn't really part with it at that.

Problems Faced by the Client

The original engine had low compression in two cylinders. Oil consumption was high. The vehicle would overheat on longer drives. A rebuild was one option, but after comparing costs and downtime, the client leaned toward a full engine replacement.

Objectives

Simple goal: to return Odyssey into reliable everyday sort of use with littlest compromise on performance and cost. Client requested the engine to have good midrange torque, more durability, and also to avoid any major modifications on the vehicle.

Vehicle & Engine Details

Vehicle: 2010 Honda Odyssey EX-L

Original Engine: 3.5-liter SOHC V6 J35A6

Replacement Engine: Used J35A7 from a 2006 Acura MDX, same displacement but improved internal components and slightly better airflow characteristics.

Planning & Preparation

Reasons for Engine Selection

The J35A7 was chosen for its proven reliability. It has a stronger bottom end, better oil pressure management, and it shares major architecture with the Odyssey's J35A6. It was also locally available in good condition, pulled from a front-end collision vehicle with only 78,000 miles.

Compatibility Analysis

Physical Fitment

The engine block and mounts were nearly identical. No cutting or welding was needed on the chassis.

Transmission & Drivetrain Compatibility

The transmission bolted up without issue. The torque converter aligned properly. No custom driveshaft work was required.

Electrical & ECU Considerations

The J35A7 used a slightly different crank sensor. That required swapping the Odyssey's original sensor and using the original wiring harness to maintain ECU compatibility. No standalone ECU needed.



Cost Estimation:

Used J35A7 Engine:	\$1,050
Labor:	\$1,200
Fluids & Filters:	\$150
Gaskets, Mounts, Belts:	\$300
Misc. Wiring & Brackets:	\$100
Total:	\$2,800 all-in

Required Tools & Equipment:

Engine hoist

Torque wrench set

Honda factory service manual

Jack stands and creepers

ECU scan tool

Socket and extension sets

Hose clamps, wiring solder kit, heat shrink tubing



Execution of the Swap

Removal of Original Engine

Drained all fluids, removed battery, radiator, intake, and accessories. The sub-frame was lowered slightly to access mounts. Engine came out with no chassis modification.

Installation Adjustments

◆ Engine Mounts

Factory Odyssey mounts were reused with new bushings. No modification was required.

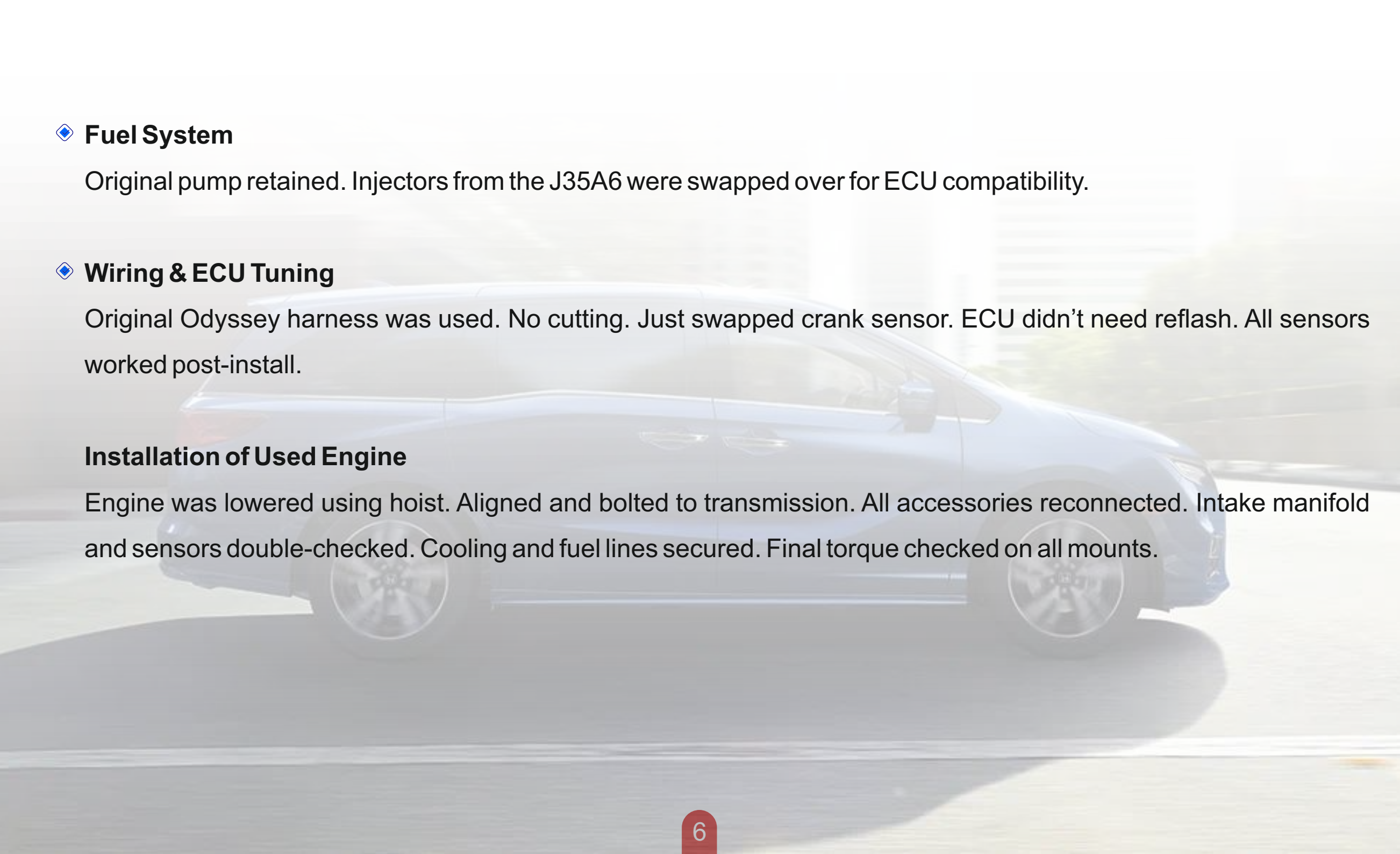
◆ Transmission & Driveshaft

Bolted directly. Shift points remained smooth.

◆ Cooling System

Replaced radiator with upgraded Denso unit. Hoses matched with minor trimming. OEM oil cooler reused.





◆ Fuel System

Original pump retained. Injectors from the J35A6 were swapped over for ECU compatibility.

◆ Wiring & ECU Tuning

Original Odyssey harness was used. No cutting. Just swapped crank sensor. ECU didn't need reflash. All sensors worked post-install.

Installation of Used Engine

Engine was lowered using hoist. Aligned and bolted to transmission. All accessories reconnected. Intake manifold and sensors double-checked. Cooling and fuel lines secured. Final torque checked on all mounts.

Testing & Performance Evaluation

Initial Startup & Tuning

Started on the first try. Idle was stable. No CEL (Check Engine Light). Used an OBD scan tool to log live data. AFR was slightly rich at idle, adjusted by ECU after a short drive. No manual tuning required.

Performance Metrics:

◆ Horsepower/Torque

Factory: ~244 HP / 240 lb-ft

New Setup (Estimate): ~265 HP / 250 lb-ft

◆ Weight Distribution

No change. Engine weight remains nearly the same.

◆ Drivability

Improved throttle response. Feels smoother in city traffic. Pulls stronger on highway ramps. Zero stalling or lag.



Reliability Check:

Monitored oil pressure, temps, and coolant for two weeks. There was no overheating, oil pressure was steady at all RPM ranges. No strange vibrations or noise were recorded under load as well.



Results & Conclusion

Success Metrics

The project achieved every goal. The Odyssey feels fresh again. It had Strong midrange, no CEL, quiet idle. The client is now using it daily without concern.

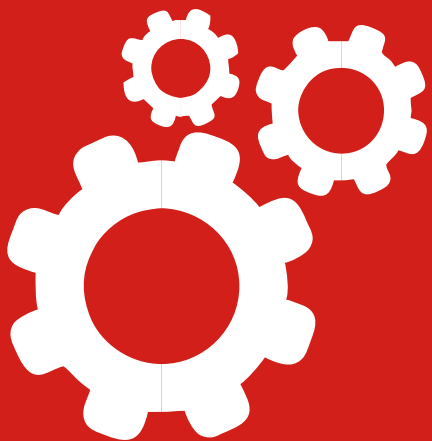
Cost vs. Benefit

Entire cost was under \$3,000, it was more affordable than a rebuild or buying another vehicle. The performance bump was noticeable. Long-term, the reliability gain is what matters most.

Conclusion

The used J35A7 turned out to be a perfect choice for this swap. No reflash, no cutting, and OEM reliability. For any owner looking to extend the life of their Odyssey without going broke, this is a practical path. Clean planning and a solid engine source made all the difference.

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