



SOLUTIONS DRIVEN:

Supporting the development of a brand new performance engine, transmission and driveline for a luxury car manufacturer's new road-based model

Our customer, a major player in the luxury car manufacturing industry, required support in achieving its main goal – to replicate real-world test circuit parameters, whilst in a repeatable environment. With limited development experience in this area, **CSA Group Leyland** was approached to provide full driveline development and durability testing.

To assist in reaching their goal, **CSA Group** designed and built a bespoke test rig within one of their largest test cells. This test rig suspended the vehicle's driveline, engine cradle (housing an engine and 7-speed dual clutch system) in the air on hydraulic actuators. This enabled **CSA Group** to input data obtained from real-time test track surfaces. Once iterated through the test rig **CSA Group** used the test track data to conduct an engine durability test. The vehicle mass was also replicated in and drive outputs were loaded sufficiently to simulate the real-world driving condition along with vehicle cornering, accelerating and braking. In order to have full control of the driveline **CSA Group** interfaced this with the engine and transmission CAN system. With this setup, **CSA Group** were able to react to the acceleration, braking and cornering of the full test rig faster than the vehicle itself; an essential aspect of a successfully conducted test.

In addition to the durability testing and to support development work in different areas, **CSA Group** carried out several other tests including: misfire detection, prototype component studies, exhaust manifold thermal investigation and engine & transmission calibration development.

This multifaceted project was successfully completed by combining experience from different internal resources. The execution of a variety of tests across various components in addition to the dynamic, rig based durability test on the driveline system saved the need for separate tests – and further costs – over a longer period of time ultimately having a positive impact on the customer's bottom line.

