

Project Spotlights

April 2006

A quarterly publication highlighting some of the latest advanced engineering projects.



Mustang Advanced Engineering upgrades CalsonicKansei Thermal Climatic & Solar Wind Tunnel with a state-of-the-art AWD 48" AC Motor Chassis Dynamometer with Fully Regenerative Drive Technology.

In April, 2006 Mustang Advanced Engineering completed an upgrade for CalsonicKansei of their existing Thermal Climatic & Solar Wind Tunnel Test Cell, replacing an existing 48" 2WD Eddy Current chassis dynamometer with a state-of-the-art AWD 48" AC Motor Chassis Dynamometer with Fully Regenerative Drive Technology.

This project was performed on site at CalsonicKansei's lab in their metro Detroit, Michigan location. The upgrade to an AWD chassis dynamometer was required by CalsonicKansei due to the changing vehicle population and the increasing shift towards AWD vehicles. Both CalsonicKansei and their customers were requesting a new, state-of-the-art, AWD chassis dynamometer for the test cell. Chief among the concern and the overriding issue for CalsonicKansei for this project was down time. The test cell was operating 24 hour a day, 7 days a week and the dyne schedule was booked up for months in advance. Therefore, maintaining the project time line was of utmost importance to the success of this project.



Photo of upgraded test cell with newly installed AWD 48" AC Motor Chassis Dynamometer by Mustang Advanced Engineering.



Photo of existing test cell with 2WD eddy current chassis dynamometer prior to start of test cell upgrade.



Project Spotlights

CalsonicKansei

The general scope of the project was for MAE to remove the existing chassis dynamometer, modify the current pit construction to accommodate the new dyne, install the required utilities for the new dyne, run conduit to the control room, and supply a new AWD 48" AC chassis dynamometer with vehicle restraint system, vehicle throttle control and new dyne control system.

With the project time line as the central focus, MAE's project mangers worked closely with CalsonicKansei project managers and developed a detailed schedule and project gant chart. Precise coordination of project tasks and schedules was critical to the success of this project. Facility and utilities modifications where planned to be performed during the dynamometer design and manufacturing phase in order to allow both companies to strictly focus on the test cells modifications well in advance of the dyne installation and to help minimize the test cells down time. The project schedule was set to allow for a one month shutdown of the test facility.

Projects to be completed during this one month time frame included:

- Removing the Existing Dyne
- Saw Cutting the Floor and Excavating a Pit
- Forming the Pit
- Pouring the Pit
- Installing the Pit Ventilation
- Manufacturing the Dynamometer
- Installing and wiring the Dynamometer
- Top Plate Assembly
- Calibrating the Dynamometer and sub-assemblies.
- Start-up and test-out the Dynamometer System
- Training



← High power control area outside of test cell door.



← Control room with new PC and dyne controls.



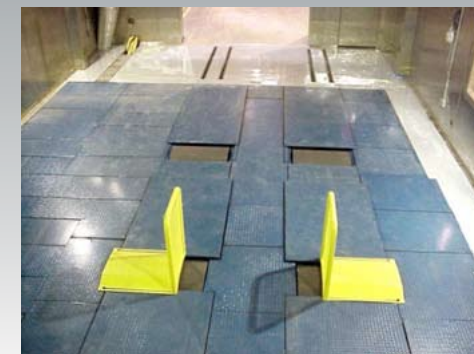
← New vehicle restraint system.

Thanks in large part to the close cooperation and coordination between the CalsonicKansei and MAE's project managers, the down time of the test cell was minimized to the planned one month time frame without the need for any contingent down time. The cell was up and running with full operation of the dynamometer system on time. The project was considered by all involved to have been a complete success for being completed on time and under budget.

The ultimate result of this project is that CalsonicKansei's Thermal Climatic & Solar Wind Tunnel now possess the industry's most advanced AWD AC Motor Chassis Dynamometer with fully regenerative drive technology. The new system adds significant testing capabilities and has broadened the horizons of their operations, giving CalsonicKansei the ability to test a much wider range of vehicles using the most advanced vehicle testing technologies. The regenerative drives, by returning electrical power back to the system, minimize electrical usage and have reduced operational costs of the system. The MAE system has been running flawlessly since installation in April 2006.



↑ Photo of new pit under construction. MAE was successful in completing the entire upgrade of this test cell in under one month by carefully planning all phases of the construction to coincide with the design and manufacture of the equipment portion of the project.



← New dyne in test cell shown from above wind tunnel nasal.

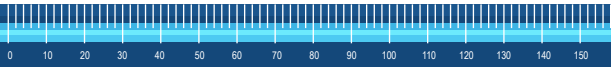


← New dyne in test cell showing wind tunnel nasal and control room windows.



↑ New dyne in test cell showing remote pedal controller outside of vehicle at the moment.

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About MAE

Mustang Advanced Engineering is a somewhat unique company whose expertise in the design and construction of custom test benches rivals just about any other company in the world. While custom chassis dynamometer systems have always been a large part of its core business, MAE has added a wide variety of products and has gained industry-leading expertise in nearly all types of dynamometer test benches including AC and eddy current engine dynamometer systems, transmission test benches, tow dynamometers and custom test benches of all types and sizes. The current MAE product range includes engine test cells, transmission test cells, custom chassis dynamometers, production and in-process test systems, containerized test cells and complete powertrain test cells up to and including truly colossal 8 x 8 chassis dynamometer systems.

MAE is fortunate to possess very sophisticated engineering capabilities and talents that have developed over many years of doing business in the automotive, industrial and aerospace industries. Some of the engineering MAE does for clients is done on a consulting basis, while most of what MAE does best is of the design and construction of custom turnkey systems. As a result, MAE has positioned itself as the supplier of choice when it comes to most types of custom dynamometers and test benches.



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