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## TURBO TEST CENTRE

starting from july 2009

Already announced in 2007, the Turbo Test Centre is now almost ready.

Last paint coatings are now finished and all milestones announced in the previous Newsletter are on schedule.

Burners just arrived on site and are now being set up in the test cells.

The Center is equipped with the latest natural gas combustion chamber technology.

The gas stands will measure the efficiency across the compressor and turbine map range for all turbo-charger sizes.

All gas stands can be run in automated mode for high productivity. More specific tests can be performed, such as:

- Bearing qualification,
- Shaft motion qualification,
- Endurance testing,



-Burst containment testing.

Furthermore, it will be possible to use the test benches for any other tests that require high pressure gas, in particular, tests including EGR and exhaust system equipment.

According to the confidentiality policy in the CRITT M2A, each test cell is equipped with secured access and with individual storage.

CRITT M2A is now ready for the turbocharger era. A Centre awaited by most actors in the motor industry and unic in Europe !

With this new Turbo Test Centre, the CRITT M2A will also deal with R&D topics such as :

- Turbo design and optimization,
- Downsizing,
- Control, management of fuel consumption and pollution,
- Euro 5 and Euro 6.

### A GLIMSE AT THE TEST CELLS



## PARTNERSHIPS



The CRITT M2A develops its competences and strengthens its partnerships with the on site company THY ENGINEERING.

This company made up of six turbo experimented engineers proposes expertise in design engineering and turbo matching.

The CRITT M2A and THY ENGINEERING will thus propose a wide range of services to fulfil all customers' requirements.



An other winning partnership has now been working for several years between the CRITT M2A and VIBRATEC, vibro-acoustics engineering company proposing a wide range of tests in semi-anechoic room, reverberating room and full anechoic powertrain.



Member of the world class competitiveness cluster I-TRANS, the CRITT M2A has just had its Turbo Test Centre recognized as a structuring platform.



Artois Comm, metropolitan community, is the original partner of the CRITT M2A. They both closely collaborate to maintain the research Centre at a high level of technology thanks to regular investments.



International Campus on  
Safety and Intermodality  
in Transportation

The CRITT M2A takes part in the CISIT (International Campus on Safety and Intermodality in Transportation) program which is a state supported program between test centres, many university laboratories and high schools in the North of France area. The study is divided in 3 main topics, such as Vibro-acoustic comfort and Traction systems, which are major topics for the CRITT M2A.

## NEW HUMAN RESSOURCES

In order to fulfil its customers' expectations the CRITT M2A keeps recruiting new competences:

- Since January, one experimented engine technician joined the team,
- Since 1st march, a new business manager with experience in the automotive industry also joined the CRITT M2A.

The CRITT M2A strategy is to gradually integrate new competences with new team members and partnerships. Forty people are now on site.

In 2009, five new recruits will join the CRITT M2A with the emerging Turbo Test Centre and the new engine test benches.



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## LATEST TECHNOLOGY

In addition to the Turbo Test Centre, Artois Comm keeps investing and enables the CRITT M2A to maintain its means at the highest level of technology and to be the best partner for the automotive industry.

The CRITT M2A recently integrated two new FEV dynamic benches. Each cell is equipped with one 240kW generator and one HORIBA 7400 gas analyser. Fuel consumption is measured by a Coriolis effect debimeter.

A temperature regulator fits each cell; combustion air is also in temperature and hygrometry regulated.



*4 dynamic benches*

Compatible biofuel tanks for over 50 000 litres have also been upgraded close to the engine test cells.

Fuel storage capacity is now 74 000 litres with a diversity of ten different fuels.



*2 HORIBA 7400 gas analysers*

INCA software and all the specific equipments as combustion measurement, exhaust gas opacity meter, and many others are set up in each cell.

This is now seven test cells available in the CRITT M2A, among which one bench allowing LPG/NGV tests.

The CRITT M2A also upgraded its fuel storage organisation to match new motor tests requirements.



*Upgrade of fuel storage and distribution*

In the same time, test bench automation systems have been updated (PUMA Open 1.4) and completed (INCA, OSIRIS, ...).

Thus all engine test means have now been kept up to date.

## AGENDA

- **Visit us at the Automotive Testing Expo trade fair**  
**In Stuttgart 16, 17 and 18 jun 2009 - Stand nr 1971, 1st Hall**  
in partnership with VIBRATEC, THY ENGINEERING and Artois Comm
- 2<sup>nd</sup> half of 2009: Turbo Test Centre Official Inauguration
- December 2009: CRITT M2A annual scientific meeting





International Campus on Safety and Intermodality in Transportation

The CRITT M2A proposes its R&D expertise and engineering for your projects.

Many projects involving industrial and public partners are already being runned or in preparation.



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# RESEARCH & DEVELOPMENT

## • CISIT :

CISIT program started in 2008. It will gather CRITT M2A and eleven other laboratories until 2011.



The CRITT M2A's involvement in NVH and engine development is pointed out through two operations :

- COMAPROS (acoustic comfort inside the vehicle)
- POWERTRAIN SYSTEMS (management of powertrain systems)

Several public institutions such as Nord-Pas de Calais Regional Council , French state or the European funds invest in these studies to promote attractivity and competitiveness of the area.

## • MADIIV :

MADIIV project is both driven by the partners CRITT M2A, VIBRATEC, RENAULT and the technological University of Compiègne (UTC).



The CRITT M2A ran tests in its semi-anechoic room in order to fulfil the first phase. VIBRATEC measured the noise transfer generated by the engine inside the car.

This project is meant to improve the car passengers' acoustic comfort, managing the random variation from the design stage to the vehicle assembly.

MADIIV should last nearly 36 months.

It represents a budget near 970 000 €.

## • GAMMA-R :

The study GAMMA-R will develop an innovative methodology for calibration, without any contact and quite closer to the accelerometers real conditions.

It needs the help of a student engineer from the Artois University and from the High School ENSAM in CRITT M2A to follow the study.



This project's results will also enable the CRITT M2A to offer metrology services directly to its customers.

GAMMA-R represents an investment of 200 000 €.



# SCIENTIFIC MEETING

The annual CRITT M2A's scientific meeting took place 4<sup>th</sup> December 2008.

This event gathered fifty automotive R&D and industry actors, either suppliers, customers or partners, around the CRITT M2A's projects presentation.

The aim is to make this meeting become gradually an annual event for the automotive community.



Guests returns have been very good considering the display of so many information and the high level of confidentiality needed.

A successful event for the CRITT M2A which will welcome more and more industrial and scientific visitors in the coming years.