



Process instruction for power measurements

Introduction

The measurement results of performance measurements on a roller test bench can be influenced by vehicle-specific as well as environment-related factors. So as to obtain exact, reproducible measurement results with the performance test, the vehicle has to be conditioned for the measurement on the one hand and on the other hand the performance tests must be carried out under consideration of the vehicle-specific characteristics at comparable conditions.

1. Object

These instructions are to set out the general framework for a wheel performance measurement. The process is to form the basis for comprehensible measurements.

2. Coverage

These process instructions are valid for test benches for wheel performance measurements. The following steps are to be considered complementary to the existing operating guidelines of the test bench. Abt Sportsline reserves the right to check all measurement results and does not consider the results of a measurement as binding. Abt Sportsline is not liable for incorrect execution of the wheel performance measurement and accurateness of the measurement results.

3. Procedure

Preparation of the vehicle:

- 3.1 The error memory of the engine control unit as well as gear box control unit has to be read out. Any errors must be journalized and checked. No performance-related error must be stored in the memory.
- 3.2 The saturation of the particulate filter of Diesel-driven vehicles must be read. If it shows more than 15 %, the value has to be reduced by appropriate means according to the manufacturer's instructions.
- 3.3 The vehicle must be fuelled with best quality gasoline (gasoline engine 98 ROZ , Diesel CZ 49 or better)
- 3.4 The following blocks of measurements are to be recorded during the performance measurement in rotation speed steps of 200 rpm with VAS 5053 or similar. The measurands are to be selected according to manufacturer and model from the functions listed.

Gasoline engine: Torque, air mass, injection time, engine temperature, charge-air temperature, oil temperature, exhaust temperature turbo charger exit, boost pressure, pulse-width modulation turbo charger, knock control system, lambda values

Diesel engine: Torque, air mass, injection quantity, engine temperature, charge-air temperature, oil temperature, exhaust temperature turbo charger exit, exhaust temperature before and behind the particulate filter, boost pressure, pulse-width modulation turbo charger

- 3.5 Tyres corresponding to the original size of the vehicle manufacturer's tyres must be used; further, they must be licensed for the required speed range. Do not test vehicles with winter, retread or new tyres.
- 3.6 The tyre pressure of the wheels must correspond to the vehicle-specific values and be corrected if necessary.
- 3.7 The wheels must be checked for debris and damage.
- 3.8 The following environment-related conditions in the test bench following EWG 80/1269 must be observed.
Room temperature 15-35 °C, measured near the air admittance area of the air filter
Air pressure 800-1100 hPa
Intake pipe temperature: max. 40-60 °C
- 3.9 The blower performance should be selected in a way that the intake pipe temperature during the measurement does not exceed more than 25 °C against the test bench temperature. The position of the blower exit is to be selected in a way that the radiators are supplied with air and the air flow produces a draught on the underbody. The bonnet should only be opened a little gap so that the cooling-air flow in the engine compartment is not interrupted.

Engine conditioning:

Engine water temperature: min 75 °C

Oil temperature: min 60 °C

The intake pipe temperature respectively charge air temperature at the beginning of the measurement should only deviate slightly from the room temperature.

Air conditioning system in switch setting Off or Econ; all electrical devices off.

Make sure the charge state of the battery is at least 90%.

Traction control systems and vehicle stability systems must be deactivated.

Measurement:

The guidelines of the manufacturer must be observed.

Run the vehicle on the roller at approx. 100 km/h for a short while before the first measurement.

Manual transmission and DSG: The measurement must be carried out in fourth gear.

Automatic transmission and Multitronic: Put in the fourth gear and push the accelerator pedal to full throttle without Kick Down.

Measurements of automatic vehicles (also Multitronic) must be corrected additionally due to their higher load-dependant losses in the drive chain. Please see the manufacturer's guidelines for the values e.g. Audi KDNR: 1001 Motor

Tiptronic : +3.5 %

Multitronic : +4.5 %

Quattro additionally +1%, also for manual transmission

Evaluation of the results:

The values of the continuous measurement of vehicles with manual transmission that are related to the norm conditions are to be compared with the nominal curve in the nominal output range.

Depending on the model of test bench, the measurands are to be corrected either before or after the measurement according to the manufacturer's guidelines.

This measuring mode does not comply with norm EWG 80/1269 to 12/99. The basic conditions were adapted to the norm within the scope of the physical producibility.



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