WLTP DTP Lab Processes subgroup	
Title	Vehicle test mass
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General

An important task for the WLTP is to reduce the gap of fuel consumption between type approval and real driving. Anecdotally, it has been suggested that this gap could be around 20%. The new WLTC will address some of the issues that cause this gap. However, we also have to find more real world conditions in the development of the test procedures (DTP).

We see that manufacturers are making lot of effort to reduce weight of the tested vehicle for reducing the CO_2 and fuel consumption values. The weight of the vehicle during the emission and CO_2 test do not represent the actual mass of a vehicle in real world operation. In practice a vehicle is not empty when used. In addition, anecdotally it has been suggested that the level of equipment included in the test mass is often substantially below that of typical vehicles. As a result the reference mass (an empty vehicle + 100 kg) which is the test mass in Europe today is not reflecting a realistically loaded vehicle. This is even more specific for N1 vehicles.
One simple solution is to increase the weight of the vehicle during the chassis dynamometer tests with realistically loaded vehicles.

Proposal

The Dutch proposal is perform the tests with a vehicle which is reflecting a realistic loaded vehicle. A realistic load could be a vehicle with a intermediate load of [50%].

With load I mean the mass of optional equipment, plus the driver, plus the passengers and plus the luggage/load. Normally with load only the luggage/load is intended.

To perform this test mass of the vehicle it is a necessity to use solid definitions of vehicle mass.
A good basis is to use the unladen mass of the vehicle (kerb weight) and the technically permissible laden mass (M).
At the moment we do not have in Europe a good definition of unladen mass but we do have a definition of “mass in running order (MRO)”. This is a mass of a vehicle including the driver (75 kg), fuel (90% filled), liquids (cooling) and standard equipment.

We can create an unladen mass (UM) as the “mass in running order” minus the mass of the driver of 75kg.

The test mass (TS) would therefore be the unladen mass plus [50%] of the difference between the technically permissible laden mass and the unladen mass.

TS = UM + [0,5] (M-UM)

Benefits

- More realistic vehicle weight, in particular for N1 vehicles.
- Easy for testing, weight can easily be added.
- Avoids the need to define a “typical” level of vehicle equipment for a vehicle prior to its being marketed.
- No conflict with existing CO_2 targets, because these CO_2 targets should be reviewed for the WLTP anyway.