

Comments to WP.29-152-11

On proportional speed fan

GRPE, at its 60th session in June 2010, adopted the proposal presented by OICA ECE/TRANS/WP.29/GRPE/2010/11, not amended, to update the specifications for the proportional speed fan which can be used during testing of the vehicle on the chassis dynamometer. The secretariat was requested to submit the adopted proposal to WP.29 and AC.1, as Supplement 1 to the 06 series of amendments as well as Supplement 10 to the 05 series of amendments to Regulation No. 83, for consideration by WP.29 and AC.1 at their November 2010 sessions, which resulted in documents WP.29/2010/130 and WP.29/2010/129 respectively.

Additionally, to answer some concerns raised during the June GRPE discussion, the GRPE Chairman invited the experts from the Netherlands, Poland, the United Kingdom, EC and OICA to jointly prepare a proposal regarding the air cooling velocity for consideration at the next GRPE session“, as reported in ECE-TRANS-WP29-GRPE-60.

The new informal document WP29-152-11, amending ECE/TRANS/WP.29/2010/129 and ECE/TRANS/WP.29/2010/130 have however been reviewed outside GRPE and finally presented in an amended form (WP.29-152-11) to WP.29 for adoption without having being scrutinized before by GRPE.

OICA encourages not adopting WP.29-152-11, because of its technical inadequacy as explained in details below. OICA is still willing to collaborate with C.P. to prepare a joint revised document for January GRPE. However, respecting the timeframe agreed upon by GRPE, OICA supports adoption of ECE/TRANS/WP.29/2010/129 and ECE/TRANS/WP.29/2010/130 at the November session of WP.29, to ease translation into local legislation in China and South Korea.

Furthermore, OICA has concerns that WP29-152-11 is presented as a minor editorial correction, not requiring prior review at GRPE; as explained below, this is clearly not the case.

OICA suggests respecting the June 2010 GRPE decision, namely adopting ECE/TRANS/WP.29/2010/129 and ECE/TRANS/WP.29/2010/130 unchanged, whereby GRPE could further review the issue and improve the text, if necessary.

Reasons on the technical inadequacy of WP.29-152-11

A. Comments on the following proposed amendments:

§6.1.3 and §3.4.2 “The blower speed shall be within the operating range of 10 km/h to at least 50 km/h, or ~~as an alternative, at the request of the manufacturer,~~ within...”

The current Regulation allows three different set-ups of speed fans, at the choice of the manufacturer:

1. proportional speed between 10-50 km/h
2. proportional speed between 10 - max speed
3. fixed speed

If the sentence “as an alternative, at the request of the manufacturer” is removed, a third party testing a vehicle (e.g. for in-use conformity) will have the freedom to chose any of the three fan configurations, with the obvious risk of choosing a different setup from the one used by the manufacturer, possibly leading to different emission results.

Thus OICA proposes to keep the sentence 'as an alternative, at the request of the manufacturer' in both sections, to ensure that the same speed fan is used while testing.

B. Comments on the following proposed amendment:

§6.1.3 “The height and lateral position of the cooling fan ~~can may~~ also be modified ~~at the request of the manufacturer if appropriate.~~”

§3.4.2 “The height and lateral position of the cooling fan ~~can may~~ also be modified ~~at the request of the manufacturer if applicable.~~”

In the real world wind blows across the whole frontal area of the vehicle and it is vital that the air flow is able to be correctly directed to the vehicle intercoolers. Engineering constraints in engine bay packaging mean that intercoolers etc are often located away from the vehicle centre line. More sophisticated air ducting including the frontal grill are often used to correctly flow the air to the coolers (EGR coolers, intercoolers / charge air coolers etc). The air flow needs to be real world representative to the thermal management systems.

It is clearly recognised that the fan height and lateral position needs to be adjustable to be able to deliver the air flow from the road speed fan to range of vehicles from sports cars to light commercial vans.

As these specific cooling requirements may not be obvious to third parties (i.e. other than the vehicle manufacturer), it is essential to retain the wording “at the request of the manufacturer”.

The following diagrams are examples of engine installations with intercoolers located substantially to the left of the vehicle centreline. Illustrations of associated frontal grill designs are also provided. These designs are typical of vehicles already on the market

Figure 1

Illustration of typical vehicle frontage – this gives no indication of location of emissions critical components (heat exchangers) which provide EGR cooling, charge air cooling etc and neither can anything be inferred about location of ducting behind the grills which would appropriately direct the air.

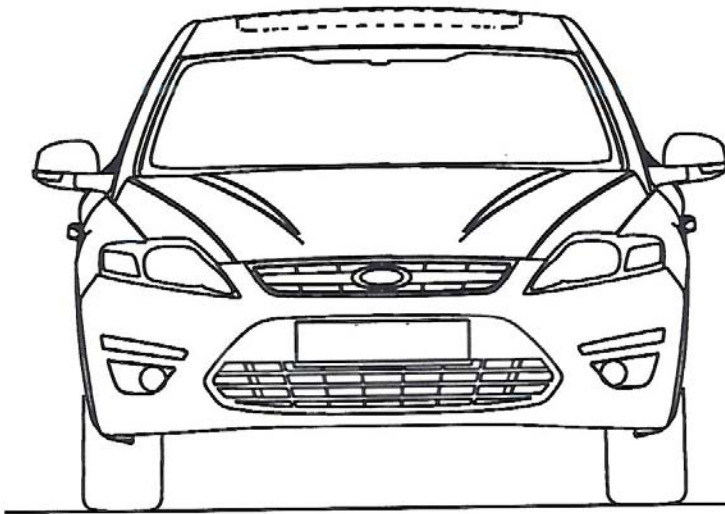


Fig 2: Illustration of position of intercooler with advanced ducting to improve airflow

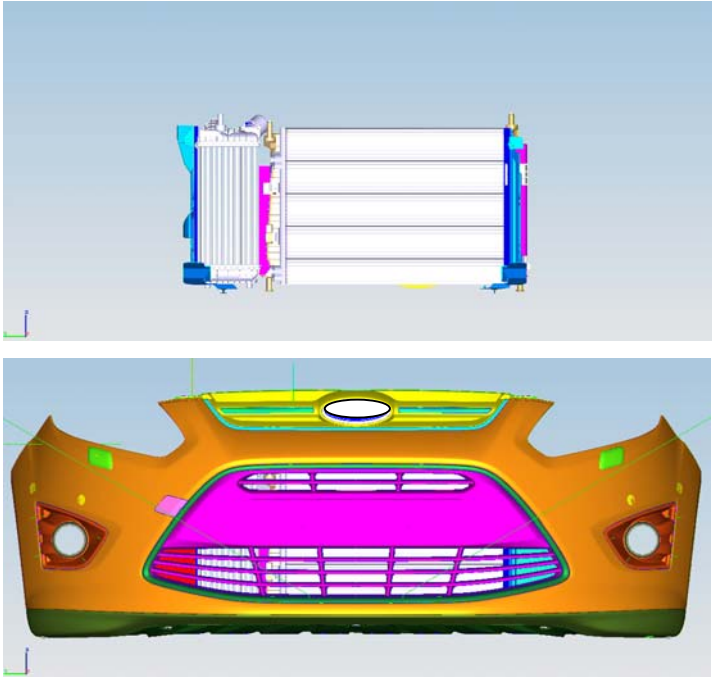


Figure 3: Illustration of position of intercooler with enhanced frontal grill to improve aerodynamic performance in real world with advanced openings to ensure correct air flow over intercoolers.

