

Exemplar Air box technical data

Silverstone 112 fitted to Caterham R500

Why fit an air box? To combat induction noise on a highly modified engine with throttle bodies (typically reduced by 6.5dbA) a growing problem at circuit venues, to offer reduced intake temperatures and add the possibility of ram air intakes for increased power.

The engine performance correction standard proves the horsepower advantage of using an air box to feed the engine with cool air,

from test data actually measured on a k series powered R500.

This does not show further advantages that can be gained by ram air with a correctly mapped engine management system.

Engine performance correction standard :
80/1269/EEC

The reference ambient conditions are
24.85 deg. C, 99 KPa (990 mbar)

Power correction is $P_o = a \cdot P$ where a is the correction factor and P is measured power

Correction factor

$a = \left(\frac{99}{p}\right)^{1.2} \cdot \left(\frac{t}{298}\right)^{0.6}$ p = dry

atmospheric pressure (kPa) = total barometric pressure - water vapour pressure

and t = atmospheric temperature K

