MOTORISATION

Aims

- ⇨ Reliable engine
- ⇨ Reduce the impact of the air intake restrictor

Constraint

According to the rule, all the air used by the engine should go through a 20mm diameter air intake restrictor.
Consequences after the "maximum" engine speed is reached:

- Constant power after a certain engine speed
- Decay of the torque

Engine choice

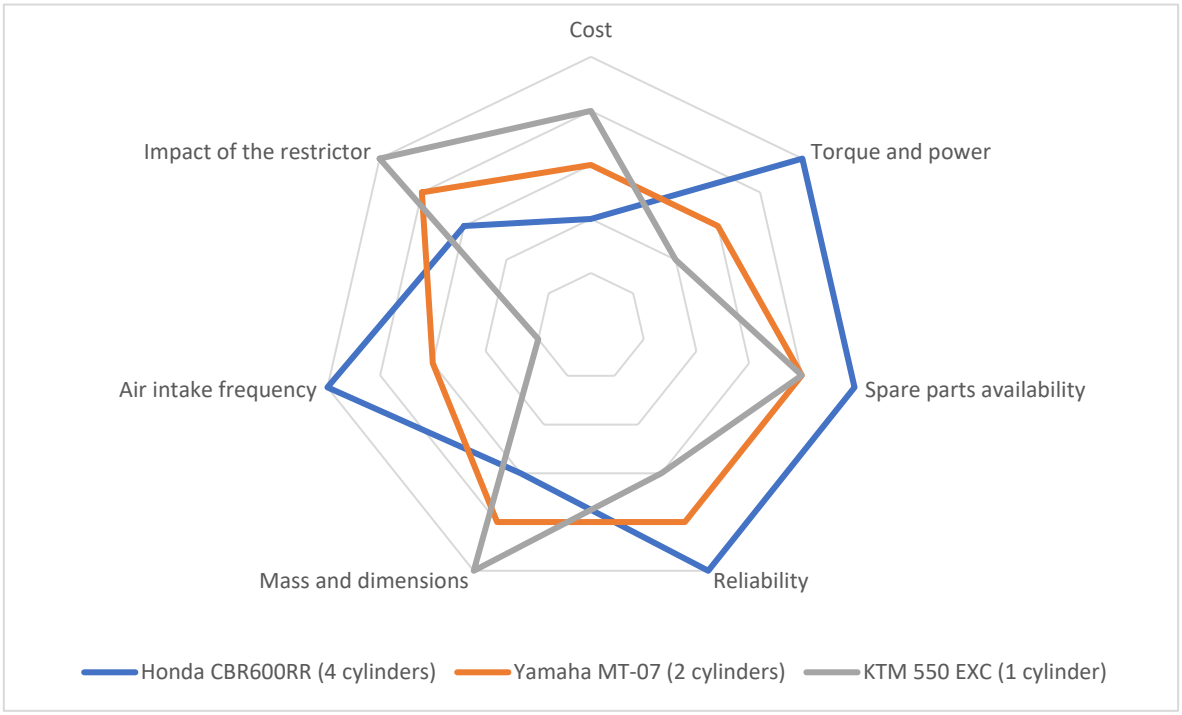

Figure 1: Diagram of engine choice

- ⇨ Choice of the Honda CBR600RR, particularly for is reliability, and impact of the restrictor on this engine.

Air intake and exhaust

Objective

- ⇨ Reduce the impact of the air intake restrictor
- ⇨ Dispose of a stock of air between the engine and the air intake restrictor
- ⇨ Low pressure loss in the plenum

Acoustic study

Hypothesis:

- Intake: 20°C
- Exhaust: 600°C

Lengths:

- Admission runner: 351mm
- Exhaust:
  - First runner: 402-426mm
  - Collector: 296-308mm
  - Final collector: 378mm

- ⇨ Gain of torque in the constant power zone.

Engine tuning

Sensors:

- Camshaft angle
- Crankshaft speed
- Water temperature
- Air temperature

Parameters:

- Fuel injection time
- Ignition timing: timing advance

Objective: increase torque and efficiency

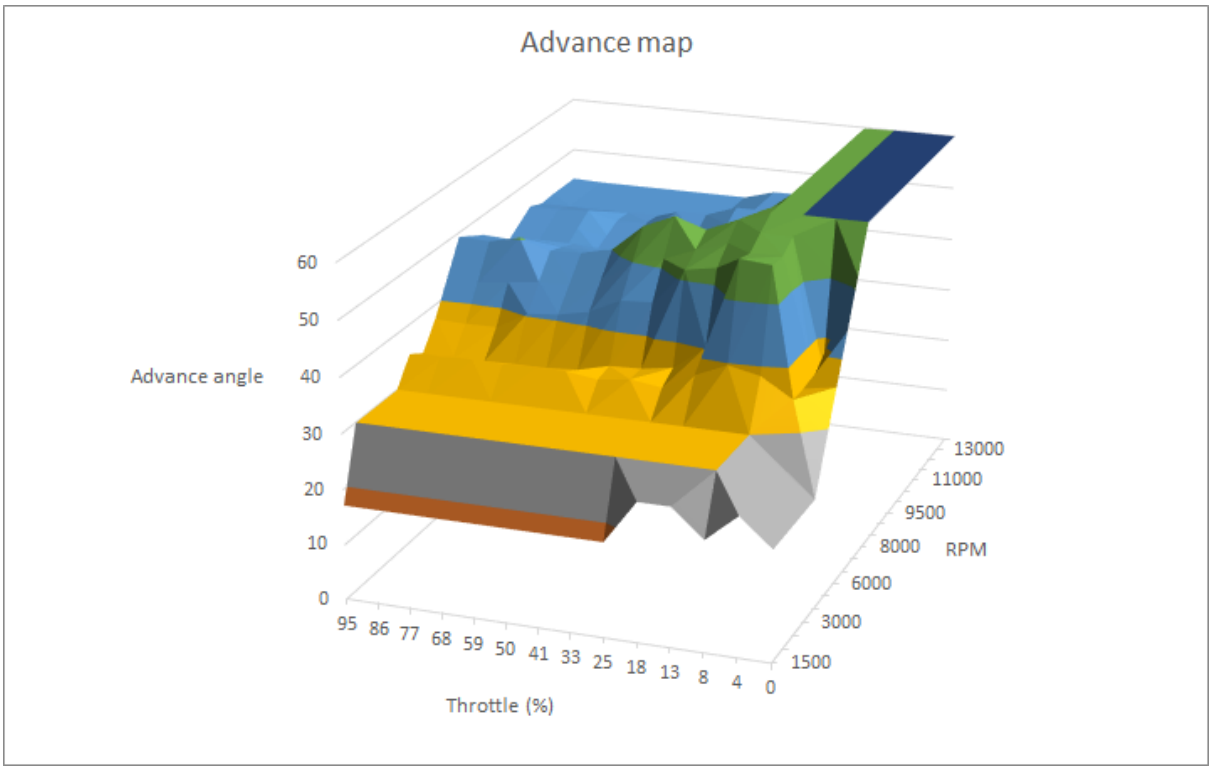

Figure 1: 3D timing advance map