

TECHNICAL

Settings using detonation counters

RS125R / RS250R

▶ Detonation

Detonation will occur at before or after the maximum output speeds (if peak speed is 12500 rpm, detonation occurrence ranges from 12250 to 12750 rpm). Detonation seldom occurs outside these speed ranges.

As shown below, 5th and 6th gears provide less acceleration than 1st and 2nd gears where there is extended use of these detonation range speeds. For this, circuits with more acceleration and deceleration frequencies give less detonation occurrence than circuits where there is extended use of wide open throttle operation using 5th and 6th gears.

Frequent use of low ratio and 12750 rpm and over resulting from ratio choices will control propensity toward detonation. Also, distinct behavior of driving will result in less detonation associated with partial throttle opening.

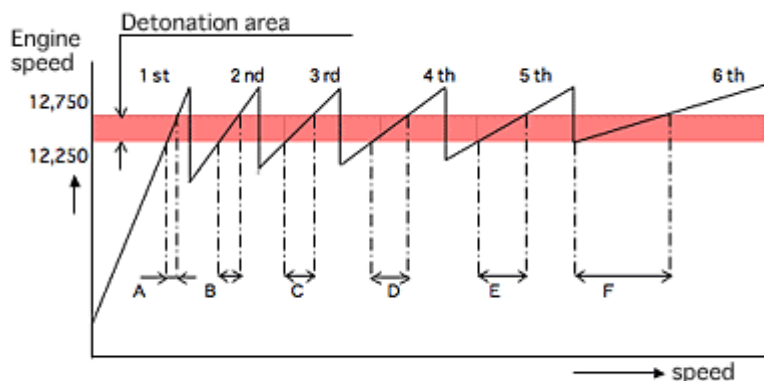


fig. Detonation area

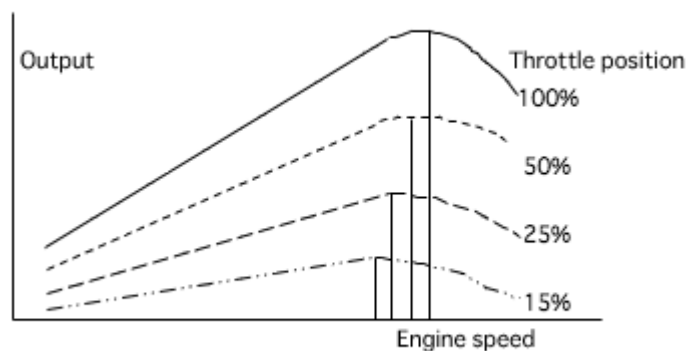


fig. Detonation area

In the engine output characteristics figure shown above, peak speed are changing, depending on wide open throttle to partial throttle. Accordingly, detonation occurrence ranges may vary with throttle opening. Detonation may suddenly take place when returning throttle from fully wide-open throttle at 11000 rpm.

Counting at fully wide open ranges tends to lead to damages, but counting at partial range will lead to less damages. Accordingly, you should find your base because counts are different from rider behaviors to course lay outs.

▶ Criteria for detonation counter

Many riders seem to have detonation counters fitted on their machines for information used for settings. Both the RS125R and RS250R should have detonation counter numbers of one to two per kilometer as criteria.

In the case of the Suzuka Circuit with one lap length of about 6 kilometer, the criteria for the counter will be 12 per lap.

As mentioned before, detonation will occur in needle ranges such as partial throttles as well as the fully open main region. You should check where values gained from the counters occur. One to two/km in the main region are recommended.

▶ Countermeasures against detonation

Even rich settings may lead to detonation for the following reasons.

Damaged pistons or heads are found at the engine maintenance.

(CAUSE)

- High secondary compression
- Advanced ignition timing
- Chambers or silencers have been replaced or have deformation or dents
- Secondary air is breathed in
- Fuel strainers or tank one-way valves are clogged
- Old gasoline is used
- JET NEEDLE, SLOW JET, or PWJ other than MAIN JET are lean
Too early power jet cut

No engine damage is found but too may count numbers found.

(CAUSE)

- Defective tightening torque for counter sensors
- Counter sensor or counter body is picking up vibration
- Counter cord is picking up electrical noises
- Disconnected counter cord
- Lack of counter voltage
- Previously damaged pistons or heads are used

The engines is damaged, but no count found.

(CAUSE)

- Sensor tightening torque is below specified

- Failed sensor/counter
- Disconnected coupler or ingress of water
- Defective carburetor (check float movement)

.....

