

TECHNICAL

Basic concept of power jets

RS125R / RS250R

Concept of power jets (pwj)

See Figure 1 below, which depicts the output characteristics associated with the full throttle engine operation. The graph contains the range B at around the peak power, the range A before the peak power, and the range C for over-revving ranges, each of which requires the proper fuel flow rate. Settings using Main jet only, however, provides richer mixtures to the ranges A and C if they meet the fuel flow rate requirements for the range B.

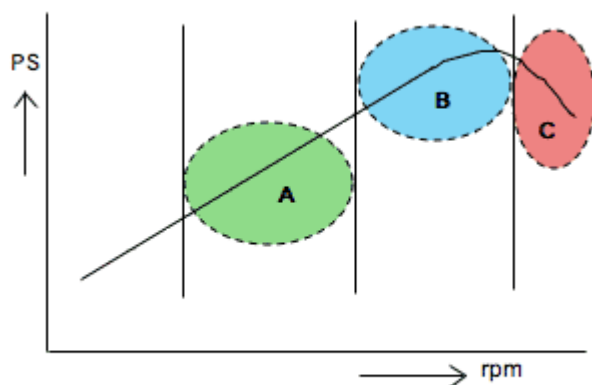


Fig. 1 Engine speeds and power associated with full throttle operation

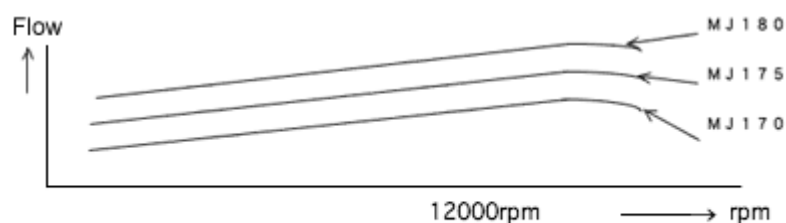


Fig. 2 Engine speeds and Main jet fuel flow rate during full throttle operation

In Figure 2, the gently sloping, linear graph represents fuel flow rate. From Figure 1 showing the power curve gives a mountain-shaped graph, we can understand that a single Main jet does not provide ideal fuel mixtures for all of the A, B, and C. The power jet can make the flow rate closer to the ideal, mountain-shaped graph.

Power jet settings for 2000 model year and later RS125R

The year 1999 and earlier RS125R has carburetor settings which give fuel mixtures suited for the peak power, using relatively small Pwj#40s to avoid detonation.

The year 2000 and later model has the same carburetor specifications as the RS250R, so the same settings as the RS250R can be applied to the model. Accordingly, the use of larger #48 power jets give more torque. However, since the RS125R is different from the RS250R in engine capacity, the presence of RC valves, and service speed range, it has settings intended for the RS125R.

• **Changes in carburetors (1998 - 2000 models)**

	'98-'99	2000
MJH, Body	ø3.5	ø3.7
FLOAT LEVEL	8.5mm	8.0mm

• **Engine characteristics with power jet carburetors (2000 year model and later)**

- 1) Excellent over revving characteristics
- 2) Increased torque at speeds (10000 and over rpm) associated with rising
- 3) Easy throttle opening
- 4) High cornering performance resulting from smooth, linear revving up
- 5) Proper engine braking performance

▶ **Actual setting**

The fundamental setting should be that the speed range preceding the peak power has torqueful output while the high-speed range has excellent over revving characteristics.

The standard settings at the time of leaving the factory contain power jets (Pwj) of #40. So, the Pwj should be changed to #48 after running in, making sure the standard settings.

Jet needle/Main jet settings (for snapping after warming up) according to circuit run weather conditions.

- **Basically, R1268/34-4clip or R1269/34-4clip will be used for Jet needle. Snapping will be used to make sure response for final determination.**
- **Select Main jet which can provide at least 13000 rpm or more at each gear**

Jets should be so selected that engine feeling does not significantly change when the power jets become ineffective. For instance, settings for the main region seems defective if the engine feeling drastically seems lighter or heavier when power jets become ineffective. It is recommended that shift ups be made at around 13200 rpm and smooth and higher engine speed be aggressively used to keep engine speeds high after shift ups for higher, increased acceleration.

▶ **More practical specifications**

Various optional parts are provided to make more practical the RS125R fitted with power jet carburetors.

MJH (main jet holder)

- Optional 3.9 diameter against standard 3.7 diameter

Switch to this 3.9 diameter MJH will give you more smooth, powerful performance immediately after opening the throttle. The MJH, however, should be returned to the 3.7 if hunting occurs. Hunting, even if you tolerate, will degrade your riding.

(In comparison with 1998 and 1999 year models, the 2000 year model will give you less hunting and hesitation, so you can use aggressively 3.9 MJH.)

- Optional Jet needle parts have a 33-needle against the standard a 34-needle. Their use depends upon weather conditions or course layouts (rich by 0.5 step for the same step number)

▶ Pwj#48 settings for 1998 and 1999 models

Even the 1998 and 1999 models can be modified to have the same Pwj#48 settings as the year 2000 specifications. At the time of the modifications, changes of the oil level to 8.0mm will provide the same power feeling at high-speed ranges as the year 2000 model.

In addition, changes of MJH to 3.5 to 3.7 to 3.9 diameter will give more torque in the lower and middle speed ranges. Hunting or rich feeling, however, will tend to occur more frequently.

To solve rich feeling while keeping the torque feeling, Jet needle step numbers will be slightly reduced, leading to less rich feeling, improved responses over the entire speed range with easier riding ensured. The MJH and Jet needle should be well balanced. Seeking torque feeling only will result in hunting or rich feeling problems causing degraded riding and time.

Settings should be selected which meet your ways of riding (opening the throttle).

For settings for the years 1998 and 1999 models, either conventional Pwj#40 settings or the year 2000 model settings should be selected according to riders' choice.

Changes in oil levels in carburetors will be accompanied by major setting changes. If you feel a problem in setting, it is recommended to return to the standard settings.

Power jet setting of NX5 (1999 to 2000 year models)

As shown in the figure, degraded power (torque) feeling has been recovered by lowering secondary compression. In addition to modifications to ignition timing at around maximum output engine speeds, aggressive introduction of the new carburetor power jets at speeds higher than the maximum output speeds has resulted in increased output and recovery of a drop in output power following the peak power. For this, the engine service range moves upwards as compared with the 1998 year model, which is a feature of the power jet carburetor specifications.

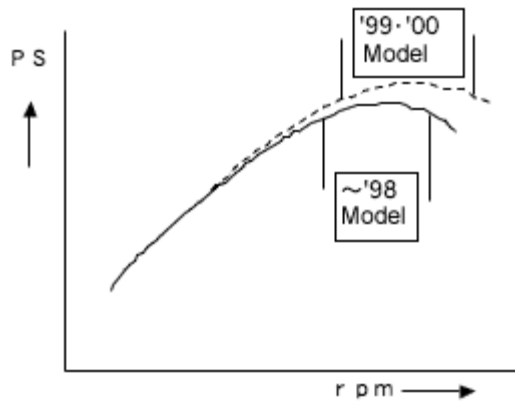


fig: Engine speed at Full open throttle and characteristic of power

▶ Engine characteristics with power jet carburetors

- 1) Excellent over revving characteristics
- 2) Significantly increased torque at speeds (10000 and over rpm) associated with rising
- 3) Easy throttle opening
- 4) High cornering performance resulting from smooth, linear revving up
- 5) Proper engine braking performance

▶ Actual setting

The fundamental settings should be that low and middle speed ranges have more torque with linear output characteristics, allowing easy throttle opening. The higher speed range should have excellent over-revving characteristics.

The standard settings at the time of leaving the factory have power jets of #40. So, the power jets should be changed to #48 after running in, making sure the standard settings.

Jet needle/Main jet settings (for snapping after warming up) according to circuit run weather conditions.

Basically, R1268/34-4clip or R1269/34-4clip will be used for Jet needle. Snapping will be used to make sure response for final determination.

Select Main jet, which can provide at least 13000 rpm or more at each gear

Jets should be so selected that engine feeling does not significantly change when the power jets become ineffective. For instance, settings for the main region seems defective if the engine feeling drastically seems lighter or heavier when power jets become ineffective. It is recommended that shift ups be made at around 13500 rpm and smooth and higher engine speed be aggressively used to keep engine speeds high after shift ups for higher, increased acceleration.

Basically, changes to Main jet and Needle jet only should give the nearly best settings throughout the year. However, since engine service speed range moves slightly higher than before, changes should be made to final and transmission gears to ensure speeds during rising at the corners.

▶ More practical specifications

Various optional parts are provided to make more practical the RS250R fitted with power jet carburetors.

MJH (main jet holder)

Optional 3.9 diameter available against standard 3.7 diameter
Switch to this 3.9 diameter MJH will give you more smooth, powerful performance immediately after opening the throttle. The MJH, however, should be returned to the 3.7 if hunting occurs. Hunting, even if you tolerate, will degrade your riding.

Optional Jet needle parts have a 33-needle against the standard a 34-needle. Their use depends upon weather conditions or course layouts (rich by 0.5 step for the same step number)

Changes to Pwj cut

12500 rpm and 12250 rpm are available against the standard 12750 rpm.

Earlier cut speeds will ensure high-end revving properties, but care should be taken to avoid detonation.

▶ Key to power jet carburetor setting

<Notes on settings>

- 1) Settings should be so made as to ensure torqueful low and middle speeds with smooth high-end revving, instead of seeking a punch over the power band. At this time, power jet specifications should not be set by feeling, but should be made by checking the course for vehicle speeds (for instance, actual vehicle speeds can be determined by checking gears and engine speeds when passing an object on the straight lane). Since power jet specifications give torqueful engine characteristics which urge you to use higher engine speed beyond the peak rpm, you may feel slower in vehicle speed. Do not depend upon your feeling only when judging vehicle speeds.
- 2) Easiness to open the throttle is important. Significant changes in characteristics, such as changes to secondary compression, will degrade the overall balance, eliminating the positive aspects of power jet carburetors. If you have a problem in changing specifications or parts, standard settings should be restored.
- 3) Ensure Carburetor box sealing and making full use of ram pressure.

▶ Setting of power jet cut off point

RS250

mode	code color	Pwj cut off point (rpm)	remark
1	-	12750	Standerd
2	blue	12500	Included parts
3	yellow	12250	Optional parts

Settings of power jet cut off point depend upon the use of gears according to course layout. More specifically, the standard mode 1 should be used for the high-speed circuit where 5th or 6th gear are frequently used, the mode 2 for middle-speed circuit, such as Sugo, and the mode 3 for the low-speed circuit where 5th or 6th gears are seldom used (see Figure below for recommended

modes). If the mode 3, where power jets become ineffective in early stages, is used at high-speed course, ineffective power jets will cause significant lean fuel mixture during acceleration in the 5th or 6th gears, resulting in frequent occurrence of detonation. When power jet cut modes are to be changed, course layout, detonation counters or piston burning should be taken into account.

