

## **General Glow Plug Information - Consolidated**

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<http://www.rd-rc.org/>

### **OS Glow Plug Information**

**# 8** Hot Recommended for most current O.S. (and other) 2-stroke engines

**Type F** Mildly Hot Special long-reach plug recommended exclusively for O.S (and other) 4-stroke engines

**Type RE** Hot Special long-reach plug designed exclusively for O.S. Wankel rotary engine

**A5** Cold Recommended for most current O.S. (and many other) 2-stroke engines particularly for 1/10th & 1/8th scale off-road car engines

**A3** Hot Dependable O.S. quality makes A3 the most durable and longest-lasting glow plug available at an economical price

**R5** Very Cold Recommended for high-nitro fuel and high r.p.m. engines, particularly 1/8th track racing car engines

### **ENYA Glow Plug Information**

**# 3** Hot All Enya engines such as TV & four cycle engines

**# 4** Mildly hot All Enya engines, especially those used with 10% or greater nitromethane fuel

**# 5** Medium All Enya engines, especially the .40CX, .45CX and high nitro methane fuel

**# 6** Cold High compression engines and high nitro methane fuel used in racing.

### **Fox Glow Plug Information**

All 1.5 Volt Plugs are Dry Cell or Ni-Cad All 2 Volt Plugs are Lead Acid Battery

**Standard Short** Hot 1.5 Volt, Standard Short Hot 2 Volt

**Standard Long** Hot 1.5 Volt, Standard Long Hot 2 Volt

**Gold STD Long Plug** Hot 1.5 Volt, RC Short Mildly Hot 2 Volt

**Gold RC Long** Hot 1.5 Volt, RC Long Mildly Hot 2 Volt

**RC Short** Mildly Hot 1.5 Volt

**RC Long** Mildly Hot 1.5 Volt

**Miracle Plug** Hot 1.5 Volt

**Pro 8 Short** Cold 1.5 Volt

**Pro 8 Long** Cold 1.5 Volt

### **McCoy Glow Plugs with OS Equivalent**

**MC-8** Medium Hot #8 (thanks for correction, mvbashers.org)

**MC-9** Cold A5, R5 (thanks for correction, mvbashers.org)

**MC-50** Hot IDLE BAR - LONG

**MC-55** Medium Hot A3, #8

**MC-59** Hot

### **STD ROSSI GLOW PLUGS BI-TURBO GLOW PLUGS (without idle bar) (conical w/o washer)**

Rossi Glow Plugs (cold for pattern type work / high nitro fuels, hot for sport / low nitro flying)

**R1** Extra hot 0.8 to 2cc RB4 Hot  
**R2** Hot from 2 to 3.5cc RB5 Medium  
**R3** Medium from 3.5 to 6cc RB6 Cold  
**R4** Cold from 6 to 10cc RB7 Extra cold  
**R5** X-cold for nitro fuel & R/C RB8 Super cold  
**R6** Cold nitro 10 to 13cc  
**R7** Cold for nitro 13 to 15cc  
**R8** Cold for nitro 15 to 30cc GLOW HEAD FOR R15  
**G1** Hot

### **R/C GLOW PLUGS**

**G2** Medium (with idle bar)  
**G3** Cold nitro 15 to 30%  
**RC** Hot for 2.5 to 6cc  
**G4** X-cold nitro 30 to 50%  
**RC** Cold for 6 to 15cc  
**G5** Cold nitro 50% or more

### **Glow Plug Usage Tips**

Your glow plug temperature range is too cold when:

- The engine power is weak or has weakened from previous levels.
- The engine slows down considerably or stops after removing the glow plug battery, despite correct adjustment of the needle valve. For example (Enya), if a # 4 plug gives you these problems in your engine, switch to a # 3 plug instead.

### **Your glow plug temperature range is too hot when:**

- The engine suffers from pre ignition and loss of power.
- The overall engine running is rough
- The glow plug filament is broken or collapses frequently.

These are several cures to these problems. We suggest using a fuel with less nitro methane content, using a larger size propeller or using a colder plug than the one currently in use. For example if an Enya # 3 plug gives you these problems in your engines, switch to a # 4 plug.

Model glow plug engines are extremely dependent upon the type and quality of the glow plug used. Enya glow plugs use a platinum alloy coil, which uses a thick diameter wire for long life. The thicker wire coil also eliminates the need for an "idle bar" as found on other brands of glow plugs; idle bars tend to reduce top speed slightly, to achieve a more stable idle speed. Enya's glow plug design insures both good top end speed and stable idle speed.

Enya glow plugs also have a thicker battery contact at the tip of the plug for greater heat dissipation and better electrical contact. Altech Marketing presently stocks glow plug battery cords specifically for Enya glow plugs, which are standard equipment with Enya four-cycle engines. Other glow plug cords usable with Enya glow plugs are available from several other manufacturers.

### **HOT GLOW PLUGS (for low nitro and FAI fuels)**

**Enya:** # 3

**Fox:** Miracle, Standard, and R/C Long (2V)

**Fireball:** Hot (1.2-3.0V), and S-20 R/C Long

**Fire Power:** F 6 (warm), and F 7 (hot)  
**K&B:** 1 L  
**McCoy:** MC 55 R/C Long, MC 59, and MC 14 (very hot)  
**O.S. Engines:** # 0, # 1, # 5  
**Rossi:** R 1 (extra hot), and R 2  
**Sonic Tronics:** Glowdevil # 300  
**Thunderbolt:** R/C Long

### **MEDIUM GLOW PLUGS (for 10%-15% nitro fuels)**

**Enya:** # 4 (medium hot), and # 5 (medium cold)  
**Fireball:** Standard (1.2-2.0V)  
**Fire Power:** F 5 (medium), and F 6 (warm)  
**Fox:** R/C Long (1.2-1.5V), and Gold  
**Hanger 9:** Sport Long  
**McCoy:** MC 50, and MC 8  
**O.S. Engines:** # A 3, # 8, # 9, # 7 (with idle bar)  
**Rossi:** Medium, and R-3  
**Sonic Tronics:** Glowdevil Standard  
**Tower Hobbies:** Tower Power Performance plug, and Reg. (w/bar)

### **COLD GLOW PLUGS (for high nitro; 25% +)**

**Enya:** #6 (cold)  
**Fireball:** Cool (1.2-1.5V)  
**Fire Power:** F 2 (extra cold), F 3 (cold), and F 4 (cool)  
**Fox:** R/C (1.2V), and # 8  
**K&B:** Long & Short high performance nitro plug  
**O.S. Engines:** R-5  
**Rossi:** R 4 (cold), and R 5 (extra cold)

### **FOUR-STROKE GLOW PLUGS (hot)**

**Fox:** Miracle plug (often used in 2C's W/low nitro)  
**McCoy:** MC 14 (very hot, often used in inverted 4C's)  
**O.S. Engines:** Type F  
**Sonic Tronics:** Glowdevil ST 301/302

### **IDLE BARS**

Idle bar glow plugs came about because some engines were having trouble transitioning from idle to high speed. When the throttle was opened from idle, the incoming air and raw fuel would strike the glow plug's heated coil, cooling it to the point where it would no longer support the combustion process, so the engine would die. To help prevent this, the idle bar was added to the glow plug to serve as a physical shield, helping to keep the coil from cooling off too quickly.

A glow plug with an idle bar will not increase peak RPM (it may even reduce it in some cases), but it may improve the idle with some engines, since it simply helps to keep the plug hot enough to light the fuel. If your having transition problems, you might want to try using a glow plug with an idle bar. Some modelers use idle bar plugs in the winter only, since the glow plug tends to loose heat faster in the colder environment.

Naturally, all of this assumes that you have the low speed mixture adjusted correctly to begin with.

## **HOT PLUGS**

So what is a 'hot' plug, and how does it differ from a 'cold' plug?

Naturally, a hot plug will heat up faster and stay hotter, but that's not the whole story. When discussing this aspect of glow plugs, another very important aspect must be considered, the amount methanol in the fuel. The more methanol we're using (i.e., less oil and less nitro), the hotter the plug we should use. Conversely, the more nitro and/or oil we use, the less methanol we're using, so we use a cool(er) plug. An extreme example would be when using a very high nitro content fuel in a very high RPM engine (a typical ducted fan engine, for example). Here we'd use a very cold plug. For most sport pilots using fuel with just 5-15% nitro, however, a hotter plug would probably do well.

Probably? Yes, trial and error is often the best (and sometimes 'only') way to determine the right glow plug for your application. Most 4C engines need either high nitro or hot plugs to run at their best, since they have combustion strokes only half as often as 2C engines.

## **RULES OF THUMB TO LIVE BY**

- Use a hot plug with low nitro (less than 24%), and a cold plug with high nitro (more than 25%).
- If you remove the glow starter from you idling engine, and notice an immediate drop in RPM, you may need a hotter plug or more nitro.
- If your engine has a tendency to backfire a lot, you may be using a glow plug that's too hot, or you may need fuel with less nitro.
- Most hot plugs can take up to 2.0 volts starting power without burning up, while most cold plugs prefer 1.2 to 1.5 volts starting power.