



.12RR Spec 1

AX0060-1001

Service and Support

For Service and support issues, please contact Axial at:

Axial
21092 Bake Parkway Suite 114
Lake Forest, CA 92630

Tel: 949-600-8642
Fax: 949-600-8645

www.axialracing.com

Engine Break-In

Important

The Bi-Metal Piston and sleeve set has been designed and manufactured with a very high silicon content alloy, this allows for lower friction and longer piston life. However, this combination requires a longer break-in period than other piston/sleeve designs. Please allow 10 to 12 tanks of fuel before the engine is tuned for maximum performance.

1 Fill the fuel tank and prime the carburetor

Fill the fuel tank completely. Use a high quality branded model car fuel only. To prime the engine, place vehicle on starter box. Without attaching the glow plug igniter, press down and engage clutch wheel to starter box and cycle the engine until no bubbles can be seen in fuel line. Place finger over the exhaust outlet to build pressure in the tank and prime the engine.

2 Adjust the carburetor and start the engine

Make sure the receiver switch is off. Manually turn the throttle servo until the carburetor is 1/4 of the way open. Attach the glow plug igniter to the engine. Start the engine by setting the vehicle on the starter box. Press vehicle onto starter box. Adjust the throttle servo so that the engine runs fast enough to idle without engaging the clutch or turning the wheels. Run the engine for four tanks of gas. After each tank, set the flywheel at bottom dead center and allow engine to cool **COMPLETELY**. Failure to do so could result in the sleeve cooling and contracting around the piston head resulting in a seized engine.

Note

It is VERY important to achieve and maintain 180-210 deg during the break-in period. Failure to do so will cause piston to fit itself to a sleeve liner that has not expanded to its proper running size. Adjust the idle speed screw to run the engine at a high idle and control the engine temperature with the low speed mixture screw.

3 Drive at 1/2 Throttle

The Vehicle should not move when idling, if it does, adjust the trim settings on the transmitter. Drive the vehicle in a 20 foot oval. **Do not apply more than 1/2 throttle at any time during this portion of the break-in period.** Coast for short amounts of time to allow the engine to cool and then accelerate again. Continue this process for additional 6-8 tanks of fuel while allowing the engine to cool completely between each tank. Be sure to set flywheel at bottom dead center during cool down.

Tip - Stopping the motor

1) Use a Rag

Use a rag to cover the exhaust tip. This will stop the motor. Be careful! The exhaust is extremely hot so be sure to use a thick rag.

2) Pinch the Fuel Line

In extreme cases or emergencies you can pinch the fuel line to stop the flow of fuel to the carb. Be careful, this can make the motor run lean which can damage the motor. It is best to stop the motor using a rag.

Tuning After Break In

High Speed Needle

Turn the high speed needle in 1/8 increments to lean out the fuel mixture for increased top speed and throttle performance. Drive the car to notice the changes in speed and throttle response.

Continue tuning the carburetor in this way, turning in 1/8 increments only.

Idle Adjustmen Screw

The idle speed is set after the engine is up to operating speed. To properly set the idle speed turn on your radio and set the throttle trim to neutral. Turn the idle adjustment screw counter clockwise to reduce the idle speed, or clockwise to increase the idle speed. The idle should be set high enough to keep the engine running, but low enough to prevent the clutch from engaging.

Low Speed Needle

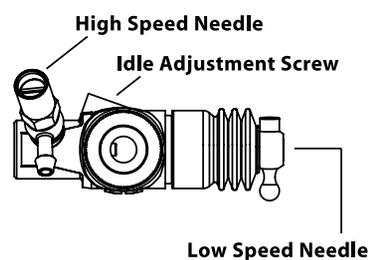
If the low speed needle is set too lean you will experience the following:

- 1: Flame out at part throttle
- 2: Overheating

If you experience any of the above, reset to factory settings and start the tuning process over.

Important

Read this section carefully. Failure to follow these tuning steps could result in damage to your engine.



Factory Setting (from needles turned in fully)

High Speed Needle	4 turns out
Low Speed Needle	2 1/2 turns out

Tuning Tips

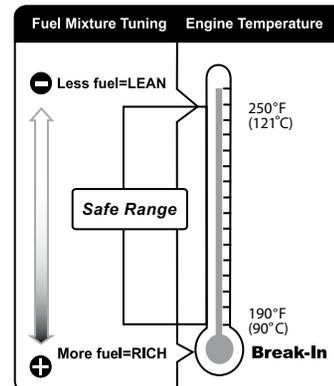
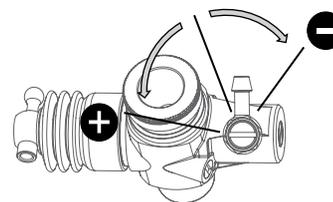
While a lean motor will have higher performance, it will lead to premature engine wear and failure. Use the following information to tune your engine to your driving conditions. Remember, a slightly rich setting is a safer setting.

+ More Fuel = RICH Rich Fuel Mixture

A slightly rich fuel mixture delivers a cooler running temperature and more lubrication, but with slightly less power and longer engine life.

- Less Fuel = LEAN Lean Fuel Mixture

Provides stronger combustion and power, but if you lean out too much the result is more engine heat and a shorter engine life. Symptoms of an engine that are too lean are sputtering, rough idle, no smoke from the exhaust and hard to restart.



Stop Tuning

If your engine shows any of the following signs:
1: The engine hesitates or bogs.
2: Reduced top speeds or loss of power
3: Temperatures above 275°F (135°C)

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Maintenance and Cleaning

Important

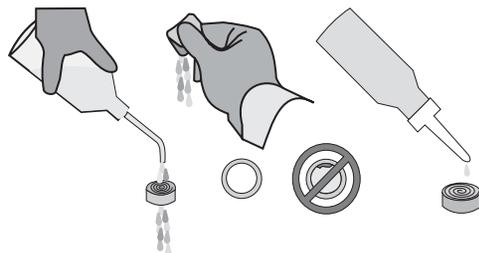
Read this section carefully. Failure to follow proper care and maintenance of your engine could result in damage to your engine and void your engine warranty!

Air Filter

Dirt is the biggest enemy to your engine. Proper air filter maintenance is one of the most important factors that will affect your engines performance and life. We recommend cleaning the element after every run. Please follow the instructions from the manufacturer recommendations on the proper cleaning and maintenance of your filter. Always check you air filter after each run to make sure it is properly seated to the filter body and the carburetor. **Never run your engine without the air filter!**

Cleaning the Air Filter:

Remove the air filter element from the air filter body. It is important to take care during this step to insure no dirt gets inside the carburetor. Flush any dirt from the element using nitro fuel. Squeeze any excess fluid from the element. Apply high quality air filter oil to the element.



Reinstalling the Air Filter:

After properly cleaning the air filter make sure it is reinstalled correctly. Make sure there are no gaps between the air filter and the body. Make sure the air filter body is seated on the carburetor and secure with a tie strap. **Never run your engine without the air filter!**

Engine Storage

Properly maintaining and storing your engine is critical to the life of your engine. Nitro fuel contains castor for lubrication. If the castor is not burned out properly over time it can gum up and damage the crank bearings. Using your fuel bottle, drain all the remaining fuel from the tank. Use a fully charged igniter and try to restart the engine to burn any remaining fuel out of the lines. Repeat this step until the engine will not start. After burning off the fuel remove the glow plug and add several drops of after run oil, then crank the engine over to spread it throughout the engine. To prepare the engine for use, use 70% Isopropyl Alcohol or Denatured Alcohol and cycle it through the engine. **DO NOT TRY TO START THE ENGINE WITH ALCOHOL!** The few minutes you spend to properly care for your engine will add valuable time to its operating life and maintain optimum performance.

Glow Plug

Proper Glow Plug Selection:

Proper glow plug selection depends on several factors. Fuel type, nitro methane content, weather, and altitude can drastically effect performance. Finding the best combination of fuel and plug temperature for your driving condition is the key to getting the maximum performance out of your engine.

Extending the Life of Your Glow Plug:

To maximize and extend the life of your glow plug follow these simple tips:

- Remove the glow igniter when using more than 1/2 throttle or if the engine does not start with a few seconds
- Do not run the engine lean. Lean conditions will overheat the plug causing the element to be damaged or fail
- Use the best Fuel/Plug combination for your driving conditions
- Use a fuel that has lower nitro content

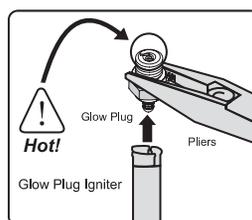
When to Replace the Glow Plug:

Fuel and temperature will have an effect on the performance, reliability, and life span of the glow plug and therefore should be considered expendable engine components. Aside from burnout or plug failure, there are several signs that can indicate the plug should be replaced.

- Plug filament/body is discolored or the surface is rough
- Engine cuts out when idling
- Plug filament is distorted or bent
- Engine becomes difficult to start

Outdoor Temp	Glow Plug	
Cold	Standard	3
	Turbo	6
Medium Cold	Standard	4
	Turbo	7
Hot	Standard	5
	Turbo	8

Glow Plug Testing



Good Plug
Element glows when tested.

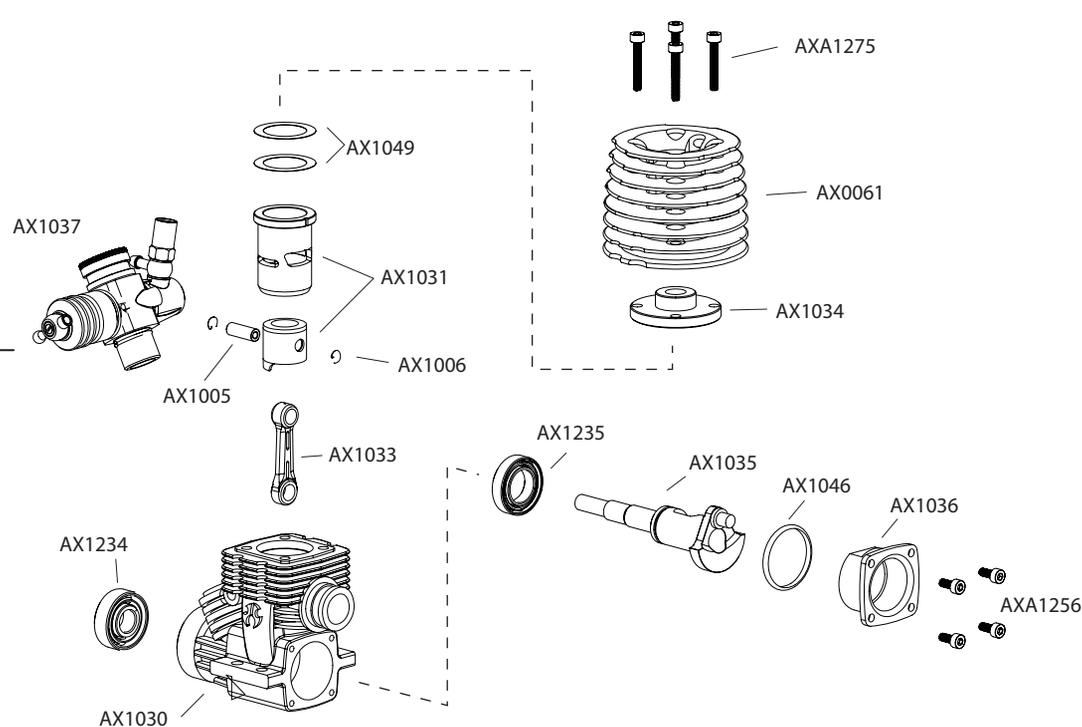
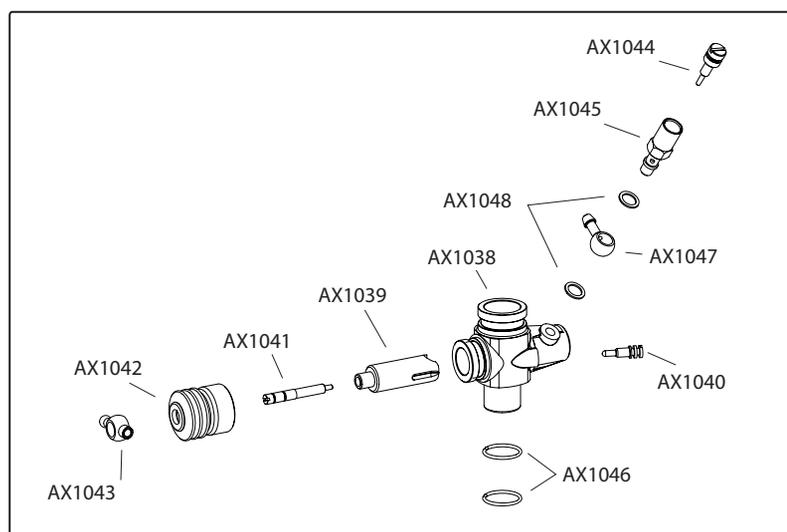


Bad Plug
Element may be damaged or broken if it doesn't light up completely.



Bad Plug
Element is broken or doesn't light up at all.

Spare Parts



Number	Description	Number	Description	Number	Description	Number	Description
AX0061	.12RR Spec 1 Cooling Head (Green)	AX1035	.12RR Crankshaft	AX1042	.12RR Carburetor Dust Boot	AX1049	.12rr Head Shim Set
AX1005	.12 Piston Pin	AX1036	.12RR Back Plate	AX1043	.12RR Carburetor Throttle Arm	AXA1234	Bearing 7x19x5mm
AX1006	.12 piston Pin Retainer G-clip (3 pcs)	AX1037	.12RR Carburetor (Assembly)	AX1044	.12RR Carburetor High Speed Needle	AXA1235	Bearing 12x21x5mm
AX1030	.12RR Crankcase	AX1038	.12RR Carburetor Body	AX1045	.12RR Carburetor High Speed Barrel	AXA1256	M2.5x6mm Slotted Screw (6 pcs.)
AX1031	.12RR Piston-Sleeve Set	AX1039	.12RR Carburetor Sliding Barrel	AX1046	.12RR Gasket Set	AXA1275	M3x12mm Slotted Screw (6 pcs.)
AX1033	.12RR Connecting Rod	AX1040	.12RR Carburetor Idle Screw	AX1047	.12RR Carburetor Fuel Inlet		
AX1034	.12 Turbo Head Button	AX1041	.12RR Carburetor Low Speed Needle	AX1048	.12RR Fuel Inlet Washer 7.5x4x0.25mm		