LIGHTNING 2

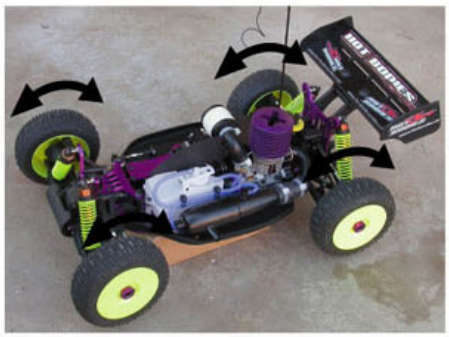
Instruction Manual

LIGHTNING 2 HOT BODIES

Getting Started

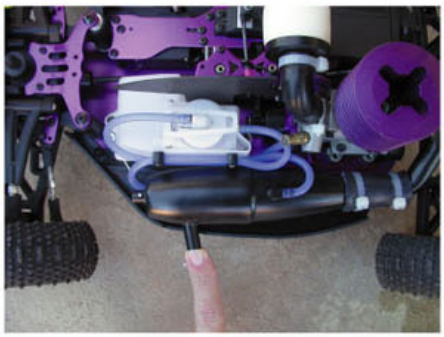
Step 1: Engine Break-In

1 Use a box or a stand to elevate the vehicle so that all four wheels can spin freely without contact to the ground.

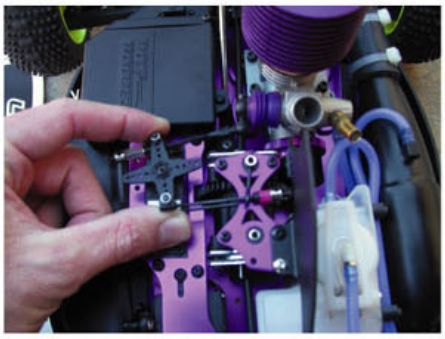


2 Fill the tank completely with fuel. Use only 20% Nitro content fuel. Use only good quality branded model car fuel. Using the wrong fuel could void your warranty.

3 Prime the carburetor by holding your finger over the exhaust and cranking the Jump-Starter for 3 seconds, or until line is full of fuel all the way up to the carburetor.



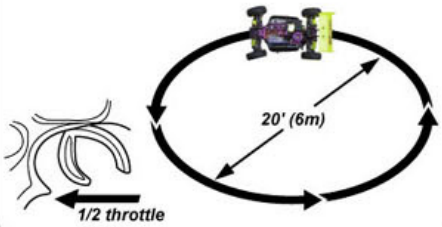
4 Make sure receiver switch is off. Manually turn the throttle servo until the carburetor is 1/3 of the way open. *Always have the air filter in place before running engine*



5 Attach glow igniter to the glow plug and turn a half turn to lock it in. Crank engine using Jump-Starter. Once the engine is running turn the throttle servo so that the runs fast enough to turn the tires slowly. Remove the glow igniter as soon as the engine is running. Run the engine one tank of gas. *Repeat steps 4-6 if engine stalls*

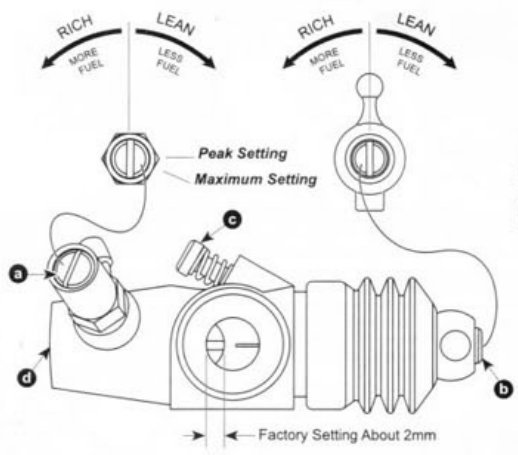
6 Turn on the transmitter and receiver, re-fill the fuel tank and follow steps 3-6. With the tires off the ground, use the radio to slowly increase the throttle until it reaches full speed. This will help clean the excess oil out of the engine. Since the initial break-in settings are very rich, the motor needs to periodically be "cleaned out". If it is not, the left-over oil will load-up the motor and it might shut down.

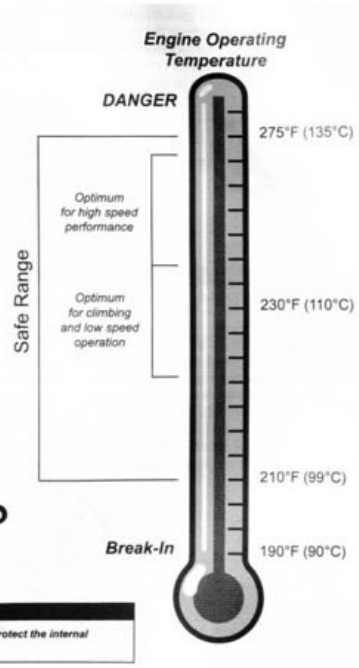
7 Place vehicle on ground. The vehicle should not move while idling. If it does, adjust the trim setting on the transmitter so the vehicle does not move. Drive the vehicle in a 20 foot (6m) oval applying throttle (below 1/2 throttle), and then coasting. The idea is to use throttle, then coast to let the engine cool, give more throttle and coast more to cool. Repeat this process for a total of 2 tanks of fuel.



Step 2: Engine Tuning

Factory Settings	
High-Speed Needle	3 1/2 turns from closed (a)
Low-Speed Needle	3 1/2 turns from closed (b)
Midrange Needle	3 1/4 turns from closed (d)





Caution

Too lean of a mixture may not provide the engine with enough lubricant to properly lube and protect the internal components. Your warranty could be voided if the engine is overheated.

(a) High-Speed Needle

The high-speed needle is pre-set from the factory to 3 1/2 turns from fully closed (do not overtighten). After break-in, the needle setting can range from 2 1/2 to 3 turns out depending on humidity, elevation, fuel, and glow plug. Never run needle setting less than 2 1/2 turns from closed, the motor will run too lean and will overheat causing serious damage! At full speed you should see a visible trail of smoke at all times. If the engine sputters at full throttle, the setting of the high speed needle is too lean (not enough fuel). Turn the high speed needle counter-clockwise in 1/8 turn increments to richen the fuel to air mixture. Continue to adjust the needle until the sputtering stops. If the motor feels sluggish and bogs at full speed, the high speed needle setting is too rich (too much fuel). Turn the high-speed needle clockwise in 1/8 turn increments to lean out the fuel to air mixture. Continue to adjust the needle in 1/8 turn increments until the power is smooth. Pay attention to the engine temperature. If the engine setting are too lean the engine will overheat, shut-off, and may become difficult to start. It is always best to run the engine a little on the rich side. This will insure longevity and ease of starting.

(b) Low-Speed Needle

The low-speed needle is pre-set from the factory to 3 1/2 turns from fully closed. After break-in, the needle setting can range from 2 1/2 to 3 turns out depending on humidity, elevation, fuel, and glow plug. Never run needle setting less than 2 1/2 turns from closed, the motor will run too lean and will overheat causing serious damage! With the engine idling, accelerate to full throttle. If the engine emits a heavy amount of smoke and bogs (hesitates) before accelerating or shuts off. the needle is too rich (too much fuel). Turn the low-speed needle clockwise in 1/8 turn increments to lean out the fuel to air mixture. Continue to adjust the needle in 1/8 turn increments until the acceleration is smooth. If the engine sputters and shuts off before full throttle acceleration and little or no smoke is visible from the exhaust pipe, the needle settings are too lean. Turn the low-speed needle counter-clockwise in 1/8 turn increments to richen the fuel to air mixture. Continue to adjust the needle in 1/8 turn increments until the acceleration is smooth and the exhaust is visible. The ideal low-speed setting will have a quick, smooth acceleration and visible exhaust smoke. If the engine is continually run with improper needle settings, serious damage may occur, shortening the life of the engine.

(c) Idle Adjustment Screw

Adjust the idle screw so that the engine will idle low enough to keep the engine running without engaging the clutch (wheels turning). The idle adjustment screw is set so that there is a visible gap of approximately 2mm between the throttle body and the throttle slide. This settings also prevents the engine from cutting out when the brakes are applied. Adjust the setting so that the carburetor opening never closes more than 2mm, even at full brakes.

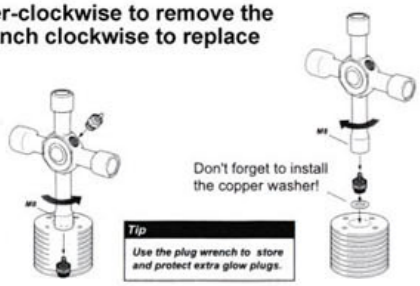
(d) Midrange Needle

The midrange adjustment screw is factory pre-set to 3 1/4 turns from fully closed. It is recommended that you do not adjust the midrange adjustment screw.

Tips Section

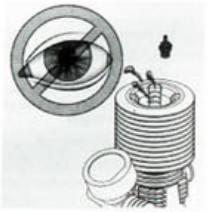
Plug Wrench

Turn the wrench counter-clockwise to remove the glow plug. Turn the wrench clockwise to replace the glow plug.



Flooded Engine

Remove glow plug using glow plug wrench. Tilt the engine head away from face and crank engine 4 to 5 revolutions. Replace glow plug and complete starting steps without priming engine.



Air Filter

Remove and clean air filter with nitro fuel when soiled. Spray fuel through clean side to ensure proper dirt removal. Squeeze filter to remove excess fuel. Recoat filter with air filter oil and reinstall properly, making sure there are no gaps between filter and boot.

Trouble Shooting

Description	*Possible Problem*	*Solution*
Engine does not start	Out of fuel	Refill fuel tank
		Replace fuel
	Glow plug igniter is not charged	Charge glow igniter
		Replace glow plug
	No fuel flow	Check fuel lines for crack, leaks, and holes. Replace fuel if necessary.
		Remove glow plug and discharge fuel
	Engine has overheated	Allow engine to cool, richen the fuel mixture and restart
		Set idle and adjust needle valve to the manufacturers recommended setting.
	Air cleaner is blocked	Check air filter. Clean or replace if necessary
Engine starts, then stalls	Idle speed is set to low	Adjust idle speed
	Air bubbles in the fuel line	Check for leaks or crack in the fuel line
	Glow plug is bad	Replace glow plug
	Engine is overheated	Allow engine to cool and then restart
	Airflow through system is bad	Check connections between tank, engine and exhaust
	Throttle servo is improperly set up	Set servo to neutral and reset linkage according to radio and model to manufacturers specifications
Jump-Starter will not crank engine	Engine is flooded	Remove the glow plug and discharge fuel
	Engine has seized	Check the engine for internal damage.
	Jump-Starter battery has died	Engine may need to be rebuilt or replaced

Maintenance — Keep it dry

Remove all fuel from the fuel tank and engine when finished running the engine. Fuel that is allowed to sit in the engine when it is stored will cause rust and damage.

Maintenance — Keep it oiled

If the engine will not be run for an extended period of time, remove the glow plug and put 1-2 drops of after run oil into the cylinder and carb openings. Crank the engine a few times and replace the glow plug.

Maintenance — Keep it clean

Clean outside debris from the engine using spray on nitro cleaner. Remove any visible dirt. IMPORTANT: Do not clean with water as it will cause rust and could void your warranty.

Maintenance — Let it breath

Clean or replace the foam air filter element after long term running or if the air filter becomes dirty. To clean, remove the air filter element and clean with nitro fuel. Re-coat the filter element with a proper air filter oil and re-install.

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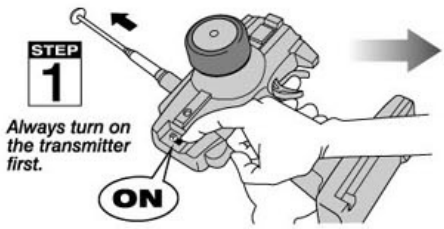
Radio Instructions

Pre-Run Check

Turn On Radio:

Let's get ready! First,read the instructions for your radio completely. If you lose control due to radio problems it will damage the car and motor. Install fresh batteries in transmitter and receiver pack. Extend radio and receiver antennas.

1. Switch on transmitter.
2. Switch on receiver.
3. Make sure servos function properly.
4. Check the range of radio by walking away from car.

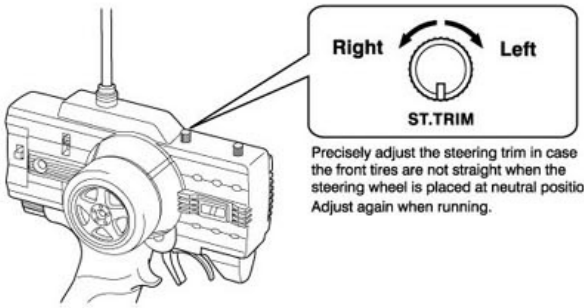


Always turn on the transmitter first.

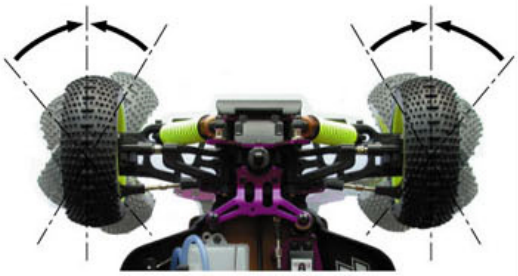
After the transmitter is on,turn on the receiver.

Steering (Trim):

For adjusting the front tires left and right.

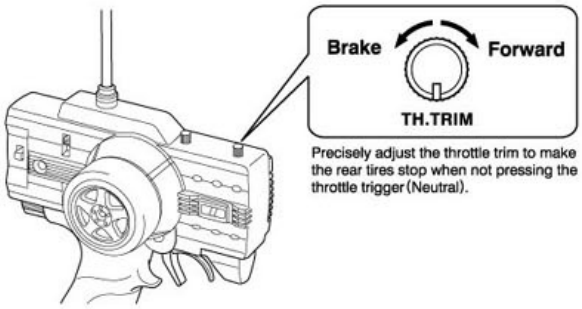


Precisely adjust the steering trim in case the front tires are not straight when the steering wheel is placed at neutral position. Adjust again when running.

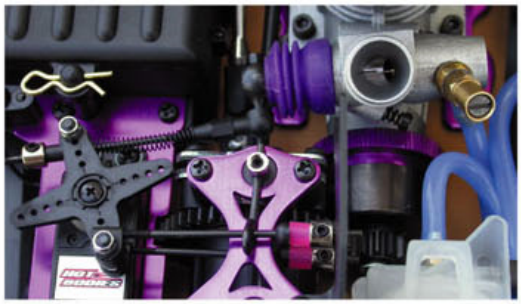


Throttle (Trim):

To use for adjustment if the rear tirse rotate when the receiver switch is turned on.



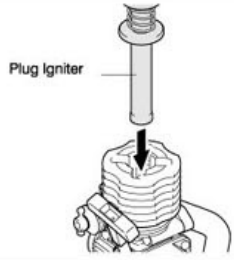
Precisely adjust the throttle trim to make the rear tires stop when not pressing the throttle trigger(Neutral).



Starting Engine:

Raise the car so that wheels are not touching the ground. Attach glow plug heater and crank engine using jump-Starter.

1. **Attach glow igniter.**
2. **Open throttle valve 1/3 of the way open.**
3. **Crank engine using Jump-Start.**



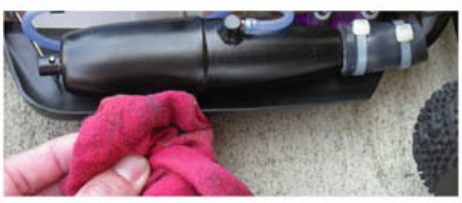
NOTE:
High RPM during the break-in period can damage the engine.

NOTE:
Make sure there are no obstructions blocking the muffler,air cleaner,or rotaying parts (spur gear,clutch bell,etc.)

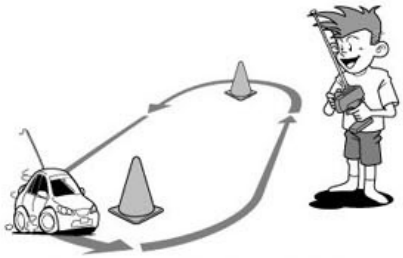
Stopping Engine:

We recommend driving the car until the tank is empty. Otherwise, stop fuel by pinching fuel lines or covering the exhaust with a rag.

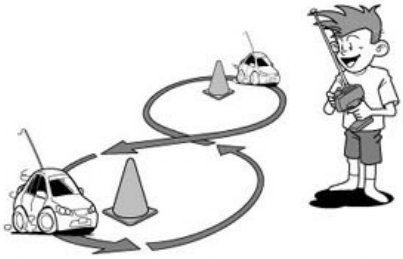
NOTE:
Be careful when stopping engine! Do not touch engine or muffler,they may be very hot.



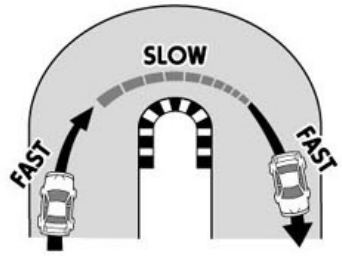
Practicing



Practice to achieve a large regular over.



Use empty cans etc. as pylons for figure "8" drill.



Decelerate when entering into acurve and pick up the speed after a vertex of the curve.

Troubleshooting Guide

Before sending your R/C model in for repair,check it again using the below diagram.

Problem	Possible Causes	Solution	
Engine does not start	Fuel tank is empty or throttle valve is not primed.	Fill fuel tank with fuel and prime throttle.	
	Bad glow plug or dead plug booster battery.	Replace glow plug and recharge or replace battery.	
	Fuel lines,air cleaner,or muffler is clogged.	Clean or replace clogged part(s).	
	Engine is flooded due to over-priming.	Remove glow plug and discharge fuel. Also,test the glow plug. Replace the glow plug if it is defective.	
	Throttle valve not adjusted properly.	Set idle and needle valve to standard starting position.	
	Servo linkage not adjusted properly.	Move servo to neutral then re-adjust.	
Engine starts but then stalls	Fuel tank is empty.	Full fuel tank with fuel.	
	Fuel lines,air cleaner,or muffler is clogged.	Clean or replace clogged part(s).	
	Throttle valve not adjusted properly.	Re-adjust idle and needle valve to 2-1/2 turn out.	
	Engine is overheated.	Allow engine to thoroughly cool down and open needle valve 2 to 3 clicks.	
Limited reaction and response from engine or poor performance	Needle valve not adjusted properly.	Re-adjust needle valve to 2-1/2 turn out.	
	Low fuel pressure from muffler.	Properly install pressure line from muffler to fuel tank.	
Truck is hard to control	Weak transmitter and/or receiver batteries.	Recharge or replace batteries.	
	Low reception from radio antennas.	Fully extend transmitter and receiver antennas.	
	Servo linkage not adjusted properly.	Move servo to neutral then re-adjust.	
Melted clutch shoes	Break is dragging during running.	Set brake so car rolls freely at neutral throttle.	

HOT BODIES

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