

Nitro Star S-25



hpi-racing
Hobby Products International

I-1406-2

Equipment Needed



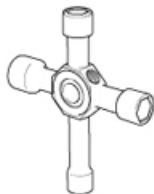
20% Glow Fuel



Fuel Bottle



Nitro Cleaner



Glow Plug Wrench



Glow Plug Igniter

HPI's Nitro Start-Up Set includes everything you need to run and maintain your engine. Check with your local hobby shop for price and availability.



Not available in the EU.

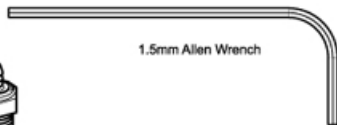
Recommended



Screwdriver (medium)



Spare Glow Plug

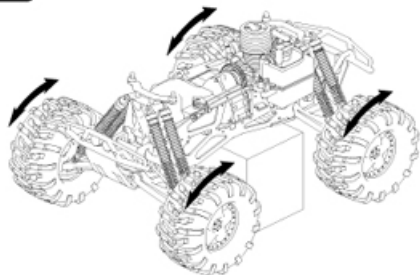


1.5mm Allen Wrench

Step 1: Engine Break-In

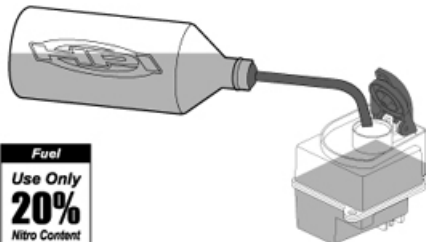
1

Use a box or a stand to elevate the vehicle so that the wheels can spin freely without contacting 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.

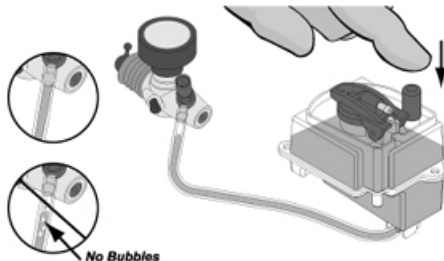


Fuel

Use Only
20%
Nitro Content

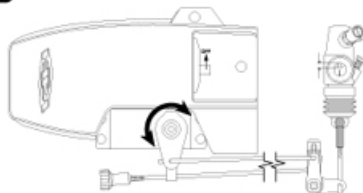
3

Prime the carburetor by pressing the fuel tank primer until fuel reaches the carburetor. Once fuel has completely filled the fuel line (no air bubbles) continue to press the primer button 4 more times.



4

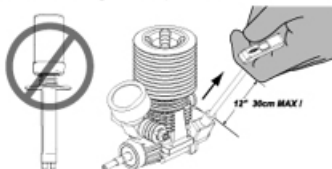
Make sure the receiver switch is off. Manually turn the throttle servo by hand until the carburetor is 1/4 of the way open.



Tip

Always have the air filter in place before the engine is running. Running without the air filter in place will void your warranty.

- 5** Without the glow igniter installed, pull the pull-start 4 times to further prime the engine and incorporate unburned fuel throughout the engine for easy starting. Never pull the starter cord more than 12 inches (30cm) as this can cause damage to the pull-start.



CAUTION

DO NOT keep pulling the starter cord if it seems difficult or locks up. The engine could be flooded, see the tips section to remove excess fuel from the engine.

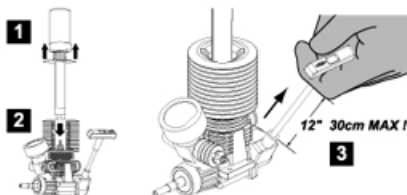
- 7** Turn on the transmitter and receiver, re-fill the fuel tank and follow the starting procedures in steps 3-6. With the tires off the ground, use the radio to slowly increase the throttle until it reaches full speed, then release. This will help clean the excess oil out of the engine. Since the initial 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.



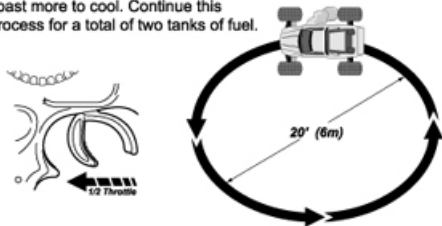
Tip

To stop engine hold a rag over the exhaust outlet

- 6** Attach the glow igniter to the glow plug. Pull the starter cord using quick short pulls, never pulling it more than 12 inches (30cm). Once the engine is running turn the throttle servo so that the engine runs fast enough to slowly turn the tires. Remove the glow igniter as soon as the engine is running. Run the engine for one tank of gas. If the motor shuts off, repeat steps 4-6.



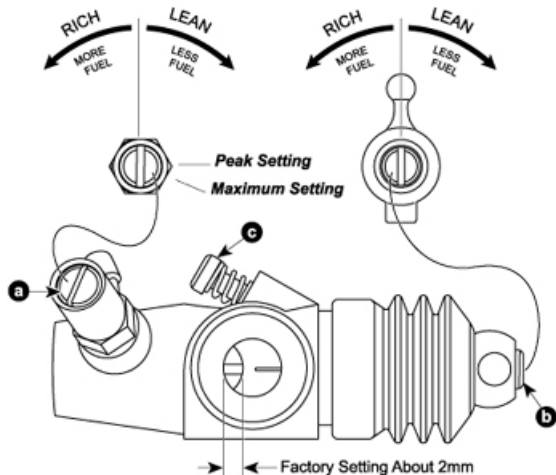
- 8** Place the vehicle on the ground. The vehicle should not move when idling. If it does, adjust the trim setting on the transmitter so the vehicle does not move. Drive the vehicle in a 20 foot (6m) oval applying throttle (below 1/2 throttle), and then coasting. The idea is to use throttle, then coast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



Step 2: Engine Tuning

FACTORY SETTINGS

- | | |
|----------------------------|-------------------------|
| a High-Speed Needle | 4 1/2 turns from closed |
| b Low-Speed Needle | 3 turns from closed |



Engine Operating Temperature

DANGER

Safe Range

Optimum for high speed performance

Optimum for climbing and low speed operation

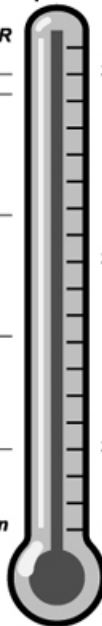
275°F (135°C)

230°F (110°C)

210°F (99°C)

Break-In

190°F (90°C)



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 4 1/2 turns from fully closed (do not over tighten). After break-in, the needle setting can range from 2 1/2 to 3 turns from fully closed depending on humidity, elevation, fuel, and glow plug. Never run a needle setting that is 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/air mixture. Continue to adjust the needle in 1/8 turn increments until the sputtering stops. If the engine 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/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 settings 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 engine longevity and ease of starting.

b Low Speed Needle

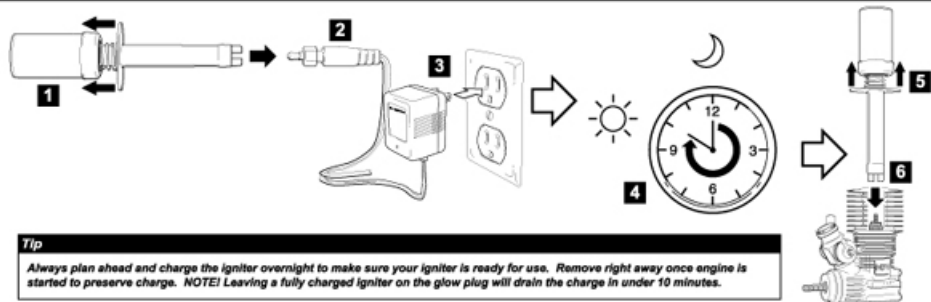
The low-speed needle is pre-set from the factory to 3 turns from fully closed. After break-in, the needle setting will range from 2 1/2 to 3 turns from fully closed depending on humidity, elevation, fuel, and glow plug. Never run a needle setting that is less than 2 1/2 turns from closed, the motor will 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 setting is too rich (too much fuel). Turn the low-speed needle clockwise in 1/8 turn increments to lean out the fuel/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/air mixture. Continue to adjust the needle in 1/8 turn increments until the acceleration is smooth and the exhaust smoke is visible. The ideal low-speed needle 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 setting also prevents the engine from cutting out when the brakes are applied. Adjust the setting so that the carburetor opening never closes to less than 2mm, even at full brakes.

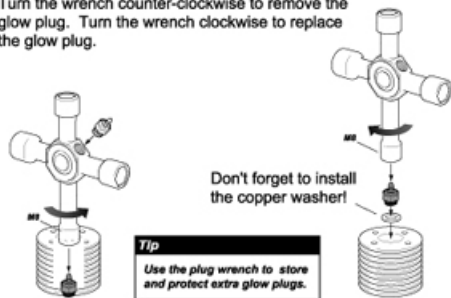
Tips Section

Glow Plug Igniter



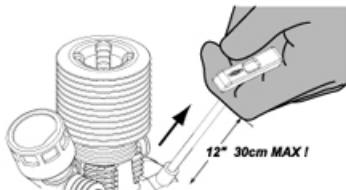
Plug Wrench

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



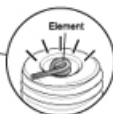
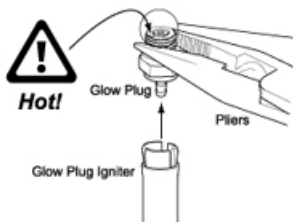
Flooded Engine

Remove glow plug using glow plug wrench. Tilt engine head away from face and pull start cord 5-6 times. Replace glow plug and complete starting steps without priming engine.



Glow Plug

Use a fully charged glow plug igniter to test the glow plug. Hold the glow plug with needle nose pliers and attach to the igniter. If the plug is good the element will glow an orange or red color. If the element doesn't glow, or if the element is damaged, you will need to replace the plug. The element will be very hot if it is glowing.



Good Plug
Element glows when tested.



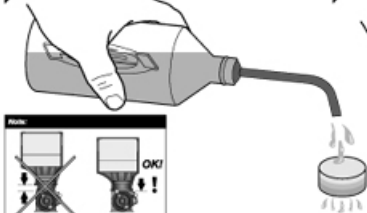
Bad Plug
Element may be damaged or broken if it doesn't light up completely.



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

Air Filter

Remove and clean air filter with nitro fuel when soiled. Spray fuel through clean side to insure 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.



Installed correctly



Not installed correctly

Tip

Always have the air filter properly in place before the engine is running. Running without the air filter in place will damage your engine and void your warranty.

Trouble Shooting

Description	Possible Problem	Solution
Engine does not start	Out of fuel	Refill fuel tank
	Contaminated fuel	Replace fuel
	Glow plug igniter is not charged	Charge glow igniter
	Glow plug is bad	Replace Glow Plug
	No fuel flow	Check fuel lines for crack, leaks, and holes. Replace fuel line if necessary.
	Engine flooded	Remove glow plug and discharge fuel
Engine starts, then stalls	Engine has overheated	Allow engine to cool, richen the fuel mixture and restart
	Throttle valve isn't adjusted properly	Set idle and adjust needle valve to the manufacturers recommended settings
	Air cleaner is blocked	Check air filter. Clean or replace if necessary
	Idle speed is set too low	Adjust the idle speed
	Air bubbles in the fuel line	Check for leaks or crack in the fuel line
	Glow plug is bad	Replace glow plug
Starter cord cannot be pulled	Engine is overheated	Allow engine to cool and then restart
	Airflow though system is bad	Check connections between tank, engine and exhaust
	Throttle servo is improperly set up	Set servo to neutral and reset linkages according to radio and model manufacturer's specifications
	Engine is flooded	Remove glow plug and discharge fuel
	Engine has seized	Check the engine for internal damage. 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.

Keep It Oiled

If the engine will not be run for an extended period of time, remove the glowplug and put 1-2 drops of after run oil into the cylinder and carb openings. Pull the starter chord 3-4 times to coat the internal parts of the motor and replace the glowplug.

Keep It Clean

Clean outside debris from engine using HPI Nitro Cleaner. Remove any visible dirt. **IMPORTANT:** Do not clean with water as it will cause rust and could void your warranty.

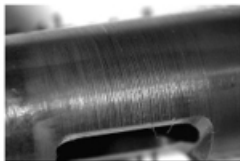
Let It Breathe

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

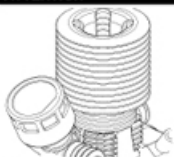
Warranty Cautions

Dirt In Engine

Dirt in the engine is by far the most common cause of major engine damage and voids your warranty. The air filter must be used at all times and be properly seated on the carburetor for it to work properly. Also be sure to clean and oil your air filter element frequently (3-5 tanks) to prevent dirt from working its way into the engine.



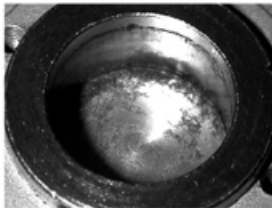
ATTENTION



The engine must never be run without the air filter in place!

Low Grade or Bad Fuel

Be sure to purchase quality fuels such as HPI's Power Fuel, manufactured specifically for use in nitro car engines. Use of low grade, old, or improperly stored fuel can lead to decreased performance, shortened engine life, and possibly engine failure.



Over Heating

Probable Cause: The engine is running too lean (not enough fuel) or the motor heatsink head is loose. Check the head bolts to make sure they are tight and then re-adjust the needle settings to the factory specifications.



Keep it Maintained

Poor maintenance will lead to decreased performance and shortened engine life. Dirt caked on the outside of the engine will not allow the engine to efficiently dissipate heat and may cause overheating. To ensure proper cooling, keep the outside of the motor clean and free of dirt and debris.



Warranty

HPI Racing warrants this product to be free from defects in materials and workmanship for a period of two (2) years from the original purchase date. For verification, please keep your receipt in a safe place. If there are any defects with the materials, workmanship, or assembly of your engine, HPI Racing will repair or replace it at our discretion.

This warranty does not cover problems from normal wear, abuse, neglect, or any damage arising as a result of improper use, use of improper fuel, overheating, continuous neglect, or damage from glow plugs. Please see the warranty cautions contained in this booklet to identify damage that may have been caused by improper use or care of your engine.

HPI Racing shall not be liable for any loss or damages, whether direct or indirect, incidental or consequential, or from any special situation arising from the use, misuse, or abuse of this product, or any accessory or chemical related to operating this product.

DO NOT return engines without prior approval. Please note a returned engine which is inspected by our staff and is found to have an invalid warranty claim may be subject to an inspection & handling fee before it can be returned. Any repairs made to engines resulting from neglect or misuse will be charged (parts & labor) before the work is started.

Please contact Customer Service at Hobby Products International, Inc. for any warranty claims at 949 . 753 . 1099. Our Customer Service hours are Monday 7:30am-4:45pm, Tuesday to Friday 7:30am-5:00pm, Pacific Standard Time.

If directed to send your engine in for evaluation, you must include a copy of the original receipt (please keep your original), a written description of the problem, and a daytime phone number where you can be reached for questions. The engine must be returned complete with crankcase, crankshaft, piston, sleeve, connecting rod, cylinder head, carburetor, and pull starter. You should not return the clutch, flywheel, flywheel collet, nut, air cleaner, manifold or muffler.

Send it prepaid UPS to:
Hobby Products International, Inc.
Attn: Customer Service
70 Icon Street
Foothill Ranch, CA 92610

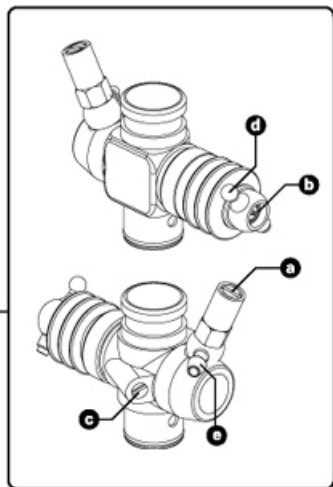
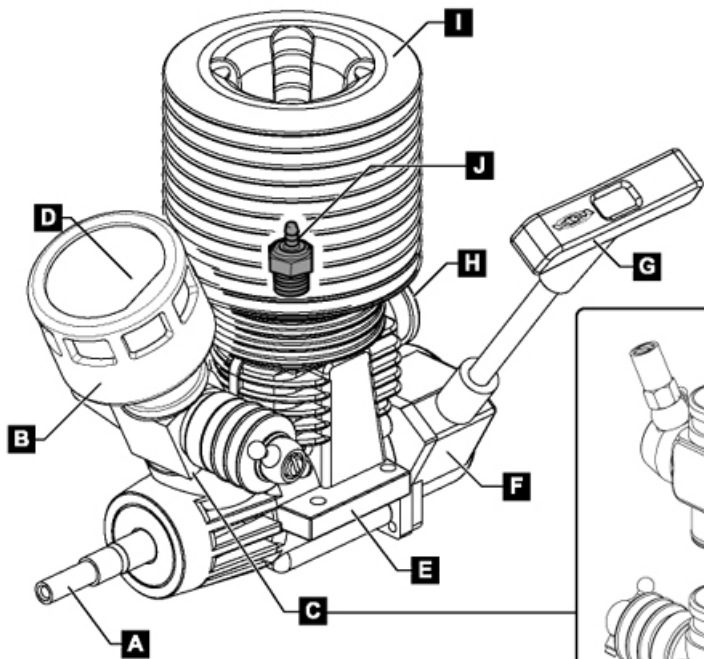
For warranty claims please return the engine to the shop where you bought it, along with a copy of the original receipt (please keep the original), if directed by HPI's distributor the shop will then return the engine for professional inspection. The engine must be returned with a written description of the problem, showing a daytime phone number where you can be reached for questions. The engine must be returned complete with crankcase, crankshaft, piston, sleeve, connecting rod, cylinder head, complete carburetor & pull starter. You should not return the clutch, flywheel, flywheel collet, nut, air cleaner, manifold or muffler.

In case of any further problems, please contact your local distributor, please check www.hpi-europe.com for details or call HPI Europe in the UK on 44 1283 229400 in normal office hours.

Parts List

NO. 1406 Nitro Star S-25 Engine with Pullstart


Part #	Qty.	Description	Part #	Qty.	Description
1406	1	NITRO STAR S-25 ENGINE w/ PULLSTART	1468	1	WASHER SET FOR FUEL LINE FITTING
1414	2	RETAINER FOR PISTON PIN	1469	2	O-RING FOR CARBURETOR BODY
1416	4	SCREW M3x16mm for CYLINDER HEAD	1470	1	MAIN NEEDLE VALVE HOLDER
1420	1	BRASS COLLET	1471	1	MAIN NEEDLE
1421	1	BALL BEARING 607Z (FRONT)	1472	1	MAIN NEEDLE/ FUEL INTAKE SET
1422	1	BALL BEARING 6901 (REAR)	1473	1	FUEL LINE FITTING AND WASHER SET
1424	1	CRANKSHAFT (SG SHAFT)	1476	1	DUST PROTECTION
1425	1	O RING FOR COVER PLATE	1477	1	UNIBALL
1427	8	SCREW M2.6x6mm for COVER PLATE	1481	1	SLIDE CARBURETOR MAIN BODY (COMPOSITE)
1428	1	PULLSTART ASSY. (w/o ONE-WAY BEARING)	1482	1	IDLE NEEDLE VALVE
1429	1	COVER PLATE SET FOR PULL START ENGINE	1483	1	SLIDE VALVE
1430	1	ONE WAY BEARING FOR PULLSTART	1484	1	IDLE ADJUSTMENT SCREW
1431	1	COVER PLATE	1503	1	GLOW PLUG MEDIUM COLD R4
1432	1	STARTING SHAFT	87044	1	AIR CLEANER 35x35mm
1433	1	STARTING PIN AND PRESSURE SPRING	Z700	6	SET SCREW M3X3mm
1434	1	LOCK PIN FOR CARBURETOR			
1439	1	CYLINDER AND PISTON SET			
1440	1	CYLINDER, PISTON AND CONNECTING ROD SET			
1441	1	CONNECTING ROD			
1442	1	PISTON PIN AND RETAINER SET			
1443	1	CYLINDER HEAD			
1444	1	UNDERHEAD			
1445	3	GASKET 0.2mm FOR CYLINDER			
1446	1	CRANKCASE			
1450	1	O-RING COMPLETE SET			
1462	1	SLIDE CARBURETOR COMPLETE (COMPOSITE)			



Engine Features

A —Crankshaft	E —Crankcase	I —Heat Sink	a —High Speed Needle	d —Throttle Linkage
B —Air Filter Boot	F —Pull Start Case	J —Glow Plug	b —Low Speed Needle	e —Fuel Inlet
C —Carburetor	G —Pull Start Handle		c —Idle Adjustment Screw	
D —Air Filter	H —Exhaust Outlet			

Cautions

 **To prevent any serious personal injury and/or damage to property, please be responsible when operating all remote controlled models. Extra attention is called for when operating any glow fuel powered model. These models can exceed speeds of 31 mph (50km/h) and use highly poisonous and flammable fuels.**

Choose the right place to operate your R/C model.

- Do not run on public streets or highways. This could cause serious accidents, personal injuries, and/or property damage.
- Never run R/C models near people or animals.
- To avoid injury, do not run in confined spaces.
- Do not run where loud noises can disturb others, such as hospitals and residential areas.
- Never run indoors. There is a high risk of fire and/or damage.

Inspect your model before operation

- Make sure that all screws and nuts are properly tightened. It is also a good idea to use removable thread lock wherever metal screws go into metal, especially for engine mounts and the engine pilot shaft.
- Always use fresh batteries for your transmitter and for your receiver to avoid losing control of the model.
- Always test the brakes and the throttle before starting your engine to avoid losing control of the model.
- Make sure the air filter is cleaned and oiled. Never run your engine without an air filter.
- Your engine can be seriously damaged if dirt and debris get inside the engine.
- Make sure no one else is using the same radio frequency as you are using.

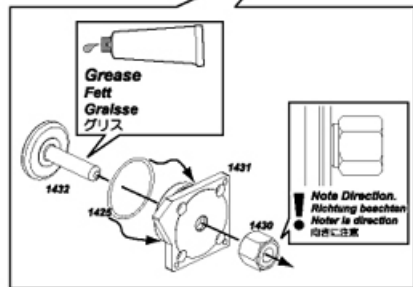
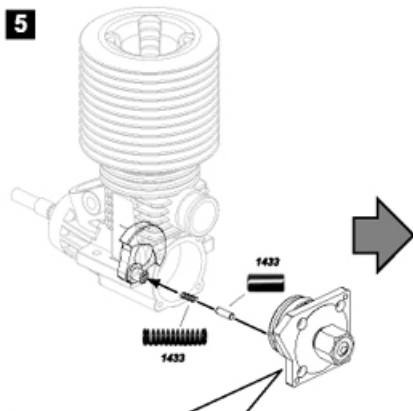
Heat, Fire, and Fuel Safety

- Never use gasoline in a glow model engine. Use glow fuel specifically designed for car engines. Using non-approved fuels in your engine can cause an explosion.
- Do not smoke or run near open flames while running your model or while handling fuel.
- Always store fuel in a well ventilated place, away from heating devices, open flames, direct sunlight, or batteries.
- Keep glow fuel away from children.
- Be aware that some parts will be hot after operation. Do not touch the exhaust or the engine until they have cooled. These parts may reach 275 degrees fahrenheit during operation!

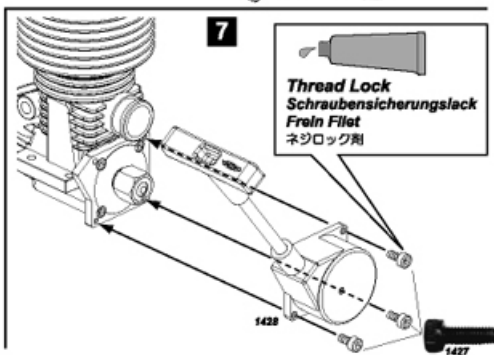
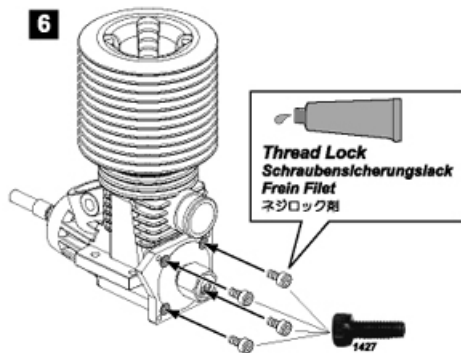


Glow fuel is flammable and poisonous. Always read the warning label for safety information. Glow fuel powered model engines emit poisonous vapors and gasses. These vapors irritate eyes and can be highly dangerous to you health. We recommend wearing rubber or vinyl gloves to avoid direct contact with glow fuel. Also, be aware of spilled or leaking fuel. Fuel leaks can cause fires or explosions.

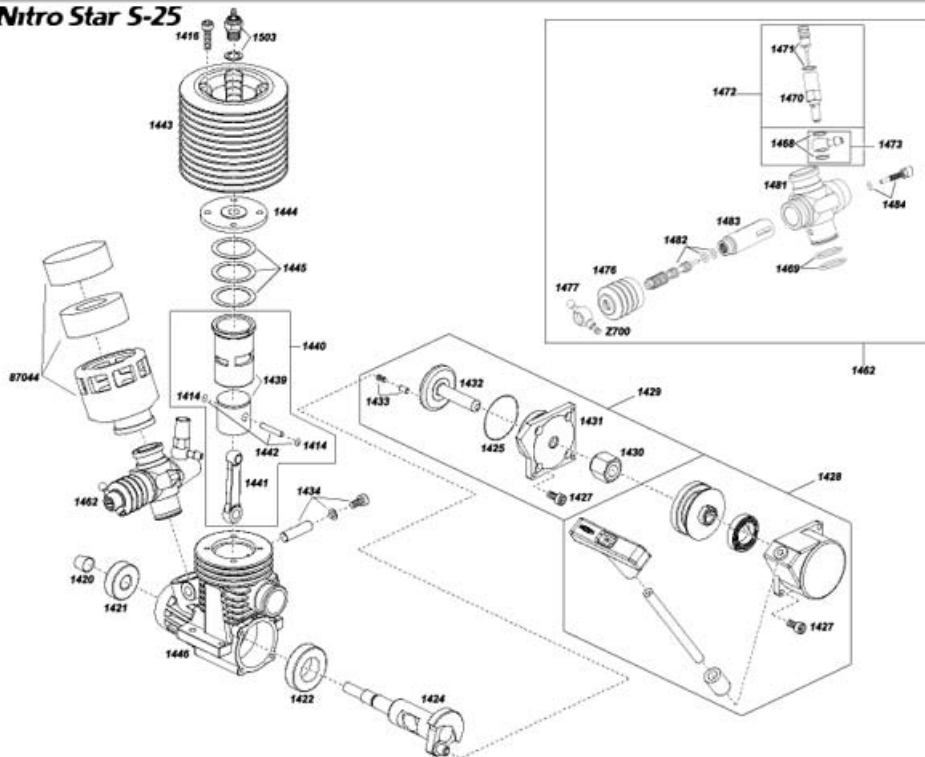
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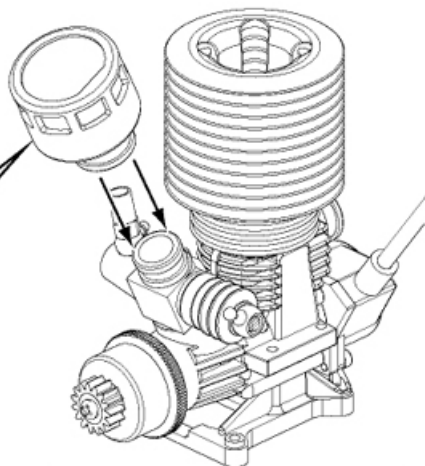
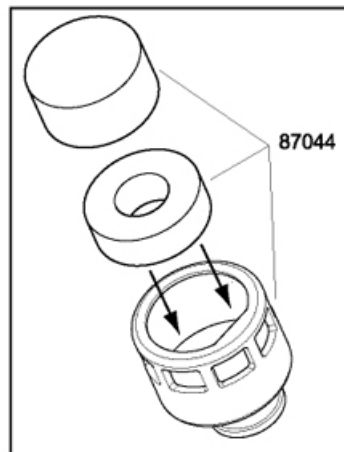


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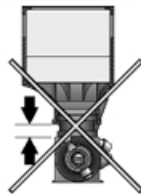


Air Filter Installation
Montage des Luftfilters

Installation de filtre d'air
エアフィルターの取り付け



Note: Hinweis: 注意





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