New 2016 Edition w/Blue or Orange Carb Insert.

Thank you for purchasing HoBao Racing products. We appreciate your choice.

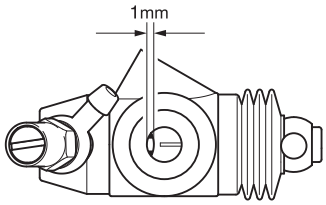
Fuel Recommendations:

We recommend using 20% Hobby Grade Nitro Fuel for 1/10th scale (.12-.18 Engine) and 30% for 1/8th scale (.21 and up). Other types of break-in additives are NOT required.

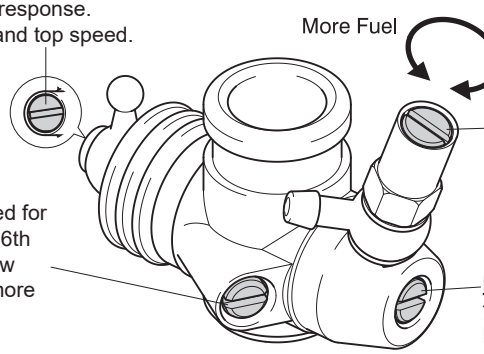
Engine Needle Settings:

	Factory Default	After Break-in
Top End (High Speed)	2 ½ turns out	2 – 2 ¼ turns out
Bottom End (Low Speed)	½ turn out from flush	Flush with ball collar
Mid Range	Flush - Do not Touch	Flush - Do not Touch
Idle Screw	1mm (1/16 inch)	1mm (1/16 inch)

Bottom End Needle (Low Speed) - This needle provides throttle response. Do not adjust this needle until the Master Needle is set for power and top speed. Turning IN is Lean and OUT is Rich



Idle / Stop Screws - Used for adjusting Idle: Set for 1/16th inch/1mm gap to start new engines. You can open more for higher idle.



Top End Needle (High End) - Determines maximum RPM and power. Turning IN is Lean and OUT is Rich

Mid Range needle - The needle on the side of the carb. **DO NOT TOUCH.**

New Engine Break-In:

1. A brand new HoBao Racing engine is extremely tight due to high compression. This is normal for a new ABC piston/sleeve engine. The piston and sleeve are matched for fit and the top of the sleeve is tapered for a tight compression fit. Your engine is pre-set out of box. You will not need to adjust anything during break in.
If you have adjusted the needles prematurely, please refer to the engine setting above for details.
(Do NOT over rev the engine without breaking it in first.)

2. First, please make sure the carburetor is closed to only 1mm opening. To start the engine, prime fuel by placing finger over exhaust pipe outlet and pulling the starter several times. This will push fuel to the carburetor.
Then, place glow starter on the glow plug (located in the center of the cooling head), pull the starter handle with short quick pulls. Engine should start immediately. If not, check fuel line for fuel movement. Do not over prime your engine as it will cause engine flooding. Only prime the engine until fuel just enters the carburetor.

3. Once the engine starts, heat cycle the engine during break-in procedure. Let the engine idle without the car moving for 3 full tanks of fuel. Allow the engine to cool down for 5 minutes in-between each tank.
If the engine's RPM is too high or stalling out, please refer to the engine setting above and confirm the needles have been set correctly. Engine temperature should be in-between 100-150F degrees (37-65 degree Celsius).

4. After completing the first 3 tanks, you can now adjust the top end needle IN 1/4 turn to improve performance. Continue to let engine idle or drive around slowly without over revving the engine for 2 additional tanks of fuel. Allow the engine to cool down for 5 minutes in-between each tank.

5. Break-in procedure is now completed. You can now begin to adjust it for maximum performance.
The first thing you should check is to make sure the carburetor is fully opened when you full throttle.
Keep adjusting needle until engine is running at a good speed without being too hot. Remember to always check engine temperature. It should NEVER exceed 250F degrees (120 degree Celsius). The optimum temperature for best engine life is 180-220F degrees (82-104 degree Celsius).

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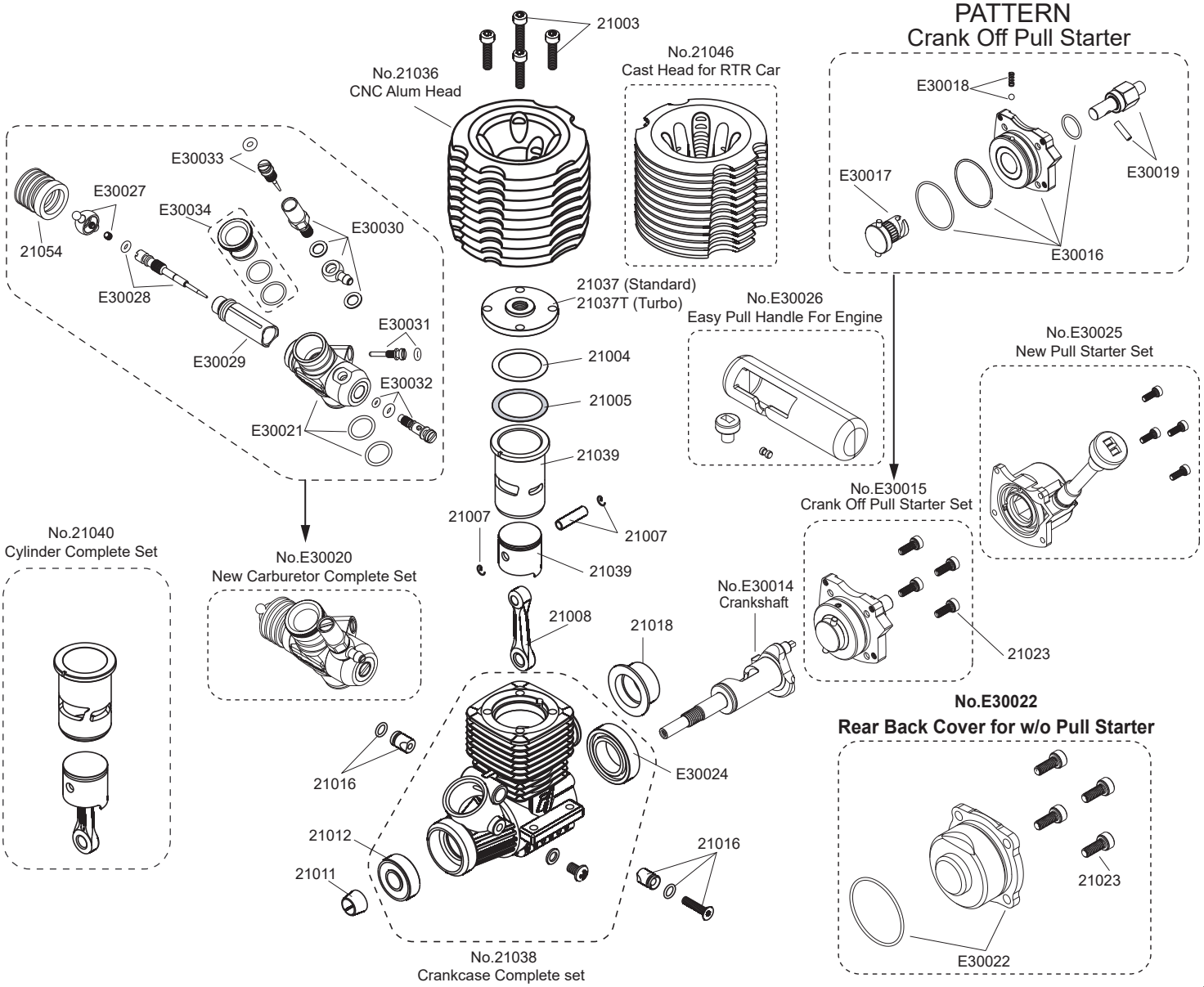

Engine Parts List

Part No.	Name	Part No.	Name	Part No.	Name
21003	Head Cap Screws, M14x3.5, 4 pcs	21040	H21 Cylinder Complete Set	E30024	Rear Ball Bearing - 14x25x6 mm
21004	H21 Head Gasket-brass.-0.1mm, 2pcs	21046	H21 Cylinder Head - Cast for RTR Car	E30025	Pull Starter Set
21005	H21 Head Gasket-alu.-0.3mm, 2pcs	21054	Throttle Silicone Cover	E30026	Easy Pull Handle For Engine
21007	H21 Piston pin & “G” clips	E30011	O-ring Complete Set	E30027	Throttle Rod Nut
21008	Connecting Rod	E30012	Screws Complete Set	E30028	Sub Throttle Needle Value
21011	Brass cone/washer, 2pcs	E30014	Crankshaft	E30029	Carburetor Throttle
21012	Ball Bearing - 7x19x6mm	E30015	Crank Off Pull Starter Set	E30030	Main Needle Hub Value Set
21016	Carburetor Bolt Setting pin/o-ring	E30016	Rear Alum Mount for Crank Off Pull Starter	E30031	Throttle Adjustable Screw
21018	Silicon Manifold seal, 2pcs	E30017	Turn Tube for Crank Off Pull Starter	E30032	Supply Fuel Nozzle
21023	Rear Cover Screw - M3x8, 4pcs	E30018	Spring & Steel Ball for Crank Off Pull Starter	E30033	Main Needle Value
21036	H21 Cylinder Head - CNC Alum	E30019	Turn Axle for Crank Off Pull Starter	E30034	Carburetor Restrictor
21037	H21 Alum Burn Room (Standard)	E30020	Carburetor Complete Set		
21037T	H21 Alum Burn Room (Turbo)	E30021	Carburetor Main Body		
21038	H21 Crankcase Complete set	E30022	Rear Back Cover for Without Pull Starter		
21039	H21 Cylinder Sleeve & Piston				

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