

REDS Engine Carburetor Needle Comparison Long Needle vs Standard Needle (Both Low-Speed and High-Speed) Aspect Long Needle Standard Needle Extended needle provides greater adjustment range, Standard length needle with conventional Needle Length typically 3-4mm longer than standard. Allows for adjustment range. Adequate for most & Range finer fuel metering with more turns of adjustment applications but with less fine-tuning capability. available. Smaller incremental changes per turn of the needle. Larger incremental changes per turn. Each Adjustment This means each 1/8 turn adjustment has a more adjustment has a more pronounced effect, Precision subtle effect, allowing ultra-fine tuning. Requires making it faster to get "in the ballpark" but more patience but provides greater control. harder to dial in perfectly. Wider tuning window means you can adjust through Narrower tuning window. May reach the limits a broader range of fuel mixture settings. Less likely Tuning Window of adjustment in extreme conditions, forcing you to run out of adjustment range in extreme to change jets or other carburetor components. conditions (very hot/cold weather, altitude changes). Takes longer to find the optimal setting due to the Easier and faster to find a good baseline setting. Finding the extended range. You have more "territory" to The limited range means less trial and error, Sweet Spot explore, which can be frustrating initially but making it more beginner-friendly. rewarding once dialed in. Once you document your settings, they're highly Good repeatability, but with less precision. Consistency & repeatable. The finer adjustment increments mean Settings may vary slightly more when trying to Repeatability you can return to exact settings more reliably across return to a previous configuration. different race days. Less sensitive to minor vibrations or accidental More sensitive to inadvertent changes. A slight Sensitivity to needle movement. If the needle shifts slightly needle movement has a more noticeable effect Changes during operation, the performance impact is on engine performance. minimal due to the finer adjustment scale. When perfectly tuned, can extract maximum Provides excellent performance when tuned Performance performance because you can dial in the exact fuel properly. For most recreational and club racing, Optimization mixture needed without compromise. Ideal for the difference in ultimate performance is competitive racing where every bit matters. negligible compared to a well-tuned long needle. Tuning Superior for engines that will see varying conditions Works well for consistent conditions. May Flexibility- different tracks, weather changes throughout there require jet changes or other modifications when

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Aspect Long Needle Standard Needle season, or altitude variations. Can accommodate all conditions vary significantly from your baseline conditions without hardware changes. setup. Typically slightly more expensive as a specialized Standard part, widely available and typically Cost & component. May be less readily available at local what

comes stock with the engine. More Availability hobby shops or require special ordering.economical and easier to find replacements. Steeper learning curve. The extended range meansGentler learning curve. The limited range beginners can get "lost" in adjustments and mayprovides some guardrails that help prevent Learning Curve struggle to find the optimal setting without guidanceextreme mis-tuning. Good for developing tuning or experience.skills. ☺☺ Mixing Carb Needles: Standard + Long Needle Combinations Is This Beneficial? Yes, you can absolutely mix needle types, and there are legitimate reasons to consider it. Since REDS carburetors have separate low-speed and high-speed needles, you can use different needle types for each circuit. Configuration Options: Option 1: Standard Low-Speed + Long High-Speed Needle Best for: Racers who want simple, reliable low-end performance with maximum high-end tuning flexibility Advantages: Quick and easy to set up the low-end for consistent starts and corner exits Extended high-speed adjustment range for optimizing straightaway performance and fuel efficiency Reduces overall tuning complexity by limiting variables on the low end Good for tracks where low-end doesn't vary much but high-end needs frequent adjustment Disadvantages: Less fine-tuning capability for technical, low-speed sections May not be optimal for tight, technical tracks where low-end is critical Option 2: Long Low-Speed + Standard High-Speed Needle Best for: Tracks with technical sections, tight corners, and less emphasis on top speed Advantages: Superior control over throttle response and acceleration out of corners

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Precise idle and low-speed mixture adjustment for consistent handling Simpler high-end tuning for tracks where straightaway performance is less critical Excellent for indoor or tight outdoor tracks Disadvantages: Less high-end adjustment range if you need to optimize for varying temperatures during long mains May limit top-end tuning options on high-speed tracks Option 3: Long Needle for Both (Full Long Setup) Best for: Serious racers who want maximum control and are willing to invest time in tuning Advantages: Ultimate tuning flexibility across the entire RPM range Best for engines that see widely varying conditions Maximum performance potential when properly dialed in Disadvantages: Most complex to tune Longest setup time Easiest to get "lost" in adjustments Option 4: Standard Needle for Both (Full Standard Setup) Best for: Recreational racing, beginners, or consistent conditions Advantages: Fastest to tune overall Most forgiving setup Lowest cost Easy to find replacement parts Disadvantages: Limited optimization potential May struggle in extreme conditions Practical Recommendation: For most racers, Option 1 (Standard Low + Long High) offers the best balance: You can quickly dial in a reliable low-end that works for starts and technical sections

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The long high-speed needle gives you the precision needed to optimize top-end power and fuel efficiency. This combination reduces tuning time while maintaining performance potential where it matters most. It's easier to learn than a full long setup but more capable than full standard. Start with this approach: Set your low-speed needle to a known-good baseline quickly, then spend your tuning time optimizing the high-speed needle for maximum performance. This focuses your efforts where they'll have the biggest impact on lap times. Bottom Line: Mixing needles is not only possible but can be strategically advantageous depending on your racing priorities, skill level, and track characteristics. The key is matching your needle configuration to your specific needs rather than assuming one setup fits all situations.