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What is the best choice for resistors between carbon film , metal oxyde or metal film for a good sound in a guitar tube amplifier ?

For achieving **good sound quality in a guitar tube amplifier**, the choice between **carbon film, metal oxide, and metal film resistors** depends on the specific amp position and your priorities for tone and noise.

Metal Film Resistors

- **Best Overall for Low Noise:** Metal film resistors are widely regarded as the **quietest** option, with low hiss and precise values. They closely maintain their specifications over time and are **very stable**, making them the standard choice for most modern amps and repairs where quiet operation is desired[1] [2] [3] [4].
- **Tone Impact:** Some builders and players describe amps using only metal film resistors as "sterile" or lacking "mojo," but this is debated and usually only relevant to a small subset of critical listeners[4] [5].

Carbon Film Resistors

- **Moderate Noise, Slight Warmth:** Carbon film resistors have **slightly more noise** than metal film but much **less than carbon composition**. Some builders claim they impart a touch of **warmth or thickness**, especially in positions like plate resistors, but in most of the circuit their main effect is to add a bit more background hiss compared to metal film[6] [1] [7] [8].
- **Tone Impact:** In most tube amp positions, carbon film's impact on tone is minor—it doesn't distort the audio signal as much as carbon comp, but may add subtle coloration in high-voltage positions[7] [6].

Metal Oxide Resistors

- **Not Preferred for Audio:** Although similar to metal film in many specs, **metal oxide resistors are usually avoided for audio path use** because they can introduce **low-level distortion and are noisier** than metal film[9].
- **Use Case:** Metal oxide is sometimes used in power supplies or non-critical locations, not in the direct audio path[9] [10].

Best Practice for Guitar Tube Amps

- **For most resistors, especially in the signal path (e.g. plate resistors, grid resistors), use metal film resistors** for their **quiet, stable, and reliable** performance[2] [3] [1].
- **If you want to create a "vintage" or specific tonal signature, some builders use carbon film** (or even carbon composition) **only in key locations** (like the phase inverter plate resistor), where their slight extra noise and harmonic coloration may add subtle tube-like warmth[6] [7].
- **Avoid metal oxide** in the audio path; reserve them for power handling spots if needed[9].
- There's no substantial evidence that carbon film or metal oxide significantly improve sound compared to metal film, except possibly in a few high-voltage locations if you desire added personality at the cost of extra noise[6] [7] [9].

Summary Table

Type	Noise	Stability	Typical Use	Tone Effect
Metal Film	Lowest	Very High	Signal & Power	Clean, transparent, "neutral" [1] [2] [3]
Carbon Film	Medium	Good	Select Audio Path	Subtle warmth, slightly noisier [6] [7] [8]
Metal Oxide	High	Good	Power Supply	Can induce low-level distortion [9]

Recommendation: Use metal film resistors throughout for the cleanest and most reliable sound. Consider carbon film only if you specifically want a touch of vintage flavor in key spots—and accept a minimal trade-off in noise. For most modern, reliable builds, **metal film is the best overall choice**.

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1. https://www.diyaudio.com/community/threads/metal-film-resistors-or-carbon-film-in-a-tube-amp.8425/
2. https://www.aikenamps.com/index.php/resistor-types-does-it-matter
3. https://www.stewmac.com/electronics/amps/components-and-parts/resistors/metal-film-resistors/
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