

## Automotive Electrical Fuses -- British Vs American

British and American standards for rating electrical fuses are different. Both provide an “Amp Rating” for very similar looking fuses, but the two ratings mean very different things. The US system rates the fuse based on the continuous load it can handle for a specified period of time w/o blowing, whilst the British system expresses the load at which the fuse will immediately blow.

That’s a significant difference! As an example, the 35 Amp fuse called out for many 1950’s/ 60’s/ 70’s vintage Britcars (Lotus Elan & Europa for sure) is roughly equivalent to a US-spec BUSS AGC 17 Amp fuse. Install a US 35 Amp fuse into your LBC fuse box and the wiring harness will melt down before the fuse blows.

### **DO NOT use a USA rated 35 amp fuse in your vintage British car!**

The complete rating for the 35 amp Lucas fuse is - “17 AMPS CONTINUOUS / 35 AMP SURGE”

Early British fuses were simply marked with the quick-blow rating, but later fuses are given two ratings in an effort to minimize the confusion. For instance, the 35 Amp fuse is often marked as “17 continuous / 35 blow”, or simply 17/35. In that case, use the lower “continuous” rating as the one to which you try to match an American BUSS fuse rating. Or, better yet, proper British fuses are available from your favorite independent Britcar / Lotus parts dealer. Purchase a supply and keep them in your LBC’s glove box.

**The comparison/ substitution looks something like this..**

<u>British Lucas Fuse</u>		~	<u>American BUSS Fuse</u>	
Fast Blow	Dual Rating	~	Continuous (AGC)	Alternate Opinion (SFE ?)
50 amp	25/50 amp	~	25 amp	25 amp <b>SFE</b>
<b>35 amp</b>	<b>17/35 amp</b>	~	<b>17 amp</b>	20 amp <b>SFE</b>
30 amp	15/30 amp	~	15 amp	15 amp <b>SFE</b> (too short ?)
25 amp	12/25 amp	~	12 amp	15 amp <b>SFE</b> (too short ?)
20 amp	10/20 amp	~	10 amp	
15 amp	7.5/15 amp	~	8 amp	
10 amp	5 /10 amp	~	5 amp	
5 amp	2.5 / 5 amp	~	_____	3 amp
2amp	1 / 2 amp	~	1 amp	

Unfortunately, there’s no extra data marked on either the fuse body or on the package to tip-off the user that the ratings are different. It’s very important that USA owners of British cars be aware of the issue and make wise choices when using USA fuses in them. The best choice is to make the effort to source proper British fuses for your LBC. In an emergency, the loose Rule of Thumb is to use a USA BUSS fuse with an Amp rating equal to no more than one half of the British Lucas fuse rating.

### **USA BUSS fuse terms:**

**SFE** fuses are "automotive" and rated to interrupt only 32 volts. Their length depends on their current rating, ranging from 5/8" for a SFE-4, to 1-7/16" for a SFE-30 (lower amperage = shorter and higher amperage = longer). So, size-wise, sometimes higher amp rating SFE fuse will work in place of an "AGC" or an "AGA" or a Lucas fuse. Regardless of physical size, an SFE will always blow more quickly than a current AG\_\_ (or older \_\_AG) that has a similar Amp rating.

**AGC** fuses are “General Purpose”. They are always 1/4" Dia X 1-1/4" long. They’re available in 250V ratings to **10 amps**, and up to 32V ratings to **30 amps**. AGC fuses are approximately the same length as British fuses, and will fit in the Lucas fuse holder. An AGC-20 is the same length as an SFE-20 and they are pretty much interchangeable.

Both AGC and SFE are "fast acting", but according to BUSS charts, the SFE is faster. An AGC-20 is rated to carry 27 amps for up to 60 minutes, while an SFE-20 will blow in under 2 minutes. However, the 60 minutes is given as a maximum, while the 2 minutes is apparently typical, so that may not be an accurate comparison. Without getting too lost in the details, the basic idea is that an SFE will blow

faster than an AGC, and will better protect your LBC's vintage wiring.

**If you are going to use BUSS fuses in your LBC**, then when availability and length permits, use **SFE** fuses as your first choice. When you must use AGC fuses, shop for the **32 volt** rated versions first, but the 250 volt AGC fuses will "work". SFE fuses in lower Amp ratings will be shorter than the Lucas fuses and may not fit the Lucas fuse box properly, so use common sense.

Currently BUSS AG fuses are available in different lengths, denoted as AGA, AGB and AGC. They are all available in the same voltage and current ratings, the difference being in the lengths. AGA is the shortest, and lengths become longer as they progress from A through C.

Previously, the AG fuses were differentiated on a number scale, 1AG, 2AG and 3AG. The older "3AG" fuses are the same as the modern, common "AGC" fuses. Similarly: 1AG = AGA and 2AG = AGB. I don't believe stores or catalogs list "3AG" or "1AG" fuses anymore; they just list the current designation "AGC" or "AGA" now.

USA fuse styles (The difference between them is their length)

**Current -- OLD designation** (no longer sold)

AGA ---- 1AG

AGB ---- 2AG

AGC ---- 3AG (1/4" Dia x 1-1/4", fit Lucas fuse holder)

SFE ----

*(From the August 2012 issue of Spokes, the Official Publication of the MG Car Club Western New York Centre).*