



'Supreme'- brand aftermarket wheels

Introduction:

This LVV Information Sheet has been compiled in order to assist LVV Certifiers to accurately identify and determine the aftermarket wheels known as 'Astro supreme' brand wheels, and to provide guidance on how to deal with them when presented with a vehicle for LVV certification fitted with the wheels.

From a number of different sources, LVVTA has seen first-hand, and become aware of, a number of failures of this type of wheel. The wheels known as 'Astro Supremes' are marketed in the USA, and are in widespread use, predominantly in the hot rod and American custom car scene, and they are also commonly used to dress up largely standard '50s and '60s American classics. The information contained here-in has come from first-hand knowledge, and a number of different sources, including New Zealanders working within the Southern California aftermarket auto industry, where these wheels have been manufactured.

Background of 'Supreme' wheels:

Most of the 'Supreme' brand wheels that you'll see these days are not the original 'Astro Supremes'. The original wheels were manufactured by a company called Astro Enterprises (hence the common term 'Astro Supremes' even though most 'Supremes' aren't manufactured by Astro) out of Gardena California, starting in 1964. Over the years, this very popular design has been copied by a number of different manufacturers, some done well, and some not so well.

More information can be found on the website losboulevardos.blogspot.com. Go to the 'Tags' list on the RHS of the home page, find 'Vintage Wheels' and click on that. Scroll down until you see a heading called 'Everything you ever wanted to know about Supremes...' Here you'll find a very well documented history of the wheels, and the manufacturers who have been involved in the production of them.

The original 'Astro Supremes':

In the opinion of some New Zealand contacts working in the Southern California aftermarket auto industry, the 'original' 'Astro Supreme' was a well-designed and manufactured wheel, in that it used a cast centre section with steel weld-lugs cast into the spokes, much like the trouble-free 'Cragar SS' design. There were little or no problems with the original wheel design. Several well known race cars of the time used them, and our Southern California-based Kiwi car people have verified that they have used some of the original 'Astro Supreme' brand wheels (new and used) on their own cars, and customers cars, with no problems experienced or heard about.

Later copies:

There are, as far as LVVTA can determine, at least four different companies in the US that assemble these wheels. Every reliable source that LVVTA knows is in agreement that most (but not all) of the manufacturers that copied the Astro Supreme – critically – did not duplicate the original construction method of incorporating the steel weld-lugs into the cast centre section.

With most modern 'Supreme' copies (ie, those not made by Astro) we believe that the centre sections are die-stamped steel and then chrome plated, and a poorly-designed gusset for each of the 5 spokes of the centre section are welded to the rim before also being chrome plated.

Problems with design and assembly process:

It is LVVTA's opinion, which is shared by LVV Certifiers throughout NZ that we have shown these wheels to, that these wheels are both of a very poor design, and utilise an equally poor assembly process. Typically, the weld quality is very poor, and is prone to fatigue cracking, and eventually, completely separating. If such a wheel that you are inspecting isn't cracked yet, it probably will eventually. All such wheels are at risk of complete failure.

Popular opinion is that because the 'welder' engaged in joining the chromed centre section to the chrome rim (with weld-lugs attached to the rim) has the challenge of doing so without burning the chrome on the spokes of the centre section, the obvious solution is to keep the amperage of the welder deliberately low during the final welds so as not to discolour (burn) the chrome plating. One of our Kiwi car builders working in southern California has been into two of these 'Supreme' wheel assembly shops in Southern California, and he describes the welding processes going on in both shops as 'certainly questionable' at best.

LVVTA has contacted the company that has been supplying a lot of these wheels into New Zealand, and the owner has agreed to stop supplying them. There will however be a lot of these wheels already here.

Distinguishing between the good and the bad:

There is no simple way of identifying whether the wheels that you are looking at are the original 'Astro Supremes' or a correctly manufactured copy which uses the same cast centre section with steel weld-lugs cast into the spokes, or a knock-off that uses the weld-lugs that are welded to the centre and to the rim. The only way to determine which wheels are safe and which aren't, is to remove the wheels from the vehicle, and visually inspect the back of the wheels.

The weld-lugs will be clearly visible with the wheel removed from the vehicle, to which, in turn, the separate centre section of the wheel is welded. Upon close inspection of the wheel, it is likely that the failed welds will be evident to the naked eye.

LVV certification instruction:

Any wheels that are designed and manufactured in the same way as the ones described here-in, and as shown in the photographs in this Information Sheet, may not be LVV certified. This is regardless of the vehicle's build-date, or date of purchase or fitment of the wheels. The wheels are a known safety risk, and the LVV system must not allow their continued use.

Please study the photographs (kindly taken by Peter Vahry of Vahry Photography in Parnell Auckland) shown on pages 3, 4, and 5, which show the construction method of the wheels in question, and the types of typical cracking found on the wheels.

LVV certification must be refused to any vehicle fitted with these wheels, with the sole exception of the rear of trikes, provided that:

- the tare of the trike does not exceed 500 Kgs; and
- the wheels have been subjected to an appropriate method of non-destructive testing for cracking, and have been found to have no defects.

Photographs:



Front face of typical 'Supreme' brand wheel



'DOT' compliance marking is evident on rim, but that applies only to the rim itself, not the manufactured wheel.



View of back-face of poorly designed and assembled 'Supreme' wheel.



Close-up view of where the weld-lug has been poorly welded to the centre section spokes, and failed.



Closer view still, of weld failures.

If any assistance in the use of this Information Sheet is needed, please contact an LVVTA technical team member at the Wellington LVVTA office.

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