

Helping New Zealanders Build & Modify Safe Vehicles



### SUPERFORMANCE-BRAND LOWER CONTROL ARM

LVVTA has recently become aware of the catastrophic failure of a 'Superformance'-brand suspension arm in Australia. The lower control arm (also referred to as a lower A-arm) was part of a complete custom independent front suspension (IFS) assembly, which was purchased on the basis of it having an Australian engineering report. The tube material has failed, and the arm has sheared through the middle of both tubular sections.



The arm (far left) was measured at the failure site (below right), and the tubing was found to be well below the LVVTA minimum wall thickness specification.

**Note:** This manufacturer (Superformance Pty Ltd) is an Australian-based company, which should not be confused with (and has no relationship to) the well-known and long-standing US-based company Superformance LLC, who makes AC Cobra, GT40, Daytona and other replica cars.

The vehicle (a 1978 Ford F100) had recently undergone a significant rebuild, and as it was in the final stages of completion ready for its Australian certification inspections, had only been driven a total of around eight kilometres at the time of the failure. The failure of the control arm caused the right front suspension assembly to collapse. Fortunately, this occurred while the vehicle was being manoeuvred at low speeds - had this happened when the vehicle was being driven on the road, the outcome could have been significantly worse.

#### ► Findings

LVVTA is concerned by this Australian-based failure, as New Zealand modifiers often purchase Australian-made components, so there is the possibility of an affected IFS assembly having been fitted to a vehicle in NZ, or to a vehicle imported from Australia. The LVVTA investigation has found that the engineering report for the IFS assembly (which was provided by the owner), assumes that the lower control arm tube is 1" (25.4mm) outside diameter (OD) with a 4.85mm wall thickness (which would exceed the minimum LVVTA requirement for a vehicle of this weight). LVVTA was also supplied with a copy of the invoice, which included a parts breakdown showing that the tube used to manufacture the lower control arms should have had a 1" (25.4mm) OD with a 5mm wall thickness, which would also meet LVVTA's minimum requirement for a tubular lower control arm.

Based on the information provided, it appears that the manufacturer (Superformance) has erroneously used tubing with a significantly reduced wall thickness - which when measured, was just 2.6mm. It is not known whether the upper control arms are similarly undersized, how many lower control arms are affected, or whether there are any other non-LVV-compliant aspects to the IFS design or construction.

#### ► Guidance for Affected Owners and LVV Certifiers

Based on some simple calculations, these lower control arms provide only 70% of the minimum required strength. As evidenced, these control arms are at risk of catastrophic failure, and owners of any vehicles fitted with this type of IFS should cease using the vehicle immediately. Owners should contact an LVV Certifier to have the control arm tubing sizes measured accurately, and if these are found to be undersize, for suitable rectifications to be made.



FOR FURTHER INFORMATION PLEASE CONTACT YOUR LVV CERTIFIER, OR LVVTA.