

'Magnum'-brand I-beam Axle Safety Warning

Introduction:

The purpose of this LVVTA Information Sheet is to advise LVV Certifiers, and potentially-affected vehicle owners, suppliers, and distributors of a significant potential safety risk associated with 'Magnum'-brand dropped I-beam axles. This is an interim notification only, published in urgency to provide awareness of the current situation to the hobby and the industry.

This LVVTA Information Sheet will be followed in due course by a further, more comprehensive, LVVTA Information Sheet, which will detail the findings of an investigation being undertaken by LVVTA, the cause of the problem, any possible changes to the requirements in New Zealand for the use of aftermarket I-beam axles, and the details of the verification process of any 'Magnum'-brand or unidentifiable I-beam axles.

Axle failures:

LVVTA has recently been made aware of two instances of catastrophic failures of Magnum brand cast I-beam axles, one in Australia, and one in New Zealand. Other failures have also been reported in the USA. In both of the failures that LVVTA has become aware of, the failure has taken the form of a complete and sudden breakage which has caused a total loss of steering and braking control to the vehicle, due to the collapse of one side of the axle beam.



Investigation process:

LVVTA has taken ownership of the Magnum-brand I-beam axle that failed in New Zealand, and has, together with its Technical Advisory Committee (TAC), worked closely with foundries and metallurgists in order to gain a clear understanding of the cause of the failure.

The investigation process had included a metalurgical analysis of a section of the failed axle in order to determine the exact material composition.

LVVTA has also discussed the matter at length with a co-owner of the Magnum Axle Company in California, USA, who, we wish to point out, has been very helpful with LVVTA's investigation.

Preliminary findings of investigation:

The investigation has shown thus far that a major manufacturing problem exists within the casting process used in the production of the batch of Magnum-brand axles that included the (New Zealand) failed axle. The full technical findings of this investigation, including details of the molecular structure of the material, and the reasons for its failure, will be provided in detail within a further LVVTA Information Sheet, which will be published in due course.

The principle point, and reason for the issue of this LVVTA Information Sheet, is to make it clear to any interested or affected persons, that this same manufacturing problem will exist in all other axles from the same batch, and any axle from within this batch is likely to suffer exactly the same catastrophic failure. Anyone who owns a Magnum-brand I-beam axle, including any companies stocking any such product, should contact LVVTA for advice. Anyone who owns a vehicle with such an axle fitted should contact LVVTA for advice, and immediately cease using that vehicle until it has been established whether or not the axle fitted to the vehicle is one from the affected batch, as the vehicle may be unsafe.

Anyone who owns a dropped I-beam axle and does not know the manufacturer of the axle (some manufacturers - including Magnum – do not stamp their name or logo on their axles) should definitively establish the manufacturer of the axle by comparing their axle to known axle brands. LVVTA may be contacted for assistance in this process.

Affected axle types:

Magnum-brand dropped I-beam axles

This manufacturing problem potentially affects all widths of 4" and 5" Magnum-brand dropped I-beam axles, except part # 2870 (Magnum state that these axles are sold in lower numbers and have never been cast in the foundry that had the production fault). The following table shows specifically which of the Magnum-brand axles may be affected:

Part #	Application	Drop	Width	Comment
2852	1928-1936 Ford	4"	46"	May be affected
2850	1928-1936 Ford	4"	48"	May be affected
2860	1937-1941 Ford	4"	47 ¾"	May be affected
2855	1928-1936 Ford	5"	46 ½"	May be affected
2870	1942-1948 Ford	4"	50"	Unlikely to be affected

The Magnum Axle Company believes that the faulty batch of axles was manufactured sometime between January 2008 and March 2009. On that basis, if evidence exists that a Magnum-brand axle was sold prior to January 2008, the axle is unlikely to be one of the affected axles. It should be made clear that an axle purchased anytime after March 2009 will not necessarily be safe, because the company casts 500 axles at a time, and these affected axles will have been distributed throughout the world, and in some cases will still be on retailer's shelves now. Any Magnum-brand axle purchased after January 2008 could potentially be an affected and unsafe item.

Magnum-brand tubular axles

This manufacturing problem does not affect Magnum-brand tubular axles, as the ends of the axles are forgings, and not castings. There is no known fault with Magnum-brand tubular axles.

What to do if you have a Magnum axle, or unknown brand axle:

For Magnum-brand I-beam axles purchased prior to January 2008

The Magnum Axle Company have confirmed that there are no known issues with any of their axles manufactured prior to January 2008, therefore it is most likely that any such axles will be safe.

For the purposes of any future LVV certification of vehicles fitted with such axles, documented evidence will be required by the LVV Certifier to verify the date of purchase. If this verification can not be provided, the axle must be inspected and verified as safe (as detailed under 'inspection and verification process' below) before the LVV Certification process of the vehicle to which the axle is fitted can be completed.

LVVTA strongly urges owners of such axles to make absolutely sure that their documentation is correct and valid regardless of whether or not the vehicle to which the axle fitted requires LVV certification, and if any doubt exists, to have the axle inspected and verified as safe (as detailed under 'inspection and verification process' below).

For Magnum-brand I-beam axles purchased on or after January 2008

Each Magnum-brand axle in New Zealand manufactured during or after January 2008 must be inspected and verified as safe (as detailed under 'inspection and verification process' below) to ensure that the axle is not one of the items affected by the manufacturing fault.

This process may have already been carried out by the Magnum Axle Company, in which case no further inspection and verification is required here in New Zealand. Any axle that has been inspected and verified as safe by the Magnum Axle Company will have a letter stamped into the surface, within a small polished area, on the perch bolt boss on the underside of the axle. The letter stamp and polished area will be the clear and obvious to the naked eye. (Note that the radius rod, and possibly the axle depending on whether the radius rods are split or un-split, will have to be removed to expose the underside of the perch bolt boss.) This letter stamp denotes that the axle has been identified during Magnum's inspection process as not being from the incorrectly manufactured batch of axles. Note that on current production axles, the perch bolt boss area where the letter is stamped is not polished, because the inspection and verification process takes place before the axles are machined.

If the axle does not have a letter stamp, it means that the Magnum Axle Company has not inspected the axle, in which case the axle must be inspected and verified as safe (as detailed under 'inspection and verification process' below) before the LVV Certification process of the vehicle to which the axle is fitted can be completed.

If the vehicle to which the axle has been fitted has already been LVV certified, LVVTA strongly urges owners of such vehicles to have the axle inspected and verified as safe (as detailed under 'inspection and verification process' below).

Unknown aftermarket dropped I-beam axles, and Magnum I-beam axles of unknown purchase date

If an axle owner is unsure of who the axle manufacturer is, or if the date of a Magnum-brand dropped I-beam axle purchase from new can't be determined, the axle must be inspected and verified as safe (as detailed in 'inspection and verification process' below) before the LVV Certification process of the vehicle to which the axle is fitted can be completed.

If the vehicle to which the axle has been fitted has already been LVV certified, LVVTA strongly urges owners of such vehicles to have the axle inspected and verified as safe (as detailed under 'inspection and verification process' below).

Inspection and verification process:

Microscopic inspection by a suitably experienced person can establish whether or not an axle is one of the axles from Magnum-brand's faulty manufacturing batch, and may therefore be unsafe. The microstructure of a faulty axle can be recognised through an appropriate type of microscope if the operator is familiar with inspecting castings, in particular the difference between ductile (SG) iron (a suitable material for casting) or grey iron (unsuitable for casting), and whether other variables, such as whether or not the pour during the casting process was carried out at the correct temperature, are in order.

If an axle is required to be inspected and verified as safe, there are two options available to vehicle owners.

Inspection and verification (or replacement) by the Magnum Axle Company

The first option (available only for axles known to be Magnum-brand axles) is to return the axle to the Magnum Axle Company In California USA for inspection and verification as being safe. In the case where New Zealand vehicle owners have a new unused axle, the LVVTA understands that the Magnum Axle Company will provide a new replacement axle that has already been inspected and verified as safe. In this case, axle owners should contact the company from whom they purchased the axle. The Magnum Axle Company are aware of the problem and have stated to LVVTA that they are willing to work with the retailer to resolve the problem for the axle owner, and have a process in place in place to enable this to occur. An owner may forward a copy of this LVVTA Information Sheet to the retailer if the retailer is not aware of the situation.

In the case of a used Magnum-brand axle, a vehicle owner can send his or her axle directly to the Magnum Axle Company in California USA, who will inspect the axle. If the Magnum Axle Company establishes that the axle is safe, they will verify this by stamping a letter into the axle surface within a small polished area on the perch bolt boss on the underside of the axle. If the axle is found to be unsafe, LVVTA understands that the Magnum Axle Company will provide a new replacement axle provided free of charge.

The axle owner may be responsible for the freight costs from New Zealand to California. The Magnum Axle Company's contact details can be found on their website.

Inspection and verification by LVVTA

Alternatively, LVVTA has established a microstructure inspection and verification service that will establish whether or not an axle is safe. An axle owner may send the axle (new or used) to the LVVTA office in Wellington, where the inspection and verification process will be carried out. The axle must be removed from the vehicle and sent to LVVTA to facilitate this inspection process. The verification process in the case of an axle deemed to be safe will be via stamping a letter into the axle surface within a small polished area on the perch bolt boss on the underside of the axle, and to photograph and record the microstructure (requiring a microscope with photographic facility) on a written report.

LVVTA is finalising this process at the time of release of this LVVTA Information Sheet, and owners are advised to call (04) 238 4343 for details in the first instance. There will be a fee payable for this service, however, it is on the basis of cost-recovery only.

If the axle is found to be unsafe, LVVTA will assist the axle owner in arranging for a new replacement axle from the Magnum Axle Company, which LVVTA understands will be provided by the Magnum Axle Company free of charge.

In summary:

Where any doubt or question exists, LVVTA strongly recommends that owners of vehicles fitted with an axle which may be one of the affected axles, immediately cease using the vehicle until such time as the axle can be inspected and verified as safe.

For any further information or clarification on this information sheet, or if any person would like to clarify whether his or her axle may be one of the affected items referred to in this Information Sheet, please feel free to contact the Technical Team at the LVVTA office on (04) 238-4343.

LVVTA would like to acknowledge the technical expertise and assistance provided by Masport Foundries Ltd of Auckland during LVVTA's process of establishing the inspection procedure referred to in this LVVTA Information sheet.