

TECHNICAL INFORMATION SHEET

Technical Information Sheets (TIS) are intended to provide additional and more detailed information about a safety related item or requirement of the Driver and Vehicle Safety Schedule - Appendix Two Schedule A of the MotorSport Manual.

FABRICATED FUEL TANKS - Sheet No. 10

Article references:	Appendix Two Schedule A Part One Article 4.12 (3) (c), and Manual Amendment No. 35073
Applicable to:	All vehicles competing under Schedule A
Introduction:	Schedule A provides the construction and use requirements for fuel tanks installed in competing vehicles. This TIS specifically covers tanks that fall under the description of 'fabricated fuel tanks' meaning any fuel storage 'tank' of more than 5 litre capacity that has been constructed for use in a competition car to a design and specification that (was) not currently covered under an existing industry standard or a recognised standard such as FIA-FT3, SFI Spec, SAE or Military Specification.
General Information:	<p>As of 01-01-2016 Schedule A requires all competition type fuel tanks including bladder tanks, fuel cells and 'fabricated tanks' to be compliant with a recognised standard.</p> <p>Most fuel tanks sold commercially are manufactured to an industry standard with the exception of locally manufactured tanks which for the purpose of this TPIS will be defined as 'Fabricated Fuel Tanks'. These tanks have primarily been fabricated to customers' individual requirements rather than to an accepted industry standard.</p> <p>To ensure 'custom' fabricated fuel tanks can continue to be accepted under Schedule A, MSNZ have established a standard for such fuel tanks. The standard ensures local fabrication may continue whilst introducing a quantifiable standard of manufacture. The standard applies equally to local manufacture as well as to commercially imported tanks of the type.</p> <p>As of 01-01-2016 Schedule A requires all vehicles fitted with a fabricated fuel tank manufactured prior to this date (01-01-2016) to have been inspected relative to safe design and condition and notarised in the vehicles MSNZ logbook by a licenced MSNZ Scrutineer. (Also refer Manual Amendment No.35073)</p> <p>Important Note: This means from 01-01-2016 any vehicle fitted with a fabricated fuel tank that is either; not notated in the vehicles logbook or does not have an identification label/plate and Compliance Certificate will <u>not</u> be accepted under Schedule A.</p>

<p>Constructional requirements:</p>	<p>All fabricated fuel tanks, constructed on or after 01-01-2016 are required to be constructed to and comply with the specifications laid down in the MSNZ Standard for Fabricated Fuel Tanks.</p> <p>MSNZ Standard for Fabricated Fuel Tanks requires the following;</p> <ul style="list-style-type: none"> • Tanks shall be professionally constructed meaning all fabrication work and welding processes must be performed by suitably qualified trades persons • Tanks shall be constructed from either; <ul style="list-style-type: none"> ○ aluminum alloy (minimum thickness 1.6 mm / 16 gauge) or ○ stainless steel (minimum thickness 1.0 mm / 20 gauge) • Tanks shall have a maximum volume (capacity) of 120 liters • All welding shall be performed using the TIG process (not MIG) • Filler rod should be one grade higher than the parent material when welding stainless steel • A suitable baffle arrangement shall be incorporated within the tank and/or the tank shall be filled with an open-cell foam core. Alternatively, a material such as “Explosafe” being an expanded aluminium mesh insert may be installed • Tanks shall be hydrostatically tested for strength and integrity (of the welds) to a pressure of 50kPa for a minimum period of five minutes • After depressurizing there should be no ‘plastic deformation’ of the tank • Each tank shall have an identification label (or stencil / plate) attached which has an indelible marking as described below. The marking label must be positioned where it can be sighted and must remain legible. <p>The Standard also requires all tanks to be supplied with suitable fuel resistant elastomeric gaskets, integral gasket surfaces and/or 'O' rings specifically manufactured to fit the clamping area.</p>								
<p>Standards and Labels:</p>	<p>The identification label / plate shall state the following information;</p> <ul style="list-style-type: none"> • The name of the manufacturer • An individual serial number (assigned to each individual tank), • A date of manufacture, • The tank capacity in litres, and • A compliance statement. <p>Example of identification label / plate;</p> <div style="border: 1px dashed black; padding: 10px; width: fit-content; margin: 10px auto;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">C-SPEC</td> <td style="width: 50%; padding: 5px;">Made in</td> </tr> <tr> <td style="padding: 5px;">Serial # 00001</td> <td style="padding: 5px;">compliance with</td> </tr> <tr> <td style="padding: 5px;">Aluminium 2.5mm</td> <td style="padding: 5px;">MSNZ fabricated</td> </tr> <tr> <td style="padding: 5px;">40L Manufactured 01-01-2016</td> <td style="padding: 5px;">fuel tank standard</td> </tr> </table> </div> <p>Each individual fabricated fuel tank shall be marked in compliance with the example above. The markings shall be designed to remain clear for the expected use and lifespan of the tank. The label shall be made out of destruction- removal material.</p> <p>Certificate of Conformance - Additionally, each individual fabricated fuel tank shall have a ‘Conformance Certificate’ issued by the manufacturer.</p>	C-SPEC	Made in	Serial # 00001	compliance with	Aluminium 2.5mm	MSNZ fabricated	40L Manufactured 01-01-2016	fuel tank standard
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<p>Additional Information:</p>	<p>Schedule A categorises fuel tanks as ‘Safety Critical’ so it is logical that a build specification / standard be applied to all types of authorised fuel tank.</p> <p>It is accepted that in some cases a custom made fuel tank may be a necessary requirement and the ability to design and fabricate such a tank locally is desirable. To this end MSNZ have established a build specification (Standard) to enable fuel tanks to be fabricated to the specific needs of a customer whilst assuring safety through an acceptable level of design and construction (Standard).</p> <p>Important requirements / considerations;</p> <ul style="list-style-type: none"> • The tank(s) location in the vehicle should be placed to reduce the likelihood of damage to it during a front/side or rear end crash. Ideally it should be located ahead of the rear axle and out of the crumple zones. • The ID plate/label shall be accessible when tank is mounted in the vehicle. • The tank and tank filler shall be so arranged that any overflow or spillage of fuel cannot accumulate within the vehicle and/or contact the any part of the exhaust and electrical systems. • Tanks shall require suitable shielding and exhaust clearance. • The tank mounts and hardware should be of a suitable size to hold 20 times the weight of the filled tank. • Installations where the tank filler neck passes through the cockpit to an external filler shall be equipped with a non-return valve located at the tank end.
<p>Definition of terms:</p>	<p>“Tank filler” means all component parts of the filling system from the sealed cap to the entry of the actual tank.</p> <p>“Non-return valve” means a one-way valve that prevents the flow of fuel out of the tank if the tank is inverted.</p> <p>“Certificate of Conformity” means an authenticated certificate issued by the tank manufacturer that identifies and declares that the tank complies with the prescriptions of the MSNZ Standard for Fabricated Fuel Tanks.</p> <p>“Identification label” means a label, stencil or plate attached to the tank that provides information as stated under ‘Standards and Labels’.</p> <p>“Explosafe” means a commercially available product that provides a baffle to fuel movement as well as an efficient passive explosion suppression system for vehicle fuel tanks. www.explosafe.com</p> <p>“TIG process” means the Tungsten Inert Gas process of fusion welding.</p>