

## Subject: Self supporting run flat tyres

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Reviewed:

Self-Supporting Run Flat Tyres (SSTs) have a unique reinforced sidewall construction which gives the ability to perform for a limited distance and speed when deflated, thus constituting one of the methods available today that provides passenger cars with extended mobility following a loss of air in a tyre. The driver can continue travelling without needing to stop to repair/replace the deflated tyre until a safe place can be found to do so.

Run-flat tyres are typically capable of operating at zero inflation pressure at a speed of 80km/h (50mph) for a distance of 80km (50miles). However, this may vary due to load and vehicle fitment hence please check the vehicle handbook for specific limits. In the event of a pressure loss it is advisable to repair/replace the tyre at the earliest possible opportunity, rather than running the tyre to its limit.

### Identification of SSTs

It is important to check the tyre sidewall markings for information regarding the run-flat capability of a tyre.

SST tyres approved to the ISO standard 16992 (i.e. achieves 50miles/50mph) may have the following symbol moulded onto the sidewall and have the letter 'F' placed in front of the rim diameter marking. (e.g. 205/55 RF 16 )



Tyre and vehicle manufacturers also have unique symbols to denote SSTs, such as FRT, RSC, SSR, etc. The run flat capability of these products is advised by the tyre or vehicle manufacturer concerned.

Some tyre manufacturers produce Extended Mobility tyres which offer a more restricted run-on performance (e.g. 20miles at 50mph). These tyres may have a symbol such as 'EXT' on the sidewall. The tyre or vehicle manufacturer will advise the deflated performance characteristics of such tyres.

### Repair of SSTs

SSTs have specially reinforced sidewalls to enable them to perform when deflated for a limited distance and at a restricted speed. The distance permitted under these conditions may vary according to the tyre or vehicle manufacturer concerned.

When running in a totally deflated or significantly under-inflated condition the tyre's internal structure is subjected to high stresses and hence may become weakened and permanently damaged, rendering the tyre unsuitable for repair. Unlike standard tyres, damage symptoms may not be visible with SSTs. As each tyre manufacturer may use different technical solutions to provide run flat capability, the views on repairing of SSTs varies across the industry.

Hence, reference should be made to tyre specialists or to the relevant tyre manufacturer for repair guidelines and to the vehicle owner's handbook regarding the use of repaired tyres on the vehicle.

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Prior to a repair being carried out the tyre must be removed from the wheel and given a thorough internal and external examination by a tyre professional. This is to ensure there is no visible structural damage that may preclude a repair.

The responsibility for the repair remains with the repairer of the tyre.

### **Retreading of SSTs**

The responsibility for retreading any tyre lies with the retread manufacturer and not with the original tyre manufacturer.

Given the unique structure of an SST tyre it should not be mixed on a vehicle with a standard tyre. To avoid this risk a retreaded SST must be marketed and identified by the retreader as an SST and not as a standard radial tyre.

### **Replacement of standard tyres with SSTs**

Consult the vehicle or tyre manufacturer regarding which vehicles are suitable for SST fitment. SSTs should only be fitted to vehicles equipped with a Tyre Pressure Monitoring System (TPMS) which provides a warning signal to the driver in case of serious under inflation of any of the tyres. This is necessary because the self-supporting nature of the tyre makes it difficult for the driver to know when air pressure has been lost and could result in an unsafe condition if the vehicle speed is not reduced.

### **Replacement of SSTs**

It is recommended to replace SSTs with similar tyres thereby retaining the run-flat capability.

The fitting of standard radial tyres to vehicles originally equipped with SSTs will remove the vehicle's run flat capability, potentially leaving the driver immobile in the case of a deflation, and could compromise vehicle handling. It is therefore recommended to consult with the vehicle manufacturer or tyre manufacturer before replacing SSTs with standard tyres on such vehicles.

### **Mixing SSTs with standard tyres**

The handling and performance characteristics of SSTs are different to those of standard radial tyres, and so they should not be intermixed on a vehicle, i.e. all four tyres should be similar in structure.

### **Mixing of different brands of SSTs**

As with standard tyres, different brands of SSTs may have different characteristics. It is therefore advisable to consult the tyre manufacturer regarding mixing of different makes of SSTs. It is recommended that the same make and type of SST tyre is fitted across the axle. In most European countries it is not allowed to mix different brands or structures of tyres on the same axle.

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### **Use of SSTs on towing vehicles**

SSTs may be used in the same way as a standard pneumatic tyre.

When towing, stability of the car / caravan (trailer) combination is of primary importance to road safety.

Whilst a deflated SST is designed to cope with the demands of the solo vehicle, the additional mass of a caravan will subject the tyre to higher stress levels. The consequence of this is that even travelling at a restricted speed of 80 km/h (50 mph) may affect the stability of the car/caravan combination.

To avoid this potential hazard it is recommended that the distance travelled and speed on the deflated SST tyre should be reduced and more immediate action taken to repair/replace the deflated tyre. Refer to the vehicle manufacturer's handbook for further information as available.

### **Use of SSTs on caravans and trailers**

SSTs must only be fitted to vehicles which have a Tyre Pressure Monitoring System (TPMS) as a visual / audible warning to drivers of a deflating tyre. As yet no caravans or trailers are equipped with TPMS systems and hence should not be fitted with SSTs.