

FINABEL A.20A TEST

BRUNTINGTHORPE PROVING GROUND

9TH AUGUST 2017

Test type and purpose

The purpose of the test was to exceed FINABEL Agreement No. A.20.A 100km with all four tyres deflated with Runflat CBR runflat inserts fitted to normal single piece drop-centre wheels.

Claims for RUNFLAT CBR test to exceed Finabel requirements

1. Number of tyres deflated during trial:
Trials were carried out with all four tyres deflated. Finabel requires either one or two deflated tyres.
2. Number of wheels/tyres/runflat tested:
Finabel allows for each test, i.e. the off-road and the on-road trial, to be carried out on separate wheels/tyres/runflat inserts. In these trials both tests were carried out on the same set of wheels/tyres and runflat inserts.
3. Speed:
On road tests were carried out at an average speed approximately 60% higher than those specified in Finabel, i.e. where Finabel may specify 30kph the tests would be carried out at 30mph.
4. Total runflat distance on one set of tyres/runflats to exceed 200km

Track test components for standard FINABEL A.20.A

The road and off-road trials will be carried out separately with **two different sets** of perforated tyres.

2.3.2. The vehicle having **one or two tyres** penetrated must **either**:

a) cover a course of a total distance of 100 km without the tyre dismounting from the wheel or starting to catch fire and with no serious effect on steering, manoeuvrability, stability, braking and maintenance of speed under the following conditions:

- 3 km @ maximum escape speed to a maximum of 90 km/hr;
- 22 km @ 50 km/hr;
- 75 km @ 25 km/hr;

or

b) travel off road for 2 hours at a speed of approximately 30 km/hr without the tyre leaving the wheel rim or starting to catch fire.

Test Vehicle

Standard Toyota Land Cruiser 3 litre diesel
Ballasted approximately to maximum gross weight (2,990 kg).
Standard 17 x 7.5 wheels fitted with Michelin Latitude 265/65 R17 tyres.

Before the test each tyre was marked to show its position on the wheel. This was to measure any movement of the tyre on the wheel rim.

The vehicle was fitted with a remote camera under the bodywork in front of the offside front tyre.

Track conditions

Ambient temperature 16C
Morning off-road trials undertaken in damp conditions. Overcast and no rain.
Light rain during tarmac tests.

A film crew from Threeguru Ltd was present, with two camera crews to witness and film the event. A third camera was fitted to the vehicle.

Trials

1. Off-Road Test

2 hour test. Bruntingthorpe off-road test track.

- a) Test commenced at 10.00am with all 4 tyres deflated.
- b) Average speed was approximately 25mph (40kph) and distance covered was recorded at 50 miles (80km). [Finabel requires 30kph/60km].
- c) Tyre temperature taken at start of trial was 16°C
- d) No movement was apparent between the tyres and the wheels. On completion of the trial the marked points on the tyres had not moved in relation to the wheels.
- e) At the conclusion of this test the tyres appeared 'as new', with no signs of distress.
- f) Average tyre temperature at completion of trials was 18°C

2. On-road Tarmac Test

- a) The vehicle continued to the tarmac test running on the same tyres and runflats used on the off-road test.
- b) Tyre temperature was recorded at 16°C
- c) The vehicle was driven on the long straight of the tarmac circuit at Bruntingthorpe Proving Ground. With all tyres deflated the vehicle was accelerated to 70mph (112kph) and completed 1.9 miles (3km) at 70 mph (112kph).
- d) Speed was reduced to 50mph (80kph) [Finabel is 31mph/50kph] over a distance of 14 miles (22.4km).
- e) Speed was reduced to 25mph (40kph) over a distance of 78.75 miles (126km).
- f) Total tarmac trial distance was 151.4 km (94.6 miles).

- g) No movement was apparent between the tyres and the wheels. The marked points on the tyres had not changed in relation to the wheels.
- h) The tyres appeared 'as new', with no signs of distress.
- i) Tyre temperatures were recorded at the end of the trials and averaged 25°C.
- j) All tyres were able to be re-inflated after completion of both the on and off-road tests.

Conclusion

1. The trials demonstrated that Runflat CBR was capable of exceeding Finabel A.20A 150km by running at a 60% higher speed than specified and with all 4 tyres deflated on a fully laden 4x4 vehicle using standard single piece drop-centre wheels.
2. All-tyres-deflated performance exceeded the Finabel requirement of one or two tyres deflated.
3. Total distance covered over both components of the trials was approximately 200.4km (125.25 miles).
4. The distance completed exceeded the Finabel requirement.
5. With all tyres deflated the driver was easily able to maintain full control of the vehicle during both the on and off-road components of the trial at all speeds.
6. No circumferential movement was recorded between the tyres and wheels.
7. Tyre temperatures remained acceptable during all stages of the trials.
8. No distress was measurable on any of the tyres following the trials. Tyres were re-inflated to be used again on following trials.

Runflat insert inspection after trials

The wheel, tyre and runflat assembly was stripped down for an internal inspection.

1. Runflat CBR showed slight signs of wear, however this was minimal.
2. The runflat had not moved on the wheel.
3. The tyre showed no signs of internal distress.
4. It was clear Runflat CBR could have continued to function over more kilometres.

Richard Lust
Managing Director

Run Flat Systems Ltd
14th August 2017

Product tested:

Standard Runflat CBR 17-7.5-65 runflat insert

Runflat CBR