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Goodyear's Terra Campaign

The story of the all-terrain Terra-Tire

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GOODYEAR'S TERRA CAMPAIGN

In 1956 the Goodyear Tire & Rubber Company of Akron, Ohio, announced the launch of its "Terra-Tire" undercarriage unit, which provided the lightplane pilot with the ability to land on almost any kind of terrain, be it farmland, sand dunes, marsh or snow. **NICK STROUD** takes a look at the company's ultimately fruitless trials of the system with a Stinson Voyager

BY THE MID-1950s the use of the light aeroplane was well and truly established in the USA: both for the private individual who had perhaps earned his flying stripes in the military during the war and who wanted to keep current in a handsome weekend flyabout; and for the ranch owner who needed to traverse expansive tracts of farmland — often made up of sketchy terrain that could inflict some very expensive damage on your trusty aerial workhorse or, worse, ruin your whole day.

It was for the latter that the Aviation Products division of the famous Goodyear Tire & Rubber Company of Akron, Ohio, developed the Terra-Tire, an ultra-low-pressure tyre to be fitted to a bespoke fork arrangement and incorporated into the standard undercarriage fittings of light aircraft. The trademark name Terra-Tire was applied for by the company in January 1956, and Stinson 108-2 Voyager N9270K was fitted with the arrangement for extensive testing at Akron.

The lowest-pressure pneumatic tyres ever mounted on an aircraft at that time, Terra-Tires were barrel-shaped with thin, flexible walls, and inflated to a pressure of between 2lb/in² and 7lb/in², in contrast to the 15lb/in² or more of standard high-volume lightplane tyres. The advantage of the Terra-Tire was its ability to roll over small obstacles and absorb punishment from the tumbleweed, corn stalks and other detritus found on unimproved landing strips, as well as conform to uneven surfaces, giving an aircraft the ability to land on even the most forbidding terrain without bogging down or blowing the tyres. It also provided increased traction on snow, ice, sand and mud, while reducing the possibility of groundlooping.

ABOVE ***The Voyager demonstrates its ability to deal with uneven surfaces on an obstacle course made of wooden blocks and planks during trials at Akron Fulton Airport (now Akron Executive Airport), which was opened in 1929 as the Goodyear Airdock, where the company's airships were built, and which also served as the Navy's NAS Akron.***

UNDER PRESSURE

Low-pressure tyres were nothing especially new in 1956, the company itself having developed the "Airwheel" in the late 1920s, based on a patent granted to Alvin J. Musselman, who had devised a complete all-in-one wheel-and-rim unit incorporating low-pressure tyres, to be fitted on a hub. These wheels were of smaller diameter than a standard high-volume tyre, but of much

Stinson 108-2 Voyager N9270K (c/n 108-2270) was owned by Goodyear and fitted with the Terra-Tire undercarriage unit for trials around the Akron area in the summer of 1956. It is seen here making light work of a rough field with the barrel-like tyres installed. ALL IMAGES TAH ARCHIVE

RIGHT ***A typical Goodyear advertisement in the popular aeronautical press for the Terra-Tire circa 1956, extolling the virtues of the undercarriage as demonstrated in the trials of the Stinson — "No rough voyage for this Voyager!".***

No rough voyage for this Voyager!

Equipped with Terra-Tire by Goodyear—

aircraft lands on unimproved field with ease

This Stinson Voyager recently swept in and made a smooth landing on a mighty rough field near Akron, Ohio.

Equipped with the new airplane Terra-Tire developed by Goodyear, the light plane was able to negotiate terrain which would spell real trouble for a conventional-tired aircraft.

But these thin and extremely pliable, bagline tires are inflated to only 3 to 6 pounds' pressure—have the ability to absorb sharp objects, "give" with them without puncturing. And the 24"-wide footpad of the Terra-Tire makes it possible for it to span pitfalls that otherwise would jolt or dump standard-equipped aircraft.

The Terra-Tire has demonstrated amazing mobility over unimproved terrain on a host of land vehicles—has proved itself on farms, sand dunes, marsh and rock quarries, has navigated delicate putting greens without breaking a blade of grass.

Now it heralds a new approach to some long-standing aeronautical problems. In addition to the Stinson application, it has been utilized in beaching amphibious aircraft along rocky shore lines.

If the Terra-Tire suggests answers to certain problems facing you right now, you're invited to write for full particulars. Address:

Goodyear, Aviation Products Division,
Akron 16, Ohio, or Los Angeles 54, California

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GOODYEAR AVIATION PRODUCTS

Terra-Tire—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

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ABOVE *The Stinson uses the 24in (61cm)-wide footprint of its Terra-Tires to roll across a field full of puddles and ditches with ease during trials. A large variant of the tyre was developed for use on the MM-1 Teracruzer missile-carrying vehicle built by the Four Wheel Drive Auto Company to transport the USAF's Martin MGM-13 missiles.*

thicker width, although the barrel-like profile of the Terra-Tire of 1956 was much thicker again. The Terra-Tire was also pre-dated by a new form of "tundra tyre" devised by Canadian Welland Phipps in the early 1950s, variations of which have gone on to be used by bush aircraft serving the Great Frozen North ever since.

Goodyear put the Stinson through extensive trials with Terra-Tires, taxying it through rough terrain pockmarked with puddles and ditches, ploughed fields and even set up an obstacle course of wooden blocks and two-by-four planks on which to land the Voyager to demonstrate its ability to alight on the most demanding terrain.

TYRESOME DRAG

Although the Terra-Tires conferred considerable benefits when it came to landing in rough spots, they were extremely draggy, and the standard undercarriage had to be modified substantially to accommodate the wide forks and axle on which the Terra-Tires were fitted. This didn't stop the company from promoting the new tyres vigorously, however, full-page advertisements appearing in the aeronautical press, claiming that the Voyager had "swept in and made a smooth landing on a mighty rough field near Akron". Furthermore, the company trumpeted, the Terra-Tire "has proved itself on farms, sand dunes, marsh and rock quarries, and has navigated delicate putting greens without breaking a blade of grass". Fore!

Despite the Stinson's sterling work in demonstrating the effectiveness of the Terra-Tire, the latter was found to be too cumbersome and was perceived to degrade the aircraft's performance to such an extent that it was unattractive to potential customers, and so was not put into production. The "tundra tyre", however, is still very much in use today, allowing lightplanes to put down in some of the most hostile flying environments in the world.

ACKNOWLEDGMENTS *The author would like to thank Philip Whiteman, Editor of* Pilot *magazine (www.pilotweb.aero), for his help with this article*

BELOW *The Stinson 108-2 was powered by a 165 h.p. Franklin six-cylinder horizontally opposed air-cooled engine and was typical of the sort of lightplane to which the Terra-Tire was intended to be fitted. Little more is known about the fate of N9270K after its tenure with Goodyear, other than that the registration was cancelled in 1989.*