Ecological 4WHEELING ADVENTURES
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TYRE DEFLATORS

By Harry Lewellyn

They let me down . . . as promised. I liked the way the Staun automatic Tyre Deflators felt.

Outta the box I immediately tore right into 'em. If it ain't broke, fix it anyway, is my motto when investigating something. This article will describe the hardware and summarize my test results. Complete adjustment (use) information is provided with the product. That's easy. The FOURWHEELING ACADEMY on page 2 provides test nitty gritty. That was tough!

Go to www.stauntyredeflator.com to learn how necessity created this superior Australian tire deflator.

PRODUCT DESCRIPTION

The cylindrical aluminum deflators (now brass) screw onto any standard valve stem and automatically deflate to the pressure of your choice from 6 to 30 PSI. No tools are required. Once set, forget the gauge until you're ready to air up.

At just under 1½ ounces and about1.18" X 0.59" each, they are easy to store in pocket or console.

TEST RESULTS

I tested the valves for turn-on and shut-off reliability, and deflation pressure repeatability. Did they start and then stop at the same pressure every time?

Staun's Tyre Deflators performed as advertised and passed the tests with flying colors. After installing, I'd have no problem leaving the short, light product mounted on rubber valve stems until the next stop, although Staun does not recommend this.

The product from Down Under came out on top. Proven reliable, Staun valves are now my deflator of choice.

From ECO4WD Sept.-Oct. 2001

STAUN DEFLATOR *UPDATE*

By Harry Lewellyn

BRASS IS BETTER

As things would have it, Staun has slightly changed the product from my first in October 2001. It is now being made from brass.

One can go on and on about the virtues of the lightweight qualities of aluminum vs. the corrosion resistance qualities of brass. The bottom line is brass is better as any boater will tell you. Particularly when you consider my underwater tests performed in the September-October FOURWHEELING ACADEMY - TYRE DEFLATORS (page 2).

SALTWATER DURABILITY

I never gave saltwater a thought, but Staun must have. Aluminum would have suffered in saltwater over the long haul. However, I am completely confident that dousing the brass deflators in saltwater, rinsing in freshwater will have no effect on brass. I have the peace of mind they will work properly the next time I need to air down.

LEATHER POUCH

Staun has also added a compact little leather carrying pouch. This puts the solid feeling fistful in a neat little package for the next use. It will always be my "console companion," ready to hop into service at the next need for low tire pressure.

From ECO4WD Nov.-Dec. 2001

DEFLATOR TESTS

By Harry Lewellyn

These tests are comparable to the ones performed in 1997 on several other deflation products and methods, with a couple of minor tweaks. Order the Tire Tools reprint for the prior piece and much, much more on tires (see eco4wd.com or the current newsletter).

Staun Tyre Deflator test fixture.

TEST FIXTURE

A lock-type air chuck and standard valve stem were plumbed to a ¼-inch NPT brass T. At another T, I attached a pressure gauge and filler hose ending in another standard valve stem. This was used to fill the tire and perform simulated "trail" tests. The Figure to the right is the labeled test fixture schematic and valve.

TEST OVERVIEW

I tested start-stop repeatability and reliability, and hot, cold, dirty and wet environments. The wet test assumed the ridiculous situation where you're stuck in a stream, tires underwater, and needed to air down. Staun does not recommend driving with the valves on; nevertheless, I simulated trail runs two ways. After the valve had automatically shut off, I'd briefly blast the test fixture at the filler hose with a short burst of air. I felt this simulated a sudden tire-drop, like off a tall rock, which would instantly bump the pressure up for a fraction of a second. With a valve on the filler hose, I then banged it on the tire and wheel, while auto-deflating, and after it stopped, to simulate bumping into brush and being hit by bouncing rocks. Would the valves undesirably toggle on and not back off? I suspect these simulated "trail" tests were much worse than the valves will ever be seen in the field. I also recorded air-down time from 28 to 12 PSI. I've added the Stauns to the 1997 timing chart (below).

TEST PROCEDURE

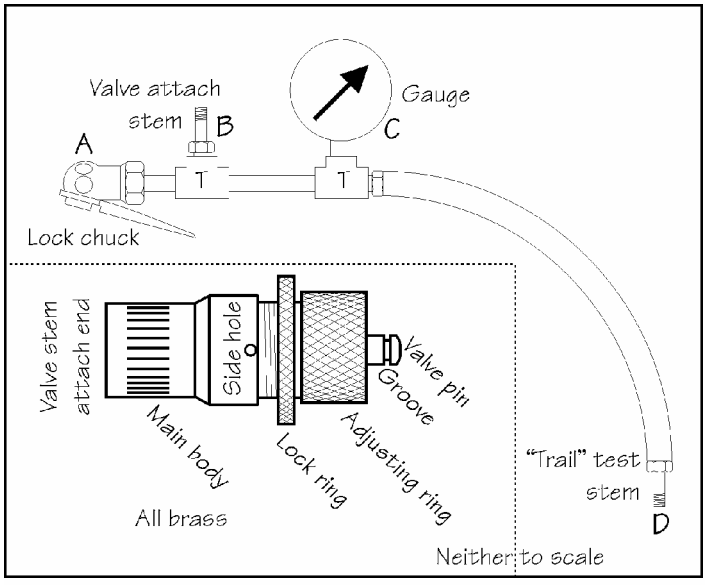
A test tire was first inflated to 28 PSI with no valve attached to either test stem. I then screwed a valve to a stem. To ensure there was no magic as to how that was done, I both quickly and slowly screwed them on using three different finger points: the knurled adjustment cap, the knurled lock ring and the splined main valve body. I wondered if they would start if I slowly pre-bled a little air before the valves completely seated on the stems or if I blocked the side holes. All methods worked equally well, provided I tightened the lock ring securely against the adjustment cap.

I scribed a small reference line on the top of the adjustment drum. I've recommended that Staun do this on future production runs. Without the reference, it was difficult to keep track of fractional and multi-turn adjustments.

Some valves were attached to the hose and aggravated by my trail simulation tests described above. I found the valves easy to start and seat regardless of the screw-on technique used.

DEFLATION RELIABILITY

All four valves were tested seven times each in addition to trail and environmental tests. Five tests took the tire from 28 PSI down to 8 or 10 PSI and two tests were with a one-turn increase in shut-off pressure. One turn yielded about a 6-PSI increase as advertised. All started and stopped with a distinctive snap. I got to where I could hear a slight change in the escaping air followed



Staun Tyre Deflator and test fixture schematic.

Water test: No evidence of leakage.

Water test: Valve deflating.

by the reassuring snap-off action. I could also see this in the underwater tests.

All valves reliably started and stopped with no exceptions.

Set for 10 PSI, the valves would start with as little as +2 or 3-PSI difference. For the 16-PSI tests, the Stauns needed +5 or 6-PSI differential to start. I never tried to start the valves above 30-PSI. What this test means is that you can air down for the rocks, then readjust to a yet lower sand pressure and the valves would start.

In contrast, the Oasis Trailhead automatic deflators tested in '97 always needed 25-PSI or more (advertised 30-PSI minimum) to reliably start, regardless of the preset low pressure. It doesn't make sense to first air up in order to further air down!

DEFLATION REPEATABILITY

No attempt was made to adjust all valves to exactly the same pressure. Each valve was numbered and its shut-off pressure was tracked. I saw a maximum variation of about ±¼-PSI from test to test, for both the 10- and 16-PSI tests. I used both the dial gauge on the test fixture and another quality low-pressure pencil gauge. The dial gauge was finger-flicked to eliminate mechanical stickiness (hysteresis) in the gauge mechanism. I cannot say whether the recorded variations were due to the valves, the gauges or my readings. Regardless, the Staun valves were pretty darned repeatable.

HOT AND COLD TESTS

The kitchen came into play for the hot and cold tests. In all fairness to the original tests, be aware I did not take the Stauns down to dry ice cold as in the '97 tests. My reality is that your valves will never see this, since they are usually stored inside the 4X. Further, keep them in your pocket if you expect to encounter –109° F!

The oven created the 150° F test environment. The freezer gave me about 0° F. All valves worked properly at both extremes.

UNDERWATER TESTS

Two photos show these tests. The test fixture hose valve stem was submerged, then a valve was screwed on, while underwater. This showed three things: 1) would they start underwater; 2) would they shut off reliably; and 3) did they leak? Even the most minuscule leak would have been visible. I theorize the valves stem would have to be about 11 feet deep to influence the 6-PSI advertised minimum. The valves didn't know the difference between being used underwater or in the air.

DIRTY TESTS

The "dirty start" test was not identical to '97. Then, all products were put in the same bag, at the same time, containing garden dirt and a little leftover beach sand from under the truck. The 2001 test was with a different bag, dirt and no other companions,

METHOD/ PRODUCT	TO 12-PSI (minutes)	TO FINISH (minutes)
QuickAir Deflators	3:34	3:40
Red (remove valve core)	3:43	3:53
Staun Tyre Deflators	3:45*	3:58*
Currie E-Z Deflaotor	3:55	4:08
Oasis Trailhead Deflators	4:09*	4:38*
Quadra-Flate	4:06	5:27
Coyote Kludge (make it yourself)	5:15	5:30
Depress valve core	7:35	7:45

* Ready to roll in about one minute.

but the intent was the same. How would they work if I dropped one in the dirt or stored them in my (normally) dirty tire repair kit? I did not address driving through dirty water with the valves still on the stems.

The process was to shake for one minute, remove, and blow clean by breath and then retest. All but one started on first try. It required a more vigorous, creative puff to get going. Basically, this test just proves you can contaminate them, as expected. Further, since no tools are required, disassembly, cleaning and reassembly would be a cinch. The worst you could do is lose the tiny O-ring.

DEFLATION TIME

Again, this test differed slightly from '97 because of a different 4X and tire size, but I did take the portal-to-portal approach. How long would it take to leave the driver's seat, screw on four valves, get back in and drive off? It only took about one minute to install and be rolling, without removal.

Five timed tests averaged two minutes and 33 seconds from 28 PSI to 12 PSI, including Staun valve removal.

RECOMMENDATION

Hey, what can I say: The only thing the ol' Coyote didn't do was chew on 'em. The Staun Tyre Deflator Valves worked perfectly, as advertised.

Dealer and distributor inquiries welcome. Contact Harry at (949) 645-7733 or coyote@eco4wd.com

GROOVY IMPROVEMENT

By Harry Lewellyn **From ECO4WD Nov.-Dec. 2002**

It's amazing what 4mm and a tiny groove have done for these Australian-made tyre deflators. I thought they were perfect, but perfect has just been redefined by Staun.

Staun made the piston chamber 4mm deeper. This changed the adjustment range to 6-30 PSI for the standard deflator. It also has deflators Light Duty (0-10 PSI) and Heavy Duty (15-55 PSI) units.

The last change has given the product a major edge over its competition. It extended the T piston length and machined a groove in the top (see photo). This allows for manual starts. Simply grab the groove with your fingernails and you can start the little suckers with as low as 1-PSI pressure difference above your preset pressure. With all of this came faster deflation times and more accurate shut off pressure, resulting in easier use.

Screw the deflators onto your tire valve and automatically deflate to your preset pressure for increased traction.

Four Staun Tyre Deflators with carrying pouch

NEW COYOTE RECOMMENDATION FOR STAUN TYRE DEFLATORS

By Harry Lewellyn **June 2003**

The Staun deflators are fast and easy. Consider this, as I have done.

I have three tire pressures: one for the street, one for the rocks and the last for sand. Street pressure is an air-up rrocess, so it does not involve the deflators, but economizers do as follows.

Set two of the deflators for your rock pressure and the other two for sand. I used a vibrator pencil to mark the tops of each pair.

Come 4-tire deflation time, I install the desired pair and move them to another tire when they stop. That's all there is to it!

VIEW SETTING VIDEO ON STAUN WEB SITE:

http://www.staunproducts.com/deflate.php