



**Left:** The Rovos Rail fleet boasts diesel electric, electric and steam locomotives, all carefully restored to better-than-new condition.

# RIDING THE RAILS TO SUCCESS

// BY EVAN SAMUEL //

The *Orient Express*, the *Trans-Siberian*, the *Glacier Express* and the *Rocky Mountaineer* are some of the most famous passenger trains in the world. Riding abreast with those is Rovos Rail, our very own South African success story.

**R**OHAN VOS, the owner and founder of Rovos Rail, bought several coaches at an auction in 1985 and took them to the Railway

Preservation Society's yards in Witbank for rebuilding and restoration. His dream was to restore four of them and hitch them to a South African train as a family caravan.

The dream grew bigger and bigger, and eventually Rovos Rail was born, with the first train consisting of a locomotive and seven carriages setting off on a journey to what was then the Eastern Transvaal on 29 April 1989. It had just four paying passengers, friends, family and some members of the press.

There were many setbacks and challenges over the years, but with the determination and vision of Rohan and the support of family members, Rovos Rail is now a world-famous and sought-after rail-travel experience. Destinations include Dar es Salaam, Namibia, Victoria Falls, Cape Town and Durban as well as special packages, such as a Golf Safari.

This year, Rovos is celebrating 30 years of success, and invited POPULAR MECHANICS to visit their 60-acre yard near Pretoria to take a look at how they operate. Rovos' tradesmen include fitters, turners, electricians, welders, cabinet makers, upholsterers, panel beaters and spray painters, all of whom make Rovos largely self-sufficient with regards to maintaining and renovating their rolling stock. These are a few of the activities we found on site:

## DIESEL ELECTRIC LOCOMOTIVE REBUILDS

Rovos Rail's locomotive fleet consists of 14 diesel electric, nine electric and five steam locomotives. The diesel electric locomotives consume about 1.3 million litres of diesel fuel per annum at an average rate of 7 litres per kilometre.

Rovos buys used locomotives from as far afield as Australia. Once in the workshop, they are dismantled and engines, generators, compressors, vacuum pumps and traction motors are assessed, measured and miked to determine wear. Engine cylinders are re-sleeved, generators and motors rewound and worn crankshafts recut. All electrical wiring is replaced.

Some bold changes are made to locomotives where the driver's view forward is restricted by any superstructure. In the workshop the fitters were busy relocating the dynamic braking resistor banks from the front of the cab to the rear, a major structural modification.

Dynamic braking is the way diesel locomotives save brake-shoe wear by connecting the traction motors as generators when running downhill and dispersing all the generated power through resistor banks, using fans to blow the hot air away. In Africa however, having all that heat in front of the driver's cab makes for unhappy drivers, another reason for the relocation. It's also nice to be able to see an elephant or giraffe on or near the track on the offside of the cab.

**Below:** This fitter is busy cutting a support spar for the braking grids.



As there is no overhead crane big enough (at the time of our visit it was on-site, awaiting erection and commissioning), locos are raised using four huge electric jacks, so as to enable the bogeys to be rolled out for traction motor access and removal. (Refer to the image below.)

A comfortable driver is a happy and safe driver, so driver cabs receive special attention. Burnt-out cabs or tired, dirty and old cabs are rebuilt and refurbished to 'as new' or better.

It takes about six months, depending on condition, for a total rebuild, from arrival to recommissioning – all in all a major accomplishment.

**Below:** Four enormous electric jacks are used to raise up the locomotives. This task will soon be performed by a large overhead crane.

# STEAM LOCOMOTIVE MAINTENANCE

Steam locomotives are essentially boilers on wheels. For safety reasons, all boilers are subject to internal inspections and pressure testing, as the water and steam environment invites corrosion. When the time for boiler tube replacement arrives, the steam loco is stripped from its working state, down to firebox and boiler, so the work can be done. One of the major tasks is the descaling of the tube plates prior to pulling the tubes. Then the boiler tubes are replaced. In addition, all valves are serviced and the wear on all wearing surfaces, such as pistons, sliders, piston rods and tie rods is checked and parts are replaced, rebuilt or machined, depending on the findings.



**Above:** Descaling the locomotives' boiler tubes is a significant task.

**Left:** All the driver controls will be stripped out for the overhaul.



## SPECIAL PROJECT: SUPPLY TRAIN

Before any of the scheduled departures, the train has to be stocked with everything guests and staff will need for the journey. Supplies include food and drinks, soaps, shampoo, bedding, towels, tablecloths, napkins, flowers, cleaning materials and consumables, clean uniforms for Rovos staff and a host of other necessities.

Rohan and his engineering team have decided to build several lockable supply wagons and one engine-driven wagon for the job. The engine-driven version will have a small operator's cab, with motive power provided by a diesel engine driving a hydraulic power pack, which will in turn drive rotary hydraulic motors attached to two of the axles. The design is innovative and the quality of the workmanship is distinctly neat and professional. When complete, this little train will provide a useful addition to the rolling stock.

**Left:** This lockable engine-driven supply wagon is being built to house the supplies needed during a Rovos train journey.

↓ ROVOS RAIL



Guests on a Rovos Rail journey get to experience a diverse variety of beautiful landscapes while enjoying luxurious facilities, delicious meals and exemplary service.



**Left:** A new vacuum toilet system is being tested, which will result in a massive saving in water.

**Inset above:** Waste will be emptied, via the vacuum system, into a tank beneath the carriage.

# SPECIAL PROJECT: WATER-SAVING TOILET

Nothing escapes Rohan's entrepreneurial eagle eye. With up to 100 passengers and crew aboard, with each person flushing ten litres down the toilet around five times each day, 5 kilolitres of water is used per day – just on 25 tons for a five-day journey. And it all has to be brought back to base and pumped away afterwards. (In the UK, only as recently as 2017, was a directive issued requiring all new carriages to have on-board waste storage. No South African directives or legislation could be found at the time of going to print).

All SA trains have fail-safe vacuum brake systems. Rovos' intention is to use this vacuum to good effect by connecting a vacuum valve to a special airline-type toilet. Shown here is the test rig (see the pic on page 32). When the flush button is pushed, the special valve in the recess connects a vacuum to the bowl, which is rapidly emptied into a vacuum tank under the carriage. There is a simultaneous water spray so as to render the bowl clean. And the total water consumption per flush? Half a litre, a 95% water saving!

**Below:** Used and burnt-out coaches are rebuilt and restored – every detail is attended to, resulting in amazing transformations.

**Right:** Once the restoration work is complete, the trains are the epitome of time-period luxury and style.



## COACHBUILDING

Rovos Rail buys used coaches and rebuilds and refurbishes them at its Pretoria yard. Some may be burnt out, while others just show the result of years of exposure to wherever they were parked.

Fire buckles the coach sides, so these are cut away and replaced, complete with new window reveals. Then come the panel beaters, spray painters, electricians, cabinet makers, upholsterers, carpet layers and interior decorators – all expert craftspeople who gradually restore the coach to better than original condition. Even the wooden toilet seats are hand crafted, as commercial versions don't have as beautiful a grain as the wood used here.

At the time of writing, there were 110 restored coaches in the fleet.



## BOOK YOUR ROVOS JOURNEY

Rovos Rail offers eight journeys that range from two nights to two weeks. There are three air-conditioned accommodation types available on board, and rates are fully inclusive of all meals and beverages, off-train excursions, 24-hour room service, as well as a limited laundry service.

Dress is smart-casual and dinners are formal (collar and tie for the gentlemen and cocktail attire for the ladies).

Destinations include Cape Town, Victoria Falls, Durban, a Golf Safari, Namibia, an African Collage, Dar es Salaam and Dar es Salaam to Lobito (from July 2019) – totalling some 314 000 kilometres per annum.

For rates, dates and bookings, contact **ROVOS RAIL:** 012 315 8242 (Pretoria Head Office), 021 421 4020 (Cape Town office), [reservations@rovos.co.za](mailto:reservations@rovos.co.za). [www.rovos.com](http://www.rovos.com)

**AT TIMES IN** my career, and across various industries, I've observed high levels of dedication. And then, very rarely, I have encountered a business whose commitment and dedication is exemplary. The people at Rovos Rail fall into that category. Everything they do is aimed at providing only the very best rail-travel experience for their passengers, and I'm hoping you are now convinced that your next African holiday should be a Rovos Rail journey. **PM**