steam in action

south africa

Steam in Action – An Association Incorporated under Section 21 – Registration Number 2007/035119/08
www.steam-in-action.com - Email : joannewest@btinternet.com

Introduction :

This is the story of a man and a machine … a machine that he loved enough to literally fight for her survival and at one point, was polishing and repairing the engine while it was standing in scrap lines. While he did this, he put up with the questioning stares and the jeering from his colleagues. But he saw something a little more than just a newly retired locomotive, but the rather the kinship of the many miles that he ran with a magnificent machine that he had adopted as his own.

The man is Mr. Richard Niven, a name well known in South African Steam preservation. The machine is Class 25NC No.3488 'Enchantress', an ex Kimberly \ De Aar locomotive that was retired mainly due to worn driving wheels. Mr. Niven and his locomotive have parted ways – the man in England and the machine currently at the Reefsteamers at the Germiston Steam Locomotive Depot. This locomotive is currently fully privately owned by the Sandstone Heritage Trust and has been entrusted to Reefsteamers to restore and to run on the behalf of Steam in Action.

We trust that the man and the machine will be reunited once more!

This story, adopted from Mr. Richard Niven's writings, is a tribute to all those who appreciate the inherent beauty and worth of steam-power enough to make sacrifice for the preservation of these machines.

Pride, Passion, Perseverance and Preservation :

E00 – The 'Enchantress' weaves her steamy magic in the Karoo mist at Orange River.
6 July 1991 (By R. Cousins)

Richard says…

When I was still a child, way back in the early 1970's, I spent many days of my life watching the steam locomotives shunting the yards around Germiston. To the east of the main yard was the main engine shed which, at that time, was the home of over 120 very large steam locomotives. Almost each and every day, I stood at the side of the yard, dreaming of the day that I could become a driver on these mighty machines.

As the months went by, I was chased out the engine shed by both security personnel and management alike. However, by the time I was about 9 years old, I had been accepted by all concerned. I soon got to know many of the drivers and firemen, and even most of the shed staff. It was not long before I was riding on steam locomotive footplates all over the Reef area on these mighty machines.

Some of the drivers had regular engines and took great pride in them. These lucky engines were polished from

top to bottom, and may God help anyone who dare put a bit of dirt on their pride and joy! It was not long before I could tell which engine belonged to which driver.

Quite often I would join a crew on their 'supershine' engine and head out with them for the day. I would join in with them, helping to polish and clean the engine wherever possible. This soon earned me great respect from many a driver and soon I did not need to ask to board the footplate, but rather they would be asking me to come along.

The years went by, I grew up, and I started work as a fireman at the Germiston shed. At first, one must work in the shunting link and so there was no chance of me getting a regular engine. Again, the years went by and I was stepped up and placed on the mainline link with driver Lottering. This was to be my first regular driver and engine. (Which was the Class 15F No.2911.) Driver Lottering did not take any pride in keeping the outside of No.2911 clean but the cab interior was spotless. On my first day on board, I started painting the boiler and polishing the outside of the engine. Within about a week, 15F No. 2911 looked brand new.

E01 - When Richard Niven only was knee high to an injector overflow pipe and watching the steam action at Germiston, Class 25 No.3488 was still running as a Class 25 Condensing Locomotive. Here No.3488 is approaching Noblesfontien in 1971. (By C.P Lewis)

Pride was now a big thing with me and every spare minute that I had was spent polishing and cleaning 'my' engine. Every day, I would arrive on duty about two hours before I was booked to sign on and simply wiped down the boiler and polished the pipes before leaving shed.

There was no ways that I was going to be leaving the Shed on board a dirty engine!

As the years continued to go by, I moved on upwards towards the senior fireman's roster and had a few different regular engines in which I always took great pride and kept them looking like new.

In the late 1980's, I was based in Kimberley and was paired with a regular driver. Nonetheless, I did not have a regular engine to take any pride in. Most of the engines which were Class 25NCs that were still used on the main line and those that were not already taken as regulars were in a very shabby external condition and would take a lot of work to bring them up to 'supershine' condition. We were given 25NC No.3444, but that only lasted a few days after another crew damaged the firebox by letting the water go down too low. We then got 25NC No.3516 as our regular engine, but this machine was nothing but problems. She had springing problems and this affected her traction. Furthermore, she would not steam very well.

One evening, we booked on duty at 22h11 to work train 4000, which was the fast goods to De Aar. As 25NC No.3516 was in the repair shops (again), we were told to take 25NC No.3528 for the run. We were not happy with this assignment, as 25NC No.3528 was a terrible engine. So, we complained to the foreman, who simply said that he had no other engine available.

As we walked through the shed, I noticed the 25NC 3488, which was hiding behind a few other 25NCs. I knew 3488 from previous trips and how good a steamer she was. It was straight back to the foreman's office to ask if we can take her instead of 3528. The swap was agreed to and we started preparing 3488 for her surprise fast goods to De Aar.

E02 - In 1984, 25NC No.3488 was just another one of the nondescript, plain workhorses, in the SAR's 25NC stable. Photo taken at the De Aar Locomotive Depot.

At this time, 25NC No.3488 was a very dirty and shabby looking engine, with rust holes right through the cladding where the boiler stays had been leaking. I don't think she had seen a coat of paint in many years.

She was also not the most 'powerful' Class 25NC in the shed, as her driving wheels were well worn and hollowed out.

(As the concave curved wheel profile matches the curved profile of the rail head, the engine's weight is effectively spread over a wider area across the rail head. This reduces the locomotive's traction, making the machine 'slippery' and also results in rough riding over points. – Lee Gates.)

When she was working along the mainline, she sounded more like a galloping horse rather than a steam locomotive. This was all down to her valves and timing being well out of tune. In spite of all these problems, 25NC No.3488 was one of the best steaming and most reliable engines in Kimberley.

As we left the shed that night and headed towards Kimberley Station, the driver said to me,
"Are you sure this engine is fit for the mainline? She feels rather rough."
I replied and said, "Don't worry, this machine is great, she won't let us down!"

At Kimberly Station, a load of 1267 tons arrives behind 3 electric units and once they have uncoupled, we reverse in and couple up to the heavy load. I immediately start up the mechanical stoker and start heating up the boiler for the long journey ahead of us.

With the signals showing green and a green light from the shunter, the driver gently opens the regulator and I start up the stoker engine. The engine picks up the load and is soon working hard up the bank away from the station. The steam has fallen back slightly, but with a bit more coal being fed into the firebox, the steam gauge starts heading back towards the red mark.

As we gain speed, the driver notches the reverser cut-off upwards towards about 45%. As we head past Beaconsfield yards, we are doing about 70kph and the driver again gets hold of the reverser wheel and turns it anti-clockwise to notch up the cut-off even further. But something is wrong, and No.3488 is having none of it. Most 25NCs out on the main line can be notched up to about 25-35% cut-off. 25NC No.3488, due to her poor valve timing, will not notch up anymore than about 40%, even at high speed . So, we have to 'make do' and leave the cut-off at 40%.

Even with the cut-off set so far out, No.3488 went and steamed like a dream right through the night, all the way to De Aar and back. It had been a fantastic journey and one of the best shifts we had had in many months.

By the time we had returned to Kimberley at the end of the shift, both the driver and I had decided that we want this engine assigned to us on a regular basis. After a few words to the foreman, 25NC No.3488 was assigned to us as our regular engine.

Before a day had passed, I had started stripping whatever paint was left on her boiler and painting her up. Then I got going on some cosmetic repairs.

For a start, I removed much of her rusty cladding around the outer firebox and was hoping to replace it using parts from some of the 25NCs that were standing in the scrap lines. Only once I had removed the cladding parts from the scrap engines and carried them all the way through the shed to No.3488, did I realize just how different each piece of cladding was on each engine and trying to get one to properly fit our engine was just about impossible.

While I went on getting the cosmetic side of things looking good, the driver kept the fitters busy doing repairs on the running gear, etc. New valves and spindles were fitted to both cylinders. The draw gear between engine and tender was all replaced. The smoke box was made air tight all around, while new crossheads and bearings were fitted to the motion.

E03 - Back in 1990, Class 25NC No.3488 snacks on coal as she waits for a red signal at Poupan.
(by I.W.F.)

(A steam locomotive with a badly leaking smoke box cannot generate sufficient vacuum therein to draw a good draft on the fire. The engine becomes a poor steamer with a tendency towards a sluggish fire – Lee Gates.)

Day by day, our No.3488 was getting better, until we had her running to perfection in the end.

No longer was she sounding like a galloping horse running along the track at 40% cut-off, but she could now be notched right up to 25% cut off and still be able to pull a 1300 ton load along without any problem. Steaming wise, she must have been the easiest steam engine I ever knew to fire. One fireman from De Aar even said to me, 'that engine steams till she bursts'.

(Running at an early cutoff closes the steam ports early, and allows the individual steam charges time to expand in the cylinders, rather than running on live steam directly from the boiler for the full valve stroke. This is economical on steam, and thus results in lower water and coal consumption, and is less work for the fireman. In general, the better condition the engine is in, the more cut-off it can tolerate. – Lee Gates.)

With all the running gear repaired and the engine steaming to perfection, there was still one very small thing in the operational side of things of our No.3488 that I just did not like and that was her safety valves. Most 25NC safety valves started blowing off very gently and as pressure got higher, so the valve would start to lift more and more. As the pressure went down so would the valve shut off gently, but this was not the case on No.3488.

3488's safety valves went off with a 'BANG' and just about awoke the dead from their graves. Not only was this very noisy, but if the safety valve had to lift while the engine was being worked hard, it could cause her to prime and that would be the fireman in the bad books. Another few kind words to the fitters and we had a new pair of safety valves fitted that worked like a dream. Our 25NC No.3488 was now fully repaired and running just how we wanted her to be.

(When the safety valves lift and release pressure, the water level tends to rise within the boiler, as the boiling point drops. With suddenly lowered boiling point, under high steam demand from the boiler, the foam or increased water level can be carried over through the dry pipe to the cylinders. At best, this results in messy wet steam shower and a mess on the boiler and some damp passengers at the platform. At worse, the incompressible water can cause serious damage when the piston(s) reaches the end of its stroke and the engine hydraulically locks up on that side. – Lee Gates.)

With the running repairs all complete, it was now time to get this engine up to 'supershine' condition. Unlike most of the other regular engines that I had over the years, No.3488 was about the worst of them all cosmetically and it was sure going to take many months before she would be 'supershine' condition. Every trip southwards to De Aar was spent polishing the cab and all the brass fittings etc. I would simply set the mechanical stoker to 35psi and check on the fire every now and again. The injector would simply be set slow and sing away non-stop, while the steam pressure gauge sat at the red mark. On the driver's side, he would always set the reverser cut-off at 35% and set the regulator to show a pressure of 150psi on the steam-chest pressure gauge. With everything set like this, 3488 would simply purr along the main lines of the Karoo without any trouble at all, leaving the driver and I to get on with bringing her cab up to 'supershine' condition on the move.

E04 - A much cleaner but as yet un-named Class 25NC No.3488 hustles a northbound goods past Spytfontien in 1991. (by I.W.F)

Each time we arrived into De Aar Shed, the same process would take place.

We would fill the coal bunker, turn the engine, clean the fire and then move her over to the water column. The time at the water column was to be our engine cleaning time and so the flow of the water was deliberately turned right down to a dribble simply so the tender would take longer to fill and thus we had more time to stand and clean the engine.

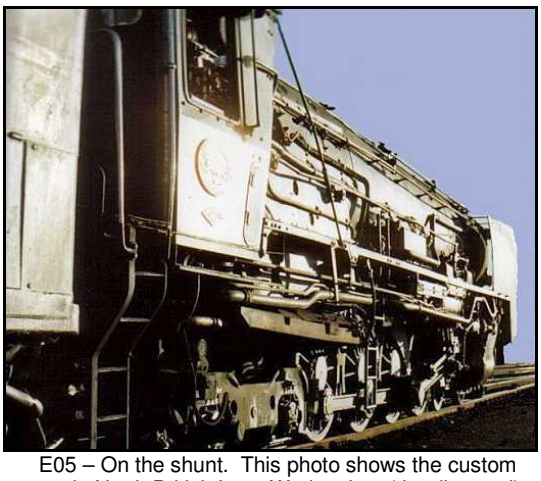
It was here that members of the Operating Staff would often come walking up towards the engine and ask 'why you taking so long' to which we would reply 'we're waiting on water'.

In 1990, the driver and I decided to name our pride and joy locomotive, 'Enchantress'. Both of us put our money together and paid to have large brass nameplates cast to fit to her smoke deflectors. We also decided to buy a few North British Loco builders plates and fit them to her cab side below her number plates.

With all the plates, etc, added 25NC No.3488 was now looking like one of the 'supershine' locos of Kimberley.

For many months, we had endless trips to De Aar and back on 3488 without a single problem, but there was still one major problem with the loco and that was her driving wheels. As I said at the beginning of the story, these are very worn and hollow and due to this, our Enchantress was banned from working high speed passenger trains, such as the Orange Express. So, we had to settle for working goods-only trains until a new set of wheels could be fitted.

In 1990, a number of electric unit drivers from the Braamfontein Depot (Johannesburg) arrived in Kimberley to learn to drive and fire steam locomotives. As No.3488 'Enchantress' was now known to be such a good dream-steamer of a machine, she was the lucky engine usually picked out of the pack for the Braamfontein crews to learn on. After a few training sessions with the driver, myself and various inspectors showing them what to do, they took a big liking to our 'Enchantress.' They had taken a few other 25NCs out on the main line but always returned to No.3488. She had 'enchanted' them. They would often joke about taking her back to Braamfontein and swapping her for their prestige 25NC 3476.



E05 – On the shunt. This photo shows the custom made North British Loco Works plate (the diamond) under the traditional brass SAR oval number plate.

Over the years 25NC No.3488 'Enchantress' performed up and down the main lines of the Karoo without missing a beat. Like all hard working machines, she needed a few repairs now and again. Over the years, she had both tender bogies replaced and all the engine bogie wheels replaced.

Sadly, she never did get her worn, hollowed driving wheels replaced and this was to be her eventual downfall.

In August 1991, the driver and I both took a few weeks leave from the railway only to return and find 25NC No.3488 'Enchantress' had been withdrawn from service. I walked up to the back of the shed where the withdrawn engines were all standing, only to find 'Enchantress' shorn of her custom-made nameplates and oval SAR number plates, and with '3488' crudely painted on her cab-side in big white letters.

I was furious and was straight back to management to find out why such a good locomotive had been withdrawn, only to be told that one of the drivers had complained about her being low on traction and not fit to be on the mainline.

I knew now that it was all over for 'my' 3488, but somehow I was determined to save this mighty beast from the cutter's torch

With 'Enchantress' now in the scrap lines, we were given 25NC No.3501 as our new regular engine. At least with this engine, we could now work trains such as the Orange Express, etc. She also had much better traction than our 3488 due to having a new set of driving wheels.

E06 – The end of her working life. Enchantress No.3488 stands in the service track on her last day in SAR service on 31 August 1991.

Even though we had our new regular engine, I still had a lot of good feelings and memories of 3488 and just could not let her go. Many an hour of my own time was spent in the scrap area looking after this engine. Other drivers and firemen used to laugh at me polishing up an engine that was standing in the scrap, but nothing was going to put me off and I was determined to save this iron beast.

Looking after and keeping a close watch on 3488 was not easy. Quite often I would return from a shift and find some of her pipes or parts had been removed.

I spoke to the Shed Staff and Management telling them that I was hoping to save this loco, but no one took any notice and it became harder and harder to keep her in working order.

In November 1991, I was booked on the coal stage shunt and asked to shunt all the withdrawn locos (including 3488) from the back of the shed and park them up behind the coal stage. This was fine but my first priority was making sure 3488 would be parked up the siding right next to the main office block, where the office staff could keep an eye on her.

By now drivers John Gilberthorpe (my regular driver) and Geoff Hall had become interested in putting up the cash to buy this engine and serious talks began.

Meanwhile I continued to look after this scrap yard based engine. Despite signs placed on her cab-sides and inside her cab telling the shed staff that she was for preservation and not to remove any parts, it was an endless

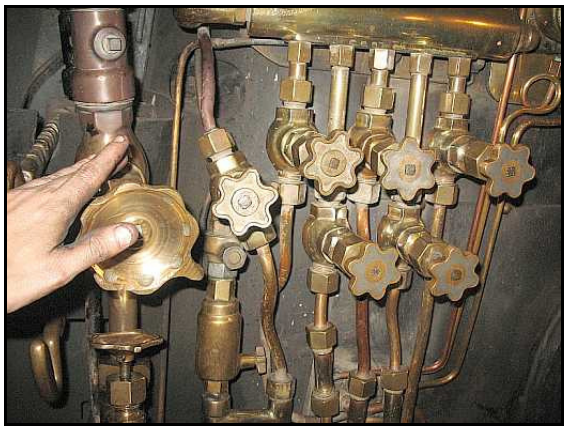
job trying to keep her complete.

By the time all the paperwork with regards to buying the loco had gone through, it was mid 1992 and steam had just about ended in Kimberley. I had to move away, leaving 3488 alone in the scrap lines. John Gilberthorpe and Geoff Hall had her moved into the shed area where she stood for a few years, until I returned 2 years later in 1994 to rebuild her.

This rebuild proved to be a major task as her cab had been completely stripped of just about all the brass and copper parts. Other things, such as the smoke box wheel and handle, handrails, etc, were all missing. Someone had even managed to strip out her smoke box and remove most of the parts inside.

With the engine moved into the old wheel shed and with the help of others, I started rebuilding 3488 using many parts from other 25NCs that were still standing outside in the scrap lines. Most of the parts needed were available, but high demand items such as pressure gauges, spindles, whistles, etc, were going to prove very hard to get hold of.

After 3 weeks of hard work, 3488 was now looking good. Apart from a few missing gauges in her cab, she was just about 100% complete and looked like she was ready for work.



E07 – Quite a shopping list of salvaged brass valves and copper piping! These are the stoker jet valves, with the large valve to the left being the stoker booster, and the horizontal valve the stoker modulator valve.

With her rebuild complete, I left her to stand under cover in Kimberley and hoped she would be safe…
When I returned 4 years later, in October 1998, I found her standing in the open area of the shed and looking like a total rust bucket.

I immediately set out to get a team together and get her painted. With a few of the locals hired and a number of tins of paint, we all got stuck in to fixing up No. 3488. Within 4 days, the locomotive and tender were looking new again and it was now time to find a permanent home for this locomotive.

A few phone calls and enquiries soon came up with the words 'Sandstone Estates', and in 1995, she was given a full check over and made fit for the road. She was taken away to Ficksburg and placed in a secure area for preservation. This was to be the best move yet for No.3488 and ever closer to being properly preserved. At least now I could rest assured that she was safe and away from the engine parts thieves of Kimberley.

E08 – A well greased 'Enchantress' on her way home from Sandstone's Ficksburg based-storage, to her new home at the Reefsteamers Germiston Steam Depot. This was a 460km journey under STEAM, courtesy of Dave Shepherd's Class 15F No.3052 "Avril'

In 1999, work began on No.3488 to get her up and running for Sandstone's 'Great Hundred Working' event and she together with a GMAM Garratt (No.4079 'Lyndie Lou'), worked a few trains between Ficksburg and Fouriesburg. After that she was again placed in her secure compound and was looked after by the good staff of Sandstone Heritage Trust. (Even though they couldn't use her on their 2ft narrow gauge railway.)

In 7 November 2007, Class 25NC No.3488 'Enchantress' was again on the move – this time a cross country transfer run. Together with Class 15F No.3052 'Avril' which would be in steam, and a rare Zimbabwean National Railways diesel (Class DE2 No.1207) and four coaches, she was on her way to the steam preservation centre of Reefsteamers at the old Germiston steam shed near Johannesburg. Here, she will be rebuilt and hopefully returned to the mainline for future steam specials.

Looking back now over the years, I remember thinking to myself many times while working on 3488 in the scrap yards … Is this really worth it? Will anything good ever happen to this locomotive? Will it ever pay off?

Well now I think it all has and I am very happy with the outcome. I owe a big 'thank you' to John Gilberthorpe and Geoff Hall, who paid the cash to save her in the first place. Sandstone Estates certainly paid a big part in saving the locomotive by giving her a secure home and then having her moved to the Reefsteamers Association in

Germiston.

To all the people, steam clubs, etc, thank you very much for all your help over the years in saving 3488.

Let her steam on for many years.

All the best
Richard

E09 - The Enchantress as she looks today - not in bad shape for a Locomotive that has been retired for 16 years. This machine owes her survival to Mssrs. Niven, Hall and Gilberthorpe, as well as Wilfred Mole and the staff of Sandstone Estates. This engine is to be assessed for repairs on a contractor basis (not relying only on volunteers) and will be put into service by the Reefsteamers for Steam in Action duties. The biggest problem of which we are currently aware is the poor condition of the boiler lagging.