

**1). A CATCH-UP (TO 14<sup>TH</sup> APRIL):**

Things have quietened down a bit in our little coal patch since Class 12AR No.1535 'Susan' was granted her next 3-year boiler certificate and has since been out on her first revenue run. Class 15F No.3046 'Janine' has since taken 'Susie's' place on 15M Shed Track No.2 and the strip-down for boiler testing has commenced.

The Class 12AR has since had her clack valves serviced and lapped-in once again, as well as the left side non-return valve. The cylinder cocks have needed attention and the slide bars were adjusted on both sides – the right side clearance being 4mm out. The slide bars are getting a bit worn in their centers, so the shimming work is necessarily a bit of a compromise. Aidan has been lapping in the leaking water gauge cock olives. The photos in this report cover the work that was done before the first trip.

James Thomson is making progress on stripping the water pumps for Sandstone's Steam Crane No.578. The wear that he has discovered is atrocious and it's a wonder those water pumps worked at all. This report includes the start of the strip down, but I recently took another set of detailed pictures of cleaned and stripped parts for the next report. James has decided to retire and he is currently spending most of his week days at the Depot. (And putting up with Attie's nonsense.) Thus, we should see some rapid progress in the stripping and fitting of the relatively smaller component of pumps and dynamos and the like – all work which James really enjoys.

The ex-SANRASM Tube Swager is now in the 15M yard – albeit in two rather heavy pieces. It is getting closer to its planned final location alongside Road No.8. To accompany the installation, the boiler tube racks will also be moving to the South end of the workshop to be closer to the swager and where the open space is anyway. The old boring mill foundations in the center of the workshops are to be broken down and a medium sized lathe to be installed later. We also managed to pick up a man-powered fly press last Saturday (14 April) which also needs a new home in the workshop. The relocated 50 ton hydraulic press needs to be reinstalled as well.

Basically, we are getting all the machines together into one point instead of spread out along two walls of the workshop. The boiler tube racks are just getting in the way and those tubes take a lot of room to swing. The press was a personnel hazard as the top section and control panel protruded into the walking space and an unwary person could really bump their head.

The Hunslet Taylor has been repainted and the two new engine covers fitted. They are hex-bolted in place for now, and are still in un-painted corrosion resistant steel, but at least the engine bay is now covered and safe.

So what now, since the 12AR is running? We are working on getting the Class 15F 3046 ready for her boiler tests, but that work will be done mainly by the day staff. We are switching our attention to Sandstone's Crane Boiler, the Wheel Lathe house and certain coaches.

The wheel lathe motor has just arrived from a rebuild so we can start getting the Wheel Lathe's gearboxes and motor installed. With a new roof, new windows and gates, there should be no further issues with water ingress.

In terms of coaches, we are looking at starting a volunteer drive for Sandstone's Day Sitter, the Locomotion Coach and the Semuma Day-Sitter Coach. We'd like to get them running to able to swap them for composites currently in service, which will increase our bum capacity by over 100 seats without adding to the YQ cost.

The Locomotion Coach is becoming more urgent to finish though, as Kango the Kitchen Coach No.127 is getting to the stage where she needs to be pulled out of service and really worked on. Locomotion needs to have the dining tables removed and the entire badly-painted interior sanded down for repainting. She will be the subject of a coming coach refurbishment drive.

We are also just starting to plan for our coming Open Day with members of the public coming to our depot. This time, as the Depot has been constantly cleaned, optimized and improved over the past few months, it won't need a massive drive to get it presentable again. But we will need to do a once over – and get locomotives ready. We might even have the Sandstone Crane's power cylinders freed up by then and set it up once more under steam, via a transfer pipe from a loco boiler.

So there is lots to do and lots to see. But reading a depot report is no substitute for actually being there and being a part of it all. So come along and get stuck in. With the coach work coming up, there will be work available even for those who cannot do fitting and engineering work, or cannot lift heavy objects. Keep an eye on your emails for coming events.

Enjoy the short photo essay that follows!

- Lee.

**2). PROJECT – 12AR NO.1535 BLAST CONE MODIFICATION :**



B01 – Class 12AR No.1535 ‘Susan’ waits for her modified blast cone. The smokebox had been finished in black gloss enamel rather than our now-standard etching primer, due to lack of time to prepare the base finish. We’ll do it up later.



B02 – De Necker was here. He’s a ‘goeie ou Spoorie’ but even Oom Attie cannot resist adding a bit of extra red paint on detail parts – making the loco into an SAR ‘Rice Burner’. (Each red-painted part increases steam pressure by 5kPa)



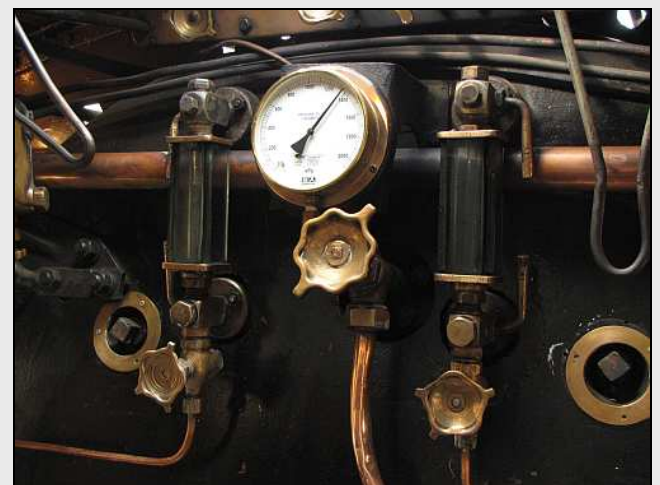
B03 – Susie’s driving wheels are now all black – the spokes were originally bare steel. The motion has already been wire-brushed but not yet scrubbed and wiped clean. It’s a surprising amount of work cleaning all that naked steel!



B04 – Where today’s work started – during the steam test, the induced draft blower was found to not be working. Shaun Ackerman is seen trying to ‘smoke-out’ the bug. We could hear the blower roaring inside, but there was no draft.



B05 – The blower fault turned out to be a loose flange and a matching blown gasket on the outer end of the blower’s steam pipe. In amongst the many assorted tight-schedule jobs and the late night on 9<sup>th</sup> March, the bolted flange on the other end wasn’t tightened properly. Oops!



B06 – To the surprise of the boys, the repaired blower STILL did very little to draft the fire. The locomotive was late steaming-up on Boiler Inspection day. (Thursday – 28<sup>th</sup> March.) The B.I. was decent enough to assist in diagnosing the problem while doing the visual inspection.



B07 – THIS was the problem – the solid-walled blast cone that we had Dawie Viljoen fabricate for us to try reducing the 12AR's tendency to throw sparks through the chimney when working hard. It turns out that the laminar turbulence, and the inability of the blower's steam jets to mix with the surrounding gasses at their source, render the blower ring totally ineffective – although the exhaust worked fine.



B08 – Showing the cone's aperture in the brand new table plate. The flue gasses are deflected downwards via those solid baffle plates, passing under the table plate and around the angled lip. The centrifugal force at the change-of-direction throws out the char against the smokebox front plate. The final exhaust gasses actually flow from front to rear through a bank of perforated spark arrestor grids.



B09 – Alan taps the slag off the welds while Gordon (sitting on a paint tin nearly hidden by his overalls!) takes a breather. The chaps cut down a spare Class 15F cone to get a decent grid 'basket' and were cutting and shaping in a customized particle shield as well as fitting the new cone to the Dawie Cone's existing upper flange. (The wide end.)



B10 – A view from the top down of the new cone clearly shows the new shield segment that will face the tube plate. Thus the 'sparks' that get through the lower, center boiler tubes will still not have a direct path right up the smoke stack - but the blower ring's annular jets are still contiguous with the smokebox's air-space via that conical grid.



B11 – Here's what 'Susan's' exhaust 'basket' looked like in May 2012. The lower end was being eroded away.



B12 – One of the three spark arrestor plates, which is still fairly clean! What a chore these are to unclog!

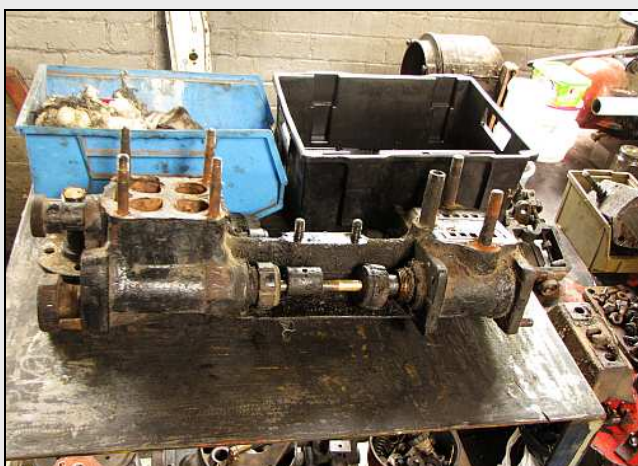
**3). PROJECT : STRIPPING CRANE NO.578'S 'DONKEY PUMPS':**



P01 – One of the first jobs for the 12AR, shunting Sandstone Heritage Trust's 60T Cowans Sheldon steam crane from the Carriage Shed into the 15M workshop. The two titular donkey pumps had been removed previously.



P02 – Crane No.578 is shopped-in for boiler testing. The foundation ring rivets all need to be replaced as they hadn't clenched properly when they were previously installed by parties unknown. The boiler base leaks under gravity fill.



P03 – The crane has two of these pumps. The first one draws water from the main water tank on the match wagon, and pumps the water to the side-tank mounted on the boiler platform. The second pump draws water from that side tank to feed the crane's boiler. This pump was intact, but fouled with coal deposits spilled from the boiler's coal bin.



P04 – This complicated casting is the duplex water pump, with the lower pipe as the inlet and the upper pipe pressurized by valves – thus the inlet is 'swamped.' The bow-tie shaped flange is for the pump's cylinder heads. The casting had cracked into three pieces and had been re-welded. James plans to have a new one fabricated.



P05 – Here's the upper side of the valve plate. The spring-loaded poppet valves were all mercifully intact on both pumps. The disks will obviously all be lapped in. The water flows from the bottom up through the one-way valves and then down to the outlet via that triangular aperture.

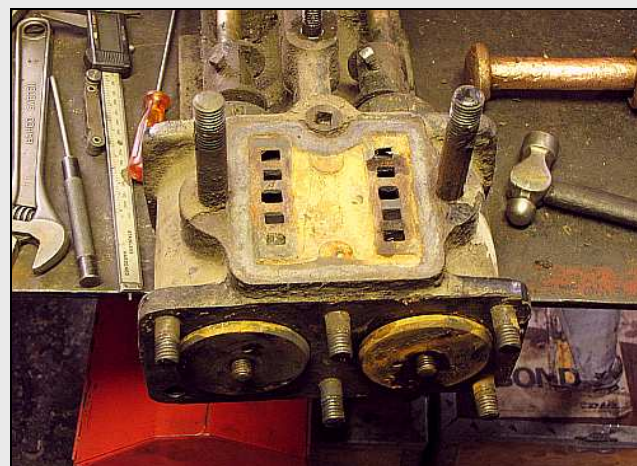


P06 – One of the D-valve elements and the port plates. The 2<sup>nd</sup> & 4<sup>th</sup> of the five ports are not admission ports as may be supposed. They expose more valve area to the differential pressure between the live steam and the cylinder – helping to press the valve down for a better seal.



P07 – This pump’s duplex double-acting engine has a burst valve chest – probably from an initial fracture. It could probably be brazed with the still-available broken pieces patched in. However, Sandstone Estates have spares retrieved from other similar cranes that were scrapped at Danskraal. (Arrangements were made with REKLAM according to an agreement with Steam in Action, to allow for the stripping of spares from the cranes before they were scrapped – so Crane No.578 has plenty of spares available!)

The Booth Rodley Crane No.96 has the same type of pump, so we will borrow a valve chest casting from there in the meantime.



P08 – The first real challenge of the donkey pump strip-down – how to get the power pistons out. They are made from bronze and need to be treated with some care, especially with the piston rings scratching their way along. The cylinders have steel liners within the bronze casting and that’s where the obstructive rust came from.

On the valve chest plate between the protruding studs, you can still see the ghostly outlines of where the D-valves came to a stop when the pump last operated.



P09 – Here’s the steam crane from the other end – taking up almost a full bay. A problem here is that those clear roof panels in the background have been holed with hail damage so the ‘mechanical end’ of the crane is still likely to get wet. We are going to experiment with blocking those panels over with standard sheets and seeing how the lighting works. A new set of translucent roof panels are more than we can afford right now.



P10 – The crane’s number is still clear and intact.

**4). PICS FROM AROUND THE DEPOT:**



M01 – Heard at the west end of the 15M yard...  
'Let me in! Let Me in!'  
'No! By the hair of my chinney-chin-chin!'  
'Then I'll rumble and I'll grumble, and I will PUSH your gate in!

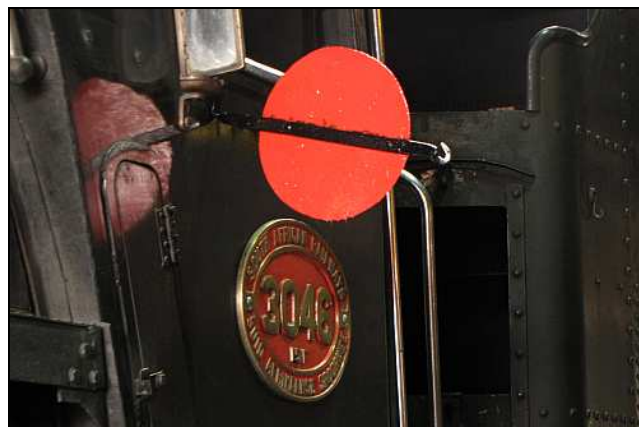


M02 – My last picture of our own Coenie-raad before he left for The States just after Easter. Coenie had been working as a contractor at the Depot for the last year. He will now be doing his third tour with a travelling carnival – so we did lots to keep him fit for the rigging and prep work he does!



M03 – NOTICE : This Water Tap Is Presently Under Repair And Must NOT Be Moved. By Order : Attie De Necker.

(In reality : A locomotive's clip-on cab flag left out to dry after being repainted.)



M04 – Class 15F No.3046 'Janine' shows the correct use of the red flag, indicating that the locomotive is under repair and must not be moved. Like the red flagged tripods for 'locking' out tracks, it is an honour system – relying on the person who posted the flag to be the only one to remove it.



M05 – Sandstone's Steam Crane No.578 is now also correctly flagged-out for maintenance work. This old crane has even has its own built-in anti-intruder system – once again, a swarm of wasps have made their home within the cosy, secure confines of the geared slewing ring.



M06 – The King has Returned. (For a short while) Andrew King (RHS) was back in South Africa for the first time in just over a year while travelling the world as an engineering consultant. Here, he is discussing steam crane donkey pumps with an animated snr machinist, James Thomson.



M07 – Our chaps have been battling with this lathe recently as the cutting tools are starting to chatter. James shows the cause – the lower clamping plate on the tool holder has become distorted. James is planning to make new plates, and a matching tool holder for the other end – one dedicated to machining and one for cutting threads.



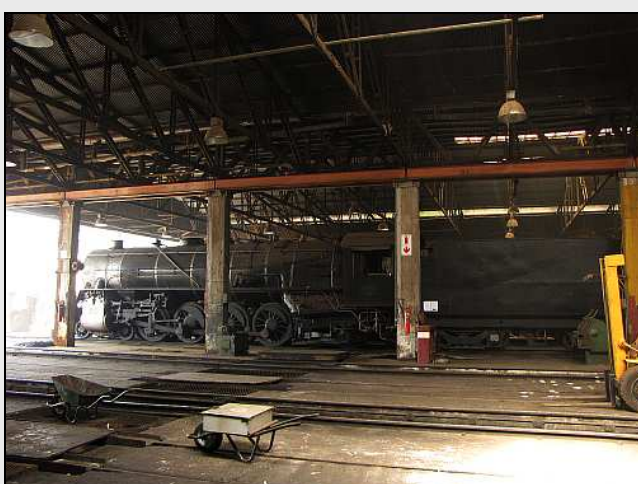
M08 – Two generations of genuine steam boys stand next to an increasingly warm 12AR. The vintage one on the left is admittedly a bit worn out by now, but still has a lot of productive miles left. On the right is the very latest model steam enthusiast still under warranty. That's Attie de Necker and Jeandre Gordon mugging it up for the camera.



M09 – In the challenging world of SAR steam preservation, the regulars can get a bit cynical. Our Jeandre Gordon still epitomises the often-lost wonder of being around steam locos, since becoming a fave subject for the RS Photos.



M10 – Little Miss Mucky-chops, aka Emily Ackerman, was having fun in the open area of the 15M yard! Who would have thought there would be so much fun to have between the flaking flanges of an old I-beam column.



M11 – With the 12AR out of the way, and certain other big lumps not yet backed into these two open bays, it is finally possible to get a full side view of the Class 15CA No.2056. This expansive view was blocked up again within the hour.



M12 – Seriously, how many shovels does The Mini Mienie need when firing the 12AR? The round-nosed shovels as on the left are better for coal trimming as they are easier to dig into the coal – the smaller point exerts higher pressure.



M13 – The innocent Mini-Mienie gets splatted by The Little Chipper, who is yielding to his base cream-inal instincts. Actually the position is posed and no Mienies were harmed in the making of this photo! The ‘cream’ is Shield Polish.



M14 – The bits belonging to 12R No.1947 ‘Rusty Rosie’ have been neatly lined up and out of the way. From rear to front, a dome cover, a steam dome, the original chimney, a spare blast petticoat and the steam reverser’s pedestal.



M15 – A Class 24 tender behind a BIG pile of bogie-bits and a pair of flangeless drivers belonging to Sandstone’s 2-2-2 Class 14R Loco. The oxide primer-painted tender stuff belongs to Greg McLennan as a private restoration project.



M16 – More of Greg McLennan’s stuff lying around our play area ... I mean ... workshop. Behind the tender axles, Class 12AR No.1535 is getting a good facial exfoliative anti-graphite treatment, courtesy of Jeremy Wood.



M17 – The Depot with the most toys wins! Most of that stuff is in static storage, but the yellow booms of the coal handling wagon are waiting to offload the first half of the ex-SANRASM Swaging Machine, once the attention of the gang switches from the newly steamed-up Class 12AR.



M18 – Oude Drywers never die, they just get demoted to cleaners! (Right back where they started, decades ago!) Attie is aware of the irony, but he is still happy to do this stuff. That ‘Shield’ brand polish worked well on the brass oval, but the buffing machine took some of the red paint off the inset surfaces. (As that paint was never primered.)

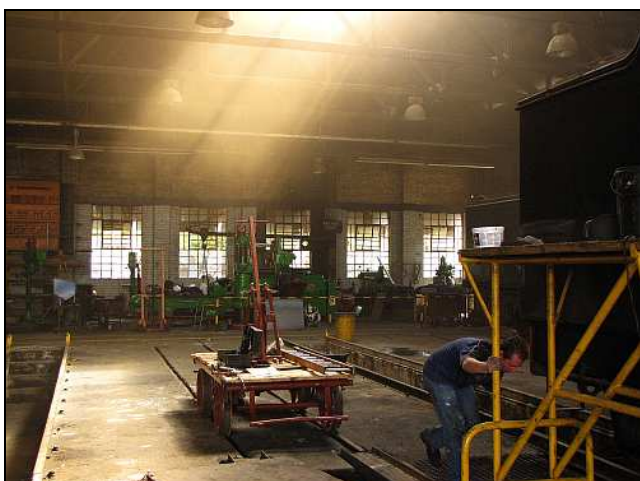




M19 – Cousins at the braai with a hungry Bennett making sure he is first in line for free samples and spice analysis. I normally end up doing this, but I arrived just as Cousin Rob was heading out. Tired of wops, lately we've been doing Russians and Chips, with battered hake on the side.



M20 – The deck planks have been put back onto the pump-trolley, all with more 'character' after being used to support components in the 12AR's smokebox. The trolley's crank rod had been removed to immobilize it, before someone hurt themselves playing on the unfinished little machine.



M21 – Pump Trolley Benediction. The coal haze is making for some dramatic lighting effects under the 15M shop's roof as Simon Bennett is dragging the scaffolding further back to finish rubbing sun screen onto the 12AR's tender.



M22 – When the blower ain't goin', the smoke is showin' and it's really laying low'in as fast as the Mini Mienie can keep thow'in the carbon! These guys don't seem to mind though – they actually LIKE the scent of coal smoke! (Odd.)



M23 – The chairman's wife, Colleen, enjoys a classic train-themed seat while quietly watching the action going on all around her. A bucket of RS coal to anyone who can tell me which of Colleen's vital accessories are missing in this pic?



M24 – An unusual view along the outer rail of the gantry crane. I was standing on the 12AR's cab roof for this shot.



M25 – Sitting on scaffolding next to the Class 25NC 3472, a rather melancholic-looking Josh is watching the 12AR locomotive being moved. He was asked to leave the cab for safety's sake, because of a leaking olive on a water column cock, so he wasn't entirely happy at this point!



M26 - With the 'little' 12AR finally out of the way after over a year of standing in Road No.2 for her seasons of intermittent boiler work, the fully revealed Class 25NC 3472 suddenly seems a whole LOT longer and more impressive!



M27 – In the last light after a long Saturday workday, the cluttered 15M workshop yard takes on a gloomy, industrial cast behind a light haze of smoke. The 12AR No.1535 is just out of frame to the left, with a blower fault being traced.



M28 - A view a little further to the right in the hazy light, a serried row of three iron ladies with very expensive tastes wait for their turn of repairs. From front to rear; Class 15CA No.2056, then Class 15F No.2914 and Class 12R No.1947.



M29 – Smokin' out the night – the 12AR's smoke column doesn't quite blend into the clouds of the restless evening sky. The stupid locomotive moved while I was adjusting the camera's shutter speed – but I kinda like the accidental asymmetric effect in the resulting picture.



M30 – Sometimes, you just don't want to ask! Notice the classic tongue-out pose on the right. We eventually had four people trying to separate the hose coupling. Later, the fire hose came apart with just one little knock on the vice – Jeremy Wood seemed a bit disappointed at the short fight.



M31 – Machinist James (L) and Driver\TM Attie (R), who are able keep the rest of the depot staff and volunteers entertained without even trying. They take the mickey out of each other without mercy, communicating with their own unique blend of English, Afrikaans and their own sign language – quite something to see!



M32 – Taking out the trash – Reefsteamers style.

Actually, that's the 15M shop's scrap metal bin and we fill it up regularly. There is a large open scrap skip almost permanently on the premises. Our offcuts, steel shavings and junk make a small but useful revenue stream and it is good for the environment too.



This Depot Report was compiled by Mr. Lee D. Gates on behalf of Reefsteamers Association NPC.  
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