i01 - The name board that says it all, mounted on a gleaming green machine, bunker well topped up with coal, reflecting the country scenery - (Articulated) **Steam in Action** in 2008.

These (diesel) days, any steam locomotive that has survived long enough to be operated in the care of dedicated preservationists automatically carries a story between her cab number plates. How many pairs of shoes have stood on the rough planks of the footplate as down below, the mighty counterweighted driving wheels roll out their thousands of miles under the thrusts of the smooth armed-pistons? What stories have the past loco crews shared under the wood lined cab roofs, with the coal-brewed coffee steaming gently on the flame plates and the pressure gauge mounting slowly between the water columns? How many thunderstorms have chased the engine home, the freshly graphited smoke box starkly outlined against the bruised sky as the crew make haste ... with hail stones shattering against the boiler cladding and the slicing daggers of rain refracting in the headlamp beam? How many steam wreathed early morning starts, and how many star-lit midnight runs behind the probing shaft of the headlamp and the proud barricaded prow of the cow catcher? How many hands, those of the nervous trainee and the knobbly work-roughened hands of the old driver, have held the whistle cord, or adjusted the blower, applied a quick loving wipe to the gauges or grasped the tiger's tail - the regulator handle itself? How many crew kits have ridden in the tender, the brass emblemmed and nickel plated scoff-boxes, the painted oil cans, freshly trimmed flare pots and the notch bladed, smooth handled coal scoops?

i02 - A brand new tale that no one has ever told. Backing around the day-tripper train on her debut run in SIA service - this locomotive has come a long way from drag and industrial service.

i03 - Bashing clinkers in the cab, the cotton waste well padded and the mash cooling down on the flame plate, Ex-SAR No.4079's story continues in a whole new book.

Where did the engine originally run and for what service was she originally designed? There's a story built into in every wheel arrangement, the axle loading, valve gear type, piston diameter, boiler type and size. Was she a high stepper, sprinting confidently through the Karoo, or a branch line engine winding through the country side, or perhaps meandering along the coast? Did she ply the reverses of Barkly East, or did she ever mount the summit of the Outeniqua Mountain range? Was the engine set to work in the shadow of the Drakensberg, struggle up the plateau to the highveld, or bark out a challenge amongst quad-rails threading between the sky scrapers of South Africa's growing cities? Did the engine run general loads - or seasonal traffic, perhaps the smell of crisp, fresh Cape apples mingling with the smoke, the sap of newly harvested timber from the Natal forests, the dash to meet the graceful mail ships docked at port? Did the engine slog ahead of rumbling bulk loads of coal, ore, mine props, motor cars, diesel fuel, sugar, cement and steel? Was she primarily a passenger engine, with trains of classic clerestoried coaches gradually giving way to those comprising of steel bodied elliptical roofed stock? Did the locomotive eventually go into industrial service, toiling amongst the mine dumps, the foundries and slag heaps, or was it demoted to do trip working under the wires - eventually to have the fires dropped for the last time and to be shunted into the deadlines?

Oh the deadlines!

Even the clusters and rows of gaunt, weathered, stripped-out relics play host to the insistently whispering ghosts of the past, their melancholic stories punctuated with the crude spray-painted "S" of the scrapper. The silenced locomotives still talk for those who care to listen There's life still, the ragged grass growing through the rusted stoker troughs and missing floor boards, the tasseled heads nodding lazily in the wind keening through the empty tenders and open cabs. Those stories are unheeded by the sunbathing lizards, the spiders suspended between the spokes and the fluttering doves. In the silence, out-of-quarter driving wheels, white painted rims flaking, devoid of rods and valve motion, stand sadly stilled with the yearning journals and piston rings frozen forever with rust. The backplates weep rust, shorn of their fittings, with only corroded, blind flanges remaining athwart the empty, hungry crypt of the firebox - cold,book-ended by the seized firebox doors.

i04 With their stories coming to a sad end, a row of dumped GMAM Garratts slumber in the deadlines at Capital Park, Pretoria. (Pic by Dennis Summergill March 1983)

But if you look around amongst the cold crusty iron, the glassless cab, the fossilized grease in the under carriage, you'll find evidence of the engine's former life. Perhaps a smiley face sticker, or a forgotten tool, dusty chunks of coal lying amongst the remains of the grates, or still-cheerful glitter embedded in one of the remaining turret valves, or a custom fitted rubberized grip on the reverser handle. A tail marker might still be present, or perhaps a modified pipe in the stoker alcove, a bent lamp sanction or a reverser's actuating and indicator rods painted in contrasting colours the fading reminders that this machine was once operated and cared for. Look for the clues, learn about the engine class, and you might be able to hear the lingering whispers of the engine's story.

But from the dead to the living, the loved and the preserved. Usually, the very survival of the engine is a story in of itself, particularly with the years naturally embodied with any steam locomotive that has remained intact in the year 2009 and this particular engine is no exception.

I've done my best to present Lyndie Lou's story and I look forward to, twenty years from now, to being able to add quite a few more chapters!

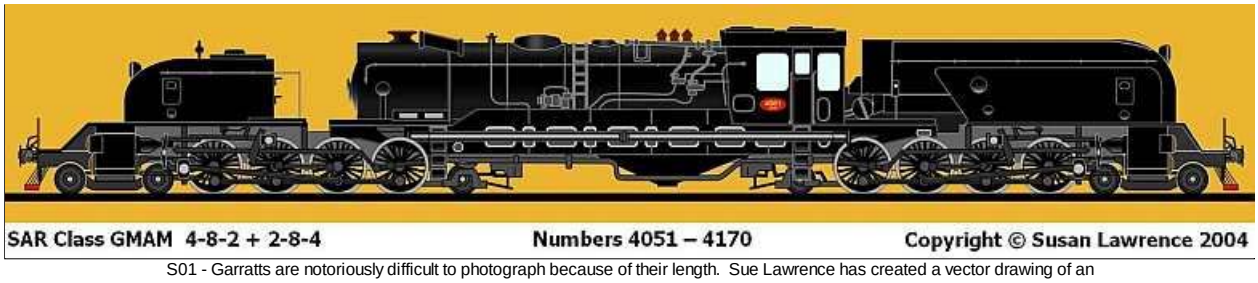
South African Railways - 1956-1985 :

The locomotive that we now know as 'Lyndie Lou', aka, the 'big mean green machine', or the '152 drip special', started her working life in the service of the old South African Railways and Harbours. At the time of retirement, she was working the 1:40 gradients of Waterval Boven and had come a long way from when she left the Beyer Peacock works at Manchester, England in 1954. The original works number was 1677 and she was the first locomotive in the second batch built by Beyer Peacock. (4079 - 4083).

120 locomotives of the enormous articulated GMA/M class were imported by the South African Railways between 1954 and 1957 and the two subclasses (GMAM and GMA) counted in combination were the largest in numbers of all the Garratt Classes. The GMA and the GMAM locomotives were very similar, and visually almost indistinguishable. The primary difference between the subclasses were baffles that could be relocated to increase the water storage space in the GMAM - giving it a heavier, more useful axle load, but restricting it to areas with slightly heavier rails. (The "M" in "GMAM" officially stands for "Main Line", thus a GMAM is actually just a main-line GMA.) A plain GMA can carry 11.5 tons of coal with 1650 gallons of water while the while the GMAM takes 14 tons of coal and 2100 gallons of water.

The GMA/M's, successor to the GM class, were designed to haul heavy loads on light weight 60 pound per yard rails, working on lines with tight curvature as endemic of the 3ft 6in gauge. The 191 ton engine weight of the slightly heavier GMAM Garratt translates to a 15.7 ton axle load on the drivers, with 28 wheels in all.

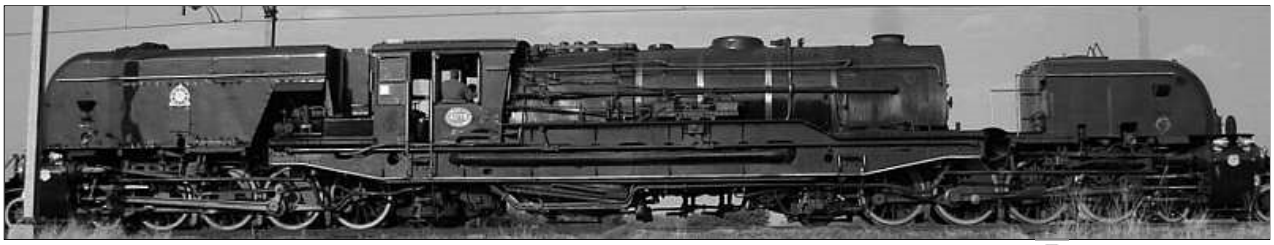
The 25 member GO Class Garratt was based on the GMA and actually has interchangeable components including the frames. The GO class uses a small boiler, with sleeved cylinders and a cut away coal bunker. It lowers the driver axle load to 13 tons and can negotiate 45 pound rail.



S01 - Garratts are notoriously difficult to photograph because of their length. Sue Lawrence has created a vector drawing of an earlier GMAM (No.4051), in amongst her on-line SAR collection. This engine is drawn with a cowl right behind the chimney, which is intended to deflect the smoke during use in tunnels. The double ended nature of the locomotive is clearly seen and the symmetrical wheel arrangement and advanced design for the Bissel Trucks means this engine can run just as well both directions and doesn't need turning. (Drawing copyrighted by Sue Laurence)

These Garratt locomotives were designed from the start to run with auxiliary water tankers, which took the weight of the water off the driving wheels. (The capacity of the auxiliary tankers are not usually considered in amongst the locomotive's statistics, however.) This also reduced the disadvantage of the adhesive effort gradually decreasing as the water supplies are consumed - a problem common to tank locomotives in general. These locomotives were well suited to the task and worked all over the then Republic of South Africa.

Although not the largest Garratt type locomotive ordered by the old SAR+H (that honour goes to the GL Garratt), the GMA/M was the last Cape-Gauge Garratt class ordered and built before steam came to an end. When SAR re-laid their lines with heavier rails, the GMA/M's technically lost their mandate for existence. They have slightly low adhesive effort for an engine of their weight, but none-the-less, served the railways well. Even so, many of the GMA/M machines had a relatively short working life.



S02 - The side view of the real thing. This is a desaturated Rovos-era colour photo to better match Sue Lawrence's drawing above. This is the RHS of the locomotive and differing details include the Reverser, Brake Discharge line, Drifter Valve, Mechanical Lubricator on the front unit and the Mechanical Stoker visible inset into the coal bunker. (Pic by Colonel Andre Kritzinger

What is sad about the GMA and GMAM, and their articulated brethren, is that, while the conventional coal burning single-framed engine had reached its peak of development, the Garratt methodology still had scope for development.

As a result of the general history of this locomotive type, built late in the mainstream era of steam on the SAR, and, in fact, of the world's steam railways in general, the GMAM No.4079 "Lyndie Lou" is a thoroughly modern miss. She has a mechanical stoker, roller bearings on all the axles, (including the bogies and Bissel trucks), piped, mechanical lubrication for each engine unit; power operated cylinder cocks, grate shakers and steam transfer pipe condensate drains. The pivots and axle wedges are self-adjusting and the frames are of the "Commonwealth" cast steel type. The firebox has a unitary foundation ring and is welded to the firebox. In fact, the locomotive's technology is analogous to that of the equally modern Class 25. Those free moving roller bearings are worth mentioning though as the author has seen this 190 ton plus locomotive being moved (albeit on flat track) by three people with a single pinch bar, a wedge of wood, and a sprinkle of sand. The GMAM Garratts were beginning to be retired in the late seventies and early eighties, but the SAR No.4079, like many of her sisters, was facing the end of her railways life with many years of productive work left in her.

REGM - The Gold Mining Days - 1985-1996 : Randfontien Estates Gold Mine.

The final phasing out of the 120 members of the SAR+H GMA and GMAM Garratt classes began in 1984. SAR+H GMAM No.4079 ran her last miles on government irons in 1985 (Waterval Boven to Breyten) and was then sold to a private owner, the Randfontien Estates Gold Mining Company. She was originally one of the Waterval Boven machines and thus headed west from the beautiful Eastern Transvaal scenery to the stark but dramatic backdrop of the acid-pastel yellow of the gold mine dumps surrounding the great mining complex of the Randfontien Estates Gold Mine. (REGM) The GMAM No.4079 was heading west towards where the sun sets, and towards the final sunset of her career in SAR main line goods service.

During the seventies and eighties, many ex-SAR steam locomotives were sold into private service and were fortunate enough to remain active while other went to the "strategic reserves" or straight to the dead lines. Some of the industrial machines were operated on a thrash-and-replace policy while others were relatively well looked after and ended up working for a decade or more in their second lives. Ex-SAR No.4079 was fortunate enough to be amongst the latter.

G01 - The last fling for about a dozen Garratts - the locomotive yard at Randfontien Estates. This is where the GMAM No.4079 "Lyndie Lou" spent 11 years toiling amongst the mine dumps. Pictured are REGM "R9 Kathy" (Rear) and REGM "'R12 - Vivienne". (Ex SAR No.4136 - Now in store at Bloemfontein.)

The mines were typical customers and often ended up running SAR main line steam engines after they'd become extinct on their home rails. The gold mines working the arc of the great Gold Reef were buying ex-SAR+H mainline locomotives at good prices, sometimes at little more than scrap metal value.

Most of the machines were in reasonable-to-good condition when purchased, being modern steam engine sometimes only 20 years young. There at the mine, this mighty 192 Ton articulated machine was pressed into gold mining service - hauling 1000 ton unit trains of heavily buttressed 12 ton capacity hoppers of freshly mined ores ("reef"), and hauling the tailings out to the dumps.

The stable of ex-SAR locomotives had plenty to do at Randfontien Estates as the then-new Cooke Shaft No.2 had just been opened. The locomotive was shorn of her SAR identity and simply numbered "R15" in plain script. The numbered locomotive was subsequently renamed "May" in 1985 and repainted to the private two-tone blue gold-lined livery of the other Garratts in the mine's roster.

G02 - Ex-4079 as she looked when just starting her gold mining work - the paint still gleaming and the cow catcher is still straight! Notice that the trim lines were gold instead of the cheaper, later yellow. She wouldn't look this good again for another 15 years!

The brace of articulated machines kept company with a solitary, ancient Class 1, and several ex-SAR Class 15BR's. Garratts and gold are a good combination - the articulated GMAM engines performing well on the lightly laid track of the Cooke shafts, the modern features of the engines easing the maintenance costs. Their thirst for water was easily met on the relatively short runs, and the straight-through depot design was convenient for the use of auxiliary water tankers.

The locomotive "R15", was later renamed "Wendy" and would carry that name until she left the dusty mine tailings behind. It was a fatal accident on the Doornkop branch that ran out the shaft for "Lyndie Lou's" mining career. The engine was primarily rebuilt and renamed "R1" The accident occurred in 1992 which was the year that steam officially ended on the national carrier (By then reorganized as Spoornet, subsidiary of Transnet) The engine never saw much use after that and went into storage after two years. Although she basically remained intact she began to lose parts and to decay in the storage lines.

G03 - Lyndie Lou in her late gold mining days (Then running as "Wendy") after her accident in 1992, subsequent repair and renumbering to "R1. Here is the already scruffy engine running on the Cooke Shaft 2 line and hauling unrefined gold reef.

An out of use engine is a stable with active sisters of the same class is in grave danger of being cannibalized for parts, although the sister GMAM engines in REGM service wouldn't have much longer to work themselves.

(In a twist of fate, when a running GMAM No.4079 "Lyndie Lou" arrived at Reefsteamers in 2007 for SIA mandated repairs, she was reunited with the REGM GMAM No.R4 "Barbara", which is still wearing faded, flaking REGM livery and miraculously, still wearing her custom made brass eagles athwart the water tank. GMAM No.R4 "Barbara" is waiting in non-functioning state for export to New Zealand. (by Ian Welch)

In January 1995, the last scheduled steam working took place on the REGM gold mine. (Appropriately for our topic - it was hauled by a Garratt.) A proposal for scrapping was announced by the REGM mine in 1996, which was the end of the line for most of the 12 REGM Garratts and almost the end of the ex-4079.

A new life - Sandstone Estates Steam Railroad : (Ficksburg)

Notice of the intended scrapping attracted the attention of a certain Wilfred E. Mole - owner of Sandstone Estates and instigator of the Sandstone Heritage Trust. He was personally disgusted at the fact that a slightly scruffy, but fundamentally intact and very restorable modern main line locomotive would be scrapped, with many miles still lurking in the frames, and South African steam had only just come to an end on the main irons.

L01 - The ex-R1 GMAM "Wendy" is under restoration by the experienced Graham Strijdom and utilizing the intact infrastructure of the REGM locomotive shed.

A disciplined, principled man who believes in action and puts his money where his beliefs are, partially the secret of his financial success - he ended up actually buying the Locomotive from the REGM mine. In addition, with the engine came access to the workshop and the staff. Talk about impulse shopping! I wonder how he explained that one to his wife?

Honey, you'll never guess what I just brought today...

Thus, the by now somewhat shabby old mining engine, the Randfontien Estates Gold Mine's R1 "Wendy" passed into the very competent and passionate hands of Sandstone Estates in 1997.

Wilfred Mole is a remarkable man in many ways. But his vision and foresight at this point is especially worthy of note. Back on the farm, (quite literally in this case), the rails of the dismantled Midmar dam railway were being laid on the sprawling Sandstone Estates to form a private 2ft narrow gauge railway. What on earth would the farm do with a 180 ton lump of a 3ft6in gauge Garratt that doesn't even fit on the tracks? The saving of this magnificent machine was the thing.

Fortunately the farm, Sandstone Estates, is in close proximity to the old Bethlehem - Ficksburg line and it was hoped to make this an ACTIVE preservation project, putting this locomotive to work in the scenic open expanses of the eastern Free State. (Sandstones Estates presently has a 2ft - 3ft6in gauge interchange at the Vailima halt.)

With active preservation in mind, and not just a cosmetic paint job, the missing parts were replaced and repairs made by the very competent Graham Strijdom - and the work was done on the existing gold mine premises too! Although the mine had already stopped running steam engines by this time, the buildings, tools and repair infrastructure were still intact.

Before leaving REGM, during a ceremony that was held on 26 September 1996, the locomotive was named "Lyndie Lou" after Wilfred Mole's wife, Lyndie, and the cab was mounted firmly between a pair 4079 number plates once more. (Those plates were marked for "Sandstone Steam Railroad" rather than the replica SAR plates that she carries now.)

The entire engine and the attached plain-bearing water tanker, had been painted blue, with elegantly lined bunker, tank and cab - the smartest looking Garratt in the world!

(Still is in 2009!)

Instead of the cryptic acronym, "REGM", "Lyndie Lou" the Garratt was boldly lettered for the "Sandstone Steam Railroad Company" on either sides of the bunker and tanks. The shining blue and chromed engine even featured in a Carte Blanche special concerning the decline of the rail infrastructure - presented by Derek Watts. Our girl is a TV star!

L02 - The 0-2-0 Mrs. Lyndie (Lou) Mole at the official handover ceremony on 26 September 1998

L03 - Ex-R1 Lyndie Lou as restored at REGM in 1998.
She had been renamed at this point but not yet lettered.
Note the characteristic REGM scare-striped cow catchers -
soon painted to a more elegant, traditional black with red toe board.

L04 - This would have been REGM R1s fate had Wilfred Mole and Sandstone Estates not intervened, and there would be no Lyndie Lou running today. Two GMAM engine units stand without a boiler, while a doomed sister looks on in the background.
Notice a Bissel truck is being manhandled away in the background.
(Photo by Geof Pethick - 1997)

GMAM No.4079 "Lyndie Lou" was gently steamed to Ficksburg in 1998 with several coaches. (Ironically, after restoration and cosmetic work and then some years of standing mainly idle, four of those coaches are in the care of Reefsteamers, back in the Johannesburg region.) It would be an interesting trans-provincial trip with a newly repaired and certified engine. The Ficksburg Station, already starting to decay, became the next home of this machine. The human Lyndie was quite impressed and honoured to have the locomotive bearing her name under the shrouded headlamps starting to earn its keep hauling a few Fouriesburg specials on the Bethlehem - Ficksburg Line.

But as happened with another noted engine in the area, the Class 15F No.3052 "Avril", owned by Dave Shepherd, there wasn't enough paying work on the Eastern Free State high irons. The recently restored engine was sadly put away for safe storage.

The Rovos Rail Days - 2005 - 2007 : (Rovos Rail Capital Park Depot)

In 2005, the idle GMAM Garratt "Lyndie Lou" was leased to Rovos Rail to put her back to work and thus added a fourth notch to her service record. From SAR+H freights, through to gold mine service, and sporadic preservationist's specials, this mighty engine proudly took the luxury long-distance Rovos Rail trains on Transprovincial and International tours. These tours were not operated from a steam preservationist's perspective, but from an attempt to recreate the good life from colonial times.

V01 - In 2006, a recently outshopped and newly certified
Lyndie Lou on one of her first Rovos Rail runs.

V02 - Six months later, the now green painted engine in full service, proudly carrying the Rovos Rail headboard, storms south near Bon Accord with 18 coaches. (5 February 2007)

The engine was worked on in Rohan Vos's Capital Park Shops to get her back into shape for commercial steaming after several years snoozing in staging tracks. The workshop team was led by John Dadford. The locomotive was basically in good shape, which drew positive comments from Rovos's crew. The requirements for safe efficient main line service would be different from that of the mines and quite a bit of "jacking up" would be required. As the work progressed in January 2006, it was initially decided to retain the smart blue lined paint scheme with the "Sandstone Railroad Company" lettering as it was still in good condition and polishing up well.

Work performed on the locomotive included :

- Two faulty super heater elements replaced.
- Complete strip down and service of piped mechanical lubrication system
- The small end bearings were replaced.
- The holed ash pan repaired.
- Tertiary brake rigging overhauled and re-bushed.
- Composite brake shoes replaced with more suitable original spec cast iron shoes.
- The plating around the washout plug pockets replaced.
- Frames and inner wheel faces steam cleaned.
- The poorly routed drifting valve piping, which was under the driver's seat and consisted of mere household plumbing pipe, was rerouted and replaced with A grade copper.
- Holed spark arrestor grids replaced.
- Several damaged smoke box vanes (spark arresting) were replaced.
- Tank car frames and bogies steam cleaned.
- Tank car bogies, wheel sets, ladder and auxiliaries repainted.

An initial boiler inspection has been done by Inspector P Britz on 15 March 2006
whereby it tested without leaks and maintained a pressure of 1725Kpa.

R01- One of Lyndie Lou's brake hangers being refurbished. All the hinge and locating pins were made in house and the metal specifically hardened for service.

R02 - Attention to detail. Lyndie Lou's washout plug pocket liners were carefully crafted by a professional copper smith.

R03 - Lyndie Lou's water canteen has just been cleaned and all auxiliaries and fittings repainted. Note the fitted double-beam headlamp for operation in reverse.

R04 - With the smokebox spark arrestors removed, the super heater elements are clearly visible as the vertical pipes turn (in pairs) into the wide bore flues. The two empty flues show where the two faulty elements were removed. That "gas-burner" object in the foreground is the actually the blower ring.

R05 - The intimidating array of fine bore copper pipes and brass unions of the complicated mechanical lubrication system which was stripped, cleaned and serviced. The actuating crank is visible at top left. The black pipe across the bottom is the train-brake vacuum line.

R06 - Team leader of Lyndie Lou's second refurbishment work, John Dadford (Left), talks to Wolf Mensing of Rovos Rail, as they examine the nearly completed GMAM locomotive. (Visible to the tight of John's head is the manual priming wheel for the newly serviced mechanical lubricator.)

The most obvious external Capital Park Rovos-era change was that the locomotive and the tank were later re painted in a smart dignified Brunswick green, without lining, to match the livery of the Rovos Rail coaching fleet. The wheels and the center frame flanges were lined in white and the cylinder + valve covers remained chrome plated. This is the appearance that the engine retains at the time of writing. (June 2008.)

R07 - A newly repainted Lyndie Lou during a strenuous debut run in the eastern Transvaal. Note the CLEAN stack and the blowing safety valves Photo by Chris A. Janisch (Friends of the Rail)

No.4079 "Lyndie Lou" was set-out to hard work immediately upon recertification and commissioning - a task matching with her 92ft length. Her first major job was haul a special train all the way from Tzaneen to Pretoria, with 2 tankers and 15 coaches, which would be her first long run ahead of the smart green luxury coaches of Rovos Rail.

With a minimum of testing after half a year in the shops, she was sent out to Springs on Monday, 19 June 2006 to work the leg to Waterval Boven. The giant locomotive ran and steamed well but water problems caused delays. She ended up being paired up with a Class 19D. During the tour, the 19D failed with a locked trialing axle on the front bogie. The GMAM "Lyndie Lou" went on to do the strenuous work alone.

GMAM No.4079 "Lyndie Lou" rapidly became the "flagship" for the Rovos fleet. Rohan Vos has adopted the practice of naming his collection of steam locomotives after his immediate family. But a term within the Rovos lease is the No.4079 "Lyndie Lou" would get to keep her original name. The open-cut REGM style name plates themselves were replaced with the block-mounted brass lettering that the locomotive still bears today.

However, from this point on, the initiative of Wilfred Mole and of the Sandstone Estates team drew little attention and for all practical purposes, the locomotive ran entirely under the banner of Rovos Rail, both literally and figuratively.

Steam in Action - 2007 - Present : (Reefsteamers Germiston Depot)

In 2007, Steam in Action came into being. It so happened during this time that Wilfred Mole was no longer confident with leaving No.4079 in Rovos service. One of the factors that triggered this unease was the fact that the engine was known to be frequently coupled to heavy, relatively high speed trains of 16-20 coaches. As 2006 passed by, this engine had now become one of the last working examples of Garratts period, much less of those of the GMAM class in particular.

S01 - Some hard work for a grand old lady Lyndie Lou spent a brief period as the flagship for Roves Rail, pulling beautifully appointed but very heavy luxury trains.

Wilfred Mole felt that this machine, as a heritage piece constantly increasing in historic value and rarity, should be re-assigned to less arduous but still active duties. There were also concerns about the maintenance and operation routines of Rovos Rail, particularly in the matters of steam raising techniques and of the lubrication regime. Mr. Mole arranged for an independent technical review to assess the strains to which his precious locomotive was being subjected to. He wasn't happy with the results. A plan was drawn up to have this locomotive transferred to the care of Reefsteamers. (That's us) The idea would be to repair the machine and then run the engine semi-regularly on local day-trips - keeping the wheels turning and the soul of the giant steamer alive - but no more long distance heavily-loaded marathons on dry brasses and pivots.

S03 - Lyndie Lou at rest in the Reefsteamers workshop for some Bissel Truck work and a Stoker Engine overhaul. This massive engine sure takes up a lot of space!

A visible problem that was immediately noticeable on the engine was the presence of badly worn and pointed flanges on the Bissel Truck Axle of the rear engine unit. This is unsafe at any time - but to have worn Bissel axles on a double ended engine like a Garratt, which frequently runs in reverse, is dangerous. It was originally thought that the Bissel Truck's frame was twisted and a complete spare Bissel Truck assembly, complete with a decent axle was sourced for a refit. In addition, the "donkey engine" that runs the mechanical stoker was found to be running quite poorly.

The spare Bissel frame arrived on a rather dull, chilly Saturday, 6 October 2007 upon which Wilfred Mole himself had come to a Reefsteamers Club meeting to introduce himself to our members (Many of whom are fairly new) and to officially inaugurate Steam in Action. It was appropriate to do our first depot based SIA work right after the meeting, and a sociable braai (BBQ) in the Workshop, by unloading the spare Bissel from the tandem axle trailer in which it arrived. Removal of the Bissel truck under the leading engine unit began the following week.

S04 - The donor Bissel Truck as delivered on a heavy duty trailer in which the wheel flanges left two deep dents in the load bed and pressed the nose wheel deeply into the ground.
!

S05 - Using original railway equipment and a wheel drop pit, the original Bissel truck is removed. We got plenty of exercise!

S06 - I'm pointing at the severely worn and pointed wheel flange that alerted Mole's inspection team to impending issues with this engine.

When the Bissel Truck had been removed and dismantled, the problem was immediately found. Due to lack of lubrication (Including missing oil lines), the bolster plates had seized, which prevented the Bissel Trucks from completely centralizing after curves. This had put much lateral stress on the axle bearings and had worn out the wheel flanges. The good news was that the frame of the Bissel Truck was not twisted after all, but the bad news was that the Bissel Truck under the trailing engine unit was in a similar condition, although the flange wear wasn't as bad.

The original axle was laid aside and the donor axle prepared for installation. Unfortunately, the bearings needed replacement so a full 2 sets of two bearings each had to be sourced and fitted. Meanwhile the entire Bissel truck assembly was dismantled, cleaned and treated with rust proofing primer. An interesting step in the restoration of the unit was the use of Vesconite plates for the Bolster slide plates. This fantastic space age material is rust free, doesn't need lubrication and is dimensionally stable. Reefsteamers are the pioneers in the use of Vesconite for

steam locomotives in South Africa. (Our 15CA and one of our 15F's runs completely kitted out with Vesconite in the valve motion and no discernable wear has been found after 8 years. Our Class 12AR has a full set of new bearings waiting to be installed.) What was amusing was that the current railway administration said it couldn't be done, although they use Vesconite on their modern equipment. All Cape Gauge Locomotives restored by Reefsteamers for SIA will have Vesconite fitted where bushes and slide bearing are replaced. Lyndie Lou is the first SIA locomotive to be fitted with Vesconite.

S07 - The overhauled donor Bissel axle with a full set of new bearings is being hosted to the work area with Lyndie Lou's coal bunker poking out into the sun at the rear right.

S08 - The stripped, cleaned and primered Bissel truck frame clearly shows the use of maintenance-free Vesconite as a modern bearing material for the bolster plate slides.

S09 - Stoker motor on the bench. It looked OK on the outside but ran quite poorly.

The first Bissel Truck was replaced on 18 November 2007 and refitted with the cleaned and repaired lubrication equipment as well as the repaired speedometer drive. The second Bissel truck received similar treatment, but after the removal work was done in December ; a front bogie rebuild required on the Reefsteamers class 15CA No.2056 "Dorothy", and repair work performed on Dave Shepherd's Class 15F No.3052 "Avril", Lyndie Lou's trailing Bissel wasn't re-assembled and installed until May 2008. It too, ended up being fitted with a full new set of bearings.

However, she wasn't completely alone as she dozed in the No.4 road of the workshop - as one of our ex-railway fitters kept the big girl company for several months. The stoker motor had been removed and was completely dismantled to investigate the poor starting and low torque as reported by the transfer crew who ran the engine from Capital Park to Reefsteamers. The stoker's engine was found to have worn big end bearings, worn piston rings and one valve ring out of the original 8 remaining! The glands all leaked and the crankshaft main bearings were clapped. It's a miracle that the two-cylinder stoker engine ran at all.

S10 - A test fit of a newly fabricated valve ring, still warm from the lathe, into the grooves of a cleaned valve spool.

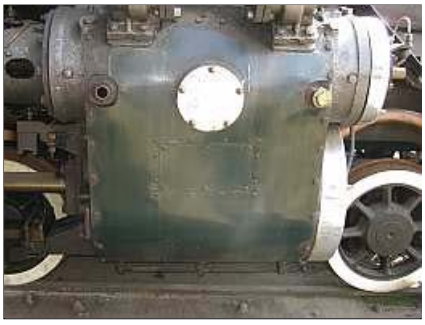
S11 - An experienced ex-Millsite Railways fitter is up to the elbows in a full rebuild of Lyndie Lou's stoker engine.

S12 - An old railway man faces the tedious task of removing the paint from the brass and copper work.

The entire stoker engine had to be rebuilt by hand, carefully matching parts from the original, parts from spare units and the parts bins, and some newly fabricated. The original crankshaft was used but bearings sourced from our stock of spare stokers. Even so, new shims had to cut and fitted for the connecting rod big-ends to mount the bearings properly. The valve eccentric sheath straps were scraped to suit. New piston rings were sourced and the slots custom cut to fit the bores. A full set of 6 valve rings were turned and slotted from scratch, while new ball bearings and seals were purchased and fitted for the crankshaft. The overhauled stoker was bench tested, pronounced successful and then installed on 10 May 2007.

Other work including the DE-painting of Lyndie Lou's brass work and copper piping, which had been painted black to save on labour. Not a glamourous engineering project - but a tedious, long labour of love. Four of the valve chamber inspection plugs had to be removed and replaced as they weren't securely threaded - which required reshaping and thread cutting of the bosses from whence they came. A broken axle spring that was discovered during the Bissel Truck work was also replaced with much grunting and crowbar work.

S13 - This articulated machine barely fits into our workshop tracks! Lyndie Lou's rear end is resplendent in new makeup - polished valve chest and cylinder caps and freshly painted wheels and buffer ends.



S14 - A little hole, just a little valve chamber plug - but what a lot of work to get them to screw in safely. Hammers, drifts, scaffolds, taps, chisels, some large spanners and a lot of acetylene!

S15 - One axle spring with a broken leaf that fell completely out upon removal. And even in the small photograph, you can clearly see a second broken leaf two leafs up from the gap.

The following people were involved in getting Lyndie Lou into shape for SIA service : (In alphabetical order)

- Wilfred Mole. (Owner.)
- Lucas Nel. (Spare Parts.)
- Andrew King. (Chief Engineer.)
- Shaun Ackerman (HRASA Representative and Team
- Aiden McCarthy
- Andre van Dyk.
- Attie de Necker.
- Dawie Viljoen.
- Kenny Allen.
- Michael Thiel.
- Patrick Ackerman.
- Piet Steenkamp.
- Sakkie Kekana.
- Tony King.

Leader.)

- Lee Gates.

Our time was running out as we approached the annual veldt fire season - where Transnet will not let us run due to the risk of setting the dried out countryside alight. In fact, we had made plans to run this engine in January, and then February, and then she got put on the back track as a busy trip schedule, a bogie axle bearing failure in our 15CA (Which led to a full bogie rebuild), a transmission failure in our diesel shunter and Dave Shepherd's 15F No.3052, all required work. We were determined to run this engine before winter. For those overseas, our winters are in the middle of the year - cold, clear and very dry here on the high veldt. We also had some hints from both Wilfred and Lyndie Mole as to when will their engine run again! The second Bissel truck, reinstalling of the stoker motor, the steam chest valve inspection port caps and the axle spring replacement were all done under a tight deadline.

GMAM No.4079 "Lyndie Lou" was steamed again on 30 May 2008. It was an inauspicious start as we essentially used a paying run as a test trip.

S16 - The shank end of an all night shift in getting the engine ready for the first run under the Steam in Action banner. The repair boys are just finishing up and the train's coaching staff have already arrived.

To our surprise and mortification, the stoker motor was found to be running backwards. No one had noticed it during the compressed-air powered bench test. The double ended, symmetrical crankshaft had been reversed - the fitter further misled by the fact that the GMAM Stoker is on the right side of the engine and the flywheel sits opposite to that of the more common 15F and 25NC stokers. The stoker would start and run when manually set in reverse to run the coal screw forward - but would only feed coal at a reduced rate. Our Chief Engineer had to ride shotgun all the way out to Magaliesburg just to "kick start" the stoker!

The fusible plugs started leaking too, and the new fire had to be dropped. During the night, the acetylene gas ran out when the fusible plugs were being re-cast - and the metal smelting operation was completed above the LPG gas stove in Tannie Dorie's kitchen in the Power Van!

There were many leaks from the turret manifolds and the auxiliaries. The cylinder cocks were playing up as well. We also discovered that the feed water couplings on the buffer beams had gone missing and we had to do what we Reefsteamers rarely do - "borrow" the couplings from another locomotive - in this case, the 15CA. Preparing the engine, as well as doing the expected thorough pre-trip under-carriage lubrication and brake adjustment, took the service crew the whole night to do. (Incidentally, the 15CA got her feed water transfer couplings back the following week.)

But they had the engine ready to run by 5:30am the next morning, black of eyes, black of hands and a bit short of both sleep and temper! In spite of the worklamp-lit midnight drama, Lyndie Lou's first trip to Magaliesburg under the SIA banner, was a great success and the day of 31 May 2008, must go down in her story.

S17 - Wow! A side view for a change! Here's our girl strutting her ample stuff homeward bound (Bunker first) on her debut 550 ton haul to Magaliesburg. (Photo by Aiden McCarthy.)

From our "old Spoories", who often drove these machines in their full time railway days, we heard that the GMAM class is a bit of a greedy guts for water and coal, so we took along THREE auxiliary water tankers as well as the hydraulic coal grab wagon, with both the bunkers full of reserve coal. The trip was made with ease.

There were two separate private functions on board, in a coach each and the participants enjoyed themselves tremendously. Although the running speed was held low because of the reduced coal feed rate, the grand old lady never stalled once and even blew off at the safeties a few times. The trip coming home, with slow feeding coal on the Magaliesburg upgrades was an introduction to the measured, steady soft, slogging beat of the double engined Garratt.

Lyndie Lou graciously paid back the favour by impressing one of the private functions on board. The Ekurhuleni Council (including Old East Rand) have promised Reefsteamers a cash sponsorship of R100 000, and assistance in terms of signage, road access, services and advertising - in return for our trips being offered as unique attractions to the region and fitting out a bar car with the Ekurhuleni brand. Not bad for our first Garratt

run!

The stoker has since been repaired and replaced. I've personally seen it running like a heavy-weight Swiss watch, ticking over gently on compressed air and just begging one to try and stop the flywheel with your bare hands. Not a chance! We Reefsteamers are really looking forward to seeing what this locomotive can really do once she can feed herself properly! There were numerous other smaller issues that were noted in the repair journal.

Reefsteamers retains a classic railways style faults reporting system - The Locomotive Repair Journal. Each one of our locomotives, including those placed under our care by Steam in Action, has its own Repairs Journal where faults and deficiencies discovered on trips are immediately recorded by the duty crews. Thus, we have a permanent record of what faults developed, when they were noted, what needs fixing and who did the work. Nothing gets overlooked, even if the last footplate crew aren't on duty.

S17 - Four men and a Stoker.
The patient can hardly be seen amongst the surgeons.

Where the books come particularly in handy in a primarily volunteer run group such as Reefsteamers, is planning the consumables, such as paints or gasket sheets, required for the job. So these can be arranged during the week and delegated to people. It's also a way of planning the manpower - as the Saturday Depot days are the days with the largest team of people present, the maximum use needs to be made of the people's time. What a waste to have three or four enthusiastic people spending a Saturday unable to work on an urgent job because the necessary supplied, tools and fasteners are not present.

Listed below is what GMAM Lyndie Lou's repair book entries looked like on 3rd June 2008, after her debut trip. The locomotive ran fairly well, mechanical stoker issues not withstanding. The list looks scary but these are typical of problems that old steam locomotives pick up over the years - and if I may be allowed to do a bit of bragging, shows the attention to detail that we Reefsteamers attain when looking after these wonderful, and equally frustrating machines

Most of the jobs had been completed by 21 June. GMAM No.4079 "Lyndie Lou" is to run again on the 4th of July. She's heading out to the NASREC terminus to swap out a train of coaches for Shongololo Express. It's a short trip and light duty work for this heavy machine, but will be ample work to shake out the repairs that have been made and see that's there's no other issues arising.

Rest assured Mr. Mole, your magnificent, beautiful engine is in very good hands!

1). Stoker Engine Crank Shaft to be turned around.
2). Stoker Engine Valves to be reset.
3). Stoker Engine Piston Rod and Valve Spindle Glands to be repacked.
4). Repair faulty lubrication piping to the rear unit's expansion link trunnion bearing.
5). Rear unit's sand piping to be re-piped from under cab to valve and turret.
6). Front unit's sanding gear to be checked and serviced.
7). All cylinder drain cock valves to be stripped and cleaned.
8). Lubrication to cylinder cock actuating steam cylinders to be checked
9). Secure the coal bunker brace on the left side behind the cab.
10). All backhead gauges to be recalibrated and certificates thereof filed.
11). Ash pan cooler valve to be reseated and repacked.
12). Petticoat pipe to be repaired.
13). All turret valves to be stripped, reseated and repacked.
14). Change over the dynamo and sanding gear pipes at the turret manifold.
15). Eliminate wear in links and pins of both injector water valves.
16). Repair the left blow down valve. (Currently not operatable.)
17). Entire locomotive to be re-fitted with cast iron brake shoes.
18). Entire braking system to be readjusted once the new brake blocks are fitted. 19). Secure the stoker chute cover within the cab. 20). Reseat the cab spray pipe valve.
21). Fit a new rubber spray pipe hose within cab.
22). Reseat all the valves within the cab and on the backplate.
23). Secure the speedometer gauge head onto box within the cab.
24). Repack the front unit's left hand valve spindle gland. (Front)
25). Blank off the two redundant pipes on the left side of the boiler under the frame by the smokebox saddle.
(They are connected to the front unit's sanding gear.)
26). Fit new water supply connections to the buffer ends of both engine units.
(To suit Reefsteamers type agricultural "bell" couplings.)
27). Check the relief valves on the top of the locking cylinder of the reverser. (Done at the time of writing.)
28). Check the valve oil supply reservoirs to see if they full enough.
29). Check once again of bogie and driver axle greasing is sufficient.
30). Repack both of the drifting valves.
31). Alter the drifting valve linkage to correct operation. (Pull to open, push to close.)
32). Secure the "Lyndie Lou" name plate on the front unit's water tank.
33). Fit a split pin to the reverser locking cylinder lubrication pump in the cab, behind the driver's seat.

Note : these items are to be checked off in the running repairs book when done. Andrew King (Chief Engineer) will inspect and assess the work

done, and will sign it off in the locomotive's repair journal.

Wow! That's a lot of work and should keep the Reefsteamers occupied and out of trouble, especially during our winter break. Many of the repairs in the list are running repairs though, and others are detail work to help the locomotive run even better, to be more efficient, and even more of a pleasure to service and operate. We are determined that "our" GMAM Garratt No.4079 "Lyndie Lou" is going to both look good and run great!

Lyndie Lou - Back marker :

This magnificent machine stands on 28 wheels in a 4-8-2 + 2-8-4 arrangement (A "Double Mountain"), 28 white rimmed wheels in all. However, she stands equally on the original foresight and passion of Wilfred E. Mole and of the Sandstone Heritage Trust, as well as the present dedication and labour of love of the Reefsteamers, who are proud to have been elected to be the caretakers of the machine, and committed to her charge. It is hoped that she has found her final home and final duty.

S18 - This young lad symbolizes what steam preservation Is all about. Enjoying these amazing machines today and preserving them as living history, their stories to be read for future generations to come.

From a varied career of gold mining service, luxury intentional tour haulage and general national carrier service "Lyndie Lou's" job is to now to bring pleasure and awe to all that work on her, operate her from the footplate, the shunting crews and even more importantly, to the many more thousands of people who will ride in and alongside Lyndie Lou's coaches.

Lyndie Lou, as a wordless (but definitely not silent!) ambassador to the historic, charismatic machines of steam, as we come to the ending of your present story, may your firebox burn brightly for happily ever after

- Lee Gates - 2008 -

< Prev