

1). HUNSLET TAYLOR SHUNTER – GEARBOX REMOVAL AND DISMANTLING:

Here's the under-slung beast still in position.

We now have to plan ahead and get a steam locomotive in steam before being able to do any shunting. It is time consuming and uneconomical. It also isn't good for the steam locomotive either, as it imposes more expansion cycles onto the elderly boiler.

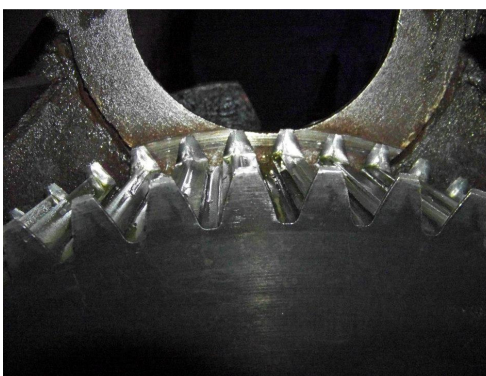
Jeandre Gordon had been busy taking the shunter's drive and couplings rods off during the week and the locomotive was rocked a bit to free the jammed gear. 'Andrew' the Hunslet was shunted (by steam) down to the 15M head shunt on Saturday morning and then man-shunted into the 15M shops. The 15M shop's headshunt tracks and point work are still missing some sleepers from recent incidents of track-related theft and wouldn't take the weight of a full sized steam locomotive.



A very difficult birth in progress. We were a bunch of tjops though, as we could have removed the steps – but getting the gearbox past the rear wheels was still a challenge.

For on-line pictures of the coupling rod work, view this page on FaceBook.
<https://www.facebook.com/media/set/?set=oa.10150991073238737&type=1>

The faulty gearbox was both removed and dismantled in a single marathon Saturday session lasting until 0:15am on Sunday morning the 12th. Because of the patient's short wheelbase, and the close proximity of the gearbox to the rear wheel, it took quite some juggling to get it out. It was removed by a team of 7 people, one traversing trolley, a forklift, several slings, a chain hoist, lots of timber, one pile of boerie rolls and endless trays of tea!



The worn and broken jackshaft gear teeth as photographed by the Mini-Mienie. You can compare their worn state with their original profiles derived from the unworn edges.

Dismantling didn't go too badly except for a row of hidden bolts alongside the sump, and the fact that the jackshaft saddle bolts were fouling the lower case when under suspension. The gearbox comes apart like a great big flanged layer cake, with the casing in four horizontally-stacked sections. Each joint between a section is the center line of one of the shafts within.

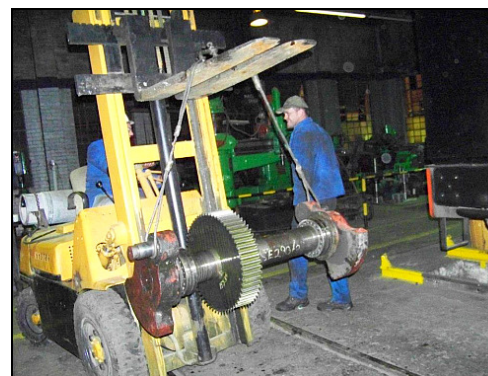
The recently repaired Hyster Forklift was absolutely invaluable for the operation, ably driven by Gordon Bennett.

The gearbox fault appears to be a metallurgical related fault on the jackshaft drive gear. The teeth are worn down to sharp triangular points of half their original height and completely broken off at some points. We already knew that the case hardening wasn't quite right, but it appears that the gear was of inferior material as well.

The jackshaft pinion on the primary drive shaft (Which used to be the reversing shaft) is still in reasonable condition. The hammering had loosened the counterweights and cranks on one side. They had originally pressed on at over 200 tons of pressure, and the three key pins have worked loose. Some rectification work required there...

The gear will need to be refabricated. The double taper-barrel bearings will need to be cleaned and carefully inspected – but it is very likely that they will need to be replaced due to oil contamination. The remains of the broken gear teeth have literally been ground up into a firm silvery-coloured paste, which has settled out into the corners of the oil pan. The bearings are lubricated on a primitive semi-loss system, regulated by labyrinth seals. It is thus almost certain that the bearing rollers have been damaged from abrasive metal particles floating in the oil.

As we don't have the facilities or manpower to rebuild that jack shaft, it is to be taken to Surtees Engineering for quotations for repairs. The gear needs to be re-made, and the beaten shaft ends skimmed and re-sleeved for a tight fit.



The Hyster forklift hauling our oily prize away
This forklift is LPG powered and REALLY roars! (Pic by Victor.)

This job, although not as exciting as fixing a steam locomotive, is being treated as urgent and we don't have several months to wait for a new gear to be cut! Shaun Ackerman is handling the Surtees side of the project.

The Mini-Mienie, aka 'Victor', put an extensive photo essay of the gearbox's dismantling up onto Reefsteamers' FaceBook Page. The photos have since been captioned on line as well.

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2). PROJECT : CLASS 15F NO.2914 RESTORATION :



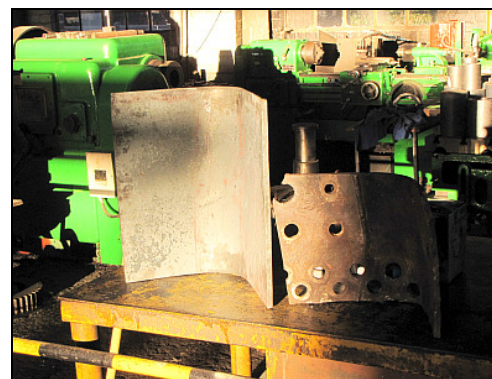
Class 15F 2914 joins the 'faceless brigade!
You can see the uneven putty (light brown) from this distance away! No wonder she had no induced draft from the front end!

Class 15F No.2914 has kinda been shunted into the background recently, what with the Open Day n' all. But she will soon be in the limelight again! The smoke box's front cover has since been removed for access to the smokebox's interior as well for as inspection of the mounting flange. Even though the crudely applied sealing putty is still in place, you can clearly see where the flange was roughly ground down after an accident. Apparently No.2914 once sideswiped another 15F loco.

The smokebox front flange will need to be cleaned and shimmed and/or welded and then reground to obtain a flat surface. We might use the cover plate from one of the rust bucket F's stored in the carriage sheds, if we can find one that is flat. That would be a quicker fix – if the bolt holes line up!

However, a lot has been happening in the background for the 2914 restoration project. After a frustrating number of misses, Hott Nutts Hoddi has finally managed to get hold of a certified welder who really does have the necessary qualifications and is also available for work. The welder has been able to satisfy Dawie Olivier (Boiler Inspector) with his own credentials.

The patch plate (for the firebox's right hand rear corner), which has been forged into a matching radiused corner, has been certified as still-compliant even after being heated. It is now waiting to be cut to shape and drilled. The next work team project on the No.2914 locomotive itself is to finish de-rusting the boiler barrel and to start applying the primer coat.



15F No.2914's new firebox corner patch as set up for display on our Open Day.

George was busy repairing the air compressor on Saturday the 11th, but will soon be free to get back to work on his favourite 15F again. George Hoddinott is the project leader on this job, in consultancy with Andrew King, as well as Dawie Olivier. (Boiler Inspector.)

3). PROJECT : AIR COMPRESSOR :

The main plant compressor failed some time ago.

While we do actually have another compressor alongside Road No.1, it doesn't have the capacity we need for anything more than hand-held pneumatic tools. The plant compressor failure is in the starter panel – which is a vintage hand-cranked resistance starter.

Just how inadequate 'Little Blow' is was pointed out to us when we tried to light the 25NC and the GMA/M for the photo ops that we had on the 14 July. The GMA/M came up alright as she's a free breathing engine in general. The 25NC's firebox was a hot, black, smoky horror – even with a hollow 44 gallon drum perched on the chimney to try and draw the draft up the stack. The 25NC's fire remind me of one of those underground coal seam fires that you sometimes read about.



George tackles the lonely job of diagnosing the faulty starter, with neither wiring diagram or colour codes available.

During the week, the 15F No.3046 had to be lit-up to do some shunting. She was smoldering away for over 12 hours and still had no steam! We have stated repeatedly, and drill into the heads of the fire-lighters, that the firebox draft is more to reduce the smoke from getting into the cab, rather than trying to draw the fire. But we had since found that the spark arrester grids block up with the ashy, powdery coal that we currently have. That obviously makes the poor draft situation even worse.



A smoked-out Mini-Mienie hitting the deck for some sulphur-free oxygen shows what happens when you try to light up a 25NC with hardly any draft. That cab REEKED.

George previously managed to get the compressor limping along. He spent Saturday afternoon poking around the exposed resistance gear and contacts, all of which are normally oil immersed. It took quite a few hours of tracing wires – all of the same colour, and with no accompanying no wiring diagram, to find the fault. A section of wire had burnt off from one of the phases of the pilot relay. The semi-vapourized remains of the copper were found in the acid sludge at the bottom of the tank.

It appears that the recent air compressor fault had been caused by incorrect shut-down procedures. People have been shutting the compressor plant off via the main switch and straight away switching it to 'start' mode via a small rotary switch. The heavy motor, instead of spooling down naturally, is then actually connected to the starting resistances.

The 6 pole motor, still rotating under its own inertia, generates its own electricity in a form of regenerative braking. The unwanted electric current is sent straight into the starting circuits, which are not designed for the load.

Originally, it is an example of poor design, as an interlock coil should have been wired-in to automatically disable the starter circuits once the compressor is de-energized at The Main.

It is a matter of training now, really. Instructions get passed on verbally with a little bit getting corrupted each time, instead of being derived from a fixed and referable set of documents. (The 'broken telephone' game effect) The air compressor room is to be locked and a start-up procedure to be drawn-up.



The somewhat scary looking interior workings of the de-tanker starter.

4). PROJECT : CLASS 12AR NO.1535 BOILER TUBES:

The Class 12AR No.1535 'Susie' is patiently waiting for her 8 new tubes to be fitted. Both of the tube plates have been treated, and the copper ferrules are already in place at the firebox end. Some of the tubes are to be fitted over the next two weeks and we have a certified welder booked for the final job.

Unfortunately, one of the holes shows signs of having been built up with welding, and the welds are showing cracks. It needs to be carefully inspected and the Boiler Inspector called out to check. It is likely that we will need to do a penetrative die test. If the hole fails – then we will have to cut out a section of the tube plate and make a patch – which means 12AR 'Susie' will be out of action for a while. But we Reefsteamers don't mess around with these old boilers!



Class 12AR No.1535 'Susan' – patiently awaiting retubing and another visit from the boiler inspector.

Shaun Ackerman is the project leader on this job, in consultancy with Andrew King and Dawie Olivier.

5). PROJECT : BAR COACH BOGIE SWAP :

The Bar Coach's faulty bogie was swapped out with a spare on Saturday 11th. We had a good sized team thanks to the good response that we got to our somewhat last minute appeal. Thanks guys, for turning up and pitching in.

Unusually for us, the job was done with man-powered ratchet jacks rather than the air-powered Buda jacks. Coaches being two-sided devices, the job was overseen by both Attie de Necker and Clifford Matthee. (C&W) Clifford is well known for his expertise in Carriage & Wagon work, but Attie is one of the older generation of drivers, who also received training in rolling stock repairs.

The job went with little trouble, in spite of the jacks being a tad too short for easy working. The obsolete steam heating line had to be cut off the donor coach, as it was obstructing the bogie's removal.



The donor bogie rolls in a bit too fast – notice the two human brake shoes doing their best to dissipate momentum!

The bar coach is now ready to serve in the coming Rotary Great Train Race to Witbank, bringing in much needed revenue. The traction-hauled train will run empty down to the event (and back), with just a Safety Officer and Train Manager on board. Rotary will staff the train with their own Marshalls..

6). 15F 3046 AT WORK!

This loco now has to go and find her own carriages before she can go out for her day's work. She's running well and is finally making friends with Victor. He did loco minding five nights in a row on the same engine – and it is probably a record in recent years for the number of days that a Reefsteamers engine has been in constant steam! We had to keep her in steam for shunting and then for a Shongololo Express train to be picked up on the following day, Sunday 12th.

At the moment, No.3046 'Janine' remains the only engine that Reefsteamers can field onto the high irons, with the other engines down for re-tubing or because of wheel profile issues. There is a lot of responsibility riding on her frames!



A cute little shunting engine at work.



4th day on the engine and not sick of it yet – Victor pops me a cheerful ‘toot-toot’ as he relaxes with his pipe between firing rounds.

From late Saturday afternoon on 11th Saturday, the ol’ 15F plodded back and forth right through until the evening – wearing out two shunters. Fireman Andreas Matthee also got to do some extensive yard driving in training for his coming Shed Man duties. We didn’t hear too many loud bangs and couplings from our posts under the greasy belly of the diesel.

Victor was the fireman. By then, he had been tending the locomotive for 3 ½ days already and STILL hadn’t had enough. Hennie Die Mienie was the shunter, with Jeandre Gordon on the points. Once Attie handed the tiger tail over to Andreas – the whole shunting operation, footplate and at track-side, was being performed by non-railway people who do it for the joy of being with steam. (Andreas under supervision of course.)

7). SANDSTONE’S CRANE:

We were hoping to be able to set out Sandstone’s 60t steam crane as a full exhibit on the Open Day, with the jib erected and hooks a-swinging in the breeze – although the idea of using Moose the Ranger as a demo load was soundly rejected. Unfortunately the crane’s engine won’t run. The long disused valves have seized, and the two pistons are also binding in a rust film.

Being the most mechanically-minded of the very younger guys, Jeandre Gordon has been assigned the task of stripping and cleaning the old crane’s valve gear for inspection and repair. It is very likely that new piston rings will need to be procured and the bores honed. But with the crane energized via an extended high pressure steam line, it could be a very valuable tool, even with the boiler still not operational.

The crane boiler’s foundation ring rivets were previously found to have been poorly fitted. Under a pressure test, even before the boiler is ‘pumped up’, the water just runs out under gravity. We did have one of our retired fitters have a go at re-riveting the boiler but he turned out to not have the skills required. Thus, we are looking for an experienced and competent riveter/boiler maker person to give us a hand.

8). YOUNGSTERS:

We have ruined three more sons of mothers!

Jeandre, Coenie and Victor have been working full time at the depot over the last three weeks. They are all currently formally unemployed, and were employed to assist in getting the depot cleaned up and ready for the Open Day. They are working on a contract basis and are currently being paid privately and not from the company fiscus. They have proven to be hard workers and as they genuinely do love steam, they put that little bit extra in without having to be asked. (They also don’t steal everything that is shiny or isn’t welded-down either.)

All three of these fellows have learnt a lot over the last month!



Victor stands in a sunny patch of the 15M workshop. This place gets cold in winter and sunlight is always welcome



Jacked up, ek se! Jeandre looks a bit startled, but he is actually confirming instructions in terms of coordinating the heights of the jacks on either side.



With most of his work done for the day, Coenie enjoys a shunting ride in the sow-bellied power van of the Shongololo Express.



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