

Wheels & Floats

July 2020



Tauranga Model Marine and Engineering Club Inc.

TAURANGA MODEL MARINE AND ENGINEERING CLUB INC.

The Secretary
PO Box 15589
Tauranga 3112

Palmerville Station Phone 578 7293

Miniature Railway Memorial Park
Open to Public, weather permitting
Sundays in Summer: 10am to 3pm approximately
Winter. 10am to 3pm approximately

Website: www.tmmec.org.nz

Facebook: Memorial Park Railway Tauranga

MEETINGS

General Members Meeting every first Tuesday
7pm.

Committee Meeting every second Thursday at
7pm.

Maintenance Tuesday mornings from 9am.

Engineering discussions Tuesday evenings
7.30pm.

COMMITTEE

President: Jason Flannery 5721165

Vice President: Bruce McKerras 5770134

Club Captain Max Donnelly 5716778

Secretary: TBA

Treasurer: Joanne Knights

Committee: Ash Thomas, Russell Prout,
Warren Belk, Bruce Harvey
Brian Fitzpatrick, Owen Bennett

Boiler Committee: Peter Jones, Bruce McKerras,
John Heald.

Safety Committee: Chris Pattison, Peter Jones,
Warren Karlsson, Jason Flannery.

Editor: Roy Robinson 07 5491182
royrobkk@gmail.com

CONVENERS

Workshop: John Nicol, Brian Marriner.

Track: Bruce Harvey, John Stent.

Librarian: Chris Pattison

Rolling Stock: Bruce Harvey

Website: Max Donnelly

MEANZ rep John Heald

OPERATORS 2020

5 July P Jones

12 July W Karlsson

19 July B McKerras

26 July N Bush

2 August M deLues

9 August B Fitzpatrick

16 August J Flannery

23 August B Harvey

30 August P Jones

6 September W Karlsson

13 September B McKerras

20 September N Bush

Presidents Report July 2020

Hi TMMEC.

Where has the time gone? Already 15 weeks since the lockdown started, slowly but surely our club activities are gaining momentum again.

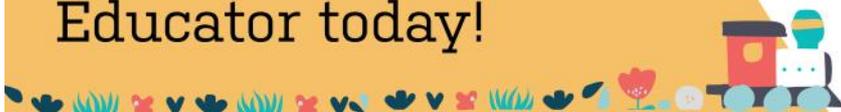
Firstly a thank you to Russell Prout and Owen Bennett for their many hours in the Presidents and Treasurers roles. Joanne and I are already under the pump having to learn the ropes and keep up with the amount of admin that these roles require. Thank you also to all who have joined the Committee again including, Conveners, Operators and Volunteers, without everybodys hard work this club simply wouldn't exist.

A very well supported playdate kicked things off, it was great to see so many members dusting off their locomotives and catching up with each other, I certainly hope we have started a trend.

With several steamers on the track, more parked up in steaming bays with their owners getting advice from others, smoke from the sausages on the BBQ, what more can you ask for? Also, a milestone for my son getting to take mum around the track for the first time with Kiwirail.

(supervised by dad of course) The Tuesday morning crew have been hard at it with maintenance and getting all the boxes ticked for our up and coming ADR, well done to them all. They have now implemented doing a consist of ride cars WOF's every two months, this has gotten rid of the need for weekend

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working bees to do a mass assessment.

Silver Fern is back on rails thanks to Warren Karlsson and all those that assisted him, a couple of runs under her belt and all seems to be in order. The rebuild should hopefully give us another 5 or so odd years of service and if the improvements that were added help, then maybe we will get several more. Kiwirail is due to be assessed soon and may also need a major overhaul.

We are still in the process of going cash and ticket-less for the foreseeable future, delays in getting the new railings installed have required an emergency re-think with some hire ones being sourced. The whole ticket-less operation is a two pronged goal 1) to help our limited number of members keep up with the workload and 2) minimising the amount of public interaction with cash and tickets as the Covid situation is still a big unknown for the world.

Sunday running has started up again, damp weather has seen a few of them cancelled. As was mentioned in the previous mag we were running two free Sundays to say welcome back, they rolled over due to the bad weather with the last being the 12/7. The public were very enthusiastic about this and we received great support, both being very busy days for the volunteers, that's for sure.

It was also great to see to some extra members down there helping the Sunday regulars, more hands make light work. I know this gets asked regularly but please if any of the other members can help, even half a Sunday a month gives others a breather. Yes, we are a model engineering club, but without a Sunday service the council would more than likely move us on. All we have whittled away on for thousands of hours in our shed would then just end up being on mantle pieces.

Another thank you to Ash Thomas, he has got the driver trolley MK2 set up, this is now behind Silver Fern. If you have a chance, try it out and see what you think.

Joanne has been beavering away at our advertising board, thank you. Assisted by Peter Davies this will be on display on Sundays to show the public a bit about the club and model engineering. The plan is also to take this board to displays with some models to see if we can generate public interest. AMP shows, the model railway display etc. We have a few activities coming up, firstly on the 18th is a visit to Murray de Leus's work which he has kindly organized. This was emailed out due to the short notice, so we hope to see you there.

Next, we have two playdates coming up, please support them if you can. The first one will be the 1st of August and this is a "Have a go day". This idea came from the Palmerston North club and it is open to members of the public in limited numbers. It is run on a first come first served basis via our Facebook page. Parents and kids who are into trains/models and want to see what is "under the hood". Before all the steamers are lit up, they can have a walk round looking at all the gauges, valves etc. Of course, age dependant, we will assess what activities they can then trial.

Max Donnelley is very keen to resurrect the raised track, it needs some TLC. If you have an interest in the raised track be it to run on it, or just want to help, we will have a meeting on the 1st at 9:30am. We plan to walk the track and do an assessment of what is required. Numbers in attendance for this will also help us determine if a resurrection is a viable idea or a nonstarter. If you are unable to attend and would still like to help in the future, then please let me know so we can add you to the list.

The next playdate is the 5th of September and we have a group visiting from the Menzshed. This is the members and their children/grandchildren. This is also going to be a hands-on experience as this group is very likeminded to ourselves, they are keen to come and check out some of the locomotives and how they work. They even have a Myford 7 in their shed and have asked for some help in setting it up and learning how to use it.

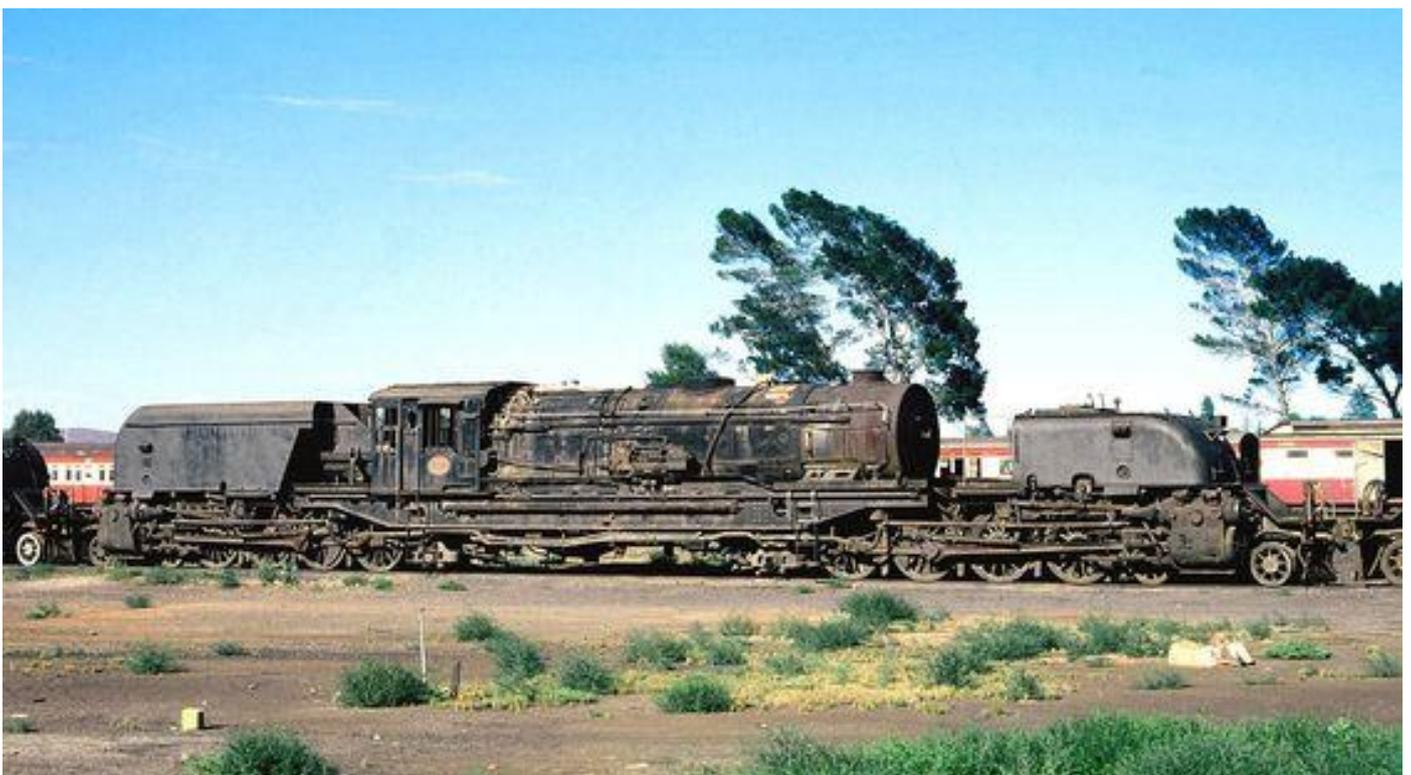
If I have missed anything this month, it doesn't mean your input isn't valued, just I need to take better notes.

Please remember it is our club and it is here for all of us to enjoy, a place to learn skills or socialize with likeminded people and not be judged for our abilities. The more effort we put in to making our club a great place, the more we will reap.

As always if you have any ideas for the club, comments, suggestions, then please let the Committee know, this is YOUR club too.

Regards

Jason



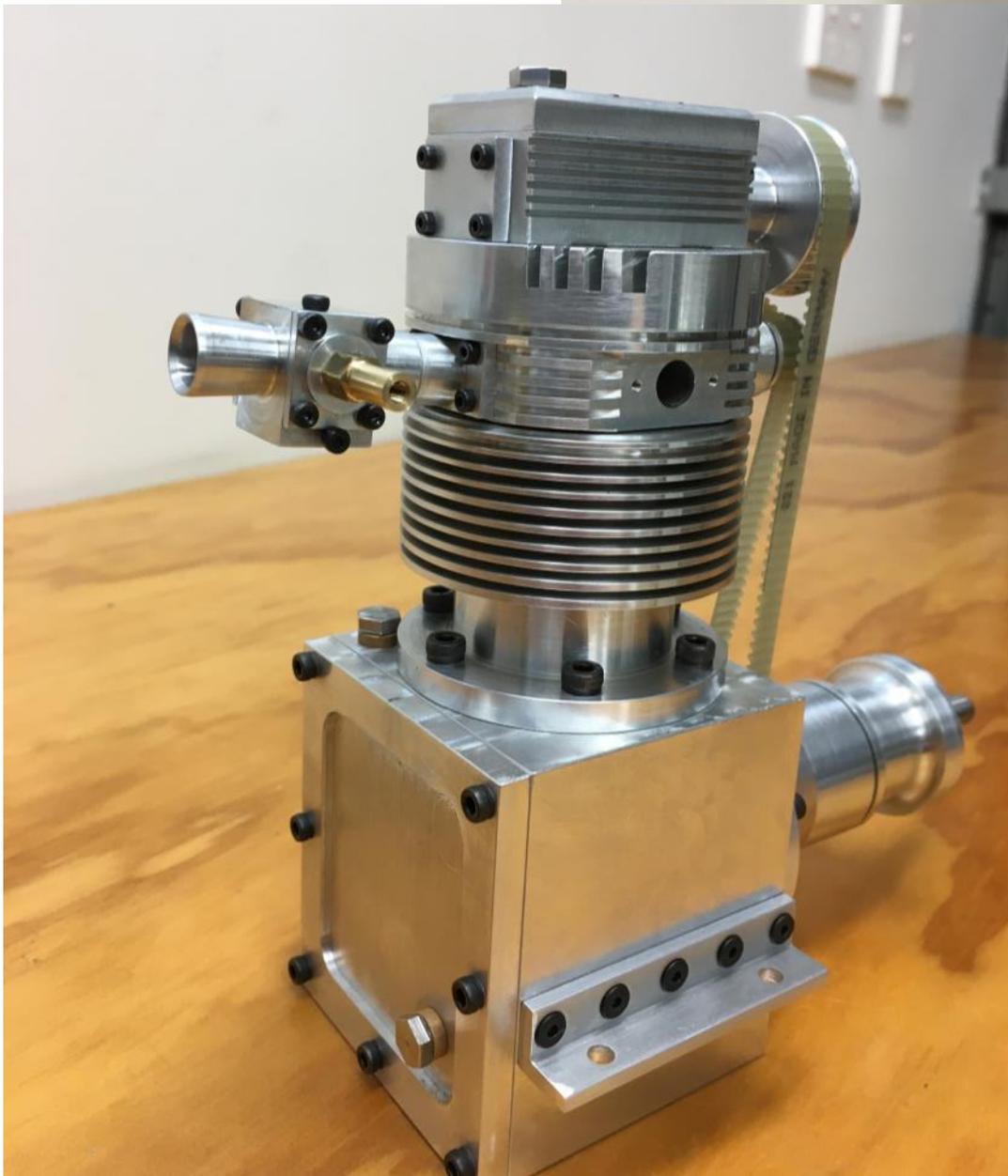


John Stent's Garratt

(photos Peter Davies)



Regan Olivecrona's 15cc engine. The recently completed carb just awaits the needle valve to be machined. (photos by Regan)





Play Day
6-6-20



Garratt 398

Ex Rhodesia Railways Garratt locomotive



- **Locomotive running number:** 398 (Isidumuka)
- **Designed by:** Beyer Peacock & Co. to Rhodesian Railways specification
- **Built at:** Beyer Peacock & Co., Manchester
- **Date built:** 1950
- **Builders number:** 7340
- **Date entered service:** Approx 1950/51
- **Date withdrawn:** 1993

Locomotive details

- **Wheel arrangement:** 4-6-4+4-6-4
 - **Driving wheel dia:** 4'-9" (1.45m)
 - **Cylinders:** (4) 17½" x 26"
 - **Valve gear:** Walschaert
 - **Working pressure:** 200 psi
 - **Weight in working order:** 187 tons
 - **Overall length:** 92'-4" (28.14m)
 - **Tractive effort:** 44,702 Lb (@ 80% boiler pressure)
 - **Fuel:** Coal (hand fired)
- Capacities:** Fuel, 12½ tons. Water, 7000 gallons.

History

The 15th and 15A class Garratts of the Rhodesia Railways, latterly the National Railways of Zimbabwe, were neither the first Garratts used in that country (the 13th, 14th and the first of the 16th classes came before them) nor the last (the rest of the 16th, the 17th, 18th, 20th and 20A classes came after them). But they were, arguably, the most successful, the most economical to operate and were certainly the most numerous.

The origins of the 15th class go back to 1935 when the 3'-6" gauge Sudan Railways invited tenders to upgrade their locomotive power on the Port Sudan to Atbara and the Atbara to Wad Medani lines. These lines were laid across waterless desert country and the existing engines had to be changed at Atbara, Khartoum and other places due to their limited water and coal capacities. Both lines were laid with 50 lb/yard rails that limited axle loads to 12½ tons. The line inland from Port Sudan also contained much sharply curved track and long gradients through the mountains, reaching an altitude of 3000 feet within 100 miles of the Port.



Beyer, Peacock & Co. Ltd. responded with a proposal for a Garratt type locomotive with a 4-6-4+4-6-4 wheel arrangement (the first for a Garratt) with a maximum axle load of 12½ tons and a Tractive Effort of 43,520lb. They became the Sudan Railways 250 class. With the addition of an auxiliary water tanker, they could run the 200 miles from Atbara to Khartoum without taking water, and with 10 tons of coal could run the 300 miles from Atbara to Wad Medani. One locomotive was supplied in 1936, three in 1937 and six more, to a separate order, later in 1937. Their most common use was on the Atbara to Wad Medani route, where they operated on the caboose system of working with two crews, on the round trip distance of 600 miles. Due to the extremely sandy conditions through which they ran, serious trouble was experienced with wear in the motion and suspension of the hind engine and by 1945 they were out of service and surplus to requirements.

However, during the short time they were running, their economical use of fuel and water was noticed by the Rhodesia Railways who had a requirement for new mixed traffic locomotives for the "Mafeking Branch".

Another photo from the Kanapine Timber and Hardware Calendar 1985



Chook Rawiri operates a steam driven cut off saw These were later abandoned for a large motor driven chain saw which were quicker and more efficient.

From the Cave at Katikati

Well, a few photos this month but no articles!! Do I have to get Jacinda to declare another “lockdown” to get more of the written articles?????????????

Please put pen to paper NOW.

Photos of John Stents Garratt stimulated me to insert an article on a South African Garratt now residing in New Zealand.

Disclaimer :

The views and opinions expressed in articles contained in this magazine are those of the author (s) and do not necessarily reflect the policy, position or opinion of the TMMEC or its officials.

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This line, between Bulawayo, in Southern Rhodesia, and Mafeking, in South Africa, was then operated by South African Railways using conventional Rhodesian 10th class 4-8-2's. These engines were finding it difficult to deal with increasing train weights and faster schedules. On this line the problem was coal capacity, rather than water, requiring locomotives to be changed along the route. Water was generally available at convenient places along the line, but any new locomotives would need to carry enough coal for the entire 484 mile run.

Beyer Peacock were advised of the requirements in 1939 and in 1940, at a price of £20,093 per locomotive, delivered four prototypes that Rhodesia Railways classified as their 15th class. They carried 10 tons of coal and 7000 gallons of water. They could haul 550 ton passenger trains at 50 mph, and often faster, on the level and at not less than 20 mph on grades of 1 in 66. And they could deal with 1000 ton freight trains. The maximum axle load did not exceed 13¼ tons in working order and their boilers were interchangeable with those fitted to the 16th class 2-8-2+2-8-2's, thus having a working pressure of 180 psi. They were almost identical to the Sudan Garratts; the main differences being that they had slightly larger cylinders and a larger and longer boiler with a round top firebox, instead of a Belpaire one, and with a larger grate area.



Initially, the 15th class were barred from the Mafeking branch due to delays, caused by the second world war, in bridge strengthening work and were not used on that line until 1959. To keep them occupied they were mainly used on the Salisbury to Gwelo run, including use on the "Rhodesia Express". During their first six years of operation the four locomotives each averaged 6000 miles per month, including days out of service for tyre turning, repairs and boiler washouts; a considerable improvement on what was normal in those days. They also ran 250,000 miles between general overhauls.

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The four prototypes were so successful that Rhodesia Railways soon ordered a further 10 locomotives. Unfortunately, construction of these was delayed by the second world war and they were not delivered until 1947. A further 20 were delivered in 1949.

In order to increase their nominal tractive effort, without making any other alterations, the boiler design was modified slightly by increasing the thickness of the outer firebox wrapper to allow a working pressure of 200 psi. All subsequent batches of 15th class locomotives had the modified boilers and were known as the 15A class. The 15A's comprised 15 delivered in 1950 (No. 398 was the last loco in this batch), a further 15 in 1951, and the last 10, delivered in 1952, were built under sub-contract by Société Franco-Belge. In all there were seventy-four 15th and 15A locomotives. In later years it became impossible to distinguish between 15th and 15A classes due to the boilers being swapped around between locomotives (this was the usual practice since it took longer to repair a boiler than the rest of the engine) or when a boiler had its outer firebox wrapper replaced with the thicker plate and the operating pressure increased accordingly. (The modified boilers were also used on the 16th class locos, which became class 16A when so fitted).

All of the 15th and 15A locomotives had the same underlying mechanical construction but there were many detail variations among the different batches, particularly when it came to bunkers and tanks. In addition, most of the locomotives had their bunkers and tanks increased in size in later years to hold 12½ tons of coal and 7500 gallons of water.

It was not unusual for engine units to be swapped around in the event of serious accident damage in order to get a locomotive quickly back into service. The result was that none of the locomotives, in their later days, were completely the ones originally built.

To increase their locomotive stock the Rhodesia Railways bought, in 1949, the ten original 4-6-4+4-6-4 locos supplied to the Sudan Railways and classified them as the 17th class. Because of their smaller boilers they were no match for the 15's and they were eventually sold to the Moçambique Railways where they were still in use in 1969.

For the Royal Tour of 1947, the first four locos (then numbered 271 to 274) were painted "in a most attractive royal blue livery". 271 and 272 were used to haul the special train on the Bulawayo - Salisbury section and the other two between Bulawayo and Livingstone.

In 1955 the new line to Lourenço Marques (Maputo) was opened and the 15th class hauled 1000 ton freight trains through to Malvernia, just over the border in Moçambique.

The 15's eventually worked on all of the principal main lines and, from 1966, virtually monopolized the Mafeking line until it was dieselised in 1973. It was on the Mafeking services that the appellation of "The Flying Fifteens" was gained. They worked on the caboose system, with two crews, and ran the 968 mile round trip in four days including servicing and re-fueling at Mafeking.

Because of their low operating costs, low maintenance requirements and the ability to run fast when required, the 15's were the locomotives most used when there was a choice and so they had a tendency to accumulate some considerable mileages. In one month, in 1960, No. 379 ran 12,270 miles. 398 held the record for the greatest distance run in a year when, between October 1967 and September 1968, she ran 93,593 miles.

Like most steam locomotives, the 15's were not completely fault free. Several modifications were tried; some were successful, some were not.

In 1952, it was decided to remove the snifting valves from the steam chests of the hind engine cylinders. It was believed that, under drifting conditions, they were allowing dust to be sucked into the steam chests and causing the excessive wear to the valves and pistons that was being experienced. The snifting valves were a new feature on this batch of engines (Nos. 384 - 423) that was not repeated and in due course the snifting valves on the front engine cylinders were also removed.

In 1955 it was decided to remove the pre-heater cones from the top feed clack boxes because "... (they) do not serve any useful purpose" . By 1959 they were being re-fitted because the "...cooler feed water impinging on the main steam pipes....." was causing the pipes to crack.

In 1958 steam pipe elbows in the smokeboxes began fracturing. Replacing the cast iron elbows with cast steel ones and increasing the number of studs from 5 to 6 seemed to solve the problem. Peculiarly, this problem was restricted to locos 350 to 423 so may simply have been due to a material deficiency in the components for that batch when the locos were originally built.

In 1959 modifications were made to the piston valve heads and rings to reduce wear, extend their life and make them easier to remove.

In the 1960's locos 380 and 381 were fitted with Giesl ejector exhaust systems in an attempt to improve the steaming efficiency and reduce "birdnesting" of the tubes. Provided they were not tampered with in the running sheds, these gave coal and water savings of 16.8% and 21.6% respectively but the imposition of trade sanctions on Rhodesia prevented further engines being fitted. As an alternative, a locally designed six-jet blast pipe exhausting into a modified 20th class chimney was fitted to No. 376. This was very successful and, from 1970, was fitted to all of the sixty-five 15th and 15A locomotives that were still in operation.

About the only really serious problem that the 15's had was the development of vertical cracks in the lower edges of the boiler frames during the 1960's. The exact reason for this cannot be determined from the records but, as it was not restricted to the earlier engines, was unlikely to be mileage related. Speculatively, it could have been caused by the increasing use of double-heading as trains got heavier. There was no specific requirement in the original specification for the locos that they should be designed for double-heading and the stress tests carried out in 1969 did not consider this possibility. This method of operation could treble the tensile stresses in the boiler frame of the second engine if two 15's were coupled together and may have been the cause of the cracking. It was not unknown for class 20's to double-head in front of 15's and this would increase the boiler frame tensile stresses by a factor of four in the second locomotive. The problem was overcome in the short term by welding deepening strips to the lower edges of the frames in the weak areas. The long term solution, sometimes applied during general overhauls, was to cut off the ends of the frames and weld on completely new, and deeper, ends.

Another problem, that became increasingly serious from 1980, was the fracturing of cylinders and cylinder covers due to water trapped in the cylinders when starting. It appeared to be an operational, rather than a design, problem and two approaches were taken. One was to re-design the spring-loaded, screw adjusted, cylinder relief valves so that the relief pressure could not be increased by the engine crews. The other was to replace the spring loaded valves with bursting disks. Neither seemed to be a permanent solution to the problem and most locos eventually reverted to the original design.

Diesel traction was introduced to the Rhodesian railways from 1955 and, over the next 20 years, some of the earlier 15th class were withdrawn from service. Cheap oil, and the lack of any commercial builders of large new steam locomotives after 1965, encouraged further diesel traction and it was expected that steam operations would finish in 1980.

However, the declaration of Rhodesian independence in 1965, combined with the world oil crisis in the mid-1970's, had created a whole new problem. Not only was the price of diesel increasing rapidly but the importation of new diesel locomotives and spare parts was becoming difficult. Good quality steam coal was cheaply available locally from the extensive deposits at Hwange in the north-west of the country. So the decision was taken in 1978 to abandon the dieselisation policy, electrify the Salisbury to Gwelo line and put 87 Garratt locomotives through a complete rebuild and upgrade programme to extend their use well into the 1990's. Locomotives of the 14A, 15th/15A, 16A, and 20th/20A classes were involved.



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The rebuilding work was shared among several engineering companies with the stripping down and re-erection of the locomotives being carried out in Bulawayo by the Rhodesian Engineering and Steel Supply Company (RESSCO), later renamed the Zimbabwe Engineering Company (ZECO).

During the rebuild, new all-welded fireboxes without thermic siphons but with 4 arch tubes were fitted to the boilers, roller bearing cannon boxes were fitted on all driving axles together with manganese steel liners and non-adjustable wedges, and some engines were fitted with new all-welded tanks and bunkers. It is interesting to note that when the roller bearings were fitted, the usual keys between the wheel bosses and the axles were omitted. 398 was one of the locomotives that went through this rebuild programme. All the rebuilt 15's were named; 398 becoming Isidumuka (Water Buck).

By the early 1990's the diesel situation had improved but the supply of spare parts for steam locomotives, particularly boiler components, was becoming a problem. Steam expertise among the railway staff was ebbing and steam locos were slowly withdrawn from service and scrapped or offered for sale.

About this time, there developed an interest among some members of Steam Incorporated, a rail preservation society in New Zealand, to obtain a Garratt locomotive for possible use on excursion trains and to show how a well designed Garratt could have worked on the NZ rail network. After some research, it was felt that a 15th class locomotive would be a suitable choice. They were available, they had large enough driving wheels to run at speeds that would fit in with modern train scheduling requirements, they were hand fired and, with some modification, could be made to fit the NZ loading gauge. Those interested in the project called themselves "The Flying Fifteen Group".

A representative of this group visited Bulawayo in 1996 to assess the locomotives available and 398 became the engine of choice, subject to her being made operational. An offer was put to the National Railways of Zimbabwe for her purchase, and a deposit paid. In 1998, notification was received that 398 was usable and representatives of the Flying Fifteen Group went to Bulawayo, checked on the state of the engine, and witnessed her take an almost full-load train from Bulawayo to Cement. At the time, 398 had accumulated 1,972,275 miles of running in the service of Rhodesia Railways and the National Railways of Zimbabwe.



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She was then towed to Kimberley, in South Africa, for storage pending arrangements for her shipping to New Zealand. Making these arrangements took considerably longer than expected and it was not until March 2011 that 398 finally left Kimberley, in three pieces on road trailers, bound for Durban.

She arrived on Steam Incorporated's site at Paekakariki on 18th May 2011, was re-assembled sufficiently to be moveable, and put under cover pending making her suitable for main line running in New Zealand.

To round off the history of the 15th class it is interesting to note that, as at the date of preparation of this poster (July 2012), 15A's No. 392, 423 and 370 were working at the Hwange Colliery (having been re-numbered as their Nos. 10, 11 and 12 respectively) and No. 395 was still being used by NRZ on Safari trains and for occasional shunting around the Bulawayo yards.



Above 7 1/4" model

Below Last one in Government service SA



Show and Tell 7th July



Top : Bruce Mckerras.s Ridgid Velloccette. Note no springs!!!! Bruce continues to acquire parts from all over the world to complete this rebuild.

Right : Ash Thomas's Drivers seat.

2nd Down : Bruce Mc built a new safety valve assembly whilst fine tuning his new lathe.

3rd Down : Device for machining 3 jaw chucks jaws. Contact Bruce Mc if you wish to machine the jaws on your lathe.

Bottom : The cylinders of Jason's loco machined by Ash Thomas's son.

For Sale.

Band saw c/w stand \$150.00

Mill drill RF20 inc clamp set, vice, dividing head \$3000.00

Wooden bench with metal top c/w vice \$100.00

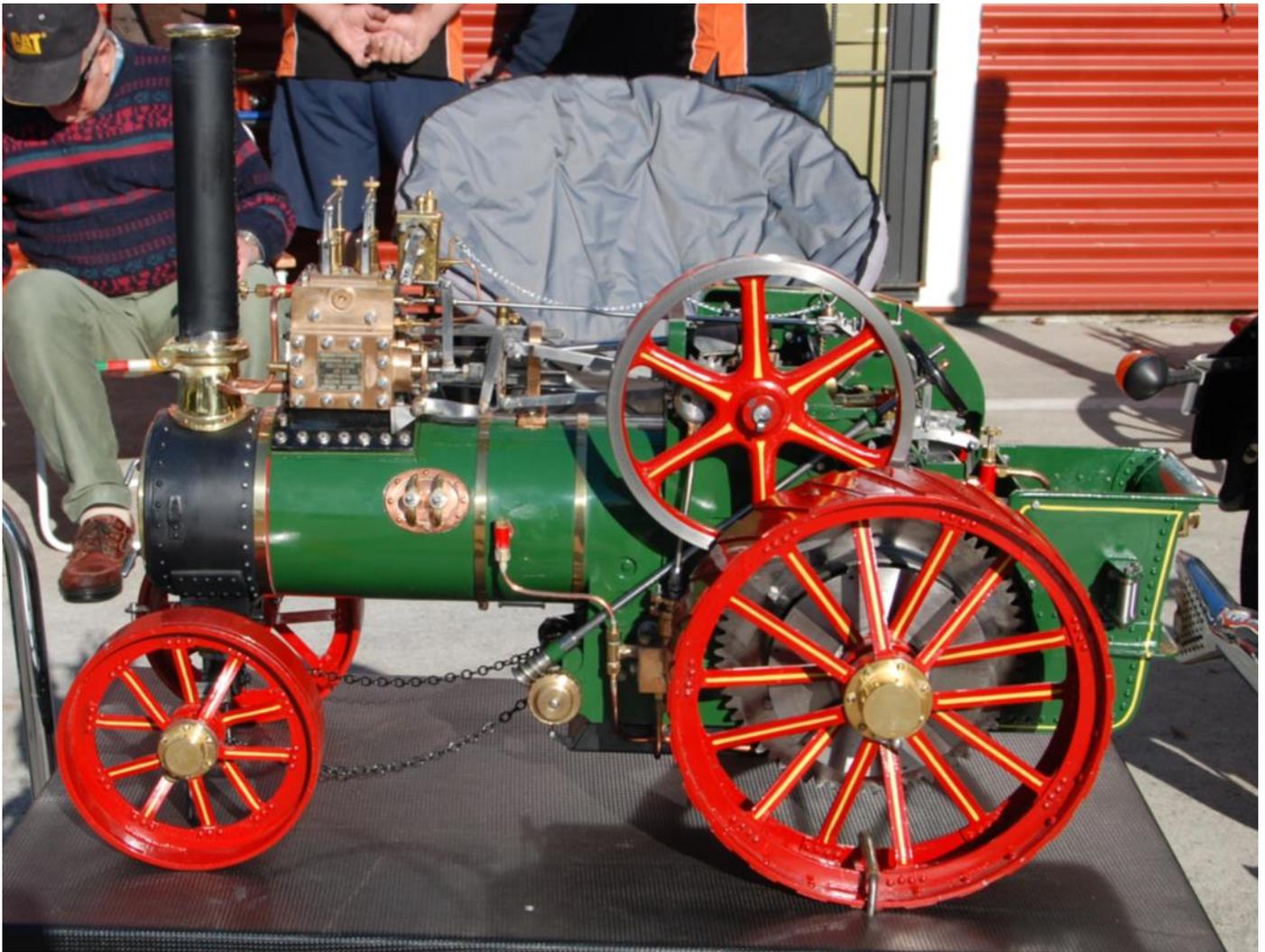
Band saw metal cutting \$250.00

Durham and North Yorkshire 2" Traction Engine \$20 000.00 (see over)

3 1/2" Britannia Loco and Tender \$10.000. 00 (see over)

For further info Ph 07 5491182 <royrobkk@gmail.com>





Durham and North Yorkshire Steam Traction 2" scale engine c/w Living Van and Plough. Never been fired. Hydraulic test done during construction but will need to be recertified. Also requires safety test done when in steam.



Loco Britannica c/w Tender 3 1/2". This had hydraulic test done during construction but will need to be recertified. Also requires safety test done when in steam.



Whakatane Night Run 11th July 2020



Just shows you someone loves us!!!!!!!!!!!!!!

Dear Train drivers
& Helpers,

1.6.20

We miss seeing you
and your trains at
Memorial Park.

We hope you are
well and safe.

All the best,

Nico's
(4)

Ali
(44)



A letter via Heather Wilson at MEANZ

Hello fellow model engineers and miniature railway enthusiasts!

We are currently putting together the NZ Model Engineers 2021 wall calendar.

This is the first time, to our knowledge, that we will have a dedicated miniatures calendar that has professionally been put together.

What we asking your assistance for is:

1. We would like to know your clubs Open Weekends/Special/invitational days for 2021 Calendar year that are confirmed, or likely to happen. I will try my best to populate these in the calendar across the year.

Please send: host club, dates and details.

2. Club Website/Social Media address' for a club list at the back of the calendar. As well as your regular running days.

The calendars will be open for individuals and clubs to purchase, and some clubs have already indicated an interest to sell these to the public. Hence we can sell the rest of the nations clubs to the public.

3. Photos - We are looking for photos for the calendar and contributors will receive a free calendar for their efforts.

PHOTOS SHOULD:

- Be your own content

- Well framed, and lit i.e dont chop people's heads off!

- Interesting and relevant i.e don't send photos of peoples shoes, cups of tea or what you had for lunch.

Photos can be of model locomotives/engines/boats/etc, railway operations etc. They just need to be interesting and something you wouldn't mind looking at for 30 days.

- A minimum of 300DPI or about 1mb plus, in file size (jpg, TIFF. pdf, gif, png..)

- Please also send a caption of what your photo is/contains

PLEASE SEND ANY OF THE ABOVE TO NZMODELENGINEERS@GMAIL.COM

Calendar ordering details will be sent out shortly and once they have been confirmed.

Happy modelling,

Sean Heenan/Corban Fray

