Allison

Sydney Live Steam Locomotive Society

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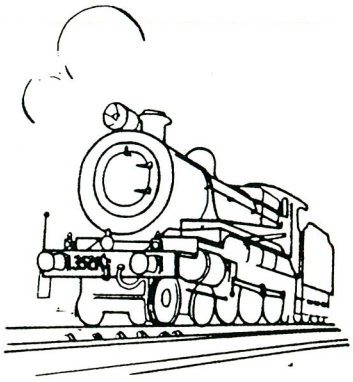

'Newsletter'

Vol. 19 No. 2 .

May 1991.

Annual General Meeting.

The Annual General Meeting will be held in the Club meeting room on the first Tuesday in June , 4th June. All members are invited to attend this meeting, the election of Office bearers for the following 12 months will take place.

New Locomotives.

Some people go from one extreme to the other. Over the last year or so Warwick Allison has ventured out of the signal box to drive his 3 1/2" gauge "Titch" on the rated track. It seems that all those small engine skills will now be lost as Warwick gets to master his new charge.

The "V" Class by R.W.Allison.

The "V" started over ten years ago. It took my fancy as being a fairly large engine for five inch gauge, the prototype being 3' 6" gauge while being fairly straightforward with a nearly all square valve gear layout and a frame arrangement that lent itself to an all welded construction.

The scale chosen was 1 1/2" to the foot, which offered several advantages. It gave additional clearance between the leading wheels and the crosshead, a normally tight spot at the best of times; it produced a slightly larger engine than if the scale was based exactly on 5" gauge, and best of all, it meant that all the full size dimensions need only be divided by 8...

Thinking laterally, basing the scale on the track gauge does not have a lot going for it. In full size practice the physical size of the loco. was based on structure gauge more than anything else. For equivalent structure gauges (and for that read engine size) they produced engines which varied from metre gauge to 5' 3", Which says to me that the number one choice is convenience of scale and then adjust the frames to suit the gauge.

Outline drawings for the frames, coupling and connecting rods were produced and these components were oxy-profiled out. Frames are 1/4" steel plate.

The wheels are of a distinctive type so patterns were made for these. Bernie Courtenay kindly duplicated some axle box patterns in casting resin to reduce the number of boxes to be made while Bill Richards supplied steel tyres (still to be fitted). I arranged to get the castings through Warrick Sandberg which saved time dealing with foundries. It is hard to organise these things in weekday working hours.

I originally thought of using cylinders from another engine and actually had castings obtained, but as time passed I became less satisfied with these as the V's were of a very distinctive shape and consequently I made patterns and core boxes. I had simplified the pattern to avoid awkward cores. This had one effect in reducing the area of the exhaust steam passages. To ensure this area was problem free I decided it would be feasible to make the piston valves hollow. this allows the exhaust to escape through passages at both ends of the piston valve. These valves are 1 1/16" diameter and fitted with cliplok type rings. Ordinary 2 1/4" diameter rings are fitted to the pistons.

The cylinders are each provided with three drain valves of the steam operated teflon diaphragm type. The middle valve drains the steam chest. These are simple to make and very reliable in service.

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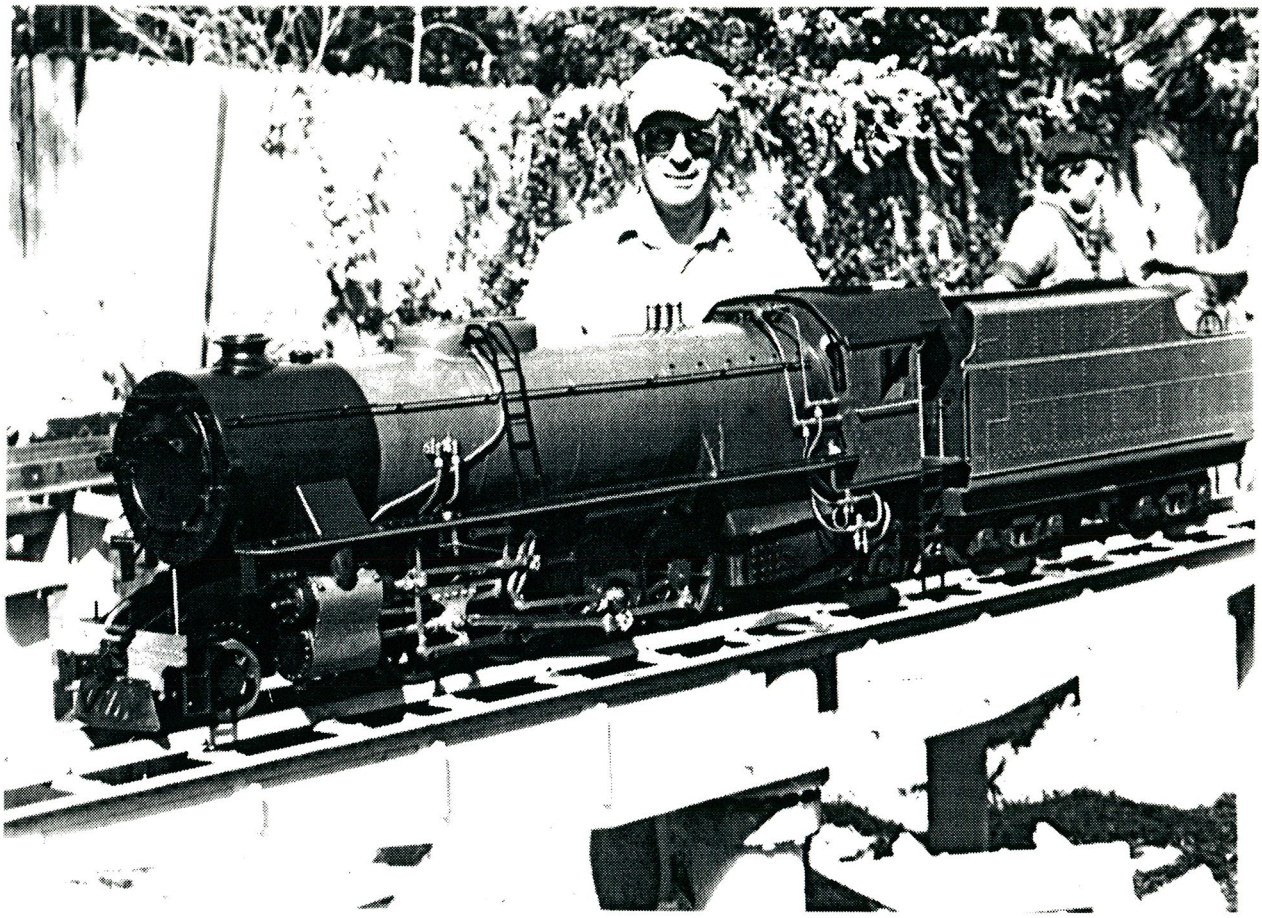
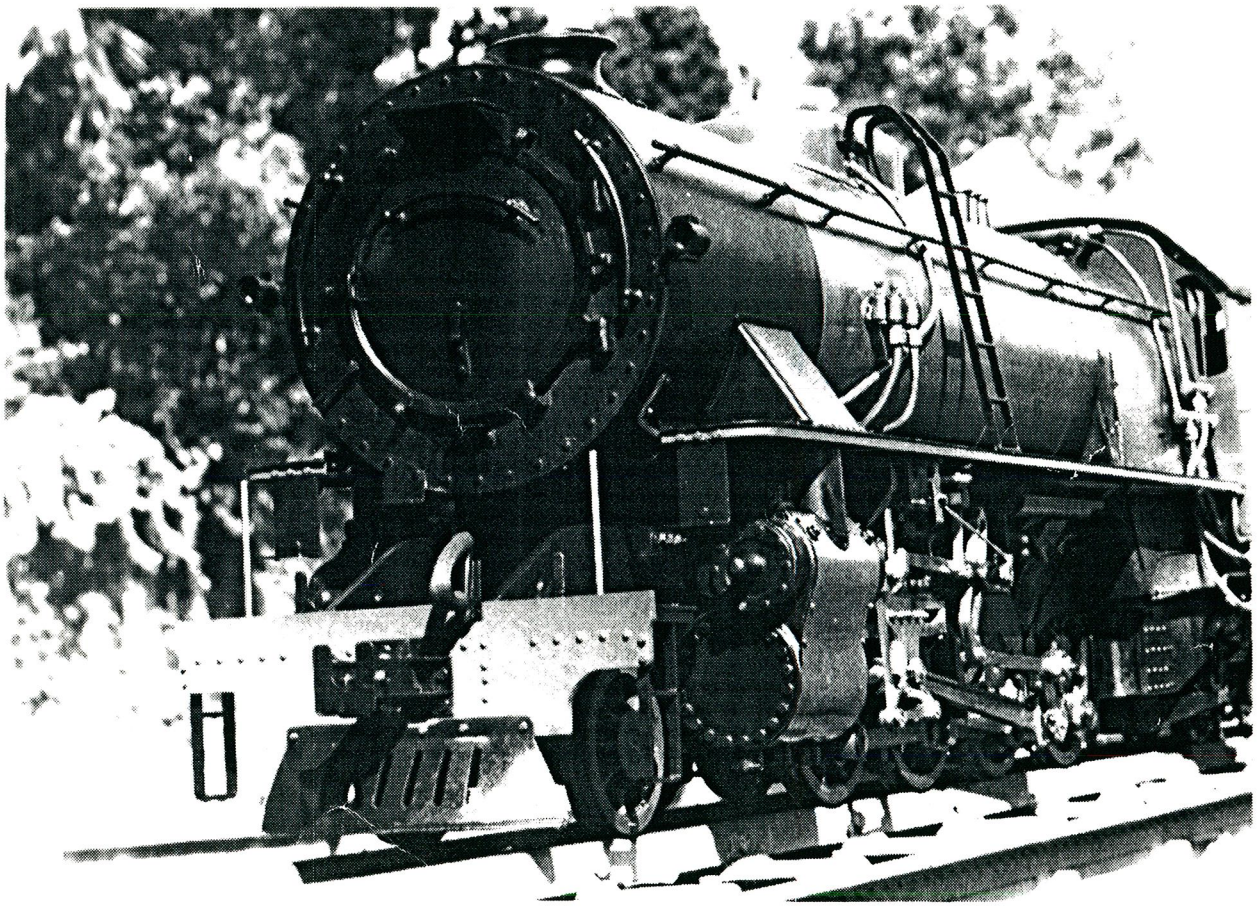


WARRICK ALLISON'S 5"GAUGE W.A.G.R. "V" CLASS.



The "V" Class. cont.

I did my own frame layout drawings to ensure that cylinders, wheels, crankpins etc., all were in the correct relative position, but used the full size WAGR drawings for most other components - (Just divide by 8 .)

Twin single acting axle pumps were fitted for boiler feed which makes driving easy, as the water is maintained at a (relatively) constant level.

The smoke box is 9 5/8" OD rolled from 10g steel plate courtesy of Ron Larkin. A machined ring fits between the boiler and smokebox and this was the only component I could not machine myself on my Myford Super 7. The outside diameter was O.K. as it could be held on the inside, but my chuck could not stretch far enough to hold the outside so I could bore it to a neat fit on the boiler, so Rurrell Freeman kindly performed this task.

The boiler is steel and of the Briggs type. I wanted a combustion chamber to cut down on what would have been excessive tube length. This was done by extending the firebox and providing a dry curved cover to the bottom (as an extension to the barrel). This and the dry firebox sides are 1/4" steel plate. The water walls are of 3/4" 16g copper tube. Each water wall is independent and the front is attached to a 3/8" BSP teflon ball valve for the blowdown which is piped away between the frames. One of these is fitted with a clip on hose connector. It takes only seconds to connect up a garden hose and open the blowdown valve to fill the boiler with water. A fusible plug is fitted.

The firebox crown is supported by a single rod stay about 3/4" diameter. I did all the fabrication of the plates myself but Flynns Engineering at Villawood did the certified welding.

Wendy, my wife, did a lot of delivery and pickup of parts during the week, for the boiler and other bits and pieces and this was really appreciated when I wanted to move onto the next part, but was short of the necessary raw material with a long wait to my next day off.

Compensated brake gear on the engine is steam operated, while a brake vacuum ejector is fitted for the vacuum brakes on the tender and train. The vacuum line runs right through the engine to the front buffer beam for tender first working (?) or double heading.

Two mechanical lubricators of the LBSC oscillating type are fitted, with non-return roller clutches instead of ratchet gear which I find awkward to make right and keep maintained. The lubricators are driven from the expansion link trunnions and both feed into manifold before splitting and feeding into the steam pipes just above the steam chests. This arrangement ensures positive lubrication even when only one lubricator is working.

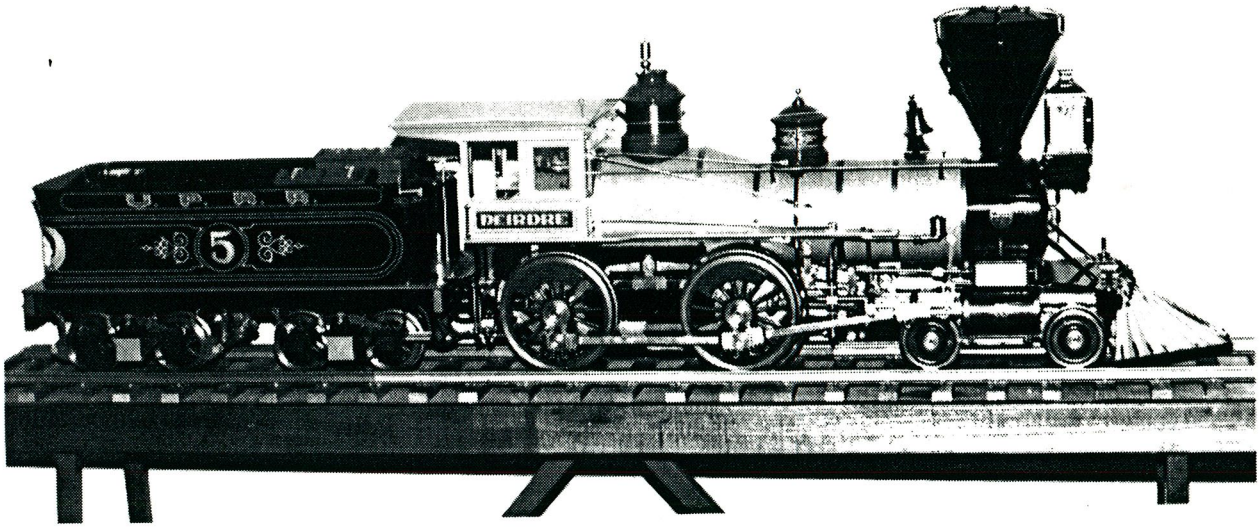
The prototype had steam powered reverse, but this has not been fitted at this stage, nor the turbo generator, although a steam valve has been installed for this.

George Robinson provided me with some teflon insulated wire for the electrials and this will operate the marker lights from a battery in the tender until the turbogenerator is created. The headlight is of the domed type (like a 60 class) and this posed a problem until I discovered that a K-Mart ice cream scoop was just the right size. At $1.49 it was the right price too.

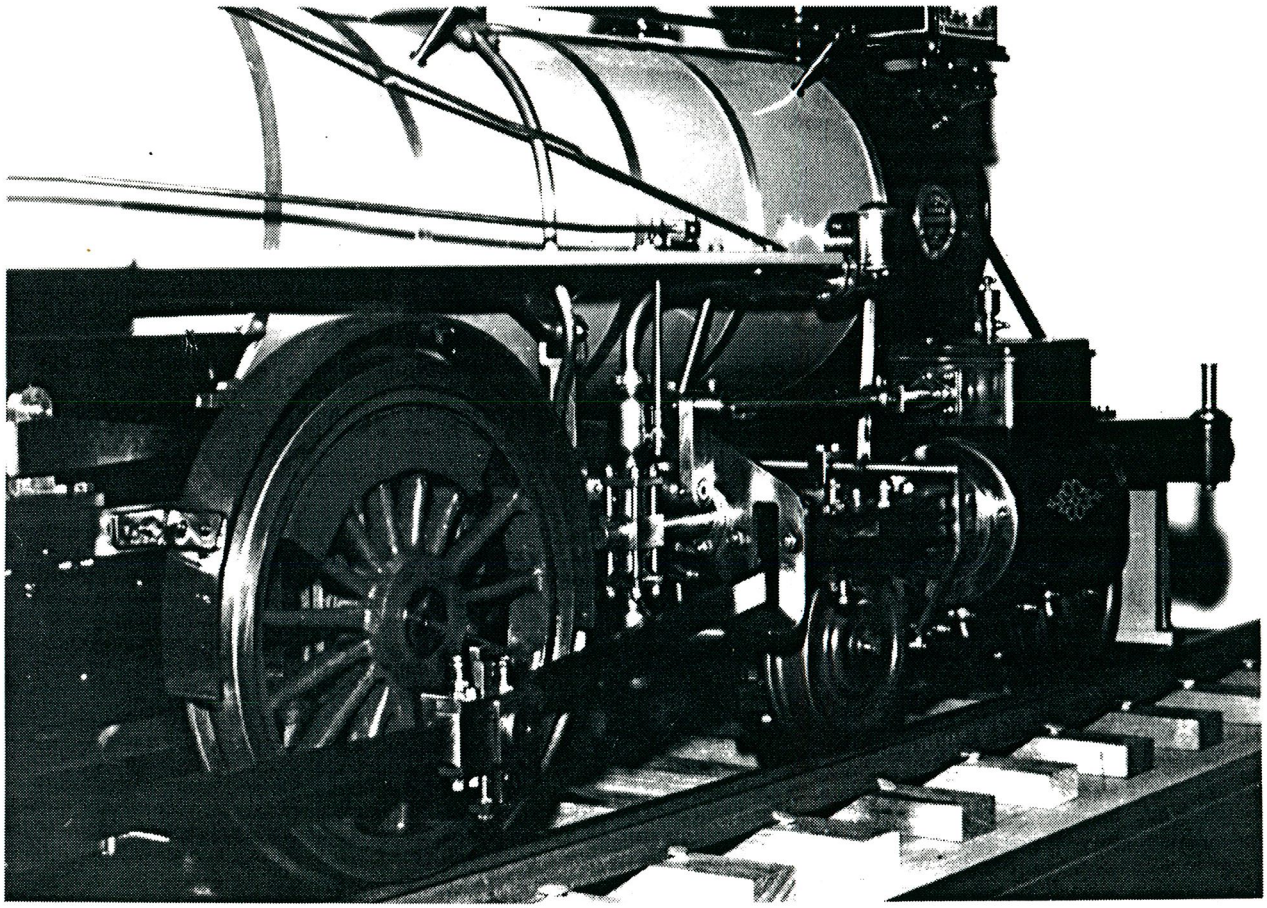
A 25 oz and a 60 oz injector has been fitted for boiler feed. All four methods of boiler feed work in completely separate circuits to ensure maximum reliability, although this means there are seven connections (none under pressure) between the engine and the tender (2 injector water, 2 axle pump supply, 2 axle pump bypass and 1 vacuum line).

The tender is of fully welded construction, which consequently needs no internal bracing etc. No baffles are fitted. Even though the drivers seat on the tender is quite high up compared to other 5" gauge engines the tender rides very smoothly with exceptional stability. Thousands of rivets were fitted to the tender. I found that after prepa ring the plates (i.e. marking out and drilling all the holes) I could fill up those holes with rivets at the ratr of 100 / hour. An hour and a half of this was enough to send me to bed with a headache..

To avoid awkward plumbing all the pipe runs under the tender were done in plastic tube from the sump to the engine / tender connections at the front. This only required a couple of brackets to hold it in position and avoided awkward bending and cutting of copper pipes.



TWO VIEWS OF ALAN MACKELLAR'S 5" GAUGE 4-4-0 AMERICAN LOCOMOTIVE.



The "V" class. cont.

6mm tube wasused which seems to be a nice firm fit over 1/4" tube. Is this one case where metric sizes work in our favour.

Front and rear couplings are of the plain fork type. Imitation 'meat choppers' are slipped over these for light engine movements to protect the tender ladders and engine cowcatcher and because they look good.

For ease of driving the reverse and vacuum brake valve have been extended through the rear of the cab.

The three safety valves are of 5/16" bore and of the ball pop type and seem to be able to easily handle their job. Two water gauges are fitted as per prototype.

I wrote to Westrail and enquired what colour was used on the "V"s. I have seen this described variously as Larch green or Hawthorn green. Westrail kindly advised that they specified Australian Standard AS381 - Colour number 267 Traffic Green. I had some mixed to this colour, but as it was ordinary house paint I didn't consider it good enough to take the heat or handling. However Rustguard "Forest Green" is virtually identical. This had a slightly higher temperature rating and did not need a primer, so I tried this. This went on reasonably well (especially seeing that painting is the hardest part.) but the Briggs dry firebox walls still caused discolouration with the heat despite insulation. The final solution may be an overall coat of black paint. If anyone is interested the "Traffiic Green" is now on the Signal Box Door.

Problems? Well she now runs well after attention to the return crank fixings springing, brake hangers (first they rub the wheels, thenthey hit the rods.) the reverser vacuum ejector, drawgear etc., etc.,. Some trouble was also experienced with the crossheads picking up on the side of the slidebar due to too near a fit.

Second Thoughts ? There is no doubt that the steel boiler was cheaper than a copper equivalent and although it takes a relatively long time to raise steam, initially, once hot, it is a delight. However, the backhead inspection plugs are impossible to get at buried under a backhead cover sheet, clacks, watergauges, etc., which means that it will be necessary to undergo major dismantling for the two yearly boiler inspection, where a copper boiler would be no difficulty in this regard. Perhaps Briggs type boilers are not really suitable for the smaller gauge prototypical main line type models, as I can't see how the problem could have been easily avoidable.

There is no doubt that the 4 weeks following the steam test were probably the most hectic in all the 10 years of construction, fixing teething troubles and completing the unfinished bits.

Big engines leave big leftovers. So for a change I'll use the leftovers to make some simple 0 gauge engines for the boys. Nothing like a change in scale.

4-0 5" Gauge American Locomotive.

This locomotive is the result of many hours of Alan Mackellar's Time. The locomotive would have to be one of the finest 5" gauge models that one could see, that would include anything published in Model Engineer or any other overseas publication. The technical details I will save for the next Newsletter but I would like to comment on the finish. The polished metal parts have not a flaw to be seen and the painting, decoration and lining is superb. The inspiration came from an old print, all the details have been researched from information about similar locomotives of the time.

Duty Roster

Jun. '91. B.Hurst, B.Tulloch, A.Eyre, J.Hyde, B.Rawlinson, G.Esdaile, A.Austin.
Jul. '91. B.Peake, W.Allison, J.Murray, J.Leishman, W.Edgecombe, V.Condon.
Aug. '91. T.Arney, G.Farkas, P.Dunn, M.Tyson, H.Ryan, K.Gapes, K.McMahon.
Sep. '91. W.Richards, T.Geraghty, W.Sandberg, J.Ranford, J.Hagan, H.Spencer, A.Cottrell.

Gate Roster.

June R.W.Allison. July B.Courtenay. Aug. M.Tyson. Sept. J.Sorenson.

Included for Members Amendments to Rules Book.

AMENDMENTS TO RULES

Following various changes to the Act governing the operation of Co-operative Societies the rules of the Society have been amended on three occasions, these rule changes are detailed below. Please cut the appropriate rules from this sheet and insert them in your rule book.

After Rule 7 insert: -

Demolition and or Disposal of Structures

7A Unless directed by some statutory authority, no Society structure shall be demolished and or disposed of unless sanctioned by a majority of not less then 75% of the members as being entitled so to do, vote in person at any general meeting of which notice specifying the intention to propose the resolution has been duly given in accordance with Rule 30.

After Rule 13(ix) insert: -

Active Membership Provisions

13A In accordance with Part 111A of the Act: -

(a) To foster the gathering together of such persons as are interested in the construction and or operation of miniature locomotives is a chief primary object of the Society; and

(b) A member shall: -

(i) be a full member in accordance with Rule 13(ii) who pays an annual subscription not exceeding fifty dollars ($50.00) in accordance with Rule 15(b)(ii);

or

(ii) be a Life Member in accordance with Rule 13(vii)

in order to establish active membership of the Society.

Delete Existing Rule 74.B. and replace with: -

74.B. On winding up of the Society a member shall not in respect of any shares held by him be entitled to receive an amount in excess of the amount paid thereon. Any surplus shall be devoted to the promotion of co-operation or to such community purpose and in such manner as a general meeting shall determine as long as the institution has objects similar or in part similar to the objects of the Society and also prohibits the distribution of its property between its members.