CINDERS & SOOT

CASTLEDARE
MINIATURE RAILWAYS

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Castledare Miniature Railway
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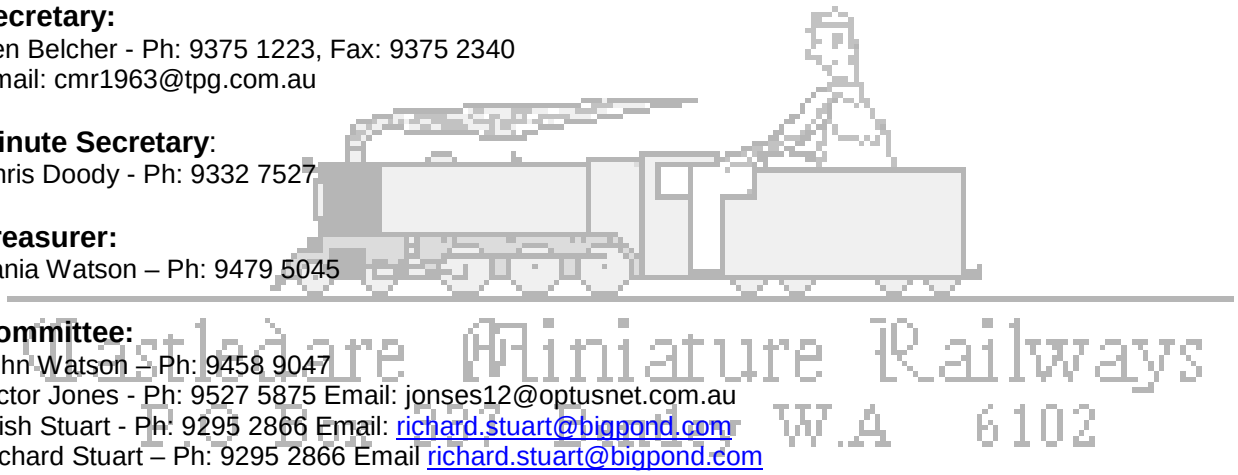

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The Castledare Miniature Railway is sponsored by:
Coal Supplies: The steam locomotives at the Castledare Miniature Railway operate with coal supplied by Premier Coal.

Cover page: Castledare over 40 years ago – the loco, Denis P. Moore, is still in operation at CMR today.
Photographer: Photo provided by Les Smith

President's Report

At the start of 2011 the Secretary asked for members who would be willing to be Duty Officer to come forward so a roster could be set up to spread the load around and he also asked for members willing to train as assistant Duty Officer. The response at the time was good and as members will have seen in the last year there have been new faces as well as those who have been around for some time. On the last run day John Smith was DO and even though John had been DO before it had been some time since he last did it. As is the best and preferred requirements of the weekend's duty he was there on the Saturday to ensure such things as the coal wagon was filled and that enough club locos and wagons were available. Unfortunately on the Sunday morning, first Comet Vale failed with a jammed starter motor and then City of Canning had a flat battery but was able to be jumped started and was used for the fire train. Betsy was also brought out but that too failed with a flat battery and Dependable is still in the workshop being rewired. As you can see this left us very short of club locos and this happened mainly because they had not been checked and run on the day before. Now we can't expect the DO to do this, because there is far too much for one person to do and we did some time ago ask for members to make it their job to look after and make sure certain club locos were ready for our run days, but unfortunately this seems to have fallen by the wayside. With my retirement as President and from the committee on April 20th I have decided to take on the role of checking that the club locos are ready for both the Niana and Wilson run days on the day before as I'm at the club most Saturday mornings. If any member would like to help then that will be great. Also while on the subject of club locos please, please make sure that when they are put away the battery charger is plugged in, the hand brake is off and also the covers are put back on to keep them clean. If the locos are wet just give them a wipe over with a rag and then put the covers on. Also it does not matter if the engine is still warm it is still ok to put the covers back on. If this simple but important job is not done you can expect me to get cranky! Further to last run day, which was a long weekend, we had some of our key personnel absent and it was good to see other members taking on their roles and from what I saw things ran very smoothly. Thanks to John and everyone else who have been both assistant and DO over the last year, which has spread the load around.

For those of you who were at the railway on Saturday 3rd you will know that the foot bridge end of the power cable has now been rerouted and buried to the regulation depth ready to have the footing dug for the retaining wall for the lowering of the last three roads into the carriage shed. Unfortunately when the power board was replaced the existing screws retaining the Bore pump contactor switch, which were far too long, caused the relay for the pump to short. Murphy's Law again, however all is now sorted. Then the following Saturday being the monthly work day some energetic if perhaps a little foolhardy members dug and laid the start of the concrete footings in temperatures that reached 39 degrees with the remainder finished off by the Wednesday crew. Well done to all who were involved in this work which can now allow the new retaining wall to be built later this month by a contract bricklayer. Once this work has been finished the existing end roads that the fire train and work wagons are stored on can be removed and the soil dug out to lower the area in that part of the carriage shed to the level of the main line. The extension to the carriage shed can then be done and the existing three roads plus three new ones can be installed along with the new point work. This work will give us some much-needed extra storage room plus the roof will be much higher. A big thanks to everyone involved in this work so far.

As is so often the case with an ageing membership this presents both fitness and health problems which along with time constraints on both older and younger members due to work and family commitments the number of members able to take part in work days and building projects has often been small. In the past ten years or so we have contracted out certain works such as the extension to Gerry's Workshop, the roofing of the containers and new doors for the steam shed plus other projects. This is paid for from the revenue raised from our monthly run days. Unfortunately because most of the railway is on private land, even with it being declared part of the Canning River Regional Park this precludes us from obtaining local, State and Federal funding. The Wilson Station being a separate case because it is on council land. Unfortunately this is likely to remain the case for some considerable time, as governments of both persuasions are not the least keen to take over ownership of the land. It's all very disappointing when one knows that the present Government can spend hundreds of millions over budget on a 15k seat stadium that looks like what can only be described from the outside as a Colour bond Shed made from second hand materials from Simms Metals! With the above in mind I have thought for some time that the cost of a ride needs to increase. I'm not sure when we last had an increase but it would be at least eight years. As you all know the cost of utilities has risen substantially in the last five years along with fuel and other things. This combined with the fact that the Railway Is now nearly fifty years old with much of its infrastructure still in need of replacement, and this no longer able to be done in the manner in which much of it was built in the first place. With all of the above in mind your committee voted on a

modest increase to the cost of tickets from the June run day. This will mean; Multiriders $24, Adult single $6 and children $3. As I've often said we charge $2.50 for a Child's ride and the canteen charges $3 for an ice cream that they can, and often drop! I would be very surprised if we get many if any complaints about this modest increase. However if we do then the best thing is to explain the reasons for it. More and more we will have to use contractors to maintain and build our facilities. The increase in revenue will help pay for them. The plus side to this is it will free up members time to do Railway connected things such as track, wagon and signal work. This is what we members do best and are interested in and enjoy doing.

It is now Sunday afternoon having just got back from the railway, today being the Wilson Run. I was not there for that reason but to check out a new strategy to retain the wooden planking on the footbridge. This has been an ongoing problem for a few years now with at least one person sustaining a bad cut from a protruding nail. We have tried using longer nails with a spiral on them in the hope that they would not come loose but this has not worked. Often what happened was as we knocked in new nails the old ones further along the planks came loose, the planking is supported by five longitudinal 4x2 timbers and each plank has been nailed to these timbers. This in reality is unnecessary as all that is really required is to keep the planks in place and from moving sideways. What has been happening with the constant foot traffic is movement that in turn works the nails loose and causes them to protrude above the planks or decking. What I did today was to remove all the existing nails on some planks, half of which were loose and rusting away in parts and then using 4" long hex drive wood screws with a flat head recessed into the plank and then driven into the longitudinal timbers but only into two of them. I believe that this is all that will be required and this will allow movement of the timbers but not cause the screws to work loose. Of course I may be totally wrong but I think it is worth a try. This then is what I intend to do over the next few Saturday mornings and if others would like to assist then that would be great.

Unfortunately the track at the top of the bank towards Fern road by the Water Board access gate was damaged by one of their trucks. Although it is annoying in reality the concrete crossover is not wide enough because the trucks entering need to be on an angle. What is needed is to increase the length of the crossover and I think this should be done in the winter once we have stopped using that section of track. As Richard Stuart was at the railway today he took it on himself to straighten the kink out of the track and replace some damaged sleepers and re-ballasted, mostly on his own, but he did have some help from John Palm. However there is still some more ballasting and the sleepers need to be retained so hopefully this can be done on the Saturday before the April Niana run. Also the new Fern road track needs the elevation readjusting and also some ballasting down by the turn out to the duel bridge. Talking of the duel bridge, this bridge was built over twenty years ago now for the sole purpose of allowing the tracks for the then new Wilson extension to be installed and at this time there was a gate that was kept locked as this was then, and still is, on private land. There being no public aces to the wetlands, which by the way back then was nothing more than a rubbish dump! Since the proclamation of the Canning River Regional Park the gate was removed to allow public right of way on this still private land. This bridge is now in need of some repair mostly of a cosmetic type as the main support structure is still sound. One the most pressing needs is replacement of the side stanchions, which have no structural use and also the decking for the walkway. Now as members know as this bridge is on private land even though it is there for both the use and need to get trains into and out of the wetlands and also the use of the general public to excess the regional park CMR is unable to obtain council or State government assistance for its repair and maintenance. In one of my more bloody-minded moments I've been tempted to say lets rip out the walkways and just leave the tracks for our trains. Others have prevailed to stop that idea☺. What is needed to be done before the end of this winter and as soon as it is safe to work out there from a fire risk point of view, is remove the old decking and side rails, replace the rusted angle iron that retains movement of the two tracks and also replace the decking with the same type as used on Stanbridge. Also, new side rails should be made, preferably by an outside contractor, as was done for Stanbridge and these attached. I know some argue that we should make the side rails wider but this entails a lot more work and as it is a pre-existing structure this is not necessary to comply with AALS regulations. We also mange this small inconvenience with speed and single-track use restrictions. I suggest we do the minimum work that is required to make it both safe and also maintenance free and where possible use outside labour. There is absolutely no point accumulating money and not spending it while at the same time wearing out the same able and semi able-bodied members. I for one am no longer able to do hard physical work such as digging holes and the like.

Roger Matthews
President, Castledare Miniature Railway

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FROM THE SECRETARY'S DESK

Notes from the last Committee Meeting – these are only a brief summary of some of the items discussed.

- Reminder that General members meetings now to be held quarterly – the next being June 2012
- Carriage shed extension proposal has been approved and work has started – this project is now in the hands of a contractor – by the time you read this, the brickwork will have commenced
- Maroon set to be sent to Thornlie TAFE for repainting (TAFE have now confirmed this project will be happening in the 2nd semester 2012)
- Annual General Meeting set for 20th April at the Eco Centre, Kent Street - nominations close on 1st April 2012
- The future of the club Member's day on the 2nd Sunday of each month discussed.
- Refurbishment of the picnic ground – work on this project is ongoing – work will continue once the cooler weather is here.
- Work on Dependable progressing – in the hands of John Watson
- Re-sleepering project nearing completion
- 50th Anniversary celebration plans discussed – Mrs. Belcher to continue with planning as outlined
- More "T" rail track to be made ready for installation from the Stanbridge bridge to Penrhyn bridge.
- Scrap bin to be ordered for the removal of all the scrap steel

DATES FOR THE DIARY:

Month	Day	Date	Event	Times	Canteen	Duty Officer
March	Wednesday	21st	Work day	9am – 3pm		
	Wednesday	28th	Work day	9am – 3pm		
	Saturday	31st	Preparation of railway for Sunday run	From 8.30am		
April	Sunday	1st	Public Run from Niana	From 8.30am	Kathy Watson & Sue Belcher	John Watson
	Wednesday	4th	Work day	9am – 3pm		
	Friday – Monday	6th – 9th	Easter break & AALS Convention Adelaide			

	Wednesday	11th	Work day	9am – 3pm		
	Friday	13th	Committee meeting	5.30pm		
	Saturday	14th	Track & Major work day	From 9am		
	Sunday	15th	Public Run from Wilson	From 8.30am	`	Trish Stuart
	Friday	20th	AGM – Eco Centre, Wilson	6.30pm		
	Sunday	29th	Reverse Run – Members only – BYO LUNCH	From 9.30am		
May	Wednesday	2nd	Work day	9am – 3pm		
	Saturday	5th	Preparation of Railway	From 9am		
	Sunday	6th	Public run from Niana		Kathy Watson & Gill Davies	David Edwards & Rod Bradley

REMINDER: ANNUAL GENERAL MEETING:

As previously outlined previously, the Castledare Miniature Railway's Annual General Meeting for 2012 will be held at the Eco Centre, Kent Street, Wilson Park on Friday 20th April 2012 commencing at 6.30pm.

Those positions that are due for election are as follows:

President	Currently	Roger Matthews	2 year term
Treasurer	Currently	Tania Watson	2 year term
Minute Secretary	Currently	Chris Doody	2 year term
Committee Member	Currently	Trish Stuart	2 year term
	Currently	Eno Gruszecki	2 year term

At the end of this newsletter, you will find a nomination form. If you wish to nominate yourself or someone else, then please complete the form and return it to the Secretary on or before 4pm on Sunday, 1st April 2012. All encumbant members are eligible for re-election should they so choose.

And the planning has begun ! ! Roll on October 2013 !

CAN YOU HELP ? ? ?

It is planned to produce a DVD depicting the club's history and this is where you, the members, can assist. Do you have any photos, video, film, etc. taken over any of the previous 48 ½ years the club has been operational? If the answer is yes, are you prepared to make a copy and allow it/them to be included in the DVD?

Ideally, any photos, etc. should include a brief but explanatory description of the location and also, an idea of the date the image was taken. Acknowledgement will be given to the owner/s of private photos as part of the DVD.

This project can only be achieved with your help – can you and will you assist preserve the club's history? Obviously the more material that is made available, the better the DVD can be. If you are able to contribute, please contact me to discuss the options available.

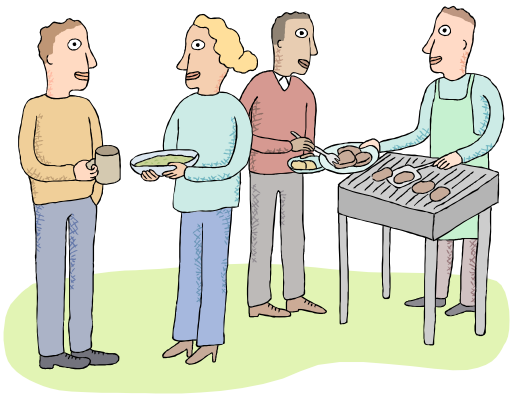
As has been customary, CMR has, in the past, produced a 'builder's plate' that has been given to the owners of locomotives registered at conventions hosted by the club. This is planned to continue for our 50th Anniversary.

To this end, I extend an invitation to all current members of Castledare to participate in a competition to design the logo that will be used as the Club logo for 2013. The logo will be used as a 'watermark' on all correspondence, on the pages of our club magazine, and hopefully, for the builders plate and a badge to commemorate the occasion. The logo will also be used on a souvenir type item specifically for the 50th.

Get your thinking hats on – it's time to start designing. Please bear in mind that your design will need to be able to be resized relatively easily to accommodate the different uses that are planned.

Entries need to be received by me no later than the public run day on 3rd June 2012 and will be judged by a person who is completely independent of anyone at Castledare. The judges decision will be final. There will be a small prize for the winning entry.

Sue Belcher,
50th Anniversary Co-Ordinator



Members Day:

As you know, on two occasions in the last twelve months a proposal has been printed in the club magazine regarding the 2nd Sunday – Member's Day. The reason for the proposal was the apparent lack of interest by members attending. As there has been very little [or no] response to the proposal, the committee has decided to make some changes. Those changes are:

The second Sunday will remain for those members who are interested

The months of the year where there are 5 Sundays – every endeavour will be made to organise something that may be of interest to the members.

Commencing with April – as the second Sunday this year falls on Easter Sunday, there will be no Member's Day however as there are five Sundays, on the fifth Sunday we will have a day of 'playing trains' – no public – reverse running over whole railway – provided the Trackmaster concurs of course.

THESE DAYS ARE STRICTLY NO PUBLIC AND NO WORK – ENJOYMENT BY MEMBERS AND THEIR FAMILY ONLY.

Please BYO barbecue or picnic lunch and share the club's facilities with your fellow members.

MEMBERSHIP MATTERS:

For those members who have returned their membership form and appropriate payment, thank you for your club support. There are some members who have elected to pay their subs via direct bank deposit and while this is great, you still need to return the completed membership form to me so that club records can be maintained. If you have 'misplaced' your form, please let me know so that I can arrange a new one to be sent to you for completion and return.

Thanks - Sue

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Progress Report on B-14

B-14 has undergone many small changes via different owners since built in the late 60s by Ed Brown. As an apprentice at Midland I did get a yard ride on B-185 just before withdrawal and did work with Ed on the then "new" and larger WAGR model rail layout at the Show grounds. B-14 was purchased from Rob Brown, a very good mate of the late Jack Stanbridge. They were showing B-14 off at our place in Adelaide after dinner one night during an Adelaide "convention" with Rob on his way back to NSW after having purchased the locomotive from the estate of Doug Skewes. I made a casual remark that when Rob wanted to dispose of the locomotive to give me a call.

Jack Stanbridge made the call on behalf of Rob and B-14 was purchased some years ago (1999) along with the box trailer, "bum" truck and 4 x passenger wagons. The trailer has been rebuilt due to salt laden air corrosion and lack of lap joints. The purchase of the locomotive was on the basis that the boiler had to be replaced. A new steel Briggs boiler was designed by Peter Manning and built by Ted O'Brien in Adelaide and was approved in the year 2000. To improve the steaming, the tubes are now 5/8inch o.d. in lieu of the original 3/4inch.

My efforts have been to revert back to something that looks more like the B Class when in later service. Karalee is not the original name but will stay. It is assumed that one-time owner, Doug Skewes, made the change as he may have worked on the EGR passing by Karalee Rocks where there was a siding. The coalbunker is not as was fitted to the original B-14. The B's never had electric lighting and would probably look better with G Class “small” headlight, however, the locomotive looks "naked" without the fittings. The original style whistle has been repositioned to the steam dome cover. A WAGR whistle, which is out-of-scale is now hidden under the running board. A steam over water brake has been fitted that looks much like a vacuum cylinder but of necessity is on the wrong side to avoid the handbrake. A dummy vacuum ejector silencer has been added. There is now a wooden cab floor. Blowdown is now operated from the cab and not by having to use a spanner (early WAGR engines such as the G and SAR Y Class used a “spanner”). The smokebox has a Master Mechanics type spark arrestor as used by the WAGR on later engines.

It has been evident that B-14 suffered injector problems and there is also a cam on one axle for a pump that does not seem to have been used. A hand water pump was once at the end of a side tank but the space allocated probably meant that it was too small and difficult to pump when driving. I have added some insulation between the side tanks and the boiler to try to cool the water but then used the ride-on truck tank for the left-hand injector with a little more success, however, the water pipe system was a nightmare and some effort has been placed to try and rationalise it all This is a project to be completed. It was found to be impossible to fill the side tanks to more than half full and without a balance connection one could easily run out

of water on one tank. (The tanks are of copper and have an anti-surge "insert" pipes that extend to half depth and these are "frozen" in place and attempts to remove could distort the tanks or rupture them). With the eventual return to Castledare in mind, some mods were made to correct the problem by improved venting and a balance pipe. The side tanks were then left to feed a steam pump. The top cover on this pump does not have enough face area and is difficult to keep sealed.

A water connecting pipe has been added to the front head-stock that was necessary back in the days of the Mundaring line for travelling water tanks but is used for draining the tanks as there was no provision for such. The steam turbo as made by Ed Brown was actually a vane motor and this clattered like an old VW. Somebody commenced to modify this to an impulse turbine wheel and such remains to be completed. There was other small bore piping that seemed to be associated with a hydrostatic lubricator that had not been completed or was replaced by a mechanical device. The hydrostatic lubricator has a cracked site glass and has been "stored" pending.

The "bum" truck was rebuilt and the foot brake improved to work on both wheel sets along with adding a power brake cylinder and a small pressure gauge to indicate that the train brakes are working and or released. A number plate BT-14 has been added and the letters WAGR to each side. This style lettering was originally WAR on the tender sides of the early A class and other tender engines with slight variations. The CMR "plaques" that originally adorned the sides are now in "storage". There is now a hand-pump on this truck for boiler supply and is also used to ensure before running that the train brake pipe is full of water. An axle pump has been fitted that can be left “running” as it is not large enough to supply boiler demand on its own. A digital $29 speedometer / odometer has been fitted.

As a more "fuller" retirement approaches, the tasks are to place sides on the passenger wagons to suit Castledare standards, lower the coupler heights and fit yoke Norwegian or Jones chopper couplers. The method used is to lower the wagons on their bogies to attain the correct seat height to AALS standards. Two of the four vehicles have been modified and run very freely.

B-14 then remains to be repainted and to have new mechanical lubricators fitted. Experimentation is in progress with wider grate bars for Collie coal (SASME was char) and a softer blast nozzle to try and decrease the amount of small pieces of unburnt coal being drawn through.

Les Smith.

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A New Member Speaks

I see you at the meetings, but you never say hallo;
You’re busy all the time, with those you already know.

I sit among the fellows, still I am a lonely guy;
The new ones sit there with me, while you quickly pass us by.

But, gosh you guys have asked us in, and you talked of fellowship;
You could just step across the room, but you have never made the trip.

Why can’t you nod and say hallo, or stop and shake my hand?
Then go and join your other friends, now that I would understand.

I’ll be at the next meeting, too, on that you can depend;
So, won’t you introduce yourself? I want to be your friend.

Submitted by Keith (Stork)

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CMR Signaling

03/03/2012

As there was very little activity with signals in 2010 I did not tender a report.

I would like to congratulate Morris on joining the signal section and for his help and dedication to the CMR signal group over the past year.

There have been a number of changes to the fixed wired Niana signals over the past 12 months. Some have been removed and others relocated. All have had a treadle track mounted trip switch placed just after the signal to allow tripping to red when a train is passing by. A small laptop is used to talk to the signals via a radio link from B cabin. This is a great improvement over the manual switching of the past. When the Niana home signal is tripped the Penrhyn signal is automatic and set to yellow. If the Penrhyn section is clear then the Fern Tree signal follows to green. The Fern Tree signal was one of the Canning units used as a dual mode signal (CJ, Niana) this has not been a success and a new dedicated Fern Tree signal is in the making.

Your committee has in principal approved the re-building of the Niana A signal cabin and removal of the Niana B cabin combining both in a new Niana signal box. I have contacted council who informed me a full set of drawings, building application and SRT submission will have to be tendered to them. To this end I am trying to locate a drafts person with experience in this type of application to council to prepare drawings and submissions.

Over the next 12 months it is anticipated the CCTV and DVCCTVR will be up and running at Wilson Park Station as we have had break-ins and numerous graffiti incidents. A new Internet service provider will be set up with wireless routers to connect all CMR locations to the club rooms and server including CCTV for Internet access.

Web Site

The web site has now had over 40,000 hits and is going strong. The site is more reliable now that it is hosted by a company specialising in this. I seem to be writing a lot about my trains, as I do not get any articles for the site from our members. PLEASE HELP OUT WITH SOME RAMBLINGS FOR OUR WEB SITE.
Send your articles to mike.crean@y7mail.com for consideration, thanks.

Security

We still have the electronic tags and readers to use as auxiliary entry security to the clubrooms. I have not had any feedback as to the best way to implement this.

Funding

It would be appreciated if the standing budget were to continue for the New Year. Security, additional signals and signal point maintenance will use this.

Thanks

Again I would like to take this opportunity to thank the committee and members for their continued support of signal development. In particular special thanks to those members who have helped me initiate the programs to date.

Mike Crean
CMR Signals

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TRAIN DYNAMICS – SOME SHORT LESSONS
Part 6 – Blame the TRACK!!

In the previous five commentaries I have concentrated on rolling stock to try to provide a simplified view of what should be done to ensure that it is track friendly and by understanding couplings it is then more difficult from train action to cause a derailment. Most derailments are caused by high L over V, that is, high lateral forces are in progress and then there is a decrease of the wheel load. Some other causes are actual equipment failure such as bearings or axles and this will be discussed at some time in the future. But, here are also broken rails, sleeper failure, track alignment etc and thus "track" shall now get a mention. CMR has track on some pretty poor sub grade and track technology is still evolving, and quite nicely too!

Some years ago the National annual convention was held at Castledare and as a resident of Adelaide intending to move back to Perth one did not attend as our passports and entry visas had not been approved. However, some attendees on return east did complain about "track condition" and that their rolling stock did not like it! Without even knowing what the track condition was like, having last visited CMR back in 1972, I will now say unequivocally ***"poor or bad track does not derail trains!"*** If you have problems with this statement then go to GOOGLE and type in a search for TRAINS ON BAD TRACK and have a look at bad track and some dynamic action, yet the trains stay on!

Rolling stock is designed to stay on bad track or to be more kind, track of a lower standard of maintenance. Engineers go to great lengths to design, build and test items of rolling stock before it is approved to operate. The tests are undertaken to criteria, that include twist, bounce, pitch, dips, curves etc and it makes no difference as to gauge, the same principles apply. Track engineers will knowingly apply speed limits if the track is a little "wonky" but within this, a bump or kink can appear that can be quite severe yet it must be negotiated. Drivers will report this and others will watch out for it and place their own speed limit over it depending on how their equipment behaves. At CMR drivers etc are addressed before running commences as to track conditions and told to be careful at certain points. The drivers must then assume some responsibility and should their loco move around more than normal, then, they should reduce the speed next time around. This is "duty of care"!

Hence I am saying that should rolling stock have problems then take a good look at it before blaming the track. It must also be understood that CMR has been working hard on track upgrading as some of it is getting quite old, it is built on sand, articulated wagons bring on some axle-loads that are heavier than that of the locomotives etc. However, we will now take a walk through some of the big boy's tests and consider that one or two may be useful to CMR, and other clubs.

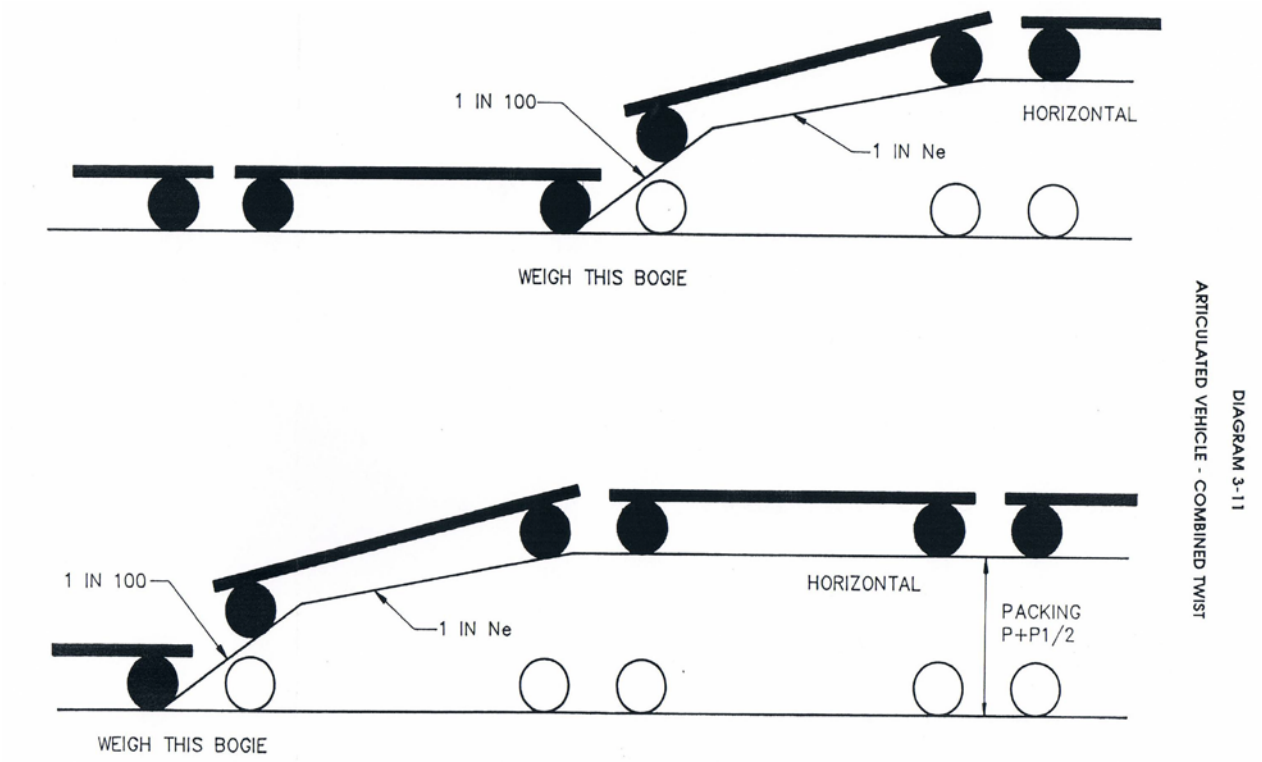
We will forget the static load tests such as various lading combinations with the wagon subjected to massive compression and tension forces and sometimes impact which gets pretty exciting to watch, loaded wagons colliding at up to 20km/hr. (This is the impact speed in an American "hump" yard when the retarders fail).

In particular, locomotives are weighed and must display good balance. These wheel loads are then what is known as P1, the static "force" on the track. All rolling-stock must then have a P2 calculation based on the un-sprung mass associated with the wheel sets running over a dip in the track jointing or weld (welds do "dip") and this is a dynamic force and it can result in speed restrictions if considered too high. (One of the reasons for having expensive hollow axles on large steam passenger locos).

Then there are the "swing" tests for curves undertaken with simulated solid springs and in Australia where 100m radii may be in fashion the authorities dictate the test be undertaken as 80m radius to take into account wear of flanges which allows bogies to "crab" around curves. Within these tests

there must also be demonstrated that that the couplings function satisfactorily on short reverse curves. A complex L over V calculation has to be submitted with the test vehicle theoretically coupled to a short or “base” vehicle in compression or “buffered up” on a curve. The Chinese throw in a test to ascertain the rotation resistance of bogies. A similar test scaled down for miniature trains would fail wagons mounted on out-side side bearers (no centre plate) and locomotives of similar ilk as mentioned in previous articles. Bogies are still offered for sale in magazines with roller bearings for reduced friction side bearers but these would fail twist tests anyway! Swing tests often use a turntable or a traverse to move a bogie to simulate curves or as we did at Midland, hang one end from a crane and move the end sideways. We also used a “spring balance” anchored to a pillar and applied tension to move the end sideways and observed the “crack-off” moment to ascertain the frictional resistance of the bogie centre at the other end.

Now for the twist test, keeping in mind that in full sized train operation the item of rolling stock is still in the workshop. The worst twist is for track deterioration that can include a dipped joint. As an example track could be earmarked for attention when a twist deformation is found to be 1 : 200 but could deteriorate further waiting for repairs, just imagine trying to obtain a “window” in the middle of Sydney suburban operations, so rolling-stock is tested for 1 : 160 with a joint dip thrown in. In these tests for an empty vehicle the loss of wheel load is not to exceed 60%. This is not too bad with gap side bearers, but for constant contact resilient types for higher speed running, the game is on! These side bearers are limited to supporting body weight to 80% max. Some diagrams follow and take particular note of what is expected from articulated wagons! Another diagram from Kiwi Land has been added just to show that we are not alone.



Australian Artic Wagon Twist Test

New Zealand Wagon Twist Test

If wagons have gap side-bearers and are not to travel over 80km/hr, which in our scale is about 10km/hr and when conventional three-piece bogies are used then there is no need for a dynamic track test.

Just to give you some idea of what the big trains are required to do is quite demanding and brief detail follows. The wagon is fitted with vertical and lateral accelerometers and where available, instrumented wheel sets with worn flanges. Friction wedges for “damping” are machined down to represent at least 66% worn. The tests are run at incremental speeds up to 10% over the desired speed limit and in Australia this is usually 127km/hr. The track has to be deemed “average” quality. The limits are based on averaging the “peaks” of the lateral and vertical accelerations over a period of time or distance how-ever there is an allowance for isolated peaks that can be encountered during a test such a running through a turnout or over a road crossing and this allowance is almost double that of the average peaks. A road crossing is a “hard” bump where you normally run off a resilient track/ballast bed up a short ramp onto a solid road crossing and then down off the other side. Depending on the road users there can be some lateral track displacement. A 0.8g acceleration is often encountered but as the day warms up there can be some track compression and I have been over a crossing and seen the test vehicle hit 2g for a very very short time and the resultant “bang” is very loud. The loco was pretty lively too and speed was reduced for further tests until after the crossing. On any given day trains battle to exceed 80kms/hr over this crossing due to the gradient. If you do not think this scenario applies to CMR then take a look as you go up Fern Road to the crossing where speed is slow but for a “reverse” running day coming down with a little overrun to 12km/hr there will be a noticeable “bump”. Some overseas tests are not done in Australia, as staggered rail joints have not been used. Pitch and bounce would not apply to CMR, as this is more applicable to the short high C of G ore type wagons. I have also seen from parallel running in the Sydney area where a single deck stainless outer urban set was being worked empty, the springs sitting free when bouncing through turnouts / crossovers, pretty frightening!!!

My recommendation for CMR would be to have simple twist test(s) such as those mentioned in past AME magazines that "***when the ride-on-truck has been completed, run it over a 10mm bump to see that all wheels remain on the rails***". This would be up to the Track Superintendant and the Inspection Coordinator etc to agree on and then to be applied for all new or substantially modified vehicles to pass. One thing is for certain is that comments made years ago by an iconic steam locomotive modeler of South Australia in that the lead bogie did not have to carry any weight or to have lateral control is not to be followed!

Now go back to GOOGLE as mentioned earlier.

Les Smith

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Notice Board

For Sale - REDUCED

7 1/4 Black 5 chassis, complete and working on air. Tender almost complete. Copper boiler, silver soldered by Bob Brown and pressure tested certified.

Reason for sale, failing strength and health! Buyer collects.

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Telephone: 9582 0334. Cliff Pole

Price: $20,000.00 (offers considered)

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HAFCO Model HM 30 vertical mill with machine vice drill chuck, boxed collect set imperial & metric, ½ & ⅜ draw rods with face cutters, rotating table selection end mills, etc.
Price: $1250.00 o.n.o.

HAFCO Bandsaw – needs new blade.
Price: $1000.00 o.n.o.

Triton MK saw bench circular saw, routing table Riota router.
Price: $400.00 o.n.o.

Buyer collects – view at 4, Glenelg Way, Mandurah.
Telephone: 9582 0334. Cliff Pole

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NOMINATION FORM FOR ELECTION TO MANAGEMENT COMMITTEE OF CASTLEDARE MINIATURE RAILWAYS OF W.A. INC.

ANNUAL GENERAL MEETING 2012

I _____ **hereby nominate** _____

For the position of _____ for a period of ___2___ years.

I accept this nomination and if duly elected, agree to serve on the Management Committee of Castledare Miniature Railway.

[Signed] _____

Nomination seconded by:_____

To be received by the Secretary no later then 4pm Sunday 1st April 2012

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