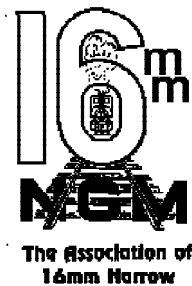


Lancashire & District Section



Silver Jubilee 25th Issue

Special Birthday Issue

They said it wouldn't last. They said the critics would close it down. They said the editor would be arrested, sued or thumped (they were nearly right on that one). But the Lancashire And District Section (LADS) newsletter has gone from strength to strength!

It was way back in June 2000 the very first issue came out with only two pages. It wasn't until the seventh issue in December that we grew to the now established 4 pages.

There are still many contributors from the group (or "journalists in the field" as we like to call them), with most people having contributed in some way or other to the newsletter's success.

A special note of thanks must go to Cliff Robinson for all his ramblings, and another should go to Alex Milne for his constant stream of hints and tips. Thanks.

Phil Sixsmith, Steve Colling, Peter Harling - they've all written more than a page or two. Of course there are many other 'journo's', it's just that we couldn't possibly list them all.

Although the postal circulation is now in the 60's every month, many more get downloaded from our internet site. Certainly, if we're late putting it on the net there's always a barrage email reminders!

This means of course that our exploits are read far and wide. The group have now got foreign friends in Canada, Australia, America, Taiwan - even Yorkshire! We even exchange newsletters with Southerners! The East Surrey Area Group have become proven co-accused's in the world of 16mm modelling.

Inside this issue you should find a short summary of each of the 25 newsletters. It makes interesting reading.

Let's keep the group effort coming so we can celebrate our golden issue!

Another 1st for the LADS

We have another winner in the group!

At this years 16mm Association AGM David Wilding ran away with the first prize in the Mamod-Type Class for his unbelievable Mamod loco.

Mind you, I say ran way with the prize, but his Mamod certainly didn't - it sedately purred away at a lovely controllable speed!

For the cynics, this was nothing to do with Mike Ousby. He'd again been asked to judge another category altogether (The Jack Wheldon Memorial Trophy, which of course he won some years ago).

For the readers who've not seen Dave's loco and don't understand it, I'll attempt to explain [Ed: *Ha! That's a statement! I've seen it many times and still don't understand how he's managed to do it!*]

The pistons are still connected to the front wheels so that it looks to all intent and purposes like a traditional direct drive Mamod. But that's where the fun starts.

Inside the wheel are gears so that they only rotate once to every five turns of the pistons. I'm reliably informed that this is called "epicyclic gearing".

If you want to know more about these greasy oily moving bits then you'll have to ask Dave. All I know is that it looks "normal" but runs beautifully. No more 100 yard dash - this one is very well behaved indeed.

Of course David was very humble, playing the whole business down. However I think even he was amused when he noticed that the loco wasn't displayed stood up like everyone else's on the stand. His was on its side, with a huge crowd of engineers trying to work out how he'd done it!

Congratulations to David. Which member of the LADS is going to keep the tradition going and win something next year?



1 into 3 doesn't fully go !

Good Attendance at each event, but not one LAD scored the hatrick by visiting all three

Liverpool kicks off first!

It was the first running session of the LADS in the Summer of 2002 and it was held in the lovely setting of the Derek & Phil Eaton's garden railway in leafy Liverpool. Yes, it's not all docks, river, and offices.

We arrived in glorious sunshine and activity on the track started after we had explored to find what was new (like you do - we are a nosey, if not appreciative gang aren't we?). Well the plants in the raised beds are beginning to "fill out" nicely and the track layout is interesting and varied.

We arrived in glorious sunshine, but the weatherman had arranged a little precipitation for us. Not that it bothered us much, you can stand under a gazebo and run a radio controlled train whilst you have a natter just as easily as in the sunshine.

We arrived in glorious sunshine, but the weatherman had arranged a little precipitation for us. Not that it bothered us much, you can stand under a gazebo and run a radio controlled train whilst you have a natter just as easily as in the sunshine.

Only Settle for the best

Our anticipation of another marvellous afternoon at Peter and Sheila Harling's was entirely fulfilled as we entrained ourselves in their delightful 16mm garden in Settle. Convinced that there was a high pressure micro-climate working over the town that afternoon all of us were treated to fair weather with little trace of the threatened downpours.

There was a good turnout and, for the Lancashire LADs present, a good number of unfamiliar but extremely friendly Yorkshire and Cumbria faces to share in the pleasures of the Harlings' half acre.

For those who haven't been to Settle and witnessed at first-hand Settle Down you are in for a real treat. The village which has been created on the rockery at the back of the garden is ample evidence of the creative touch of at least one of the Harling team. Miniature growing trees, scale vehicles, roadways, and a policeman admonishing the village adolescent, modelled on Nick in his younger days, all provided a beautiful recreation of a North Yorkshire village.

Gerald Grimshaw's houses set amongst the natural limestone of the area looked splendid in the spring sunshine with trains rattling through the main station below the town at regular intervals. It was also good to see the aforesaid Gerald and Pat with us again for the afternoon.

Peter's line now takes us along an outer and inner loop with both lines travelling through the garden shed at opposite sides. This, as Peter explained, has opened up the running
continued on next page

So the assembled throng gathered under the said canvas awning and continued to put the world to rights, exchange ideas and take the mickey out of each other - situation quite normal for a LADS event.

During what turned out to be the tail end of the "shower" a hail (pun not intended) from the house announced that food was ready so we made the dash for a more substantial shelter and sustenance.

The sun eventually returned and operations in the garden resumed making a very satisfying end to a super afternoon.

Thank you to our hosts for a smashin' do - great company and a great scenic line!



All smiles in Liverpool : (L to R)

John Fox; Alex & Carol Milne; Peter Harling; Cliff Robinson; Phil Sixsmith; Mark Smith

Puddles at the Pacey's

If there's one thing about a LADs event, it brings out the innate daftness in all of us! A month's rain fell upon Cadley in three hours, but it did little to depress the resilience and fortitude of the 16mm participants. As always, the welcome and hospitality of Phil and Jill Pacey was magnanimous and ensured the success of the afternoon.

Prize for commitment must go to Phil and Derek Eaton however who managed to steam up successfully and complete several circuits of the track until stopped by their own bow wave. At the end of the running session, Derek had shrunk a foot and Phil was seen swimming across the strawberry beds!

Inside the conservatory, Mike Ousby and Chris MacKenzie explored Chris's poundsworth of bits with Mike sensitively tempering Chris's desire to build a finescale replica of Fairlie's patent from a stationary boiler and a set of bobbins. A rare sighting was made of Steve and Ruth Colling with Steve demonstrating that lunacy was alive and well in education by attempting to drive his diesel up the branchline against the rising tide.

John and Lorna Angell, Dave (Mamod modifier) Wilding, Mark Smith and Ian Lowcock somehow managed to get themselves inside the conservatory and such was the inclemency of the weather that the attraction of Chris's "bits" box had a certain charm!

As the afternoon progressed and the water level rose even higher all hope of a mass steam-up receded like Steve Colling's hairline and running was finally abandoned for the day. Ironically as we placed our plastic boxes of precious locos and stock back into our cars, the rain eased off and a dove alighted on Phil's garage with a laurel leaf in its beak... a sure sign of hope of a dry tomorrow!

"CHRONICLES II"

An occasional extract from the diary of Alex Milne

GENESIS (CONTINUED)

So here we are in the heart of the Ribble Valley with an old house (that needs lots of things doing to it) and within flooding distance of the River Ribble and one of its tributaries (a railway and a Marina all in one?)

And a much larger garden than the one in Southport, and one with definite potential!

NUMBERS

As always, cost is something that has to be considered and if the area of the garden is a little larger, then the railway may well be a little larger and therefore more expensive.

I have little idea yet where the track will run or how much track there will be, but I have been to two Exhibitions since we moved here and bought a box of track at each, and will continue to purchase track when attending Conventions, Exhibitions, etc.

This should spread the cost over a period of time and soften the financial blow a little.

JOB

The first job, it seems is to find out exactly what we have got here.

Armed with clipboard, measuring tape, pencil and grandson, I measured everywhere and everything and have drawn a plan on to a large sheet of paper. I even remembered to include a scale. Sadly it was not a linear scale as I also had half size copies photocopied, just for sketching on before I got down to an accurate plan.

Of course **you** all know a half size copy refers to the area of the paper, not the dimensions of the drawing, so "eighth of an inch - 1 foot" as a scale was pretty useless really.

Still, it's given me an interesting mathematical experience sorting it out, but I won't make **that** mistake again!

More next month.

Alex Milne

Contributions?

Psst! Do you know a secret?

Yes? Well tell us!

The public have a right to know.

Keep your news & stories coming.

Send anything to

Chris MacKenzie

2 Curzon Drive, Timperley,
Altrincham, Cheshire, WA157SY

0161 980 7804 or e-mail

narrow.gauge@btinternet.com

Only Settle for the Best

Continued from page 2

possibilities and enabled more locos to be in steam on the open afternoons. Some nifty and very obliging point operation by willing hands ensured no crashes, no derailments and no damaged pride!

The running was smooth and faultless with one of several stars of the afternoon being Peter's Roundhouse kit built loco, looking, sounding and running beautifully.

The Sixsmith-Wilding combination continues to throw up surprises however... I knew I shouldn't have asked!... The latest is a rapid re-gauging of wheelsets from 32mm to 45mm at the blink of an eye. We'll be queuing up for this service when we visit our 45mm chums!

Thanks once again to Peter and Sheila for a great afternoon, warm welcome and enthusiastic encouragement. All of us must have come away with the thought... "why can't I do that?". Peter's answer as always, "If I can do it, surely you can!"

This newsletter has been sponsored by:-



Living Steam Railways

Churchill Road, Wheatley, Doncaster DN1 2TF

Phone: 01302 328035

www.roundhouse-eng.com

Please support them like they support us

Don't get Mad, Get Even...

Having fallen foul of the 1st April spoof article (running steam loco's on the 45mm gauge video camera "line" around the track at the new M2002 Commonwealth Stadium), Mike Ousby was on the revenge path.

Never one to let facts spoil a good story, our resident steam tram builder has submitted the following factual (!!!?) account of a telephone call to our Editor.

Maintaining honesty and professional unbiased journalist traits, the article has not received editorial control (*it may also stop him seeking revenge if he thinks he's won!*)

I will leave it to the reader's tasteful judgement whether Chris would be conceited enough to fall for such a wicked and malicious deceit.

Dedicated to all those who believed!

Setting the scene:

Telephone rings in the MacKenzie household. Chris is busy preparing his layout for a trip to Leamington Spa.

Caller - "Hello is that Mr MacKenzie"

Chris - "Yes"

Caller - "Hello I'm the features editor from Railway Modeller and many of our readers have written to tell us that you have a very impressive layout worthy of an article in Railway Modeller. Are you interested?"

Chris - (*pauses for breath and tone of voice indicates going into pride mode and preening feathers*) "Well yes I would be very interested, I've spent a lot of effort building Open Day at Timpton Sheds".

Caller - "We were thinking of perhaps three or four pages and several photographs in colour and of course you'll be paid for the article. What do you think?"

Chris - (*now panting with anticipation*) "Of course I'd be very interested. When do you want to take the photographs?"

Caller - "Well we could take them at the Leamington Spa show this weekend and our editor will be there as well."

Chris - "That sounds fine to me. What is the editor's name, so I know who to contact?"

Caller - (*trying to keep a straight face and not laugh at this stage*) "Well our editor is Mike Ousby, you may have heard of him"

Chris - "B**st!!!" and hangs up telephone.

The moral of the story is "He who tempts others, must make sure that his own ego is safely stowed away." Hee hee hee - Gotcha!!

So... There it is. The alleged interview.

We have suggested that Mike continues these interview features every month. In the next issue is an account of a conversation with Lord Lucan, whilst riding Shergar...

In Brief

Oops!

In the last issue John Angell's steam up event was reported as taking place on "Monday 31st March". Of course it was on Monday 1st April.

And did no one understand the headline? "Angell's Home the Rails of Glory" was a pun on the hymn "Angel's from the realms of glory". See? No? Oh, suit yourself! (John & Lorna may be sick of the jokes but their name creates a lot of opportunities for an struggling editor...)

And whilst we're on the subject, the picture on the front cover wasn't from John Angell's. We'd mistakenly included a picture from Derek & Phil Eaton's event (see report in this issue)

Cook's Choice

Bill Cook's Open day has been changed from the 29th September to the 15th September.

This was to stop clash with the 16mm Association's Elsecar Autumn Convention.

Cover Story

Did everyone see John Fox's superb water tower on the front page of the 16mm Association's "Sixteen Millimetre Today" magazine?

His Lady Anne was pictured filling up from his scratchbuilt working water tower.

And yes. I did mean *working* water tower! Each pipe extends out over the double track rather like a trombone slide.

The excellent paint job then adds that extra touch or realism (have a look at the different layers of rust!)

A great model in a great photograph.

Things I'd wish I'd known years ago...

A pair of very nice 16mm scale mugs can be made from the end caps of an old 13 amp cartridge fuse.

A handle of thin copper wire can be soldered on as shown and then the excess trimmed away.

Larger fuses can provide saucepans and other useful tubs round the model workshops.



Colin Binnie

The 16mm Bug

New LAD Bob Deakin gives the story of how he started in 16mm

In 1999 I moved to a new address. There were a number of reasons for the move. I was loath to move, for the house I lived in had five good sized dry cellars which I had carpeted and installed heating. However it did not have a suitable garden for railways.

The new garden had been surveyed by the proposed railways staff and was declared to be most suitable.

Spring of 2000 saw the start of operations.

Much of the railway was smuggled in with building materials, so the baseboards were built and the track laid before the domestic authority realised what was going on.

The railway started life as 7mm fine scale 32mm gauge.

In the latter end of 2000, my co-conspirator Peter DeRusset asked if I would like a trip to Elsecar. Like a lamb to the slaughter I went. The return journey found me fondling the several boxes of the kit for the Lady Anne. I had been bitten by the Garden Railway Bug.

The 'O' gauge track has now been replaced

with SM32. The run to date is about 130ft.

The track plan for the terminus has been finalised and except for two sidings is complete. The midpoint station is just a through line at the moment. The station at the other end of the line is under construction, eventually this one will become a through station. The final track plan will be like a letter P with a return line off the bottom of the curve back to the Terminus.

The main aim of the railway is to allow plenty of room for visiting stock and run a timetable.

You may have noticed that up to now I have not mentioned the name for the railway, truth is to date it hasn't got one! No doubt a suitable one will soon be found for it.

Caption Competition



Many thanks to Mike Ousby for submitting the following caption to last month's (May) cover photograph:

(Left to Right)

John Fox: "It's 'im who ate the Chilli and f@rted!"

Peter Harling: "That were right smelly."

Phil Sixsmith: "Don't look now, but we're having our picture taken!"

Well, I thought that it was funny. Coarse, yes. Juvenile, yes. But funny!

This month's trip into the playground is to find a caption for the photograph on the right.

John Angell, on the left, is oblivious to the comments by our esteemed Editor, Chris MacKenzie.

Answers to Chris please before the next issue (which shouldn't be that long as this one was late) by telephone, email or letter.

Printable ones will therefore appear in the July issue (actually, the un-printable ones will probably be in as well, depending on how much I have to drink before writing the thing).

By the way, "Hello Sailor!", can't be used!



Things I'd wish I'd known years ago...

Point levers and rodding often pose problems. I have had some success with Gem OO gauge point levers, mounted crosswise on extended sleepers so that the lever moves parallel to the rails. File the little lever so that you can slip a length of 1/8" copper tube onto it to lengthen it, and connect to the tiebar with an angle crank.

For rodding I use 1/16" brass rod, with the ends bent to length and threaded to take a 10BA nut.

John Angell

The Merstham Choir

The weekend of 18 & 19th May saw Chris MacKenzie & Mike Ousby again packing up the van with the Timpdon Lake Railway layout and travelling all the way down to Merstham in Surrey for the "Merstham Model Steam Show".

After a few technical difficulties booking in, the weekend went brilliantly. Lots of old friends from the 16mm e:group were seen in the flesh for the first time, and a lot of new friends were made. A local group with a superb large layout became very good mates, with Chris appreciating their layout and stock for superb modelling ability and Mike for their lack of bridges and tunnels (whenever he was missing he could be found running his trams on their layout).

Although it's a bit far for a day trip, the show really is worth a visit. It's like a traction engine rally, with model steam railway engines instead of traction engines.

Altogether, there were six 16mm Layouts plus Gauge '1'; G Scale; Gauge '3'; 7 1/4" narrow gauge railway; Model Boats; Model Engineering Societies; Toyshop Steam; Meccano; Dollshouses; Preservation Societies; Many Trade Stands, PLUS the renowned Members Sales Stand!

One thing that puzzled our northern missionaries, were the T-shirts and constant references to the Merstham Symphony. For example, the Brandbright staff were wearing shirts with slogans like "1st Nasal Trombone" or "Wind Section". The answer lay in the short narrative by local member David White, reproduced below which reflects the school dormitory accommodation for exhibitors and traders (it was deemed to "coarse" for the Surrey newsletter!)

The Merstham Spring Symphony

This unique symphony is an unscored, unrehearsed performance for snorers, heavy breathers, flatulents and insomniacs.

The symphony only occurs on two nights each year in early summer, the Friday rendition being an unrehearsed rehearsal, with the full compliment of performers only arriving on Saturday. The unique and varied nature of performance being dictated by the quantity of food and beer consumed prior to curtain-up.

The symphony has three movements: the first being "To Bed" - which starts gently and gradually builds as more performers arrive and early sleepers are disturbed and join in. The rustle of sleeping bags with the zing of zips blend with the creak and groan of bed springs, the tempo picking up as more performers arrive from a late session at the "Iron Horse". Noises build, flatulents punctuating the spring section, underpinned by the rhythms of the early snorers. The

tempo steadies now only interrupted by the door noise of late arrivers.

The second movement "Rest" - is the quietest and gentlest of the movements with just rhythmic snores and heavy breathing, occasional twang of bed spring and flatulent trumpet, interspersed by the staccato padding of feet of the weak bladdered.

The final movement "Awakening" - begins early with the rising patter of feet followed by grunts, flatulence and flushes punctuating the steady rhythm of the professional snorer. Gradually the tempo increases as more performers join in, flushes increase, buzzing razors join the throng aided by random water music, all adding to the morning tempo. The performance rises to a sustained crescendo and then gradually dies away as the performers depart for the day leaving just the soft relentless rhythms of the dedicated snorer!

Background notes:

Mind the Gap Please!

Laying track this Summer? Then you'll need to leave expansion joints between the each piece of rail to allow for expansion and contraction. But how much should you leave?

Some people suggest placing a 1p coin between each length of rail. But is this correct?

Steve Tompson, a LADS friend of the internet reports:

A penny measures out at 1.55mm

The coefficient of expansion of brass (I'm assuming Nickel Silver to be similar) is 0.00000957 per degree F.

For practical purposes I'll use the temperature range 0 degrees F through to 80 degrees F.

Therefore, if a yard of rail is laid at 0 deg F it will be about 0.028 inches (0.7mm) longer at 80degF. So, for this range, the use of a penny is twice the gap required (at 0degF).

What you need to do is:

1. Decide the temperature range for your railway;
2. Work out the expansion from minimum to maximum temperature (0.00000957 x 36" x degF = expansion in inches or 0.00000957 x 36" x degF x 25.4 for expansion in millimetres);
3. Divide this figure into handy 10degF chunks

Then, when track laying, decide how much expansion will take place between today's temp and your maximum temperature. If laying track during the max temperature then you need no expansion gap at all.

Why am I going into such great depth? Well, I once used a track system where the rails were not held to the sleepers very well. The result was that, in cold weather, all the rail shunted along closing all the gaps and one rail actually popped out of the fishplate!!!

That made me decide to do things a bit more accurately and also to use plastic rail chairs instead of the iffy gimp pins used previously.

Steve Tompson

We would like to put on record that the story where Mike Ousby was congratulated by all on his prominent solo performance for his Friday night rendition was completely untrue. (It was Saturday night's).

Telford Garden Rail

Sunday 7th July. 11am - 4.30pm

Telford Moat House Hotel, just off junction 5 of the M54.

Admission £3 Adult, £1 child, £7 Family. 5 layouts in attendance including 'Open Day at Timpdon Sheds' and 'Keursong Bazaar'. Ample free parking at the hotel or in Telford Centre, 250 yards away.

Further details from Chris MacKenzie

Dear LADS....

We celebrate the Silver Jubilee of this newsletter...

Sir

25 issues of insulting and exploiting w'men. Have you not learnt anything from my helpful and constructive comments?

You know we're exploited. Us w'men will never be equal to men until we can walk down the street with a bald head and a beer gut - and still think we look beautiful.

Yours sincerely
Millie Tant

My Loyal Subjects,

May my husband and I congratulate you on achieving 25 issues. May your jubilee be as successful as what one's was.

Yours sincerely
Liz & Phil

PS How is my Commander, Steve?

You! Newspaper Chap!

25 issues? Good paper? Blady nonsense, that's what it is! Shot writers like that in my day. Keep to subject of railways, that's what blighters like you should do.

Good stories though. Damn funny.

Can't wait for next one. Blady good show, what! Keep up the good work.

Colonel Possenby Smythe
Indian Army (Retired)

Things I'd wish I'd known years ago...

Is there anything you now know?
Then send it to Chris MacKenzie

Getting the *Over-hang* of it

by Jim Bryant

I've been kicking around the idea of scratch-building a railcar and because of the extreme radii on our railway my attention has been drawn to the matter of overhang. This becomes obvious as a problem when it comes to the matter of lineside clearances. Not only does it cause concern at bridges and tunnels, but a rail vehicle that cuts a swathe of growing plants away as it sweeps along is a mixed blessing! Furthermore, I always think that vehicles with excessive overhang look rather toy like (eg long coaches on trainset layouts), though there are plenty of prototypes out there of course.

So I wondered how best to avoid the problem.

Clearly the amount of overhang depends upon the length of a vehicle and also on the radius of the curve that it is traversing, but what else? This line of thinking led into some interesting trigonometry with curves of radius r , vehicles of length $2l$, and effective wheelbases of length $2x$. I was able to work out the expressions while on holiday on the Isle of Arran (an island apparently devoid of 16mm activity, though we were delighted to chance upon an 'O' gauge garden open day - but that's another story), but had to wait till I got home to put some numbers into them and see what they meant.

I found the results interesting and wondered what comments others might make about them. Remember that I wanted to achieve minimum overhang on my line.

First let's define innerhang and outerhang as the maximum distance from the rail centre by which a vehicle hangs inside and outside a curve that it is traversing. Let's also assume that the wheels are arranged symmetrically. That is, the centre of the wheelbase is also the centre of the vehicle.

Theorem 1: To minimise overall overhang, the innerhang and outerhang should be equal. Innerhang is largest when the wheels are at the extreme ends of the vehicle; outerhang is

largest when wheels are at the middle. Of course neither is practically possible. The Theorem says that the wheelbase should be such as to equalise these two 'hangs'. To see how read on!

The next step was to see how the wheelbase related to the track geometry. I first turned to the particular situation that I needed to tackle for our railway with its 30" curves (yes, that's right, 2 feet six - isn't that awful!). I was surprised by the results of these calculations. For all the vehicle lengths that I tried, the ratio of wheelbase to vehicle length was about 0.7 (ie the square root of 0.5). This was confirmed by the exact algebraic formula that I later obtained separately.

Theorem 2: The wheelbase should be the length divided by the square root of two (with a tiny additional factor that for practical purposes can be ignored).

Out of interest I measured some photographs of carriages, some '00' gauge models and whatever I could get my hands on. The 0.7 ratio seemed evident in all these (using the pivot point to define the wheel position for those with bogies).

Dear Diary...

16mm Association LADS Events *- Bring an engine & have a run*

Any Wednesday evening - Wakefield
Ring Calvin Green on 01924 281169

Sun 16 June - 1pm - Mark Haydock
Accrington - 01254 399 388 (32mm)
Hope the telephone / town is correct!

Sun 30 June - 1pm - Andy Lether
Fulwood, Preston - 01772 713849
(32mm)

Sun 14 July - 1pm - Steve Colling
Rishton - 01254 883200 (32mm)

Sun 4 Aug - 1pm - Calvin Green
Wakefield - 01924 281169 (32mm)

Sun 25 Aug - 1pm - Ian Lowcock
Barnoldswick - 01282 812842
(32mm)

Let's have some examples:

Measure the overall length of the wagon / coach in millimetres, from buffer end to buffer end.

Take this measurement and divide by 1.41421356.

The result is the wheelbase.

Divide this by 2. The result of this is the distance from each the end of each buffer beam to where the axles or bogie pivot point should be in order to minimise overhang and innerhang.

Let's put some figures to it...

A coach which should have two fixed axles is 300mm long altogether. Divide 300 by 1.41421356 = 212 (approximately).

This is the wheelbase. $300 - 212 = 88$.

$88 / 2 = 44\text{mm}$. This is the distance from each end to the position of the axles.

Have I just reinvented the wheel? In any case, does this help anyone who like me is seeking to build freelance vehicles?

Things I'd wish I'd known years ago...

Handrail knobs can be bought either with a hole right through, with a hole halfway through, or with no hole at all. These latter make excellent doorknobs.

Fix with a 10BA nut behind.

John Angell