

# STEAM LINES

PUBLISHED BY THE NORTHERN DISTRICTS  
MODEL ENGINEERING SOCIETY INC.

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## PRESIDENTS REPORT

Here we are at the beginning of the year and it seems just like yesterday that we had our annual elections. Speaking of which, it is only a short time until you will need to consider your next committee, but I am getting ahead of myself.

With the grant moneys from the City of Stirling we have made a big step in getting the tracksite closer to completion, and a special thank you to those members of our society who have put in so much time, effort and expertise to the construction of what will be one of the best miniature elevated tracks available. Naturally we have also injected our own funds into the building programme and we are now looking to replenish our own coffers in order to finish off the multi gauge elevated track.

I know that there has been quite a bit of model making going on but it seems that it has become a underground activity as not too many models or parts have been seen at our meetings, I would stress that one of the most important things about our society is that everyone is interested in what you are building, and it also serves as an incentive to some members and methods of accomplishment to others , so please bring your projects along.

I would like to wish all members the very best for the coming year and hope that all your modelling achievements are to your enjoyment.

Lindsay Adams.

## EDITORIAL

In January 1986, Colin Raynor (in his first edition) laid down some basic guide lines for a newsletter.

He made the comment the Newsletter should be idealistic in style, grandiose in objectives, strictly to regulations and guaranteed to be amateurish in execution. My role as editor will definitely fulfil all these prerequisites.

Picking up the reins from Jim Crawford, who did a sterling job for a number of years, is going to be a formidable task on its own. From every member who looked forward to Jim's newsletter, we thank you for your effort.

For those who are not aware, Jim has become heavily involved in the New Information Radio Station. This station has been established to enable sight impaired persons to be kept up to date with current affairs. Readers transmit articles from the daily newspaper direct - no prerecording, so you hear it 'warts and all'.

As for my style, it will definitely be parochial. I hope to keep individual members informed as to the status of the track, ongoing projects etc. Information regarding Steam Ups and commercial runs will also be included.

I urge you to assist me with articles. They don't necessarily have to be of steam or model engineering orientation; anything of interest would be appreciated. I see the role of editor not as author, but as a coordinator .... so how about putting your 'thinking caps' on and sending me something to coordinate! Don't worry if they're not typed; I'll slip my wife another bribe.

With the club slowly growing in numbers I will include snippets of information I come across that may be useful to the newcomer, or indeed the old hand. If you have a useful gadget, let us know about it, share your knowledge. And if you find any commercial establishments particularly helpful let other members know and assist both them and the shop owner.

I would like to remind members that the club fees were due on January 1st. The fees are the same as last year i.e.

Family membership	\$40
Ordinary membership	\$35
Junior membership	\$12

In conclusion, my wife is to be thanked the most for typing this letter, as without her assistance and encouragement there wouldn't be one.

Under the heading of "What's Happening in Model Engineering" I intend to headline individual members current project progress. In doing so, hopefully you will bring them to the meetings as a Show and Tell. If I have missed you out, please don't feel offended as it is not intentional but an oversight ... or I simply didn't know. Therefore please keep me informed.

ADAMS Lindsay - Simplex is running well and now has a riding car.

ARNEY Paul - 3 1/2" gauge Tich. Just passed boiler pressure test (a very nice job!).

BAKER Doug - Painting the O42 and reassemble, ready for Victorian convention. (Wife's comment: "Will I ever get to ride it, or will I just keep running beside it?")

BAKER Susanne - 'Burgoyne Surrounded' quilt. Machine piecing finished, now being handquilted, to be finished before Feb. 29 (thank goodness it's leap year, gives me 1 more day). Sorry guys, couldn't resist this one ...

BARLTROP Reg - Finished the clock, now building a Super Simplex. Restoring 2' gauge Perry loco.

BURGESS Bob - 5" gauge Rocket.

CHAPMAN Clive - Pressing on with Torquay Manor. Also restoring a 2' gauge Perry locomotive.

COLLETT Ken - 5" gauge Pansy valve gear. Nearly complete.

CRAWFORD Jim - Building a model of the Armadale Railway Station, to suit gauge 1.

FORD Alan - Portable farm engine.

EVELYN Geoff - C3801 is coming on well. Just passed boiler pressure test. Beautifully made.

GODDARD Peter - Finished a rotary table and indexing head.

JARMAN Clive - 3 1/2" gauge WAGR G class. The tender now painted and pressing on with the engine frames etc.

LANGFORD Dick - Simplex cab is almost finished. Won't be much longer before she runs.

LORD Dennis - 2 1/2" gauge finished. Now building a twin screw Man of War.

MARSHALL Allan - The list of recently finished projects is huge. A visit to Allan's workshop is one of life's simple pleasures.

MARSHALL Bill - 5" gauge Stirling single tender coming along

SMITH Milton - Modified Simplex 260 coming along. Chassis almost complete.

WALL Bill - 5" gauge Pansy - Chassis and components progressing.

YOUNG Len - Also a prolific engineer in the past months. Quite a few machine tool accessories and the restoration of a 4" lathe (manufacturer unknown). Simplex awaits her boiler.

While not a member yet, Jeff Bastian 3 1/2" gauge Pamela chassis is almost rolling. Nathan Clements' 5" gauge Blow Fly is progressing well.

#### DIARY OF EVENTS

1. Steam Ups to be held at tracksite at Balcatta from 4pm onwards. B.Y.O. barbecue and family!

February 15                    *IN LEIU OF CLUB MEETING*  
March 17                        "   "   "   "   "   "

2. Participark

February 23	Balga Aquatic Centre	5-7pm
March 1	Clarko Reserve, Trigg	4.30-7pm
" 8	Jackadder Lake, Woodlands	4.30-7pm
" 15	Copley Park, Mt Lawley	3-5.30pm
" 22	Coolbinia (Passive Playground) Yokine	3-5.30pm
" 29	Dryandra Reserve, Mirrabooka	3-5.30pm

April 5                    Speech & Hearing Fete

April 5                    Carine Fair

April 13-16

OR April 21-24            SECWA Energy Museum

With the exception of the Club Steamups, Run Days are to be confirmed.

Concentrated Work Days. Second Saturday of the month. These will be an all day effort i.e. 9.30-4.30. Bring a barbecue lunch and what you would like to drink. (Tea and coffee will be provided).

ANNUAL GENERAL MEETING - FRIDAY 13 MARCH

*PLEASE NOTE!*                    *THERE IS ALWAYS SOMEONE*  
*AT THE TRACK EVERY SATURDAY*

## WORK LIST

The following is a list of the work to be done at the tracksite. Volunteers required on Saturdays.

1. Construct the turntable. (D. Baker has started this one).
2. Drill and cut raised track legs with a jig and assemble track.
3. Peg out steaming bay for concrete bases, and dig out excess ready for the bases.
4. There is scope for club's gardeners to demonstrate their skills, particularly with ground cover. Please talk to Geoff Evelyn.
5. Strip paint on the coach and apply primer.
6. Ground levelling is required around the steaming bay, turntable and entrance area.
7. Fencing in front of the coach to be moved.
8. Power and water to the coach.
9. Fix the whiteboard in the coach.
10. Fill ends of the tunnel behind the facades.
11. Peg out the turntable area.
12. Clear and clean up the area in front of the coach.

\*Denotes that reference should be made to the President before starting work as it may involve drawings, information or tools that are not held on site.

## STEAM IN ANOTHER WORLD

I wonder how many of you have served in a Fleet Destroyer of the 1950's vintage. Not very many I should imagine.

A Fleet Destroyer of that time displaced about 2000 tons, had a top speed of 36 knots (66 k.p.h) and a crew of 220. They were armed with two twin semi-automatic dual purpose gun turrets, 8 21" torpedo tubes, 300 depth charges, 4 fully automatic radar controlled twin Bofors gun mountings and 5 semi-automatic single Bofors guns.

All the ships power was produced in the engine spaces. Two boiler rooms exhausted into a single funnel. Each boiler was a 3 drum watertube type with superheaters and capable of vapourising 4 tons of water per minute. They were fired by 16 bunker fuel oil burners. On each side of the boiler near the lower drums were the feed water tanks, each holding about 10 tons of feedwater, the feedwater preheaters and the two turbine driven feed pumps.

The sight glasses were of course fitted on the end of the steam drum and illuminated. It was impossible to read them direct from the deck plate and a system of mirrors was used. Pressure and temperature gauges were fitted in an accessible position.

The boiler room was pressurised to 5" water gauge by two turbine driven fans, requiring entry to the boiler rooms by airlocks. Working pressure was 400 lbs sq.in. (2.75 mPa). The forward room had a turbine driven electric generator, the other room had a diesel driven generator. Each room was fitted with fresh water evaporators.

It was always cold on the deckplates of a running boiler and impossible to hold a conversation due to the high pitched noise of the fans and the roar of the burners. All instructions were passed by hand signals. The spaces above the feedwater tanks was very hot and it was usual to fit a number of lines to dry wet clothes or washing. It didn't take very long to happen.

Steam was fed from the boiler stop valve via 18" pipe to the engine room which was the next machinery space towards the stern. This contained the two triple expansion turbine sets to drive the ship. Each set produced 40,000 shp. The Hp and Mp turbines were on the outboard side and the Lp turbine, which was also the reverse turbine, was mounted on the inboard side directly on top of the condenser.

Down the bottom of the engine room in the centre was the control platform. A large panel fitted with pressure and temperature gauges was the centre piece with the two pairs of turbine control valve wheels, connected by shafts to the valve units positioned at the Hp turbine. The forward valve wheel was larger than the reverse wheel since the pair were mounted concentrically. Above the valve wheels were the large brass engine/bridge telegraphs, to indicate the bridge orders for the engines. Also the propeller shaft revolution counters and the bridge revolution demand telegraph. Each of the telegraphs, which were mechanically linked to the bridge had a large gong fitted so that it could be heard above the engine noise.

The engine room also had two feed pumps from the condensers to the reserve tanks in the boiler rooms, the condenser vacuum pumps, forced lubrication pumps and a bilge pump, all of which had to be running when steam had been raised. The bearings of the turbines had rated steam leaks to maintain the bearing temperature. It took about 2 hours to warm up the turbines, but since it took 4 hours for one boiler to attain its full working condition this was no great problem.

The second turbine driven generator was in the engine room, as these two generators were normally used in sea going order. The second diesel generator was also in the engine room.

Access to the engine room was via two hatches on the main deck

which was open to the weather. These hatches were about 600 mm in diameter with a single steel ladder to each straight down to the control platform, a height of about 5 metres. The ventilation fans drew hot air from the after end of the engine room and exhausted it to the upper deck. Most of the replacement air came down from the hatches as did large amounts of sea water in bad weather. So not only could it be cold it could also be a very wet place to keep a 4 hour watch. The pipes which supplied sea water to the condensers started in the bottom of the hull in the after boiler room. The flow control valves were in that section. Normally these would be wide open but in arctic conditions they would be almost shut of to prevent the condensate freezing. Sea water temperature in arctic conditions could be as low as -10C.

The four output shafts of the main turbines passed through the after bulkhead through watertight glands to the Gear Room. Here they were coupled in their pairs to a 10:1 reduction gear. The first part of the propeller shaft came out of the gearbox onto the Plumber block. This is the shaft thrust bearing. Some idea of its size can be got from the fact of the 300mm shaft diameter and the power it was transmitting. The main gear wheel was about 2.5 metres in diameter with four rows of convolute spiral teeth. This was supposed to make them silent running, but they were anything but that. Everything was forced lubrication and the oil cleaning plant for all the machinery was in this room together with the 3rd diesel generator.

The only other machinery space of any size was the steering gear. This was the aftermost compartment in the ship. The rudder was driven by a tiller arrangement which in turn was driven by a pair of opposed hydraulic rams. Two motor driven swashplate pumps supplied the hydraulic power. The system was controlled from the wheelhouse in the bridge by a low pressure hydraulic telemotor. The steering gear compartment was not manned when the ship was at sea, except when at action stations.

These ships could cruise at 15 knots for about 16 days or 10,000 kilometres. At their full speed they could maintain it for about 4 days covering about 7,000 kilometres.

D. LORD.

## CREDIT CARDS!!

With the Federal Government considering upping the annual rates of credit cards and all the other pitfalls that one finds with this source of finance, I would like to make you aware of another gremlin that beholds these plastic wonders.

It's a story that really has two parts, starting with an order of some piston rings to be supplied by a wellknown Model Engineering supply company in NSW. The rings were ordered, and less than a week later I received an invoice but no goods. Of course the company was informed and the lady I spoke to apologised profusely and told me the rings would be sent soon. Four months passed, still no rings. I actually cancelled the order after I found out the other NSW supplier had them. Three days after cancelling the order, the rings from the original supplier turned up - but no invoice enclosed. Nor were the rings enclosed in an envelope, just wrapped in corrugated cardboard with sellotape wrapped around, and my address in chemipen on the wrapper.

Some days later the invoice turned up. Susanne, my efficient office clerk, secretary and wife, filed it in the normal business file to be paid 30 days as there was no reference to model suppliers. The invoice heading just refers to the engineering company and, as most of you know, I have my own engineering company and we deal with many suppliers on the eastern seaboard.

It was not until some time later I received a statement that I realised the account had not been settled. I immediately rang the owner and explained to him what had happened by way of an apology and gave him my credit card number as payment for the rings supplied. The astute reader will by now realise I had TWO sets of rings!

The next order placed with the well known supplier was for 500 rivets. I faxed him first to establish the cost, then placed an order to supply that was delivered to my address eleven days later. Enclosed on this occasion was the invoice which, on closer inspection, revealed the supplier had used my credit card number that I had given him for the previous transaction, without my knowledge or consent - Highly improper and illegal.

Obviously I challenged him over this action, only to be told I had a poor credit rating due to late payment of the last accounts, one four months old and the other one month. Because of this he lost an estimated 10% on the deal. Also in his return reply I was, in short, told if I didn't like his trading terms, don't bother to come back. I have chosen the latter.

The moral of this story is to be very careful to whom you give your card number as there is a possibility it may be abused.

For those who are interested E & J. Winton have a full set of castings for Blowfly and other model Eng. goodies, give him a go. You will be pleased with the service.

1  
Doug



# TECHNICAL TOPICS

## BEWARE UNBRANDED BOLTS




Government purchasing authorities in Australia will, from mid 1990, purchase fasteners only from manufacturers with adequate quality assurance systems in place.




Recently in the U.S.A. the detection, on a massive scale, of defective and fraudulently mismarked imported fasteners has forced defence equipment to be withdrawn from service so that bolts can be replaced.

Death and injury from the use of faulty bolts has been reported.

We need to be careful that bolts used on our four wheel drive vehicles, particularly to retain bullbars and tow points, are suitable and safe.

The following indicate typical approved Australian markings:

IMPERIAL SERIES						
FASTENER SIZE INCHES	GRADE 5 SAE 		GRADE 8 SAE 		HEX SOCKET CAP SCREW 	
	Ft - lbs	Nm	Ft - lbs.	Nm	Ft - lbs	Nm
1/4	9	12.2	13	17.6	14	19.0
5/16	18	24.4	28	38.0	30	40.7
3/8	31	42.0	46	63.4	50	67.8
7/16	50	67.8	75	101.7	81	110.0
1/2	75	101.7	115	156.0	121	164.0
9/16	110	149.0	165	224.0	176	238.6
5/8	150	203.4	225	305.0	240	325.4
3/4	250	339.0	370	501.7	395	535.6
7/8	378	512.5	591	801.3	629	853.0
1	583	790.5	893	1211.0	964	1307.0
1 1/8	782	1060.4	1410	1912.0	1523	2065.0
1 1/4	1097	1487.5	1750	2373.0	1908	2587.2
1 3/8	1461	1981.0	2400	3254.4	2400	3254.4
1 1/2	1748	2370.2	2850	3864.6	3060	4149.3
1 5/8	2392	3243.5	4311	5845.7	4655	6312.0
1 3/4	—	—	5050	6847.8	5450	7390.2

METRIC SERIES						
FASTENER SIZE MM	GR. 4.6 		GR. 8.8 		GR. 10.9 	
	Nm	Ft-lbs	Nm	Ft-lbs	Nm	Ft-lbs
M6	3.5	2.6	9.5	7	13.6	10
M8	8.6	6.3	24.4	18	33.9	25
M10	17.0	12.5	43.4	32	63.7	47
M12	29.8	22.0	77.3	57	112.6	83
M16	73.9	54.5	195.3	144	265.8	196
M20	144.0	106.0	371.5	274	524.8	387
M24	249.0	184.0	637.3	470	901.7	665
M30	496.0	366.0	1314	969	1844.2	1360

Bolts to be tightened to specified torques (dry clean thread)

Grade 5 imperial is similar in strength to GR 8.8 metric

Grade 8 imperial is similar in strength to GR 10.9 metric

GR 10.9 means Ultimate Tensile Strength is 1000 MPa

Yield Strength (0.9 x 1000) is 900 MPa

Similarly GR 8.8 has UTS = 800 MPa Y = 640 MPa

and GR 4.6 has UTS = 400 MPa Y = 240 MPa

GR 4.6 is Mild Steel, not approved for low point use.

Metric bolts ex Japan marked '7' have UTS 700 MPa

I came across this vice drawing in a very old Popular Mechanic magazine. I'm sure copy right has lapsed so have a go, it is a very useful tool.

### A Toolmaker's Vice

A simple and efficient toolmaker's vice, designed for holding small pieces of irregular shape, is shown in the illustration.

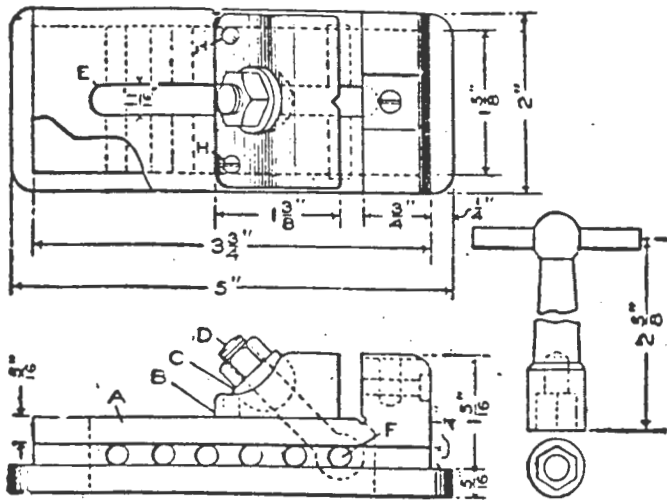


Fig. 1

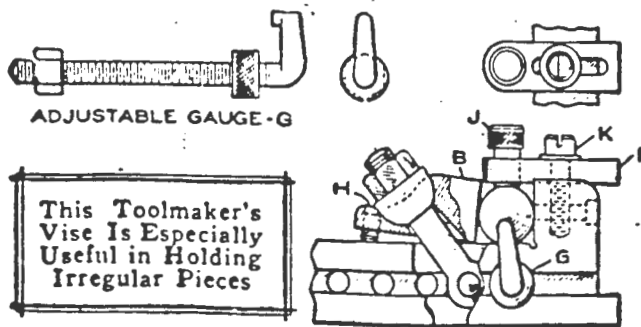


Fig. 2

The body A, Fig. 1, is made of mild steel finished to the dimensions given, pack-hardened, the edges being ground square and polished on a lap wheel. The movable jaw B is made of mild steel and also pack-hardened, ground, and lapped square on the bottom and face. A hole is drilled through the center of the jaw, at an angle of 45°, and the upper

surface of the jaw is cupped out to meet the nut C. The hole through the jaw is relieved on the under side to give ample clearance for the eyebolt D. The latter is fitted in the slot, milled, at E, in the body A, and may be held in various positions in this slot by a tempered steel pin through the holes F, as shown in Fig. 1.

Figure 2 represents the vice holding a piece of round stock while a drilling operation is performed. The movable jaw B is set in an angular position by means of adjusting screws, H. By tightening the movable jaw on the work, the latter is forced down and held securely against the bottom and the fixed jaw of the vise.

The adjustable slide I, which holds the slip bushing J, is made of tool steel, hardened, ground, and lapped to fit into the seat milled into the top of the fixed jaw. It is held in place by the fillister-head screw K.

When a number of pieces are to be machined an equal distance from an end or shoulder, the gauge G is used to locate the work accurately in the vise. It is shown in detail at the left. The slots milled into the side of the body A, are used in clamping the vise to the faceplate of a bench lathe, the table of a milling machine, or any other flat surface where the projections on each end of the vise cannot be used. The holes F are drilled along these milled slots, which are shown in Fig. 1, one of them being exposed at the left corner of the upper view. A socket wrench for adjusting the vise is also shown.—E. P. Fickes, Dayton, Ohio.

This Toolmaker's  
Vise Is Especially  
Useful in Holding  
Irregular Pieces

CLASSIFIED ADVERTISEMENTS

For Sale

One 7 1/4" 4-6-2 little engines chassis. Consists of sections 1,2,3 and 4 complete and assembled according to little engines catalog.

Includes complete set of plans. Based on Southern Pacific p-3 engine

Retail value as per 1985 catalog in excess of 2500 dollars U.S. You can have it for \$600 or near offer.

Inspect by phoning the editor

Election - annual general meeting

As per the constitution, nominations for positions as officers of N.D.M.E.S. must be in the hands of the secretary, ~~Steve Reeves~~ 14 days prior to the annual general meeting.

For your convenience I am including a set of nomination forms to use should you wish to nominate a worthy individual. It is the right and privilege to sit for any position open for election, and nobody has an exclusive claim to automatic election, not even the retiring officer.

Note that the approval of the nominated person is required before submission.

Nomination For Office

Date \_\_\_\_\_

Name of person being nominated \_\_\_\_\_

Title of office proposed \_\_\_\_\_

Nominated by \_\_\_\_\_

Signature \_\_\_\_\_

Seconded by \_\_\_\_\_

Signature \_\_\_\_\_

Signature of nominated person \_\_\_\_\_