

# The Gn15 Tome

Issue 8

The Creative Scale

Autumn 2007



Cast Crane  
Ralph Brammer

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# Editorial

This Summer has come and gone so quickly that I am hardly able to catch my breath, I have had a fair bit on my plate and so this issue is a combination of July, August and September. We have just passed the Autumnal Equinox, so it is called the Autumn issue. I hope to get the Tome back to a monthly schedule. Much has been going on in the Gn15 world, we have been treated to many new and creative Ideas by the members of the Gn15 forum. Some are included in this issue, The one that seems to have captured the essence of what this hobby is all about is a small crane that has been featured in the forum by Ralph Brammer. In this issue Ralph gives us a closer look at how to make a mould

In a hobby that is as wide ranging as model railway design and construction, it is fairly safe to say that the quality and calibre of the models will continually expand as materials and methods are explored. Those who have been engaged in this hobby for a long time have a great deal of knowledge to pass along and the advent of the internet has been and continues to be a wonderful venue for this sharing of knowledge.

One of the things that crosses my mind is, that as new people get involved in this hobby the same questions arise, mainly how to do some task or another. Recently there has been talk of including some of the ideas and thoughts about Gn15 into some other forms of distribution than the internet. I believe that this would be a good thing because not everyone (contrary to popular opinion) is comfortable using the internet or even have access to it. Any method that broadens our hobby is worth looking into. Enjoy your model building this coming winter when the nights are long.

Ed.

# Resin Casting

## Why Cast?

There are two main reasons why we need to make a cast of an object, one is where the original is made from fragile material, the other is when we need to duplicate an item many times. The principle of casting is straight forward

The first casting I did was for a railway model. It was a simple axle-box. This was made by pushing the original into modeling clay and the impression made filled with a five minute epoxy resin. Primitive, but it worked.

The main materials that we use today for casting are silicone rubber and resin.

*Spin casting and Lost wax are beyond the scope of this article because they require more complex equipment and tool than most of us have access to at home.*

The silicone comes in a range of textures from soft to hard, and the resins range from a setting time of a few minutes to several hours. They also cover a range of viscosity from those which are thin like milk to some which are syrup like in consistency.

.At this stage it is worth remembering that any mould has a limited life. I find that thirty to forty cast is the number I expect to get from a small sized original.

The list below is the equipment I use:

Silicone rubber from WACKER SILICONES. Elastosil M 4503.

Catalyst T35

Pipette (for drawing catalyst from the bottle)

Weight Scale (in grams)

Shallow mixing bowls.

Flexible Spatula

Wooden spatula

Brass or aluminum rod(for stirring)

Cocktail sticks and brass wire(for helping flow of resin).

Rubber gloves(reject surgical ware).

Paper towels.

In making a fleet of tubs with a complex chassis, the wagon is broken down into a number of parts. Each part can then be cast as a one piece mould. Or a two piece mould A one piece mould means that the original has a flat side which can be secured to a base. The object rising from the base must be capable of being removed from the silicone mould. A flat platform with low sides is ideal for a one piece mould.



With all casting the finished cast is only as good as the original master. Casting will not hide a blemish it will enhance it! So make the best master that you can. Remember you only have to make one! On completing the parts with all its strapping and nuts and bolts we now have our first masters for making the moulds.

Ensure that the underside of the flat parts are as flat as possible. This area will be in contact with the base on which the casting will take place. The base can be any material that is not porous and is firm enough not to flex. We will need a base which is at least 1" bigger all round the platform. Materials I use for bases are 1/4" MDF or 60 thousand thick plastic sheet.

Glue the underside of the part to the base making sure that there are no gaps between the part and the base. I spray the master with a car primer paint. This gives an even surface to the master and covers any fingerprints, *(well actually one would be better off cleaning off the fingerprints with a "Q"tip and some soapy water first).*

Next we have to build a retaining wall around the masters on their bases. I use styrene sheet for this purpose. It is easy to cut and glues easily with solvent. I allow a gap of about 1/4 top 3/8 "away from the master for the wall. The four walls need to be about 1 inch taller than the top of the master. Ensure that there are no gaps in any of the glue seams. The reason for the extra height is to allow for the rocking of the silicone rubber in the mould to break air bubbles.

With silicone rubber there is no need to work in a rush; you have plenty of time at each of the stages of the casting processes.

Use rubber gloves when working with the silicone rubber and the resins. Remember to seal the tin after you have finished pouring. The rubber will oxidize over time if not properly sealed. (a good way to determine the amount of silicone is to fill the mould with water this has the advantage of letting you know if there are any leaks. The water can then be poured into your bowl so that you can easily see the correct volume of liquid rubber. The water is much easier to deal with if there is a leak than the silicone rubber which is also much more costly)

The important thing to remember with the silicone rubber is to carefully follow the mix ratio of rubber to catalyst that is listed on the side of the particular brand that you have purchased.

No matter what type of scale you have whether it is mechanical or electronic the important thing is to weigh your mixing bowl first and note what it is before you put any rubber into the bowl.

Add the amount of rubber that you need based upon your measure of water that you tested the mould with. Or by any other method you choose, if you do not have enough you can add more later, and if you mix too much it would be wise to have additional moulds ready so as not to waste the rubber.

The mixing of the rubber and catalyst is the critical part, in order to get a good visual indication that they are well mixed I add some coloured stain to the mix (be careful to add a compatible stain) Use the wooden spatula and just dip about  $\frac{1}{4}$  'into the stain and add this to the mix. Use the flexible spatula to do the mixing. When the rubber and catalyst are thoroughly mixed it is time to pour into the waiting mould.

If the master has lots of nooks and crannies I use a cheap brush to push a layer of the silicone rubber into the surface of the master making sure that no air bubbles exist on the surface or any air is left trapped in any holes, for example round rivet heads or bolt heads. The cocktail sticks and the thin wire are useful for forcing silicone into nooks and crannies. Continue pouring the silicone into the mould, preferably into a corner until the mould is covered with the correct amount of silicone rubber. Again a cocktail stick is useful to check this depth.

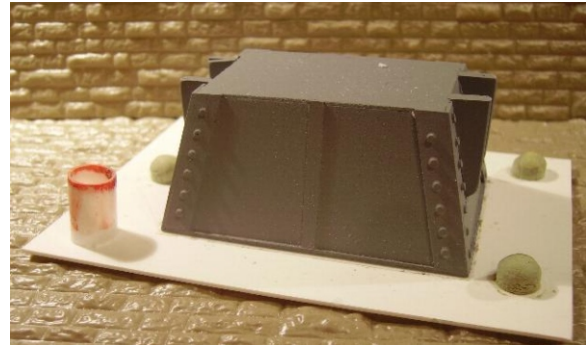
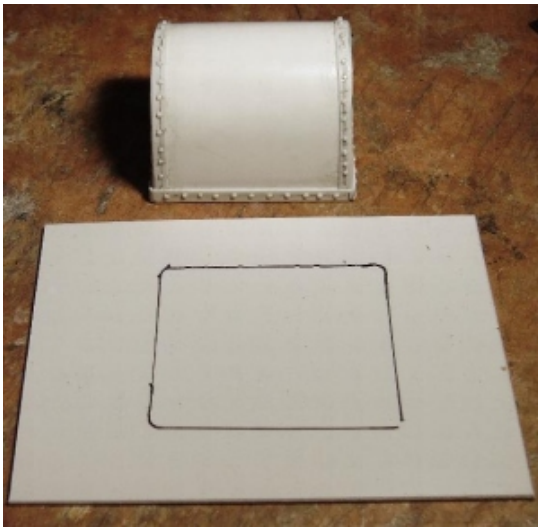
When the pouring is complete gently rock the mould from side to side to break loose any air bubbles that might be entrapped in the mix. Gently tap the board that the mould is on as an additional way to release any bubbles so that they float to the surface, and blow across the surface to pop those that rise.

Leave the mould for 24 hours to ensure that the rubber is completely set. In the first hour double check that there are no leaks and should one form stem the flow with a little modelling clay.

The way that I clean the moulding equipment after I have finished pouring the mould is, to leave it on the equipment until it is cured. It is easy to rub off the skin of rubber from the equipment. I don't throw this rubber away we will find a use for it at another stage of the casting.

After the mould has cured the master is removed, start by removing the walls then gently easing the mould off the master, work all the way around to break the suction between the master and the mould.

There is one last task before the mould is ready, what was the top of the poured rubber will now become the base of the mould. The frilly edges can be removed with a pair of scissors or a sharp knife.



For the two-piece mould for the tub a strip of double sided tape is used to hold down the master tub, this ensures a good but temporary seal between the tub and the base. Either use a single piece of tape large enough for the whole tub or if you use strips mitre the corners so that there is no overlap at the corners press the tub down onto the tape and carefully trim any excess tape from outside rim of the tub. Step one is the same as for the one piece mould. With one difference we need to add a location key at each end, these usually take the form of half spheres or rectangular bars. The keys are placed about a  $\frac{1}{4}$  inch away from the master The walls are made the same way as the one piece moulds.

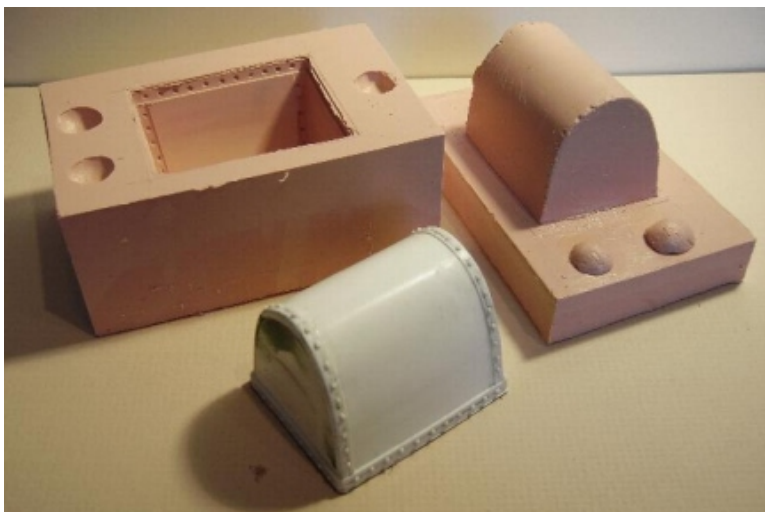
Mix and pour the rubber the same as for the one piece. Because the two piece mould uses quite a bit more rubber some of the old scraps and old moulds can be recycled and cut up into small pieces of approx 4mm square and added to the cavity after the master has been coated and as the liquid rubber is poured.

Carefully remove the walls and ease the master and mould off the base, the mould will still contain the empty Tub and there will be the key shapes moulded in as well.

The next step is to replace the walls around the first part of the mould and joined at the corners so that the walls are at least 1" taller than the top of the tub. The base is not needed. The surface of the silicone rubber needs to be sealed to prevent the next pour of rubber from sticking to the first part of the mould.

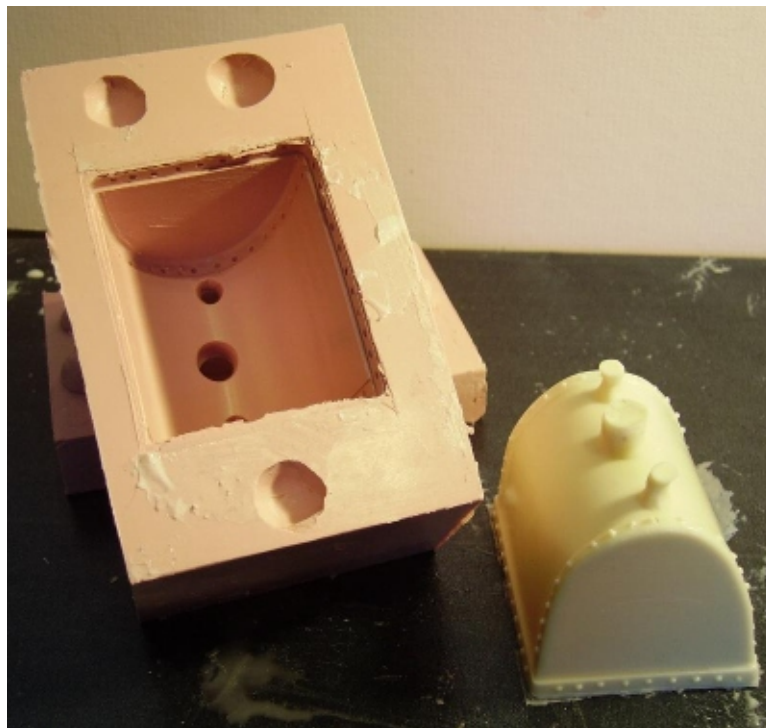
Either a light spray of an aerosol sealer or a thin coat of petroleum Jelly brushed onto the bare surface of the bare surface of the mould will work. It is a good idea to also apply a fillet of petroleum jelly between the 1" high wall and the mould, there is no need to seal the inside of the tub.

Pour the next batch of mixed rubber following the same procedure as for the bottom part, until the rubber is at least 1/4" above the top of the tub. Use a cocktail stick or a piece of wire to make sure there are no bubbles in the key depressions.



When the rubber is cured remove the walls and gently prise the two halves of the mould apart and take the second part out of the tub. Now gently ease the master out of the lower half and reassemble the two halves and check that they fit snugly back together.

The final step is to prepare the mould to accept the resin. We have a shape that is completely surrounded by rubber with no way of pouring the resin into it. The best place to put the pouring and vent holes is in at the bottom of the curved part of the tub. The way I make the pouring hole for the resin is to push from the inside of the mould a piece of 3/8" diameter tube to cut a circular hole. Make sure this hole is on the centre line and in the middle of the tub between the ends. Next repeat the process with a 3/16 tube to make the vent holes place these holes along the same axis as the first hole but place them close to the ends of the tub. When the mould is ready to be poured and the tub is upside-down. These three holes will be at the highest part of the part of the tub cavity inside.

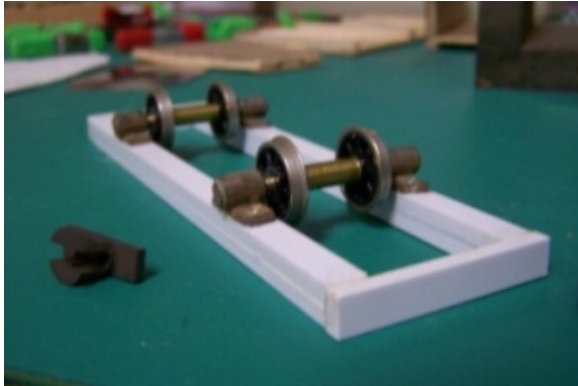


Brush a little petroleum along the edges of the seam before placing the halves together this will act as a seal to prevent any leakage. It is important that you do not distort the mould when holding them together with rubber bands; I place a sheet of plastic that is slightly larger than the top and bottom with holes to match the vents and pouring holes in the top sheet. Use enough rubber bands to hold the two halves of the mould together firmly.

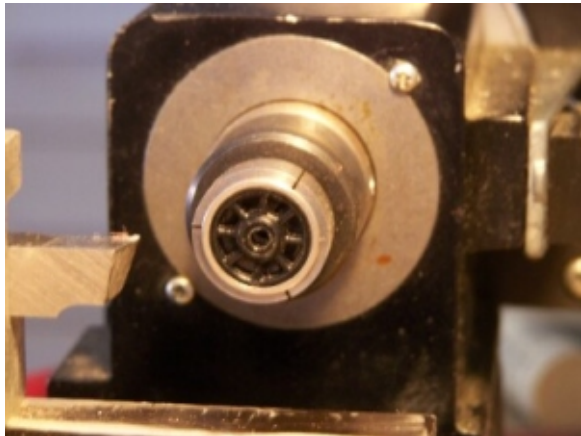
Pour the resin mix very slowly into the pouring hole this will break any air bubbles as it goes over the lip of the pouring cup. Eventually the resin will rise into view inside the mould and the resin will creep out of the vent holes. Leave the mould to cure hard before attempting to remove the tub.

# High sided wagon

The ore car that is the inspiration for this project is located in Germany.



The pedestals are in G scale manufactured by Ozark Miniatures. the wheelsets are in O scale (Grandt Line Products) on home made axles gauged with a NMRA HO track gage.



# This months feature Locomotive

Martin Hogg gives us a well deserved smile from the cab of Kirklees HAWK



Type: Kitson Myer 0-4+4-0 articulated  
Manufacturer: Clayton West Workshop  
Driving wheels: 14"  
Cylinders 5" bore 8" stroke  
Valve gear : Walschearts  
Tractive effort 4371 lbs

This picture shows the unusual double chimneys that might be unique for this type of loco, the second chimney through the bunker was a retrofit as when built it only had the one on the smoke-box. For more info on this loco go to the Kirklees website <http://www.kirkleeslightrailway.com/content/engines.php>



*Photos courtesy Martin Hogg*

# An Unusual Coffee Cover

My Gn15 version of a Coffee Cover slightly large I'll agree BUT I have a large mug painted by my Granddaughter that it suits just fine. Wait until she sees the results (LOL).

I found a Tin lid from a small Fruit Cake (Fortnum & Mason) nothing but the best for Gn15. It's diameter is 110mm but the modelling surface is just under 100mm.

Take a 100mm length of Peco O-16.5 track and fix with Superglue to C/L of Lid top. Then it's a matter of ballasting with PVA glue and suitable ballast. I used a fine beige coloured ballast usually used for 4mm Scale modelling. Having decided that the scene was a Parking Violation I constructed a UK Controlled Zone sign using Styrene rod and sheet painted black fixed into short length of square section wood as a base (hidden behind Loco).

The Graphics were lifted from the www and printed at a suitable size then stuck to Sign face with double-sided tape. Obviously for a Parking Violation correct "Rail Markings" are Gneaded so two Styrene strips were painted yellow then fixed in front of track with superglue. The ground cover was then applied with PVA using a mixture of a German Product and a UK Flower mix. Finally I added my "Shopping Trolley", lady driver of course, plus the Preiser Station Master looking at his watch. He'll pass as a Traffic Warden together with a local Rabbit that just happened to be passing. Total Modelling time around two hours plus overnight drying time.

Now back to completing the Show layout, no more distractions PLEASE , at least, until mid July!!!!



# G Scale Trees

An approach

To make credible trees for our layouts requires just as much care and attention as building your prized piece of rolling stock.

The trees shown in the accompanying pictures represent Kahikatea which are New Zealand's largest trees growing to over 50m which in 1:24<sup>th</sup> scale would be over 2m tall. Hardly practical on a layout so with the tallest at just under 30mm high the models represent kahikatea in their juvenile form with a straight pole trunk with limbs only at the top.



Trees on your layout assist in establishing the setting off your layout so research is necessary to identify the type of tree typically associated with the location you are modelling.

The trees are made from Yarrow (*Achillea millefolium*). You may find your regional name for the flower at <http://botanical.com/botanical/mgmh/y/yarrow02.html> . Yarrow should be picked late in autumn when the flowers and stems have dried out. Do not pick it while still in flower or when the stems are still green as it will wilt and collapse within hours.



To prepare Yarrow pull off the remnants of the leaves and to slow the natural breakdown of the plant, the stems should be brushed with diluted PVA and allowed to dry. Select stems to suit the tree shape and height you are modelling. For small trees you can use single stems while 3-6 stems can be bunched together for larger trees. If you are using multiple stems it is easier to add the vegetation before joining the stems together. The vegetation can be represented by dyed sawdust or ground foam of a colour to suit the required tree colour. Which ever material you use choose a fairly coarse texture when modelling in G scale. I spray both sides of the dried flowers with spray adhesive then either sprinkle on vegetation or push the flower into a bag or tray of vegetation material. Shake off the excess material and fix it in place with a light spray of adhesive. Thinned PVA or matt medium can be used in place of spray adhesive.



The trunk is built up by taping the stems together with masking tape which can be firmly pressed in if your chosen tree trunk has a gnarly ridged finish. If you wish the tape can be covered with putty or your favourite concoction.

If you are modelling tall trees, the trunk can be extended by taping in additional stems. I always add a nail or approximately 1mm diameter piece of brass or steel rod protruding about 1-2 cm from the bottom of the trunk so you can stick the finished tree into your layout surface. The trunk and branches should be painted to represent the colour of your chosen tree.

