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The charm of Winter

RAILROADING... Page 15

Neither rain nor snow will hurt your garden railroading experience. If you are among those who not only drive their locomotives in nice weather, then you know what we are talking about. Garden Railroading is a hobby for any weather, and once you experienced the romance of lit trains during a winter night, you will immediately forget your frozen fingers at the controls. Your eyes will follow with excitement the shining lights when they are finding their way through the ice-cold winter scenery.

However, before the first train can start, you will have to clean the track with a snowplow either integrated into a locomotive or a car being pushed by a locomotive. The operation in dry powder snow does not pose any problems. Wet snow, however, is a different story. It easily can happen that compressed snow will sit between motor block and the

wheels, which definitely will impact the ability to advance on the track.

Even if it looks beautiful when your locomotive pushes the snow: It is better to clean the track with a heavy car from any excess snow to leave no more than 1/4" on top of the railhead. The snowplow needs to be significantly wider than the train itself. Remember that in particular in narrow curves the cars have quite a bit of overhang towards the inside of the curve. You need to have that extra room, otherwise the train will get stuck.

Other problems with winter operation may occur days later, e.g. when the sun melts the snow during daytime and during night the water freezes. If the track is embedded in ice, the train operation will quickly cease. And nobody wants to work on their track with hammer and pick. Therefore construct your railroad in the valleys in a way that the water can easily

flow off.

High humidity is also among the culprits: During operations the track gets slightly heated, which leads to condensation on the railheads when they are cooling down. Therefore avoid wheel spin caused by too heavy loads.

A good alternative during cold-wet days is a battery operated locomotive, unless the temperatures sink below 0F, because batteries don't like that very much. A good advise is to take the battery only shortly before operation from room temperature to the outside.

For sure it is more exciting to drive outside in the snow. But as with so many other things experience will create the real master! And when is the best time for running your trains? During the time described by Steve Tilston's album title: *Silently the snow falls.*

Last Minute

Aristo Craft Dash 9... Page 27

Production of the long awaited Dash-9 from Aristo-Craft has started. We were fortunate enough to obtain a sample straight from the factory in China and are able to give you some advance information on the production series. Of course we will do an extensive test once we receive the standard production sample.

Perhaps as early as the next issue. We doubt that the model will be available

earlier due to having to be shipped from China.

Unbelievably strong

The six-axle Dash 9 is being shipped in the customary fashion (styrofoam), two weights are packaged separately. Removing the oil tank of the engine (four screws) reveals a ready-installed weight. The additional weights bring the total of the engine to 7.1 kg.

Pulling power is between 33 and 34 N,

or in plain language almost three times as much as the Aristo Mikado. This should translate to at least 60 four-axle freight cars!

The pre-series model has the same drive train as the SD-45. The top speed seems too low, however this will allow double-heading with the SD-45. The standard production model will have the Prime-Mover drive which should have even better running characteristics.

The engine — without a load but with

the smoke generator running — pulled 1 to 2 A, under load this could increase to 4A.

Giant for large radii!

If the SD-45 was large, the Dash 9 is even larger! The frame measures 760mm, that's 105mm more than the SD-45. Of course this calls for a larger minimum radius, in this case 1100mm; this despite the trucks having an off-center pivotpoint. It also needs to be noted that the engine will negotiate R3 with the standard Aristo couplers — because they swivel — but fitting Kadee couplers will require even larger radii.

Attention to detail

Engines like the Dash 9 are most certainly built for adults i.e. those who

Dimax DCC unit from Massoth

Massive DCC Power... page 34

The Dimax 1200 DCC control from Massoth is a heavy weight. It weighs in at approx. 7kg, a lot of weight that the OEM of the LGB MTS packed into this unit.

Let's start with the outward appearance of the unit. The fan and the power cord let you know right away that this is a unit complete with power supply. It delivers up to 12A without an additional booster. Which means users of the LGB MTS system need no further power investment, however they will need the usual hand controllers from LGB. Up to six of the "Handys" can be connected to the unit, four in the front, two more in the back.

The rear face of the unit also has two connectors for boosters, as well as the RS 232 serial interface for a computer. This connection enables updating the control

Peter Wanke's RhB

Aiming higher... Page 38

It all started in 1978 with 30m of track on 3000m² of meadow. The trains would be cruising by the patio in 2 minute intervals. But Peter Wanke had bigger plans for the following season, everything seemed to have become smaller and too small during the winter.

Today, after many modifications and expansions over the intervening 25 years, one finds a garden layout which follows many of the prototype features of the RhB and now covers 600m² (approx. 6500 square feet). How many meters of track are there? Who knows!

expect details rather than robust toys.

There are plenty of details — most of them made of metal — on this engine. 36 etched louvers, some of them as fine as the screens on electric razors. More than a dozen railings and steps are fitted to the injection molded body, which has crisp paint and lettering. The railings along the side are pre-installed, the only ones that need to be added are the railings on the end platforms, this will require steady pressure! As do the antennae on the roof. Installing the air deflectors and sunvisors (injection molded plastic) may be omitted if the engine is run in the garden (they may get lost in a mishap) and attention needs to be paid to modify the packaging in order for them to fit in the box.

The windshield wipers are metalcastings which may require a bit of

with software from the Internet. A nice touch is the plug-in connector which can very easily be disconnected.

Operation of the unit is easy to learn, not least because of a nicely organized manual and the text display.

Adjustable are the following:

Current at the track (4, 7 or 12 A)

Short circuit protection (0.1 to 0.8s)

The programming auf an engine address via the programming track is child's play.

So what else is included?? So far the unit is limited to the standard MTS2 commands. Which is perhaps sufficient for MTS users. However Massoth plans an expansion of the functions — target mid 2004 — which will then include four digit addressing (up to 9999) as well as 128 speed steps according to NMRA-DCC.

In view of the capabilities which the

But a train — running at prototypical speed — requires 16 minutes to cover the distance. What trackage is traversed you'll see on the following pages.

The rapid demise of the Haberschlacht - Heumaden Railway Company cleared the way for Peter Wanke's RhB. Station names like Waldau, Cleebrohn and Kleinglattbach disappeared and Surava, Cavaglia, Ospizio and Tirano made their debut.

adjustment to lay flat on the glass. The plow — missing on the SD-45s — is fitted.

The sample we received had incompletely wired lights, however the 4 LEDs for the headlights were working.

The ditch lights won't be having the normal pulsing motion. Aristo leaves that function to be provided by the soundboards of Soundtraxx and other manufacturers who accommodate the synchronisation of horn and lights.

The sound board from Aristo isn't available yet. Provided the minor errors of the pre-production sample are corrected the Dash 9 should turn out to be a model with more details than has been seen up to now.

new unit, together with the equally powerful booster, is able to deliver, one certainly misses a decent hand control. Such a control should deliver considerably more, both in ergonomics as well as technical prowess, than does the well-known Universal-Handy and would certainly increase the value of the unit (€895).

Massoth offers at least new Lokhandys which are finally capable of sending the F1 through F8 commands in parallel mode, older units can also be upgraded.

This should enable Dimax owners to enjoy instant response to F functions, instead of waiting for the serial commands to be executed. While one is busily and impatiently pushing the F button.

What contributed to the changes and the growth of this garden railway has been mentioned in GARTENBAHN-profi 6/2003.

The RhB trunk line and the Bernina Railway are the themes into which this layout can be divided. Not to be missed are the typical structures which set the tone for the region — and starting in the early 90s Peter Wanke continued the transformation to the RhB. What is the end of the line on the prototype was the start for Peter: "I decided on Tirano

station and the circular viaduct at Brusio to be built to scale”

Elsewhere compromises had to be made i.e. Rather than having the 7% grade of the prototype Peter settled for 3%.

He also extended the terminal at Tirano by incorporating a hidden return loop. Which means only three of the four platform tracks dead end like the prototype. The slight of hand with the hidden return loop saves a lot of switching. Of course others would probably have been overjoyed with the following switching challenge: The Bernina Express is broken into three sections and rearranged prior to starting the return trip over the mountain.

Peter wanted to avoid all the extra work; the access track to the return loop passes through the station building — camouflaged by the platform roof!

Tirano, together with the adjacent Wye, is the only part of the line which has electrically operated turnouts — they are indicated in red on the trackplan. Peter designed the traffic patterns on the mainlines in such a manner that all turnouts have default positions. Trains will run through “closed”, spring-loaded turnouts. The remainder of the turnouts use hand throws (just like the prototype), an extensive network of walkways assure ready access to the different stations, most of which have been arranged at the periphery of the layout in order to simplify operations.

The Bernina line was originally operated in a loop to loop pattern, which meant only one train could be running on the 200m stretch.

“To get additional trains running required some type of DCC control. ZIMO appeared the best fit for a garden railway” recalls Peter. The decision was an easy one after a hands-on demonstration of the features. The DCC age had dawned!

The extension of the Bernina line (1994) was the start of “Phase C” on Peter’s layout. A large sunk portion of the meadow — this used to be the sheltered location for a RV - together with a giant heap of fill were the basis for the next garden railway dreams. “Not to use this for a layout extension would have bordered on sin” confesses Peter. The planning phase started and it was anticipated that construction would take approx. five years.

“Being as Phase A appeared slightly overloaded, B on the other hand already

more generous, I decided that with 16 years of practice it was high time to show what could be done in the garden!”

And Peter decided: Better use of the vertical! That is a logical decision if one models a mountain railway.

In the same fashion as hikers could watch the prototype from below along the RhB, Peter decided that the viewers should get a similar impression with the trains running along the mountain side above their heads. From Talboden station, today the start of a rack railway, to the top of the mountain is a height difference of 3.5m (almost 12ft). Most of this sheer wall of rock was achieved by making use of what the terrain had to offer.

Hollow Mountain...

This rock wall, geographically located between Cavaglia and Brusio, hides a few secrets i.e. it is a manmade feature much along the line of what is used for theatre props. Supported by walls, piers and a wooden construction that is not unlike the trusses of a roof, pieces of sheet metal serve as the basis for artificial turf, stacked rocks and mortar. In order to increase adhesion of the materials i.e. the mortar, the sheet metal was clad with heavy screen and the rocks were set on that. The other method that was used is polypropylene matting as a basis with the rocks set in mortar on top of that. This gives the landscape a certain amount of give and thus far there has been no frost heave. Hidden behind the rock wall is an aisle which is used as access to the spiral tunnel. In addition there is a plug-in for the DCC control for trains to be run from that vantage point.

Immediately in front of the rock wall, you could say at the viewer’s feet, is the Talboden station. The steam powered rack railway which connects Talboden via Spitzkehre to Cavaglia is the latest one of Peter’s projects. There is an elevation difference between Talboden and Cavaglia of almost 1.8m (6 ft). The rack railway uses the third track at Cavaglia, which on the prototype is an industrial track.

The view from Cavaglia takes in a large loop which is backed by a hedge to simulate dense forest. At the end of the loop the trains are headed along the rock wall towards Tirano. Or they may divert outside Tirano, heading for the Brusio circular viaduct then up the mountain via Ospizio to Celerina Staz to Surava which is

part of the RhB trunk line in Phase A.

Where, many years ago, one used to find Heumaden (hayrow) station — right in front of the patio by the garden shed — one is today treated to the mundane looks of Davos. Well at least the station building is there, because despite the 600m² there is simply not enough room to represent complete towns. So the trains have priority, on the other hand even the prototype has stations that are located a considerable distance from the town.....

Nicely placed structures — all scratch built! — together with small plants set the contrast to the sheer rock walls and the breath-taking bridges. Mats of artificial turf — at one time very popular for athletic fields and soccer pitches — simulate the bands of grass found in rock walls. The same turf with its 20mm blade length is also used in the rolling hill portions of the layout. And interspersed are real plants, only occasionally disturbed by one or two weeds which grow out of the turf’s drainage holes. Weighed down with small amounts of quartz sand the turf conforms to the landscape’s contours.

The only reminder of the Haberschlacht - Heumaden Bahn (HHB) is the large stone viaduct along the lake and the industrial area which was built as a half-relief. One can even find a piece of standard gauge trackage in the industrial area which gets fed by the piggy back service of the RhB.

The Haberschlacht Railcar Factory has been replaced by the Kabel AG (manufacturers of electrical cable).

One never knows, perhaps one day there will be a need for cable — then when, as tradition dictates the next expansion is being planned. There is still some space left in the “Garden of Eden”.

Snaking through... Page 49

First choice for garden railways: Flextrack! Because the longer the pieces of rail, the fewer the joints, the less likelihood of voltage drop through the joints!

Even if it is possible to bend both brass and stainless steel track by hand, the problem starts when one needs to “un do” a curve that isn’t up to snuff. Straightening track by hand is almost impossible!

Using a track bender like the one from Train.li makes even a straightening job easy. Stephan Flück improved his design from 2001 and added a roller which grips under the railhead, thereby preventing the bender from “jumping” out of the track.

Brass track from GMTS Brinkmeier

Slim line... Page 50

The turnouts are only available as pre-assembled kits. But the GMTS track system offers many different radii. And other than that?

The GMTS track has been on the market for a while and has to compete against the likes of LGB, Thiel and Aristo-Craft. Success will only be achievable if one can offer a complete system. Starting with the three different length of straight track (up to 1.2m) the system has been expanded and now also comprises two different types of turnouts. One will notice at a glance that the GTMS systems strong suit is the pre-formed curved pieces which are geared towards the garden railroader with the “extra” space. GMTS doesn’t produce anything less than a 950mm radius (37.4”) . The same goes for the turnouts, the smaller version has 950mm radius with 15° frog angle and the larger one has 1475 radius with 12° frog angle.

The largest pre-formed curved track has 3100mm radius (122”), 12 pieces will form a circle. Also available is rail in length of 3000mm.

The brass profile (cross section) differs slightly from the LGB variety, the foot has the same width but is slightly flatter, the web is thinner and the railhead has less of a radius when compared to the LGB product. Not that it matters, the railhead will wear soon enough if one uses steel wheels.

The form of the foot and the web together with the slightly lower profile of the ties requires 2mm of shimming to get

Older versions can be retro-fitted!

Another improvement are the new plastic wearstrips which make sliding the bender along the track easier, they can also be replaced if necessary. Other than that the proven design remains the same. The radius is selected by adjusting the large knob. Radii that are larger than 1.5m (5ft) can be adjusted by hand. Smaller ones need to be adjusted with the help of the open-end wrench due to the increased pressure.

Bending the track is a simple process and done in several steps (depending on the radius) by moving the bender along the piece of track. Easements can easily be

the GMTS track to line up with the LGB product. To get a secure connection between the two requires the use of rail clamps.

Having as few GMTS to LGB joints stands to reason, not only because of the alignment requirements but also for the visual appearance. GMTS’ track has a tie to tie distance of 37mm which is considerably more than the 27mm that LGB uses. The flat rail joiners from GMTS are not only sturdy, they fit after dozens of repeated assembly/disassembly moves without showing any indication of material fatigue. The dovetail connectors used on the ties didn’t improve the function of the joiners, but would at least limit the amount of play between the ties. The ties use diagonal connectors (connecting 4 ties) which ensures the perpendicularity of the ties to the track axis. On the other hand this same feature leads to problems if one wishes to bend the track to a radius of less than 1500mm (5ft). In that case one will have to use a utility knife to cut as many of the connections as required.

The positive of the relative stiffness is: warping is very unlikely even if the track is not fully supported due to minor flaws in the road bed (wash-outs etc.).

The ties are quite squared and have a minimum of wood grain texture, they look like new ties on the prototype. The tie plates and bolts are very nicely done. The clamping piece protrudes only 1mm on to the foot of the rail, but will hold the profile securely.

achieved by adjusting the bender accordingly i.e. tighten the radius towards the middle of the curve.

The relatively narrow bender can even be used to correct track that is already in place and it works with all types of rail clamps. This is a big advantage as two pieces of track can be joined with clamps and a continuous radius will go right through the joint.

The bender from Train.li is a fine piece of engineering and will provide excellent service to any garden railroader. The only draw back for the occasional user is the price of Sfr. 312 or €235.

The turnouts — available in LH and RH versions of 12° and 15° frog angle — are available as pre-assembled kits for €122 or €115 each. GMTS calls these units pre-assembled kits because some of the fine tuning i.e. polishing of profiles, deburring and adjusting of point rails, texturing of the ties and cleaning of solder joints needs to be done by the enduser.

This is almost correct, however if the units are to be used for track powered operation it will be an absolute must to polarize the frog! Which to some degree precludes the units from being used as spring loaded turnouts with a default position or for that matter as simple turnouts with a hand throw.

The pre-assembled sample turnouts had perfectly aligned rails, with the exception of one point rail which needed a “touch-up” to snug up against the stock rail.

The point rails pivot around a pin in the joiner plate of the closure rails. The guard rails are fabricated of the same crosssection as the other rail. The point rails rest on brass glider shoe castings complete with the boltsetc.

At least some work will be required on this “kit”, the throw bar will need to be painted and the connector tab to polarize the frog needs to be bent so it isn’t as glaringly obvious to the eye. If one will spend the time to add texture to the “Plain Jane” ties is a matter of taste. The lack of texture won’t be as noticeable in the garden as it will be under the glaring lights indoors. Some work with a fine tip in the

moto tool will improve things.

Apart from the cosmetics it is more important to make sure that the point rails fit perfectly. Improper fit could lead to derailments. The frogs on the other hand

It's easier if it's square

A backwoods water tank... Page 52

You don't necessarily need a 50'000 gallon water tank for your garden railway, just to take up all kinds of precious space. North American logging roads built small tanks wherever there was a ready source of water and used whatever materials were on hand.

My garden railway consists mainly of a mountain of dirt and fill, slightly higher than half of what it is meant to be, in the back corner of our garden. Behind the garden shed where the huge, rotten plum tree used to stand and where everything disappears to that needs to be out of sight. Actually one can make out the right of way which my logging company wants to use in order to clear cut the mountain. The only active feature are the weeds which transform every thing back to its natural state, year after year. In short, building a water tank wasn't a pressing matter.

Except Russ Reinberg, aka Uncle Russ from Finescale Railroader, decided to run a water tank contest and promptly upset my plans. I had just finished building two water tank cars (to serve as battery cars) and had noticed an ad for a branch line water tower which Evergreen Hills Design offered as a craftsman kit in both HO and O scale. There are no NA logging railroads in my neck of the woods and I always need to refer back to my stack of magazines to get some inspiration. That's the means by which I arrive at my "brain waves", more of them than my time allows to pursue. By the way my wife opines: There are several stacks and they are to be found all over the house.....

The backwoods water tower from Evergreen turned out to be square, entirely built of timbers and being as I was already familiar with the basic construction of square water tank not too much of a challenge.

I took the 4cm by 5.5cm picture of the ad and determined construction and function in order to produce a set of prints in 1:20.3 scale.

First I enlarged the picture but to measure the pixels on several taped

are nicely finished and there should be no problem in that area.

All in all: Those who don't shy away from the extra work required to get a perfect fit

together sheets of letter head is no easy task. One quickly loses the "big picture"!

I determined the dimensions with the friendly assistance of the loafer who, hands in his pockets, was passing the time at the foot of the water tank. I would have been better off to pay attention to the water level indicator which shows 9 ft, mine only came out to 7ft.

In order to adapt to the space available on my layout I moved the spout from the small side to the long side, which called for a few modifications.

Once I had finished the supports and the tank I had to take a break as the required castings hadn't arrived yet. N-B-W castings (about 300), the chains and the chainblocks are from Ozark Miniatures. The bearing timbers got fixed to the base plate (from below), the notches in the timbers together with the assembly jig assure that everything remains perpendicular. The base plate appears warped in the pictures, however what is warped is the old drawer on which I usually take my pictures. The supports were positioned in the notches of the bearing timbers, aligned and with a piece of wire fastened to the jig. Next followed a test fit of the cross timbers, these were aligned and brass pins were used to stabilize them. The tank sits on top of the cross timbers.

It is recommended to mark the support assemblies in order to save much confusion during the various test assemblies. Spout and valve were made from a piece of nine-ply 15mm marine plywood. The excellent quality of the wood is a big help in getting the parts, with several layers of laquer, to be weather resistant. The multiple layer made carving the parts much easier. The spout was made from a tapered piece of mahogany which was segmented and reassembled. The ends were carefully hollowed out with a moto tool, this would have been as good as impossible using a drill bit! I measure the weight of the suspended portion of the spout — not the complete part! — on a letter scale. The 8.5g needed a counterweight. The counterweight is a piece of round

on the turnouts, will find the GTMS line a well manufactured track system at an acceptable price with a comparatively large selection of different curved sections.

Vanadium steel which had to be relieved from the bottom in order to get the correct weight. It all would have been much easier if I would have had some scrap brass pieces in the "goodies" box.

The water level indicators are a happy mix of whatever materials were on hand: Styrene-Profiles, brass tubing, Vanadium wire, white metal castings and teak.

I haven't the slightest idea how the valve in

one of these tanks functions, but a quick look in the bathroom lead me to believe that it must be similar to a water closet. Being as some people need to pull on anything that is hanging loose, I skipped glueing the valve to the bottom and weighted it instead. Nothing will break if someone "needs" to pull the chain.

In one of the reference books I discovered a composite valve lever (Big Canyon, CA McCloud River Railroad). I therefore decided to build a composite lever (wood/metal), what's a little extra work while you're at it!?

All "steel banding" is made from 2mm brass tubing which was flattened. It was apparent from the picture in the ad if the water tank had a cover. After some contemplation I decided to skip the walkways, too. It would have been to crowded on top. The tensioning rods were inserted from the outside and the N-B-W castings serve as a suitable finish. The frost box is a piece of square wood, clad in boards and outfitted with an access door.

Teak is the ideal wood for garden railway structures. It is incredibly weather resistant and has almost no expansion or contraction. Simply planing it (best with a slightly dulled blade) will allow the grain to emerge in short order. My water tank will age like a British park bench. Half of the weathering will simply be dirt. Few will have ready access to teak remnants. The North Americans are mostly using Redwood or Western Red Cedar for their garden railway structures.

I still have some concerns about the glued joints. I'm not certain that 5-minute epoxy will stand up to the rigors or if it

does that the wood will give out right next to it. I'm debating if in future I should use bolts to assemble structures that will be outside. But where will I find 1:20(M1)

square nuts?

Oh yeah: In that contest... My water tank garnered one of the two first places. This despite me just doing what others

have shown me.

Well, it is a confirmation that working at my kitchen table can't be all that wrong.

Crane on rails with a prototype

A motorized hook... Page 56

Small, handoperated cranes were a typical feature of narrow gauge railways. But Dr. Utz Damm was looking for a larger model and even found a prototype for his motorized version.

Giant railway projects as well as the smallest narrow gauge railway have one thing in common: they were built to move people and goods from one place to another. Rail access was often the driving force that helped regions to become dominant and at the same token the petering out of resources could lead to the abandonment of rail lines. Model railways on the other hand are most often happily running in circles without any transportation purpose.

Or actually only 'til children's hands get involved and the problem solving starts. That's when garden railways are resurrected. A train, crammed full of pine cones, is tackling the grade on a mountain and in the opposite direction a wagon load of cherries are on their way to the attentive dispatcher. Garden snails are on an excursion to a nearby lettuce leaf, riding in the baggage car, no less! And the old stand by, the rubber Indians are riding the Pullman on the way to their settlement behind the blackberry bushes.

But which grown-up is happy with all this manual labour? Loading and unloading would be the ticket if one could doreliably using some type of remote control. But it isn't that easy!

My first attempt, moving granulates from one corner of the garden to the other, was no success. Producing an old time scraper shovel that would fit the short line image got no further than the challenge of a small but fully functioning shovel. Therefore I decided to give LCL a try, remembering the container crane which used to be produced by Faller. Even three brass grappling fingers were less than reliable. Much more promise showed experiments with a standard hook. It was quite apparent that it was relatively easy to catch a loop i.e. on top of a cable drum with a hook or better yet an array of hooks in cross formation. This gave the incentive

for several "crane solutions".

What would be more logical on a railway but a crane on wheels. There is no shortage of prototype but most of them are rather large and certainly not suited for narrow gauge applications. Or at the other end they are tiny and strictly hand operated.

Well I finally found "my" prototype at the railway museum in Neuenmarkt/Oberfranken.

To find a prototype.....

The narrow gauge steam crane on exhibit at the museum had almost ideal dimensions. Mounted on a 2-axle chassis complete with an idler car and a boom that measures almost 10m seemed ideal. However study of the three pictures that I took quickly showed the following: compromises need to be made to fit the crane withing the confines of the LGB clearance pattern (this concerned mostly the size of the crane cabin). Furthermore were larger wheels a must, for reasons of stability. Und the gear rim together with the chassis had to be larger than "to scale".

And the determining factor were the three stepping motors. 3 DC motors with integrated gearboxes and low RPM i.e. 60 RPM are used to turn the turret, lifting and lowering of the boom and powering the cable with the attached hook.

While the last two functions can be implemented by using pulleys, turning the turret is a different matter, especially since the power feed to the motors needed to be integrated.

The turret swivels on a large ball bearing, with the outer ring being attached to the top and the inner ring to the bottom. The bearing is also used to transmit electrical power. The shaft — a thin-walled piece of brass tubing — is large enough to mount a smaller ball bearing inside. This bearing is also used for the electrical supply.

The principle of the turret drive follows the prototype: a pinion engages a circular, internal rack. Being as I couldn't find a ready-made commercial part I ended up making my own, using a cogged belt as a

sample I carefully cut and filed!

What needs to be mentioned is the allowing restriction. The mobile crane, with it's length of 50 cm (20") will not be able to negotiate the usual curves unless one takes special measures. To allow the boom to swivel sufficiently while resting on the idler car requires that the pinion of the turret drive will be disengaged when the boom is in the transport position. Otherwise the crane will derail or the turret drive could get damaged.

I solved the problem by enabling one of the rack segments to be moveable. Disengaging the segment by a few millimeters from the pinion allows the turret to swivel left and right by about 45° without binding. The weight of the lowering boom disengages the spring loaded segment.

The drive motors

Powering the crane was the next step. Being as the crane will be pushed or pulled it didn't require a drive to the wheels. All other functions need to be remotely controlled. I'm using the LBG-MTS control, which to my chargin lacks all the extra F functions. What functions there are get transmitted in the serial mode which means delays of the commands. To circumvent this I decided to make use of the "Light", "Horn" and "Speed" functions which can be called up even from the simple Lok-Mouse. A decoder, fitted in the turret together with the 3 motors, converts the signals. The DCC track signal is routed via the aforementioned ballbearings.

Due to my lack of knowledge on the inner workings of the decoder I decided to use relays for the interface. Actuating the Function buttons will either actuate or deactuate the relay. The circuit functions on a cascading system along the line of what is used to line up turnouts in a routing system.

Much time can be spent to get all the details of the crane correct. Apart from the chassis with the wheelsets, much will need to be scratchbuilt. Sheets of PVC were used for the turret, the well known

laminating of different layers gives the desired three dimensional effect. Small, individually added rivets add the extra finish. Any of the parts which need to bear weight and or transmit power have been fashioned from brass.

D&RGW flat car and stock car from AMS

The real Mc Coy... Page 62

AMS narrow gauge models in 1:20.3 scale are in a class all by themselves. The latest additions are no exception!

A flat car and a stock car join the boxcar modelled after the D&RGW. The detailing equals what we have seen on the boxcar, the paint finish and lettering are excellent.

Our apprehension, stirred by the experience with other manufacturers, that 30 ft cars would be modelled on the same frame were groundless! The underframe and the body have all the details, lines etc. in the correct locations. The dimensions, including the axle distances and wheel diameters are to scale. The truss rods are not simply inserted but can be tensioned using the square nuts in the end sills. You can't get more prototypical than that!

The trucks are sprung, however we found the wheelsets of the stock car to have a slight bind.

The flat cars of the D&RGW belong to the 6000 series, even rebuilds that started out as box cars, stock cars, reefers or gons would fall within that numbering scheme. The prototype for the AMS flat belongs to the series with steel trucks built in 1924.

Modifications: Move the brake shoes to the wheels.

Provided you have an indoor layout and you would like to have the brakeshoes close to the wheels, here's how to do it.

Remove the king pin screw, pay attention to the coil spring! Loosen the small hex screws which hold the brake rigging to the truck. Remove the brake rigging and,

PIKO's SouthWest series

Versatile kits... Page 65

There is seldom enough room for structures — the garden is always too small. PIKO's Western series is relatively compact and versatile. We have a look at two of the kits which are suitable for the garden as well as indoors.

Kits marketed for "G" are quite often boring, a closer look reveals that the same array of walls and windows has, yet again,

I have to admit I finally splurged and acquired a long dreamed of small lathe. All the turned parts for this project, door knobs, pulleys etc. were still fashioned the "hard way" by chucking them in the variable speed drill.

The strong point of the stock car is the wealth of detail. Much of it metal castings which have been attached to the plastic body. The doors can be swung up, the airvent at the brake end can be opened. The underbody is fully detailed. Even small items like the latches on the doors are present.

Not typical are the boards found above the car numbers, only a few of the prototype cars had that arrangement. Generally there were four boards.

The underbody detail, brake lines and brake gear allow for minimal side play of the wheelsets, the required minimum radius for these cars is 1200mm (4ft). The prototypes were built by the American Car & Foundry Co, St.Louis starting in 1904 and the series was numbered 5500 through 5849. The cars were overhauled sometimes in the '20s and air brakes were added at that time. The AMS model belongs to the series with a single floor and comes in 16 different lettering versions (some of them incorrect) including those of the Rio Grande Southern. Some of the models have an intermediate floor as was commonly used to transport sheep.

using a small square, mark the parting lines, cut the brake rigging square to the lines.

Turn the brake rigging up side down and remove the paint from the cuts. Fashion four pieces of 3mm by 15mm from .05mm styrene strips and attach to the end

been recombined.

The engine shed transforms to a church or fire station, station buildings are supposed to become city halls and mansions. Ordinary row houses double as cottages.

This isn't the manufacturer's way of being lazy, oh no there is method to the madness which requires careful planning.

Both POLA and PIKO have perfected

A wash of diluted paint and signs printed on a computer add to the finish.

The crane has now become my twelve year old son's favourite, gone are the days of manual labour.

The wheel flanges measure 1.8mm and are intended for smaller Code rail. Tests on Llagas Creek's Code 250 track showed good results. Their turnouts worked flawlessly thanks to the tight tolerances in the frog area which wouldn't allow the wheels to dip in to the abyss. As previously noted on the box car, the brake shoes could be closer to the wheels. This minor flaw is not hard to correct (see sidebar).

Summing up...

The new models are an excellent addition to any garden railway following a Colorado prototype. The flat car, even if it is missing the real wood planking, is a sturdy, perfectly detailed alternative to the Hartford product reviewed in GARTENBAHNprofi 6/2003. The stock car is, despite minor flaws and incorrect car numbers, an excellent starting point for long stock trains and/or modifications according to prototype pictures.

of the brake rigging. Reattach the rigging to the truck. Position the two shortened pieces on the styrene strips, align the brake shoes in the proper position and then apply the adhesive.

After the joints have set prepare the parts with finewet-paper and then paint.

the rearrangement of existing parts to yet one more new structure. And there is good reason: HO structures are being produced and sold in series of many thousands. Large scale structures on the other hand are more or less limited to a few hundred, getting customized individual buildings would come at a tremendous cost.

PIKO's Western series uses six different building fronts in a clever fashion

which avoids the “looks the same” syndrome. The new bakery and the bank use the same store front, but the columns that are added to the bakery make for a completely different look. The second floors use different windows, both in type as well as number and with the addition of fancy architectural work along the roof line there is a variety that is typical of small towns in the US West.

The kits have a height which allows for proper floor to ceiling distances, the doors are tall enough so that 1:22.5 figures don't need to duck.

Even the display windows of the stores have dimensions which allow use in 1:32 scale, provide one adjusts the doors etc. accordingly.

The building fronts scale out to approx. 5m (16ft) and have nice proportions. The depth scales to approx. 5.4m (17ft) and should please Large Scalers in the garden or indoors.

The kits consist of styrene, have slightly weathered walls, doors and windows can be opened. The assembly of the roof will

leave a slight gap, but this won't be noticeable if the buildings are set one next to the other. Smoke stack are to be placed on the simulate tar-paper roof. A nice touch will be some flashing around the base of the stack fashion from left over window material.

All parts of the kits were nicely molded and had a perfect fit. The only flaw was some very minor flash on two windows.

A minor problem are the corners of the building which lack the brick texture. At least the horizontal lines could have been continued. Being as the brick work of the side walls is slightly higher than the front and the back, correcting this fault will require some filling with putty prior to scoring the mortar lines.

Turn down the light

The customary simple decorations for the display windows are printed on foil and lack any three dimensional feel. We used them for the bakery, this despite the fact that an interior would look much better. The manufacturers have yet to discover

what possibilities these interiors would present.

Anyone who's ever built a table and a few chairs will long for the day when neutral interior accessories like stoves, furniture and desks will be available in approx. 1:24 scale. Interiors will really show in Large Scale!

The large windows of the bank make a fancy chandelier almost a must. However it needs to be mentioned that adding illumination of any kind to the buildings will require some extrawork.

The walls need to be masked where required and one or two coats of flat black need to be applied from the inside to prevent any of the shine-through which one notices on some layouts.

Last but not least; any of the buildings will benefit from some additional weathering.

In sum.... the new PIKO kits are a nice addition to layouts modelling a US theme. They are easy to assemble, can be kitbashed and don't require a great deal of space.

LGB RhB Uah 8130- 40 tankcar

Nicely rounded... Page 68

After all these years of not-even close two axle tankers, LGB surprised with a reasonably close four axle RhB tanker. Hans-Joerg Mueller compared the model to the prototype.

The Rhaetian Railways (RhB) took delivery of the first two axle tankers (Uh 8101) as early as 1926. Transporting petroleum products has always been a job in the Grisons. The first 4 axle tankers — with a much larger capacity — followed in 1930 (Uahk-v8121-22).

The Uah 8131-40 series appeared in 1973. Manufacturer was Josef Meyer, Rheinfelden, with the original aluminium trucks being fabricated by Alusuisse.

The designation — according to the UIC scheme from 1969 — reads as follows: “U” = specialty car for the transport of liquid, gaseous or powdered materials; “a” = four axles; “h” = liquid or gaseous products.

The transport of petroleum products is big business in the Grisons. Due to being slightly off the more travelled routes of the Gotthard and Lötschberg the Grisons aka the holiday corner of Switzerland, depends on imports via the SBB (Basel, Landquart) or the FS (Genoa, Tirano). Which origin is selected depends on the

spot price on the Genoa and Rotterdam markets. Importing from Italy explains the above average tank car traffic on the Bernina line. To supply the Poschiavo Valley would require only a fraction of the traffic. The oil bulk storage facilities are in Landquart, distribution is carried out from there. For that reason one will see tank cars almost anywhere on the RhB network.

After commissioning of the Uah 8131-40 series it was discovered that the aluminium trucks lacked the expected stability and had a tendency to derail. Needless to say that this would cause some concern regarding spill potential! Uah 8140 was the first that got retrofitted with standard JMR trucks. Starting in the mid '90s the rest of the series was changed and at the same time refitted with new tanks that incorporate several additional environmental safety measures. It doesn't surprise that there have been different paint scheme since the 70s. And in contrast to years past, today it is easy to read the car numbers from a distance, just like the advertising that is also part of the RhB's modern look.

What surprises, when studying pictures of the different eras, is the amount of rust

which seems to be present even on recently outshopped cars.

The perfect excuse to add a hefty layer of weathering to the model.

A well designed model

The first impression is favourable. After hearing some rumours of transport damaged paint due to less than ideal packaging, I was curious to see what arrived. The packaging was excellent, no damage anywhere on the car! The car number read 8135 rather than the 8138 as listed in the catalogue, however the transfers to change the car numbers are enclosed. The cars have a solid feel, as we are used to from LGB. The paint job is nice and the lettering crisp. Even the builder's plate is mounted in the step area. And a big Plus: not a single piece of shiny brass in sight. The trucks have the usual “one side fixed the other flexible” feature to equalize less than perfect track. A nice touch are the highlighted details. The railings and ladders could be less hefty without losing any of their stability, but they are an improvement over previous items. The walkways on top of the tank are solid injection mouldings, getting the real see through effect would have been a nice

feature. This and the screws, which are in some instances in plain view, lower the overall impression.

Also missing are the metal wheel sets and what annoys is the tendency of the trucks to rotate all of 360° once they are lifted off the track.

And then there are details like the “R2 20.11.92” which seems highly unlikely considering the new , improved tank. The

dimensions are quite good, if one disregards the errors which stem from LGB legacy parts. The length is within 0.3%, the height on the other hand shows + 10% and the width exceeds by 4.4%. The standard plastic wheels are 8.4% too small. Axle distance and king pin distance is within 1.2%.

Overall... A nice addition to the RhB roster. If LGB would see fit to provide

more realistic brake hoses and metal wheel sets much would be gained. Anyone modelling post '73 will find one or two of this tank cars make a nice addition to an RhB train. Two of the Oldtimer ABe 4/4 from LGB together with two or three Uah would make a good-looking Bernina train.

LGB 40830 RhB Uah 8131-40

Dimension or feature	Prototype	1:22.5	LGB	LGB Scale	% error +/-	Score
Width	2460	109.3	114.1	1:21.5	+ 4.4%	Good
Height	3630	161.3	176.8	1:20.5	+ 9.6%	Passable
Length over buffers	11040	490	488.5	1:22.5	- 0.3%	Excellent
Axle distance	7400	328.9	331.5		+ 0.8%	Excellent
Kingpin distance	6000	266.7	268.5		+ 0.7%	Excellent
Axle distance within truck	1400	62.2	63		+ 1.2%	Very Good
Wheel dia.	750	33.3	30.5		- 8.4%	Passable
Railhead to Center of buffer	625	27.8	33.5		+ 20.5	Questionable
Length of Tank	9000	400	399.5		- 0.2%	Excellent
Diameter of Tank	2500	111	110		- 0.9%	Excellent
Comments:	Some of the screws used for assembly are visible.					
How the measurements are rated:	+/- 1.0% or better : Excellent +/- 1.1 to 4% : Very Good +/- 4.1 to 7% : Good +/- 7.1 to 10% : Passable +/- 10.1% and above : Questionable					
Measurements taken with:	Vernier (0-450mm; 0.02mm accuracy) Digital Vernier (0-200mm; 0.01mm accuracy) Height Gauge (0-250mm; 0.02mm accuracy)					
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