

Rectank

Instructions

**Super Detail kit of
the 1918 wagon
designed to carry
WW1 Battletanks**



**The Spinney
Low St Beckingham
Doncaster S Yorks DN10 4PW**

01427 848979 www.hobbyholidays.co.uk

Requirements – other than the normal tools etc
A small piece of MDF max 7.5inch 190mm wide
A good rivet tool.
10BA & 14BA Taps

Kit A Contents:-

Etch for the Wagon
Etch for the bogies
Brass Castings
Whitemetal castings
Springs
Box (suitable for finished wagon)
These instruction (x pages)

Kit B Contents:-

Wheels
Couplings
Wood
Buffers
Shackles
14BA screws & Nuts
10BA Screws, nuts, washers
1.00mm Brass Wire
0.75mm Brass Wire
0.50mm Brass Wire
Chain
Brass Tube for Bogies

There are some very small parts amongst the etches, plus springs and 14BA screws & nuts. Special care should be taken. A few suggestions are:-

- A jewelers apron fixed to the underside of the table to catch any small parts
- Hobby Holidays sell a special apron with a pouch again to catch small parts
- Buy an off cut of Linoleum preferably light plain colour to place on the floor where you work, and keep clean
- Work on a sheet of Kitchen roll. It stops the small parts, especially springs, rolling away and bouncing.

This kit is super detailed and will take many hours of fine fiddly work, however there are lots of short cuts that can be taken to speedup/simplify the construction. *Look out for this type of lettering*. The brake gear can be made to move, however in our scale the radius of trackwork we use will cause problems in applying the brakes as the bogies turn. I did not fit the final link between the bogie and the wagon brake rod pivot point. Also note the bogies of this wagon have 2 springs at each side.

Read through the instructions once to understand the order of things and what needs to be done, for example, you may want to stain the timber to a darker brown and allow to dry while assembly of the wagon is underway.

All Folds are with the ½ etched line on the inside for all bends of 90 deg or less. If the fold is folded right over, ie. 180 deg the ½ etched line is on the outside, and is then (the tab) is usually filed off after soldering. The cusp need only be removed on cosmetic reasons and not for fit.

There may be some spares of some of the smaller parts. There are excess parts for the brake gear as in some circumstances brakes may have been fitted to both bogies, but as designed and original build, only one set was fitted with a hand wheel on both sides of the wagon. If brakes are fitted to both it is likely that only 1 hand wheel was fitted to each bogie.

E numbers are etched parts
C numbers are castings

Jigs included: -
T section jig
I section jig
Tank chain down links jig

History

The inspiration for this kit came from an article and detailed drawing in "The L&NWR Society JOURNAL" Vol 5 No 6. Sept 2007. by Peter Ellis. Peter has been very kind in allowing me to use information from that article plus some extra info.

RECTANK. Comes from REC – Tank. Railway Executive Committee, and the code word for a secret piece of mechanized equipment to break through the battle lines in the latter part of WW1. The wagon was needed to transport what we now call tanks to the front line. The tanks were driven on from a platform at the side of the wagon, and hence why the jacks were needed in the middle. Out in France the tanks were driven down the length of the train and off via a special ramp wagon of ramp, hence the need for jacks at the ends. 200 Rectanks were built in 1918 numbered 12001 to 12200. although we are not sure as to where they were all built but it is believed that the:-

Midland railway built at least 40 at Derby
Great Western built 40 at Swindon
North Eastern built 40 at York

The bogie design appears to be Midland, to handle sharp curves. The buffers are a GWR design.
When the war finished the wagons were surplus to the war dept's needs and so were sold in 1921

GWR	They took back the ones they made, and gave them the Code C20 & No's 17310 to 17340 & 70745 to 707753
LNWR	bought 40 and gave placed them on page 109 of the diagram book. 79109 to 79148. prefix with a 2 for LMS
MR	The Midland got some, called them 35T machine trolley and listed them on page 13 & 13A They numbered them by spaces in there lists ie. 417, 574, 1124, 7148, 12079, 17993, 18053, 19893, 21761, 27031, 27151, 27258, 32306, 32424, 32635,

	33493, 34122, 67346, 73576, 663, 702, 4364, 6840, 7674, 8867, 9474, 9804, 10732, 12193, 12246, 17364, 17966, 18195, 27099, 27366, 34788, 77227
NER	The NER got another 40 LNER No's 1051, 9950, 9991, 12811, 14029, 16873, 17209, 17375, 20600, 26387, 26471, 33200, 41675, 42203, 42303, 45860, 46199, 46463, 49042, 50471, 55072, 55947, 56080, 56676, 59141, 67599, 69270, 71668, 77003, 77341, 78505, 78772, 79422, 81474, 83226, 85093, 86159, 88469, 88615
Caledonian	The Caledonian bought some
Others	Some Hire companies bought some.

They were modified by the various companies to meet their specific needs, including fitting bolsters to carry long items, removing the jacks, altering the brakes. Specific pictures will be needed to model a wagon in the modified form. But they lasted until the late 1950's / early 60's. In fact 3 were used to clear up the mess after the Harrow Wealdstone crash in 1952, by which time a lot were probably in engineering depts. Four were still in existence GWR 17323, 17325, 17337, & 17340 in BR Records in 1964. the last 3 were converted to carry nuclear flasks from Dounreay to Harwell.

Livery is not known but my best guess is Admiralty grey as the tanks were actually a naval product. They were probably painted in the relative companies livery either at the point of acquisition, or when a repaint was needed.

It is understood they were requisitioned again during WW2, plus 12 new ones were made, but to a different design. At this point the old ones were classified as Rectank "A" and the new ones as Rectank "B"

BR TOPs Code "XR"

LMS telegraph code "BBZ"

See also

"The L&NWR Society JOURNAL" Vol 5 No 6. Sept 2007 –History but with a LNWR slant + pictures

"The L&NWR Society JOURNAL" Vol 5 No 7. Dec 2007 – Picture showing a wagon on hire to the LNWR

"A History of GWR Goods Wagons" by AG Atkins, W Beard, DJ Hyde & R Turret

"An Illustrated History of Midland Wagons" RJ Essery. – Part 1 shows the axle box details Part 2 shows the wagon in use.

Wild Swan have a new book on LNER wagons part 2, there is a picture and drawings + details

There is a bigger book on GWR wagons but other than having seen it I know nothing about it.

When published Wild Swans LNWR wagons part 2 will include more info.

Other specialist railway societies may have other information, eg NER & GWR

Wagon Body part 1

1	Push out rivet detail on E1, 2 off, E2, 2 off, E3, 4 off, E4, 4 off.	Please note there are 8 pairs of horizontal ½ inch etch holes on each of E1, these are for drilling if you intend to make and fit rope hooks, this should be done now in the flat. These are very small, delicate and tricky to make. <i>Don't drill these holes.</i>
2	Solder E4 to the top of E1, then solder on E3 to the	Use E28 as a tool to hold E1 vertical whilst soldering to E4. Note that

	bottom, – to create the 2 outer 'I' sections.	the marks representing the centre of E3 & E4, should match up with the 2 vertical rivets of a set of 3. Start from here and work outwards to prevent buckling. Use tool E27 to keep E3 horizontal while soldering. A Small piece of MDF will help to support the I beams with the curve at the ends hanging over the edge. At this stage fit the rope hooks, if you are fitting them, as getting to the back if the "I" sections later will be tricky. <i>Rope Hooks need not be fitted</i>
3	Solder E4 to the top of E2 (Do not fit E3 at this stage) – 2 off	Use E28 as a tool again. Please note ½ etched notch representing the centre line of E2
4	E9 16 off, cut out , fold to 90 Deg solder 2 back to back. (small sections together) making 8 truss rod fixing brackets. Solder 2 to each of the "I" sections	The position is determined by the rivet detail of a similar shape to the rivets on E9 but at an angle. Also the pressed out rivets should be on the opposite side.
5	Fold up 7 off E5, and slide into the central 7 slots of Instruction 3 above. Note the flange should be the thickness of the wood away from the top surface, do not solder at this stage.	The orientation is determined by the rivet detail on the outer I sections, but all folded sections should point towards the centre of the wagon. I.e. 4 one way 3 the other.
6	Push out the rivets on E6, fold up, and fit into the slots at each end of the centre 2 'I' sections, again do not solder	Before soldering together make sure there is enough space between the cross members and the tops of the 'I' sections for the timber floor to be fitted (2mm thick). I actually used the wood intended for the floor as a packing to position the cross members. If the timber is too thick it will make the cross members stick below the bottom surface of the wagon.
7	Check for square and height position, allowing for the wooden floor, then solder together.	If fitting all the corner angle brackets, solder sparingly, as excess solder will prevent proper fitting of the brackets
	Push out rivets on the Buffer Beams E13 and solder at each end.	If you intend to build the wagon with the jacks as fitted in 1918 then not all the rivets need pressing out. See pictures and matching parts. Note there are LH & RH Jack support plates. It is advisable that all holes are checked for size prior to fitting, ie Drawbar slot and buffer holes. You can file off excess rivets if you change your mind.
8	Push out rivets on E7, E8, & E10 Solder to all inside joints. <i>Not Essential.</i>	The rivets are best pushed out while parts are still attached to the fret. E7, E8, & E10 only differ in the number and shape of rivets and hence their position ie E10 fits inside and out in the 4 corners. The use of a resistance soldering unit (RSU) will help with these parts. <i>They are not essential to the structure, and cannot be seen from the top after fitting the timber floor</i>
9	Solder on E3 to the bottom of the centre 2 'I' Beams	Use tool E27 to ensure that E3 is square to E2
10	Push out Rivets on E25 – 2 off and solder to the outside face of the buffer beam	Ensure the plate is square and the slots line up, Use of the coupling hook will help.
11	Using E14, E15 & E16. to create the queen post support beam. Push out the rivets and solder together. Solder directly under the cross members either side of the centre one	The etched tools E28 & E27 used for the main 'I' sections will work with these parts as well.

12	Fit E17, 18 & 19 behind each buffer beam. <i>Not Essential</i>	Again check holes for size and alignment before soldering. Again the use of a RSU will help. The slope at each side goes at the top to allow for the slope of the top of the wagon floor.
13		
14	Fit 4 off truss rods. Using E9 already fitted at each end fit truss rod with 2 queen posts C1. under the cross beams.	The Queen posts fit underneath the rivet detail of the cross beams. Use Wire of 1.0mm dia for truss rods, slide through brackets at one end and bend at each queen post, slide into other end, solder and trim to length. 16BA screws and nuts can be used to clamp truss rods to queen posts. <i>A short length of wire could be substituted and soldered in place</i>
15	Form the end jack brackets using E11, E22 & E23.	Check and double check that you have the correct parts in the correct place before soldering. There is a LH and RH Front bracket & support plate and a thickener is soldered on before fitted to the wagon. Drill 1.8mm and tap 10BA. <i>Drill ??? if you wish to solder jacks in place</i>
16	The end jack screws are formed from 10 BA Cheese head screws with a washer soldered onto the head. Fit screw and solder on double thickness hand wheels E24 on top.	Take care to ensure the screw head and washer are concentric. The hole for the screw may need to be opened out to 1.8mm before tapping. 2 hand wheels need soldering back to back cleaned up the edges rounded off. Note screw heads do not touch the track, (clearance was allowed for Buffer stops formed out of rail) the jacks were screwed down onto an old sleeper.
17	E42 Centre Jack supports, push out rivets, fold up, solder on 10BA Nut, and solder to bottom of transverse 'I' Beams between the Queen posts	You can flood a small amount of solder into the folds and around nut to make the corners a little more rounded. Position is determined by the rivet detail on 'I' Beam. (Jacks should be track gauge apart as they screw down onto the rails). You can solder in place
18	The centre jack screws are very similar but with casting C2 (Tommy bar) is fitted before screwing into the support brackets, and handles fitted.	<i>This could just be soldered up</i>
19	Solder E40 Destination card Holder, number plate E35, and E50 Invoice holder, to sides of wagon.	Note positions from pictures
20	Solder on chosen Number plate	
21	Make chain loop brackets by soldering 2 E37 back to back after bending the ½ etched tab at 90 Deg (1/2 etch to the inside of the bend).	
22	Push out the rivets in E38 10 off and fit E37 from above	The ½ Etch tabs of E37 fit into the ½ etch slots in the back of E38. Do not solder to the wagon until the loops have been made or fitted
23	The loops can either made by using round nose pliers or the jig supplied. E37, E44 & E45. some small nails.	This is 10 times more difficult to explain than to show, but these are instructions so here goes. Using 2 E37 as before and fit to E45 similar to fitting to E38 above. Solder the 4 washers E44 into a stack Using some very small nails or pieces of piano wire, nail the plate E45 to a board through the 3 holes, the bottom one should have the stack of washers over the nail. Push a length 0.75mm wire through

		the cross hole of E37. The chain Loop. Form a small loop with 0.5 brass wire to fit over 1 side of the 0.75 wire. Up against E37. Bend inside the first nail, round the outside of the second nail (the one with the brass washers on), inside the 3 rd wire and form another loop around the other side of the 0.75 wire. Pull out the 0.75 wire and ease off the loop from the jig
24	Using a short piece of the 0.75 wire fit to the brackets formed above, either solder the loop to the wire so it pivots, or solder the cross wire to the bracket and reform the wire loop over the ends of the cross wire	<i>Solder solid or just make a round loop.</i>
25	Solder the complete chain loop brackets, 5 each side to the outer side "I" sections.	An RSU will be useful for this task

Bogie Construction

50	Cut all the castings from the tree using a jewelers saw	Damage will be done to the small casting if you use cutters. Clean up the surfaces with fine needle files.
51	Clean out hole in the back of the axle boxes C3, with a 2.5mm drill and fit bearings supplied with wheels.	
52	Make up the 8 Axle boxes. C3. Cut 2 short lengths of Special Shapes TT61X Brass tube and solder to the side of each axle box C3. Tap each end of each tube 14BA. I suggest you do not solder on the Axle box covers yet.	Correct size is 7.0mm but it may be easier to cut the tube slightly longer and file back to size after soldering in place. Using either a second or taper tap, tap each end about 3mm of full thread. To avoid breaking a tap turn it forwards a couple of turns and then back a couple then forwards again, etc. A little oil will help. You can also use a round file to file an opening in the tube as per the real thing. Use the round file to file the 2 ends of the cutout first, then with a square file open out the section between. You will need to make 8 axle boxes per wagon. <i>A simpler version is not tap but solder in some wire as if screws.</i>
53	Make up the suspension castings Cut a short length of Speical Shapes TT61X Brass tube to fit flush to top and bottom of the suspension guides C4. Actual size 9.75mm Then cut a short length of TT62 Brass tube to fit the inside faces 8.30mm. Slide the larger dia tube over the smaller as you feed the smaller through both holes of the casting and solder in place with plenty of solder to make it appear as 1 casting with rounded corners	You will need 8 suspension casting per wagon 8.3mm and 9.7mm. <i>Again solder in some wire to replace the 14BA screws.</i>
54	Using 24 14BA screws, screw on a nut down half of the length.	<i>Put the screws in your spares box and save the nuts for later if you are doing a simpler version</i>
55	Cut out E122, 4 singles, 1 for the bottom of the diamond frame for each side of each bogie.	Clean off the cusp and tags. The small washer should be saved as they may be needed for the brake gear later.
56	Cut out E123 & E124, 4 doubles for the bogies as above	Do not clean of the cusp or tags.

57	With E123 & E124, fold thru 180 deg with half etch tabs on the outside and solder together. Drill all holes 1.10mm Clearance for 14 BA, and clean up.	Clamp while soldering & clean off any excess solder, cusp & tags to create double thickness strips. Drill all 6 holes after soldering. Check width fits into both axle box and suspension castings C3 & C4. Drawfile edges to get a clean finish.
58	Starting with E122 (the single layer one) with the half etch slots on the underside, then E123 (the longest ones) screw one of the 14BA screws from underneath into the bottom of the suspension castings. Only ½ the screw needs to be used. Tighten the nut up and cut off the top half of the screw and use on the next bogie.	The bottom of the castings is the end with a flange. The flanges should also be facing each other. After cutting the excess screw off, file the end flat, grip the screw between your finger nails, unscrew the screw through your finger nails. This will correct the thread and allow the next nut to fit on. <i>For the simpler version Push the extra wire through the holes E123 then E122. Either solder together or solder a nut over the wire.</i>
59	Screw through E124 to the top of the suspension castings, as above.	<i>As Above but E124</i>
60	Bend E123 up at both sides and then the end section flat. Likewise bend E124 down and the end flat.	If you have bent them correctly the holes for the axle boxes should line up and create the characteristic diamond shape. The unbent E122 should also line up with the bottom holes of the axle boxes.
61	As above fit the screws with a nut on, through E122, E123 & E124 into the axle boxes. Cut the remainder of the screw off, file the head flat, a quick touch of solder and clean up again to create a hexagon headed screw.	Each ½" long screw should produce 2 screws. <i>For the simpler version pass the wire in the axle boxes through the diamond frame and solder a nut over the wire, clean off the excess wire.</i>
62	Fold up the sides of the bogie bottom tray E121.	This should be a tight fit between the 2 flanges of the suspension castings. Do not solder at this stage.
63	Cut out cross beam parts E119, E120, E112, & E113 and solder together. The bogie with brakes will need to have the ½ etch panels on parts E119 & E120 to face outwards.	It is wise to tack solder these parts together, check for square and alignment then finish solder. The ½ etch panels are where brake parts are fitted. Also note the difference between E119 & E120. the centre panel is of a different size. At this stage it does not matter which goes left or right.
64	Remove the brake hanger brackets E107 Note the 3 etch fold line close together one side of the middle. Fold the centre one back on itself and the other to form the bracket shown. Solder on a small section of KS???	Soldering on the tube is a little tricky, but solder the folded back section of the bracket first, file off the tab, lay flat on the table and solder on a short section of tube then trim to length by saw and/or file
65	Solder 4 brake hanger bracket E 107 to the cross beam in the recesses at each end of the beam sides	The Recess is slightly wider than the bracket. If you solder towards the inside edges, this is suitable for '0' Gauge Finescale. The outer edges are for Scale 7. If you want to fit brakes to both bogies then 4 will be needed to each bogie. From now on if you want to fit brakes to both bogies you will need to double up tasks. <i>You may not want to fit brakes at all, if so jump to 75</i>
66	Cut out and fold up the brake hanger links E117, and pin to the hanger brackets above.	If trying to make the brake gear move, then this fixing could be by rivets, Brass pins, or wire with washers soldered on. To help there are some washers provided complete with a split pin etched on. E111. Do not use E125 as they will be needed later.
67	Each Brake shoe E110 is made up of 4 layers, the	Remove a whole strip of brake shoes (2 large 2 small), Fold in half,

	centre 2 being bigger than the outer 2	then fold the small ones back on themselves. Squeeze the 4 together. Make sure the holes line up, solder and file off the tabs
68	Fold up the brake hanger links E117 and fit with a pin to the bracket and then the brake shoe at the bottom. Either rivet over the end of the pins or solder the ends or solder an E111 washer on.	<i>This can all be soldered solid if you wish to simplify things, or in the worst case not fit any at all.</i>
69	Cut out 4 E108 Brake balancing beam. Double up with the small ½ etched slots in the centre. Solder in a short length of 0.5mm wire. Make 2 beams.	The centre pivot hole may need drilling out 0.5mm. place aside for the moment
70	Using 2 E108, fold up and solder back to back but at 90 Deg so you have a fork at each side but 1 horiz and 1 vertical. Fit 1 to the centre of each balance beam.	You will need at least 4 of these.
71	Fold up E104 & E105 brake lever pivot brackets and solder to corresponding side of the bogie centre beam.	1 bracket is wider than the other and the centre ½ etched panel is of a matching size. For future ref the wider one faces the end of the wagon
72	Cut out a pair of E116, fold back on itself to double up and solder together. Fit the top between the faces of E105. The 2 E108's soldered together is fitted to the middle hole, & the other side of the E108 is fitted to the centre of the balance beam	The top hole is is the one furthest from the centre hole.
73	The other side is somewhat similar but a pair of E115 is needed + E118. This time E118 is fitted to the wider bracket on the beam, and fits around the outside of the E108, with E115 in the centre. Washers E125 will help with spacing.	
74	Another E108 assembly is fitted to the top of E115	
75	If making a bogie with only 1 spring each side, cut out the half etch centre section of E114 use with the single hole on the outside	This section refers to modelers that have either purchased the bogies by themselves or you have purchased a wagon with only 1 spring each side of the bogie. Please adapt accordingly
76	Cut out 4 E114 Spring retainers and double up to make 2 2's	
77	Put it all together, 2 sides, bottom tray, main beam, 4 off C5 suspension rubbing blocks, and the wheels	Do a dry run to make sure everything fits. Note the position of C5 and the bottom tray. I then soldered 1 side to the bottom tray, fed through the beam with C5 either side, the wheels in place and then the other side. Tricky. You can disassemble the axle boxes to simplify things.
78	Fit the brake adjustment arm E102.	This fits under the bottom tray pinned to the bottom of E115 & E116
79	Pass a 10BA screw through the bottom of the bogie, then slide the double thickness E114 between the bottom tray and the beam. This should stop the screw from dropping out. Using tweezers place the springs into the hollows in E114.	

Fitting the Bogies to the wagon		
	Solder 10BA Nut to a doubled up E101 in the Hex recess then solder plate to the centre position of the bogies under the wagon	Make sure this nut is secure as the screw for the bogie bottoms on this plate. It should be soldered centrally under and between the 2 larger cross members (the bogie support cross members)
	Fix a bogie rubbing plate E100 either side of the bogie centres. Then fix similar parts into a similar place on the bogie until the ride height is obtained	As the bogies have suspension, there is no need for them to pivot from side to side (as normal models), however some play is needed rocking from front to back.
	Carefully shorten the screw in each bogie until screws into the nut and locks without locking up the bogie or being too sloppy.	
	Form E47 over a length of 0.75mm wire as shown.	This loop is used to position the brake handwheel.
	Solder 2 hand wheels together and clean up, rounding off the edges.	
	There are 2 different parts for the centre of the bar between the 2 hand wheels. E30 is made up of 3 layers creating a hole to solder in some 0.75mm wire. E46 can be used to replace this if you wish to make the brakes work and is intended to fit an 8BA nut.	E46 will need some extra work and parts to make it work. I suggest an 8BA screw is drilled for the 0.75mm wire to be soldered into. And a nut fitted into E46.
	E41 is soldered to the underside of the centre 2 "I" beams as support plate for brake pivot point. Note the ½ etch section is used to produce a horizontal plate.	
	Fold up 2 E32 and solder back to back the large slot/hole. Fix the centre pivot hole to the support plate. The large slot/hole is fixed to E30 assembly.	
	If trying to make the brakes work another E108 assembly will be needed along with 1 pair of E106.	

Finishing touches

	Fit sprung buffers	
	Fit screw link couplings	
	Put a slight bend in the last 3mm of the chequer plate and solder to the top of the I beams, covering the rivet holes over the bogie pivot point	This should be soldered on using an RSU or very carefully at the edges and underneath, as it will be very difficult to clean solder of the chequer plate. The bend is to allow a feather edged timber to fit under.
	Cut wood strips 5mm wide and fit to floor as shown in the pictures. Length ways between the bogies and transverse at the 2 ends	I find nothing looks more like wood than real wood even when scaled down as the grain gets finer the finer you work. I used a brand new "Stanley knife" blade, gentle cuts along the length. Rebate the ends to fit under the Chequer plate. Any joints should be over one of the cross beams. Use some 240 grit sand paper/wet& dry to sand the edges to tidy up and to fit to size. I glued mine with epoxy. Care at this stage will pay dividends.
	With the same 5mm strips of wood across the ends.	Cutting across the timber can either be done with the sharp large

	Chamfer the 1 st piece to fit under the bend in the chequer plate. Continue to the end. And place a similar chamfered piece on the top complete with E43 on top of that.	knife or with a fine saw. The wood ends can be finished with a new/sharp needle file.
	Push out the rivets on E33, bend to 90 deg and use as the corners of the chain box. Similar to the planking make the box out of wood	There is some debat as to whether there was one box over all 4 truss rods or 2 boxes over the outer 2 rods. My guess is 1 box as there would be no where to carry blocks of wood for the jacks to screw down onto.
	Clean any mould marks from the Bolsters. Fold the tabs on E51 and solder on the under outside edge of each so that the lip hangs over the edge of the wagon.	When soldered to the plates, the bolster should be equi-spaced from the folded lips.
	I will let you decide what to do with the shackles and chain, but I made small loops of brass wire to hold it all together.	The load you place on the wagon will decide how theses parts are fitted together.

You are probably cursing the day you decided to build this wagon. However if you feel there is anything that could be improved please let us know. Your feedback is invaluable in making our next kits even better for all concerned.

Phil Atkinson – Hobby holidays