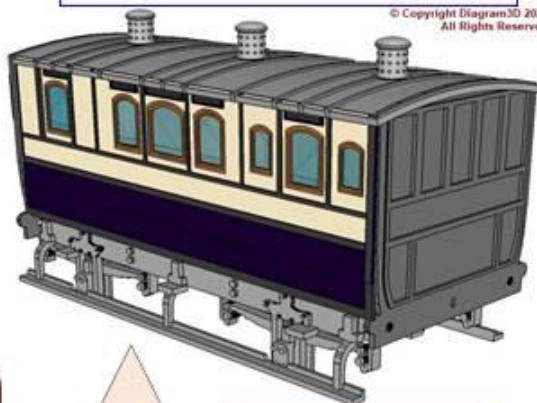




London & North Western Railway(LNWR)  
Tricomposite carriage  
4mm Scale (“OO” “EM” “P4” etc.)



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**Era 1-2**

Early

**4mm Scale**

**3D Printed  
Components**

**LNW402**

Diagram3D.com



## Introduction

### Contents of this kit

## MDF Components

### SmartFrame

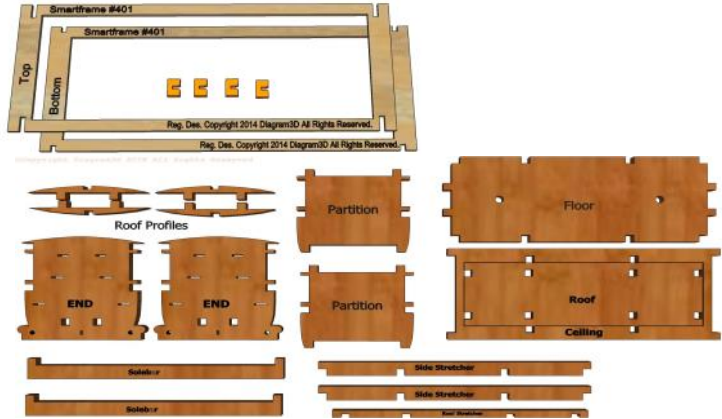
Upper and lower frame plus alignment clips.

## MDF Parts

MDF parts are supplied pre-cut, partially attached to the panel which preserves their integrity and ensures that the right parts are present. Please do not separate the parts until it is time to use them.

### SmartFrame

Floor, Roof, partitions, ends, side supports, roof members for this vehicle are in the removable panels in Smartframe:



## MDF Parts

## Card Panels

A total of Six card panels as described below.

### 1. Sides & Ends

Layer	Description
Layer 1	Window Frames and droplights
Layer 2	Coach side
Layer 3	Middle and upper panelling, plain end
Layer 4	Upper panels beading detail, end panelling

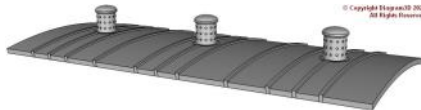
### 2. Roof

Layer	Description
Layer 1	Roof
Layer 2	Ribbing

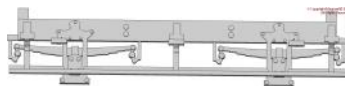
## 3D Printed Components

1 x Roof

3 x Oil Lamps



2 x Solebars



## Glazing

2 x glazing bars



## **Not included**

**Adhesive to attach the parts. PVA is recommended for the MDF parts.  
Craft knife, Clamps, weights or other tools.  
Paint and filler  
Wheels, bearings, Buffers, couplings etc.**

## **Intended Audience**

*This kit is intended to reduce the time, complication and labour associated with the construction of a detailed model of a carriage body using accurate pre-cut layers which can be conveniently assembled in the supplied **SmartFrame** without specialist knowledge to give the same quality, or better, as traditional methods.*

***This is not a complete kit of parts. Some detail parts will have to be supplied by the modeller.***

## **Hints on assembly**

***Separate parts by cutting the reverse side of the fret.***

***Pre-assemble and check parts at each stage.***

***Seal Cardboard components.***

***Video and Gallery***

*Separating MDF components cleanly is more easily accomplished by completing the half etched portions on the reverse of the fret rather than cutting from the front.*

***Do not separate components from layers until assembly is complete or instructed to do so.***

*At each stage, once the required components have been separated from the frets, test the assembly without glue to ensure that the parts are trimmed correctly and fit properly before final assembly with adhesive.*

*Allow as much time as needed for the adhesive to set.*

*Fill any gaps and smooth surfaces for optimal results*

***It is strongly advised that cardboard parts are sealed before assembly. For example, artists fixative, spray paint, varnish or even shellac can be used. Good results have been obtained using automobile primer spray. Visit our website for further constructional information including a video and gallery of similar models.***

***The assembly steps below are strong recommendations but should not be taken as definitive or prescriptive.***

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## **Current Documents**

**The current version of documentation for this and any other of our products can be downloaded from [www.Diagram3D.com](http://www.Diagram3D.com) in PDF format.**

## **Feedback**

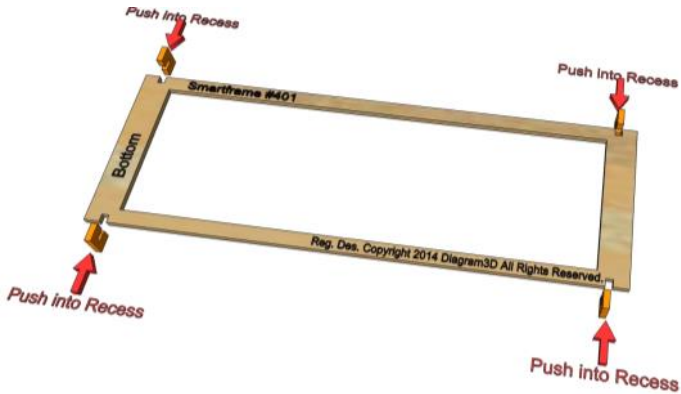
**We welcome your comments and suggestions, especially images of models "in progress" or completed.**



### SmartFrame Preparation

(Applies to all  
versions of  
SmartFrame)

Attach the clips to the bottom section of the *SmartFrame* as shown below:



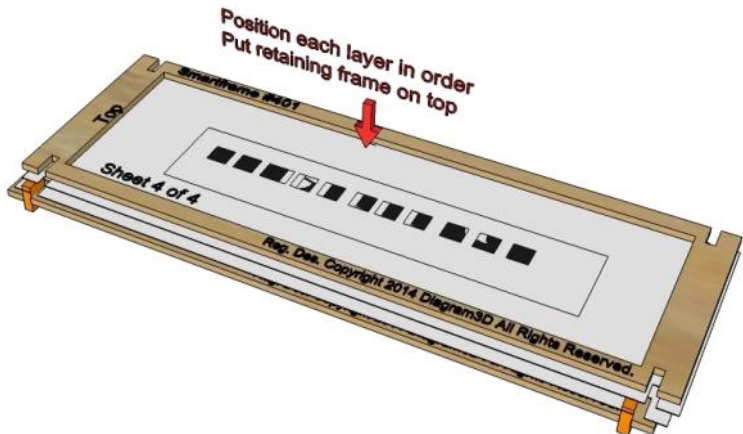
Total preparation  
and assembly time  
about 2 minutes.

*Hint: Partially insert the clips into the slots and gently press the clips into position on each side. An extra clip is provided. Avoid excessive pressure. Visit our website for further constructional information including a video and gallery of models.*

### SmartFrame

The following diagram illustrates how to use the *SmartFrame*:

General Hints  
on using the  
SmartFrame



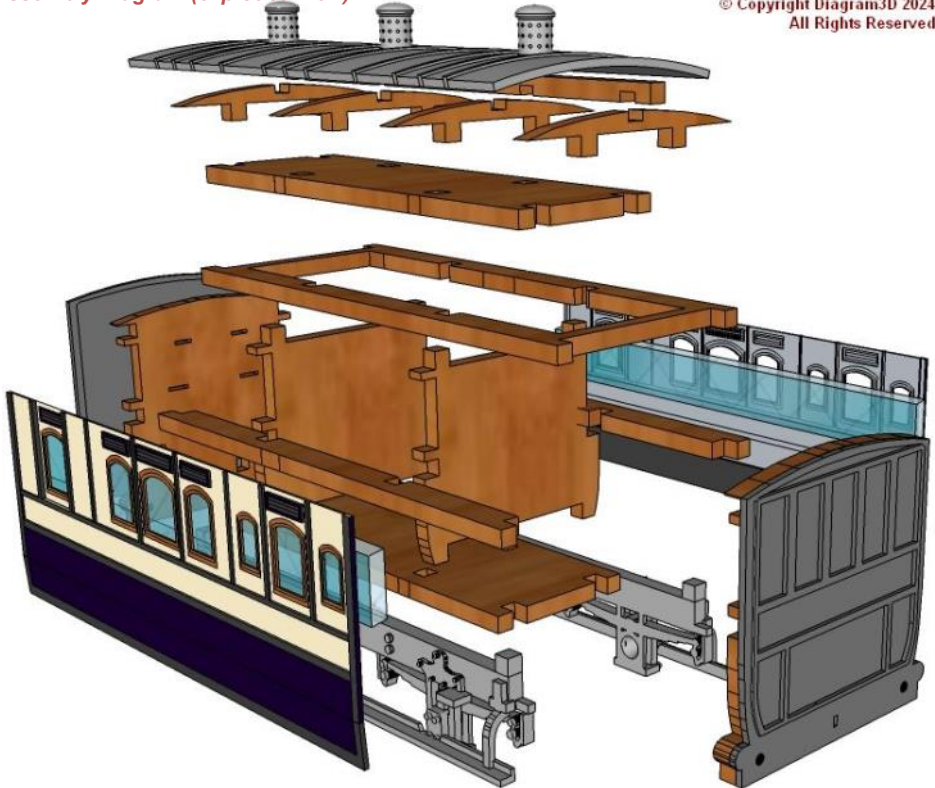
Position the layers of the same description in ascending order on the lower frame beginning with the first layer. The layers have the legend "1 of x", "2 of x" and so on.

*Hint: Do not force the individual layers into position, assemble each layer at an angle so that one side is in position and then gently position the other side into place. When in position, extra pressure can be applied with rubber bands or "bulldog clips" on the ends of the frame.*



**Assembly Diagram (exploded view)**

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In this kit, the body consists of a MDF structure which is overlaid by the card components. The design includes a removable roof.

Remove the loose section from the SmartFrame marked "Remove this infill" before proceeding

**Coach Sides and ends**

Total preparation and assembly time about 10 minutes.

Allow sufficient time for the adhesive to dry thoroughly

layer	Description
Layer 1	Droplights, plain end
Layer 2	Framing , end beading
Layer 3	Windows and panelling tri-composite
Layer 4	Beading,

Insert the card sides into the *SmartFrame* in order as described above. Ensure that the card sides are correctly located.

Apply adhesive and put aside until dry. When thoroughly dry, detach the coach sides and ends using a sharp craft knife. To form the tumblehome, use a section of tubing and gently roll the cardboard on a rubber mat or similar surface. Alternately the tumblehome can be formed by using finger-pressure against a suitably curved surface. *Hint: Practice this on some scrap card first. The individual layers should be sealed and can be painted in advance.*



### Body

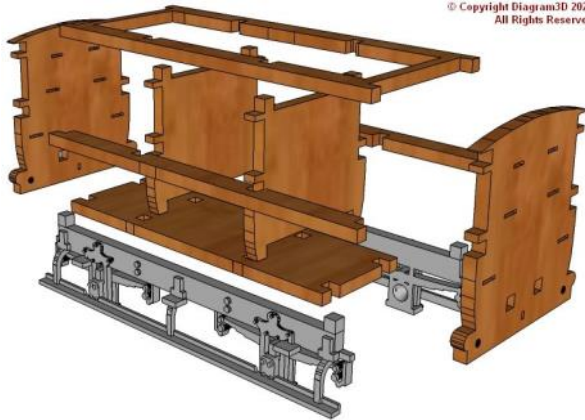
Total preparation and assembly time about 5 minutes.

Allow sufficient time for the adhesive to dry thoroughly

Detach the MDF partitions, floor and ceiling carefully using a sharp craft knife. Insert the partitions into the floor and glue.

Now attach the ceiling section and stretchers as shown in the diagram. The roof components are reserved for the next operation.

Finally, attach the ends followed by the solebars. The resulting box structure forms the central core of the coach body. Hint: Any Inner detail can be added at this stage.



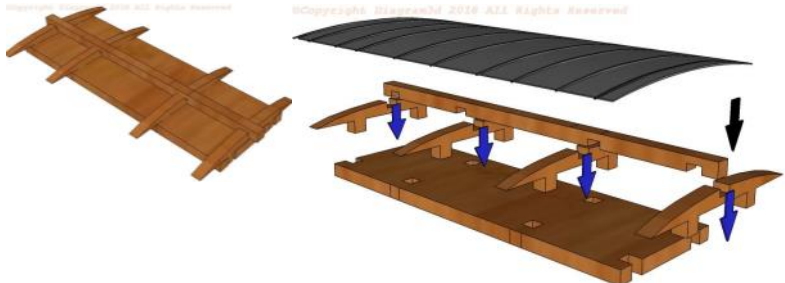
### Roof

Total preparation and assembly time about 10 minutes. Allow sufficient time for the adhesive to dry thoroughly

The roof is supplied as a 3D printed component. Optionally, using the SmartFrame, insert and align the roof and ribbing. Apply adhesive and allow to set. The oil lamps provided are attached to the roof.

Layer	Description
Layer 1	Roof
Layer 2	Ribbing

Meanwhile, create the MDF roof section using the components provided and allow to set. When ready, Attach the roof to complete this assembly step..





### Glazing & final assembly

**Total preparation and assembly time about 20 minutes.**

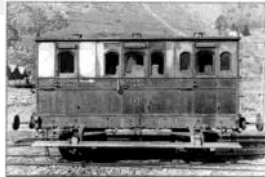
*Allow sufficient time for the adhesive to dry thoroughly*



The final assembly consists of attaching the sides and ends to the floor using the locating holes provided. The glazing bars supplied are intended to fit into the slots which are pre-cut into the partitions and the MDF ends of the model.

Hint: the glazing can be delayed until the coach is finally painted by the modeller. The long glazing bars can be slotted into position prior to the attachment

### Historical Notes



This kit is based on very good photographic evidence.

The relevant images can be found on the LNWR image website ([LNWRs/1864](http://LNWRs/1864) & [LNWRs/1865](http://LNWRs/1865)). This particular coach was sold off to the Mawddwy Railway and photographed in 1901 when passenger services were withdrawn.



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### Underframe

This was a four wheeled vehicle. The wheelbase was approximately 9 feet 10 inches. The fittings are standard LNWR pattern. There is no apparent visual evidence of brakes on the vehicle.

### Livery

In the image, a crest can be seen in the lower panel on the first class door. The legend "Second class" & "First Class" in shaded letters can be seen in the mid panels. The coach was photographed circa 1900 around the time that passenger traffic was finally withdrawn from the Mawddwy Railway.

### Finally...

Congratulations on completing this kit. We hope you enjoyed making it as much as we did.. If you enjoyed making this kit then take time to visit [www.Diagram3D.com](http://www.Diagram3D.com) to find similar items. Our website has free downloads of historical information. Downloadable assembly instructions for all of our products

Email: [info@Diagram3D.com](mailto:info@Diagram3D.com) E&OE document updated August 2024