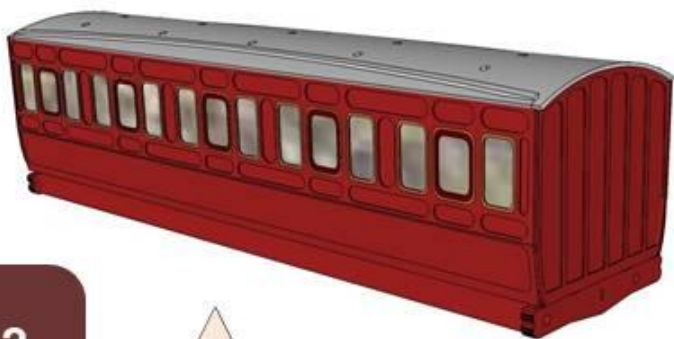
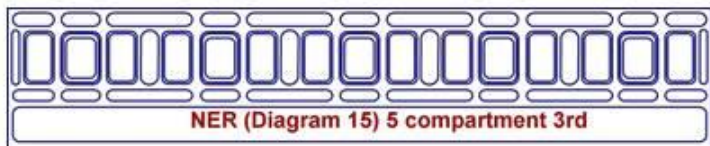




North Eastern Railway (NER)
5 compartment Third (D015) Kit
4mm Scale ("OO" "EM" "P4" etc.)



Era 2

Pre-grouping

4mm Scale

3D Printed Components



NE04-D015

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Introduction

Contents of this kit

MDF Parts

SmartFrame

Upper and lower frame plus alignment clips. Incorporating the parts listed below

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. Do not separate the parts until it is time to use them.



1x Floor

1 x Ceiling

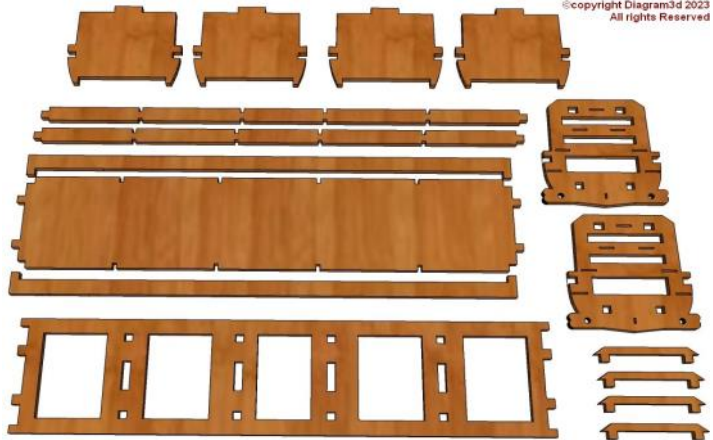
2 x Ends

4 x Partitions

2 x Stretchers

2 x Solebars

4 x roof formers



Cardboard panels

The card panels are packaged within the **SmartFrame** for protection.

The card panels are identified by the printed legend on the panels e.g. "Side 1 of 2" etc.

There are four layers for the sides

Layer	Description
Layer 1	Window Frames and droplights
Layer 2	Carriage sides with window apertures
Layer 3	Upper panelling
Layer 4	Side Cornices and door ventilators

There are two layers for the ends

Layer	Description
Layer 1	Plain end and end cornice
Layer 2	End panelling detail, end cornice

3D printed Parts

A 3D printed roof is provided.

Glazing

Two Glazing Bars are provided



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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. The choice of underframe and other details is left to 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 in PDF format.

Feedback

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

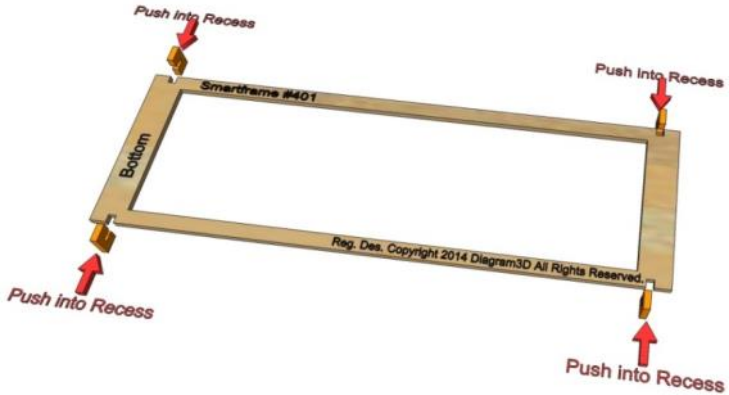


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SmartFrame Preparation

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

(Applies to all versions of SmartFrame)



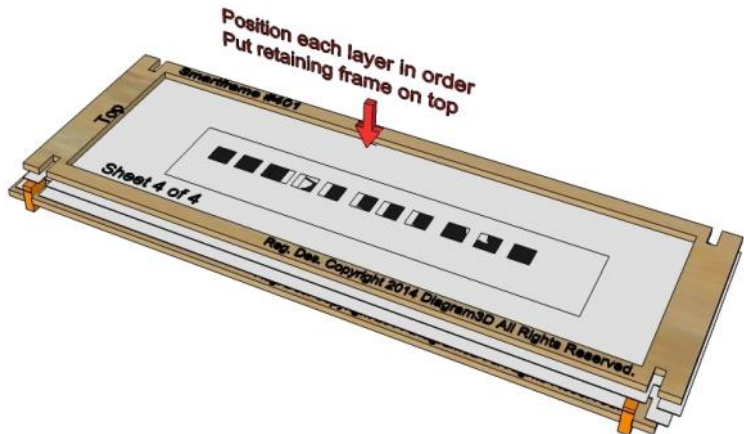
Total preparation and assembly time about 2 minutes.

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.



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Carriage Sides

Total preparation and assembly time about 5 minutes.

Allow sufficient time for the adhesive to dry thoroughly

There are **four layers for the sides.**

Layer	Description
Layer 1	Window Frames and droplights
Layer 2	Carriage sides with window apertures
Layer 3	Upper panelling
Layer 4	Door ventilators

Insert these into the **SmartFrame** in order as described above.

Apply adhesive and put aside until dry. Hint: The individual layers can be painted in advance to simulate the window frames, main body and lining detail. When thoroughly dry, detach the carriage sides 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.

There are **two layers for the ends.**

Layer	Description
Layer 1	Plain ends, end cornice
Layer 2	End panelling detail, end cornice

Insert these into the **SmartFrame** in order as described above.

Apply adhesive and put aside until dry. Hint: The individual layers can be painted in advance. When thoroughly dry, detach the carriage ends from the frame using a sharp craft knife.

Do not attempt to attach the steps at this time. The steps are attached when the step end panel is fixed to the MDF end panel.

Carriage Ends

Total preparation and assembly time about 5 minutes.

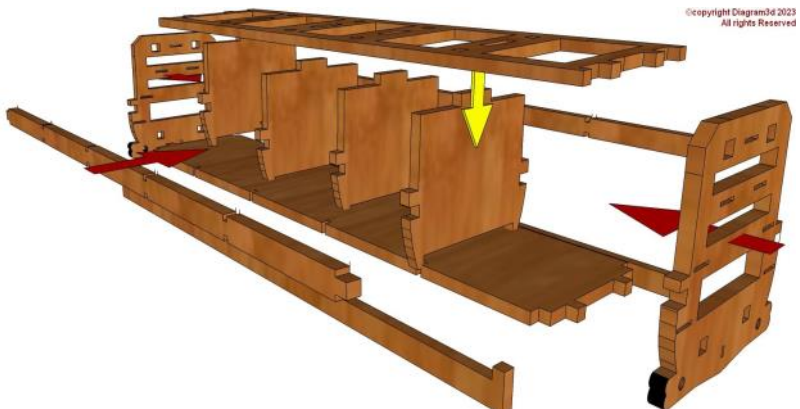
Allow sufficient time for the adhesive to dry thoroughly

Body Shell

Total preparation and assembly time about 15 minutes

Allow sufficient time for the adhesive to dry thoroughly at each stage of assembly.

Insert the partitions into the floor and glue into position. (yellow arrows in diagram)



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The completed body shell should look like the image below.



Hint: This is an appropriate time to paint and otherwise complete the interior of this model.

Roof

Total preparation and assembly time about 15 minutes.

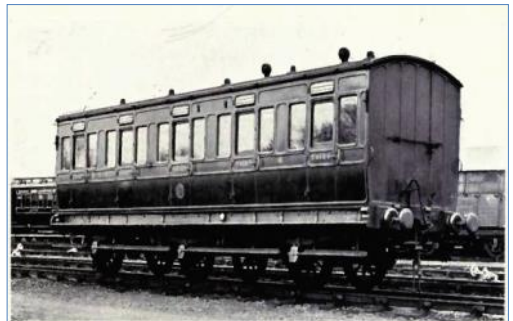
Allow sufficient time for the adhesive to dry thoroughly

The roof is supplied as a 3D printed moulding.



Detach the MDF roof formers (4 items) Attach the roof formers to the ceiling. Then attach the 3D printed roof to the formers.

The model roof includes holes for lamps and ventilators over all compartments. Note: As originally built, these carriages would not have had ventilators fitted except over smoking compartments. (3rd class carriage illustrated)



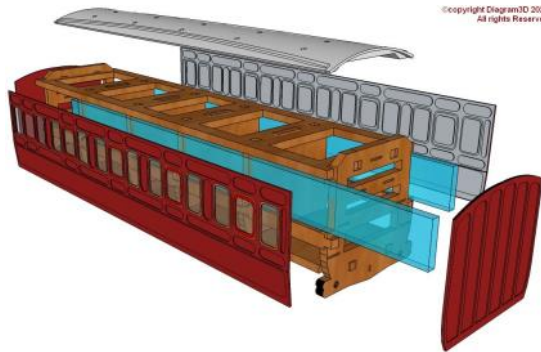


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Glazing & final assembly

Total preparation and assembly time about 10 minutes.

Allow sufficient time for the adhesive to dry thoroughly

The glazing bars supplied fit into the slots which are formed by the top and middle stretchers in the carriage side.



Attach the sides and ends taking care to centralise these components. Attach the steps through the slots provided into the matching slots in the MDF ends.

Hint: this step can be delayed until the carriage is painted by the modeller. The glazing bars can be slotted into position prior to the attachment of the final end of the carriage body.

Historical Notes

In December 1897 there were 915 vehicles of this type listed by the NER, however this total includes similar vehicles (diagram 44 plus other similar vehicles without diagrams)*. The sample numbers are for Diagram 15 vehicles. A drawing of this vehicle exists at the National Railway Museum (LNER drawing 1829D, formerly NER drawing 68a). This drawing was referred to during the design of this model. Originally, the livery would have been NER maroon with yellow lining. Roofs were white when new.

Year*	Sample Numbers*
1887	1716-1718 1769 2061 4 16 23 65 226 356 721 2065-2067
1889	1022 2046 2047 2050 2052 2132 2132-2147
1890	2265-2271 1080 1081 1100 1171 1121 1162 1166 1170 1175
1892	1207 1208 1214 1220 1221 1231 2403-2407 1222 1266 1288 1485
1895	1434 1436 1795

(*Information obtained from document RAIL 527/1433 at The National Archives)

Underframe

This was a six wheeled vehicle. The wheelbase was 21 feet evenly distributed. The underframe was made of wood. Outer axles had clasp brakes. There were safety chains either side of the screw coupling. The buffer beams had a characteristic dip in the middle. The ends of the buffer beams had crenulations to assist with horse shunting. A general arrangement drawing exists at the National Railway Museum of a wooden chassis used for this vehicle series (drawing 1127 formerly NER drawing 7A) and was used to produce these notes.

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 to find similar items. Our website has free downloads of historical information. Downloadable assembly instructions for all of our products

Email: info@Diagram3D.com E&OE document updated April 2026