

## Dennis Brothers Ltd Three Ton 'Subsidy' Lorry

(Early Version)

### History

The firm of Dennis Brothers Ltd was founded in Guildford, Surrey in 1901. Their first car was built in 1902, followed shortly afterwards by a range of commercial and public transport vehicles.

In 1911 the Government brought in the War Office 'Subsidy' scheme, whereby vehicle owners and manufacturers were paid an annual subsidy for maintaining and supplying vehicles. In the event of war, these would be passed back to the War Office for use in the war effort. The War Office provided specifications for vehicles and ran trials to identify the most suitable vehicles. How close the vehicle met the specification determined how large a subsidy was received.

Many British commercial vehicle manufacturers – including Dennis, Thornycroft, AEC and Leyland – produced vehicles to the 'Subsidy' specification. The Dennis 3-ton lorry was one of the best known and most successful 'Subsidy' lorries. The four cylinder White and Poppe 40hp engine gave a top speed of 15mph at 1360 rpm. It was able to climb gradients of up to 1 in 6, even when fully loaded. The performance of the Dennis was considered one of the best of all 'Subsidy' types. Between 1914 and 1918, over 7000 were built.

The original WD vehicle is depicted in this kit, with its canvas cab roof and curved canvas tilt. By 1916 the design was changed to a hard topped cab roof and a squarer shaped canvas tilt. A kit for the later version will be produced later.

At least one Dennis 3 ton subsidy lorry is known to still exist and is being restored to its original WD condition. We are grateful to its owner Tim Gosling for details of the vehicle and especially for allowing us to use historic photographs from his collection in these instructions.

We are also grateful to Geoff Lacey for allowing us to include his scale drawings and to Ian Armstrong, Neil Moss and Michel Boer for their help in the production of the kit and its parts. Thanks, as always, go to David Gander for his technical advice and support, and for these rather delayed instructions!

For enthusiasts of First World War modelling in small scales, we recommend the 'Landships' web resource – [www.landships.freeservers.com](http://www.landships.freeservers.com). For details of our own range – current and forthcoming – please see our website – [www.wdmodels.co.uk](http://www.wdmodels.co.uk).



Both later hard cab and original canvas cab Dennis Three Ton lorries. Note the mix of original curved and later square canvas rear tilts!

## Before you begin!

This kit is produced using three materials – cast whitmetal, cast resin and etched nickel silver. Whilst it may sound like “Health and Safety gone mad”, all three are potentially harmful if not handled or used as intended. Do not feel tempted to place any parts in your mouth! Please wash your hands after a building session.

Whitmetal is an amalgam of various metals in varying quantities, all of which are not very nice if swallowed. The dust caused whilst filing or sanding the resin must not be breathed in and we recommend the use of a small face mask when sanding resin. The fret of etched nickel silver details requires careful handling as its edges may be sharp. Even these instructions may give you a paper cut! Take care and don't rush things.

The main chassis and detail parts are cast in a high quality whitmetal to provide as much detail as possible. Casting marks and ‘flash’ should be minimal but can be removed carefully with a knife blade, fine file or fine grained sanding paper. Please do inspect your parts carefully before cleaning up to ensure that you don't remove any detail by mistake.

Some of the smaller parts – including the lamps, foot pedals and front brush holder are cast on to a sprue which also needs removing. Hold the sprue carefully using a pair of fine nosed pliers and gently cut the parts away as shown in the photograph. In the case of the brush holder, you may need to use a fine toothed razor saw to carefully separate the part from the sprue.



The resin parts may also require the removal of ‘flash’ and again this can be done with a fine file, knife blade or fine sanding paper. Take extra care as the resin is softer than the whitmetal and material will be removed quicker. Take care, remove a little at a time and check before you remove anything else. The resin should be carefully washed and dried to remove any mould release. Warm water is best for this. Don't use washing-up liquid – it often contains a de-greasant which may prevent glue from sticking to the resin.

Any distortion of the resin parts can be corrected by applying a little warm heat to the area and holding back in place with your fingers. Light steam from a kettle, a quick dunking in warmish water or a couple of minutes with a hair drier is best. Do not, under any circumstances, place the parts in a naked flame, gas or electric hob or oven. Melted resin will give off noxious fumes, can stick to your skin and heat can be dangerous. Take care and use common sense! W^D Models will not be held responsible for any accidents you have whilst preparing your parts.

The fret of etched nickel silver details requires careful handling as its edges may be sharp. Cut each part in turn from the fret using a sharp knife blade and file any remaining tags with a fine file. The parts are best fitted using glue. Soldering is not recommended.

We recommend that the parts are glued together using either a ‘super glue’ – ACC - or a quick setting epoxy resin such as ‘Araldite’. Don't be tempted to use the ‘instant’ versions of these products. A little time to adjust the fit is always wise! White metal parts may be soldered together using a low melt solder and appropriate liquid flux. However, due to the small size of many of the parts, too much heat may cause distortion or loss of detail. Gluing is best! Always follow the adhesive manufacturers' instructions and take care not to stick yourself to the kit!

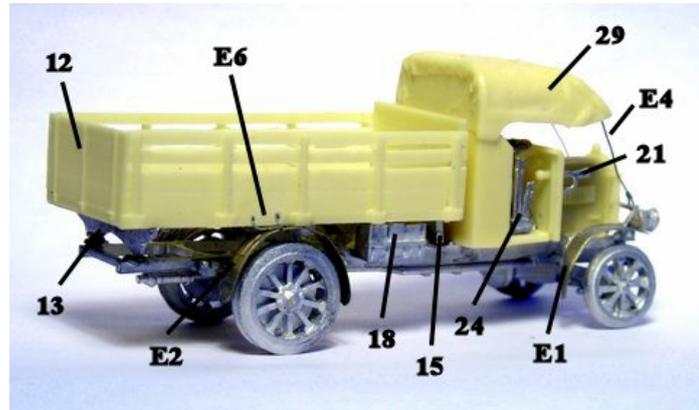
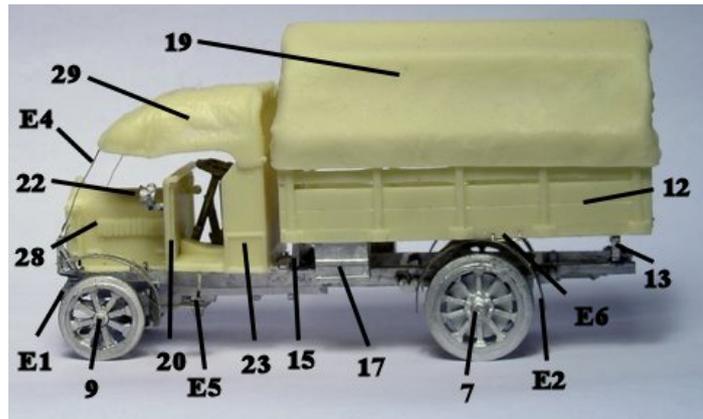
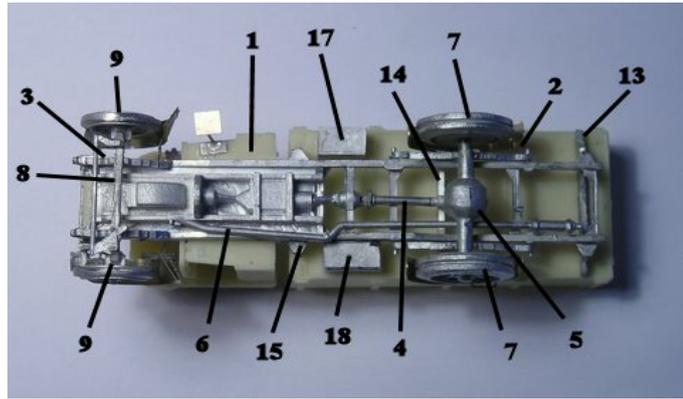
We suggest that construction takes place on a clean, level, surface such as a piece of plate glass or an offcut of Formica or Melamine kitchen worktop. Under no circumstances use your proper kitchen worktop - W^D Models will not be held responsible for any divorce proceedings resulting from the building of this kit.

Details of the painting and use of the transfers can be found at the end of these instructions.

When building this kit, please take note of the various model and prototype photographs. These have been provided to assist you in identifying and locating the parts. A full list of parts, and photo identification, can be found on page 3.

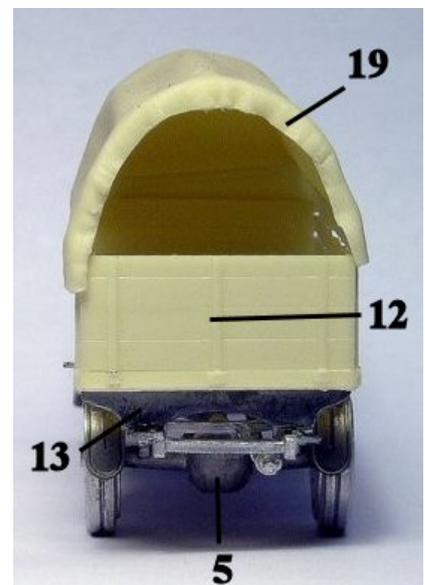
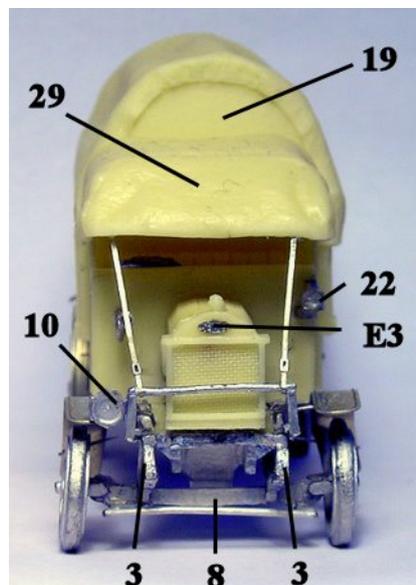
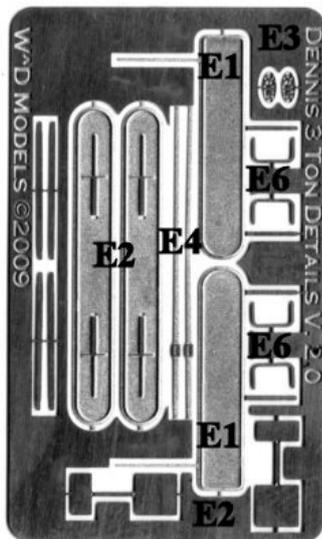
## Parts List

1. Chassis frame
2. Rear springs x 2
3. Front springs x 2
4. Drive shaft
5. Rear axle
6. Exhaust pipe
7. Rear wheels x 2
8. Front axle
9. Front wheels x 2
10. Brush guard and headlamp
11. Front mudguards x 2
12. Rear body
13. Rear bearer
14. Intermediate bearer
15. Front bearer
16. Rear mudguards x 2
17. Tool \ storage box
18. Flimsy rack
19. Canvas tilt
20. Cab Front
21. Horn
22. Small headlamp
23. Cab seat / rear
24. Gear / handbrake assembly
25. Foot pedals
26. Steering wheel column
27. Steering wheel
28. Bonnet
29. Cab canvas roof
30. Cab doors x 2



## Etched Parts

- E1. Front mudguards x 2
- E2. Rear mudguards x 2
- E3. Dennis badge (one required)
- E4. Cab roof straps x 2
- E5. Cab footstep (one required)
- E6. Grab handles (two required)



## Chassis Construction

1) Take the main chassis frame [1] and place on your work surface with the engine detail upwards. The rear springs [2] (the longer of the pair) fit into the sides of the frames, with the pins locating into the holes cast into the sides.

2) The front springs [3] fit on top of the frames with the front end of the spring sitting on top of the upward frame extension and the rear end sitting in the mounting on the frames. The shorter portion of spring is towards the front.

Now leave everything for the front springs to set in place. Don't be tempted to proceed until the front springs are firmly fixed.

3) When all is fixed and set, fit the drive shaft [4] into the drive cast into the rear axle [5] When this is set, fix the rear axle onto the rear springs, making sure the other end of the drive shaft is located on to the end of the drive on the engine casting. Let this all set firm.

4) Fit the exhaust pipe [6] so that the silencer sits on the support on the second cross member from the rear and with the front end fitting next to the lug on the chassis side frame adjacent to the rear end of the front spring. Please note that the exhaust pipe itself may need gentle 'tweaking' to sit correctly and level along the chassis frame.

5) The rear wheels [7] can now be fitted to the ends of the axles. Each should be a friction fit. Should things be tight, take care not to enlarge the holes in the rear of the wheels too much else fitting and gluing will be more difficult. Please note that the brakes are moulded with the wheels. Although the spokes may appear to be connected with a thin area of 'flash', this represents the brake discs and should not be removed.

6) The front axle [8] should be fitted on top of the front springs with the steering gear to the front and facing downwards towards your work surface. Once set, carefully turn the chassis over and make sure you have it on a flat surface. The rear wheels should not rock. Pack up the front of the chassis – under the cab area – so that the front wheels [9] can be slotted into the axle ends and both wheels touch the work surface. When happy that all is level, glue the front wheels in place.. Please note that the front wheels are not set vertical to the road surface. Instead they are set at a slight angle with the top out and the bottom set in slightly. The model and prototype photographs should be clear.

7) Once all is set firmly in place, you can turn the chassis over and set it on its wheels. Hopefully all should be level with no 'rocking'. If the chassis does rock slightly across the wheels, carefully tweak the chassis frame until it sits level. If there is too much rock to correct by tweaking, you may need to carefully remove the wheels and axles and start again.

8) The brush holder [10] is very delicate. When removing it from its sprue, take great care. Support the sprue with a pair of pliers and use a razor saw to cut. The brush holder is fitted between the front chassis frame extensions with the lamp to the left hand side when looking from the front.

9) Both whitemetal and etched front mudguards are provided. If using the whitemetal pair [11], these need to be fixed to the chassis frame. The supports on the inside edge of the mudguards line up with lugs moulded on the top and bottom of the chassis frame. These will need careful support while the glue sets due to their weight. The etched mudguards [E1] are finer in detail but require forming. The front mudguards on the Dennis were quite distinctive. The mudguards need to be carefully curved to match the radius of the wheel. The lower rear half has a slight twist in it – please use the model and prototype photograph for details. There are three supports on each front mudguard. The inner pair are used to fit to the chassis frame. The single outer support is folded inwards and back on itself until it also touches the chassis frame. The basic chassis is now completed.

## Body Construction

10) Take the rear body casting [12] and carefully remove the thin casting material from either side of the second plank. This can be seen best from the interior of the body. If you don't feel confident to do this, you can leave

this as it will be mostly covered once the tilt is in place. An alternative would be to paint these areas with a darker colour to suggest shadow.

11) Although the prototype had four, we are only using three rear body supports. The locations for these are the three pairs of flanges on the top of the chassis frames. The rear body support is the shaped one [13]. Next is a longer one [14] in the middle, followed by another longer one [15] at the front. These need to be left to set vertically in place.

12) Once the rear body supports are set, the rear body can be test aligned on the supports. There are locations for the rear supports on the underside of the body. Do not glue in place until the rear mudguards are fitted.

13) As with the front, a choice of whitemetal and etched rear mudguards are provided. With the rear body upside down, the location for the mudguards can be seen. Carefully glue the whitemetal pair [16] in place and leave to set. The chassis can be lowered on to the upturned rear body to check the alignment is correct. The etched rear mudguards [E2] need to be curved to match the radius of the wheels. Once this is done, they can be fixed in place to the underside of the rear body. The etch contained the tiny rear mudguard supports as shown in the prototype photographs. These may be used to support the mudguards as per the prototype but are a little fiddly to fit in place and can be left off with no loss of real detail.

14) Locations for the tool box [17] (with its three divisions) and the flimsy (fuel can) rack [18] are marked on the underside of the body rear and these may now be fitted in place.

Please note that the transfer set contains 'O W P' (Oil, Water, Petrol) for the flimsies. If you wish to fit these in their correct location, you will need to file the strapping away and replace it with a thin strip from the etched sheet. To be honest, with the lettering hidden behind the strapping, you may not wish to go this far!

15) Once the rear mudguards are set, the rear body can be fitted to the supports on the chassis frame.. There are locations for the rear supports on the underside of the body.

16) The canvas tilt [19] can now be clipped in place over the rear body. It is probably best not to glue this in place until painting has been completed.

17) Take the cab front [20]. The top curves inwards towards the driver. On the front there is a dimple which needs careful opening to fit the horn [21]. Take care not to drill too deep else you will remove the horn bulb from the cab interior! On the rear of the cab front are two dimples which need drilling through. The one to the left, towards the top, should be drilled out and the headlamp [22] fitted from the front.

**Suitable driver and passenger figures are available from the W^D Models range – WD19. Whilst it is possible to fit the passenger figure after construction, you may need to leave fitting the steering wheel and cab roof until you have the driver in place so that you can position him correctly.**

18) The cab rear \ seat [23] has a number of dimples and notches on the floor to fit parts. Looking from the top, from the right is a large dimple in which to fit the gear lever and hand brake unit [24]. The first notch takes a foot pedal [25]. The second, slightly larger, notch is for the steering wheel column [26]. It is best to fit the steering wheel [27] itself to the column before fixing the column into the notch. The remaining two dimples, towards the middle of the floor take the remaining foot pedals [25]. All this will be rewarded by careful painting – especially the two dial housings next to the steering wheel!

19) Once all the small details are set in place, take the bonnet \ engine compartment [28] and fit the cab front centrally to it.

20) Take the cab rear \ seat unit and lay it on its back. Take the canvas cab roof [29] and carefully fit this over the top edge of the cab rear. By laying the cab rear on its back, you will ensure the cab roof is fitted perpendicular to the cab rear.

21) The bonnet and cab front may not be fitted to the chassis. This should sit with the base of the radiator sitting over the front chassis cross member and the engine compartment on top of the solid part of the chassis.

22) The cab rear \ seat unit and roof now fits behind the cab front, butting up against it. There are two runners on the underside of the cab floor which help to centre this unit between the chassis frame.

23) The rear body and canvas tilt now fits behind the cab rear unit with the body supports sitting on top of the flanges on top of the chassis frame. There should be a small gap of around 1.5mm between the cab rear and the rear body to allow the canvas tilt to be fitted.

24) The cab doors [30] were not always fitted and are therefore optional. Should you wish to fit them, they are hinged from the front with the door handles to the rear.

This concludes the main work. All that remains is to fit the etched nickel silver details.

25) Take the Dennis badge [E3] and fit centrally to the top front of the radiator, below the radiator cap - see photo 1.

26) Carefully remove the two cab roof straps [E4]. The buckle detail should be towards the bottom. The straps are fitted from each side of the top of the front brush holder to the front corners of the cab roof – see photo 1.

27) Only one cab step [E5] is required. This should be folded up to a 'Z' shape and stuck beneath the passenger side door – as shown in photo 2.

28) Grab handles [E6] are provided and these may be fitted on the rear body above the mudguards – as shown in photo 3.

## Painting

After carefully ensuring that all model surfaces are clean of glue, grease, dust, filings and fingerprints, prime the model using your favourite primer – we always use Halfords acrylic primer – either grey or white – from an aerosol can. Always follow the manufacturer's instructions and wear a face mask.

The following paint scheme is suggested. Again, use your favourite model paints – though please see the note regarding the transfers and use of enamels. Airbrushing is recommended for larger areas as it gives a much smoother paint surface, although perfectly adequate finishes can be obtained using a brush. Smaller areas and details are best painted using a brush.

Overall body, interior of cab and rear body, chassis frames and wheel hubs – W<sup>A</sup>D Green

Canvas cab roof and rear tilt – canvas brown

Cab front interior, steering wheel – mahogany

Seat and seat back – leather

Lamp, horn, dashboard instruments, brake / gear level, steering wheel column – black, silver or grey as expected.

## Transfers

The transfers supplied are fine waterslide transfers. The carrier film has been kept to a minimum but try to trim each transfer as close as possible to the lettering.

Transfers are best applied to a gloss painted surface in order for them to sit over detail. Once dried, seal the transfers with an acrylic clear varnish (Tamiya, Lifecolor or Vallejo) and not an enamel (Humbrol or Revell) finish as these may damage the decals. The same goes for products like Microscale Set / Sol decal softeners which may also harm the finish of the transfers. Please be warned - replacement transfer sheets may not be available so take care!

The prototype photographs show the location of the lettering. This did vary on occasion from vehicle to vehicle. Generally, the numbers run along each side of the bonnet, above the louvres. The 'W<sup>A</sup>D' is on each side of the rear body, centrally though just off set to the front, whilst the 'LOAD NOT TO EXCEED 3 TONS' was located on the side of the rear body at the rear and also on the back of the rear body on the drop side. The 'O W P' is for the flimsies in the rack, although as mentioned previously, their correct location is hidden by the strapping.



The best photograph that we have found showing much of the detail as featured in the model and – given its pristine condition – likely to have been taken before the lorry saw service at the Front.

Note how the canvas cap roof folds up and that the driver's side door is shut. The subtle curve of the front mudguard is apparent as is its support. This vehicle also has a flimsy rack – possibly an extra one - fitted between the tool box and the rear mudguard.



Another pristine lorry – and the men responsible for it? Again, there are differences between this vehicle and the kit – an additional headlamp below the horn and on the other side of the brush holder too. It appears that there is also an additional carrying rack beneath the rear of the body.

### Photo 1

This photograph shows the fixing of the cab roof straps between the front edge of the roof and the brush holder.

Note also the location of the Dennis badge on the radiator and the positioning of the numbers on the side of the bonnet and the cab front.



### Photo 2

Here is the location of the front cab step. This was located on the passenger side only – the brake / gear lever blocking access to the driver's side.

Also note the subtle curved shape of the front mudguard and its internal support.

### Photo 3

Details of the rear wheel, showing how the rear mudguard is fixed under the rear body.

Note also the location of the grab handle above the centre of the mudguard and also the position of the W^D on the side of the rear body.

Again, there also appears to be an additional flimsy rack – this time to the rear of the rear mudguard.



We are grateful to Tim Gosling for allowing us to reproduce these prototype photographs from his collection.