

3D Steam Train Laser Cut Model

Assembly Instructions

NB Do not rush. Work slowly and carefully.

Before you use superglue to permanently glue the train together, use a small ball of prestik to hold the pieces in place to ensure they all fit, allowing you to dismantle it if required. A tiny drop of superglue will lock the pieces together after assembly.

Sandpaper or a file, a craft knife, prestik, elastic bands and sticky tape may come in handy when trying to assemble correctly and a large craft table.

At times a craft knife is necessary to remove small bits that are not removing easily by carving the wood where the nick is.

Each piece of the model is numbered for easy assembly.

The ● numbers are the train parts and the ○ letters are the slots on the parts.

To prevent parts from breaking, remove carefully. Be careful of fragile parts. Only push pieces out as you go. Measure size of pieces against numbered pieces on paper cut out file.

Engine or Locomotive Assembly

Undercarriage Assembly

1. Remove the Lower Train Assembly ●E1, 2 Lower Side Walls ●E2, the Main Train Floor ●E3, 8 of the Wheel Axles ●E23, the Rear End Box ●E4 and the front box end ●E5.
 - a. Attach the Rear Box End ●E4, onto slots (AA) of one of the lower Side Wall Pieces ●E2. (PIC1a)
 - b. Slot the Wheel Axles ●E23 into the round cut outs on the Lower Side Wall (2 axles into each of the round cut outs.)
 - c. Position the other Lower Side Wall ●E2 so that the round holes line up with the first positioned Lower Side Wall ●E2 and the wheel axles fit through.
 - d. Attach this to the Rear End Box ●E4 using slots (AA).
 - e. Place this assembly (Lower Side Walls ●E2, Rear Box End ●E4, and "in position" axles ●E23) onto the Main Train Floor ●E3 in (A). (PIC 1b)
 - f. Attach 2X Front Box End ●E5 using slots (C) of the Main Train Floor ●E3 (PIC 1c) and lower train assembly ●E1.
 - g. Place ●E1 in position using the (Z) markers on ●E1, ●E2 and ●E5 on the wheel chassis box and hold this together with elastics.
 - h. To close off the box, glue 2X ●E6 pieces in place on ●E4 and ●E5 using slots (D).
 - i. Wheel assembly is explained in step 4.

Boiler Assembly

2. The Boiler Assembly is made up of the following parts: 2 Boiler Plate Top Cylinder Strips ●E7, Front Boiler Cap ●E8, Rear Boiler Cap ●E9, Middle Boiler Cap Frame ●E10, 6 Boiler Plate Cylinder Strips ●E11, and Central Boiler Stabiliser Bar ●E12.
 - a. Slide ●E12 through the slit of ●E10 to the centre of ●E12. Place ●E8 and ●E9 on either end of ●E12 so that ●E10 is in the centre and the front and rear caps slots are aligned. (Pic 2)
 - b. Attach the Boiler Plate Top Cylinder strips ●E7 to the caps ●E8, ●E9 and ●E10, so that the circles on ●E7 align with the open slots on ●E12. (Pic 3)
 - c. Attach the remaining boiler plate cylinder strips ●E11 to the caps to complete the boiler. (Pic 4)

Cab Assembly

3. Parts required: the Rear Cab Wall ●E13, Front Cab Wall ●E14, 2 Side Cab Walls ●E15, Cab Roof Centre ●E16, 2 X Cab Outer Roof ●E17 and 2 X Train Numbers ●TN1.
 - a. Attach the rear cab wall ●E13 to the rear of the train using slots (B) of the lower side walls ●E2. (Pic 5)
 - b. Using (E) on the main train floor, attach the front cab wall ●E14. (Pic 6)
 - c. Attach the 2 side cab walls ●E15 to the cab using slots (F). (Pic 7) Use an elastic band to hold this assembly together.
 - d. Attach the cab roof centre ●E16 to slots (G) on the front and rear cab walls, and 2X cab outer roof pieces ●E17 to slots (H) to close off the roof. (Pic 8).
 - e. Glue the Train Number ●TN1 to the side cab walls in the designated space.

Drive Wheels: Follow the whole process (a-c) before gluing. Apply super glue once you are certain the assembly is correct and the wheels turn.

4. Parts required: 8 Large wheel spacers ●E18, 8 small wheel Spacers ●E18, 8 Inner Solid Wheels ●E19, 8 Spoke Wheels ●E20 and 8 Wheel rods ●E21 (T pieces), 2 coupling rods ●E22 (spares of these are provided).

Follow these steps for **1 side only**.

- a. Attach 1 large wheel spacer ●E18 to the end of each wheel axle ●E23*, then slide on a small wheel spacer ●E18, next place the solid inner wheel ●E19 followed by the spoke wheel ●E20 (Pic 9a) ensuring that the (J) holes of ●E18 and ●E19 line up for the wheel rods to fit through, then take ●E19 and ●E20 off, and

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- b. insert the “T” piece through (J) from the back of (E19) and (E20) and put this assembly onto the axel so that the short part of the “T” rests against (E18) and the long part fits through the (J) holes of (E19) and (E20)*. Position the coupling rod so that the (J) holes of the coupling rod line up with the (J) holes of the wheels (E18 and E19) but also make sure that the (J) holes of the 4 wheels are in a straight line and at the same “time” e.g. 1 O’Clock. (Pic 9b) and that the axles are at the same angle/all lying parallel to each other (Pic 9c), (Pic 10).



*To line the wheels up correctly ensure that the burnt side of both the wheels faces out.

**The wheels should be able to turn as one unit. Gluing in the wrong place will prevent the wheels from turning. So make sure everything is working before gluing.

- c. Repeat steps a and b for the 4 wheels on the other side of the train. This should assist in the automatic correct alignment.

** Recommended places to glue:

- Glue the solid inner wheel and spoke wheel together,
- The coupling rods and long end of pins (where it sticks out of coupling rod) together and
- Put glue into the square holes of (E19) and (E20) so that the wheels rotate freely but as one unit.

Front Wheels

5. Parts required: 2 Front Axles (E24), 2 Front Wheel Struts (E25), 1 Wheel Plate (E26), 1 Front Train Guard (E27), 1 Rear Step (E28), 4 small wheel spacers (E18), 2 solid inner wheels (E29) and 2 Outer Spoke Wheels (E30).
- a. Place the rear step (E28) onto the front of the train in slot (K) of the main train floor (Pic 11). Glue carefully and ensure it's at a 90 degree angle.
- b. Assemble the wheels by placing the front axle (2 X (E24)) into the round holes of the front wheel struts (E25) (Pic 12) and sliding the assembly ((E25) + 2 X (E24)) onto the wheel plate (E26) with the pointed ends first. Glue this piece to the rear step (E28) using slot (K) so that the angle is away from the train and the wheels struts are locked in place. (Pic 13)
- c. Attach the front train guard (E27) to the wheel plate (E26) using the slot (L).
- d. Place 2 wheel spacers (E18) onto both sides of the axles followed by 1 solid Inner wheel (E29) and 1 outer spoke wheel (E30) on each side of the axel,

Note: Make sure the wheel spacers are not too tight so the axle can still turn.

You can make space by letting the spoke wheel sit a little off the axel and use super glue to hold it in place. Make sure you glue correctly to ensure wheels still turn.

Finishes

6. Place the 4 Boiler Holder Plates (E31) into slots (M) of the main train floor.
7. Place the Side Name Plates (E32) onto the square pins (N) of the main train floor.
8. The Side Boxes are built using 4X (E33) and 2X (E34), by placing the uprights (E33) into 4 (P) slots of the main Train floor then placing the Top Cover (E34) onto (E33). (Pic 14)
9. Place the Front Boiler Plate Cover (E35) onto the front of the boiler using slot (Q) on piece (E12) of the boiler then attach a train number (TN1) to the front of the train and finally the Train Rivets Cover (E36) to finish the look.

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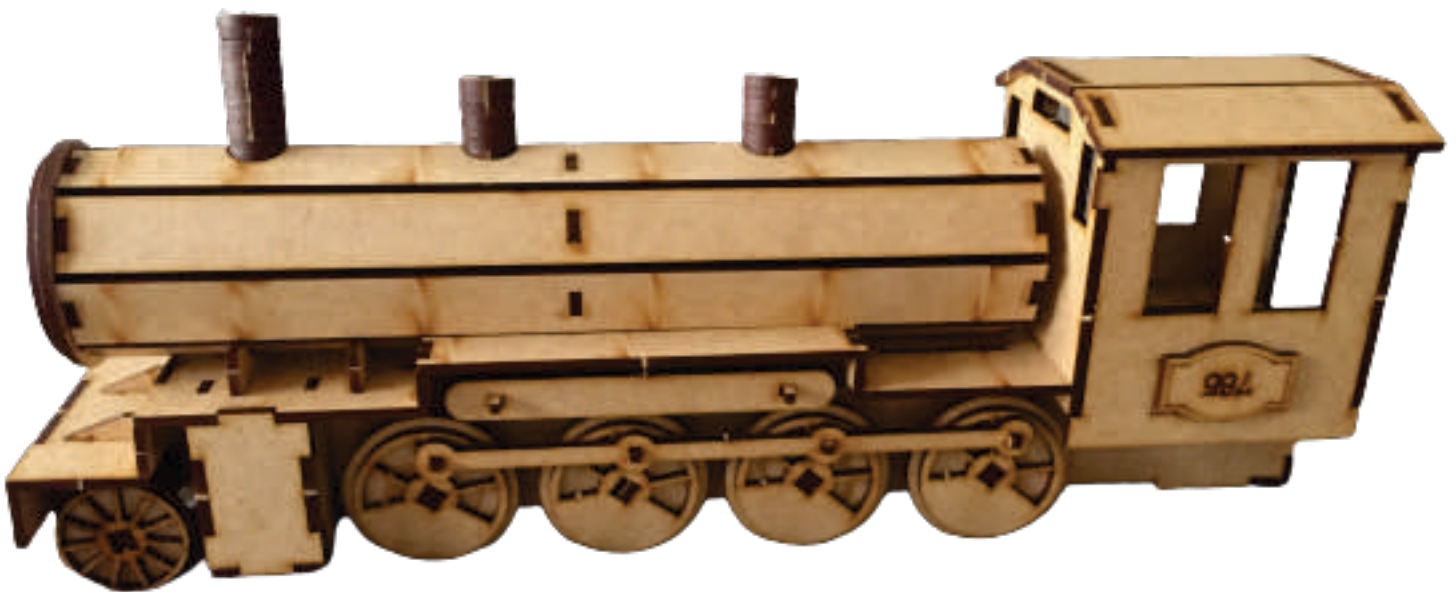
Finishes continued

10. The locomotive chimneys are made up of one Front Chimney Rod **E37** , two smaller Chimney Rods **E38** and thirty five Chimney Rounds **E39** .
 - a. Using the front chimney Rod **E37** slide on and glue thirteen chimney rounds **E39** , so that they are flush at the top and the pin is open. Slide the complete assembly into the front of the train into the boiler assembly at **R** .
 - b. Assemble the remaining two chimney rods **E38** in the same fashion, using eleven of the remaining rounds **E39** . Slide these completed units into slot **R** of the boiler assembly through the large holes of **E7** .
11. Glue the completed Boiler Assembly to the front of the train to secure it in place, so that the train number is in the front of the train and the chimneys are in a vertical position.
12. Place the train coupler **E40** into the slots **S** of the rear cab wall **E13** .

Train Track Assembly

1. Each section of train track is made up of 4 Rails **Tt1** and 6 Sleepers **Tt2**.
2. Face two TT1 pieces together so the tracks are lying on the thin edge and the **S** gaps are aligned. (The **SL** pieces will slot into the **S** gaps). Make sure the tongues are aligned on the same side of each track/rail set, and the grooves are aligned on the other side. PIC 15a and b and c
3. Remove and line up the rails so that you have a tongue and a groove on each end of a set of rails.
4. The tongue and groove allow for multiple tracks to join together.
5. Place a sleeper into the cut out **S** of the rails and glue in place.
6. Follow the same process for the rest of the sleepers to create a solid rail system.

Engine



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Tender



Steam Engine Train Tender Box 3D Laser Cut Model

Each piece of the model is numbered for easy assembly. The Numbers are the train parts and the Letters are the slots on the parts.

To prevent parts from breaking, remove carefully.

Before you use superglue to permanently glue the train together, use a small ball of prestik or elastic bands to hold the pieces in place to ensure they all fit, allowing you to dismantle the components if required.

Wheel & Housing Assembly

1. The tender wheels assembly use the following parts: the Tender Floor Plate **T1** , 2 Wheel Side Walls **T2** , the Wheel Housing Lower Cover **T3** , 6 Wheel Axles **T4** (make sure they are the smaller set of axles, measure on the paper plans), 6 Solid Inner Wheels **T5** , 6 Wheel Spacers **T6** , 6 Outer Spoke Wheels **T7** , the Front Wheel Endcap **T8** , the Rear Wheel Housing cap **T9** and 2 Wheel Guards **T10** , Front Wheel Housing Cap **T11** , Rear Wheel Housing Cap **T12** .
 - a. The wheel side walls **T2** fit to the tender floor plate **T1** using slots **JJ** but before fitting them, insert 2 wheel axles **T4** into the round slots on one side wall and complete steps b and c.
 - b. Place the Front Wheel End Cap **T8** into slots **KK** on the side wall **T2** and the rear wheel end cap **T9** into slots **LL** of the side walls.
 - c. Position the final wheel wall onto this assembly ensuring that the axles protrude through the rounded slots. (Pic 16) NOTE: These pieces are loose, use elastic bands or prestik to hold together until certain assembly is correct, then glue.
 - d. Place this assembly seen in Pic 16 into **T1** slotting the **JJ** sides of **T2** into **JJ** of **T1** and **J** of **T2** into **J** of **T1** .
 - e. Close off the wheel box by placing the wheel housing lower cover **T3** onto the wheel unit.
 - f. Place a wheel spacer **T6** onto an axle **T4** , followed by a Solid Inner wheel **T5** then the outer spoke wheel **T7** onto the axle. Repeat for the remaining 5 wheels. (Glue **T7** (outer spoke wheel) and **T5** (solid inner wheel) together. Place **T9** in position using **LL** slots on **T9** and **T2** .
 - g. Close off the wheels by placing the wheel guards **T10** into the floor plate using slots **MM** . DON'T glue.
 - h. Place the front wheel housing Cap **T11** and rear wheel housing cap **T12** into slots on the two wheel

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the two wheel guards **T10**. (The **C**'s into the **C** and the **D**'s into **D**). You might come across a problem of the housing caps not sitting flush. If so, check that the wheel guards **T10** are positioned symmetrically to each other. If all fitting correctly, glue parts together.

For the housing assembly

1. **T14** fits onto **T1** using slots **RR**.
2. **T15** fits onto **T1** using **TT**.
3. Position 2 X **T13** pieces on **T1** using slots **QQ**.
4. Place **T16** in position using slots **RR** and **ZZ** on **T13** and **T16**.
5. Fit 2 X **T18** pieces onto **T16** using **TT** with the narrow part of **T18** flush against **T16** and on the other side of the train to slot **MM**.
6. Using slots **TT** position 2 X **T19** pieces on **T16**.
7. These two pieces will be inserted correctly if **T19** fits into **T18** to close off the housing assembly.
8. Position **T21** in place using the **VV** slots of **T18**.
9. Position 2 X **T17** pieces using the **SS** slot on **T17** and inserting it into **SS** slot of **T15**.
10. Stick 2X **Tn1** pieces in marked position on 2 X **T13**.

b. Couplers and hook bar

1. Insert **T22** into **WW** of **T12** and insert **T23** into **WW** of **T11**.

Main Coach Assembly

1. Parts required: Coach Floor **C1**, 2 Inner Coach Frames **C2**, 1 Front & 1 Rear Coach Door Walls **C3**, 2 Coach Side Walls **C4**, the Coach Roof Slats **C5** and 2 Door Frames **C6**.
 - a. Attach the 2 inner coach frames **C2** to the coach floor **C1** using slots **AA**.
 - b. Place the 2 Coach Side Walls **C4** onto the frames **C2** and coach floor **C1** using slots **BB**.
 - c. Add the front & rear coach door walls **C3** to the coach floor using slots **CC**.
 - d. Complete the domed Coach Roof by attaching Slats **C5** to the coach using slots **DD**. Glue in position on all structures.
2. Place the Front & Rear Door Frames **C6** onto the front & rear coach door walls around the engraved doors.

Wheel and Steps Assembly

3. Assemble the steps using the 4 Step Rails **C7** and the 8 Steps **C8**.
 - a. Place the Step Rails **C7** into slots **EE** of the Coach Floor.
 - b. Slide Steps **C8** into the slots **FF** of the step rails.
4. The 2 sets of coach wheels consist of the following: 4 Wheel Frames **C9**, 8 Wheel Axles **C10**, 8 Outer Spoke Wheels **C12**, 8 Solid Inner Wheels **C11** and 8 Wheel Lock Nuts **C13**.
 - a. Holding two axles pressed face to face together, slide (onto 1 side only), 1 solid inner wheel **C11**, then the outer spoke wheel **C12**, then the wheel frame **C9** using **H**, then lock in place with the wheel lock nut **C13** (Pic 17). Repeat for hole **HH** on this wheel frame.
 - b. Repeat this process for the other side of the axle and for the other axle on this set of wheel frames. (Pic 18)
 - c. Repeat steps a and b (above) to complete the other set of wheels/ wheel bogey assembly.
 - d. Attach the complete units to the coach floor **C1** using slots **GG**.
5. To make the luggage store boxes, use 4 Box Side Wall pieces **C14**, 4 Box Front Caps **C15**, and 2 Box lids **C16**. Once assembled attach to the coach floor using slots **HH** and **I**. (Only place pieces halfway through slots while assembling this to allow room for them to lock into each other. Then, when in place make sure the nodes are fully inserted into the correct place OR build the box first, check that it will fit correctly, then glue the box and insert into correct slots OR Insert pieces straight into slots on coach floor **C1** and glue when box is complete).

Train Couplers

6. Place the Coupler Hook Bar **C17** into slot **JJ** of the front step rails **C7** and the Train Coupler **C18** into the slots **JJ** of the rear step rails **C7**.



Coach

