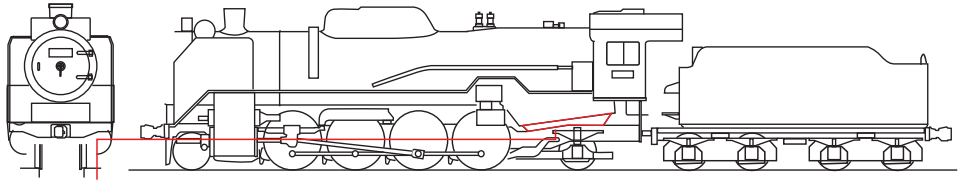
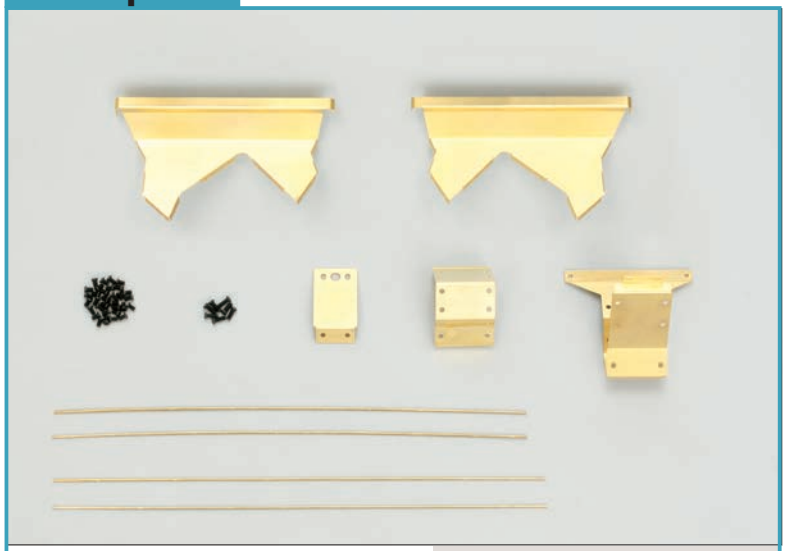
The ash box



The ash box

Your parts

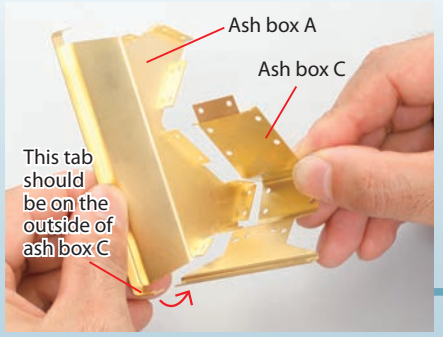


- Ash box A
- Ash box B
- Ash box C
- Ash box D
- Ash box E
- Handrails A × 2
- Handrails B × 2
- Screws (2 × 5mm) × 7
- Screws (2 × 3mm) × 32

Required tools

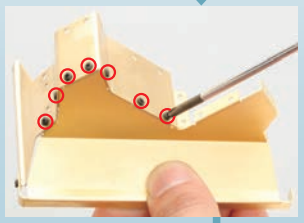
- Phillips screwdriver
- Instant adhesive

1 Assembling the ash box

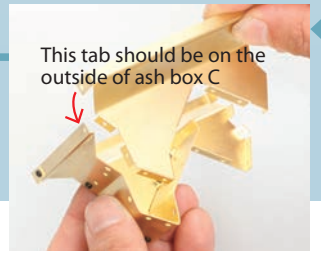


Place ash box C on the outside of the tabs of ash box A, aligning the screw holes of both.

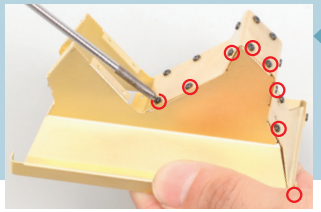
Tighten a 2 x 3mm screw into the circled hole in ash box A, securing it to ash box C.



Tighten a 2 x 3mm screw into each of the seven holes along the edge of ash box C.

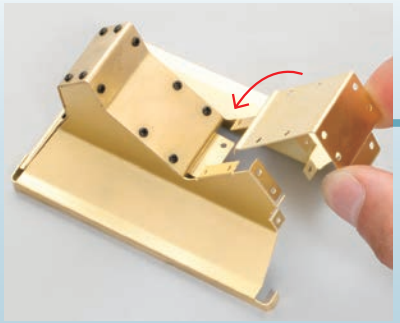


Fit ash box B onto the other side of ash box C.



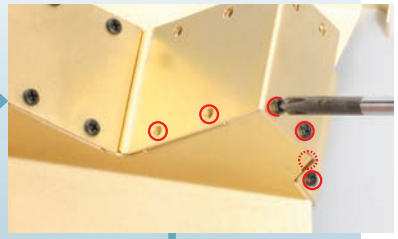
Tighten a 2 x 3mm screw into the eight circled holes.

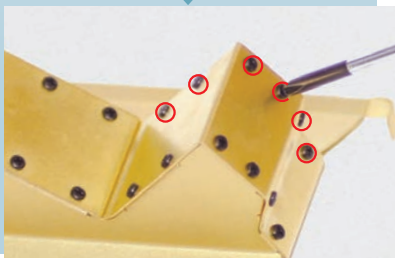
2 Assembling the ash box, continued



Place ash box D onto the rest of the ash box assembly.

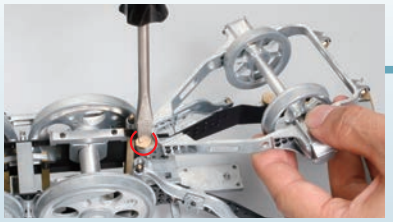
Tighten a 2 x 3mm screw into each of the six circled holes.



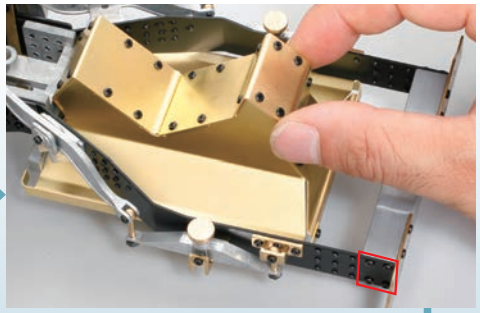


Tighten 2 x 3mm screws into the six holes on the other side of ash box D.

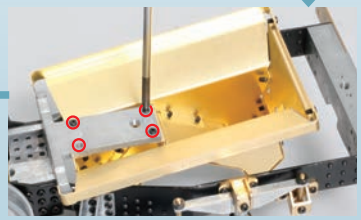
3 Fitting the ash box



Turn the underframe over and remove the trailing truck.

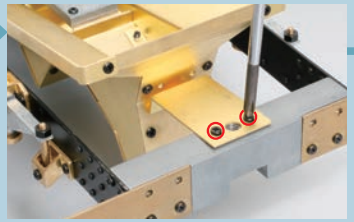


Insert the ash box into the area at the back of the underframe, as shown.

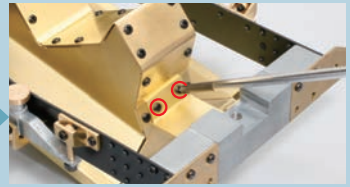


Tighten 2 x 5mm screws into the four circled holes in the underside.

Place ash box E at the back of the ash box, aligning the circled holes.

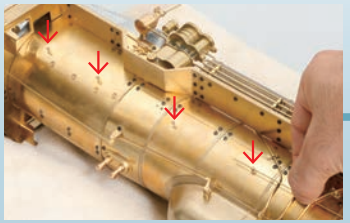


Tighten 2 x 5mm screws into the two holes at the end of ash box E.



Turn the underframe over again and tighten a 2 x 3mm screw into each of the holes at the other end of ash box E.

4 Fitting the handrails

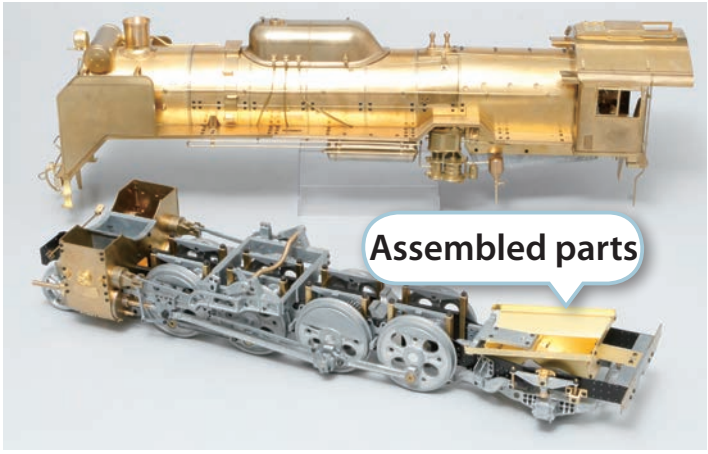


Pass one handrail B through the four handrail brackets on the left side, nearest the cab.

Push the hand rail through until it is resting inside the first bracket.

Apply instant adhesive to the bracket where the two handrails meet. Repeat this for the right side.

Pass one handrail A through the four brackets nearest the front.



Preparing tools for painting

These next two pages will show you which tools you need for both finishes of the model.

Tools

1. Degreasing agent
2. Undercoat primer
3. Matt black spray paint
4. Clear spray paint
5. Paint thinner
6. Paint
7. Sandpaper
8. Paint mixing cup
9. Masking tape
10. Flat-head screwdriver
11. Needle file
12. Wire brush
13. Paint brush
14. Knife

Before you paint the model, you will need to clean it to remove any grease, dirt or excess glue from the surface. For the excess glue, you can use a wire brush, a screwdriver, sandpaper, a file or a knife, depending on the amount of glue and the area of the model that it covers (see page 195). Once you've removed the glue, you can spray the model with a degreasing agent to get rid of any other dirt or grease on the surface. When you've cleaned the model, you will need to spray it with a primer to improve the adhesion of the paint to the surface, whether your chosen finish is clear or black. Please note that there are certain areas on the model where the spray paint will not reach, or will not provide an even coverage. You will need to paint these areas by hand, using a brush.

Useful extras

When painting, use cardboard and newspaper to cover and protect any surfaces that you are working on. You can also use an old towel as a base to protect the parts. It is advisable to wear a mask when spraying, and you should spray only in a well-ventilated area.

Removing excess glue

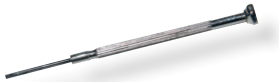
In preparation for painting, you will need to remove any excess glue from the surface of the model. There are a number of ways to do this and different tools you can use.

Wire brush

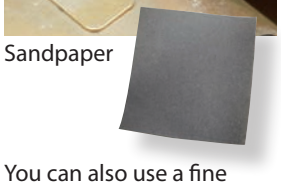
Flat-head screwdriver

Sandpaper

The wire brush is a speciality tool used in a similar way to a paint brush, but its stiff bristles will scrape away excess glue and other dirt.



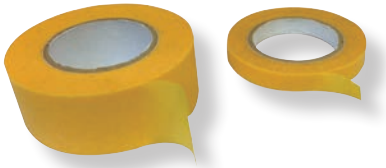
Though not its intended purpose, a flat-head screwdriver can be used as a mini chisel, to scrape or chip away at any excess glue left on the model.



You can also use a fine sandpaper (around 400 grit) to remove excess glue, without damaging the surrounding area on the surface of the model.

Masking tape

When painting the model black, there are certain areas that you should mask off, such as the number plate and the headlight. It is best to use a masking tape intended for modelling as this comes in a useful range of sizes and has a weak adhesion, meaning it won't damage any surface it is stuck to.



It is recommended that you get narrow masking tape as well as medium or wide sizes

Brushes

Because you will need to paint both small and large areas by hand, it is best to have a few sizes of brush, such as those shown below. Use paint thinner to clean your brushes.

It is good to have at least a flat, a medium and a fine brush

Examples of paint thinner

Paints

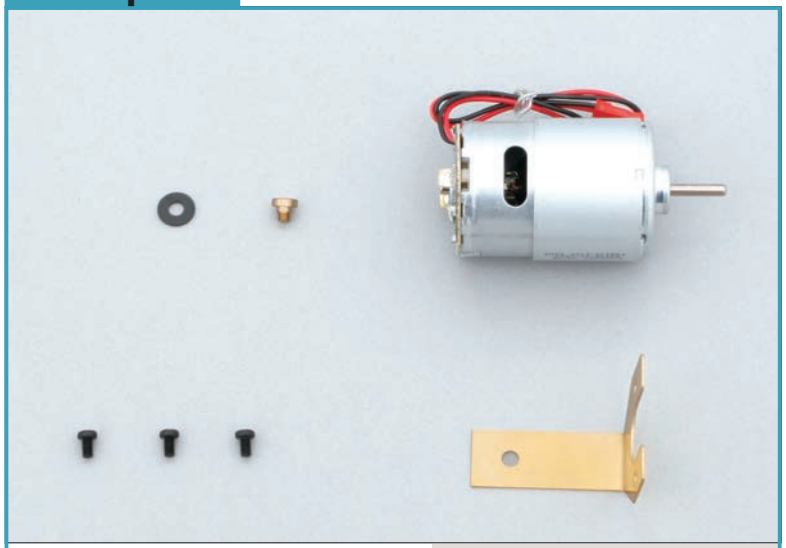
The bulk of the painting can be done with sprays, either matt black for a black finish model or clear lacquer for a bare metal finish. In addition to these, you will need bottles of paint, both for touching up areas that the sprays can't reach and for painting awkward areas such as the bottom of the firebox. It is up to you which colours you use, but those illustrated below are recommended.

Lacquer-based paints

Acrylic paints

The motor

Your parts

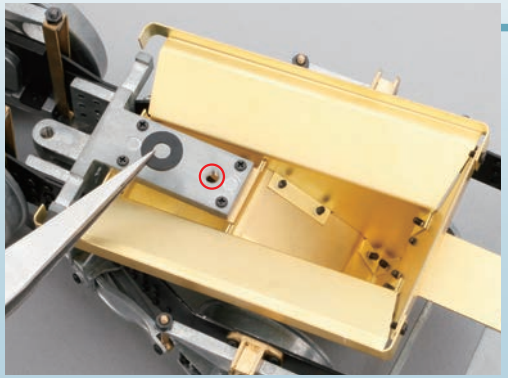


Rubber washer
Motor screw
Motor
Screws (3 × 5mm) × 3
Motor mount

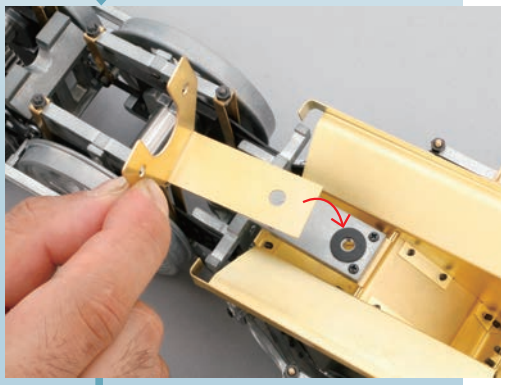
Required tools

Phillips screwdriver
Flat-head screwdriver

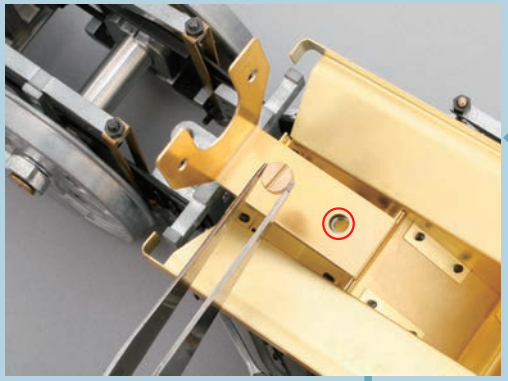
1 Fitting the motor mount



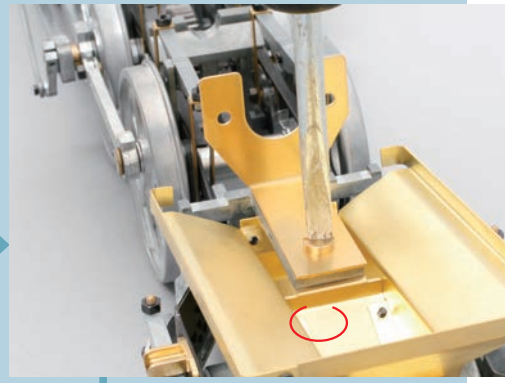
Place the rubber washer over the circled hole in the underside of the underframe.



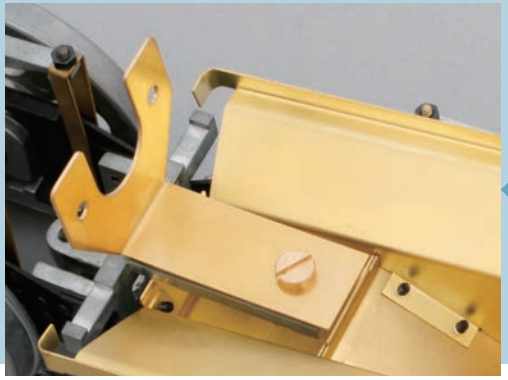
Place the motor mount over the same hole, on top of the rubber washer.



Place the motor screw into the circled hole in the motor mount.

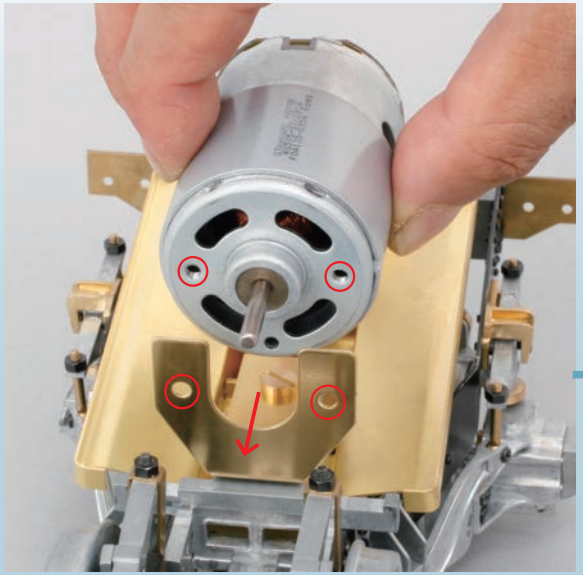


Tighten the screw into the hole, through the mount, washer and underframe.

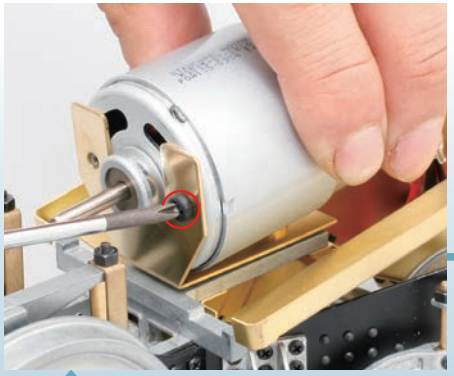


Make sure the motor mount is parallel with the sides of the underframe.

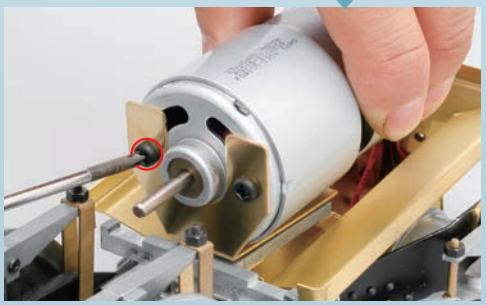
2 Fitting the motor



Place the motor onto the motor mount, aligning the circled holes of both.



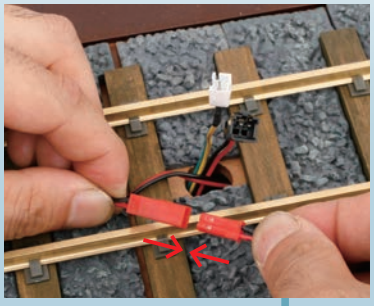
Tighten a 3 x 5mm screw into the circled hole in the mount, securing the motor in place.



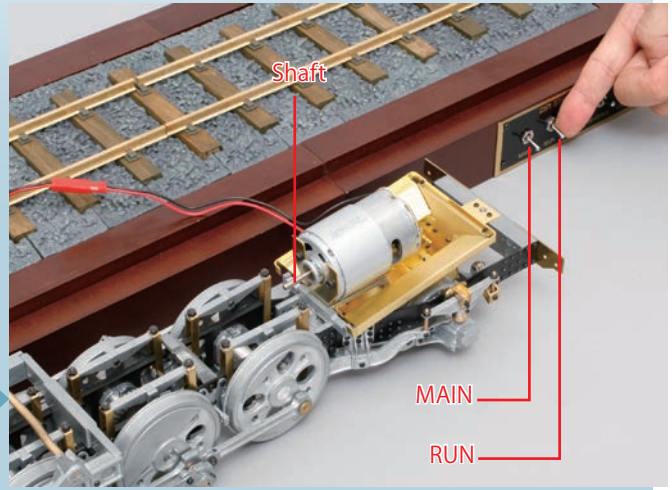
Tighten a second 3 x 5mm screw into the second hole on the motor mount (circled).

3 Testing the motor

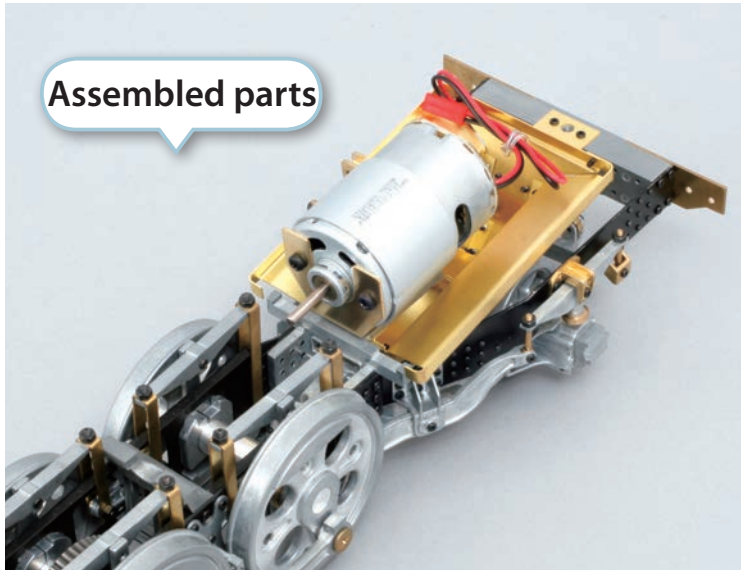
Turn on the MAIN switch, then turn on the RUN switch to test that the shaft of the motor rotates.



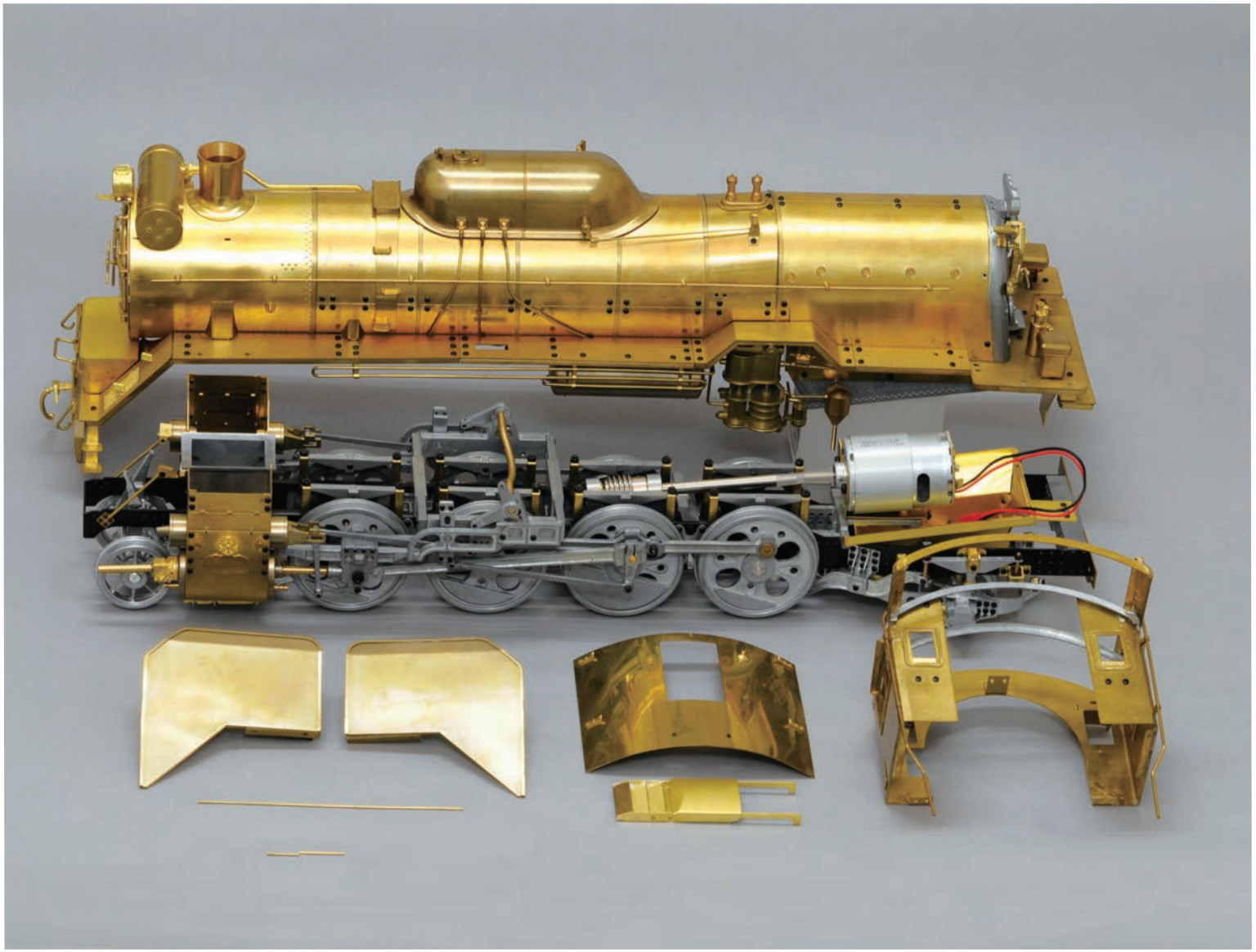
With batteries in the battery box, connect the base's motor cable to the cable attached to the motor.



Assembled parts



Disassembly



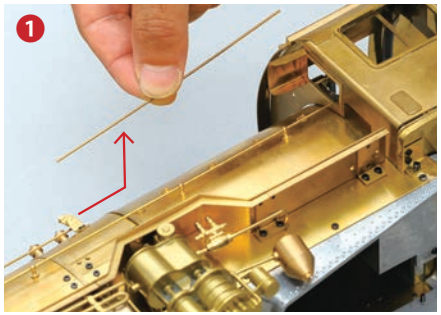
In order to get an even coverage of your chosen finish, it's best to disassemble some of the model to make it easier to paint. The next page will show you how to remove the relevant parts.

The main components that should be removed are the deflectors and the cab. While you don't need to dismantle the cab, you do need to remove it from the rest of the model and take the roof off.

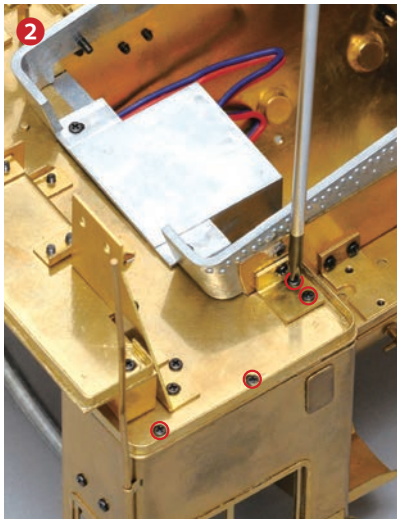
If you have chosen a painted finish, you should already have painted the backhead. If you haven't, it is best to paint it when the cab has been removed.

When disassembling the parts, it is also a good idea to check all the joins between them for any weakness or damage. In the next stage, you will be shown how to clean away any excess glue, so now is the last chance to reinforce any glued parts. If you find instant adhesive isn't strong enough, replace or reinforce it with epoxy adhesive.

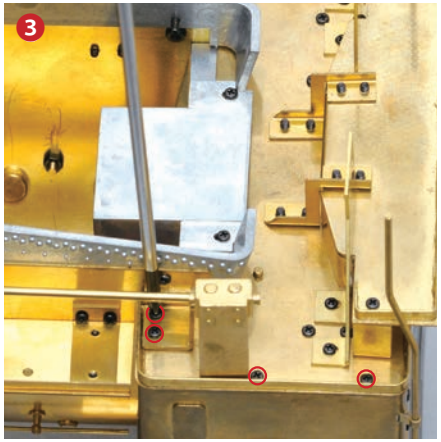
How to remove the cab



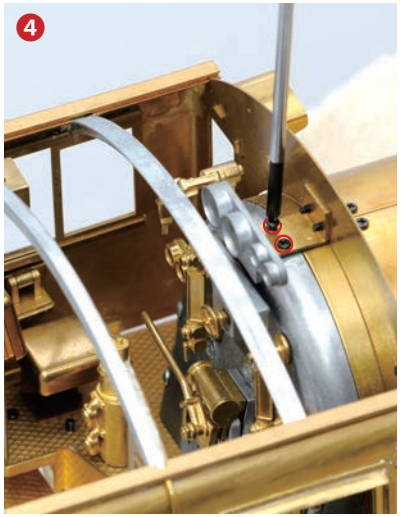
Remove the control valve rod.



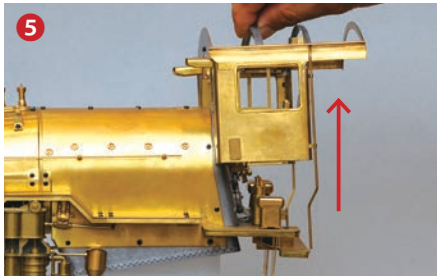
Remove the four circled screws holding the cab to the cab floor.



Remove the four circled screws on the other side of the floor.

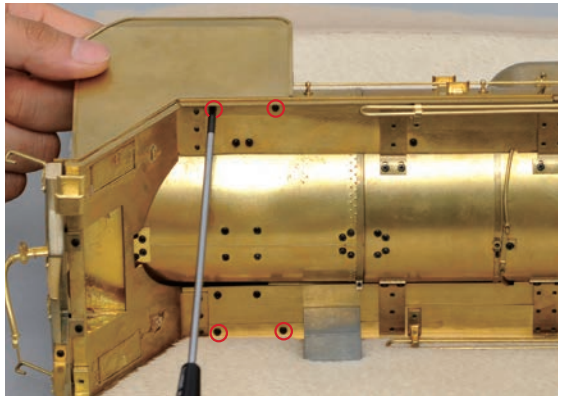


Remove the two screws at the top of the cab.



To remove the cab, gently pull it straight upwards.

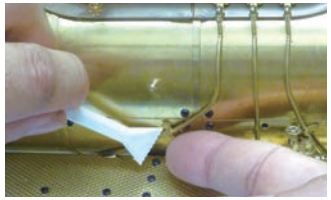
How to remove the deflectors



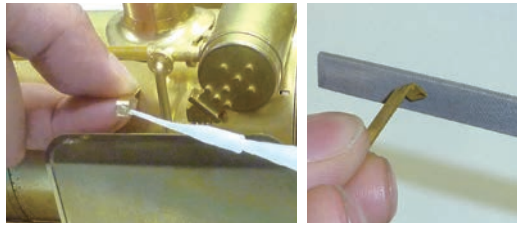
Unscrew the four circled screws underneath the running boards to remove the deflectors from them.

Repairing

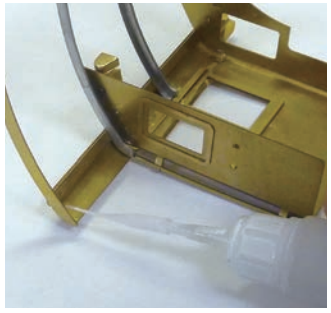
Before painting your model, it is best to check over all the joins and glued parts to see that they are still holding. It is best to repair any of these at this stage, as from the next stage you will begin to paint your model.



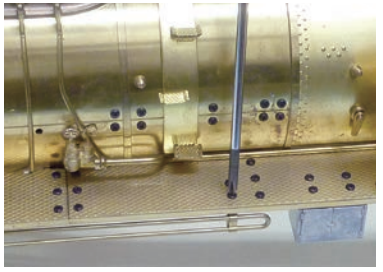
Use epoxy adhesive to reinforce or replace glued parts.



For any parts where the glue needs to be replaced, remove the existing glue with a knife or file, and then re-glue them.

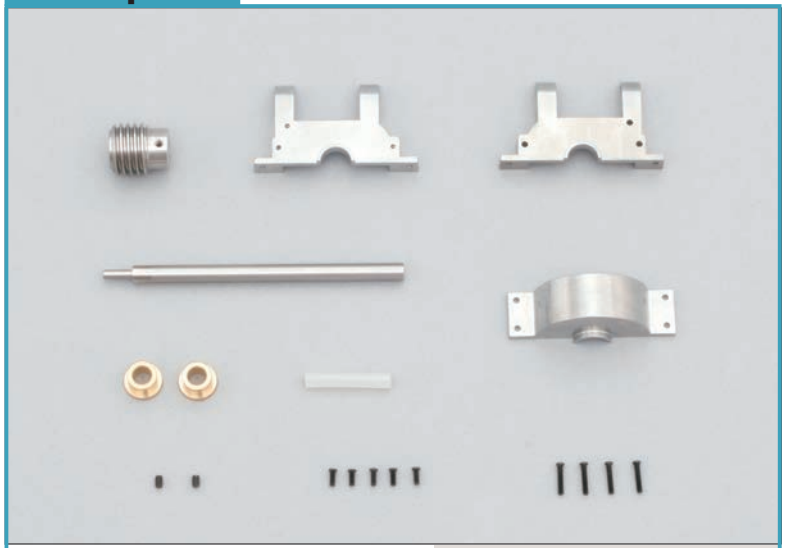


Make sure to re-tighten any loose screws, as well as fixing the glued parts.



The gearbox

Your parts

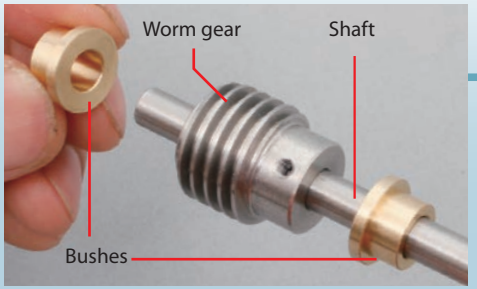


Worm gear
Gearbox B
Gearbox A
Shaft
Gearbox C
Bush × 2
Silicone tube
Set screws × 2
Screws (2 × 5mm) × 5
Screws (2 × 10mm) × 4

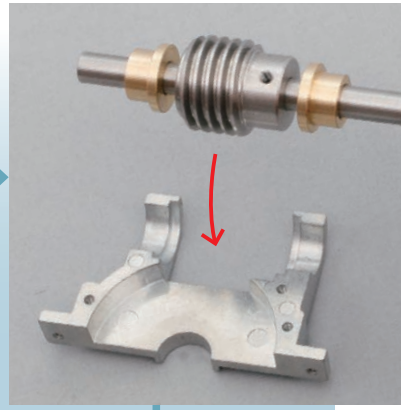
Required tools

Phillips screwdriver
Flat-head screwdriver

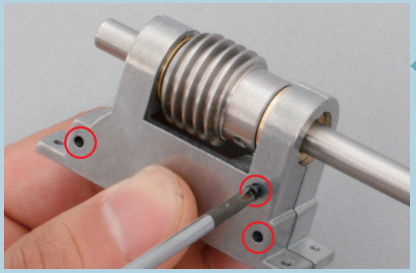
1 Assembling the gearbox



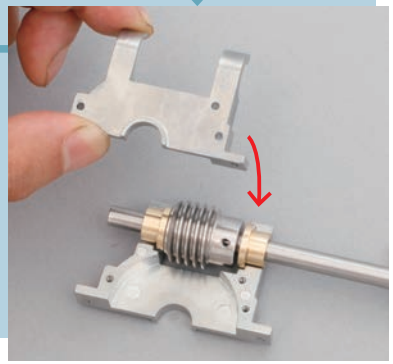
Place a bush onto the wide end of the shaft, then the worm gear, and then the second bush.



Place the worm gear and bushes into the semi-cylindrical part of gearbox B.



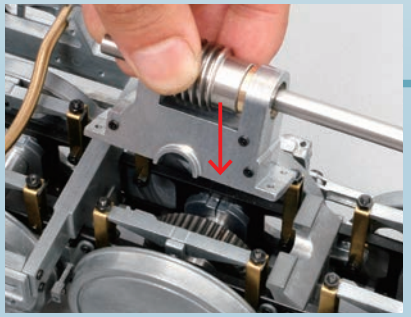
Tighten 2 x 10mm screws into the three circled holes in gearbox A.



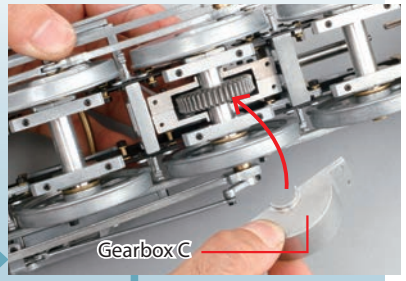
Place gearbox A onto gearbox B, aligning the screw holes of both.

2 Installing the gearbox

Place the gear assembly over the toothed wheel in the underframe.

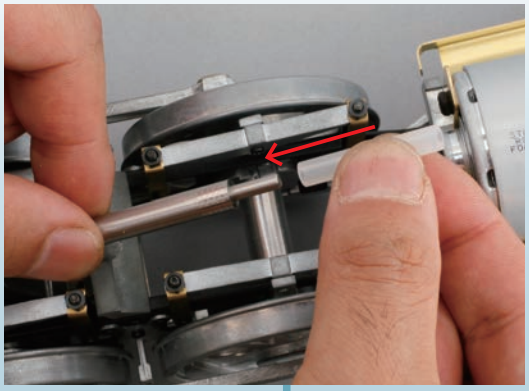


Holding the gear assembly in place, turn the underframe over and place gearbox C over the underside of the toothed wheel.

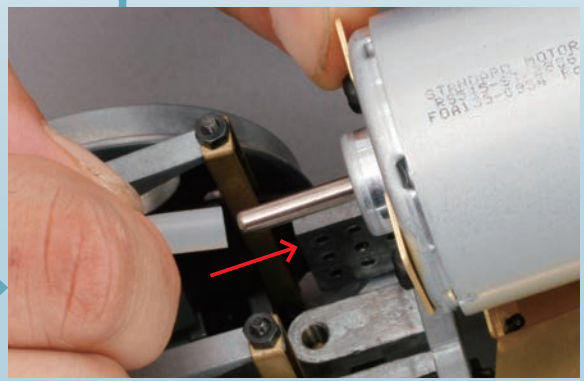


Tighten 2 x 5mm screws into the four circled holes.

3 Fitting the silicone tube

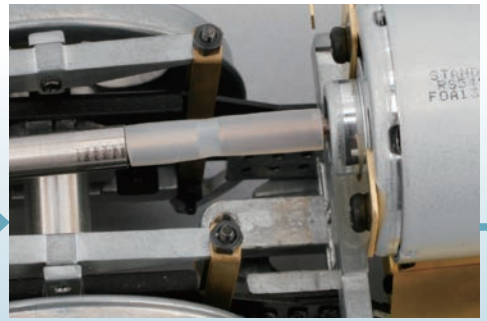


Turn the underframe back over and place the silicone tube over the end of the shaft.

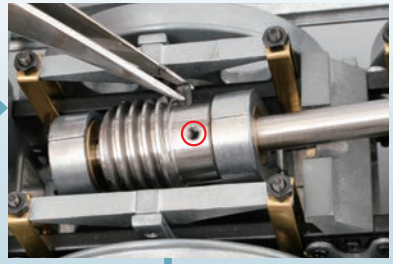


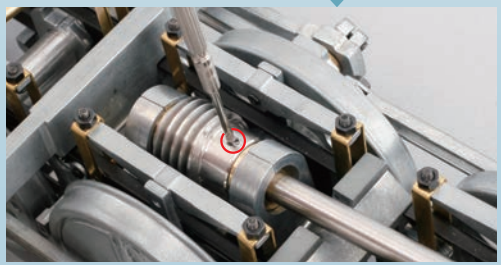
Place the other end of the tube over the shaft projecting from the motor.

The tube should now appear as shown, if positioned correctly.



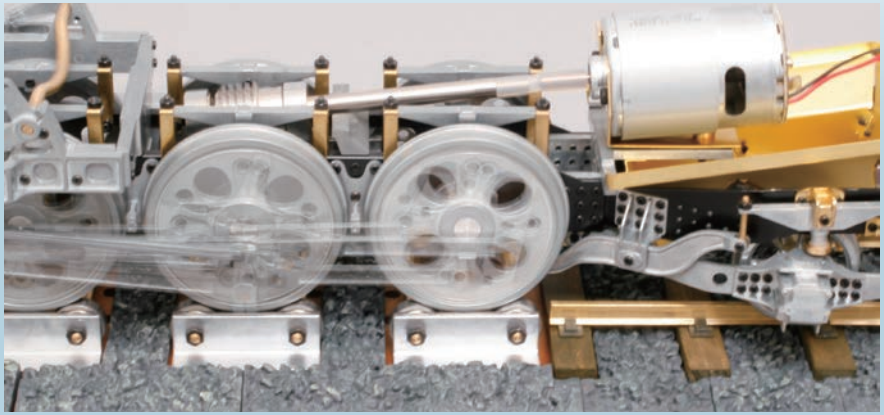
Place a set screw into the circled hole in the worm gear.



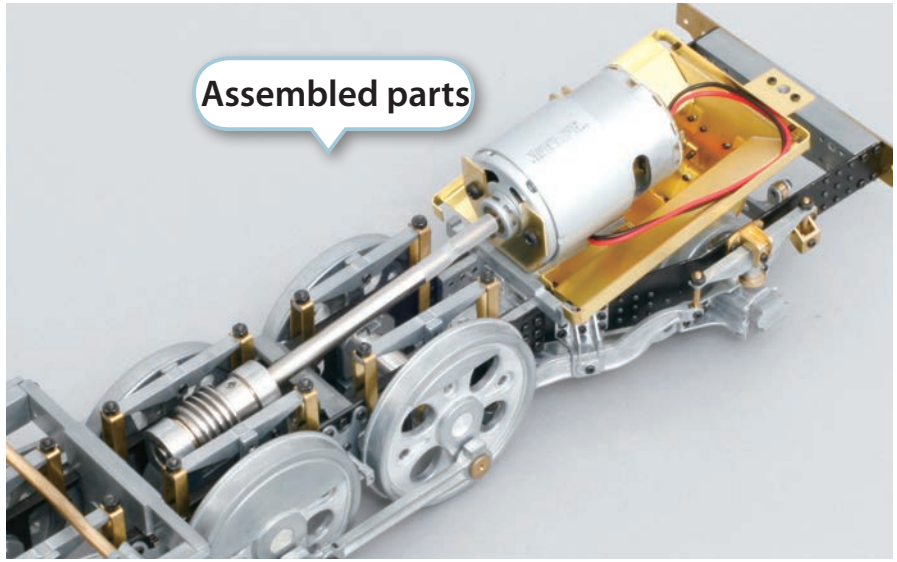


Fully tighten the set screw into the hole in the worm gear.

4 Testing the wheel gears

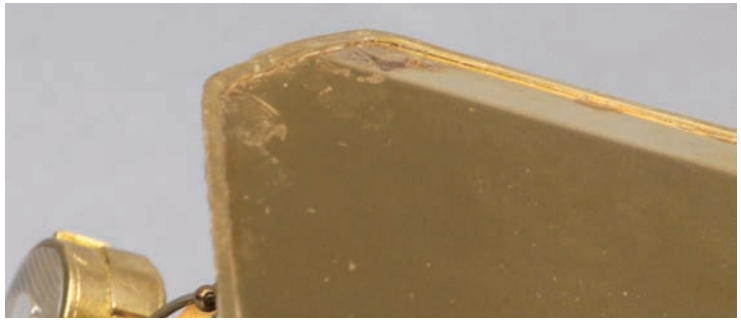


Place the wheels onto the rollers on the base. Connect the battery to the effects generator and switch it on. Then flip the MAIN and RUN switches to test that the gear and wheels move. If they don't, turn the switches off and check the positions of the gears, toothed wheels, silicone tube and motor.



Removing the excess glue

To achieve the best finish for your model, not only should you paint it with black paint or clear lacquer but you should also clean it up before you do so.



Areas such as that shown above, where there is excess glue on the surface of the model, are the points that need tidying up.

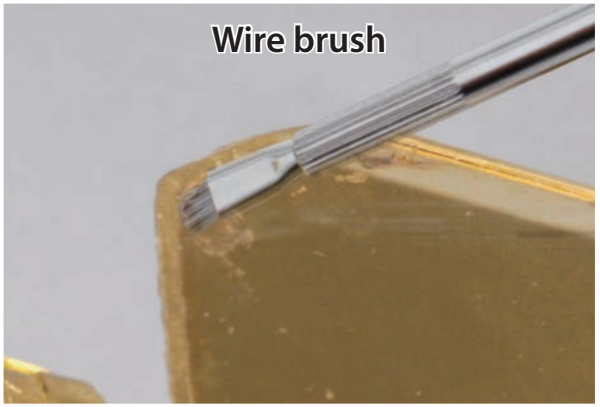
In this painting stage, you will be preparing the surface of the model for painting by cleaning it of any excess glue and masking any areas that should not be painted.

To remove excess dried adhesive from the surface of the model, you can use either a wire brush, a flat-head screwdriver or some sandpaper or wet and dry paper.

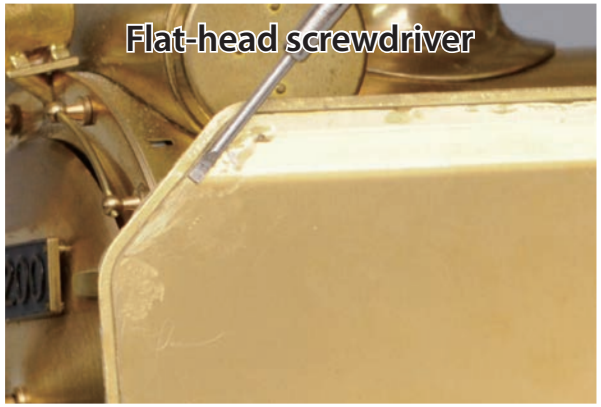
The wire brush can be used to brush away dried glue. This is best used on the larger areas of glue, before you work on them with the other tools, as it is not very accurate. The flat-head screwdriver can be used as a miniature chisel, to chip away at and remove small areas or amounts of glue.

After you've used a wire brush or a screwdriver to remove the majority of the dried glue, use either sandpaper or wet and dry paper to remove the rest of it, and to clean the surface of the area you are working on.

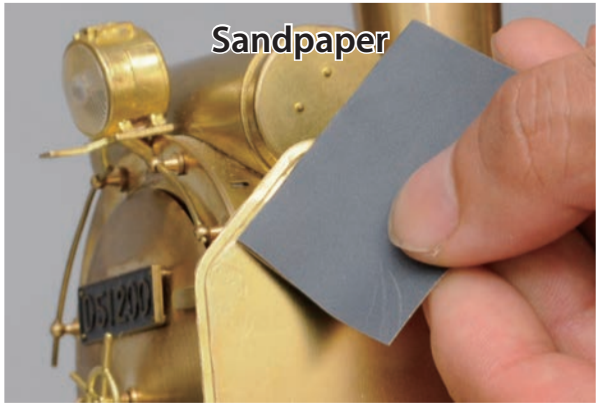
When you've removed all of the excess glue from your model, you can begin masking off the areas that should not be painted. When using masking tape, make sure that you weaken the adhesive side of it before applying it to any parts, because if the adhesive is too strong it can be very difficult to remove the tape.



The wire brush can be used to scrape away excess glue without damaging the surface of the part.

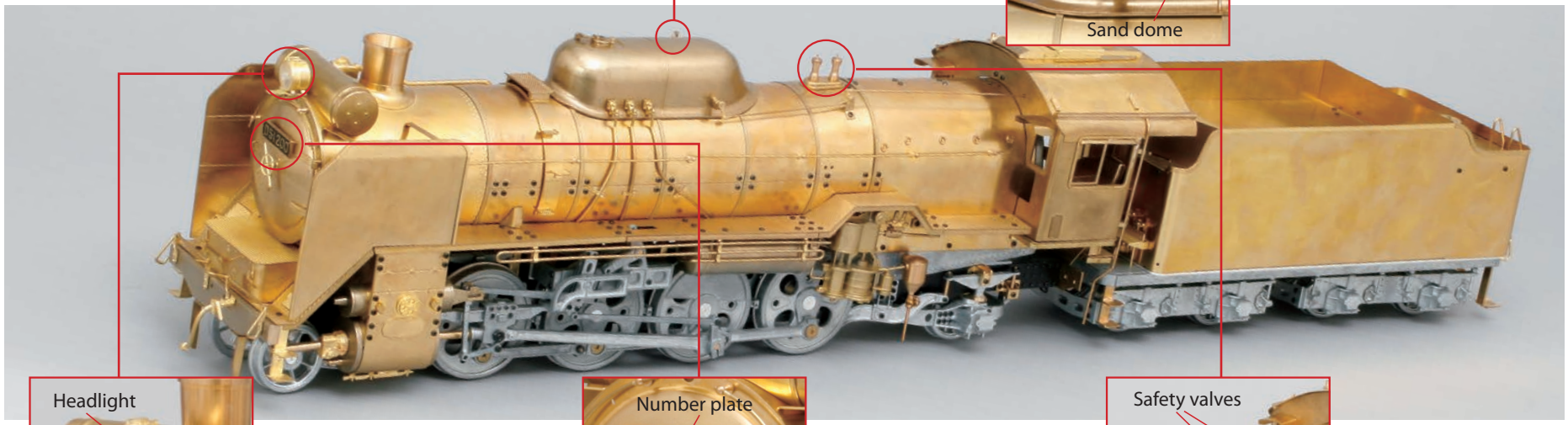


A small flat-head screwdriver can be used as a makeshift chisel to scrape away glue along edges.



You can also use sandpaper or wet and dry paper to remove glue along edges.

Masking



The whistle will need to be masked off from the rest of the sand dome.

The lens of the headlight needs to be masked off, but the body of the headlight does not.

The front and sides of the number plate should be masked.

The two safety valves need to be masked as well. These can be unscrewed instead of masked, if you prefer.

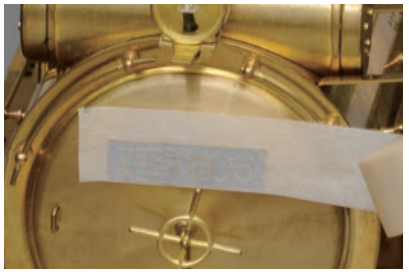
Headlight

Apply masking tape to the surface of the lens, making sure that the headlight isn't covered by any tape.

If the lens isn't in position, roll up a ball of masking tape and place it into the headlight.

Wipe away any unwanted paint after spraying, using a little paint thinner.

Number plate

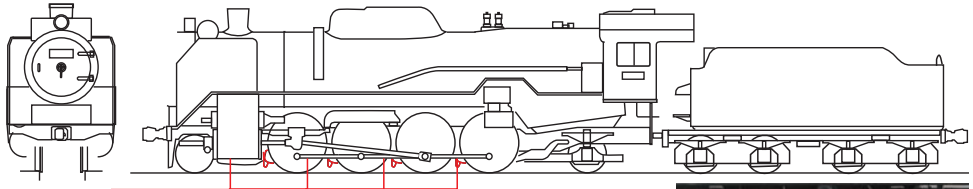


Place a strip of masking tape over the number plate.

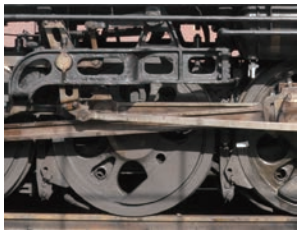
Fold the tape over the edges and cut away the excess.

The number plate should look like this when masked.

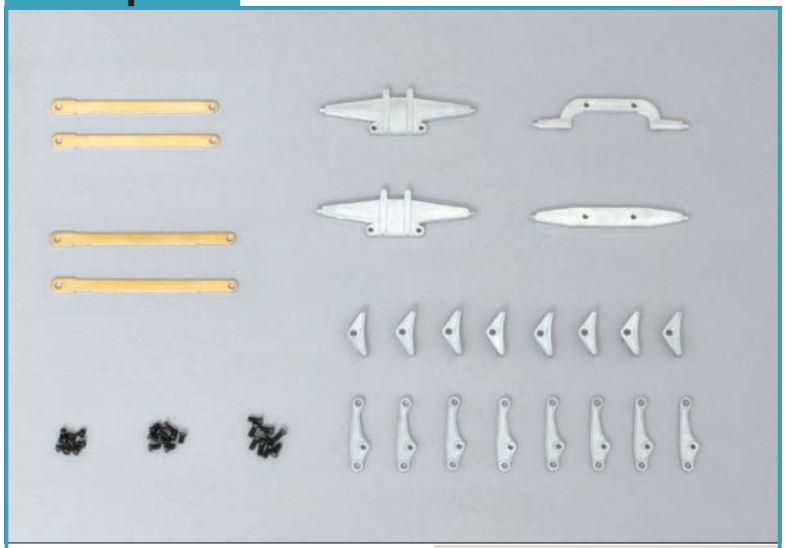
The brake shoes



The brake shoes



Your parts

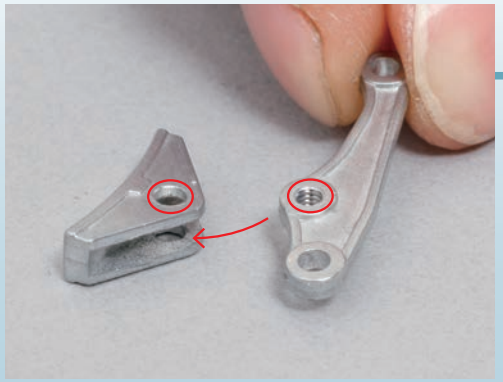


- Brake braces A × 2
- Brake braces B × 2
- Brake beams C × 2
- Brake beam A
- Brake beam B
- Screws (2 × 2mm) × 9
- Screws (2 × 3mm) × 9
- Screws (2 × 4mm) × 9
- Brake shoes × 8
- Brake shoe levers × 8

Required tools

- Phillips screwdriver
- Instant adhesive

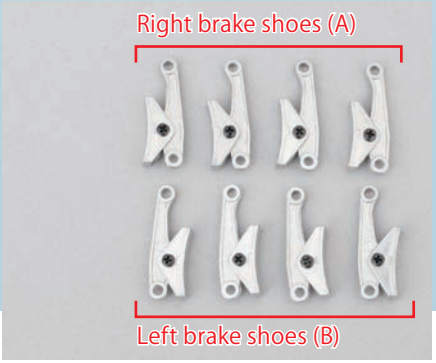
1 Assembling the brake shoes



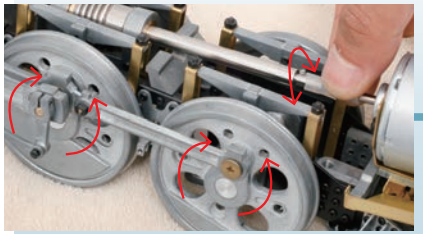
Place a brake shoe lever into a brake shoe, aligning the holes of both (circled)

Tighten a 2 x 4mm screw into the hole.

Create three more brake shoe assemblies in this way (right brake shoes A). Then place a lever into a brake shoe and tighten a screw into the hole from the other side of the shoe, to create the four reversed shoes (left brake shoes B).

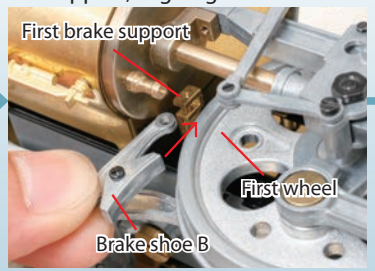


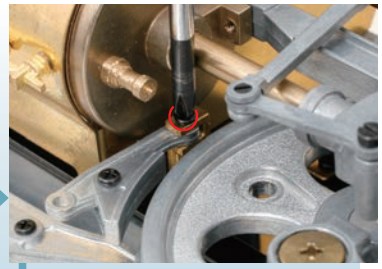
2 Fitting the brake shoes



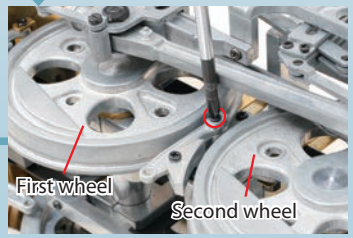
Turn the wheels by rotating the motor shaft.

Insert the end of the lever of a brake shoe B into the first brake support, aligning the holes.

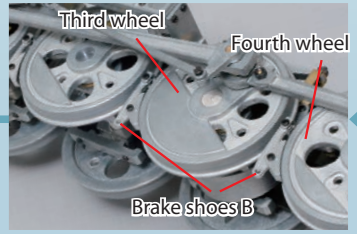




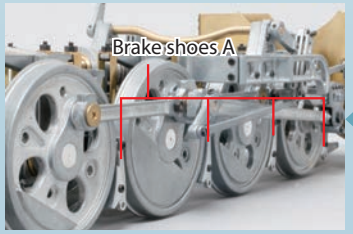
Tighten a 2 x 2mm screw into the hole in the brake support.



Screw the second brake shoe B to the underframe, in front of the second wheel.

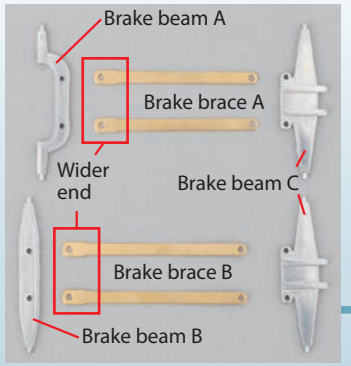


Screw brake shoes B to the underframe in front of the third and fourth wheels, as shown.



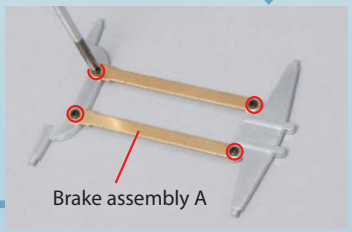
Install the four brake shoes A in front of the four wheels on the right side of the underframe.

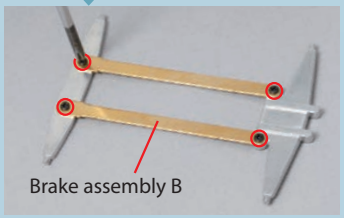
3 Assembling the brake beams



Position the brake beams and braces on your work surface as shown.

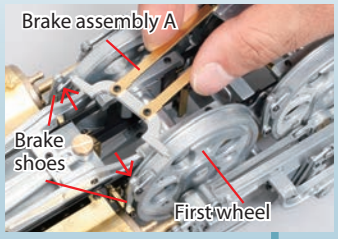
Half-tighten a 2 x 3mm screw into each of the four circled holes to create brake assembly A.





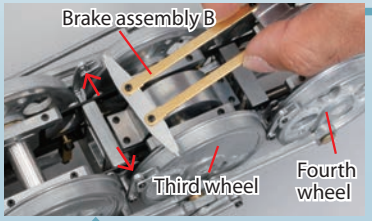
Similarly, screw the four parts shown together, using 2 x 3mm screws, to create brake assembly B.

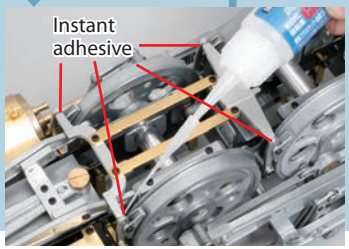
4 Fitting the brake assemblies



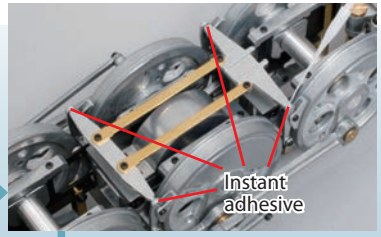
Turn the underframe over, and insert the ends of brake beam A into the holes (arrows) on the inside of the brake shoes in front of the first wheels.

Insert the ends of the beams of assembly B into the shoes of the third and fourth wheels.

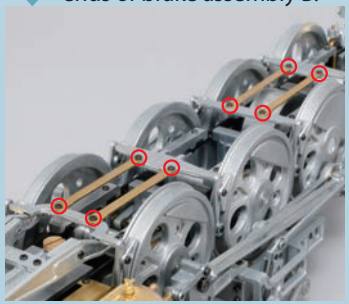




Insert the ends of brake beam C into the holes in the shoes of the second wheel. Apply instant adhesive to the four ends.

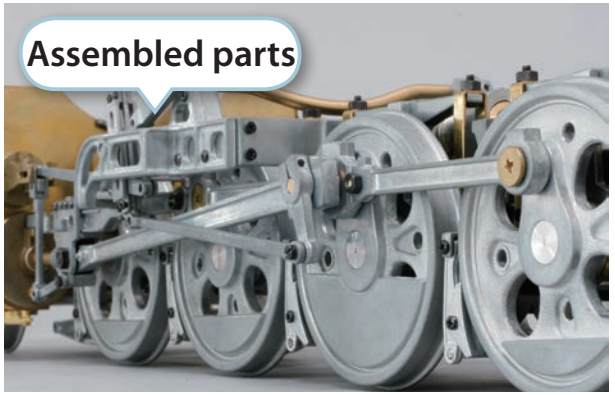


Apply adhesive to the four ends of brake assembly B.



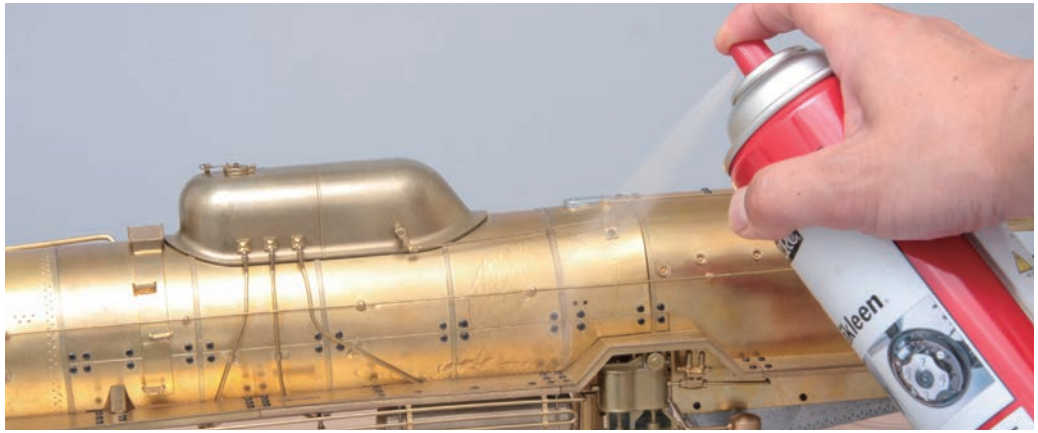
Fully tighten the screws of the brake assemblies.

Assembled parts



Degreasing

By removing any grease from the surface of the model, you can achieve a better adhesion of the primer and paint when you apply them. It requires just a small amount of work, but it will greatly improve the quality of the finished model and prolong the life of the paint. Always follow the manufacturers' instructions on the products you use.

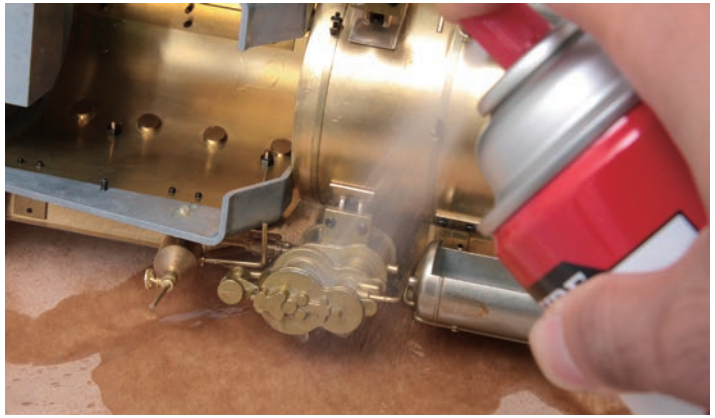


Spray a large amount of degreaser onto the surfaces of the model to ensure that all the grease will be removed.

There are two treatments you should give the surface of the model before painting it. The first is to prepare the surface, removing all dirt and grease by spraying it with a degreaser. When spraying the model with degreaser, be generous with the amount that you use. Avoid touching any part of the model with your bare hands after you have degreased it, because this will just add more grease to it. It's best to wear gloves when you handle it after degreasing. Use pliers to hold any of the separated parts when spraying them.

When you have finished degreasing the model, it will be ready to be sprayed with primer. Spraying the model with primer will improve the adhesion of the subsequent coat of paint. Use a clear primer instead of a coloured one, and try to spray the surface of the model evenly. Make sure that the model is free of grease before spraying with primer. If it isn't, the grease can reduce the adhesion of the paint, which may result in it peeling off at a later stage.

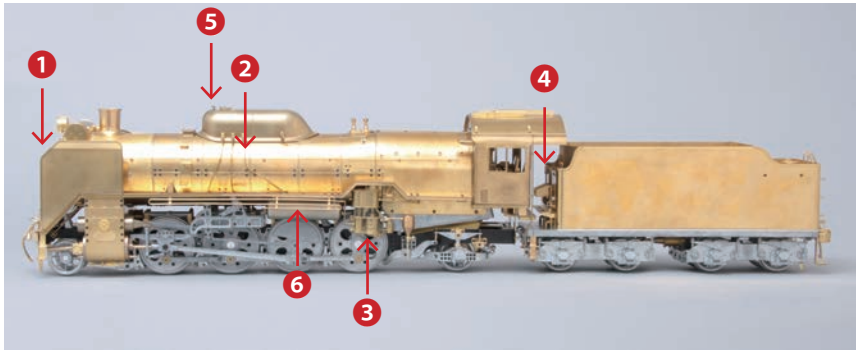
Try not to touch the parts you are degreasing (or have degreased) with your bare hands, because this will make them greasy again.



Make sure that you spray the underside of the model to ensure that it is thoroughly degreased.

Applying primer

Before you spray the model with primer, it's best to use a brush to prime all of the smaller, more detailed parts first.



There are some areas that are difficult to reach by spraying. The main such areas are numbered above, and detailed on the right, although there may be others that you find hard to access. Follow the process explained here to coat them with primer.

Spray some of the primer into the cap of the can so that you can use it with a brush.

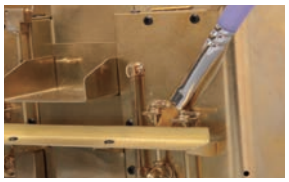
Carefully paint the areas shown on the right with primer, using a brush. Apply a thin but even coat and leave to dry. Then inspect the parts to check that the coat is even. It it isn't, apply more primer.

1 Smokebox

2 Sand pipes

3 Compressor

4 Tender front



5 Sand dome lid

6 Pipe

Primer, although used as an undercoat, is applied in the same way as paint. Applying it unevenly will result in a poor finish. Try not to spray over the parts that you have hand painted, as the primer will begin to build up. It is best to spray the primer at an angle, instead of straight on, as this will reduce the chance of any areas being missed. When spraying a large area, paint in one direction while maintaining a constant speed and distance from the surface. You can split the model into sections (see dotted line, photo bottom far right) so you don't have to spray along the entire length each time, but don't cross over this line as you will get a build-up of primer there.