

Lamborghini *Countach*



WALTER WOLF MODEL

LP 500S

Pack
04



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Assembly Guide Stages 11-14

59

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Editorial and design by Continuo Creative, 39-41 North Road, London N7 9DP.

Published in the UK by De Agostini UK Ltd, Battersea Studios 2,
82 Silverthorne Road, London SW8 3HE.

Published in the USA by De Agostini Publishing USA, Inc., 915 Broadway, Suite 609,
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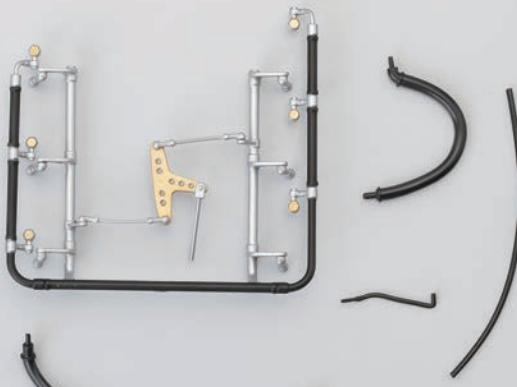
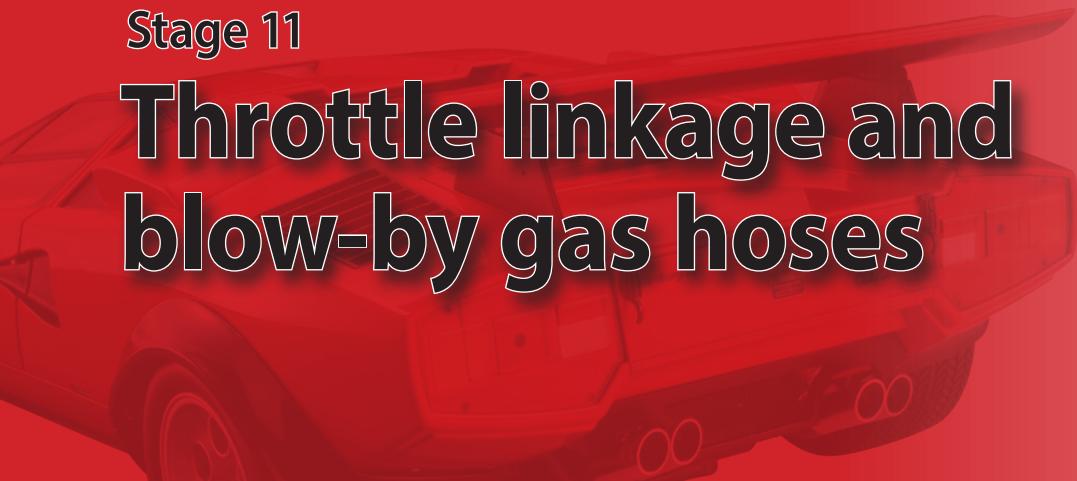




Blow-by gas hoses (the black piping seen along with the HT leads, above) remove any unburnt fuel and air mixture that ends up in the crankcase, causing a build-up of pressure there and contaminating the engine oil. The hoses deliver the excess mixture to the oil separator, where any oil that it has picked up is removed. This burnable fuel/air mixture is then fed back into the cylinders via the inlet manifolds to be used in the combustion process again. This makes the engine more efficient, and, because the gases in the crankcase aren't simply vented into the atmosphere, it reduces the amount of pollution it generates.

Stage 11

Throttle linkage and blow-by gas hoses



Parts

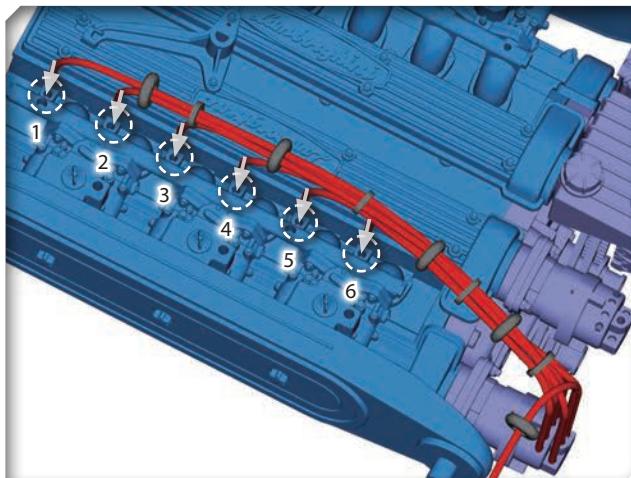
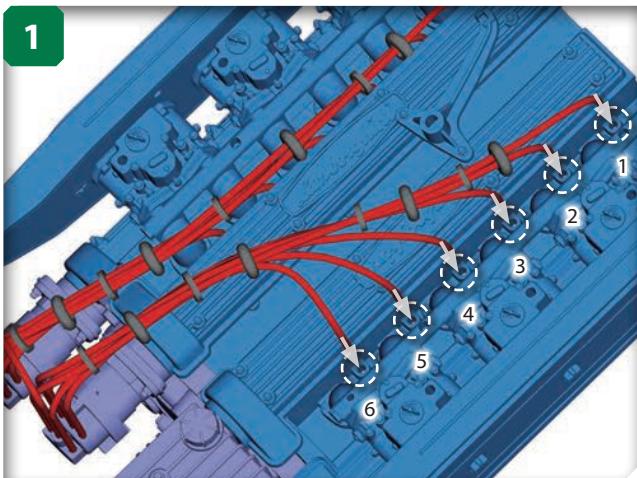
Throttle linkage (pre-assembled)
 Blow-by gas hose A
 Throttle cable
 Blow-by gas hose B
 Blow-by gas hose C

Tools

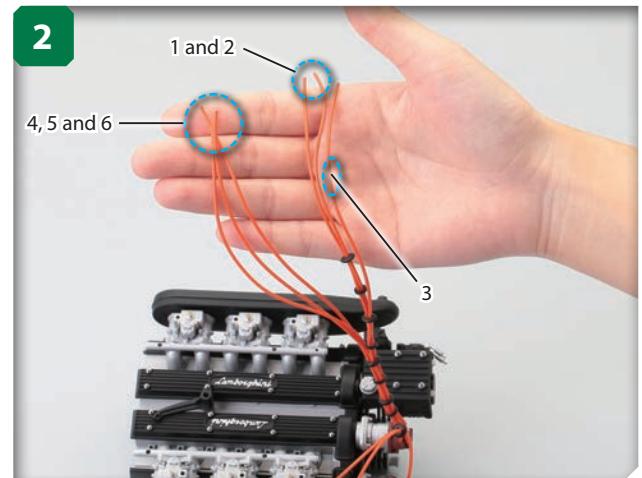
Tweezers

Materials

Cylinder head assembly (Stage 10)
 Sealable plastic bag
 Pen



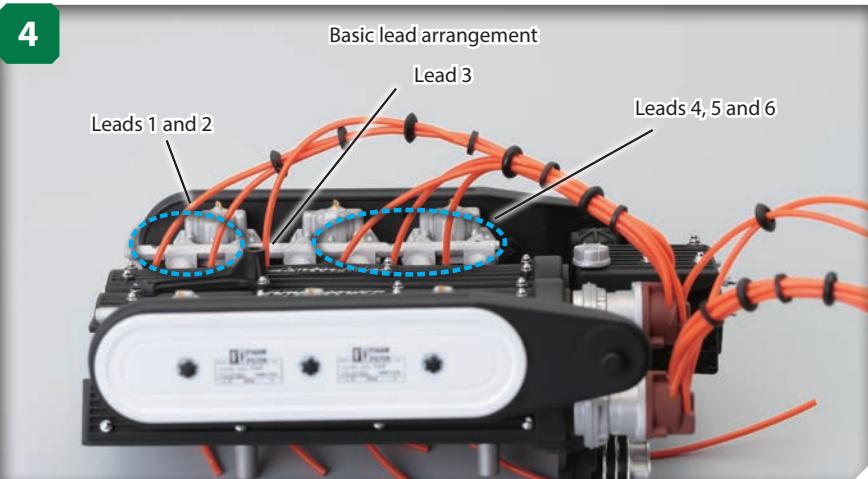
Before attaching the HT (high-tension) leads in the coming steps, familiarise yourself with their final locations, as shown by the diagrams above. Each set is made up of six individual leads, which will be fitted to the numbered holes in the top of the cylinder head.



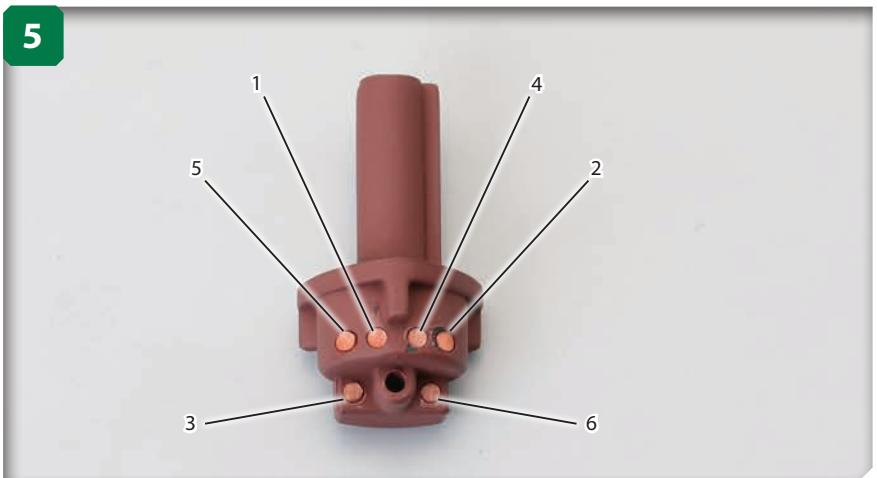
Before you begin, differentiate between the six high-tension leads of the first set fitted in Stage 10. These are numbered as shown in the photo.



3
Lay the leads across the cylinder head and push the tip of the lead numbered 1 into the outermost hole (numbered 1 in the left-hand diagram in Step 1).



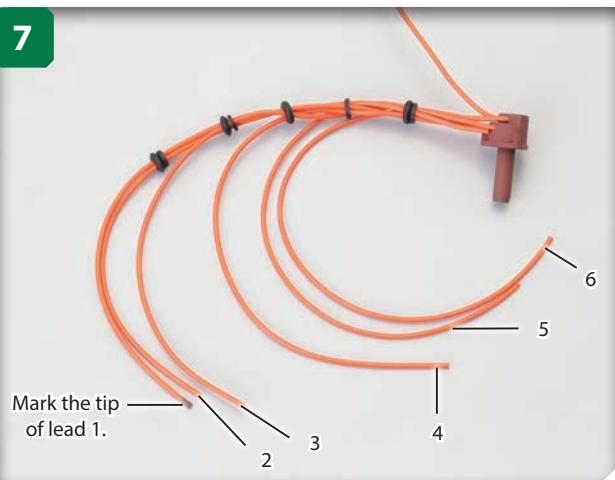
4
Basic lead arrangement
Leads 1 and 2
Lead 3
Leads 4, 5 and 6
Repeat to fit all six leads into their respective holes, matching the leads numbered in Step 2 with the holes numbered on the diagram in Step 1. For this basic arrangement, leads 1 and 2 can go into either hole – the same applies for leads 3, 4 and 5.



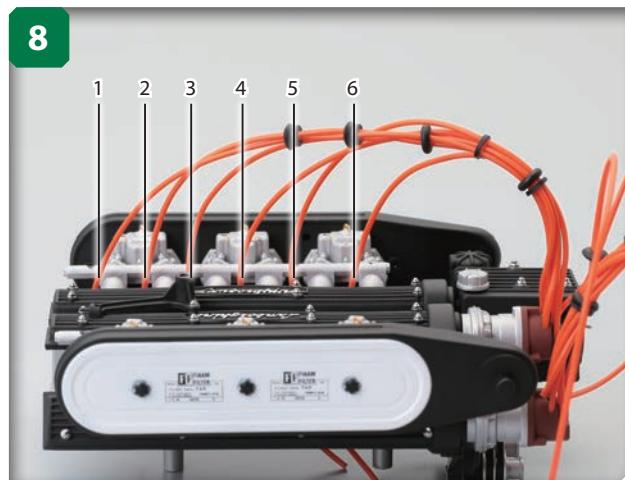
5
If you want to recreate the exact arrangement of the HT leads of the real car, you will need to remove the black bands holding the leads together and regroup them. This is an optional stage, so if you are happy with the basic arrangement, ignore Steps 5-7. The photo above shows the number of each individual lead (cut at the base for clarity) that will connect into the numbered holes on the cylinder head.



6
Remove the three pairs of black bands (top), leaving the one near the distributor in position. Note: the associated parts have been removed here for clarity, but it is possible to regroup the leads while they are attached to the oil casing assembly.



To complete the regrouping of the HT leads to match those of the real Countach, feed each lead as numbered through the black bands, following the photo above closely. Each lead should have a band that ties it to the others in its sequence, apart from 1 and 2, which share a single band. To ensure these are identifiable, mark the tip of lead 1 with a pen.

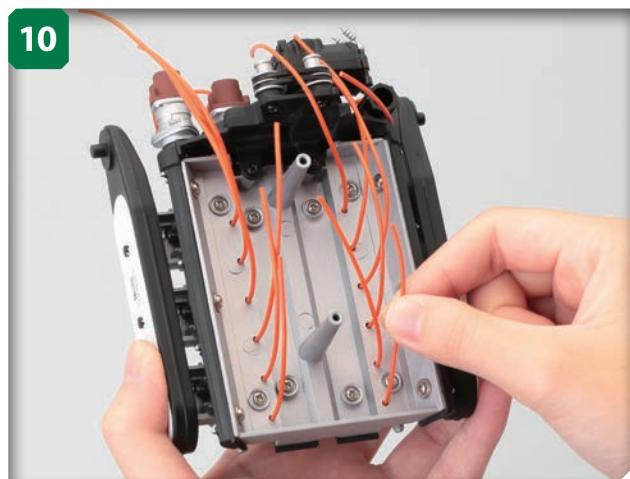


If you chose to regroup the leads, the above photo shows their precise positions as numbered in Step 7.

Once you are happy with the positions of the first set of leads, repeat the process to fit the second set into the corresponding holes on the opposite side of the cylinder head.



Press down lightly on the two sets of leads so that the ends slip neatly through the holes in the body of the cylinder head, and the tied parts of the leads run flat along the top of it.



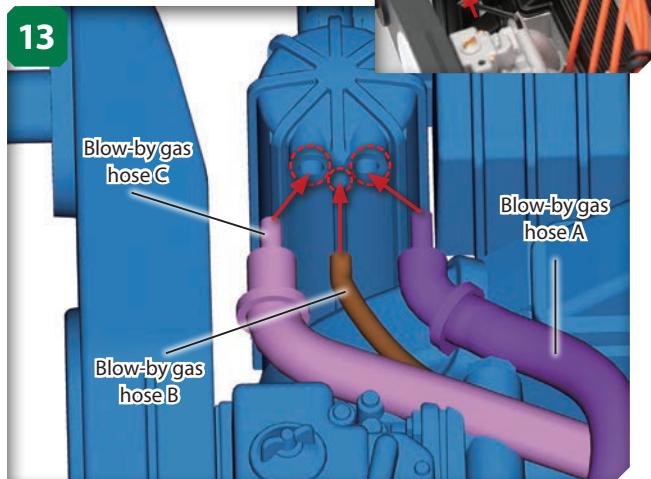
Turn the assembly over, and gently pull each lead to make sure that there is no slack left on the top of the cylinder head.



Back on the top of the cylinder head, locate the hole marked by the blue circle and place the L-shaped tip of the blow-by gas hose B into it (red arrow).



Use tweezers to push the hose fully into the hole, with the free end pointing towards the oil casing.



Plug the free end of the blow-by gas hose B into the hole indicated in the diagram above. The diagram also shows the final positioning of hoses A and C.



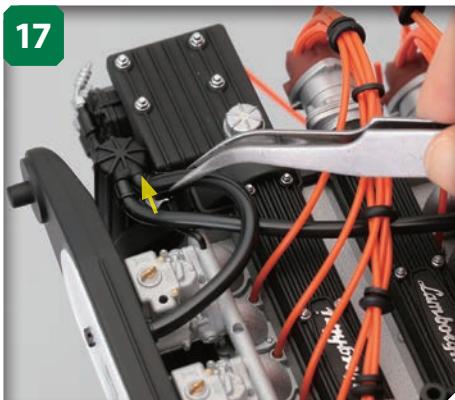
Next, use tweezers to fit the straight end of the blow-by gas hose C into the indicated hole on the left air filter casing, and pass the hose across the cylinder head, as shown.



Fit the other end of hose C into the indicated hole on the oil separator, again using the diagram in Step 13 to make sure you have selected the correct hole.



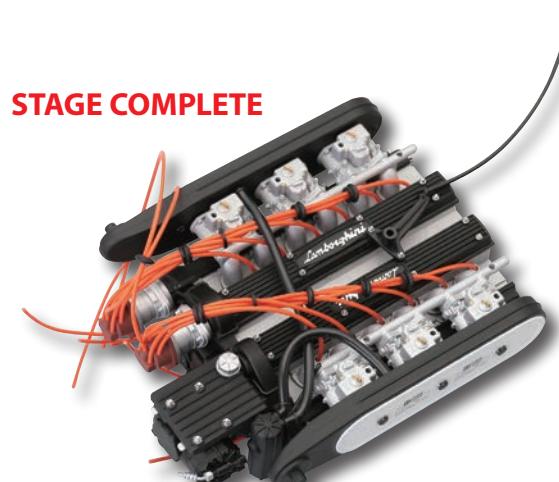
Now press the straight tip of blow-by gas hose A into the right air filter casing adjacent to the oil separator, as shown.



Making sure that the body of blow-by gas hose A runs over that of hose B, push the free tip into the indicated hole in the oil separator.



Lastly, push the end of the throttle cable over the pin at the end of the throttle crank base at the far end of the cylinder head assembly, as shown.

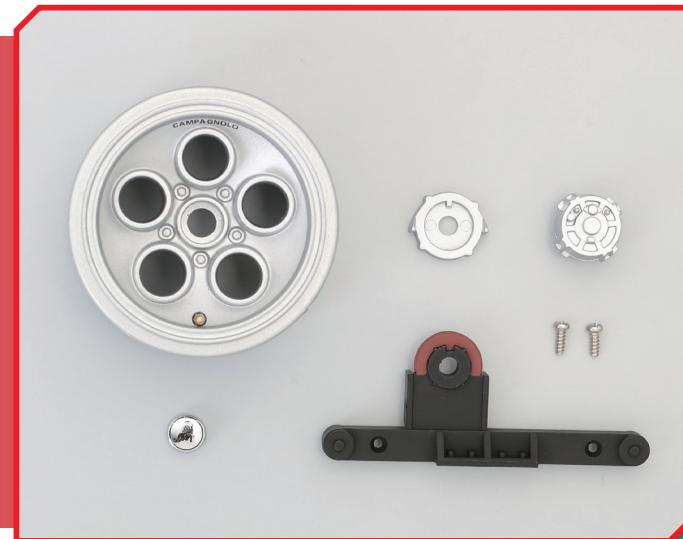


This stage is now complete, and all the high-tension leads and blow-by gas hoses are in place. Store your assembly safely until next time, along with any unused parts, in a sealable plastic bag with the stage number marked clearly on it for ease of reference.

STAGE COMPLETE

Stage 12

Throttle linkage and alternator



Parts

Rear wheel
 Alternator B
 Alternator A
 M2.3 x 6mm self-tapping screws x 2
 Rear wheel centre cap
 Alternator bracket

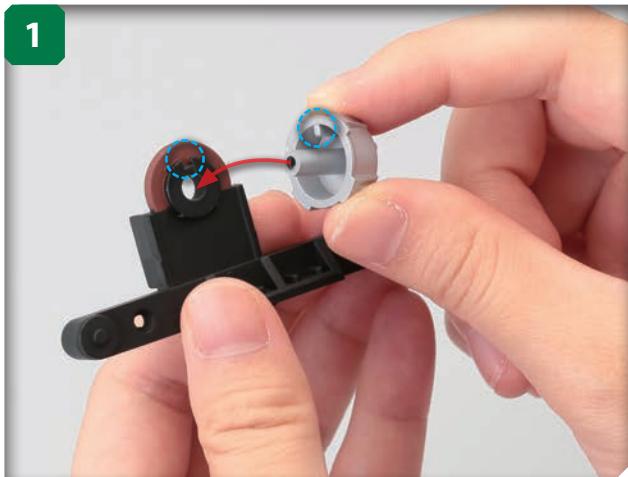
Tools

Phillips screwdriver (size 1)
 Tweezers

Materials

Alternator fan (Stage 07)
 Cylinder head assembly (Stage 11)
 Throttle linkage (Stage 11)

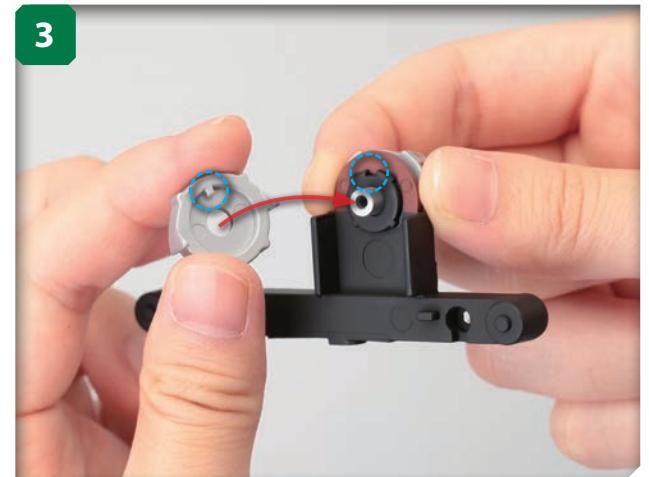
Wooden pencil
 Sealable plastic bag
 Tissue paper



Hold the alternator bracket and alternator A exactly as shown, and place the alternator A's mounting post through the indicated hole in the bracket. Make sure that the blue-circled sections fit neatly together.



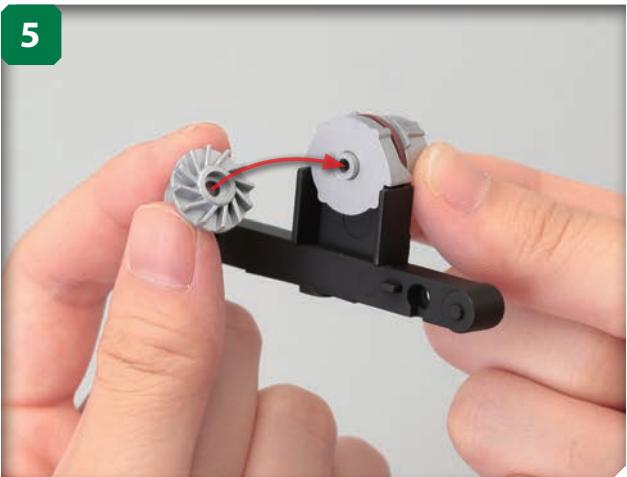
With the parts aligned correctly, press them together.



Now add the alternator B to the assembly, so that its central hole accommodates the indicated mounting post and the blue-circled sections fit neatly together.



Push both alternator parts together.



Take the alternator fan supplied in Stage 07 and place it, as shown, over the protruding tip of the alternator A's mounting post.



Press all the parts together.



Holding the parts assembled together, place an M2.3 x 6mm self-tapping screw into the indicated hole in the alternator fan.



Tighten the screw so that you are still able to turn the fan with your fingertips, but there is no play in it.



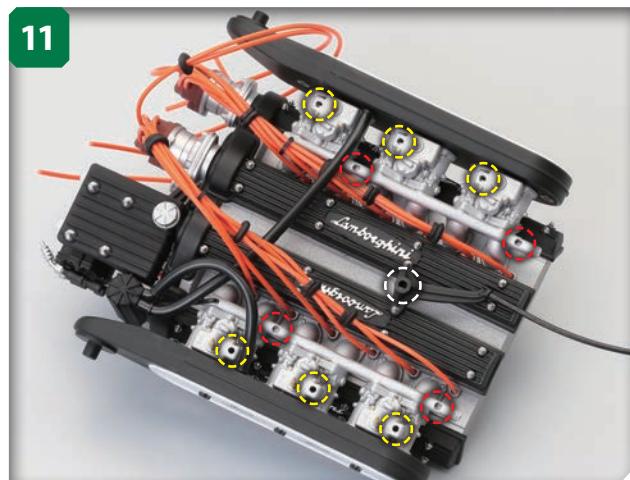
Double-check that the fan is able to turn.

10



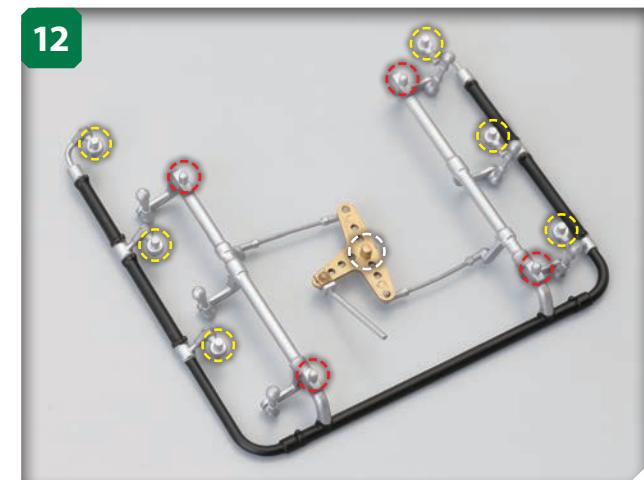
Your assembly should now look like this.

11



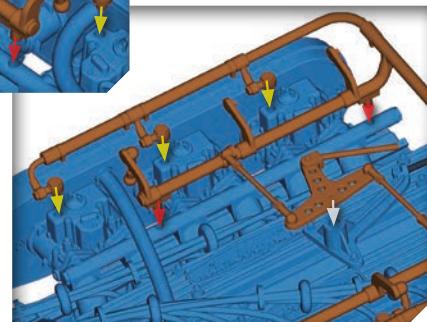
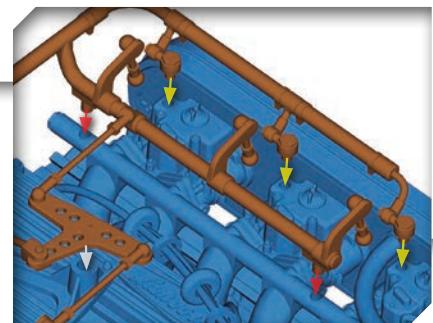
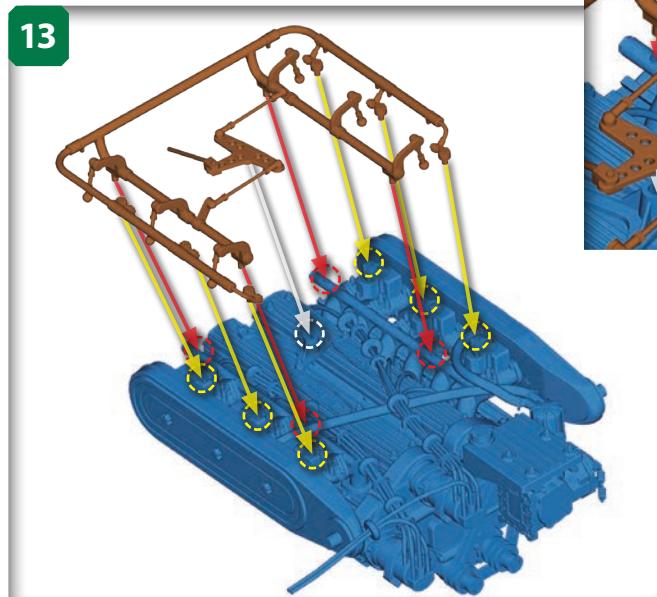
The next job is to mount the throttle linkage to the top of the cylinder head assembly, which involves fitting the pins on the underside of the throttle linkage into the colour-coded holes shown above.

12



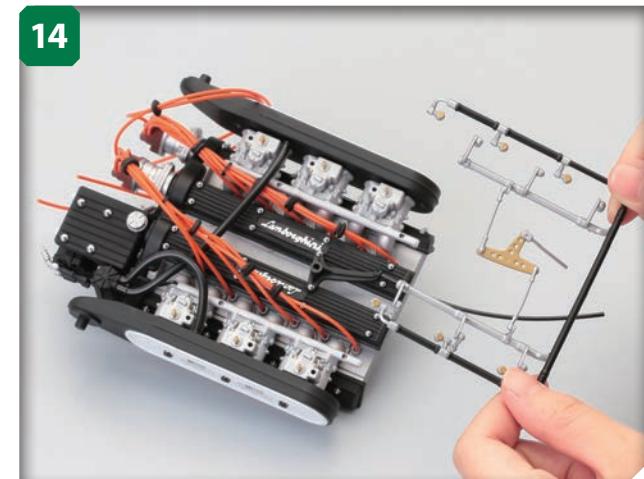
Look at the underside of the throttle linkage to see which pin will fit where on the cylinder head, using the coloured circles in the photo above and those in the Step 11 photo as a guide.

13

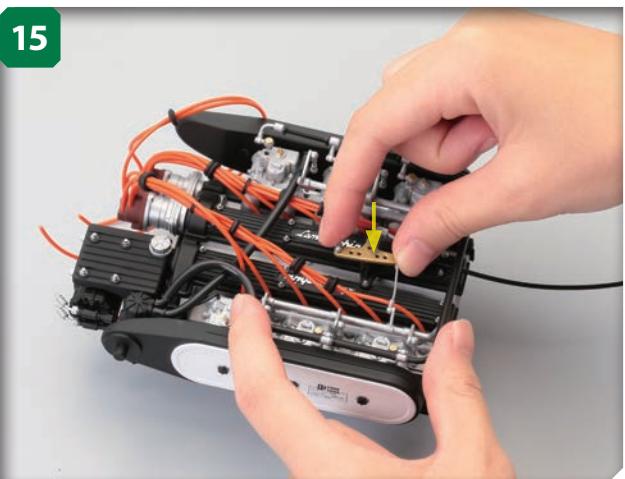


These diagrams show how the throttle linkage will be fitted, with the yellow-arrowed pins fitting into the holes in the tops of the carburetors. The throttle linkage contains some very thin and delicate parts, so take great care with it.

14



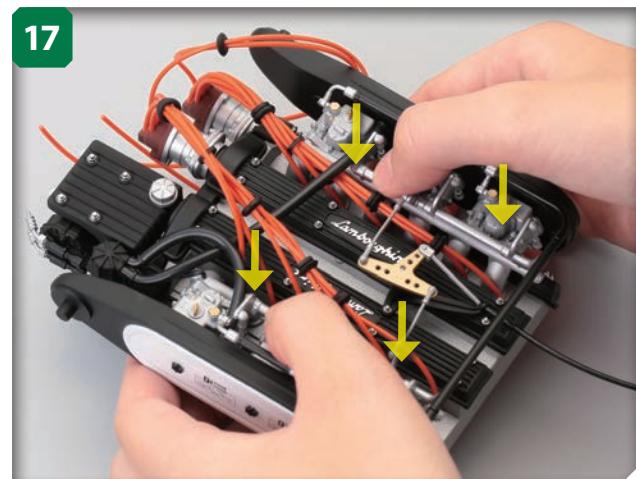
When you are familiar with where each part will fit, line up the throttle linkage with the cylinder head, then gently place the part into position. Do not press the pins into place at this stage.



Once the throttle linkage's pins are in position, press the throttle crank onto its mount (yellow arrow), so that its shaped pin enters the hole firmly.



Next, very carefully use tweezers to fit the crank's free rod into the recess on the throttle crank base, as shown. These parts are very thin, so be especially careful when moving them.



When that is done, gently press down on the silver bars on either side of the crank, so that the pins on their undersides enter their corresponding holes (marked by red circles in Steps 11 and 12).

TIP

Because the throttle linkage is made of very thin plastic, there is a chance that some of the rods and pins may have become slightly distorted. To allow for this, when attaching the part, begin with the central pins then move outwards, to avoid putting any undue strain on the pins.



Finally, use the end of a wooden pencil or similar relatively soft object to press the outermost rows of pins into the carburetors, one by one. Do this gently to avoid scratching the gold paint off the parts. Work from the middle outwards as you do this (see Tip box, left).

STAGE COMPLETE



This stage is now complete, and your model's cylinder head has been fitted with the throttle linkage. Store your assemblies safely until next time, along with any unused parts, in a sealable plastic bag with the stage number marked clearly on it for ease of reference. Wrap the alternator assembly in tissue paper to protect it.

Stage 13

Exhaust pipes and rear tyre

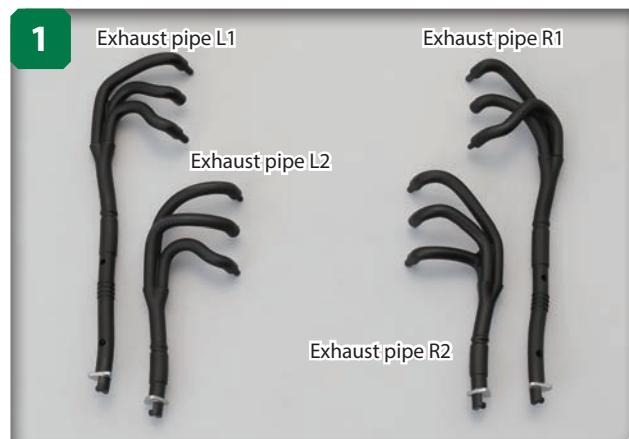


Parts

Starter
 Rear tyre
 M2 x 5mm countersunk screws x 3
 (one is a spare)
 Transmission case L

Materials

Exhaust pipes L1 and L2 (Stage 09)
 Exhaust pipes R1 and R2 (Stage 09)
 Rear wheel (Stage 12)
 Old toothbrush
 Sealable plastic bag



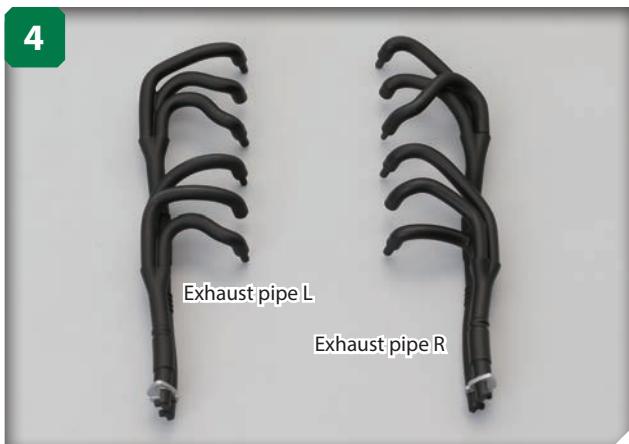
Lay out the four exhaust pipes supplied with Stage 09.



Join the exhaust pipes L1 and L2 by fitting the indicated pins and holes together.



Press the parts together to secure them.



Repeat the process to fit the two exhaust pipes R1 and R2 together, so that you have complete left and right exhaust pipe assemblies.



Next, remove the foam insert from the rear tyre, making sure not to damage it.



Flex and squeeze the tyre between your hands.



Use an old toothbrush to clean off any debris left over from the moulding process.



Replace the foam insert.



Now push the rear wheel into the tyre.

10



Pull the sidewall of the tyre over the outer rim of the wheel, then repeat for the inner rim.

11



When the tyre is on the wheel, hold the assembly between your hands and roll it back and forth to ensure that the tyre walls are fully seated in the rims.

STAGE COMPLETE



This stage is now complete, and your left and right exhaust pipes are prepared for future assembly. Store these and any unused parts safely in a sealable plastic bag with the stage number marked on it – the assembled rear wheel and tyre can be kept along with the other rear wheel from Stage 02.

Threading screw holes



This series uses both machine screws and self-tapping screws. The main differences between them are in their threads, as shown above, and in the way they are used. Machine screws are screwed into holes that have their own internal threads, while self-tapping screws have to cut the internal threads themselves.

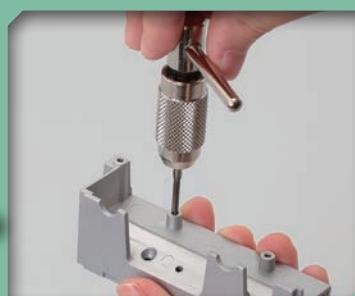
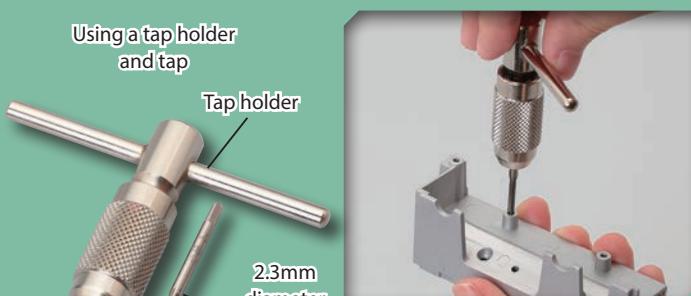
When working with die-cast parts, you will sometimes need to cut a thread inside a hole so that it will take a screw. This process is known as threading, and you can do it simply by using a spare screw, but a better way is to use a tool known as a tap, which must have the same diameter as the screw that will be going into the hole.



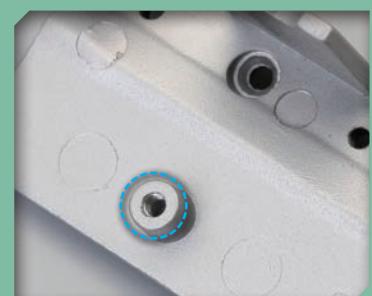
To thread a hole using a spare screw, select one that is the same size as the one you want to screw into the hole. Hold the spare screw to make sure it will go in straight, then turn it clockwise with a screwdriver – you might need to apply a little pressure to get it started. Stop when the screw is two-thirds of the way in, and turn it anti-clockwise to remove it.



A tap holder has chuck jaws that tighten around a tap, such as the 2.3mm tap shown above, which is for threading holes for 2.3mm-diameter screws. Taps and tap holders are available from hobby or tool shops, and online.



With the tap tightened into its holder, simply turn it clockwise into the hole to be threaded, making sure that you keep it vertical to the hole at all times. Remove it by turning it anti-clockwise.



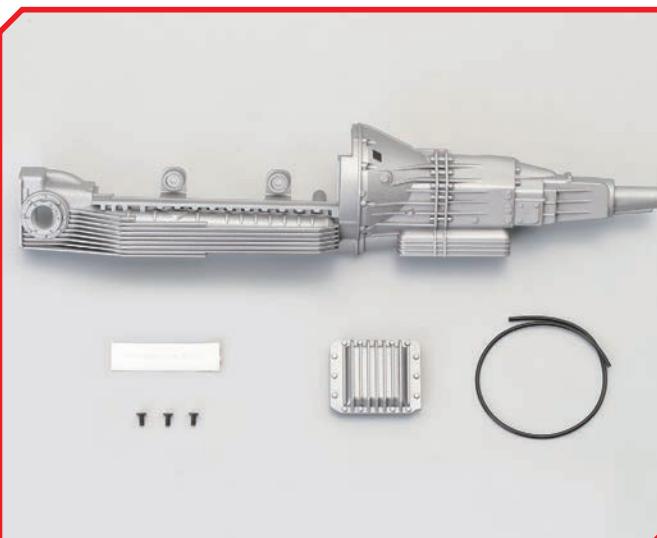
Whether you use a spare screw or a tap, make sure you remove any swarf from the newly threaded hole before you continue.

Like all of Lamborghini's cars, the Countach LP 500S was painted by hand. This was largely because the design's complex contours made automated painting systems simply impractical. In their place, human operators hand-sprayed the car's bodywork in specially built dust-proofed and ventilated rooms within the factory.



Stage 14

Fitting the tailpipes



Parts

Transmission case R
 Adhesive tape (2 strips)
 Differential case back plate
 Water pump T
 M2 x 5mm countersunk screws x 3 (one is a spare)

Tools

Tweezers
 Cutters
 Scissors

Materials

Silencers (Stage 10)
 Tailpipes x 4 (Stage 10)
 Decals (for tailpipes, Stage 10)
 Cylinder head assembly (Stage 12)
 Clear metal primer spray

Clear lacquer spray
 Masking tape
 Tissue paper
 Wooden pencils or disposable chopsticks
 Small container for holding water

For an expert finish

Before you apply the decals to the metal tailpipes, it's a good idea to prime each pipe, using a spray-on clear metal primer. This will improve the adhesion of the decals. When the decals are in place, spray them with a clear lacquer (sometimes known as 'topcoat'), which will protect them from accidental damage and prevent them from peeling off over time. Only a very thin layer of lacquer is needed, so be very careful when using the spray can not to overload the tailpipes, using very short bursts of the spray from a distance of 25-30cm. If you have not used spray-on lacquer before, you should practice using the can before you apply it to the parts in this assembly stage.

Spray cans of clear primer and clear lacquer are both available from modelling or hobby shops, and from online outlets. They should only be used in well-ventilated areas, and well away from any naked flames.

1



Fix four wooden pencils or disposable chopsticks to a base, so that they are upright, and place the four tailpipes on the ends of them. If the tailpipes slip down, wrap some masking tape below them to keep them in place. Wipe off any dirt, dust or fingerprints on the pipes and, with the can held 25-30cm away, spray them with clear primer. Leave them to dry fully.

2



When the primer is fully dry, slide a tailpipe over the end of one of the outer silencers, as shown, with its angled end (arrowed) uppermost.



Slide the remaining three tailpipes over the ends of the other silencers, again with their angled ends uppermost. Don't push them all the way on at this point (see Step 4).



The tailpipes should come to rest just above the ridges on the silencers, as indicated by the blue dotted line.



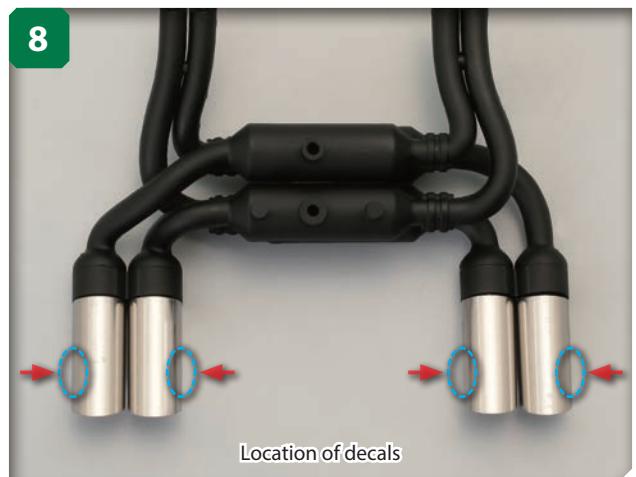
Holding the tailpipes in place, turn the assembly over and place the ends of the tailpipes against your work surface. Turn the tailpipes so that their angled ends are all approximately aligned.



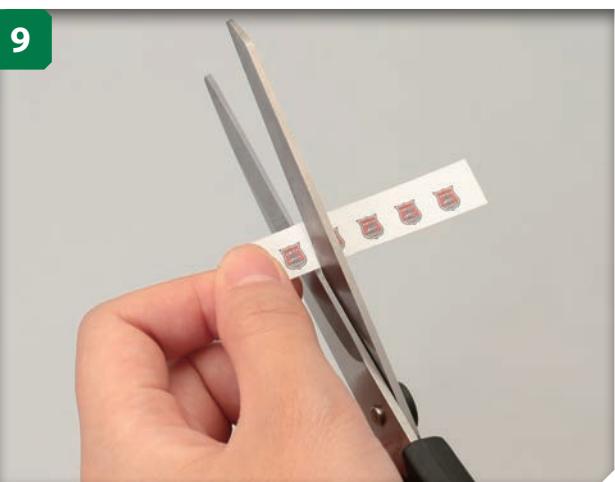
Adjust the tailpipes as necessary until their angled ends are all sitting perfectly flat on your work surface, as shown.



Holding the tailpipes in position, press down evenly on the silencers to push the pipes fully into place.



Your assembly should now look like this. The indicated areas are where the decals will be applied in the coming steps.



Using scissors, carefully cut the first decal away from the strip supplied with Stage 10. There are five decals on the strip, one of which is a spare.



Use tweezers to soak the decal in warm water until it begins to separate from its backing paper. Make sure the tweezers don't touch the decal itself.



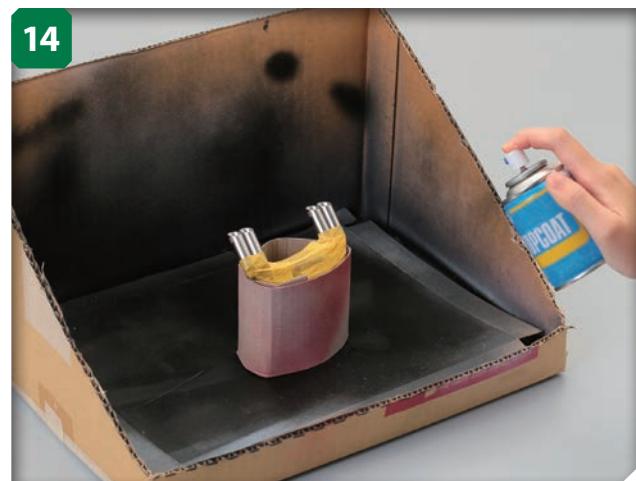
Very gently slide the edge of the decal (not the whole decal) over the edge of its backing paper and into position on the indicated area of the first tailpipe.



Hold the edge of the decal in position with a moistened thumbtip, then gently pull the backing paper away to leave the whole decal on the side of the tailpipe. When it's in place, dab it gently with a bit of folded and moistened tissue paper to get rid of any creases or bubbles, then leave it to dry fully.



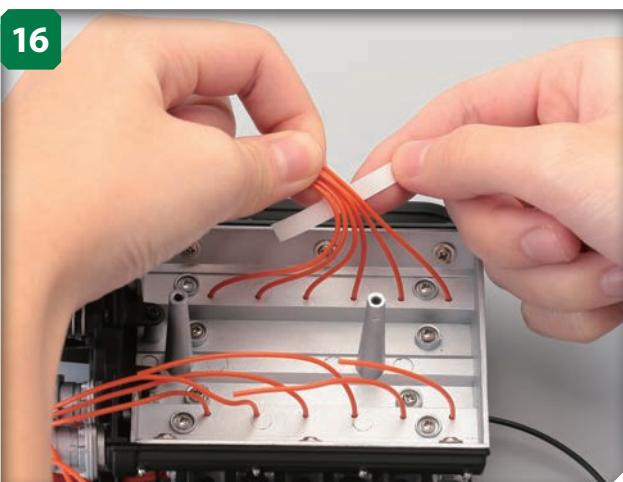
Repeat Steps 9 to 12 to apply the remaining three decals to the indicated areas of the other tailpipes. When all four are completely dry, cover all the black plastic parts of the assembly with masking tape, leaving the tailpipes exposed.



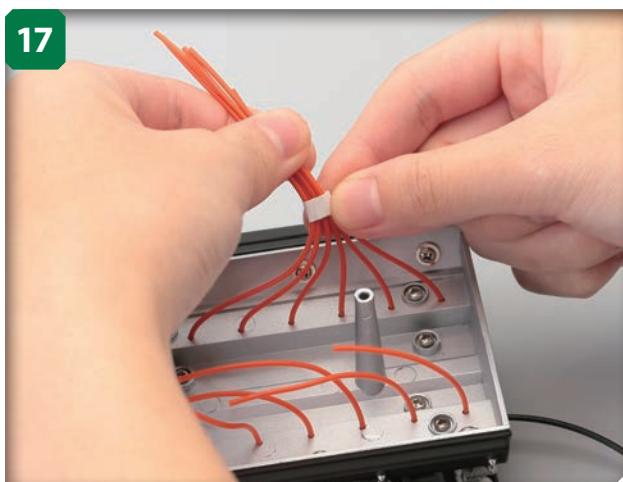
Cut up an old cardboard box to make a temporary spray booth, as shown, and set it up in a well-ventilated area where mess won't be a problem. Then spray the metal of the tailpipes with a thin layer of clear lacquer to create an invisible film over the decals that will protect them and prevent them from falling off. Use short bursts of the can from a distance of 25-30cm.



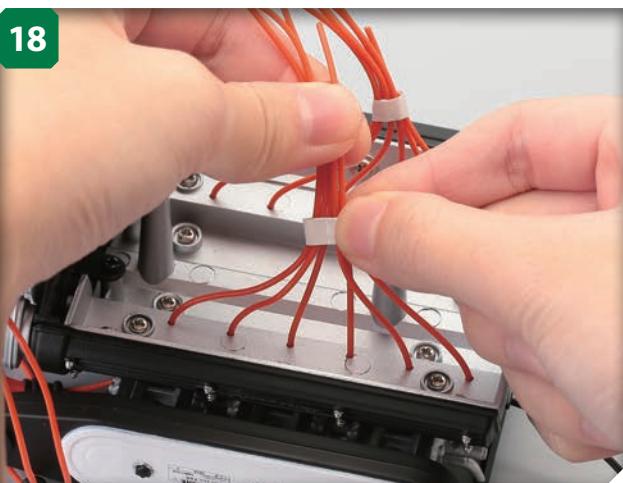
15
Peel away one strip of the adhesive tape supplied with this stage.



16
Lay the cylinder head assembly from Stage 12 upside down on your work surface. Gather in one set of HT leads, as shown, ready to be taped together.



17
Wind the tape around the leads to secure them.



18
Repeat Steps 15 to 17 for the other set of leads.



19
When you've taped both sets of leads together, use cutters to trim the ends down to the length shown above.



STAGE COMPLETE
This stage is now complete. Your tailpipe decals have been applied, and the HT leads on the underside of the cylinder head assembly have been taped and trimmed.

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