U-BOAT

Pack 18
Assembly
Instructions

Kit 69: Bulkhead and engine room (I)

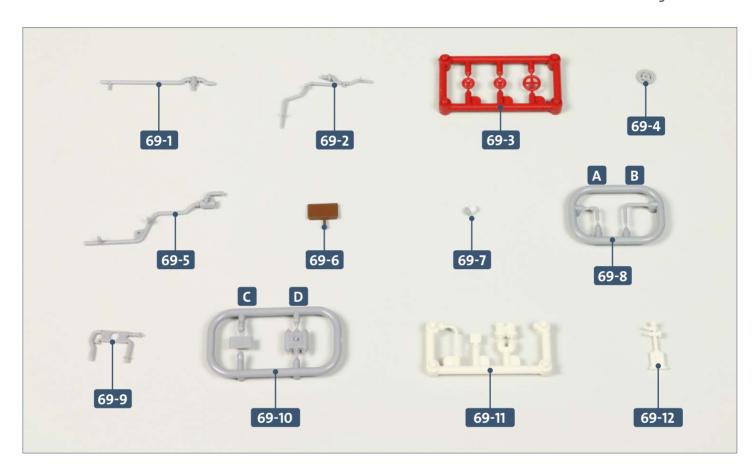
Kit 70: Bulkhead and engine room (II)

Kit 71: Engine room aft bulkhead

Kit 72: Engine room deck

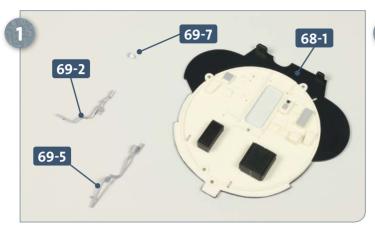


In this kit, various cables, handwheels and a desk are attached to the forward bulkhead of the engine compartment. The oil distributor is assembled and the fuel oil filter, fuel oil line and an attachment are mounted on the engine.

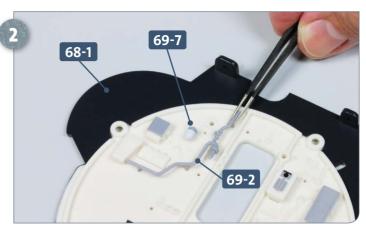


Parts reference list			
Part no.	Name		
69-1	Fuel oil line		
69-2	Engine oil line		
69-3	Frame with three handwheels		
69-4	Handwheel		
69-5	Engine oil line with filter		
69-6	Desk		
69-7	Engine compartment bulkhead attachment		
69-8	Frame with engine oil lines (A, B)		
69-9	Engine oil distributor		
69-10	Engine oil distributor parts (C, D)		
69-11	Frame with fuel oil filter and lines		
69-12	Engine attachment		

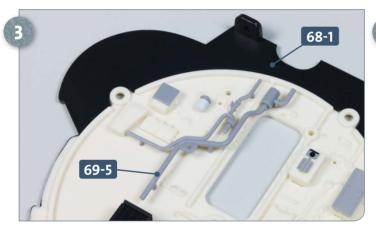
STAGE 1 → Bulkhead and engine details



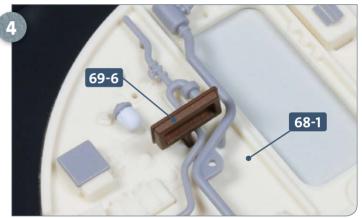
Place the forward engine compartment bulkhead **68-1**, both engine oil lines **69-2** and **69-5** and the attachment **69-7** on your work surface, as shown above.



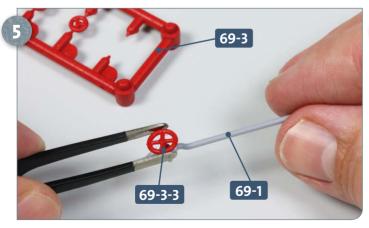
Glue attachment **69-7** and engine oil line **69-2** to the bulkhead **68-1**, as pictured, applying some glue to the pegs of the parts.



Apply some glue to the three pegs of the engine oil line **69-5** and attach to the bulkhead **68-1**.



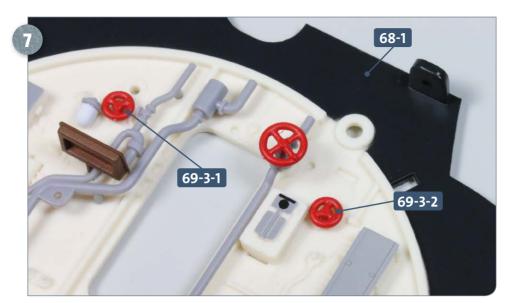
Take the desk **69-6**, apply some glue to the peg, and insert into the recess in the bulkhead **68-1**.



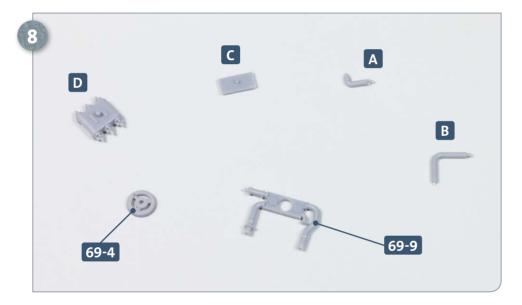
Separate the handwheel 69-3-3 from frame 69-3 and glue it to the hole in the fuel oil line 69-1.



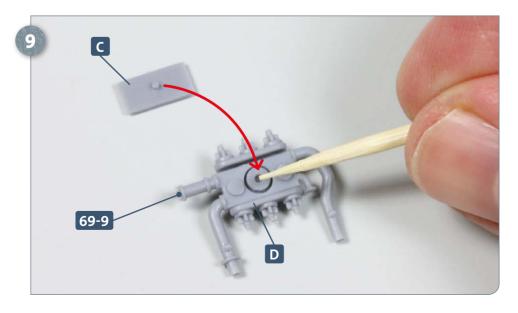
Apply some glue to the two pegs of the fuel oil line **69-1** and insert into the corresponding holes in the bulkhead **68-1**.



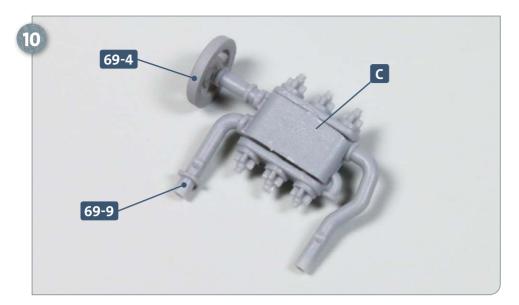
Separate the two handwheels **69-3-1** and **69-3-2** from frame **69-3** and glue them into the small holes in the bulkhead **68-1**, as shown.



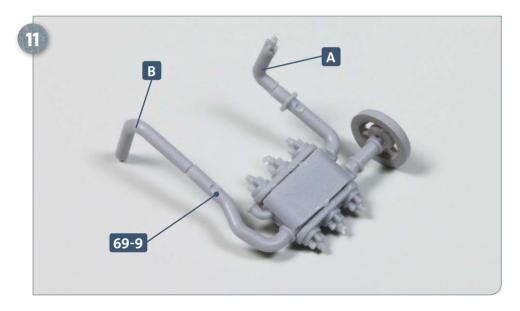
Next you will be working on the assembly of the engine oil distributor. First, take the distributor **69-9** and handwheel **69-4**. Separate parts **A** and **B** from frame **69-8** and parts **C** and **D** from frame **69-10**.



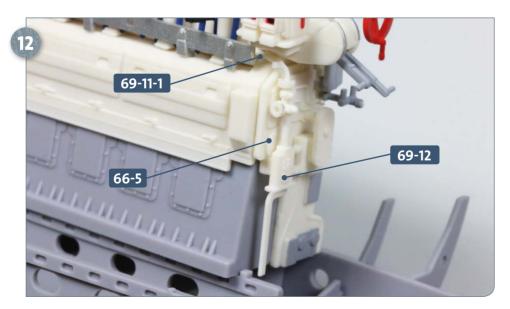
Fit the engine oil distributor **69-9** onto part **D**, so that the hole encompasses the central raised socket of **D**. Apply some glue to the latter, and attach part **C** to it, as pictured.



Once part **C** is attached to the assembly, apply some glue to the small peg at the top of the engine oil distributor **69-9** and attach the handwheel **69-4** to it, as shown, left.

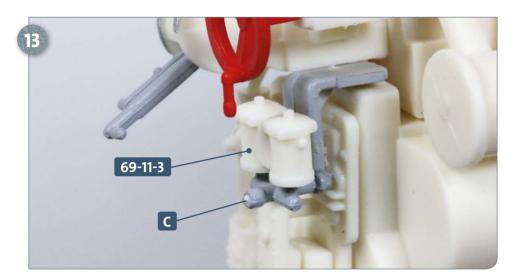


The ends of engine oil lines A and B are glued to the engine oil distributor 69-9. Study the photograph carefully to check the alignment of these parts.

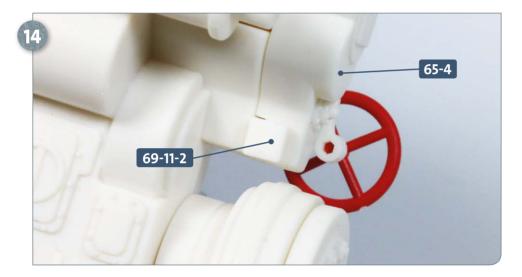


Detach line **69-11-1** from frame **69-11** and glue it to attachment **69-12**, as pictured in the photo below. The resulting assembly is then glued to the front of the diesel engine, to the peg of attachment **66-5**. Note the orientation of the line **69-11-1** relative to the engine.



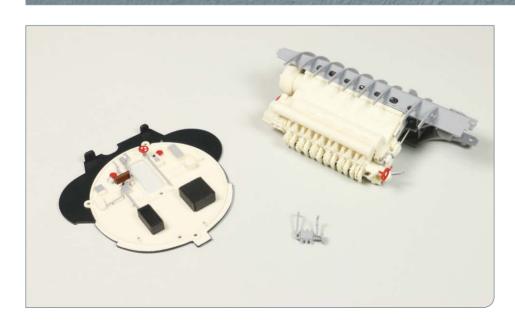


Detach the fuel oil filter **69-11-3** from frame **69-11** and glue it to the front of the engine, onto the two pegs of part **C** (from frame **67-6**).



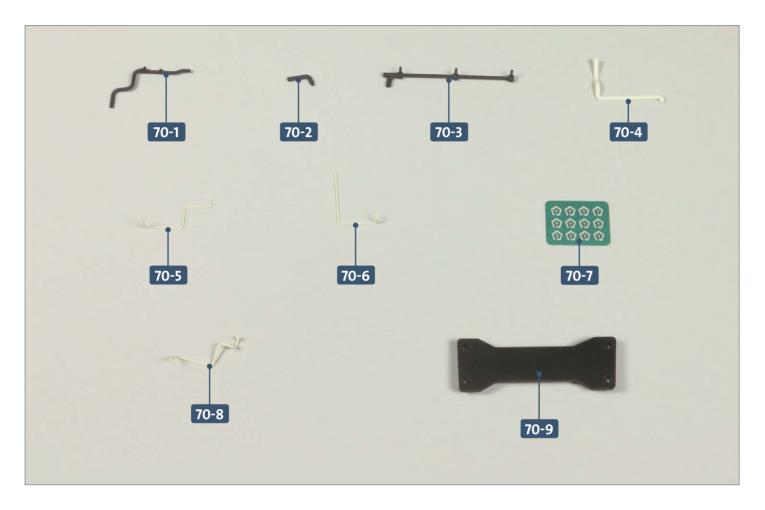
After turning the engine around, remove part 69-11-2 from frame 69-11. Glue it to the aft end of the engine, in the recess of the fan 65-4, as pictured.

COMPLETED WORK



Additional elements have been added to the forward diesel compartment bulkhead, and three parts added to the engine itself. The engine oil distribution has now also been assembled.

In this kit, five lines are attached to the engine. In addition, 12 handwheels are attached to the engine oil distributor and the bulkhead, and a crossbeam is added to strengthen hull stability.

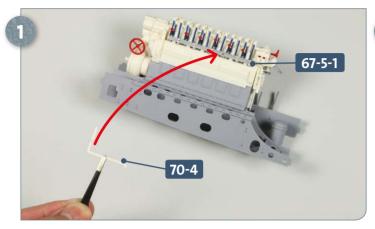


Parts reference list		
Part no.	Name	
70-1	Fuel oil line	
70-2	Fuel oil line	
70-3	Fuel oil line	
70-4	Engine oil line	
70-5	Blower line	
70-6	Engine oil line	
70-7	Handwheels x 12	
70-8	Blower line	
70-9	Crossbeam	

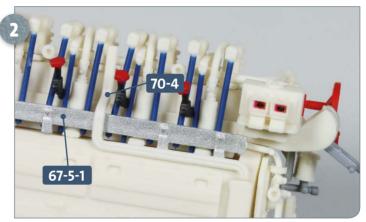


Screws				
Ref	No.	Dimensions		
DP	5 + 1	2 x 4 mm		

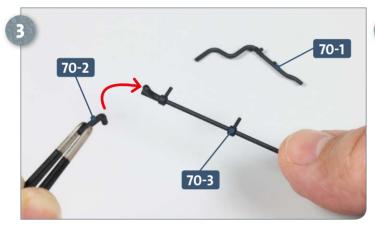
STAGE 1 → Attaching the lines



Place the engine on your work surface. Take engine oil line **70-4**, apply some glue to the peg on the back, and fit it into the hole in the control rod **67-5-1**, as shown.



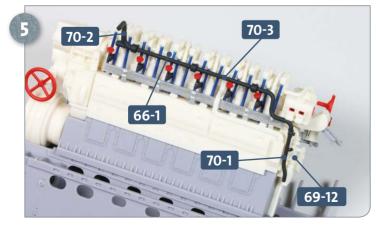
The photograph shows the engine oil line **70-4** fitted in place.



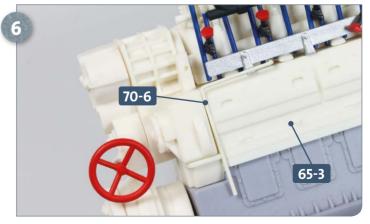
Before applying any glue, read through the following three steps and test fit the parts in place on the engine. Then prepare the three sections of the fuel line – 70-1, 70-2 and 70-3 by adding some glue to the hole in 70-3 and fitting the peg of 70-2 into it, as indicated by the arrow. Pay attention to the correct alignment.



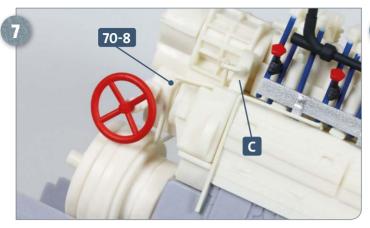
Line **70-1** is attached to the other end of line **70-3**. Again, pay close attention to the alignment.



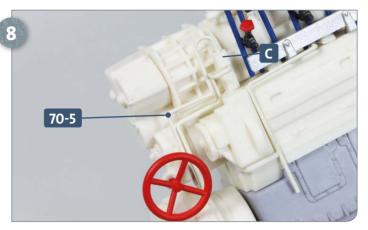
Apply some glue to the four pegs of the fuel oil line assembly **70-1/70-2/70-3** and insert into the slots of fuel oil line **66-1** and attachment **69-12**, as pictured.



Take engine oil line **70-6**, apply some glue to the bent end, and insert it into the hole at the top of the engine block **65-3**.

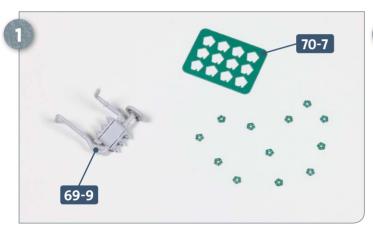


The first blower line **70-8** goes near the one attached in the previous step. First, apply some glue to the bent end, then insert into the side hole in part **C** (from frame **65-7**), as shown.

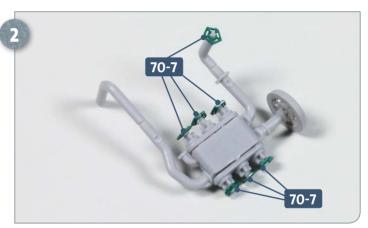


The second blower line **70-5** is glued into the hole at the top of part **C**.

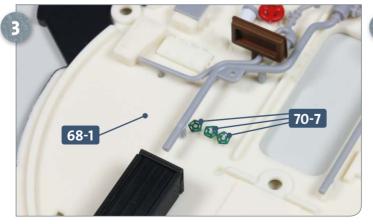
STAGE 2 → Attaching the handwheels and engine oil distributor



Use a craft knife to detach the 12 handwheels **70-7** from the frame. Take care that the small parts do not fly off when removing them from the frame. Locate the engine oil distributor **69-9**, which you assembled in kit 69.



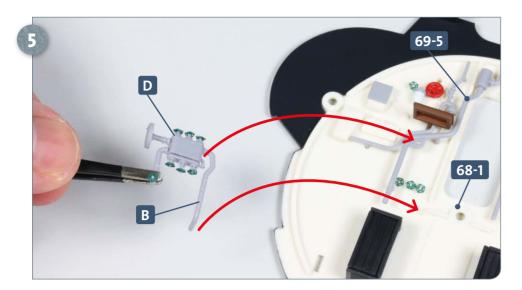
Glue one of the handwheels **70-7** to the end of the line, and six more to the distributor valves, as pictured.



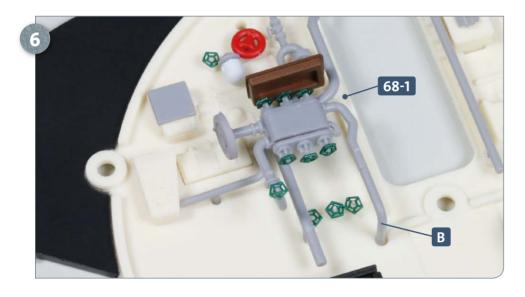
Take the forward bulkhead for the engine compartment **68-1**. Glue three handwheels **70-7** to the pegs on the bulkhead, as shown in the photo above.



The final two handwheels **70-7** are glued to the pegs a little further up the bulkhead **68-1**, as pictured.

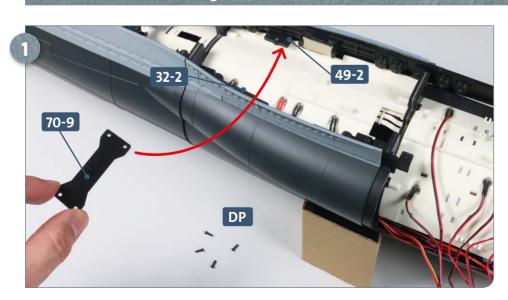


Take the oil distributor assembly and apply some glue to the end of line **B** and the peg on the back of part **D**. Attach the assembly into the hole in engine oil line **69-5** and the end of part **B** into the recess in bulkhead **68-1**.

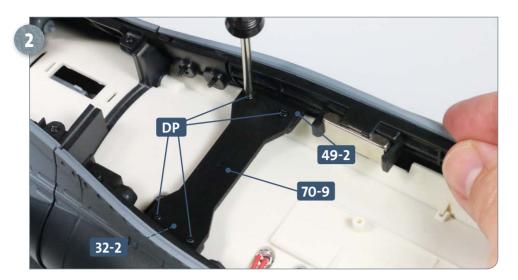


This photograph shows the engine oil distributor correctly mounted on the bulkhead **68-1**, with the lower end of the line from part **B** fitting into the recess.

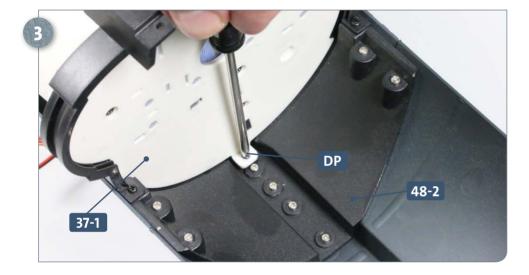
STAGE 3 \rightarrow Mounting the crossbeam



Place the main hull assembly on your work surface along with the crossbeam **70-9** and four **DP** screws. The crossbeam **70-9** is fitted with the arrow facing forwards between the two brackets **32-2** and **49-2**. If necessary, enlarge the holes in the brackets in order to receive the locating pegs on the crossbeam.

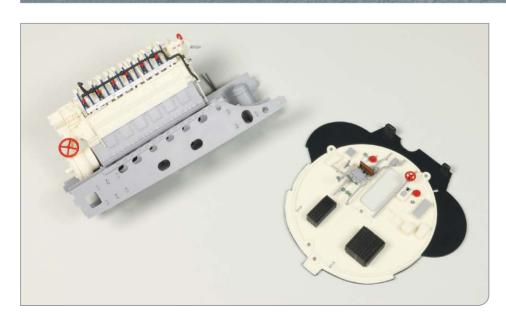


Fix the crossbeam **70-9** to the retaining plate **49-2** and connector **32-2** using four of the **DP** screws. Take care not to overtighten the screws.



Attach the aft central bulkhead **37-1** to the connector **48-2** using a **DP** screw, as pictured, left.

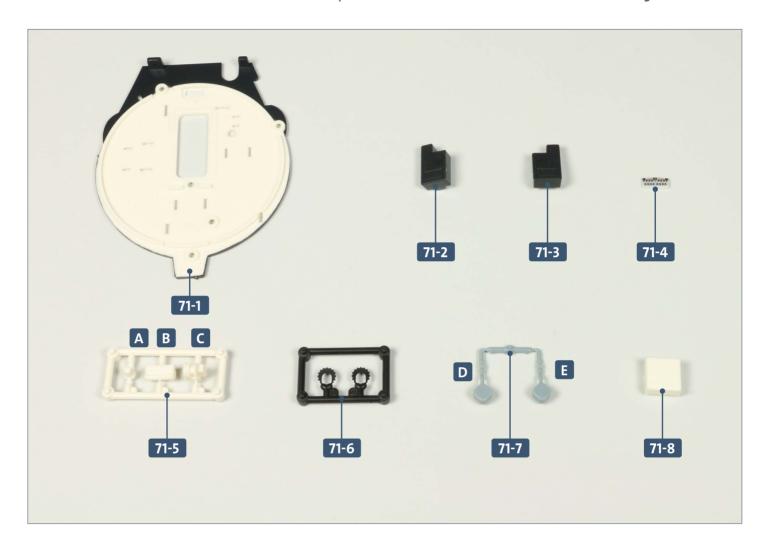
COMPLETED WORK



Five lines have now been attached to the engine, and several handwheels to the forward engine compartment bulkhead. A crossbeam has also been added to the main hull structure (not pictured).

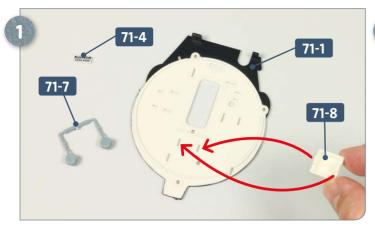
Kit 71: Engine room aft bulkhead

In this kit, various attachments and two exhaust flap valves are attached to the aft bulkhead of the engine room.

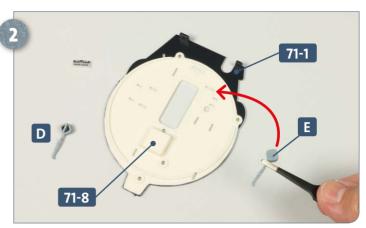


Parts reference list			
Part no.	Name		
71-1	Engine room aft bulkhead		
71-2	Attachment		
71-3	Attachment		
71-4	Attachment		
71-5	Frame with three attachments		
71-6	Frame with two attachments		
71-7	Internal exhaust flap valves x 2		
71-8	Attachment		

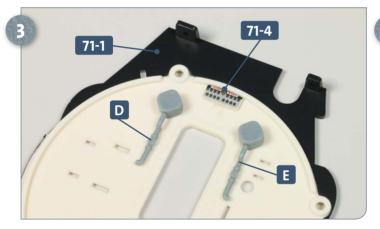
STAGE 1 → Work on aft bulkhead



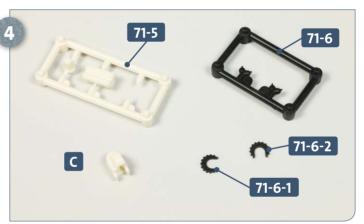
Place the aft bulkhead **71-1**, attachment **71-4** and frame **71-7** with the two exhaust flap valves on your work surface. Take attachment **71-8**, apply glue to the two tabs, and insert these into the slots in the bulkhead as indicated by the arrows.



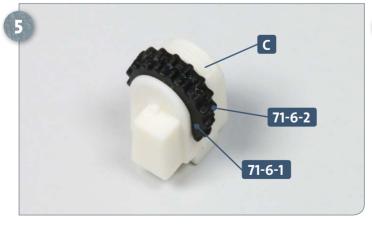
Remove the two exhaust flap valves from frame **71-7**. Apply some glue to the elongated peg of valve **E** and insert into the slot of **71-1**, as indicated by the arrow. Study the next step to distinguish between parts **D** and **E**.



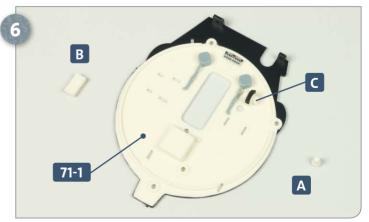
Now glue valve **D** and attachment **71-4** to the bulkhead. The orientation of **71-4** is dictated by the slight curve at the top, which matches that of the bulkhead.



Remove part C from frame 71-5 and parts 71-6-1 and 71-6-2 from frame 71-6.

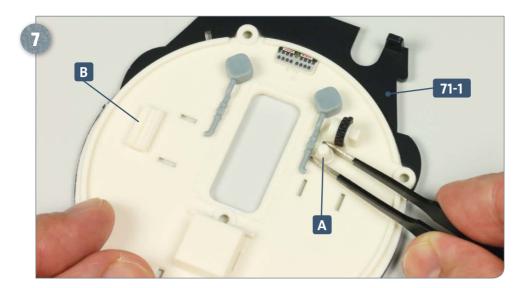


Glue parts 71-6-1 and 71-6-2 side by side, in the recess of part C.

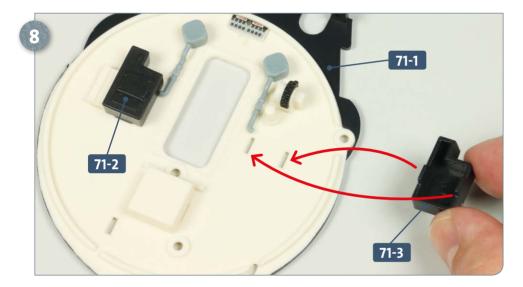


Apply some glue to the two pegs on the back of part **C** and insert into the slots in the aft bulkhead **71-1**. Remove parts **A** and **B** from frame **71-5**.

Kit 71: Engine room aft bulkhead

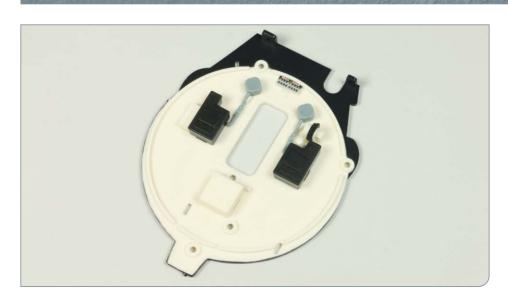


Glue parts **A** and **B** to the bulkhead **71-1**, as pictured, left.



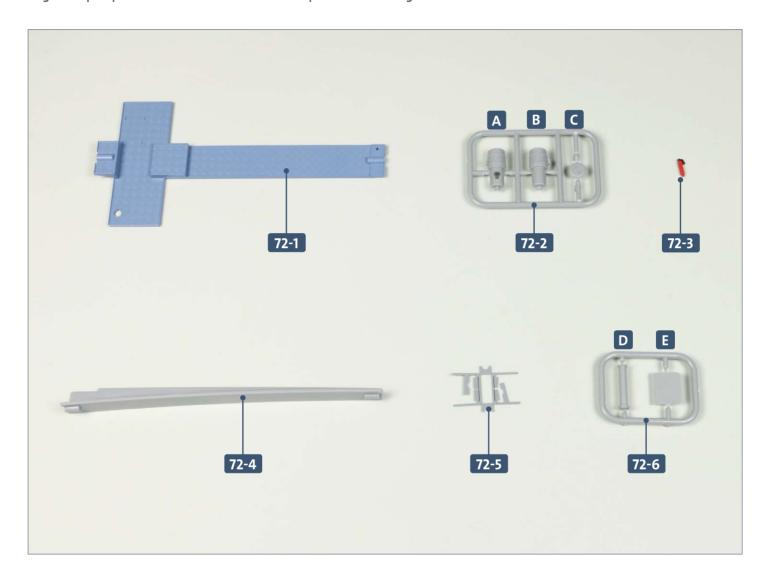
Take attachments 71-2 and 71-3. Glue to the left and right of the opening in the bulkhead 71-1, as pictured, and indicated by the two arrows.

COMPLETED WORK



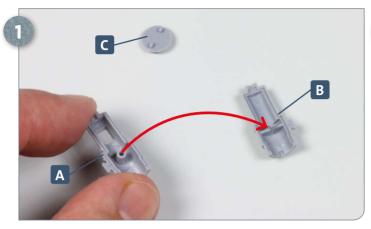
This photograph shows the aft bulkhead with various details added.

In this kit, the engine radiator is attached to a curved bracket. This, along with a fire extinguisher and the spare port engine oil pump, are then attached to the deck panels of the engine room.

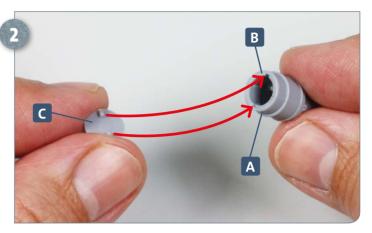


Parts reference list			
Part no.	Name		
72-1	Deck panels		
72-2	Backup engine oil pump (port (L) side)		
72-3	Fire extinguisher		
72-4	Stringer		
72-5	Engine radiator bracket		
72-6	Engine radiator and plate		

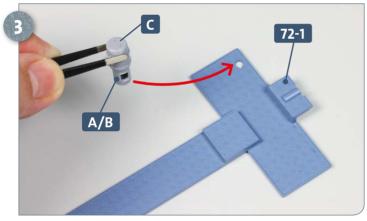
STAGE 1 \rightarrow Assembly and mounting of parts on the deck panels



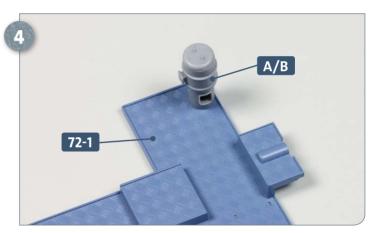
Detach parts **A**, **B** and **C** from frame **72-2**. Apply some glue to the raised socket of part **A** and fit it onto the peg of part **B**, as indicated by the arrow.



Apply some glue to the two pegs on the underside of part **C** and fit these into the slots on assembly **A/B**, as pictured.



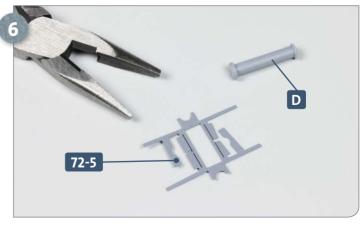
Place the engine room deck panels **72-1** on your work surface. Apply some glue to the peg on the bottom of the backup engine oil pump **A/B/C** recently assembled, and then insert into the hole in **72-1**.



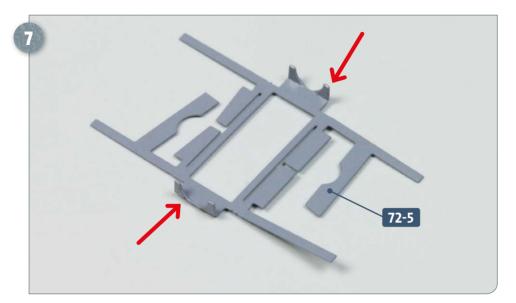
This photograph shows the pump A/B correctly attached to the engine room deck 72-1. The orientation is determined by the shape of the peg and hole, respectively.



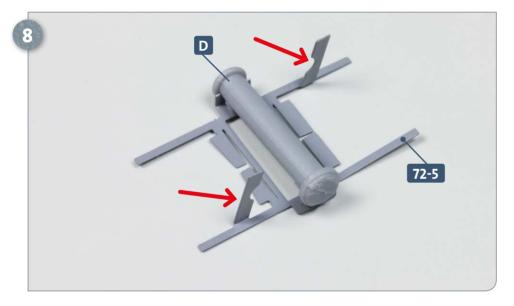
Glue the fire extinguisher **72-3** into the hole at the aft end of the deck panels **72-1**.



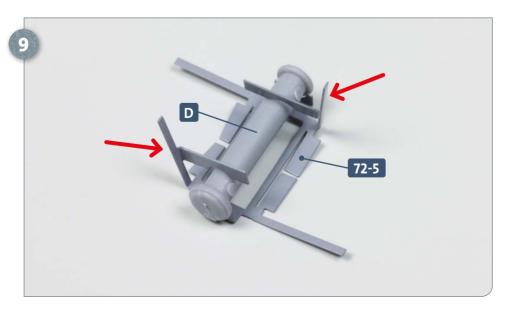
Detach the radiator **D** from frame **72-6**. Have ready the radiator bracket **72-5** and some flat nosed pliers.



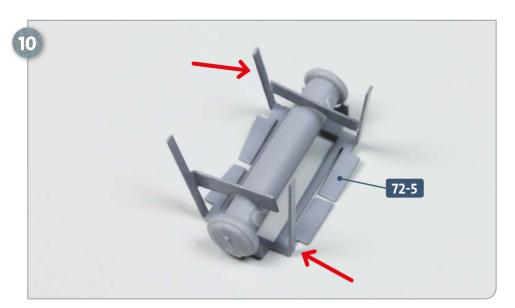
Use the flat nosed pliers to bend the two tails (indicated by the arrows) of each of the semicircular recesses in the bracket 72-5 so they are at a right-angle.



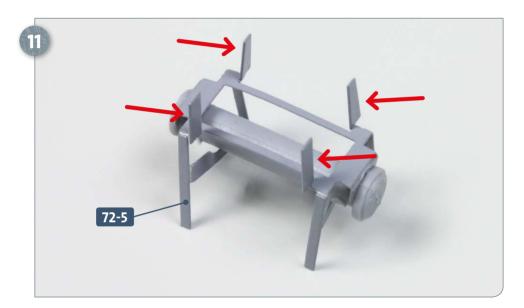
Next, bend the two elongated struts (see arrows) of bracket **72-5**, so that they are at a right-angle. Now insert the radiator **D** into the bracket so that the ends sit in the semicircular recesses.



Now bend the two struts of the bracket 72-5, on which the previously bent struts with the semicircular recesses are located (see arrows). Again, bend at an approximate right-angle, so that the semicircular recess encompasses the radiator D, as shown.



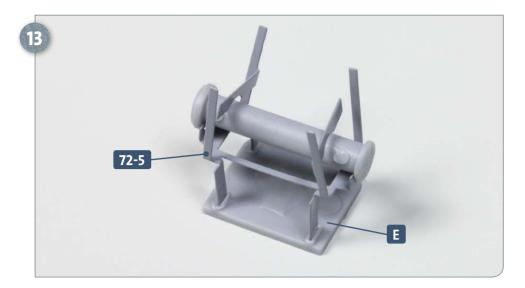
Next, bend the two remaining long struts of the bracket **72-5** (indicated by the arrows) upwards.



Turn the entire assembly over so that it sits on its four 'feet'. Now, bend the four shorter struts (indicated by the arrows) vertically upwards, as pictured.



Remove plate **E** from frame **72-6** and apply some glue to the four slots on the base, as shown, left.

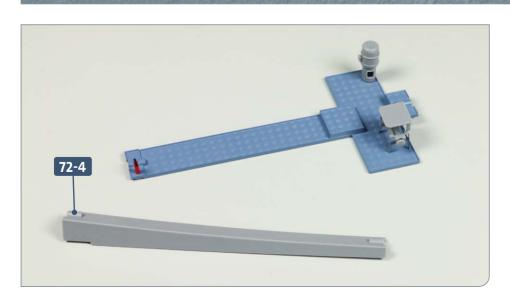


Turn the bracket/radiator assembly over so that the four shorter struts (those bent in step 11) fit into the slots on plate E. The orientation is determined by the different widths of the struts and slots, respectively.



Turn the bracket **72-5** over once more. Apply some glue to the four legs and insert into the slots in the forward section of the engine room deck panels **72-1**.

COMPLETED WORK



Three components have been mounted onto the engine room deck panel. The stringer **72-4** will be needed in a subsequent kit, so keep it somewhere safe until then.