

WORLD WAR ONE MK 4 TANK INSTRUCTIONS



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Mark 4 tank History

The mark 4 tank saw service from the summer of 1917 until the end of the first world war. 1200 were built. Some at railway workshops such as the Lancashire and Yorkshire works at Horwich . The main builders were the Metropolitan Carriage, Wagon and Finance company of Birmingham and Fosters of Lincoln, amongst many other large and smaller companies, some of which made components that were later brought together. The MK 4 was developed from earlier marks, and incorporated many improvements, such as a silencer for the exhaust system. This meant that the tank could get a lot closer to the enemy without being detected and could not be seen so easily in darkness. Also a 70 gallon fuel tank replaced two 25 gallon tanks in the relatively safe area at the rear of the tank body.

The armour plate used in construction ranged from 6mm to 12mm. The Navy's requirement for the desired 6 pounder guns used in the mk 1 tanks led to a shortage of these weapons. This led to the development of the female tank in the first place. A new weapon was designed, which was a shorter 6 pounder. This was not as prone to getting stuck in the mud as earlier longer guns often had done. The new male sponson on the MK4 was bevelled at the base, this also helped with the problem of getting stuck.

The tank crews hated the job of removing sponsons which was necessary when preparing the tanks for rail travel in order to fit with the UK's narrow loading gauge. (If only Brunel had won.) The Mk4 design solved the problem by making the female sponsons hinge inwards and the giving the male sponsons the ability to be withdrawn in to the body. The guns were withdrawn inwards, after being put on full elevation. Tank loads were often sheeted over especially in the early days when they were a big secret. It is doubtful that the War bond tanks were sheeted as they occasionally managed 2 visits per day to towns and cities around the country, which involved loading and unloading twice and the sponsons folding in and out by their crews.

There was a shortage of flat wagons strong enough to carry tanks until the Rectanks entered service in 1917. The GWR strengthened some Bolster wagons for the purpose.

MK 4 specifications

Crew	8
Weight	27.9 tons. Female: 27 tons
Length	26' 3"
Height	7'11"
Width	13' 6" (male)
Engine	Daimler/Knight
Max speed	3.69mph
Armament	Four MG and two 6-pdrs (Male), Six .303 Lewis MG (Female)
Range	35 miles

Approximately forty captured Mark IVs were employed by the Germans as *Beutepanzer* with a crew of twelve. Some of these had their six pounders replaced by a German equivalent.

[Due to their popularity, after the war five male tanks were used to promote the sale of War and Victory Bonds, in England and Wales, a similar scheme operated in Scotland. The tanks travelled around by rail visiting many towns and cities. In 1919 the National War Savings Committee arranged to offer redundant tanks to communities that had raised money. These were delivered by rail, driven to the destination and disabled by the crew. These tanks were mainly females but some locations such as Coventry and Lincoln received males. Others were donated abroad such as Britannia which paraded through New York and is now preserved as Liberty at Aberdeen, Maryland.

The last Mark IV to see service was *Excellent*, which had been retained by the naval gunnery school on Whale Island, HMS *Excellent*. In the early years of the Second World War it was restored to operational status and driven to the mainland, where its new career was allegedly brought to an early end after a number of cars were damaged. This tank survives in working order at Bovington, another 6 survive. D51, Deborah was unearthed and is being restored.

The Model

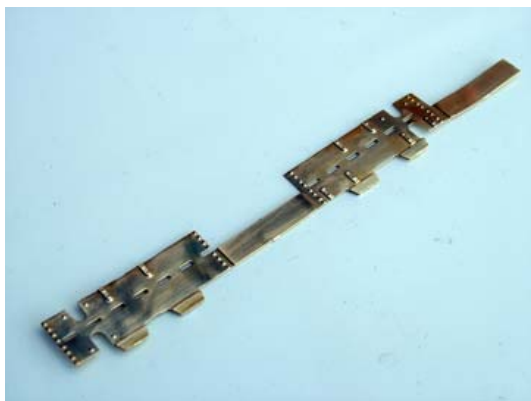
Both female and male variants can be made from the parts supplied. The kit has been designed primarily as an O gauge wagon load, with the sponsons folded inwards. However the sponsons can be modelled retracted or folded in or out of the body. Use is made of spare pieces of etch and it is recommended that parts are not cut out until required and instructions are followed as once the sides are folded up it is awkward to fit some parts

The etch should be cleaned then all parts riveted. A gravity type riveting tool is useful for this.

Storage box

Part 5 is folded along the tab lines the arch for the exhaust pipe goes on the left facing forward and the rear face is the only one without riveted straps. Once soldered together the folding tabs can be filed down.

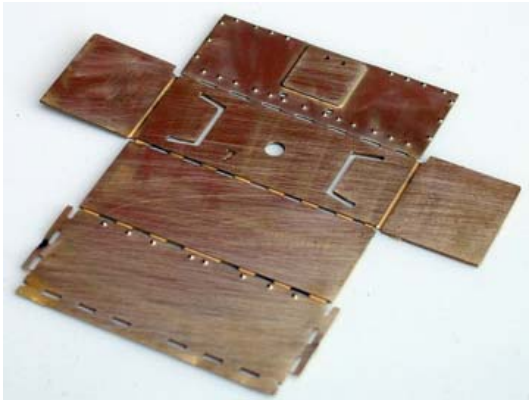
Top storage box 5



Fuel Tank 7

Solder two hinges 15 and wire handle onto top face through holes provided.

Fold back half etched rivet strips along edge against back face. Fold out two tabs on rear face then fold up tank in to box shape with hinges and handles on top. The side rivet strips stay vertical.



Fuel Tank 7



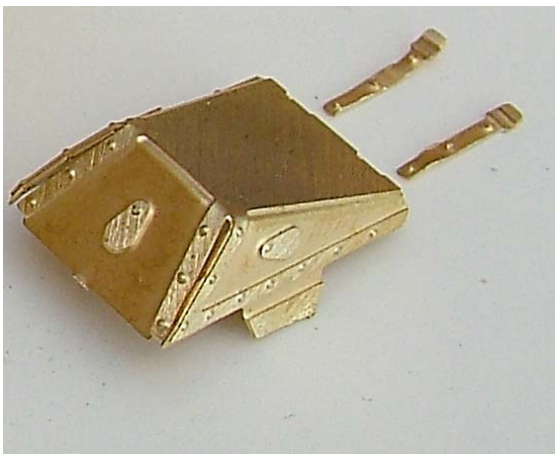
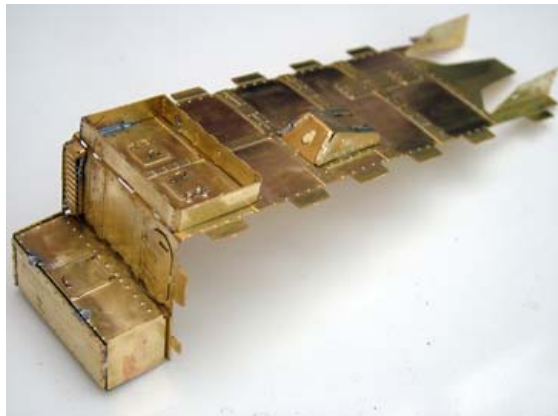
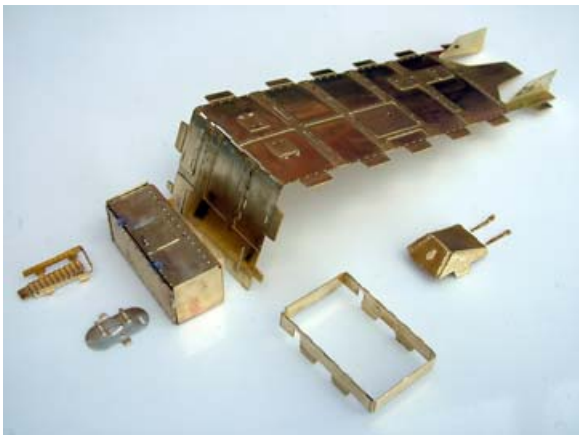
Part 4 Tank top/rear

Fit hinges 40. through top hatch 7, fold up 7. attach to part 4. with tabs the hinged top slopes to the front.

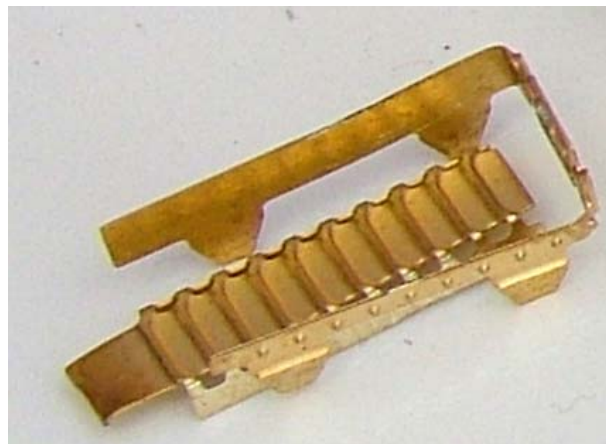
Attach part 5 the storage box.

Rear door 47. is also attached to part 4 on the right hand side of the back using tabs.

The fuel tank can now be added, the tabs can be folded over to secure.

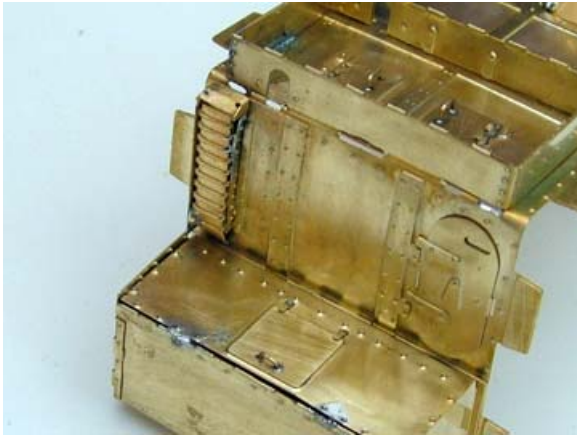


Top Hatch 7 and hinges 40



exhaust vent 27 and 26

Take part 27. the exhaust vent and fold down sides along the holes. The square next to the bottom tab is folded down to about 30 degrees. Part 26 is folded around 27 with the riveted side to the right hand side. Part 26 is not folded right in properly in close up photo. The small flap at the top is folded down slightly. This assembly is now fitted to part 4 using the tabs, see the photo of the rear of the body for clarity.

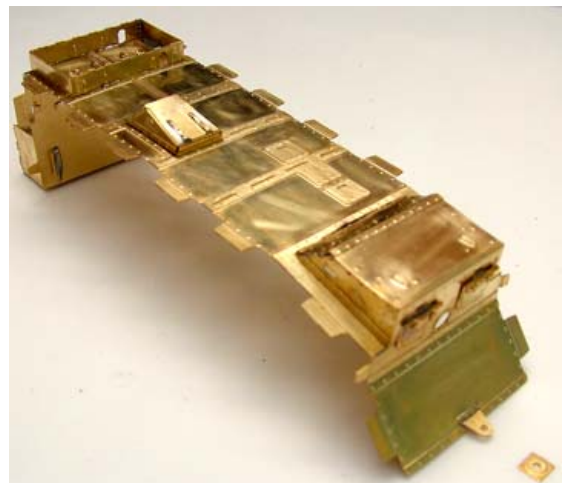
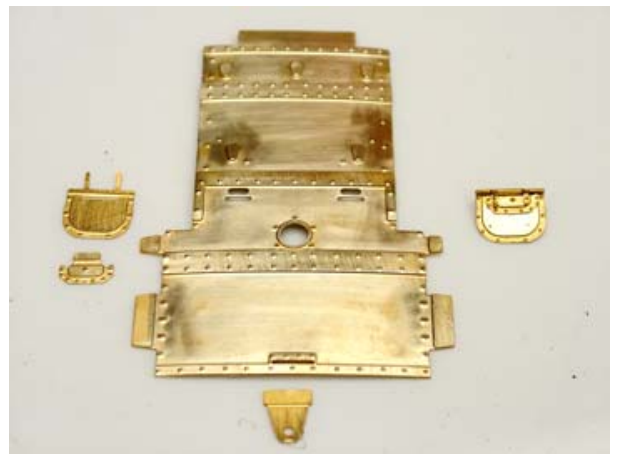


Wire handles are made and fitted through hatch holes in top 4. These are located in the storage box. Hinges 41. are also added to these hatches, from the rear and bent over. The sides of the drivers cabin are folded up along the lines. The top/rear is now put aside.

Part 3. drivers cabin/front, attach part 3. towing/securing bracket through hole in front. Make up two viewports parts 18 and 19. The top of 18 is bent forward the tab between the hinges is cut off. Part 19 fits through the hole in 18 using the tab which is bent down through the hole at 90 degrees as it is also used to attach viewports to part 3. Ensure part 19 is central. (example in photo not central) before bending hinges down to lay flat on face of part 19. Attach gunport part 56 centrally over hole in front of part 3 from the rear, if tank is being made with guns poking out a gun can be made from a nail or bit of tube. Part 3 is then attached to part 4 using the long tab at the rear. The bend angles will become apparent later when this assembly is attached to the sides.



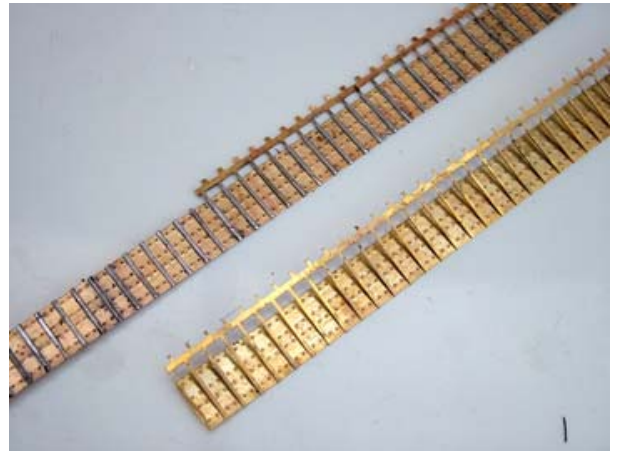
Drivers viewport 18, 19



Top of tank body and gunport 56

Tracks part 8.

Care is needed when cutting out as it is imperative that the long length of waste etch is left attached until after the treads are soldered to the track, see photo. The tracks are made by folding the half with the treads over after tinning with solder and attaching to the riveted face of the track. Only when it is securely attached can the waste be cut off. Save this waste section as it is used later. The edges of the treads are filed round and a piece of abrasive paper can be used to take the corners off the treads, being careful not to damage the rivets.



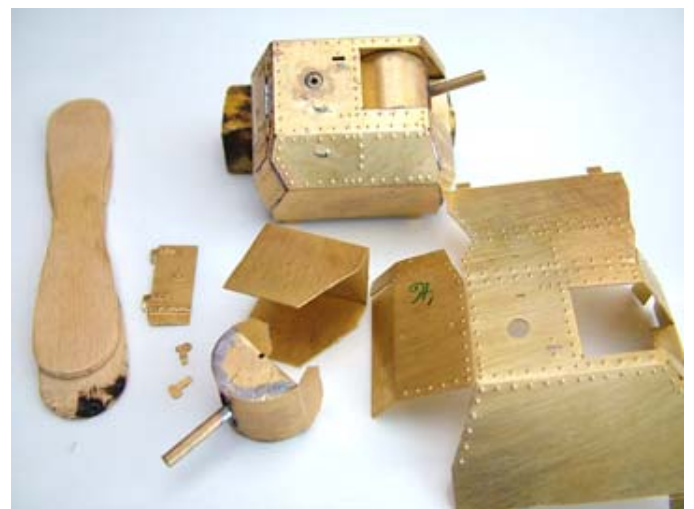
Male Turret .49.

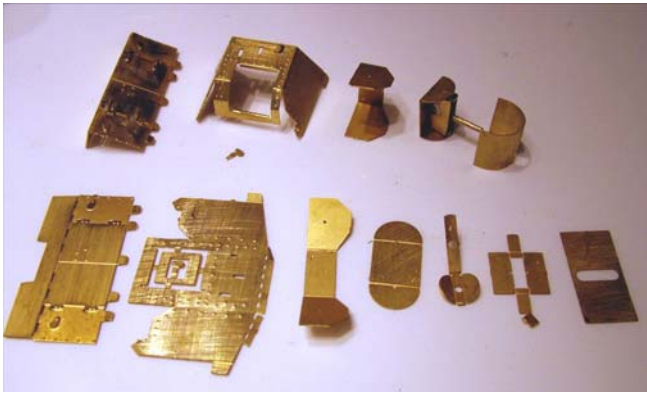
Fold up 49. turret. Bend 50 around pen or dowel slightly smaller than 49. taking care around slot. Fold up ½ etched sides and ends of 48. then solder 48 over hole in part 50. Solder tube through hole with 15mm sticking out. Note small slot in 50 goes nearer the top and towards the outer side of the sponson.

Solder gun mount 56 centrally behind hole in sponson. Solder 50 around 49.

Solder on two small gunport flaps through slots in sponson. Refer to photos for positioning, spares are provided both left and right handed as they are quite small.

Fold up turret housing 54. and solder short lengths of wire through holes top and bottom these act as swivel hinges so that turret will turn. It is useful to put some oil on turret top and bottom. Insert turret into turret housing 54 and ensuring turret housing bends are at right angles run some solder along bends top and bottom. Attach completed turret housing to sponson, side folding sponson side around turret housing. A dry run can be tried at this stage through sponson hole in body side. If the fit is too tight then some metal can be filed from the top and bottom before soldering sides of sponson then solder top and bottom seams as tight as possible as the turret will be a tight fit in side aperture. The top and bottom should be flat. Fit door 52 l/h and 53 r/h and gun port flaps. Repeat for other sponson. Lolly sticks are useful for squeezing seams tight whilst soldering





Female sponson

If the tank is being modelled with the sponsons out, with a little extra work the guns in the female sponsons will not only rotate but elevate also.

Part 35. is folded so that the two half circles are uppermost then the long part with the hole in the middle is curved around the two half circles. If a gun is required then a 15mm section of tube is inserted through the two larger holes. After the tube is soldered in, a hole is drilled through the two smaller holes, through the tube, this is for a pivot if the gun is required to move up and down.

Part 44 is folded up so that it resembles an open box. Care is needed with the two small squares. If they fall off leave them until the gun is inserted and use some waste etch to replace them, refer to the photo to see the construction sequence at this point.

The gun, part 35, is inserted into this box, 44, and a pin or piece of wire is inserted through the small hole. It is useful to put some oil on the moving faces. The small square on 44 is folded back at 45 degrees against the gun 35. It may be easier to use a piece of scrap, once soldered then trimmed off.

If the Gun is required to go up and down a rectangular hole needs to be made in part 36 to allow the part 35 to pass through. If or when this has been done part 36 is folded at right angles around the completed gun assembly which is centrally attached flush with the edge of the circle.

Part 37 is then bent around a drill or pen with a slightly smaller diameter, care is needed not to crease the slot. This is then soldered to part 36

Part 43 is folded around the completed turret, oil can again be added. A pin or wire is soldered into the holes in part 36, being careful that the turret can still swivel. Make up the other three turrets.

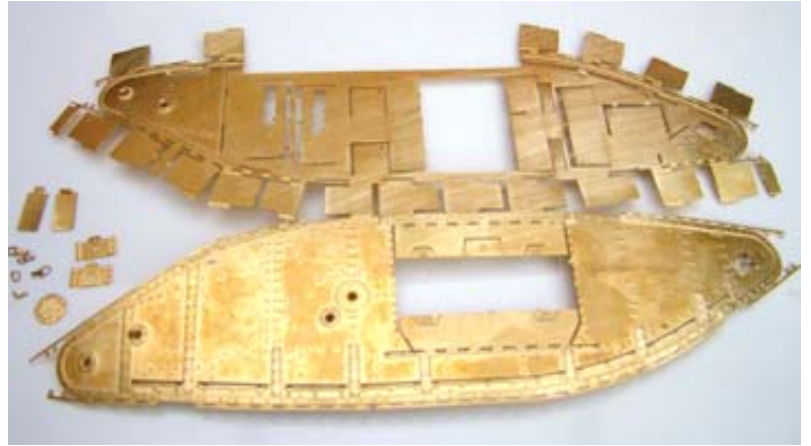
The female sponsons are different, the parts with the folded down rivet strip 30 are the front sponsons and 31 are the rear. Remove part 32 from the hole. The completed turret assembly is soldered over the hole and the sponson is folded around the turret. The gun port 32 is attached through the slot in the sponson, refer to photo for positioning as some are left or right handed. Repeat with the other three sponsons.



Female turret and sponson

Tank Sides

This part is complex and origami skills are useful. The details can be added before the folding is started. The track tensioning part is made up by folding up part 11, the back plate and fitting the small folded up end through the hole at the very front of the body side. It is recommended to trim the other end so that it just covers the large hole as space is tight here later. Part 12 needs the riveted edges to be folded over flat against the face and the small flap folded over to stick up on the same side as the now folded rivet detail. See the photo for detail. This is now attached to the body with the top opposite the folded up end flush against the folded part of the backplate which is sticking up through the hole. A small nut can be added over the hole for extra detail.



Track tensioner 11 and 12 there are four as two go on the inner body sides.

Add part 13 over the round bit of raised etch behind the sponson hole.

Make up some small shackles from parts 5 and 22 or make up a shackle and strap from wire and waste etch the strap should be small enough to fit through the two rectangular holes by the rear axle mounts, on the sides



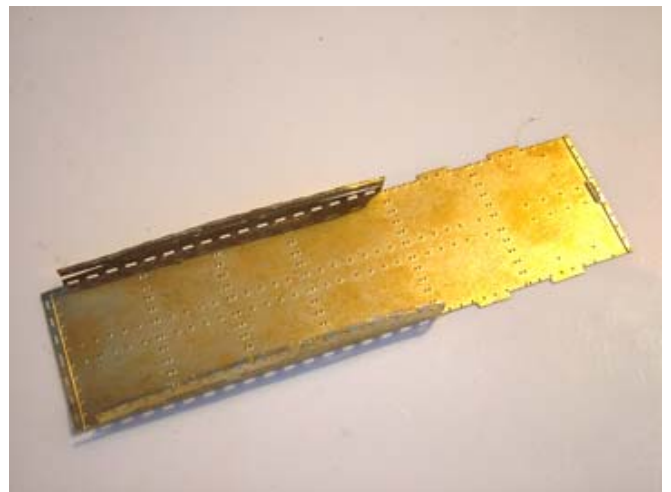
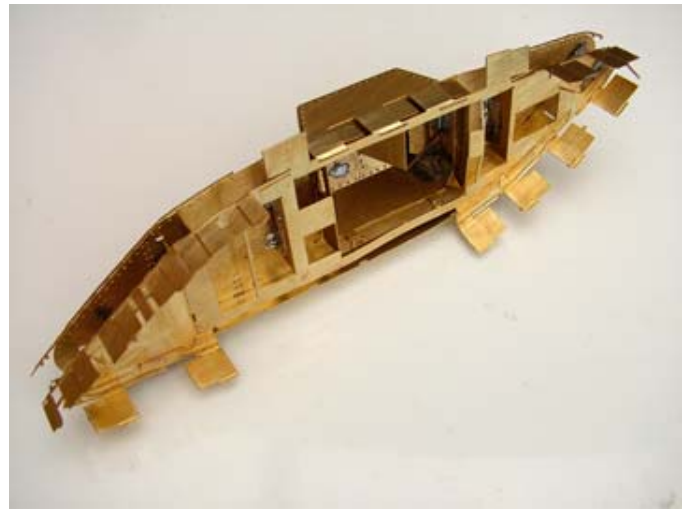
Part 23 is the small axle end which fits through and over the small hole at the top of the third panel from the rear. This is the smallest part on the etch.

Parts 13, 5, 22 and 23

The small flaps surrounding the inner side are to separate the tracks from the body as can be seen in the Baker Perkins photo. In reality this space is caused by the rollers.

Cut out parts 17 and all of the remaining parts within the sides. Some of the flaps are on a double fold as there is a small angle around the edges of the body that needs to be formed, including the curved angle that needs to be formed at the front and back. Once all of these angles are formed the flaps and internal spacers can be bent. The spacers with the small holes in form pivots to hinge the female sponsons. Don't solder the sponson hole sides until a dry run has been attempted as they are a tight fit and some filing may be necessary. If female sponsons are being fitted, a pin or wire is soldered through the holes in the sponson and the body spacers to hinge the sponsons in the in or out position. Add internal spacers 14 and 17. 14 has tabs which are first fit through the slots above the lower rollers. A dry run is needed as they are handed with the tabs in slightly different places on each side. The end with the single slot goes at the front. It is easier to start at the back and work forward a tiny bit of filing may be necessary. Part 17 is added through the middle of the three slots in part 14. All of the track support flaps need folding and securing to the outer body side.

Solder the top and front assembly through the tab holes on the inner body side



Base part 2

Part 2 is the base, and needs the small angle folding up along the edge. Also a small overlay at the rear is folded over onto itself. The sides are now bent along the lines of holes so that they will hang down from the riveted face once the base is in position. The base is now fitted to the side using the tabs.

Once the sides are attached to the middle and all the track support flaps are soldered, they need to be have a layer of solder on each face so that the tracks can be attached. They can be butt jointed at the bottom, there will be some left to trim off.

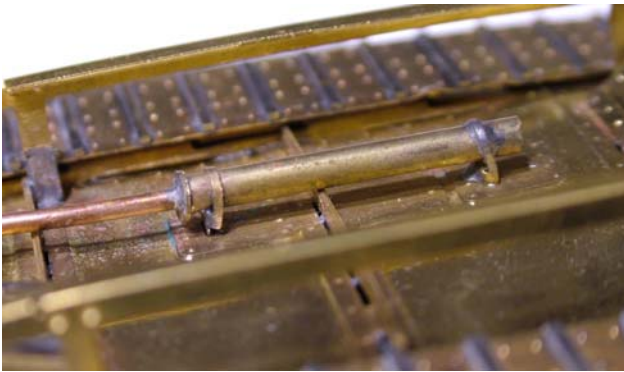
Once the tracks are attached there are small ribs that need to be fitted through the holes in the top part of the body. These are made from the waste etch from the tracks using some of the small tabs to locate through the holes. A strip of this waste is also added below the sponson holes in the sides. There are two slots at each side of the sponson hole to locate the ends of these strips in.

Part 38 is the left hand door that is fitted on the female tank only and part 39 is the right hand one, these need the bottom trimming so that they fit between the sponson and the waste strip at the bottom. These doors need the hinges parts 55 fitting through.

Parts 10 are the rails for the unditching beam the ends are located in the slots at the front and rear of the inner body sides. Some trimming of the 3 leg supports may be necessary. These rails seem to of been removed when the tanks were touring by rail after the war however the brackets on each end are still apparent so if the tank is being used as a post war wagon load the rail ends (the part with the hole in) should be fitted and the rest of the rail removed.

The small strips of roller axle end detail can be added, there is enough for both the inner and outer parts. It is not very apparent on the finished model especially between the two sides underneath. The hooks and screw couplings are included on the fret to load the tank onto a wagon some chain will be also needed. The Coupling is folded over with a pin or wire trapped through the centre, then the edges are filed down to the required thickness

Part 9 needs bending around a 1mm drill or similar and forms a cover which is fitted over a wire exhaust pipe that is made from a 22mm long length of 2mm tubing and a 110mm length of 1mm wire. The cover fits between the two arch's in the top stowage box. The exhaust is supported on the tank by fitting the two brackets part 9 and folding around the tube, refer to photos.



Exhaust and top ribs from waste etch

References

New Vanguard British Mark 1 tank by Osprey publishing is very useful.

Google Images and Flickr, have many detailed images of the preserved Mk4 tanks

There are slight differences apparent which perhaps resulted from the different manufacturers.