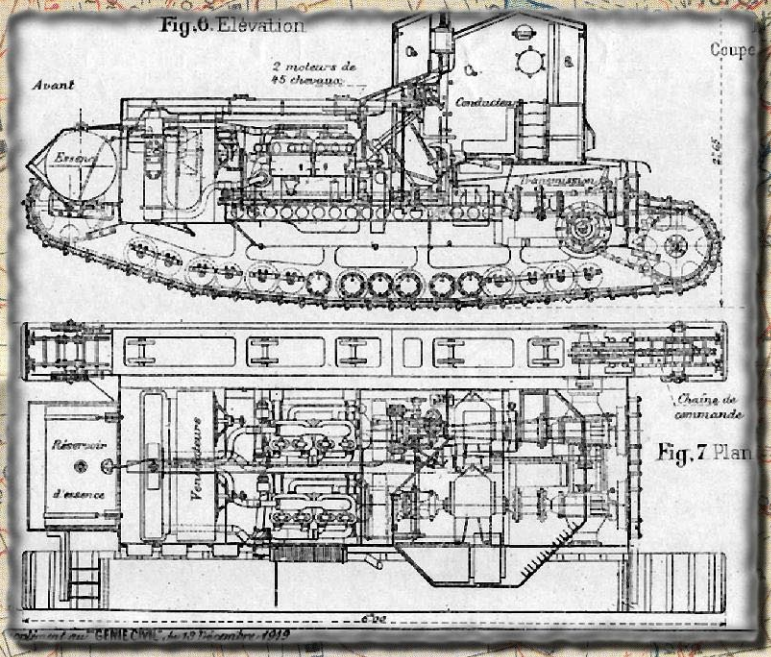
Title Goes Here!

Medium Tank Mark A

Whippet



second edition

Photography

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Thanks to

Paul Owen for discovering some of the South African Whippet's history.
Arno Riedel for the stowage bin dimensions.

Technical stuff

Most of the photographs in this net.book were taken using a Fujifilm Finepix 6900Zoom digital camera, while the computer graphics were created with POV-Ray 3.5 and the KPovModeler 0.20 and 1.0 front-ends for it. The document was laid out in Palatino Linotype, **Futura XBlk BT** and CombiNumerals using QuarkXPress 4.1 for Windows. The PDF was created with Adobe Acrobat Distiller 3.01 and worked on using Acrobat Exchange 3.0.

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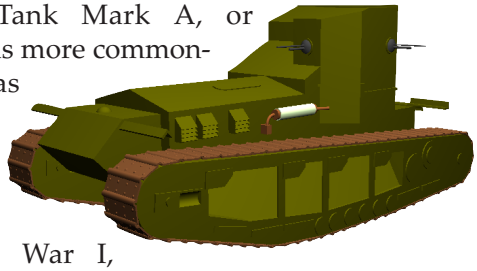
Medium A Whippet



The Medium Tank Mark A, or Whippet as it was more commonly known, was what can be described as a second-generation British tank of World War I, being of completely different design to the "heavy" tanks built from 1916 onward. Some 200 Whippets were constructed by William Foster & Co., and after its introduction in March 1918, it was used until the end of the war and beyond.

Layout

6 - 9 Unlike the earlier British tanks, which had rhomboid-shaped hulls with the engine in the middle, the tracks running all around the hull, and the armament fitted in so-called "sponsons" sticking out the sides, the Medium A had its engines at the front, under a long bonnet or hood, low track units on either side of the hull, and a high cab at the back carrying only three crewmembers. (The prototype had a revolving turret like that used on Austin armoured cars, but this was considered too advanced and so was replaced by a fixed cab on production vehicles.) Armor varied between 5 and 14 mm in thickness, sufficient to protect the crew from machine gun fire and shrapnel.

36 - 51 The tracks were carried on long, low track units that were mainly constructed from riveted steel plates, between which a large front idler wheel, 16 small roadwheels, five return rollers, and a rear drive sprocket were located. The idler was fairly high off the ground, the whole arrangement making the Whippet somewhat reminiscient of a small boat sailing up against a wave. The whole suspension is unsprung, though the idler can be adjusted by means of large screws to adjust the track's tension. The track itself was a simple affair, like that of all British tanks of the period, consisting of steel plates rivetted to chains that actually run around the wheels. Aside from a curved section that overlapped the next link, and the eight rivets per track, the track plates had no profile whatsoever with which to provide traction on the ground.

34 - 35 Although no mudguards were fitted, a canvas track cover could be installed over each track, hanging from angle iron brackets at the front and rear of the tank by means of coil springs with hooks. Photographs of these covers in use are rare, however.

28 - 29 At the very front of the vehicle was the fuel tank, which was not really more than a sheet metal drum encased in an angular, armour-plated box for protection. Although its position put the fuel as far away from the crew as possible, it had the disadvantage of at the same time putting it as close to the enemy as possible …

26 - 27 Behind the fuel tank, in the hull proper, was the engine cooling system, which drew air through louvres in the hull sides and forced it back over the engines and transmission, and out a large slot in the hull rear plate.

58 - 65 Located aft of the cooling system were the twin Tylor engines themselves, producing 33 kW each. Their exhausts were equipped with mufflers, and fitted outside on either side of the engine compartment. The mufflers were wrapped in asbestos rope, with a sheet metal covering over this.

22 - 25 The engine compartment was accessed through two large doors in the front bonnet. Each of these had a smaller hatch set into it, that could be used for routine maintenance to the engines. It is not entirely clear if there ever was a bulkhead between the engines and the crew compartment. Surviving vehicles do not appear to have one, but it could have been removed from them at some point—none of these tanks is anywhere near complete, after all.

56 - 67 The crew compartment, or cab, was at the back of the tank. It most likely had a wooden floor, though apparently no surviving Whippets have one, with the transmission underneath, and only provided a seat for the driver. This was at the right front of the cab, with the remaining two crewmembers (commander and gunner) standing—or, more likely, hunching—in the cab during combat. Although originally designed for four crewmembers, the interior was found to be too cramped for this, and the crew was reduced to three as a result.

56 - 61 Ammunition racks were fitted behind the driver's seat and on the left of the cab. A stowage bin was also fitted at the right rear, and the machine guns could be stowed on the left rear wall of the cab when the tank was outside the combat area.

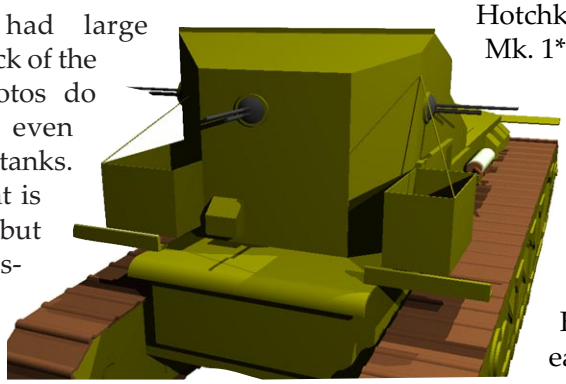
Basic data

Length	**6.09 m**
Width	**2.61 m**
Height	**2.74 m**
Weight	**14,225 kg**
Speed	**12 km/h**
Range	**65 km**
Crew	**Commander, driver, gunner**

52 - 55

Access to the tank was by a door in the rear of the cab, and a hatch in the cab roof. This hatch was not really intended as an entry point, though; rather, it was for use by the commander, to guide the driver when driving the tank behind the lines.

Some Whippets had large stowage bins on the back of the cab, but wartime photos do not show these, or even traces of them, on all tanks. The illustration at right is not entirely accurate, but does provide an impression of what they looked like on the real tank. The bins appear to have consisted of angle iron frames with panels (wood, perhaps?) fixed inside them, and a diagonal bracing rod running to the cab side for support.



10 - 11

Most tanks do seem to have had lengths of steel strip rivetted to the cab sides and roof and the hull rear, onto which grousers were hung. These were wooden blocks with metal fittings, which could be attached to the tracks to improve traction in soft ground, but it appears there are no known photos of Whippets with these actually fitted to the tracks—though many photos do show them hanging from the stowage rails.

Drive train

62 - 65

There was one engine for each track, making the Whippet difficult to control but giving it an unprecedented (for tanks) speed of some 12 km/h, which lead to its nickname—whippet being a kind of dog bred for its running speed. This was not without its problems, though. As each engine drove one track through a gearbox and a chain drive to a sprocket at the rear of the track, making it go in a straight line was very difficult because the driver had to control both engines' throttles perfectly at the same time. This was only a minor drawback compared to the other main consequence of this drive layout, however: although some sources suggest each engine could be switched to drive both tracks, most indicate that this was in fact *not* possible. The result was that if one engine or drive was knocked out, or stalled for some reason, the tank would only drive round in circles …

Armament

The Whippet's armament consisted entirely of Hotchkiss machine guns, most likely the No. 2 Mk. 1* variant developed for the Tank Corps. This weapon was based on the French Fusil Mitrailleur Hotchkiss Modèle 1909, but fired British .303" caliber (7.7×56 mm rimmed) Mk VII ammunition instead of the French 8×51 mm round. Additionally, like the Modèle 1914 Hotchkiss, the No. 2 Mk. 1* was able to use the standard Hotchkiss metal strips that held 30 rounds each as well as ammunition "belts". These were actually a series of three-round strips connected together with hinges, and not like the modern ammunition belts were each round is individually linked to the next.

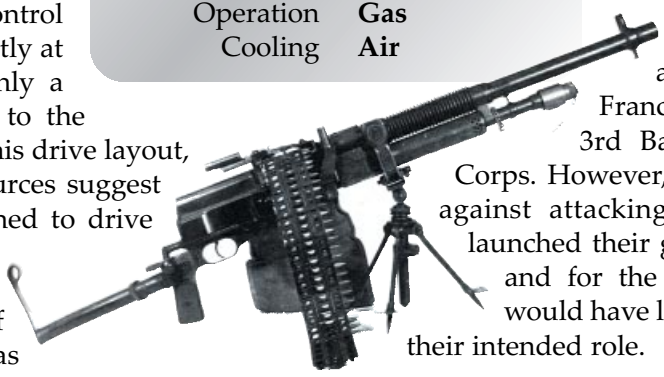
6 - 19

The Whippet carried four of these machine guns, one per ball mounting in the crew compartment (one to the front, one to either side, and one to the rear). Some sources indicate each tank was to have only three guns, the idea being that the crew would swap them around as needed, but because there are four machine gun stoware bracket inside the vehicle, this seems unlikely. A total of 5,400 rounds of ammunition was carried for the machine guns, in racks at the right rear, left and front of the cab.

The guns covered most of the area around the tank, but additional pistol ports were provided around the cab for the crew to use their revolvers against targets that could not be reached by the machine guns.

Hotchkiss .303 No. 2 Mk. 1*

Length	**119 cm (with shoulder stock)**
Unloaded weight	**12.25 kg**
Rate of fire	**500 rounds per minute (cyclic)**
Magazine	**30 rounds or 50-round "belt"**
Operation	**Gas**
Cooling	**Air**



Service

The Medium A was intended for an exploitation role: once a breakthrough had been achieved in the German lines by other forces, the medium tanks would use their speed to push through and attack the enemy in the rear.

Whippets first saw action at Mailly-Maillet Wood in France on 26 March, 1918, with the 3rd Battalion of the British Tank Corps. However, this was in a counter-attack against attacking German forces, who had launched their great offensive 5 days before, and for the next few months Whippets would have little opportunity to be used in their intended role.

Only in August, when the Allies finally managed to advance while the Germans retreated, did Whippets start being used for purposes like the ones they were built for.

The German army captured at least two Whippets intact, but does not appear to have used them in combat, preferring its own LKIII (*Leichte Kampfwagen* III) design, which however never even reached prototype stage before the end of the war.

After the Armistice of 11 November, 1918, some Whippets were deployed to Russia in 1919, as part of the Allied attempt to bolster the anti-Bolshevik forces, and apparently a few were also sold to Japan in the 1920s. By this time, the British army had disposed of most of its Whippets, though some seem to have remained in use until the 1930s.

Colors & markings

The exact colour of British tanks in late World War I is open to debate; most sources give it as either brown or a brown-green (olive drab-like) colour. Almost all the British tanks in the Tank Museum at Bovington are painted a light shade of olive drab, but these have all been repainted at various times in the past 85 years. An earth-brown colour seems just as likely, though they might also have been green. The Whippet at the Brussels Army Museum, for example, is a dark green, and appears to be in its original paint. However, as the white and red markings on this tank make clearly evident, its paint has discoloured over the years, making it a bit unreliable as a definite guide.

Markings on most tanks consisted of white/red/white vertical stripes painted onto the front of the track units; these were the colours of the Tank Corps, and appeared on most other British tanks as well. Some Whippets also had the front of the fuel tank or even the entire engine deck painted the same way.

Serial numbers were carried by most tanks, painted in white on the cab sides and/or rear. These usually started with a capital letter A, and were followed by a three-digit number, all known ones being between 200 and 400. (Since some 200 Whippets were built, it is reasonable to assume numbers 200 through 399 were used, but there does not appear to be definitive proof for this.)

Other markings seem to have varied per tank. Many were named, and some carried large identification numbers.

In German service, the tanks were painted in a camouflage pattern of grey, sand and brown (or green), with large iron cross markings on the sides.

Colours and markings for the Japanese Whippets are not known.

The photos

The photographs in this net.book are of three different Whippets preserved to the present day. One, named *Caesar II*, can be seen at the Tank Museum at Bovington Camp in the U.K. It is missing some of the external fittings that would have been present in 1918, but otherwise appears to be in good condition.

The second photographed vehicle is an unnamed one serving as a memorial at the South African National Defence Force's Military College in the Thaba Tshwane suburb of Pretoria City. This vehicle is unusual in that it has been fitted with different machine gun mounts than are normally seen on Whippets, though the origins of these is a bit of a mystery.

Finally, the third vehicle is number A347, at the Army Museum in Brussels, Belgium. To anyone with an interest in the First World War, a visit to this museum is certainly worth the trip—its collection of uniforms, weapons, equipment and artillery of the period is simply superb. The Whippet in the collection is of interest because it is displayed with its rear door open, allowing a view of the interior, and because it appears to be in the original paint and markings—but also because some of its armour has been shattered by the impact of a large-caliber shell.

Modelling the Whippet

The easiest way to build a model of a Whippet is from the 1:35th scale kit by Emhar (a 1:72nd scale version of this kit was announced but not yet available at the time of writing). Though basically accurate, the kit is a bit simplistic and not overly well-detailed. Fit of parts could be better, too, but its poorest feature is the tracks, which are downright awful—even if nothing else is added to the kit, fitting replacement tracks will improve it no end. Even if you want to use the kit tracks, they are nearly impossible to glue down properly. However, a little work will turn this kit into a good model—all it really needs is detail work and the refinement of some parts. For those wanting to add the missing stowage bins, their approximate dimensions are 14 mm high and wide, with the right (starboard) bin being 15 mm long on both sides, while the left is 25 mm on its outboard side and butts up to the hull rear on the inboard side.

Accurate Armour made a complete kit of the Whippet in resin and metal in the early 1990s, but this is no longer available due to the Emhar kit being released in 1994. However, they do have a set of resin tracks and grousers to enhance the Emhar kit.

Right front

1

This Whippet serves as a memorial at the South African Military College in Pretoria. At some point, it has been completely sprayed with a silver-coloured paint, which must have obliterated any original markings it may have once had.

Note that the machine gun ball mounts are not the type normally seen on Whippets. Their origin remains a bit of a mystery; this particular tank was used for policing duties in South Africa in the 1920s, and it is possible that the mountings were fitted at that time to allow a different weapon than machine guns to be used for crowd control. See photos 14, 51 and 55 for more information about these mountings.

Left front

2

This side of the tank appears much like the other, though the shape of the cab is different, as it is completely asymmetrical. The non-standard ball mounting is missing in the cab's left wall.

The plaque at the front of the tank commemorates students of the Military College killed in the First World War.


1


2

3

Right rear

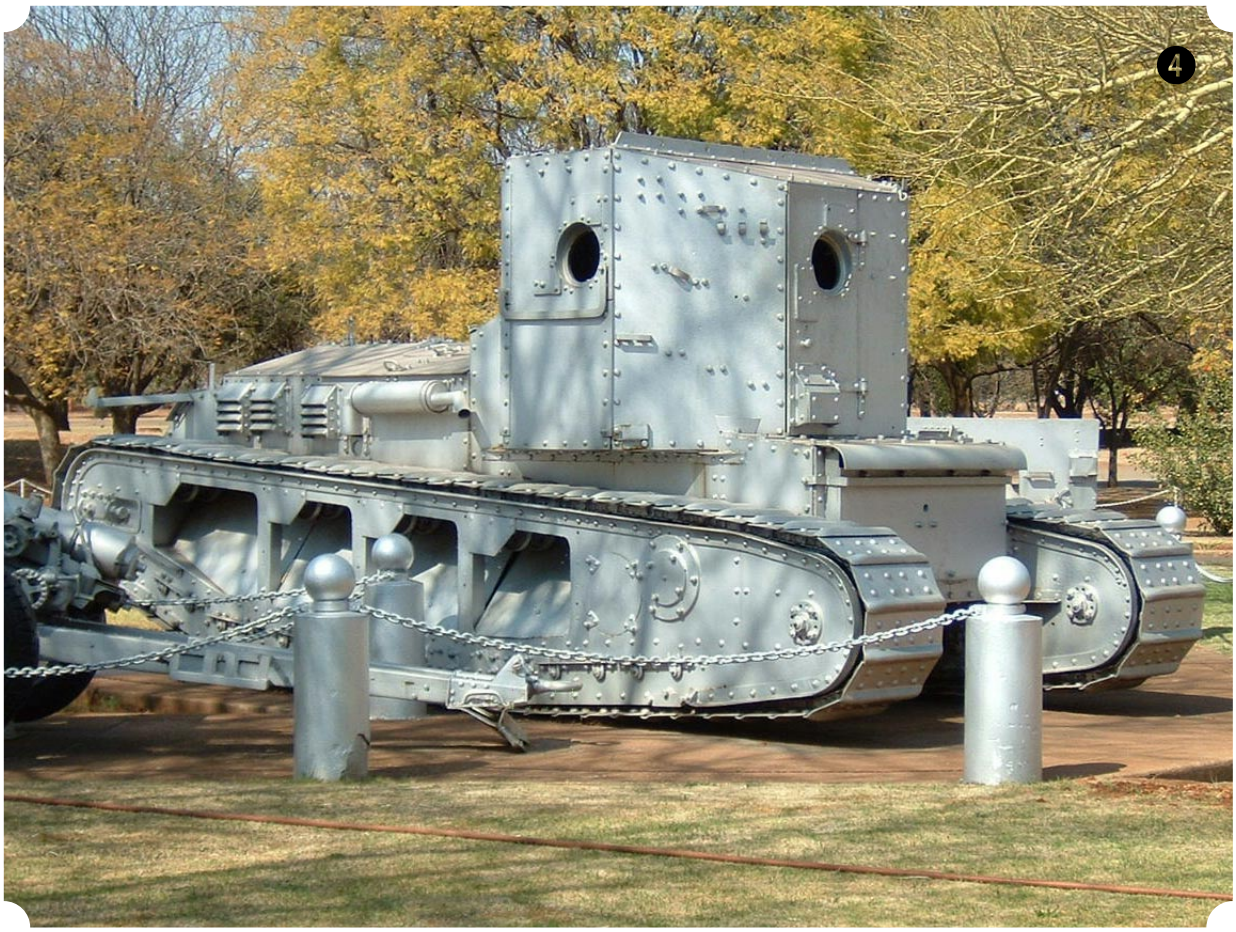
From behind, the height of the cab is more apparent than from the front. This view also shows the remaining two machine gun mountings, though they have also been replaced by the non-standard type, and the one in the rear door has fallen into the tank (as can be seen in picture 51 on page 57).

4

Left rear

And to conclude the overview of the whole tank, a left rear view that shows the two large holes left by the replacement ball mounts. The tank has lost many of its external fittings, but has also retained quite a few of them—mostly the small ones that are less easily damaged, though.


3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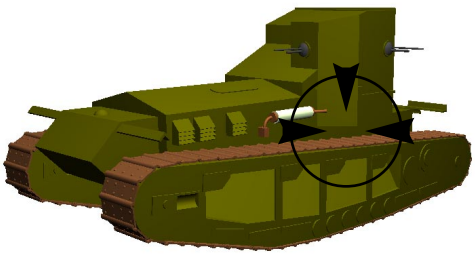
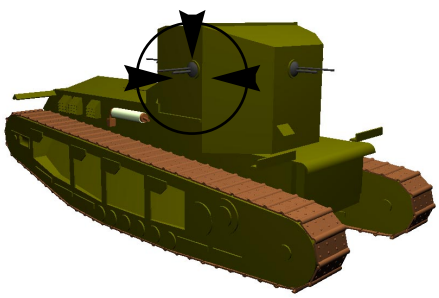


5

Cab front left

This photo of the left front corner of the crew compartment, this time of the Whippet in Bovington Tank Museum. It clearly shows the rivetted construction of the tank, with even a few external strips of angle iron being used to hold plates together. The horizontal metal bar, held by a bolt rather than a rivet at each end, is a bracket for carrying track grousers (wooden blocks, reinforced with metal strips, that could be fitted to the track to increase traction). Unfortunately, no grousers are present on this tank, and some of the racks are gone as well.

Also note the different style of machine gun mounts, which will be shown in more detail on later pages.



6

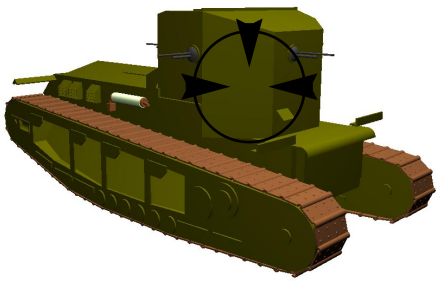
Cab left

The left wall of the cab, with the grouser rail that is lacking on the Bovington tank. The replacement machine gun mount is much larger than the standard one, so that a bigger hole has had to be cut for it; it was also set further back into the plate, as evidenced by the rim visible in the hole.

The blanking plates above and to the left of the hole cover the normal vision slit (above) and pistol port (lower left).

5

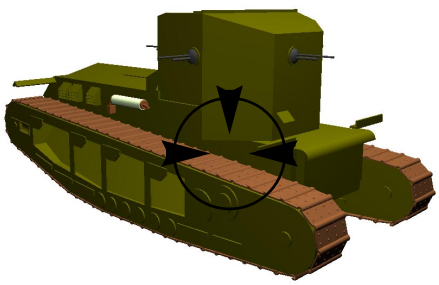
6



7

Cab rear left

The left rear panel of the cab, here of the Brussels vehicle, has brackets for tool stowage. Although it looks like all of the brackets are there, it can be hard to figure out what tools were supposed to be stowed in them, and how exactly. The pairs of nuts threaded onto bolts that come through from the inside, in staggered lines from top left to bottom right, are not for exterior tool stowage. Instead, they hold brackets on the inside of the plate, into which the four Hotchkiss machine guns could be stowed when not in combat.

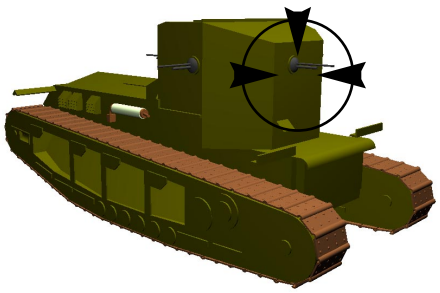


8

Cab overhang left

Not easily visible in photos of Whippets in action, part of the cab overhangs the track on the left (gunner's) side. This photo shows the supporting section of rivetted angle iron underneath, and the difference between the rivets holding the panel in the centre of the photo, and the bolt heads used for the plate to the left of it, is clearly visible here as well. Judging by photo 7, above, of a different Whippet, the plate on the vehicle in this photo has been removed at some point, and replaced using bolts instead of rivets.

Note that there is no corresponding overhang on the right-hand side of the cab.

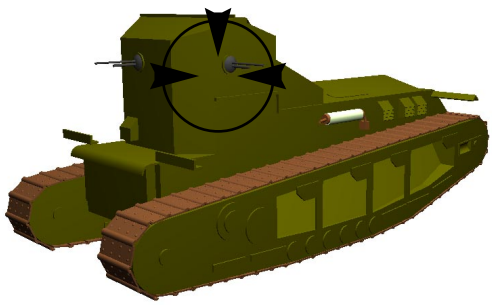


9

Cab rear

The rear of the cab is equipped with a door to let the crew enter and leave the tank. A machine gun mount was installed in the door, which had a vent at the bottom, covered by an armoured box. Pages 52 through 55 have more details of both.

As before, the gun mount was replaced by a larger one on this South African tank, and both the associated vision slit and pistol port have been closed by plates riveted over them. Note that the new gun mounting was so much bigger than normal that the door's top hinge had to be shortened—it is normally the same size as the bottom one.



10

Cab side right

There is another machine gun mounting in the right-hand side, together with pistol ports to cover the area between the mountings.

The black lines painted on the vehicle in this photo are to simulate vision slits, in order to confuse German gunners. The vision slit for the machine gun mount has been incorporated in the black lines as well.

The rails on the cab side are once again for storing track grousers.

9

10

11

Battle damage

The Belgian Whippet has suffered quite extensive damage to the right rear of its cab, with the armour plate having been largely shattered by what looks like the impact of a large-caliber shell. This has not only caused a hole in the armour, but has also ripped some of the adjacent plates out of their normal positions.

As can be seen on pages 57 through 61, the interior does not seem to have suffered overly much from this damage, however—it appears mostly intact, although the impact cannot have been pleasant for the crew. The damage further shows why riveted construction is not ideal for a fighting vehicle: several rivets have snapped off as a result of the plate buckling under the impact, and they would have made lethal projectiles inside the tank.

The oval hole just to the right of the battle damage is one of the pistol ports. Its shutter was hinged in the small hole to its left, but was probably knocked off by the impact.

12

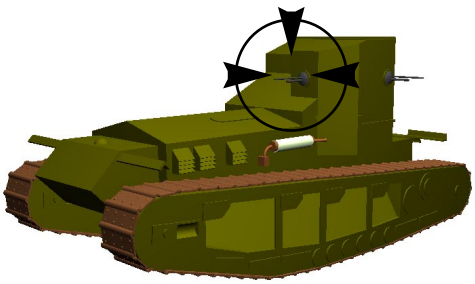
Cab front right

The front right side of the cab, where the driver's seat is located. The driver has just one vision slit, to the front of the tank. The fact that there appears to be one in the side plate as well shows that the fake slits painted on with black lines actually work. The dark shape to the left of the closed pistol port in the panel between the driver and the machine gun mount is probably the result of the tank being painted, or of its paint having faded, with this port in the open position.

Also visible is the right side exhaust muffler and its heat-protective cover made from asbestos rope. In World War I photographs, this does not appear to be as light in color as it is on this museum tank; going by the other two tanks, it appears this Whippet (Bovington's) has lost the sheet metal covering over the asbestos that is present on the other two.

11

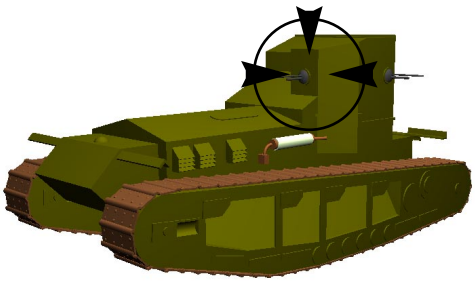
12



13

Cab front

The front plates of the Whippet's cab, showing the ball mount for a Hotchkiss machine gun on the right of the picture, with a pistol firing port on either side of it. The driver$(Bs (Bposition is on the left in the photo, and the white interior paint showing through the vision slot clearly shows where the actual slot is, and where black lines have been painted onto the tank to disguise it.



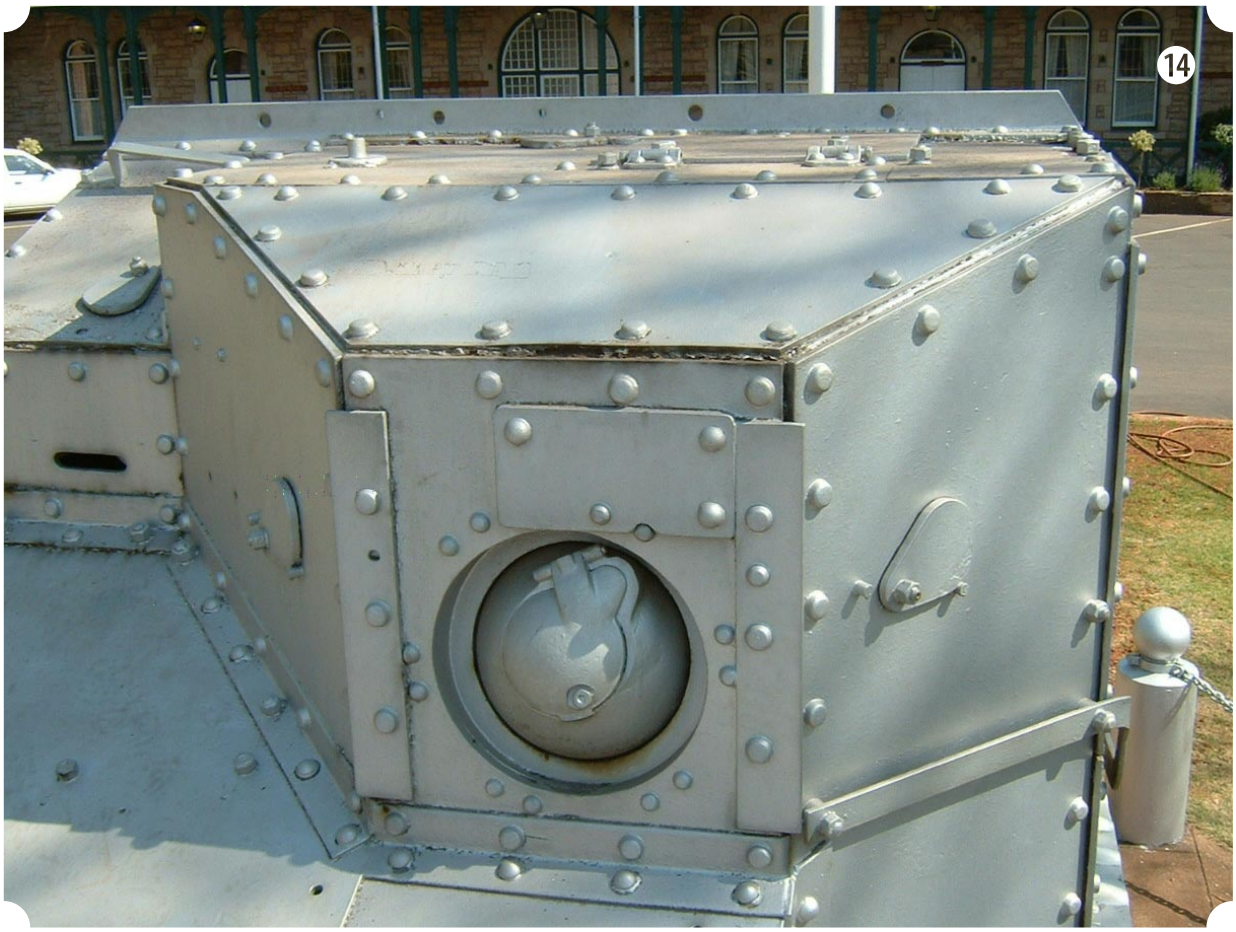
14

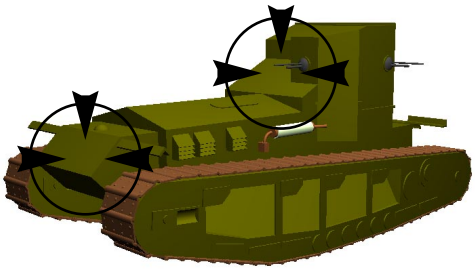
Cab front

This closer view of the cab front shows some details of its construction, and of the front section of the roof. Just visible are the hinges of the square roof hatch, which opens forward to provide the commander with a better view when driving through non-combat areas.

The picture also provides a good view of the South African firing port, and note that once again, the vision slit above it has been closed with a metal plate. It appears a firing port has been installed in the roof over the driver's position (at left in the picture), which is not normally present on Whippets.


13
GEOR
FIRE EXIT


14

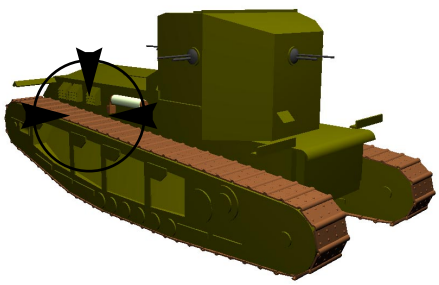


15

Front view

The unusual shape of the Whippet is clearly visible from this front view, with the track units (see pages 36 through 51) set onto the sides of the hull and the wedge-shaped armour plating around the fuel tank at the very front. The actual fuel tank is a simple, cylindrical drum made from sheet metal.

This particular Whippet has retained only one of the track cover supports, visible at the right of the photo sticking out from the fuel tank armour. For some reason, it has an upright section at its outer end that does not seem to have been a standard fitting, either.



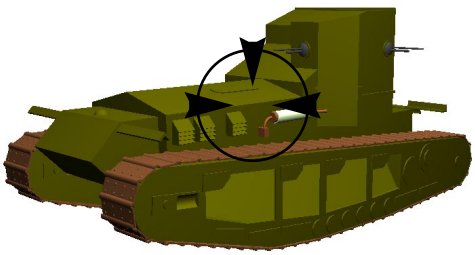
16

Hull side

The sides of the Whippet's hull are perhaps the most cluttered parts of the entire vehicle, due to the three vents, exhaust pipe and the complete track unit that is installed on each side. All of these items will be shown in more detail on later pages.


15
PARATUS
IN PROVD MEMORY OF
PAST STVDENTS OF THE SOVTH
AFRICAN MILITARY COLLEGE
WHO IN RESPONSE TO THE CALL
OF DVTY GAVE THEIR LIVES
DVRING THE GREAT WAR
MDCCCCXIV - MDCCCCXVIII
TER GEDAGTENIS AAN
OVD STVDENTE VAN DIE SVID
AFRIKAANSE MILITERE KOLLEGE
WAT OP DIE WIG AN PLIG HVL
LEWE GELAAT HET IN DIE
GROOT OORLOG
MDCCCCXIV - MDCCCCXVIII

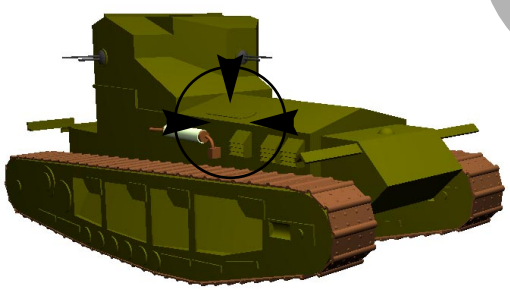

1



17 Engine deck left

The Whippet had two engines, one driving each track, and the large, hinged lid visible in this photo gives access to one of them. The smaller panel on it is probably for routine maintenance and servicing, or perhaps for additional cooling outside combat areas, as the left engine is directly underneath it.

The large panel is missing its handle, which can be seen on another Whippet in photograph 19 on page 24. The exhaust pipe is shown in more detail on pages 30 and 31.

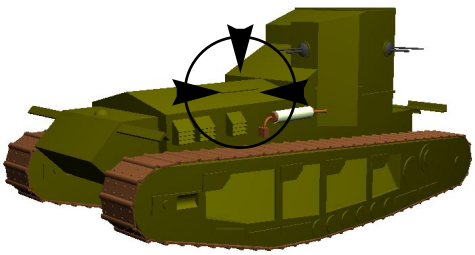


18 Engine deck right

The engine cover on the right-hand side. The main difference between this and the left one, is that the smaller opening panel is offset to the right on both these plates, putting the one on the left closer to the vehicle's centreline than the one on the right.

17

18

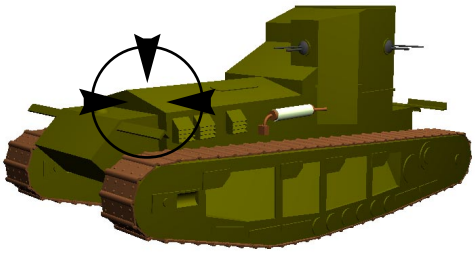


19

Engine hatches

The engine deck has two large hatches for access to the engines. Both hatches are hinged on the vehicle's centreline, though it is unknown how (or even if) they were supported when open—it is very well possible that each hatch was simply opened far enough to lie on the opposite hatch when necessary. The hatches are slightly wider than the hull, and overhang the hull sides by a few centimetres.

The smaller hatches set inside the main ones are directly over the engines.



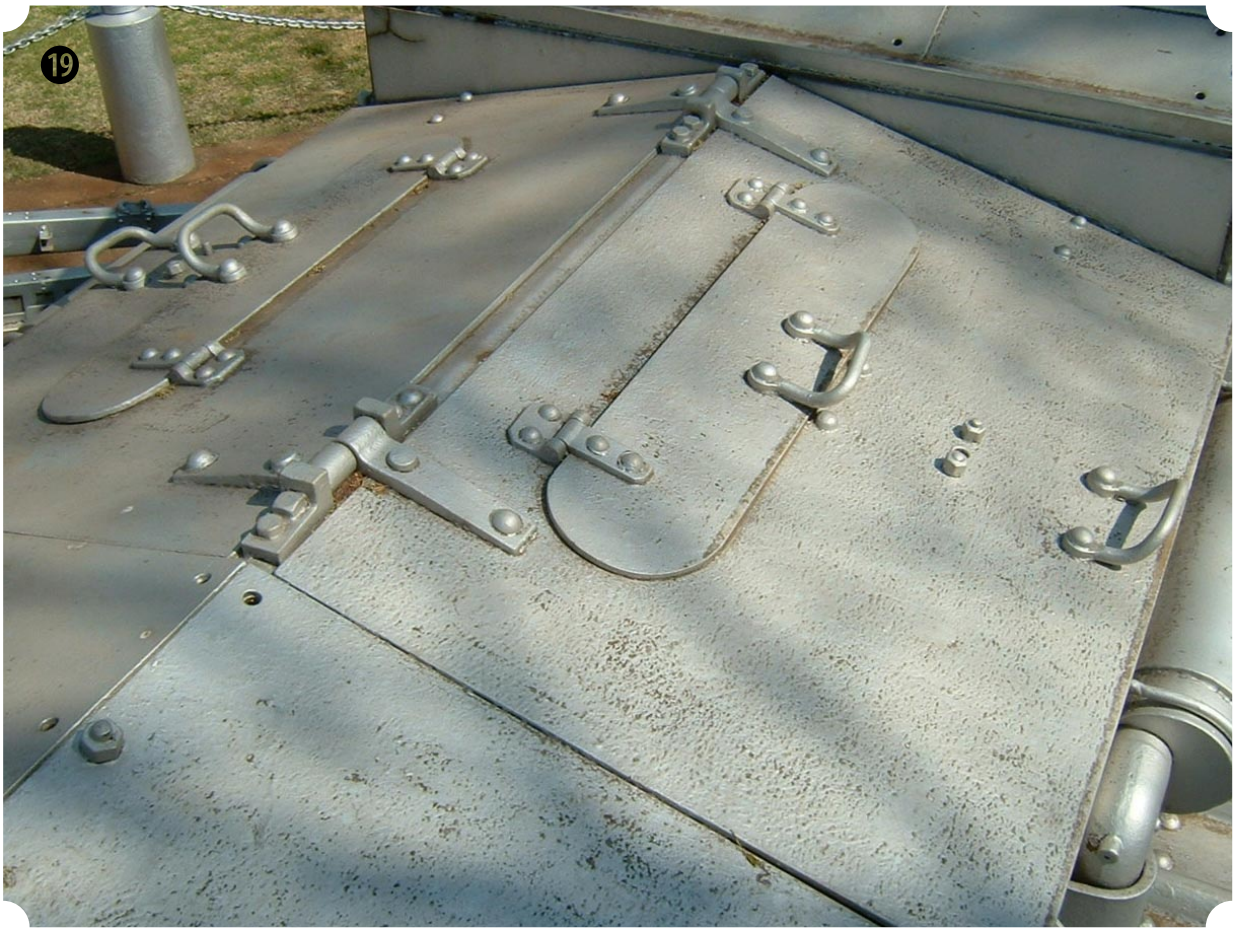
20

Fan & radiator covers

The front of the Whippet's prominent bonnet consists of these two, sloping plates. Directly underneath them are the vehicle's radiator and cooling fans (one per engine), which draw their air through the three sets of vents in the hull sides.

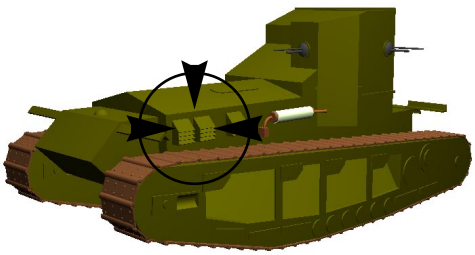
Note that, unlike the engine hatches, these plates are fixed to the vehicle and do not overhang the hull sides.

The pipe coming up through the plates is directly over the radiator filler cap, but does not appear to be an original, World War I fitting—most likely, it is another South African modification, perhaps indicating a new radiator has been fitted to this tank.


19


20

21

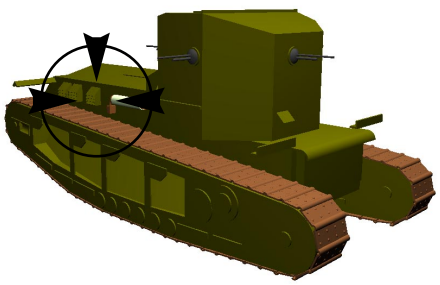


Engine cooling louvres left

At the forward sides of the engine compartment are the air intake louvres for the engines, with the exhaust visible behind them. The three sets of louvres are of fairly simple construction, consisting of four sections of steel plate bent unto a U-shape and bolted between two sections of L-profile. These in turn are bolted to the hull side.

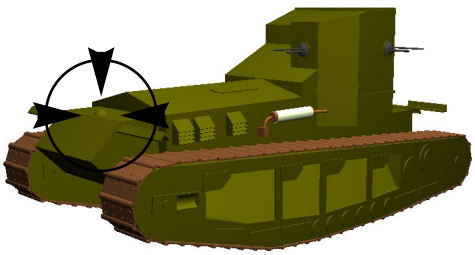
The tank's radiator sits just in front of the second set of louvres, and two fans, each driven by one of the engines, are between the second and third sets.

22




21


22

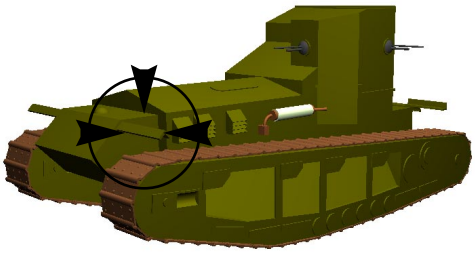


23

Fuel tank filler cap

The normal armoured cover is missing from the Brussels vehicle, giving this view of the actual filler cap of the fuel tank inside the armour plating.

Note the rivets at the front, but the bolts at the back of the photo. These seem to indicate that the whole armoured cover could be removed as a single unit for access to the fuel tank.



24

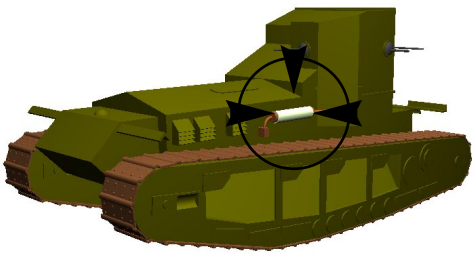
Hull front details

The piece of angle iron in this picture is the left front support for a track cover. One of these was fixed to each side of the fuel tank armour, and together with corresponding supports at the back held the canvas track covers. The support is actually L-shaped, with the short arm bolted to the hull.

The upright, L-shaped bracket with the hole at the top is part of the headlight mounting, though the actual headlights are not present on any of the tanks photographed for this net.book—nor, indeed, do they show up in many pictures from World War I. They appear to have been electrical lights, however, with the power supply cable having been simply stuck through one of the front air vent louvres.

23

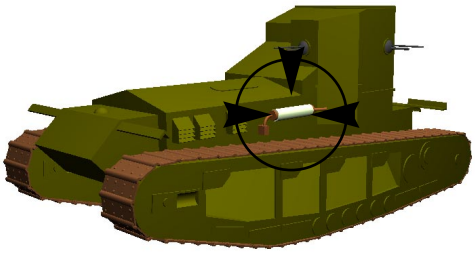
24



25

Exhaust pipe left

The Whippet has two exhaust pipes with mufflers, one on each side of the engine compartment. This one is clearly showing its age, but the undamaged shape should be obvious as well. The material wrapped around it is most likely asbestos, to protect the crew from the heat of a hot exhaust.

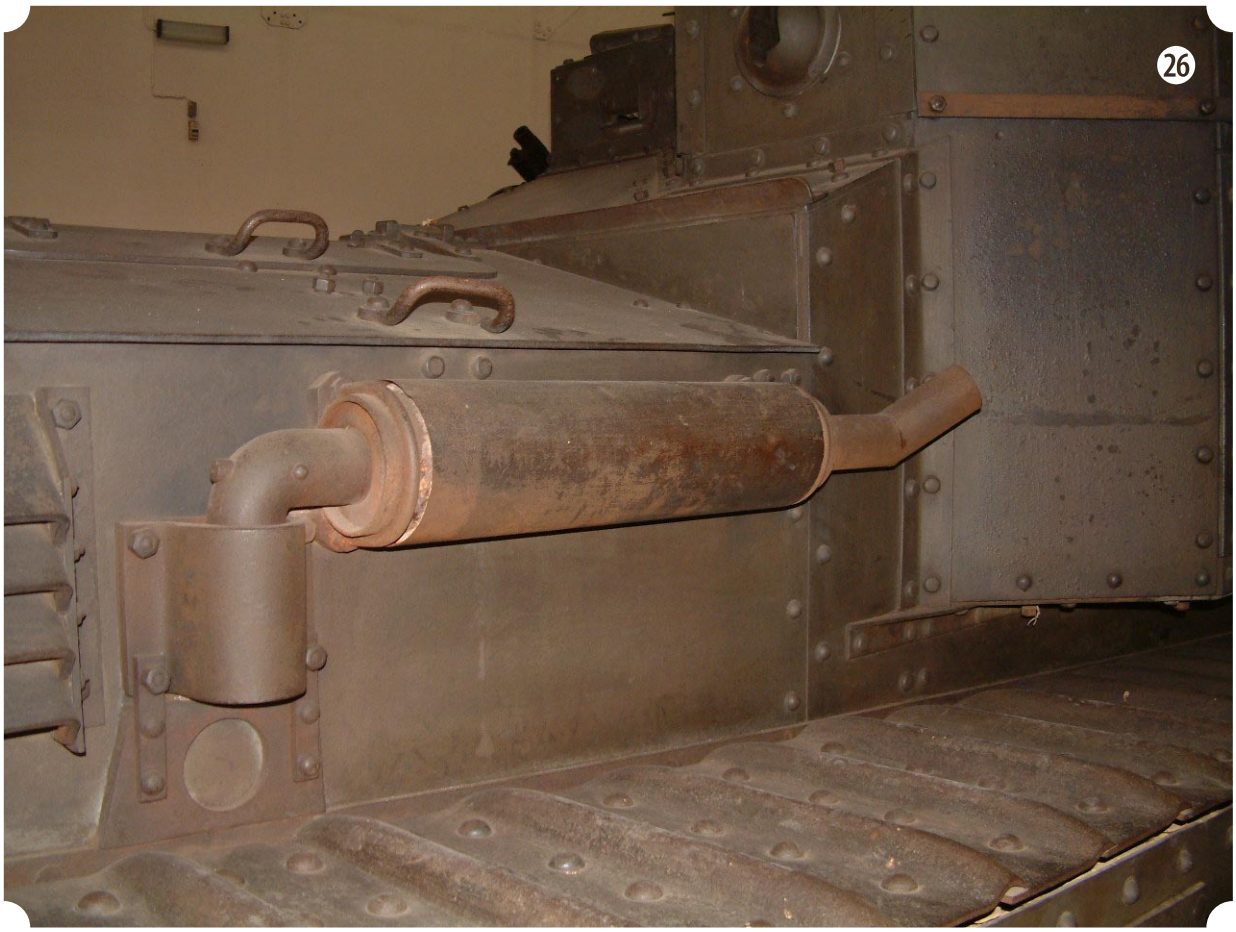


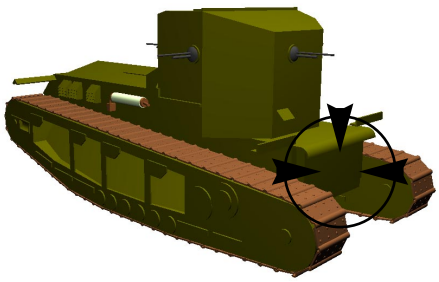
26

Exhaust pipe left

The same exhaust, but now on the Whippet in Brussels. This shows a sheet metal covering *over* the asbestos, which is missing on both exhaust pipes of the Bovington vehicle. Since the South African Whippet also seems to have such covers, it is perhaps safe to assume this is the way the tank was manufactured.


25

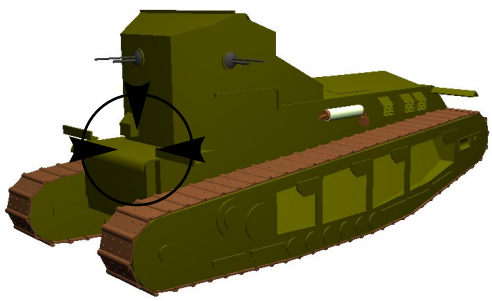

26



27

Hull rear

Behind the cab is a small deck, with a downward-curving plate of armour shielding an opening in the rear hull. This is the exhaust for the cooling air coming from the transmission units, which are located at the back of the hull underneath the cab.



28

Rear deck

If stowage bins were carried, the right-hand one fitted approximately over the piece of angle iron that is fixed to the side of the tank in this photo, but which does not seem to have any function here. Since, going by World War I photos, Whippets without these bins do not appear to have had this piece of metal, it seems safe to assume *Caesar II* did have them at some time.

The size of the grouser bar is also visible here, though it should be horizontal (as in photo 27) rather than bent down as it is on *Caesar II*.


27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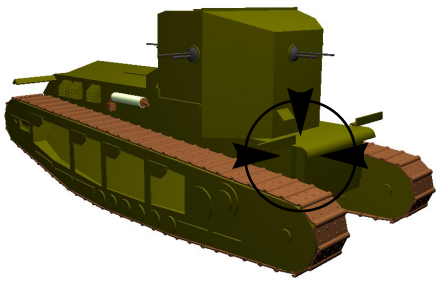
28

29

Cooling air exhaust

A close-up of the deflector over the cooling air exhaust, clearly showing that it is made of much thinner metal than the plates making up the hull proper.



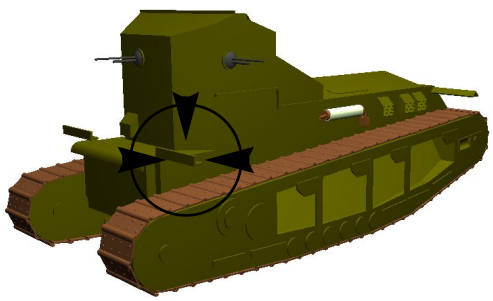
Rear track cover support

On both sides of the rear deck should be another track cover support, though of the three tanks only the one in Brussels has retained them.

The covers themselves were narrow lengths of canvas, about the width of the tracks, with a reinforcing slat at each of the short ends. Both the front and rear supports have three holes, into which metal rings were fixed (the support in this picture still has two of them). It appears that the track cover was hooked directly to the rings on the front support, putting the slat close to the support; on the rear, however, three coil springs with hooks were attached to the slat and hooked into the rings to put a greater distance between slat and support.

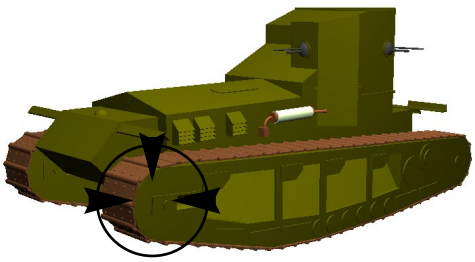
The covers frequently hung down far enough to touch the top run of the tracks; when they were not needed, they could be unhooked at the rear and rolled up over the front support, ebing secured with a bit of rope or twine.

30




29


30
Deutschland
Allemagne

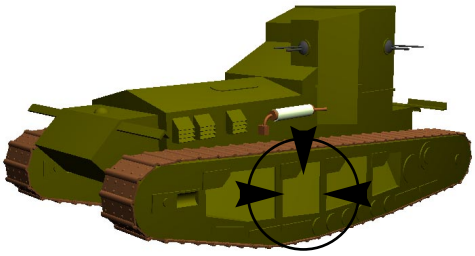


31

Track unit left

The front part of the left track unit, showing the track adjustment gear, a return roller, and some of the hooks fixed to bolts on the track unit sides. The recessed area is a mud chute, so that mud built up on the inside of the track can fall off without blocking up the suspension.

The small hooks are frequently described as "equipment hangers", suggesting their purpose is to hold the crew's personal equipment. This seems unlikely, because that way the gear would be in the way of the mud chutes and so get filthy very quickly. More likely is that the hooks are for carrying a tow cable, which can be seen in some photos of Whippets in action.



32

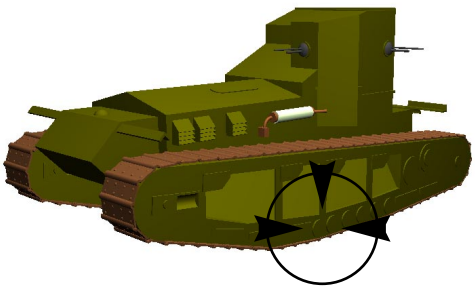
Track unit left

The forward/middle part of the left track unit, with another return roller and mud chute, as well as more hooks. All return rollers are protected by a metal plate bolted into place over them.

At the bottom of the picture, the horizontal bars with two round protrusions below them are fixtures for the axles. Each of the U-shaped bits holds the axle for one wheel, with the wheel itself being on the inside of the track unit, behind the steel armour.


31

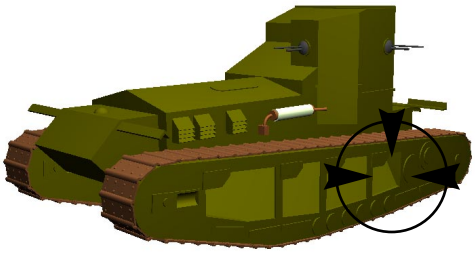

32



33

Track unit left

At the bottom of the track unit are six access plates. These are here because the six centre wheels are carried in ball bearings, as these are the ones that will be on the ground all the time due to the curve of the track unit bottom (the front- and rearmost wheels are off the ground on a flat surface). The other wheels are mounted on a simple axle instead.



34

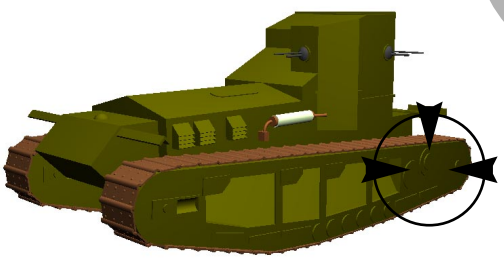
Track unit left

Further back still, this is the fourth mud chute. Again, there is a return roller behind the plate at the top, and more axle fixtures can be seen on the right of the photograph. The circular opening was normally closed by a round plate with four bolts around its rim (see photo 37, page 43); the holes for these are visible here. However, some World War I photographs show Whippets operating without this plate in place.

Inside the hole, the fifth return roller can be seen, as well as part of the chain that transfers power from the gearbox to the drive sprocket.


33

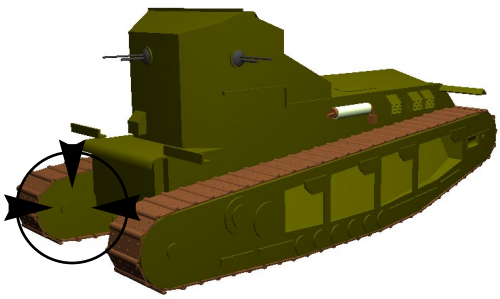

34



35

Track unit left

The very rear portion of the left-hand track unit. Directly behind the concentric circular panels is the drive wheel for the chain to the sprocket wheel, and the small round plate with four bolt heads is the axle for the sprocket itself. Notice how the track hangs down in front of the sprocket, at the top.



36

Track unit left

The inside of the left track unit, at the rear of the tank. Because this is where the drive sprocket is located, there is no track adjustment mechanism, only a fixed axle for the drive wheel. The sprocket's teeth can just be seen below the track at the top.

The dark area below the hull is probably leaked oil, not a deliberate black paint job.

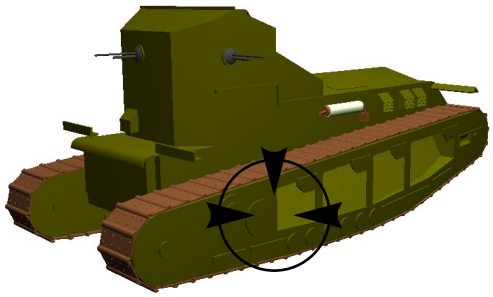

35


MARK VIII
36

37

Drive cover

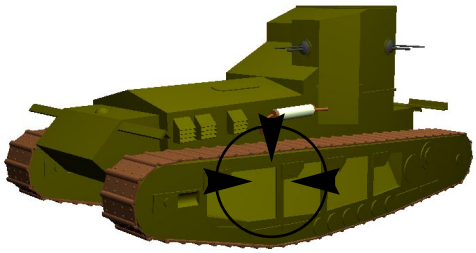
The circular hole in the side of the track unit was usually covered by a plate, as can be seen in this photograph. Photo 45 on page 51 shows what is inside the track unit, behind this plate.



38

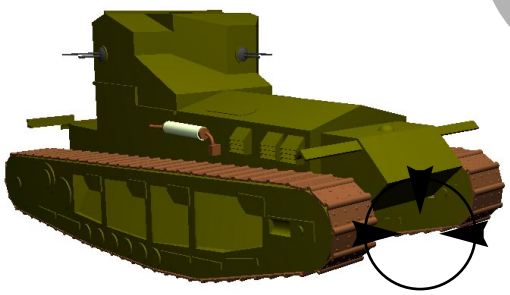
Mud chute

The inside of one of the mud chutes in the left track guard, although it is impossible to tell which one from this photograph … It shows the bracing that is behind each of the uprights in the track unit, and also to give an idea of what the inside face of the track looks like (see pages 48 and 49 for more details of the track). There is a return roller directly behind the support, and this is shown more clearly in photo 46 on page 51.



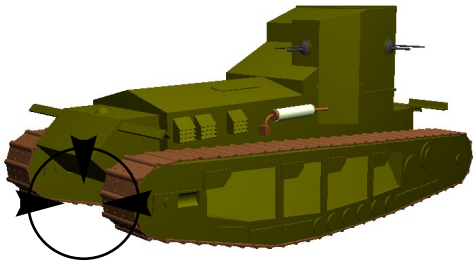

37


38



39 Underside left

A view of the hull bottom and inside of the left track guard, taken from the front of the tank. At the top right of the picture is the inner track adjustment mechanism for the left idler (see pages 46 and 47), while the centre of the photograph shows the mud chute holes on the inside, which correspond to those on the outside but are much lower.



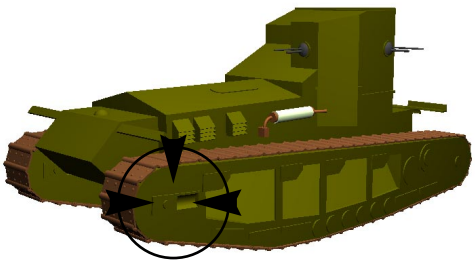
40 Underside right

Although not much different from picture 39, this is the opposite, right side of the tank.

Note the way the front hull floor is higher than the rear floor, with a sloping section between the two. For some reason, three metal strips have been riveted between the two, though their purpose is unclear.


39


40

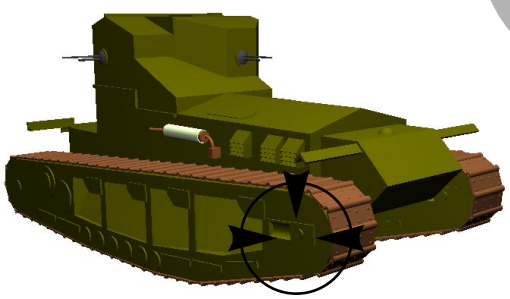


41

Outer track adjustment gear left

The adjustment gear on the left track unit, seen from the rear looking forward. By loosening the nut on the side, the bolt in the recess can be turned forward to increase the track's tension.

The grease on the adjustment bolt and the fact that the washer and nut on the axle have obviously been turned since they were painted (and so has the adjustment bolt, if you look carefully at the white paint on it), together with the worn areas on the track chains (see page 49) lead to the conclusion that this Whippet had its left track worked on not very long before these pictures were taken.

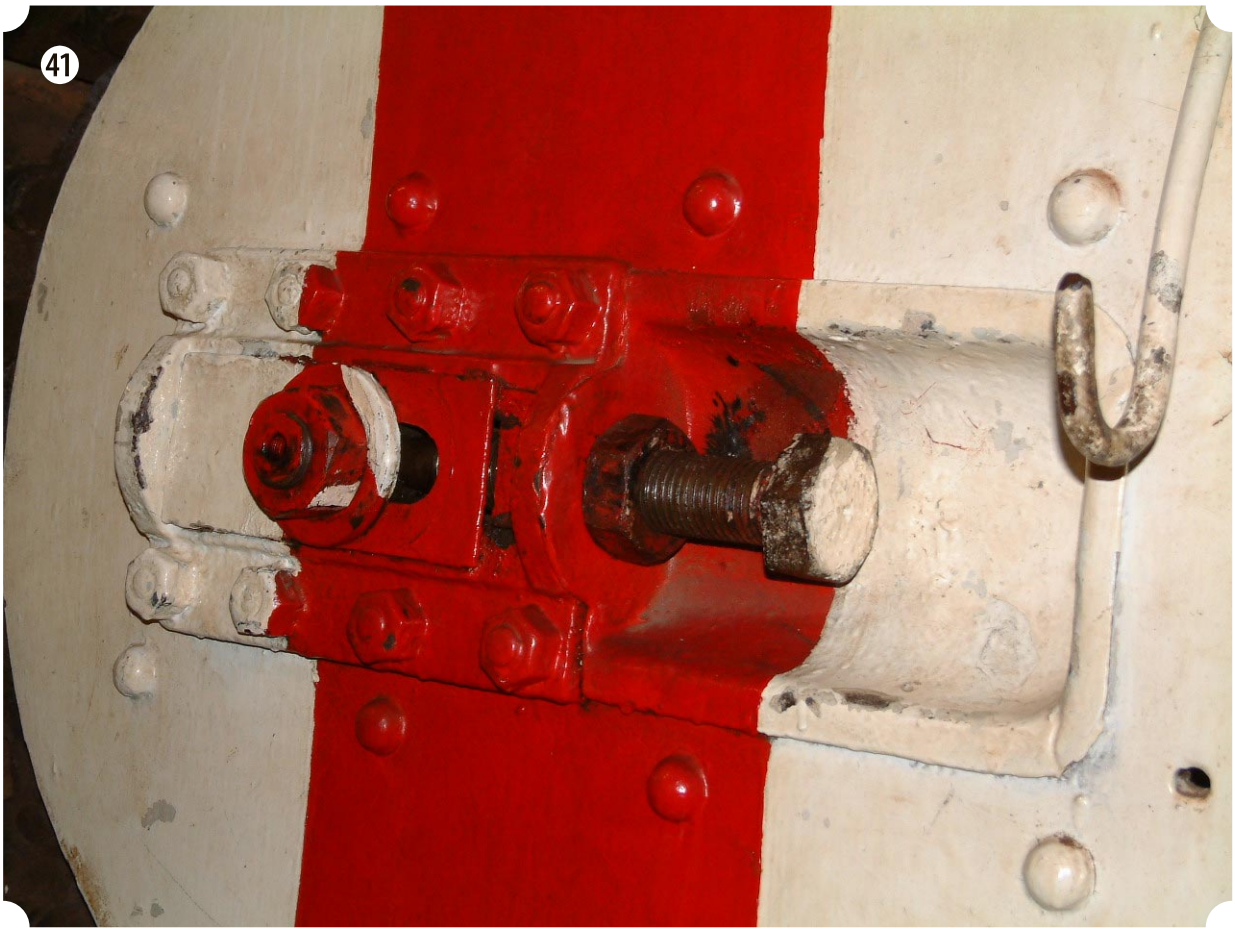


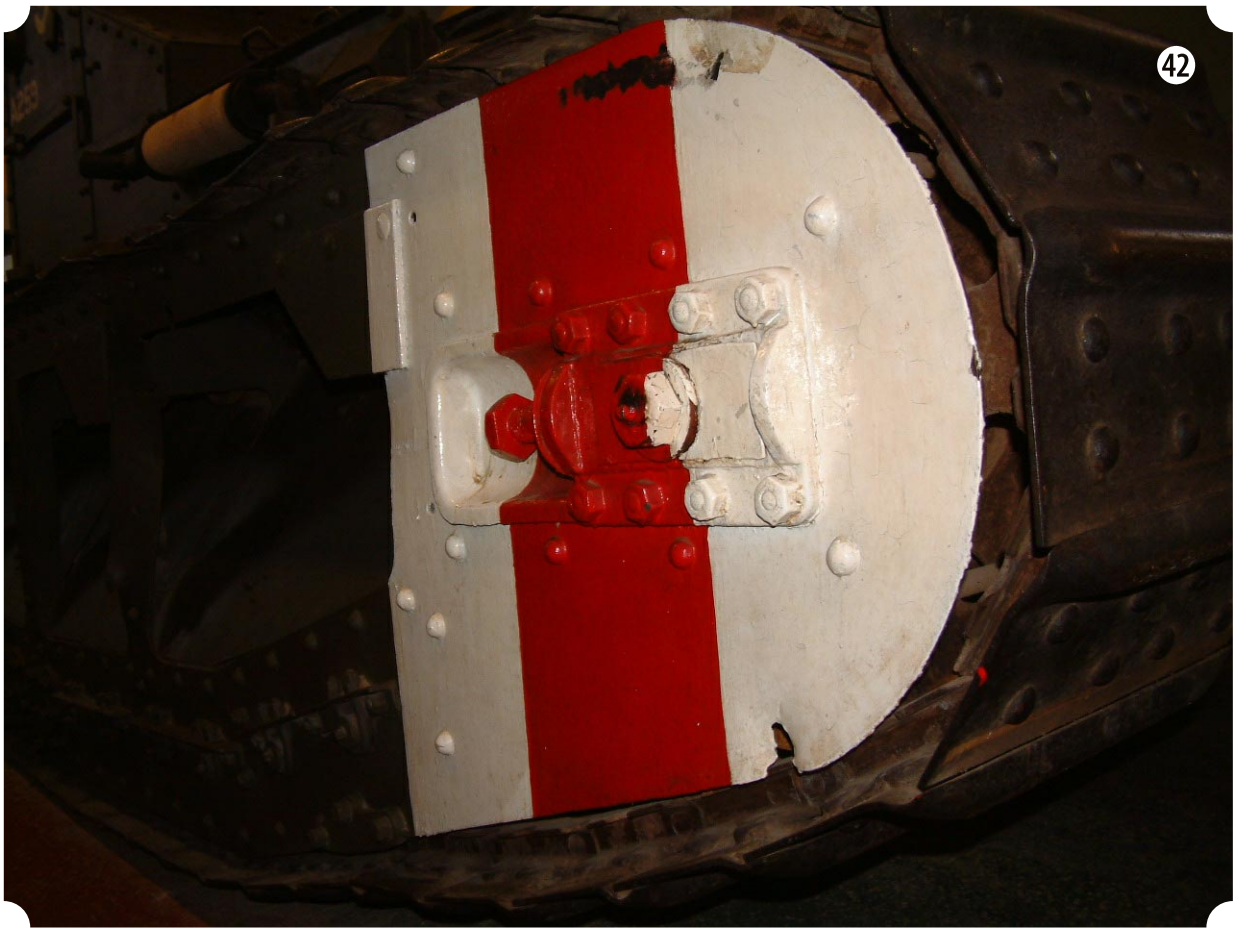
42

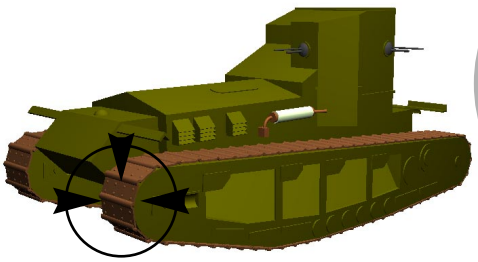
Outer track adjustment gear right

The right-hand track adjustment gear, at the front of the track unit. This is identical to that on the left, except (of course) for being a mirror image. The white/red/white bands are the colours of the British Army's Tank Corps, and were painted on many tanks during World War I.

An identical adjustment mechanism can be found on the insides of the track unit. To adjust the track tension, both adjustment mechanisms must be used, else the idler wheel would end up skewed.


41


42

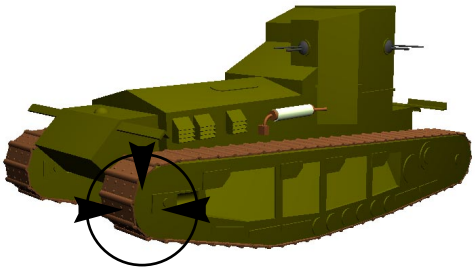


43

Track plate left

The tracks used on Whippet where much the same as on other British tanks of the period. According to at least one source, they were of lighter construction, but at first sight the ones on Bovington's Whippet look identical to the tracks of the other First World War tanks parked beside it.

The main part of each track link consists of a simple steel plate with a curved section at one end to make it fit over the next link—the best analogy is probably rooftiles, which link together in a very similar manner. The eight rivets visible on each link connect it to the chain underneath, which can be seen in photo 38 on page 43.

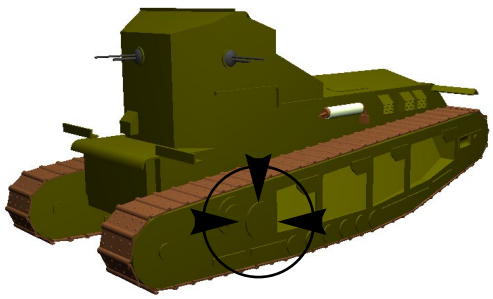


44

Track links left

This photo shows how the links are connected together. A metal plate, with holes at either end, is rivetted to the back of each track link; a pin then goes through the holes to keep the links together. These are the links running over the idler wheel, at the front of the left-hand track unit.

Notice the shiny metal on all the visible links, which together with the turned track tensioning bolt (see page 47) indicates this tank, or at least its track, was moved a bit soon before these photographs were taken.

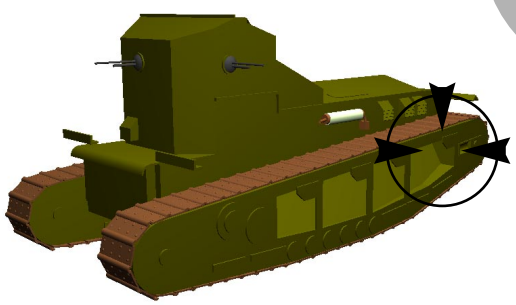


45

Track unit insides

On the inside of the rear part of the track unit is the final drive that transmits power to the drive sprockets at the rear of the tank. The sprocket visible in this photograph of the Brussels Whippet was at the front end of a chain which actually drove the wheel, but the chain itself has gone (picture 34 on page 39, of Bovington's vehicle, does give a glimpse of this chain). The sprocket is on an axle coming from the transmission below the floor of the cab rear, as can be seen on page 65.

The wheel that can be at the top of the picture is the fifth return roller.



46

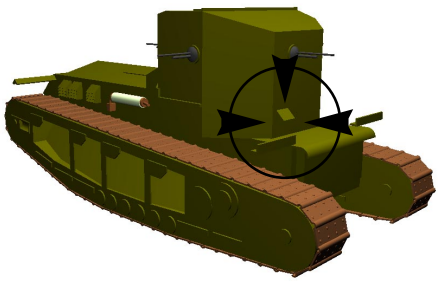
Return roller

Each track unit has five return rollers to support the track's top run. They are all the same: small, double wheels made from cast iron with four holes in them.

This is the front-most return roller on the right side. The first four return rollers on each side are inside the mud chutes, directly behind the uprights, with a bit of armour plate over the outside the protect them. The fifth return roller is inside the track unit, as can be seen in photo 45, above.


45


46

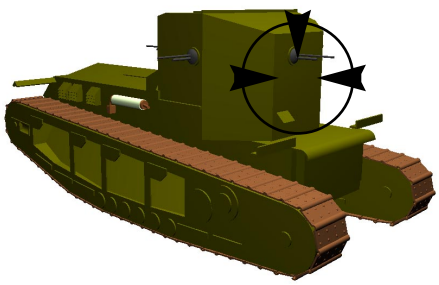


47

Door details rear

The lower hinge on the rear door, with next to it an air vent. There is a rectangular hole in the lower door (see photo 48, below), at about the same level as the horizontal part of the hinge, and this hole is covered by the large fitting seen in this photo so that no debris, shrapnel, or enemy bullets can penetrate into the tank through it.

The upper hinge is of identical design to the lower one.



48

Door inner face

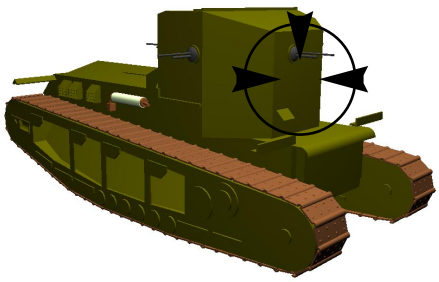
The inside of the door is fairly simple, with the machine gun ball mount as the main feature; see photo 49 on page 55 for more details.

Other details on the inside are the vision slit at the top and the ventilation slot near the bottom; although the outside has an elaborate cover (see above), the inside of the ventilation slot is very simple.

The vision slit is closed off by the semi-circular plate held in a bracket attached to the door. This plate can be turned upside-down to open the slit for use. Note the cut-out in the door frame on the cab to allow the shutter to rotate.

47

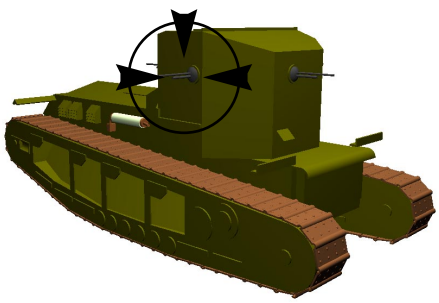
48



49

Machine gun mount inside

All machine gun mounts on standard Whippets are basically indentical to this one in the door of the Brussels tank. It is held into the door or armour plate by the large ring with six bolts around it. The handle on this ring is for the gunner to brace himself, while the handle on the actual ball mount is probably part of the mechanism to lock the machine gun into the mounting. Note that this ball is virtually upside-down, since this handle is supposed to be on the left, not on the right as it is here.



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Machine gun mount outside

A detail of the outside of the machine gun ball mount, not the same as in the photo above, but the one on the left side of the cab on Bovington's Whippet. The mounting is basically a steel sphere with a rectangular hole cut into it for the machine gun; the circular "extension" to the hole at the right top (in the photo) is for the machine gun's sight—this was offset to the left on the Hotchkiss gun.

On the left in the photo is one of the pistol ports, showing that they are not really more than an oval hole with a triangular shutter; two little studs prevent the shutter from moving further than it is supposed to.


49
A347


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Cab floor left rear

51

The Whippet's cab was directly over its transmission, part of which is visible in this photograph. The sprocket driving the chain that powers the rear sprocket is installed on the axle whose housing can just be seen at the top left of the picture.

Although apparently no surviving Whippets have a cab floor, it is likely one was fitted to cover the transmissions anyway, if only to prevent damage to them. Since such floors, if they existed, do not appear to have survived in any Whippet still in existence, they were probably made of wooden planks rather than steel plates.

Also shown are two of the South African ball mounts and a retaining ring of one of them, which have fallen out of their normal mounting places (perhaps through vandalism?).

Cab wall left

52

The left inner wall of the cab also has a machine gun mount as its most prominent feature, with a rack for four boxes of ammunition directly below it. As with the mount in the rear door, this one is currently upside-down.

The fixtures on the wall nearest the camera are brackets to hold the four Hotchkiss machine guns when these had been removed from their ball mounts.

Notice at the top of the cab, directly above the machine gun mount, is a metal plate bearing the vehicle number A347—suggesting that all Whippet registration numbers were already allocated when they were manufactured, rather than only to keep track of them once they had been issued to units.

51

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Cab left front

53

Looking forward from the cab gives a view directly into the engine compartment. Although this is not entirely certain, it is probable that the Whippet never had an engine bulkhead: like in most other First World War tanks, the crew and engine shared a single compartment (though in the Whippet, at least the engines were not in the centre of the crew compartment).

The handle that drives the vertical chain is most likely the starter for the engines.

The wooden box against the left wall does not appear to be an original fitting, but rather, is probably another South African addition.

Cab front

54

This photo is of much the same area as the previous one, but now from lower down and showing most of the cab's width. (And of a different tank, of course.) From this, it can be seen that another ammunition rack, for ten ammunition boxes, stood below the front machine gun mounting, obscuring the view of the engine that photo 53 provides.

The rectangular shape at the right of the picture is the back of the driver's seat.


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Driver's position

The driver's position was at the right front of the cab, behind the sloping front plate. His vision would have been severely limited by just the vision slit in the vertical front plate and the pistol port in the left.

As can be seen at the right of the picture, the South African machine gun mounting had a cradle that is not present on standard Whippets.

56

Driver's position

Though badly decayed over the years, the driver's seat is still there on the Brussels tank, however, the steering wheel is not.

Behind the seat is another ammunition rack, this one for five ammunition boxes for the Hotchkiss guns.

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Driver's controls

57

This photo shows most of the driver's controls, plus plenty of their linkages. Besides the steering wheel with what looks like a throttle handle in its centre, the driver has two pedals that are probably accelerators, two handles in the centre (likely the brakes, given the locking handles on them) and a gear shift lever on each side of the seat. The reason for all the duplicated controls is the fact that boths engines and tracks were controlled independently.

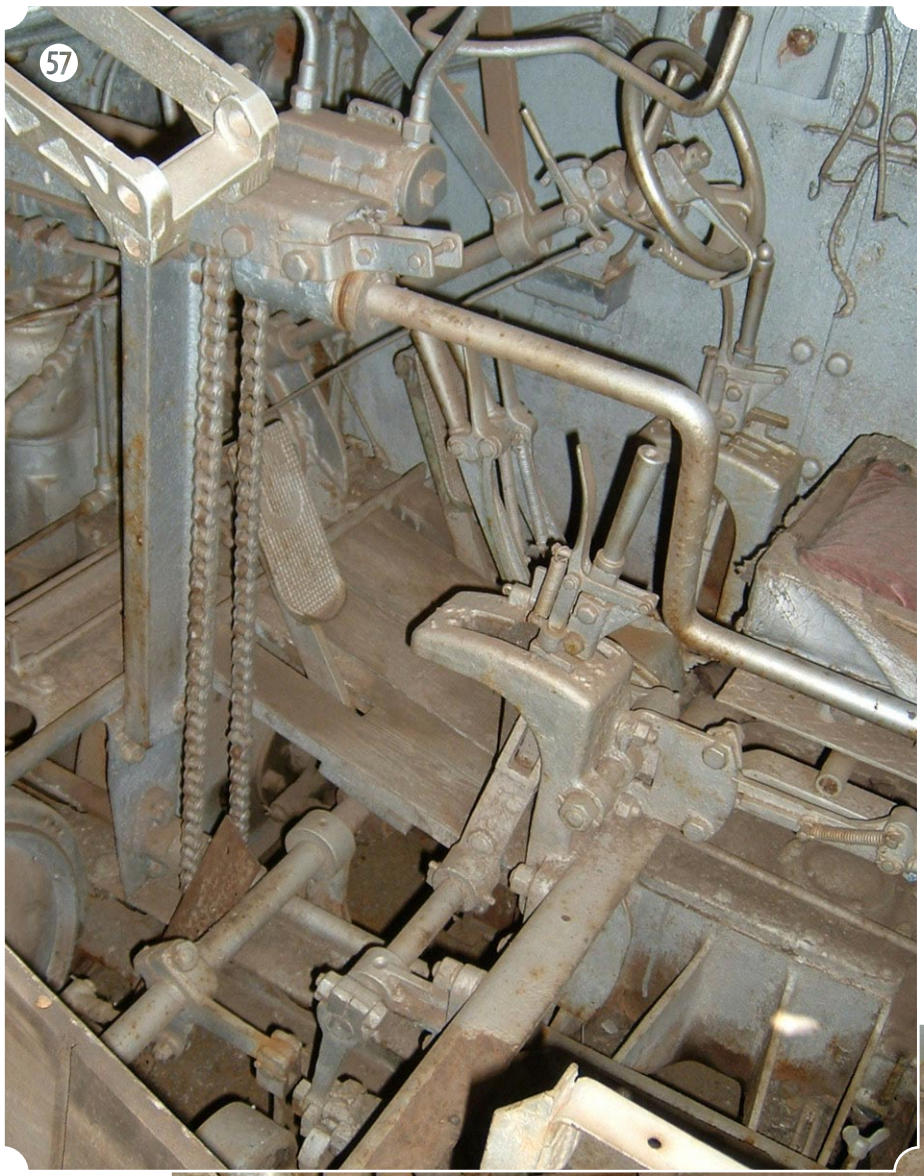
The metal box-like things on the floor beside the driver's seat are not stowage bins, but brackets by which the transmission is bolted down. This can be seen in photo 58, below.

Transmission left

58

A view down from behind onto the left-hand transmission in the South African Whippet. The square part is roughly in the middle of the cab, length-wise, and is driven by the engine directly forward of it, just in front of the cab.

A second transmission is directly underneath the driver's seat, on the right of the tank.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59

Cab wall right rear

Because the ammunition rack has been removed from this Whippet, this picture gives a good view of the rear part of the transmission. This is where the drive train is turned through 90° so that the front sprocket in the track unit (see photo 45 on page 51) can be driven.

60

Engines

The lack of a firewall between the cab an engine compartment means the engines themselves are plainly visible from inside the cab. Both engines are exactly the same, and placed facing the same way; the exhaust is on the left (and can be seen on the right-hand engine) while the inlets are fed by the tubes visible on the right of the left-hand engine.


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Cab roof

The roof of the Brussels vehicle, seen from the open rear door. The lighter square shape on the left is the roof hatch, which opens forward. Just visible to the right of this hatch is a small round hole with a handle beside it; this is a port most likely intended for giving flag signals from under armour. The small handle beside it operates a cover similar to those on the pistol ports in the cab walls.


61