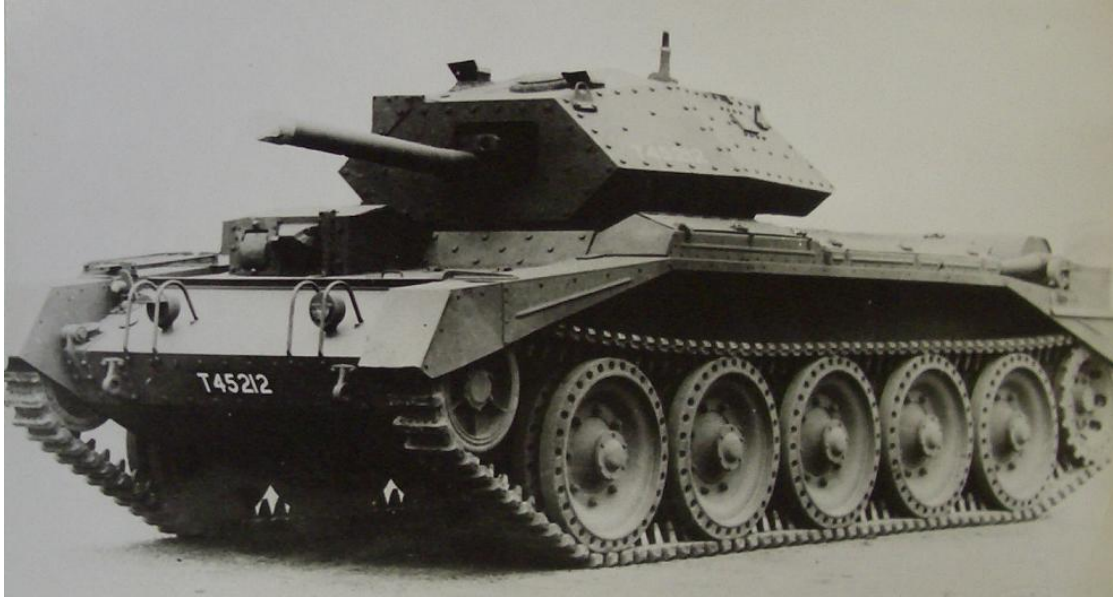


# The Crusader Tank (A.15)



A Crusader Mk III with a 6pdr

The original specifications for the Crusader tank called for a tank that had a 40mm frontal armour standard and 30mm elsewhere and a weight of no more than 18 tons, armament was again the 2 Pounder Gun with a Besa 7.92 machine gun, there was also an extra Besa left of the driver. To keep production as simple as possible it was decided the Crusader and Covenanter should share as many components as possible.

The first Crusader tank prototype was delivered around April 1940 and was found to have serious defects, many of which should have been eliminated at the design stage. One of the more serious issues was the driver's head projective above his cabin while opened up "*there is a danger of his head being cut off by the rear of the turret or hit by the gun if the turret rotated*". Other issues included injury to the driver when going over rough terrain, reliability and cooling. By September 1940 the driver's position had improved but it still remained impossible for service use.

Due to the grave situation at the time every vehicle possible was required and so the Crusader tank was pushed into production, and the first Mk I version of the tank was completed in November of 1940. In December 1940 the production model underwent firing and stowage trials at Lulworth, these trials found the vehicle to be *most unsatisfactory*. The trials found...

- No attempt had been made to incorporate any additional equipment which had been found essential by units who served in France.
- The auxiliary turret was too small for an ordinary man to fit in it and there was no room to operate the gun.
- With the auxiliary turret open the main turret could not be transverse.
- There was no look-out in the auxiliary turret.
- The driver had only a limited vision.

- The gassing trial showed that the auxiliary gunner would only last ten minutes while the rest of the crew would be asphyxiated in approximately half an hour.

The Mk II Crusader tank was an uparmoured version of the Mk I, frontal armour was increased by up to 10mm and the roof was increased by 3mm. The auxiliary turret was used on both vehicles but some Mk I versions and most Mk II versions did not have this turret due to the major problems listed above. By late 1941 the need to increase the power of the Crusaders gun, for this the 6pdr gun was available, most 6pdr guns produced in 1941 were the tank version but these could also be mounted on the anti-tank carriage. Nuffield's version of the turret with a 6pdr was tested in October 1941 and although it was not an ideal solution it was approved. Production was authorised in December and the first Crusader tank Mk III was produced in May 1942.

CS (close support) versions of the Crusader replaced the 2pdr with a 3" howitzer capable of firing both HE and Smoke shells, as the 3" howitzer has been specifically designed to fit in the same mounting as the 2pdr fitting it inside the Crusader was no problem, the main issue was ammunition stowage, the size of the 3" howitzer rounds reduced the capacity from 130 rounds with the 2pdr to 63 with the 3" howitzer.

The Crusaders tank armour arrangement was complex with composite, spaced, cast and single plate armour. Generally the armour was composite consisting a machineable quality plate with carbon manganese steel backing plate, this combination offered slightly less ballistic resistance compared with a single plate but on non penetrating rounds the backing plate stopped fragments from entering the vehicle. In 1942 14mm machineable quality plates were added to the front of the Crusader to improve protection, it had been hoped to add another 6mm to this 14mm but the suspension was not able to handle this additional weight.

The Crusader tank performed well against the Italian tanks but was largely inferior the German vehicles of the time which were better armed and had slightly thicker armour. Reliability was a major throughout and this was not largely solved until 1942. The 6pdr gun improvement was greatly welcomed by crews who at last could deal with any German tank of the period at range, by the end of 1942 the Crusader tank had been declared obsolete and were replaced by Shermans.

The Crusader remained in production well into 1943 and as the vehicles were obsolete it was decided to put the Crusader tanks high power to weight ratio to use as much as possible. The Crusader tank was used for Observation Posts (OP), anti aircraft versions - Bofors and Oerlikon and a Crusader Tower

## Crusader Tank

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used to pull 17pdr anti-tank guns.

	Name	Crusader I	Crusader II	
Type	Cruiser	Cruiser	Cruiser	
Production Date	November 1940	July 1941 (At latest)	May 1942	
Crew	4	4	3	
(In turret)	3	3	2	
Length	20'-8.5"	20'-8.5"	20'-8.5"	
Width	9'-1"	9'-1"	9'-1"	
Height	7'-4"	7'-4"	7'-4"	
Weight	18.8	19	19.7	
Ground pressure	14.46	14.65	15.15	
Ground clearance	1'4"	1'4"	1'4"	
Track type	Webbed & Studded	Webbed & Studded	Webbed & Studded	
No per track	118	118	118	
Weight of one Track	1705	1705	1705	
Track width	10.7	10.7	10.7	
Engine	<a href="#">Nuffield 45 V Angle</a>	<a href="#">Nuffield 45 V Angle</a>	<a href="#">Nuffield 45 V Angle</a>	
B.H.P/Ton	18.05	17.9	17.2	
Max road speed	27.5	27.5	27.5	

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Average road speed	20	20	20
Gear box type	Constant mesh	Constant mesh	Constant mesh
Gears	4 forward 1 reverse	4 forward 1 reverse	4 forward 1 reverse
Fuel consumption (road)	– MPG 1.5	1.5	1.5
Fuel consumption (cross country)	1.1	1.1	1.1
Petrol capacity	110	110	110
Auxiliary capacity	30	30	30
Radius of action (road)	200	200	200
Radius of action (cross country)	145	145	145
Trench Crossing	7'-6"	7'-6"	7'-6"
Vertical obstacle	2'-6"	2'-6"	2'-6"
Fording height	3'3"	3'3"	3'3"
Main Armament	<a href="#">2 Pounder</a>	<a href="#">2 Pounder</a>	<a href="#">6 Pounder</a>
Ammunition	130	130	73
Secondary Armament	Besa 7.92	Besa 7.92	Besa 7.92
Ammunition	4950	4950	4950
Transverse type	Hand & Hydraulic	Hand & Hydraulic	Hand & Hydraulic
Max elevation	20	20	20
Max depression	15	15	12.5
Turret Ring Size	55.5"	55.5"	55.5"
Optics	<a href="#">No.30</a>	<a href="#">No.30</a>	<a href="#">No.39</a>
Armour			
Lower Hull Nose	4.5(I.T. 70) + 12.720(I.T. 100) + 12.720(I.T. 110)	18(I.T. 80) + 12.720(I.T. 100) + 12.720(I.T. 110)	18(I.T. 80) + 12.720(I.T. 100) + 12.720(I.T. 110)
Upper Hull Nose	14(I.T. 70)	20(I.T. 80)	20(I.T. 100)
Hull Front	14(I.T. 70) + 9.5320(I.T. 80) + 9.5320(I.T. 100) + 9.5320(I.T. 110)	14(I.T. 70) + 9.5320(I.T. 80) + 9.5320(I.T. 100) + 9.5320(I.T. 110)	14(I.T. 70) + 9.5320(I.T. 80) + 9.5320(I.T. 100) + 9.5320(I.T. 110)
Hull Sides	14(I.T. 70) + 14.274(I.T. 100) + 14.274(I.T. 110)	14(I.T. 70) + 14.274(I.T. 100) + 14.274(I.T. 110)	14(I.T. 70) + 14.274(I.T. 100) + 14.274(I.T. 110)
Exhaust Louvres	14(I.T. 70)	14(I.T. 110)	14(I.T. 110)

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Hull Rear	14(I.T. 70)+14.274(I.T. 110)	14(I.T. 100)+14.274(I.T. 110)	14(I.T. 100)+14.27(I.T. 110)
Hull Roof (Front)	9(I.T. 70)	9(I.T. 100)	9(I.T. 100)
Engine Deck	7(I.T. 70)	7(I.T. 100)	7(I.T. 100)
Hull Floor (Front half)	4(I.T. 70) + 6.354(I.T. 110)	4(I.T. 100) + 6.354(I.T. 110)	4(I.T. 100) + 6.35(I.T. 110)
Hull Floor (Rear half)	6.35(I.T. 110)	6.35(I.T. 110)	6.35(I.T. 110)
Drivers Box front	8(I.T. 70)+22.2218(I.T. 110)	8(I.T. 100)+22.2218(I.T. 110)	8(I.T. 100)+22.22(I.T. 110)
Drivers Box Visor	50(I.T. 90)	50(I.T. 90)	50(I.T. 90)
Drivers Box Sides	8(I.T. 70)+14.274(I.T. 110)	8(I.T. 100)+14.274(I.T. 110)	8(I.T. 100)+14.27(I.T. 110)
Drivers Box Roof	9(I.T. 70)	12(I.T. 100)	12(I.T. 100)
Turret Front	20(I.T. 70)+19.0530(I.T. 110)	20(I.T. 100)+19.05175(I.T. 110)	20(I.T. 100)+19.05(I.T. 110)
Turret Roof	9(I.T. 70)	12(I.T. 100)	12(I.T. 100)
Turret Sides Upper	1(I.T. 70)+9.5314(I.T. 110)	1(I.T. 100)+9.5314(I.T. 110)	1(I.T. 100)+9.53(I.T. 110)
Turret Sides Lower	1(I.T. 70)+9.5314(I.T. 110)	1(I.T. 100)+9.5314(I.T. 110)	1(I.T. 100)+9.53(I.T. 110)
Turret Rear Upper	1(I.T. 70)+12.717(I.T. 110)	1(I.T. 100)+12.717(I.T. 110)	1(I.T. 100)+12.7(I.T. 110)
Turret Floor	9(I.T. 70)	9(I.T. 100)	9(I.T. 100)

**Production of the Crusader Tank by year (UK Only)**



**Pre-War**

**Sep-Dec 1939**

**1940**

**1941**

**1942**

**1943**

**1944**

**1945(End of May)**

**Crusader Mk I**

## Crusader Tank

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Crusader Mk II  
Crusader Mk III  
Orlikon Crusader  
Bofors Crusader  
Crusader OP

## Crusader Tower



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Sources - AVIA 46 188, AVIA 22 456-514, WO 194