



XPAG and XPEG block and head casting numbers and logos

As most T type (and Y type) owners probably know, the XPAG engine was originally derived from the 1140cc XPJM engine fitted to the 1939 Morris 10/4 series M.

The block of this engine, with bores of 63.5mm and the familiar oval water transfer holes, had a prewar casting number of 22500, and postwar casting number of 24144 when a timing chain tensioner was fitted, although the numbers did not always actually appear on the block. To give the 1250cc of the XPAG engine, the bores were increased to 66.5mm by moving out the four cylinder walls, but still retaining the oval water transfer holes. This expanding of the cylinder walls to increase the capacity was later repeated for the XPEG engine. The new block casting, used for the TB engine, showed an octagonal 'MG' logo and a diamond Morris Motors 'MM' logo on the side, and had a casting number of 24001. Postwar, when the TC was introduced with engine XPAG/883, the block was modified slightly to allow the new timing chain tensioner to be fitted. There was a new casting number 24142, although it is not certain the new number specifically relates to the tensioner. Later, when the Y type was introduced in 1947, the block casting number became 24146 without any obvious design changes, although the drain valve was moved forward from behind the exhaust manifold. The TC engine changed to using the 24146 block at the same time, and the TD engine used the 24146 block from its introduction in 1949. There was a further change in July 1950, at XPAG/TD/2985 and XPAG/SC/15405, when the plinth holding the oil filter clamp was increased in area for a third bolt, and the block casting number was changed to 24445. It is thought that this was when a shallow plinth for the engine number was added on the right-hand side towards the front. The 'MG' and 'MM' logos were used on the 24142, 24146 and early 24445 blocks, but from mid 1951 (not 1950 as previously thought) on the later 24445 blocks the foundry logo changed to a 'W' in a diamond. This was because casting was moved to a foundry in Wellingborough, which used a 'W' in a diamond logo, as explained later. On blocks cast in the months just before the move to Wellingborough, the 'MM' logo became very faint.

Regarding the Morris cylinder head, it also had oval water transfer holes, and may have had a casting number of 22812 or 22912 (prewar, not shown on the heads) or 22950 (postwar, not confirmed). However, when the cylinder head was used on the XPAG engine, it showed the casting number of 22952 and a plain diamond logo, and this did remain unchanged until 1952. All these heads used spark plugs with ½" thread length.

In mid 1952, changes were made to both the block and head castings to encourage more water flow via the rear of the engine, and this was done by making the oval water transfer holes smaller, and round, in section. An additional change was made to the cylinder head to allow the use of ¾" thread length spark plugs, rather than the previous ½" thread length. The revised block showed a casting number of 168421, but the 'MG' logo was lost, and only the diamond 'W' logo remained. The revised head showed a casting number of 168422, plus the diamond 'W' logo. There was another subtle difference in the 168422 cylinder head, in that an 'undercut' was introduced below the inlet and exhaust valve seats, in the opposite direction to the ports. This undercut is still there even when the larger valves are fitted, and although less important for the exhaust ports, means that the inlet ports are more efficient in the earlier heads. Thus the earlier 22952 heads are the better ones to gas flow. Anyway, these new blocks and heads were not introduced at the same time. The TD Mark II

Photos of casting numbers

All photos by Roger Wilson unless otherwise accredited



24144 XPJM block casting number



24001 block casting number
Photo: Graham Louk



24142 block casting number
Photo: Bob Douglas



24146 block casting number
Photo: Chris Collingham

apparently gained the new head only (with further mods by MG to have larger valves) on the 9-6-52 at engine number XPAG/TD3/17029; which is when, according to the June 1958 AKD834 TD Parts List, the TD3 code for the Mark II engine was introduced. It is not clear from the parts lists if the Mark II had the new block at the same time, although Blower (a book covering the maintenance of MGs from the M type to the TF) implies that it did. However, both the TD, including the Mark II, and the YB certainly had the new block the next month; the TD on the 9-7-52 at XPAG/TD2/17969, and the YB on the 22-7-52 at XPAG/SC2/17463. Finally the standard TD and the YB were given the new head rather later on; the TD on the 26-11-52 at XPAG/TD2/22735, and the YB on the 6-2-53 at XPAG/SC2/17994. I'm sure all MG T and Y owners know that since blocks and heads can be swapped around, then a totally round water hole system must use the new (at that time) round water hole gasket, and any other combination should use the original oval water hole gasket.

MG (or Morris) appear to have made a significant change to these new 168421 blocks only three months after their introduction. In October 1952 the fixing for the distributor was changed from a clamp to a cotter bolt. This required a slight modification to the block, with the boss that holds the clamp screw being enlarged to house a cotter bolt. As clamps were no longer used, new distributors were introduced that had shorter stems. However, there does not seem to have been any change in the block casting number of 168421.

Late in 1953 the TF1250 was introduced, and this continued to use the 168421 block casting. The basic 168422 head casting was also used, but for the TF engine, the heads were now machined by Morris Engines Division to have the larger chokes (then assembled with the larger valves) as in the TD Mark II. These heads were given the casting number 168425, shown on the heads using the '16842' of the original casting number, followed by a blank area where a 5 was stamped on. So either some casting moulds were altered so that the last 2 of the casting number did not form, or the last 2 was ground off after casting - then the 5 was stamped on. The assembled engines were coded XPAG/TF, the YB had by then been discontinued.

The final casting changes were in 1954 for the XPEG engine, as fitted to the TF1500. To gain the 1500cc (actually 1466cc) the bore walls were moved out again (as previously mentioned). This resulted in the cylinder walls between no 1 and 2 bores, plus no 3 and 4 bores, being 'siamesed' together. An additional consequence was that the round water holes on the non-pushrod side were too close to the cylinder walls, so they were also moved out by approx 2mm. The new block casting, still with the diamond 'W' logo, had the casting number AEF117. The cylinder head had the same round water holes moved, and with the diamond 'W' logo, was given the casting number AEF118, which was stamped on the heads. To cast these heads, it is evident that some of the 168422 head casting moulds were used (not those retained for the Wolseley 4/44), with changes to the internal sand cores to reposition the 'moved' water holes. Then either the number area in the moulds was filled in so that a blank area would be formed (most likely), or the 168422 number was ground off after casting - then the AEF118 was stamped on. A new, round water hole, head gasket was introduced to accommodate the larger bores and the 'moved' water transfer holes. Although XPAG and XPEG heads and blocks will fit each other, the 'moved' water holes will not fully line up with the original holes, and gasket clamping in those positions could be impaired.

The block casting numbers can be found on the forward left-hand side of the blocks, and the head casting numbers on the upper head surface, towards the front on the right hand side. Other letters and numbers, near the dipstick on the block and on the rear right hand side of the head



24146 block casting number
Photo: Mark Tullett



22952 head casting number



24445 block casting number
Photo: David Braun



24445 block casting logos from later TD MkII
Photo: Bill Silcock



168421 block casting number

upper surface, relate to the casting date. The date was initially shown in full, but a date code standard was introduced in, it is believed, June 1939. The BMC February 1971 issue of this standard is shown [elsewhere on the T Register website](#) and the detail there includes a link to a backdated table to decode it. All XPAG and XPEG engines were made at the Morris Motors Engines Branch factory at Courthouse Green, Coventry, where they also made the XPJM engines for Morris (cars at Cowley, Oxford, commercial vehicles at Adderley Park, Birmingham) and the XPJW engines for Wolseley (Ward End, Birmingham until WW2, Cowley after WW2). The factory had been opened in 1927 as a much larger expansion of the original ex-Hotchkiss factory in Gosford Street, Coventry, which did not have a foundry - castings were sourced from outside suppliers. The new factory occupied a 45 acre site and contained a foundry, and from July 1935 made all the engines and gearboxes for all the vehicles in the Morris Motors range, except for, initially, Riley Motors when purchased in 1938. MG blocks and heads cast at the Courthouse Green factory displayed, as well as the casting number and date, an octagonal 'MG' logo and a diamond Morris Motors 'MM' logo on the blocks, and a plain diamond logo on the heads – both blocks and heads being the oval water hole units. Completed engines and gearboxes were then transferred to the MG assembly plant in Abingdon. However, from mid 1951, the W in a diamond logo indicates that the later 24445 block castings and then the 168421 block and 168422 head castings were produced at a foundry in Wellingborough, but were then taken to Courthouse Green for completion. In July 1947 Morris Motors had bought the foundry of Thomas Butlin & Sons at Wellingborough, Northamptonshire, and this foundry used a W in a diamond logo. The foundry also produced castings for the Nuffield tractor, and the same W in a diamond logo can be seen on those castings. The Gosford Street factory stopped engine manufacture at the end of 1936 and in January 1937 became Nuffield Mechanisations, so our engines and gearboxes were never made there. After the war the Gosford Street factory building became offices for the Ministry of Pensions & National Insurance, and both the Courthouse Green engine plant and the Wellingborough foundry closed in 1981. It may be noted that no mention has been made of the change from the 7¼" to the 8" clutch, which is when the TD2 and SC2 codes were introduced; this is because no casting changes were made to the block. Gearboxes have not been included in this article – the housing castings have different logos, and it is not yet known where they were cast, but it is believed that the gearboxes were assembled at the Courthouse Green factory in Coventry.

The Wolseley 4/44 engine used the head casting 168422 and the block casting 168421 in engines coded XPAW. However, the XPAW engine had its dipstick in a different position, towards the front on the manifold side, and all 168421 blocks have an extra boss in this position, which was drilled to hold the dipstick tube – the boss for the MG dipstick tube remained, but undrilled. The XPAW engines were also made in the Morris Engines Division factory at Courthouse Green, Coventry, with the castings being produced at the Wellingborough foundry. The completed engines were then transferred to the Morris assembly plant in Cowley, Oxford, where Wolseley production was moved to after WW2.

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Many thanks to David Braun, Chris Collingham, Bob Douglas, Barrie Jones, Graeme Louk, Bill Silcock, Mike Stone, Mark Tullett, Arthur Vowden and Barry Woolford for contributing photos.

You can see a full album of photos of XPAG block and head casting numbers and logos at

<https://www.icloud.com/sharedalbum/#B0v5idkMwnxi8F>

There is [preliminary information on block casting date codes](#) available which is being further investigated.



168422 head casting number



168425 head casting number



AEF117 block casting number






Photo: Graeme Louk



AEF118 head casting number

Photo: Barrie Jones

Tables of casting numbers and cast logos with photos

Casting number	T Type model	Casting markings	Picture
24001	TB	MG logo and (possibly) MM in diamond	Larger photo 
24144	post war XPJM Morris 10 (for reference for MM logo)	No logo, MM in diamond	Larger photo 
24142	Early TC	MG logo and MM in diamond	Larger photo 
24146	Later TC and TD up to 1950	MG logo and MM in diamond	Larger photo 
24445	TD 1950 - 1952	MG logo, W in diamond lower down block	Larger photo 

Casting number	T Type model	Casting markings	Picture
168421	TD from 1952 and TF 1250	No MG logo, W in diamond lower down block	Larger photo 
AEF117	TF 1500 XPEG	No MG logo, W in diamond lower down block	Larger photo 

Block and head casting numbers with engine number of introduction

Prewar - oval water holes		Casting logo	Engine number at introduction
Model	TB		
Block	24001	MG + MM	XPAG/501
Head	22952	Blank diamond	XPAG/501
Postwar - oval water holes			
Model	TC, Y, YT, TD, YB		
Block	24142, 24146, 24445 (early)	MG + MM	24142 = XPAG/883
Block	24445 (later)*	MG + W	24146 = XPAG/SC/10001, XPAG/TD/501 24445 = XPAG/TD/2958, XPAG/SC/15405
Head	22952	Blank diamond	
Postwar - round water holes			
Model	TD, YB, W4/44		
Block	168421	W	168421 = XPAG/TD2/17969, XPAG/SC2/17463
Head	168422	W	168422 = TD Mark II only XPAG/TD3/17029 XPAG/TD2/22735, XPAG/SC2/17994
Model	TF 1250		
Block	168421	W	XPAG/TF/30301
Head	168425	W	XPAG/TF/30301
Model	TF 1500		
Block	AEF 117	W	XPEG/501
Head	AEF 118	W	XPEG/501

*As mentioned in the main text, the 24445 block initially showed the MG+MM logos when cast at Coventry, but changed to showing the MG+W logos when casting moved to Wellingborough in June or July 1950.

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