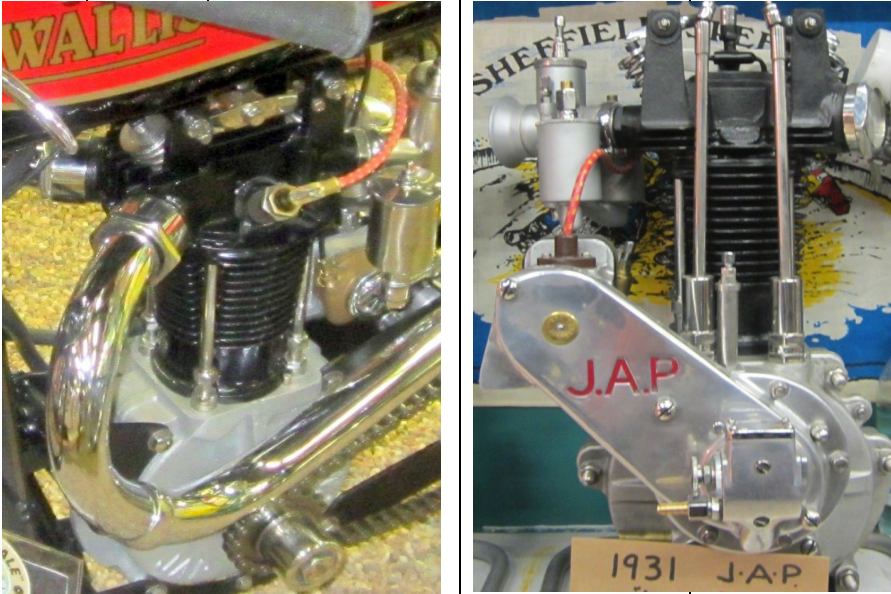

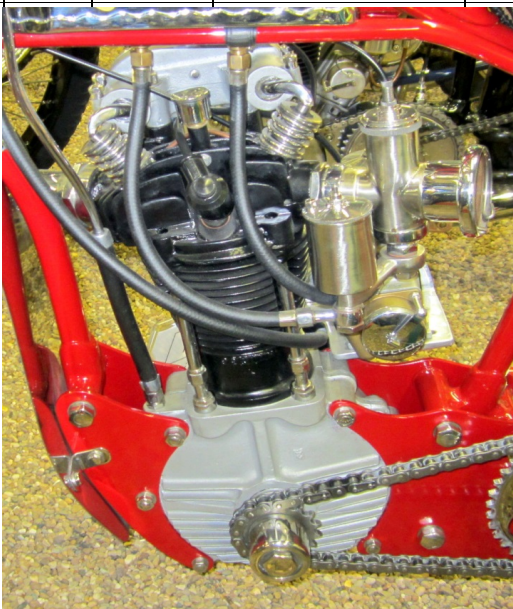
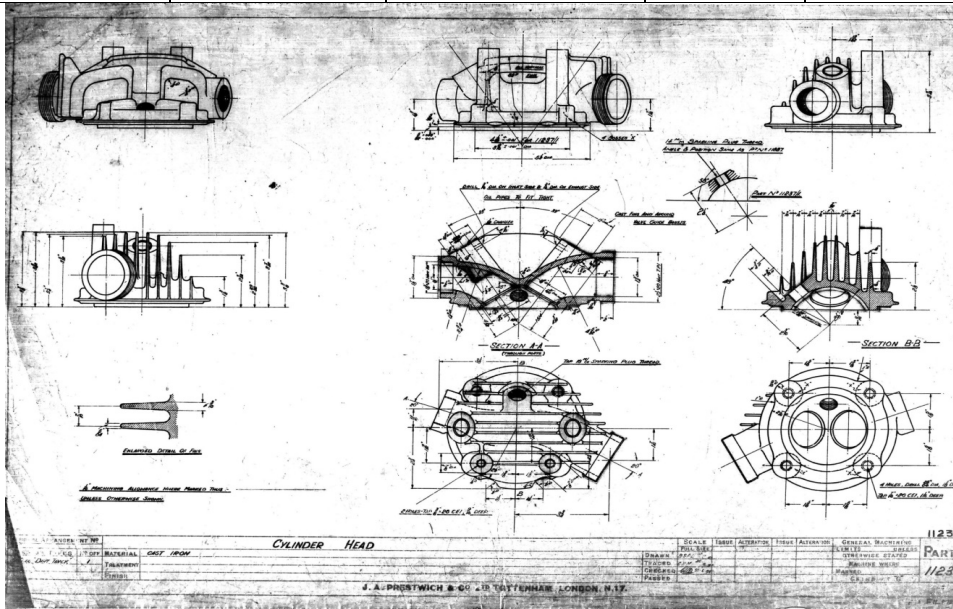
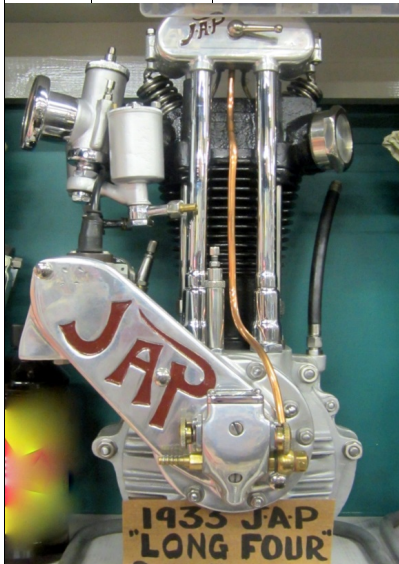

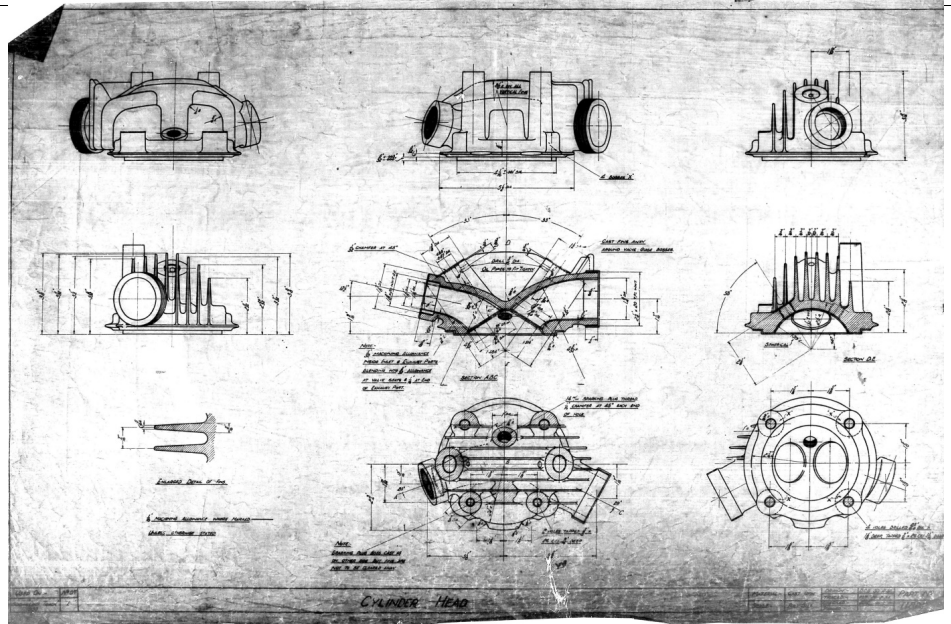
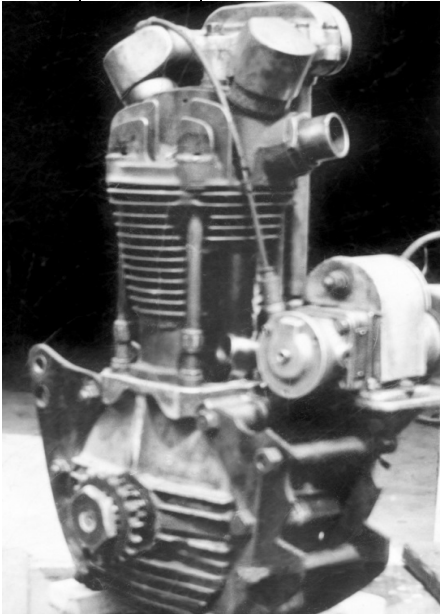
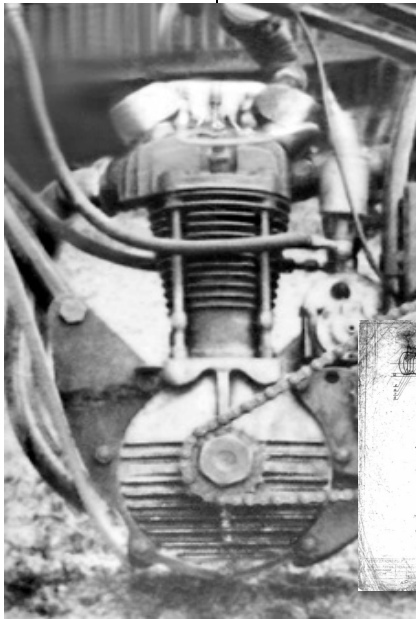
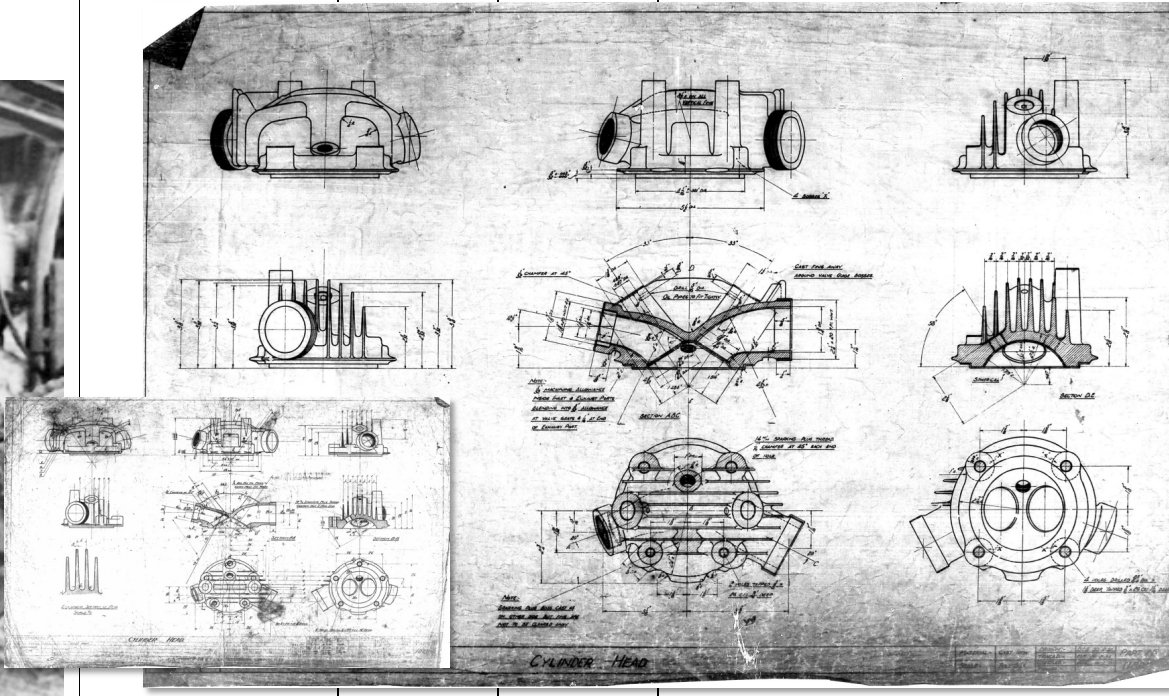




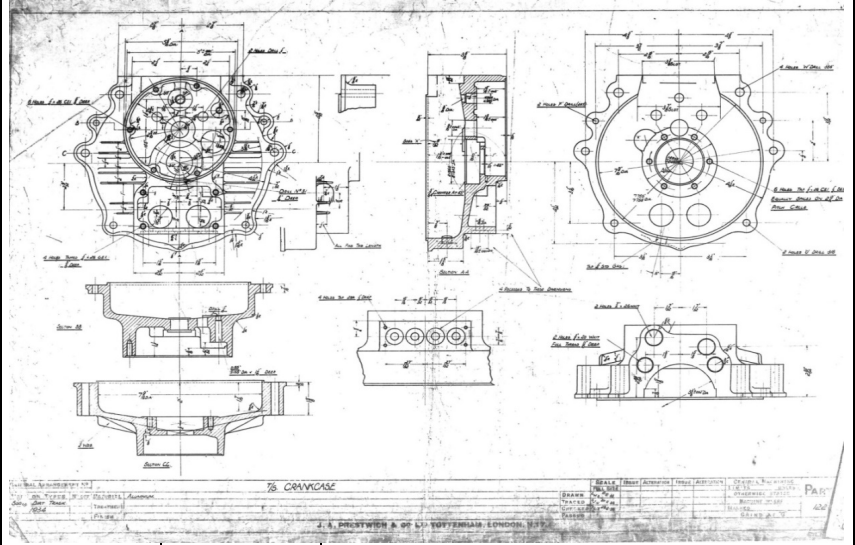
YEAR	Dwg #	Date Drawn	Title/Used on	FEATURES/CHANGES					
				Crankcase	Head	Valve gear	Cylinder	Source	Notes
1924								Clew v1 pp202-8	Stan Greening and ES Prestwich take 350cc sidecar world records in 1924; but Clew later says that Greening and Vivian (i.e. not ES) Prestwich had taken World records. He doesn't say when but says that their engine was used as the bottom end of the prototype speedway engine.
1930	????		1930 Prototype	Clew says this used [1924?] record breaking 350cc bottom end. JAP in small letters horizontal on chain cover. S	Modified roadster 350cc combustion chamber, twin exhaust ports. Left side inlet, .	Dog-ear rocker standards, exposed rockers and push-rods.	Short 4 stud	Clew pp83-87	Bill Bragg talked to Vivian Prestwich Nov 1929 and suggested a lighter version of the 500cc racing engine for speedway based on the 250cc bottom end [Clew but probably should be 350]. Prototype first raced 1.8.30 after much development. Small batch of replicas made that year leading to 1931 production.

YEAR	Dwg #	Date Drawn	Title/Used on	FEATURES/CHANGES						
				Crankcase	Head	Valve gear	Cylinder	Source	Notes	
1931			1931 500cc Dirt Track	JAP at some time in large script on magneto chain cover. No finning.	Possibly alternative type with slimmer dog-ears and single exhaust port.	Dog-ear rocker standards, exposed rockers and push-rods.	Short 4 barrel	Clew p89	In limited production	
								Paul Stanley measurements and photo below		
						<p><i>Left: note smooth crankcases with offset head studs and slender rocker standards with left hand horizontal inlet.</i></p> 				

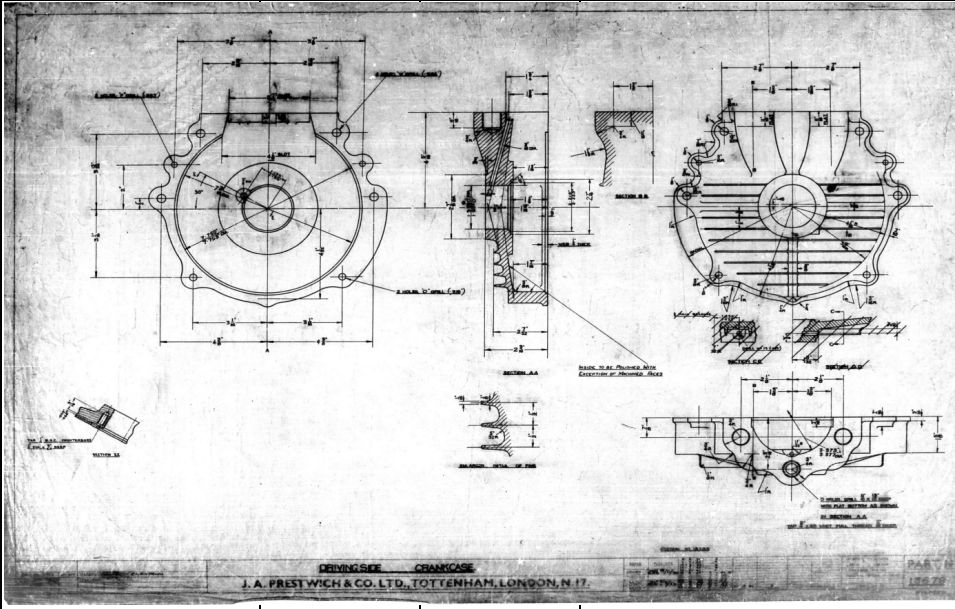
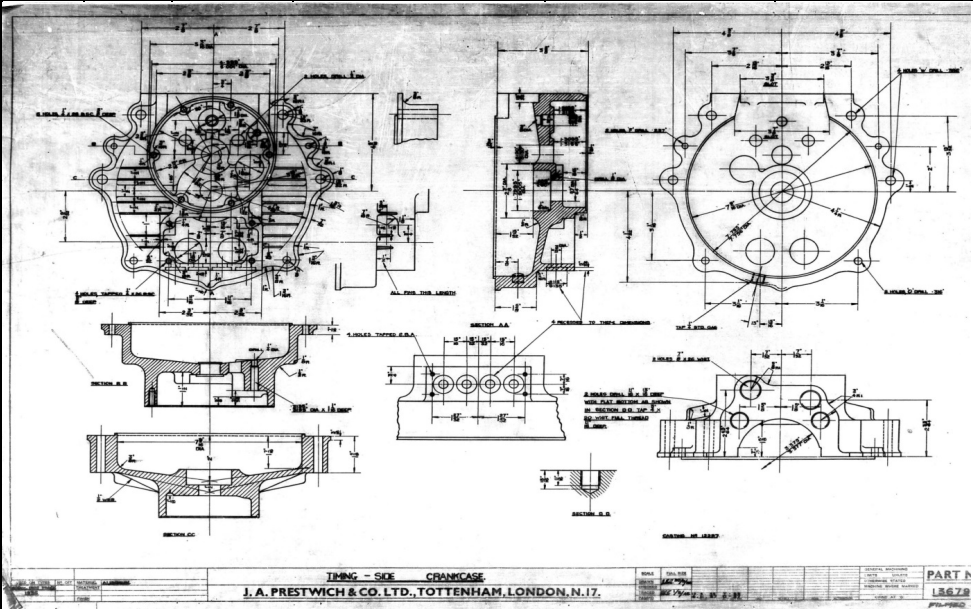
YEAR	Dwg #	Date Drawn	Title/Used on	FEATURES/CHANGES						
				Crankcase	Head	Valve gear	Cylinder	Source	Notes	
1932			1932 500cc Dirt Track	Stiffened up case lugs, finning to crankcase both sides. Steel flywheels instead of cast iron, increased diameter of crankpin and little end pin.	Single exhaust, horizontal left hand side inlet port, bronze guides, 12.5:1 CR, rockers moved from standards to rocker box, flatter head shape	Early type rocker box with double row needle bearings, manually lubed valve guides, enclosed pushrods and single Pilgrim pump.	More finning [maybe part 11238?]	Clew p92-3	Every engine was brake tested at 3,800 rpm for 4 hours then 10 minutes full throttle, 37.8hp @5,750rpm [Clew].	
	10993	1.1.32	Drivingside Crankcase/ 500cc Racing	Finning to crankcase both sides				Factory drawing	Similar, but maybe not identical to dirt track engine; no crankcase drawing known as specifically for dirt track engine.	
	109??	25.10.31	Timingside Crankcase/ 500cc Racing	Finning to crankcase both sides.				Factory drawing	Similar, but maybe not identical to dirt track engine; no crankcase drawing known as specifically for dirt track engine.	
	11188		no drawing				Long 4 barrel	Sample	6.750"/172.5mm long between faces. Later 8/80 also had this part number but with shorter barrel at 6.375/163mm	
	11237	22.11.31	Cylinder Head/500cc Dirt Track					Factory drawing		
	11238		no drawing				Short 4 barrel	Sample	6"/152.5 mm long. This part was drawn and maybe available before 5 stud introduced. Supposedly the original short 4 became the long 4 and then the long 5. Is this short 4 a new part for earlier shorter engines. Were they running the short 4 and long 5 at the same time?	
<div><div></div><div></div></div> <p>This early 4 stud head drawing 11237 traced on 20.5.34, maybe for 8/80 development? The 8/80 front (#2) cylinder used this head with 'flat' inlet port.</p> <p>Left photo: finning to crankcase, left-hand horizontal inlet with oil-pot between valve springs and in-line head studs in crankcase</p>										

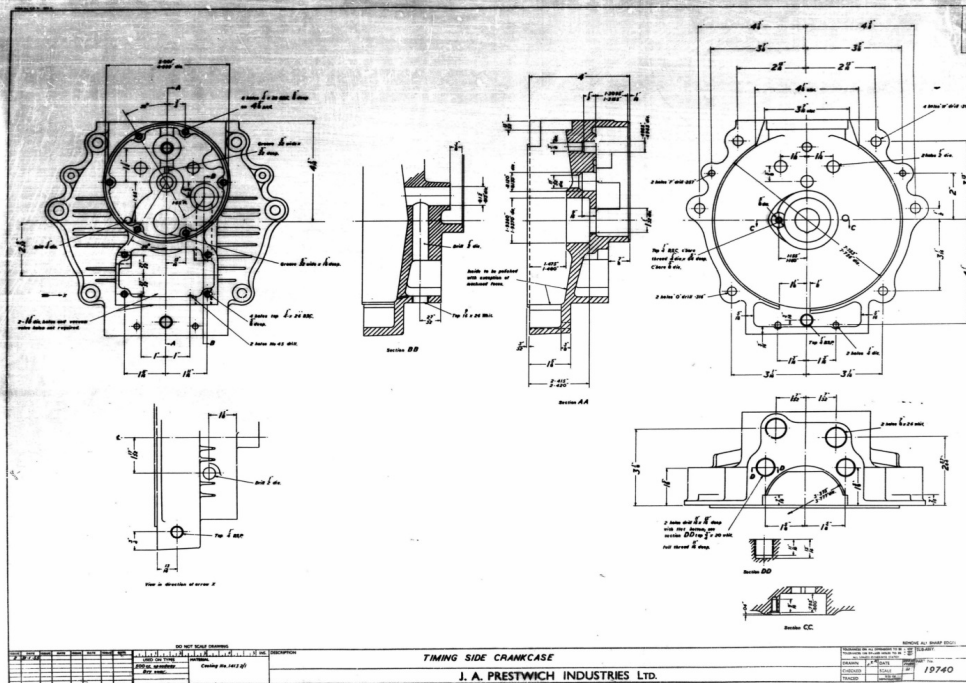
YEAR	Dwg #	Date Drawn	Title/Used on	FEATURES/CHANGES					
				Crankcase	Head	Valve gear	Cylinder	Source	Notes
1933			1933 500cc Dirt Track		New head with 12.5deg downdraught and rhs inlet port.	Modified rocker box with oil feed oil to rocker bearings and valve guides. Double pilgrim pump instead of single.	Long 4', 3/4" longer	Clew p95	Clew says 40bhp @ 6,000rpm, but this seems optimistic. There was also a rhs flat inlet (see photo)
	1182? 1188?	30-12.32	Cylinder Head/500cc Dirt Track 1933		Below left: shallow rocker box, enclosed pushrods, oil feed to rocker box, downdraft inlet port Below: right-hand horizontal inlet Below right: 5 stud head followed similar 4 stud head			Factory drawing	4 stud head below was drawn 30.12.32 but not traced and approved until early 1934
									

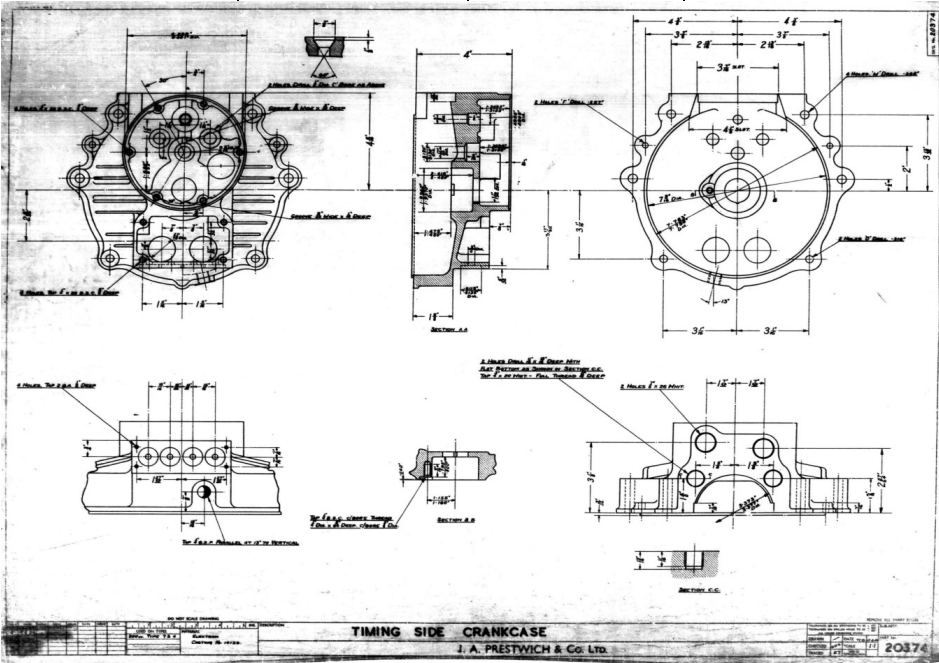
YEAR	Dwg #	Date Drawn	Title/Used on	FEATURES/CHANGES						Source	Notes
				Crankcase	Head	Valve gear	Cylinder				
1934			1934 500cc Dirt Track	Rotary valve deleted and flapper valve substituted						Clew, p96	Confusion as to whether 5 stud was introduced for 1934 or 1935. Certainly drawn for 1934 but maybe not in production engine until tested?
	122??	15.12.33	T/S Crankcase/500cc Dirt Track 1934							Factory drawing	See next page
	12286F	??.?.33	Cylinder Head Casting		5 stud					Factory drawing	F for foundry probably?
	12286	1.12.33	Cylinder Head/500cc Dirt Track 1934		5 stud					Factory drawing	New pattern
			Below: probably 1934 with shallow rocker boxes and unusual valve spring covers			Below: Drawing 122??					New 4 stud head below was drawn 30.12.32 but not traced and approved until early 1934. The 5 stud equivalent followed (inset) but it is not clear when the changeover was made
											

YEAR	Dwg #	Date Drawn	Title/Used on	FEATURES/CHANGES						Source	Notes
				Crankcase	Head	Valve gear	Cylinder				
1935			1935 500cc Dirt Track	Heads were leaking prior to this so 5 studs introduced with more metal under ex port added as well.		Revised, deeper rocker box with valve spring covers.				Clew, p96	You can see in the 4 stud above head how the side with the ports looks a lot stiffer which is why,maybe, the 5th stud was needed.to even things up
	12297/ 18249		no drawing							Sample	6"/152mm, short 5. Obviously drawn 1933, maybe not used until following year
	12298	19.12.33 Tcd 17.12.34	Drivingside Crankcase/500cc Dirt Track 1935	5 stud						Factory drawing	See below for T/S Crankcase/500cc Dirt Track 1934
	12539	22.8.34	Rocker box (Top Half)/500cc Dirt track 193?							Factory drawing	Drawing of bottom half also extant
											

YEAR	Dwg #	Date Drawn	Title/Used on	FEATURES/CHANGES						
				Crankcase	Head	Valve gear	Cylinder	Source	Notes	
1936			1936 500cc Dirt Track	Main bearings altered and crankcase changed to Electron				Clew, p96	Clew says aluminium rods used 1935/6 then dropped.	
	13678	?	Drivingside Crankcase	Aluminium - perhaps error or prior to Electron option?				Factory drawing		
	13679	20.5.36 or 20.8.36	Timing-side Crankcase/500cc Dirt Track 1936	Electron				Factory drawing	Main bearing housing modified for Electron?	
	14132F	???	Timing-side Crankcase Casting					Factory drawing	For pattern only, not machining	



YEAR	Dwg #	Date Drawn	Title/Used on	FEATURES/CHANGES						
				Crankcase	Head	Valve gear	Cylinder	Source	Notes	
1949 on			1949 500cc Dirt Track	Reversion to 4 stud, allegedly with revision to head casting.	Enlarged Inlet valve, Dural conrod		Short 4, 1/4" shorter		Clew says some earlier short 4 stud engines were made, presumably as prototypes. Revised head drawing not extant.	
	17857	? .1.50	Timing Side Crankcase/500cc Mk1	Dry sump sloper	Mk1 type		Mk1 Alfin type	factory drawing		
	19740	25.3.52	Timing Side Crankcase/500cc speedway dry sump	Dry Sump				Factory drawing	Types in early early 1950s brochure were Type 4 standard speedway); Type 6 aluminium crankcase wet sump engine with iron head and Alfin barrels for car use; Type 7 was wet sump and 2lb heavier than the Type 4 but why? Type 8 was dry sump with alloy barrels and iron head on crankcase as Dwg 19740 (left). There were also various capacities of a dry-sump 'sloper' engine.	
										
	20374	Tcd ? .? .5?	Timing Side Crankcase/500cc type 7 & 4					Factory drawing	Not clear why new part number.	

YEAR	Dwg #	Date Drawn	Title/Used on	FEATURES/CHANGES			Cylinder	Source	Notes
				Crankcase	Head	Valve gear			
									
1967			1967 500cc Speedway Type 4B		Larger inlet port to suit Amal Concentric 932 carburettor				