

AUSTIN ROVER "A" Series MINI & METRO

When ordering please add the suffix "P", "S" or "M" to denote Pin, Star or Metro oil pump drive.
Valve lifts are quoted using a theoretical Rocker Ratio of 1.28:1 Durations quoted @ .016"/.40mm checking height.

1.5 Ratio Rockers are not recommended for use in engines under 1275cc. All cams will be slightly hotter when used in 1000cc engines with a slight variation in idle characteristics. When our Valve Spring Kits are used all the seat pressures and full lift pressures will be set correctly providing the head has not been previously modified.

REF	APPLICATION	POWER BAND	CAM LIFT INLET/EXHAUST	VALVE LIFT INLET/EXHAUST	DURATION INLET/EXHAUST	TIMING FIGURES	INLET TIMING @ FULL LIFT	V/CLEARANCE INLET /EXHAUST	CAM FOLLOWER	VALVE SPRING
MD256*	MILD ROAD <small>Smooth idle characteristics in 1275cc</small>	1000-6000	.263" 6.67mm	.320" 8.12mm	254°	21/53 53/21	106°	.016" 0.40mm	CF1	VS2
MD266*	FAST ROAD- SPORTS <small>Smooth idle characteristics in 1275cc</small>	1000-6500	.263" .270" 6.67mm 6.85mm	.320" .330" 8.12mm 8.37mm	260° 270°	24/56 61/29	106°	.016" 0.40mm	CF1	VS2
MD274	FAST ROAD - SPORTS INJECTION	1000-6000	.258" .281" 7.23mm 7.13mm	.348" .343" 8.83mm 8.71mm	248° 274°	12/56 69/25	112°	.016" 0.40mm	CF1	VS2
MD276*	ROAD RALLY - SPORTS 'R' <small>Slightly lumpy idle in 1275cc</small>	1500-7000	.293" .315" 7.43mm 7.99mm	.360" .388" 9.14mm 9.84mm	270° 280°	29/61 66/34	106°	.016" 0.40mm	CF1	VS2
MD286*	RALLY - SUPERSPORTS <small>Slightly lumpy idle in 1275cc</small>	2000-7500	.315" .324" 7.99mm 8.22mm	.388" .400" 9.84mm 10.15mm	280° 290°	34/66 71/39	106°	.016" 0.40mm	CF1	VS2
MD296	RACE <small>Lumpy idle characteristics in 1275cc. Not available in pin drive.</small>	3250-8000	.324" .340" 8.22mm 8.62mm	.400" .420" 10.15mm 10.67mm	290° 300°	39/71 76/44	106°	.016" 0.40mm	CF1	VS39
MD310	FULL RACE <small>Rough idle characteristics in 1275cc. Not available in pin drive.</small>	4000-8500	.340" 8.62mm	.420" 10.67mm	310°	49/81 81/49	106°	.016" 0.40mm	CF1	VS39
MD315	FULL RACE <small>Not available in pin drive.</small>	4500-9000	.347" 8.81mm	.428" 10.87mm	314°	53/81 81/53	104°	.016" 0.40mm	CF1	VS39

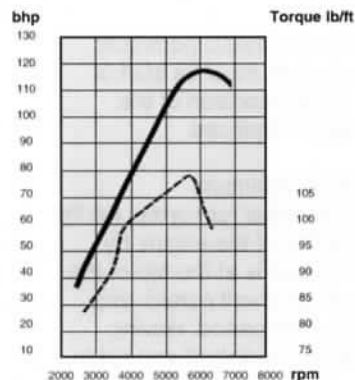
Scatter Pattern Cams - Designed by David Vizard, this range will give the ultimate in performance due to the very special design of lobe centre angle and phasing.

286SP	RALLY	2000-7500	.315" .324" 7.99mm 8.22mm	.388" .400" 9.84mm 10.15mm	280° 290°	34/66 71/39	106°	.016" 0.40mm	CF1	VS2
296SP	RACE	3250-8000	.324" .340" 8.22mm 8.62mm	.400" .420" 10.15mm 10.67mm	290° 300°	39/71 76/44	106°	.016" 0.40mm	CF1	VS39
310SP	FULL RACE	4000-8500	.340" 8.62mm	.420" 10.67mm	310°	49/81 81/49	106°	.016" 0.40mm	CF1	VS39

ADDITIONAL COMPONENTS FOR ABOVE ENGINES.

- S12 Duplex Vernier Kit (Power Pulley).
- S33 Steel Valve Spring Retainers.
- VR9 Alloy Valve Spring Retainers for VS39.
- VRT06 Titanium Valve Spring Retainers for VS39.
- SS8 Valve Spring Seat.
- S52 Duplex Chain.
- VG01 9/32" Bronze Valve Guides.

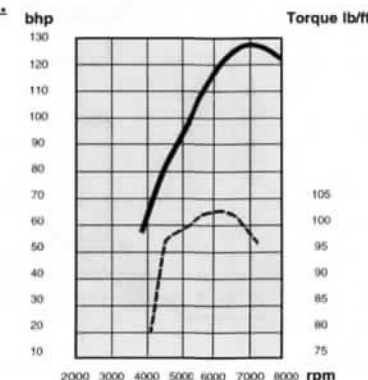
Engine: 1380cc "A" Series Camshaft: MD286



ADDITIONAL COMPONENTS FOR ABOVE ENGINES.

- OP1 Pin Drive Oil Pump.
- OP2 Star Drive Oil Pump.
- OP3 Metro Drive Oil Pump.
- OP14 High Capacity Metro Turbo Oil Pump.
- S180 Roller Rocker - 1.3:1 Ratio.
- S190 Roller Rocker - 1.5:1 Ratio.
- S187 Roller Tip - 1.5:1 Ratio.

Engine: 1430cc "A" Series Camshaft: MD310



The installation and first few moments of running are critical factors in the life of the camshaft and the following instructions have been devised in order to obtain maximum performance from the engine and to ensure a long and trouble free life from both the cam and associated components.

1. Before fitting the camshaft check that it is identical in every respect (EXCEPT FOR LOBE PROFILES) to the one being replaced. Special attention should be given to the oil feed details and journal diameters as variations may occur during the manufacture of the engine.

2. On Vauxhall 'J' series camshafts - a ball bearing is supplied loose with the camshaft. Please check the original camshaft to see if a ball is fitted into the distributor end main oil gallery. If so fit supplied ball as per original Vauxhall cam.

3. Liberally coat both the camshaft and cam followers with cam lube before installation. Failure to do so can cause scuffing between the surfaces of the cam and cam followers which will result in premature wear.

4. It is essential that NEW cam followers are fitted.

5. If existing valve springs are being used they must be checked to ensure that coil binding does not exist at full lift. There must be a minimum clearance of .040" (1mm) between the centre coils.

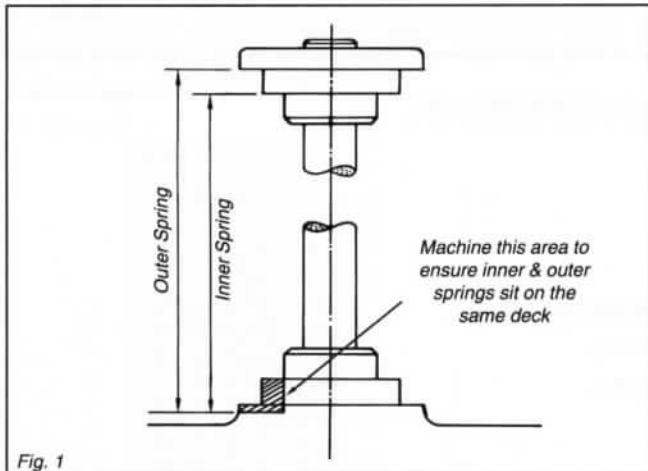


Fig. 1

6. When using KENT valve springs ensure they are fitted as per instructions with the correct installed height. In some instances the cylinder head will need machining. (Fig. 1)

7. When Double springs are being installed in place of singles, the valve spring retainer cap must be machined to accept the inner spring. (See Fig. 2.) Alternatively in most instances we are able to supply modified caps in steel or lightweight alloy.

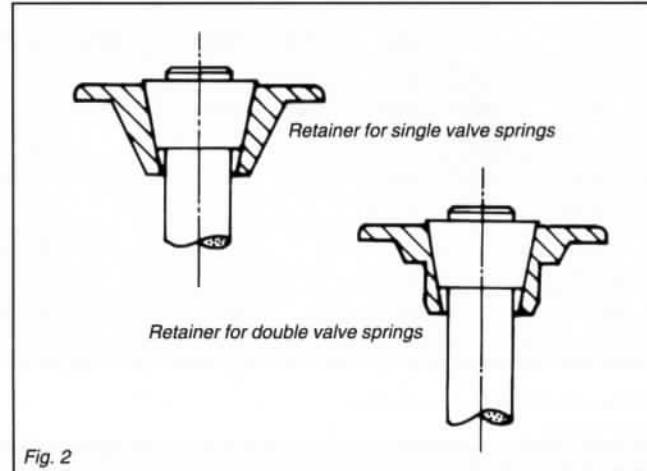


Fig. 2

8. Once the valve springs have been installed check both inner and outer springs for coil binding and ensure that the bottom face of the spring retaining cap does not contact the top of the valve guide or valve stem oil seal. Minimum clearance on full lift .060" (1.5mm). If this clearance cannot be achieved the top of the guides must be machined. Special stem seals are also available.

9. Certain engines are designed with hydraulic pedestals to pivot the cam followers. The pedestals must be bled of oil and inspected before refitting. If the condition of the pedestals is in any doubt they must be replaced.

10. Correct cam timing is essential for optimum performance, please refer to chart overleaf for correct full lift position. Determine true T.D.C. position of the engine by rocking the crankshaft whilst No.1 piston is at the top of the bore. There will be approximately a 10° dwell period, and true T.D.C. will be the centre of the dwell period. Having obtained true T.D.C. fit Timing Disc to crankshaft and set to

zero. Now rotate crankshaft clockwise to the full lift position specified for the particular camshaft being fitted. It is at this position that No 1 inlet valve should be fully open. This can be checked by fitting a dial indicator gauge on No 1 inlet valve spring retaining cap and rotating camshaft until valve is fully open. Once again approximately a 10° dwell period will be shown and true lift will occur in the centre of this dwell period.

11. Having timed in the camshaft check that there is no valve to piston contact - minimum clearance .060" (1.5mm). In twin cam applications ensure there is no valve to valve contact.

12. When modifying engines that utilize finger followers i.e. Ford Pinto SOHC, it is imperative that you ensure the followers remain in the original attitude relative to the cylinder head, (See Fig. 3) Failure to do so will alter the rocker geometry, increasing or decreasing valve lift and can result in failure of both cam and followers.

13. When replacing the camshaft ensure only high quality engine oil is used (check that it is the correct grade) and the oil filter is replaced.

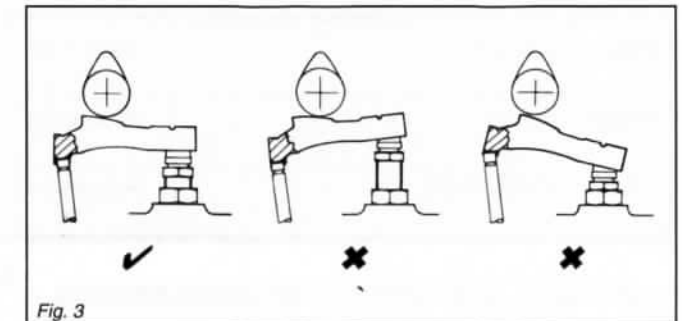


Fig. 3

14. Before starting the engine, turn over the engine by hand to ensure that it turns freely, prime the oil system, and check that everything is set to ensure the engine starts straight away. Do not turn over for any length of time on the starter.

15. Once the engine is running do not allow it to idle for the first twenty minutes, and keep the revs to a minimum of 2500 in order to ensure adequate lubrication of cam and followers.