

**V.W. DERRINGTON LTD.**  
152-151 London Road, Kingsthorpe, Thame, England  
Cable: DERRINGTON, LONDON

## SPECIAL TUNING applicable to MORRIS, 9 AUSTIN, MG. 1100 & 1300, MINI COOPER SPRITE 2 & 3, and MG. MIDGET

Basically, the tuning procedure upon the larger models is the same as for the 848 to 948cc types. Further research upon gas flow through the ports and modifications to combustion chamber design has resulted in a considerable increase of power, giving much improved performance figures. Far better filling is obtained from high gas speeds through properly shaped ports, throats and valve seatings than by over large valves, which supply volume of mixture at a much slower speed, and all our cylinder head modifications are based upon this principle of high gas speed. The normal ports and valves will pass 57 cubic feet of air per minute, but skilful alteration of the ports, throats and seatings will increase the flow at high velocity to 64 c.f.m. The re-shaping of the combustion chamber and highly polishing the surface reduces the tendency to "pinking" or pre-ignition, thus a higher compression ratio can be usefully employed, still further increasing performance. Stronger than standard valve springs are always fitted to combat valve bounce. All modified cylinder heads are supplied assembled with the valves ground in, new valve guides fitted as necessary, new oil seals, ready to fit with the original rocker gear and use.

A Derrington-Barwell light alloy cylinder head has been redesigned by us for the best possible results and is supplied in a fully modified condition. Apart from its excellent design features, it saves nearly 20lbs in weight and can be posted, both home and abroad, being very reasonable in cost for a modified high performance cylinder head. After a year's successful racing programme of development and testing, culminating in the winning of the Saloon Car Championship, an 8 port light alloy cylinder head will be available, when production difficulties have been overcome. This will normally be supplied with Tecalemit Jackson Fuel Injection, though dual twin choke Weber carburetters could be used. A new camshaft and four branch exhaust manifold will be included with the kit, hoped to be sold for around £300.

Suitable carburation and exhausting play a most important part in the ultimate performance and specialised productions, unhampered by considerations of primary cost, therefore can be expected to give much improved results. Dynamometer tests have proved that our standard Mini tubular steel manifold produces 3-4 bhp more than the standard cast iron design, and 2 bhp more than the tubular type fitted to the Cooper Minis. Tests with the 28/36 DCD progressive twin choke carburettor mounted on to our special design of water heated inlet manifold, with tuned length exhaust manifold, are even more revealing, producing no less than 17 bhp more than the makers single carburettor with tubular exhaust manifold, and 6-7 bhp more than a racing type of makers' twin carburettors. Thus our Cooper design, in comparison should give at least 6-7 bhp more than the carburation and manifold normally fitted to these cars. All these results were obtained at the comparatively low engine revolutions of 5,000 r.p.m. so it is more than likely that at the higher revs. of which this engine is capable, the increase in power would be even more considerable.

On all models, the 28/36 DCD Weber has proved to give better acceleration times and higher speeds than either the standard single or twin carburettor unit. This model is recommended for normal road use due to its excellent low speed torque with low fuel consumption. For sprints, Autocross or racing, 40 or 45 DCOE horizontal give more high speed performance and these have to be used on Mk. II Sprite & MG. for the lower bonnet line will not clear D/D carburettors. A special short swan neck design of inlet manifold allows of the DCOE types being fitted to transverse engine models, without alterations to bulkhead or instruments. Those models fitted with a single casting for inlet and exhaust manifolds will need a tubular extractor exhaust manifold to be used, with its additional efficiency or the present inlet to be cut off the exhaust section.

As Weber carburettors cannot be used for Group II racing, larger i.e. 1½" S.U. would need to be used with the original inlet manifold. An installation kit has to be used having the inlet tapering from 1½" to 1¼" bore with appropriate studding for fitting. A 1½" bore balanced inlet is available for 1½" S.U. or Stromberg if not required for group racing.

A modified camshaft must always be chosen for a specific purpose, for cam design is a matter of compromise, for what is gained one way is lost another. The maker's cam is designed to give good results over the whole range of engine revs. and in particular to provide good torque at low revolutions. Any variation of design, therefore, will give more power and torque at higher revolutions with a loss at lower revolutions. Generally a specialist cam designer aims to produce a reasonable torque curve from his design, so power and torque are available from 2 to 3,000 r.p.m. whilst a cam solely for racing may have very little torque below 5,000 r.p.m. but produce power up to 7,500 or 8,000 r.p.m.

Our various cams are marked in stages to enable customers to choose the most suitable cam for their purpose, and for normal road use and even for occasional racing, the lower stages are recommended. The fiercer the cam, the more rapid the wear upon the cam followers due to the heavier loading and quicker life, so more rapid wear and frequent renewal must be allowed for. This wear is not a fault of design or of material, as is occasionally suggested.

## TUNING &amp; SPECIAL EQUIPMENT FOR ALL MODELS LISTED

	E.	s.	d.	U.S.\$	
DERRINGTON-BARWELL L/A cyl.head assd.with valves for 1098 & 1275cc	45	0	0	108.00	
CYLINDER HEAD,modified H/C Stg.I for all models on exchange	22	10	0	54.00	
" " " " II with new oversize inlet valves	27	10	0	66.00	
" " DEPOSIT against return std.head assd.or outright sale	17	10	0	42.00	
" " extra cost supply & fitting silicon-chrome valve springs	1	0	0	2.40	
WEBER 28/36 DCD carburetter on water heated cast L/A inlet	24	10	0	58.80	
" 40 DCOE on long L/A inlet suitable road & racing,Sprite & MG.	33	10	0	80.30	
" " on short " " for transverse engines	35	0	0	85.00	
" 45 DCOE on short and long inlet for both types of engine	37	0	0	89.80	
S.U.H.4 or H.S.4 twin carba.with linkages,fuel pipe, on suitable inlet	27	0	0	64.80	
S.U.H.4 twin carb.unit with installation kit for 1 1/4" inlet	25	0	0	60.70	
EXTRACTOR EXHAUST MANIFOLDS metal sprayed finish Minis,Sprites,MG.	10	10	0	25.50	
" " " " Cooper,1100 & 1300	12	10	0	30.00	
" " " homologated Cooper 'S',special racing	15	0	0	36.00	
EXHAUST SYSTEMS, larg bore for 1300 models fitting manifolds	10	10	0	25.30	
OIL COOLER KITS, L/A radiators,H.P.hoses,adaptors and fixing brackets					
	MINI	9	15	0	23.40
	1100's	10	15	0	25.80
	SPRITE & MIDGET	11	15	0	28.60
CAMSHAFTS, see separate detailed list of suitable types for various models.					
RALLYE 5 bucket seats,extremely comfortable,ventilated back,lightweight foam cushioning,stocked black,red,green,blue to order					
		9	15	0	23.40
RALLYE seat fixings,Sprite,Midget,Mini					
		2	15	0	6.60
RECLINING BUCKET SEATS,adjustable 30°,hinge forward from					
		17	15	0	42.89

## COMPARATIVE ROAD PERFORMANCE FIGURES

MG.MIDGET Mk.2.	Standard Mod.head & 40 DCOE SPRITE II		Standard	28/36 Weber & Exh.Man.
0-40 m.p.h	8.3 secs	6.0 secs	9.0 secs	6.8 secs
0-60 "	18.3 "	12.5 "	19.0 "	14.5 "
30-60 top gear	26.9 "	21.0 "	29.4 "	20.0 "
Max. "	87 m.p.h	99 m.p.h	78 m.p.h	86 m.p.h

MORRIS 1100	Standard Mod.head twin 1 1/4"SU. MG.1100		Standard	28/36 Weber,mod.head.
0-30 m.p.h	6.8 secs	5.0 secs	6.8 secs	4.4 secs.
0-60 "	29.4 "	18.0 "	29.4 "	16.4 "
30-60 top gear	27.0 "	23.0 "	22.8 "	16.2 "
Max. 3rd gear	64 m.p.h	68 m.p.h	67 m.p.h	72 m.p.h

## MINI COOPER 998c/c Standard With modified head ONLY.

0-30 m.p.h	3.8 secs	3.3 secs
0-50 "	8.6 "	7.8 "
0-60 "	14.3 "	12.5 "
0-70 "	19.0 "	17.6 "
20-40 3rd gear	6.6 "	6.0 "
40-60 top gear	11.6 "	9.9 "
Maximum	82 m.p.h	over 90 + m.p.h

Results between a modified standard Mini-Minor fitted with 34 DAS twin choke WEBER carburetter & manifold & 36 DCD two stage WEBER on special inlet and exhaust manifold designed for Cooper Mini models.

	34 DAS	36 DCD
0-30 m.p.h	4.8 secs	4.4 secs
0-45 "	8.3 "	7.8 "
0-60 "	15.4 "	14.4 "
Max.3rd	70 m.p.h	74 m.p.h
Max. top	85 "	90 "

1963 1100 MORRIS mileage 85	Standard	Mod.cyl. head only.	Plus 28/36 WEBER, manifold & exh.	Same car after 2000 miles
0-30 m.p.h	6.8 secs	6.0 secs	4.8 secs	4.4 secs
0-50 "	18.4 "	15.3 "	11.9 "	11.2 "
0-60 "	29.4 "	23.0 "	17.8 "	16.0 "
30-60 3rd gear	18.4 "	15.4 "	11.6 "	10.8 "
30-60 top gear	22.8 "	20.4 "	16.6 "	15.2 "

Standard MORRIS 1100, then fitted 28/36 DCD WEBER carb.unit and C/I Manifold.

0-40 m.p.h	6.2 secs	5.0 secs.
0-50 "	15.2 "	12.2 "
0-60 "	22.2 "	17.4 "
20-40 3rd gear	7.5 "	6.6 "
40-60 top	16.0 "	14.6 "
Max. 3rd gear	65 m.p.h	over 75 m.p.h

Though the 'S' models have been designed & built as a very high performance car, suitable preparation & equipment are necessary for competitive performance. The 'S' engine is a redesigned unit, very few parts being interchangeable with other models. Balancing of crankshaft, flywheel & clutch for high revolutions is necessary to reduce the internal stresses, when racing is contemplated, but other improvements offered can be effected to the standard engine without balancing, providing the recommended revs. are not exceeded very briefly.

The 'S' model head is a very efficient type but can be considerably improved by being modified, as detailed below.

Full advantage can then be taken of a more efficient camshaft with longer opening periods and better carburation as given by a 45 DCOE Weber, or for ultimate performance by the 46 IDA Weber. Originally developed by us many years ago, the IDA has been consistently successful, all over the World, with many Championships and wins to its credit. Many tests have shown 10% increase of power and torque with a 45 DCOE and 15-17% with the IDA. A tuned length extractor exhaust manifold should be used, for best results.

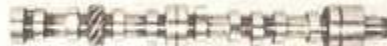
**MODIFIED CYLINDER HEAD**



Fully gas flowed ports, throats, seatings and combustion chambers, all being finished highly polished. The inlet size cannot be increased without masking the valve. Silicon chrome valve springs, 180 poundage, for up to 9000 RPM and the compression is raised by machining the face of the head as required. Flat top or other H/C pistons should not be used on either 1275 or 1300 engines.

Price of work, above, to cyl. head (own head or on exch) £25. P/P 25/- \$60.70 shipped  
Dep. against return, or head supplied with valves compl. £30. " " \$72.80 "

**'SPECIAL CAMSHAFTS'**



The 'S' cam is relatively mild with good low speed torque for road use. For racing or rallying, other types with higher torque & maximum speed should be used. Still further performance can be had from a reground shaft to Polydyne cam form, on the 649 shaft.

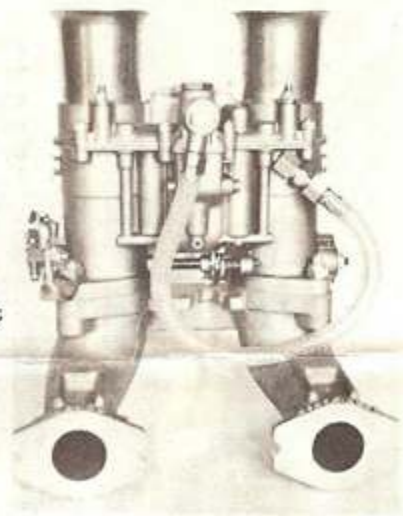
New Sports or rally camshaft	AEA, 731	£14. \$34.00	P/P 6/- \$2.50
New Racing Camshaft	AEA, 648	£16. \$38.85	" " "
'S' cam reground to either above (in exch.)		£9. \$21.85	" " "
Racing cams reground to polydyne		£12.10s \$30.35	" " "
Deposit against return standard 'S' c/shaft		£6.5s. \$15.20	

**'DERRINGTON' 46 I.D.A. WEBER INLET ASSEMBLY**

Without any doubt, this scientifically designed and developed carburetter unit, produces such a large increase of power in comparison to any other type, it will be essential to use this for serious racing. The standard IDA instrument is converted by us specially for use on the MINI and is mounted on to a carefully designed inlet to give maximum filling.



This unit needs an oval hole cutting in the bonnet & a L/A shield fitting to prevent the intakes from rain, foreign matter or undesirable air eddying.

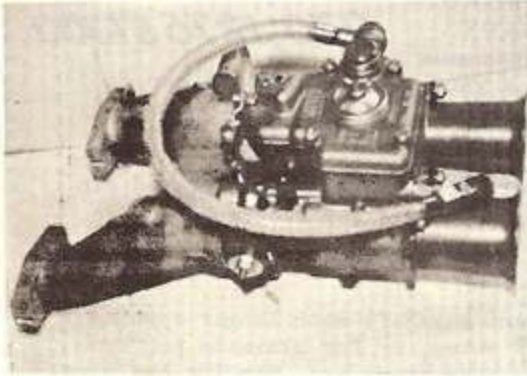


46 IDA WEBER, inlet & shield	£58.10s \$142.00	P/P 7/- \$4.
L/A inlet manifold only	£12.10s \$30.35	" 5/- \$2.
L/A shield & chrome screws	£3. \$7.30	" 3/6 \$2.

**ROLL OVER BARS**

A vital necessity for saloon & sports car racing. Three point fixing to withstand a force of two tons. For Minis, Coopers, Sprites, Midgets, Anglia, Cortina, Spitfires & Imps. £10.15s carriage 10/6d. \$26.10 have to be shipped.

## 40 845 D.C.O.E. WEBER KITS.



One of the most popular units for high performance & racing. The DCOE carburettor is mounted on to a scientifically designed cast light alloy inlet of the correct minimum length for high gas speed with even distribution, which cannot be achieved from a shorter inlet. Intakes project through the bulkhead, needing reposition of speedo head. Size 40 suits 850 racing models, but larger engines should use the 45 DCOE. Supplied suitably set for the various models with fuel pipe line & servo bracke connections if needed.

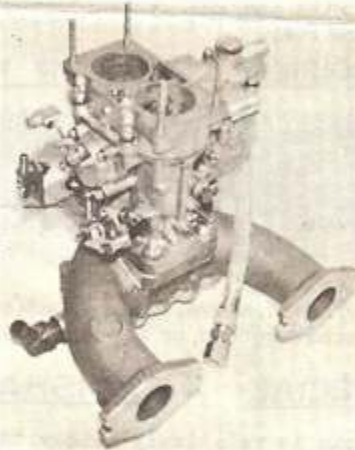
With 40 DCOE £33.10s. \$81.30 P/P 7/6d \$4.

" 45 " £35.10s. \$86.20 " " "

Inlet & flexible mountings. £8.10s \$20.65.5/- \$2.

## 28/36 DCD D/D WEBER UNIT for all models up to 1300.

The most popular and versatile Weber unit made, suitable for all models from 850 to 1300 c/c. Gives exceptionally good low speed torque as well as high performance thus making it eminently suitable for road use, 6-10 mph more speed and greater economy. The progressive choke Weber is mounted on to a water heated manifold for good carburation and prevention of icing and is suitably set for each model. £24.10s \$59.40 P/P 7/6 \$4.00.



## 'MINILITE' WHEELS.



Magnesium wheels lighter & stronger than steel wheels and are most resilient for shock absorption. Standard fitting for racing & rallying by many manufacturers, teams and

drivers reducing unsprung and total weight.

10" x 4 1/2" each £12.4s \$29.65 10" x 5" £12.6s \$29.90

10" x 5 1/2" " £13.6s \$32.30 10" x 6" £13.6s \$32.30

13" x 4 1/2" " £16.6s \$39.60 13" x 5" £16.16s \$40.90

5 1/2" & 6" Rings need 1 wheelspacer 3/8" a pr. £1.6s \$3.15.

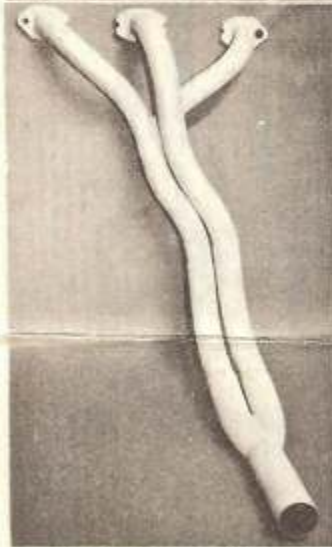
Wheelnuts, chrome plated per pack 18 £6.10s \$15.85

Hub caps, polished chrome " 4 £2.2s \$5.00

Balance weights, self adhesive 8oz. pack £1.1s \$2.55

## STEEL WHEELS

Genuine new Dunlop heavy gauge wheels as regularly used for racing 10" x 4 1/2" J enamelled silver grey, standard dish needs wheel spacers or reverse dish bolting direct. Weight lbs £3.15s each \$9.12.



## EXTRACTOR EXHAUST MANIFOLD

In tuned length large bore tubing, finished hot metal sprayed homologated for racing. £15. \$35.40 P/P.8/- \$4.00



## Coburn Wheel Spats £5.15-0 \$14

Supplied in sets of four to fit all BMC Mini and Cooper types, in black glass fibre, complete with chrome self tapping screws.

Installation takes only a few minutes, and when fitted the car complies fully with RAC Group Two regulations. The spats are also invaluable, when spacers have been installed for road use, bringing the car back into line with current Road Traffic Act regulations.

The existing chrome trim can be refitted over the Wheel Spats, and they can be painted to match the body colour without difficulty.



2. Mini Wheel Spacers—allowing full advantage to be made of the fabulous Mini road holding these light alloy wheel spacers increase track by 2 1/2" and are supplied with cadmium plated extension studs.

## WHEEL SPACERS (ABOVE)

49s.6d P&P 5s.0d.

\$7.00 " \$5.60.