

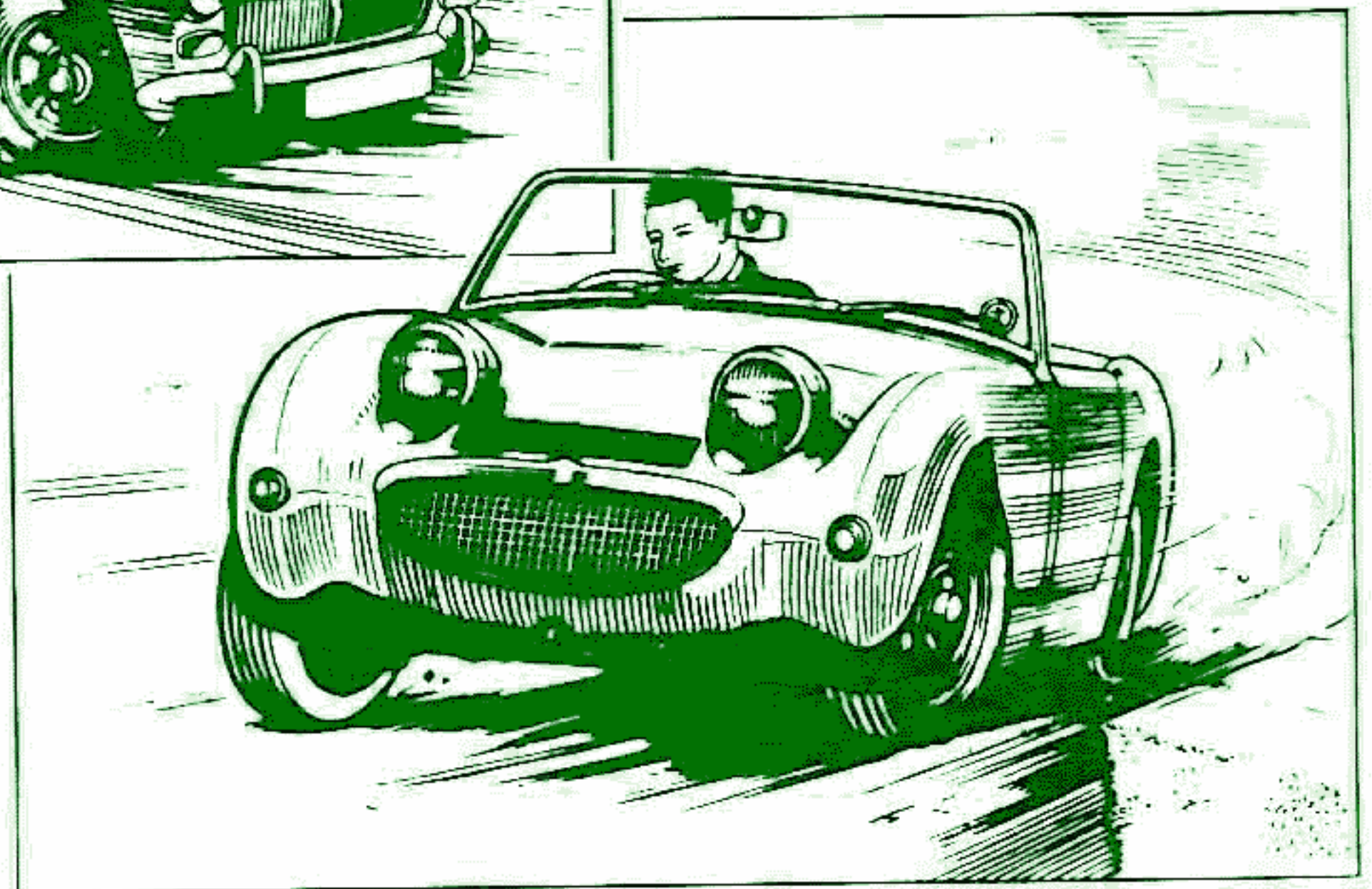
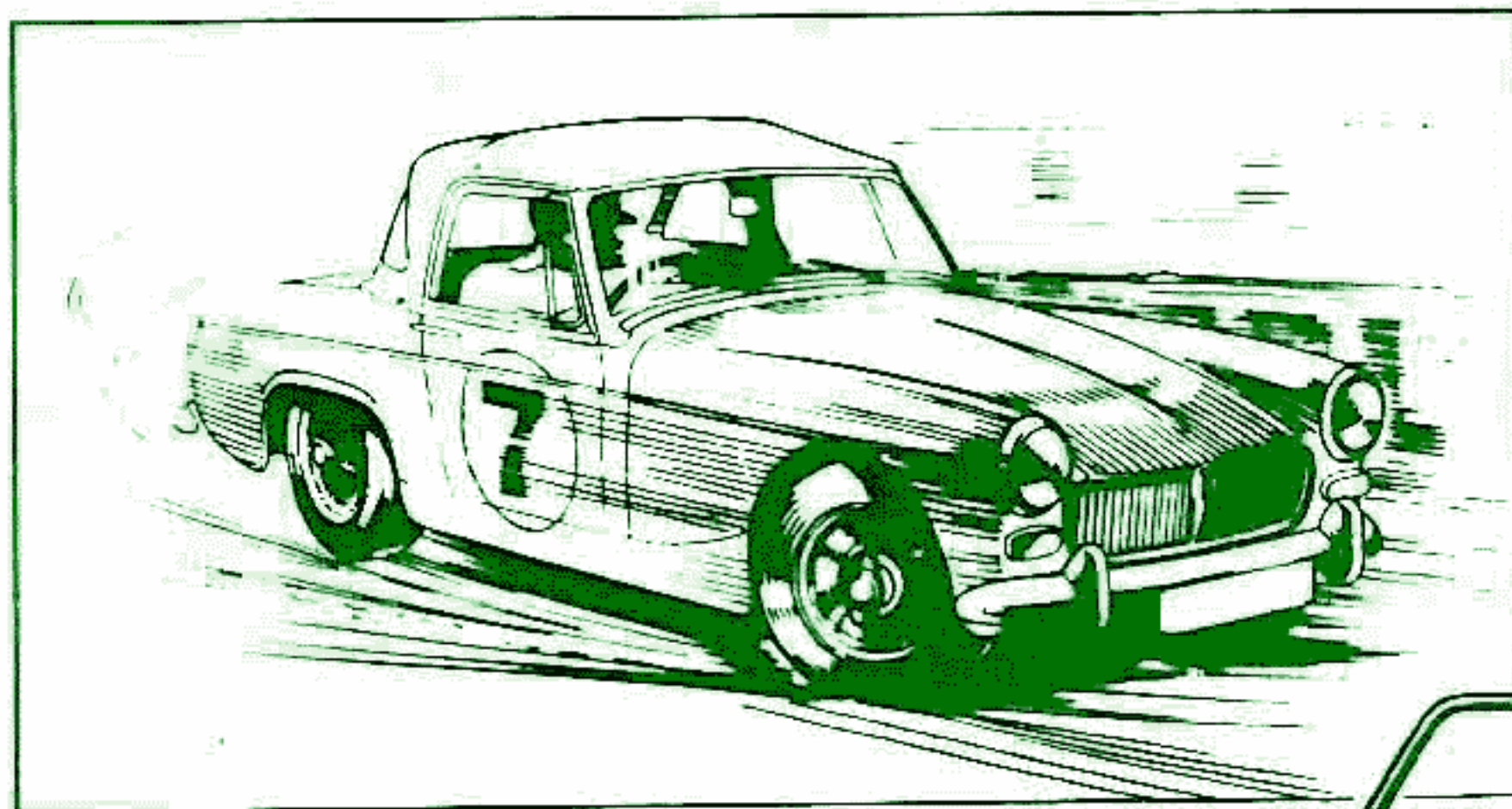


SPECIAL TUNING

FOR THE

MIDGET AND SPRITE

948 C.C.



Issued by:

BRITISH LEYLAND SPECIAL TUNING DEPARTMENT
ABINGDON-ON-THAMES • BERKSHIRE • ENGLAND

C-AKD 1021 C

ENGINE NO PREFIX9C9CG

Capacity	57.87 cu.ins. (948cc)	(where different to 9C)	
B.H.P.	43 b.h.p. at 5,200	46.4 b.h.p. @ 5,500 r.p.m.	
Torque	52 lbs.ft. at 3,300 r.p.m.	52.8lbs/ft @ 3,000 r.p.m.	
Bore	2.478 in. (62.9%)		
Stroke	3.00 in. (76.2%)		
Compression ratio	8.3:1	9.0:1	
Combustion chamber vol.	24.5cc	26.1cc	
Oversize pistons available	+ .010, .020, .030, .040 in. (+ .254, .508, .762, 1.016%)		
Firing order	1, 3, 4, 2		
Oil pressure			
(normal) running	60 p.s.i. (4.2 kg/sq.cm.)		
(normal) idling	15 p.s.i. (1.05 kg/sq.cm.) min		
Connecting rod - side clearance	.008 in. - .012 in. (.203 - .305%)		
Connecting rod - diametral clearance	.001 in. - .0025 in. (.025 - .063%)		
Main bearing type	3 Steel-backed lead indium		
Standard Journal diameter	1.7505-1.751 in (44.463-44.475%)		
Minimum regrind diameter	1.7305-1.731 in. (43.955-43.967%)		
Main bearing clearance	.0005 - .002 in. (.0127 - .0508 %)		
Camshaft bearing type	Front-steel-backed white metal. Centre & rear-direct	All steel backed white metal.	
Camshaft bearing clearance			
front	.001 - .002 in. (.0254 - .0508%)	All as	
Centre & rear	.00125 - .00275 in. (.032 - .07 %)	front	
Camshaft end float	.003 - .007 in. (.0762 - .178%)		
Valve timing marking	Adjoining gear teeth marked		
Exhaust valve :			
Head diameter	1.00 in. (25.4%)		
Stem diameter	0.2788-0.2793 in. (7.081-7.094%)		
Inlet valve:			
Head diameter	1.094 in (27.8%)	1.151" (29.3%)	
Stem diameter	0.2793 - 0.2798 in. (7.094-7.107 %)		
Valve seat angle	45°		
<u>TIMING</u>			
Inlet valve opens	5° before T.D.C.	5°	
Inlet valve closes	45° after B.D.C.	45°	
Exhaust valve opens	40° before B.D.C.	51°	
Exhaust valve closes	10° after T.D.C.	21°	
Valve clearance for timing	0.019 in (.48%)	.029"	
valve running clearance	0.012 in (.3%) cold	.015" (competition)	
Valve lift	0.28 in (7.14%)	.312"	
<u>VALVE SPRINGS</u>			
Free length	1.75 in.	<u>Outer</u>	<u>Inner</u>
Fitted	1.296 in	1.75 in.	1.672 in.
Load fitted	52 lbs/sq. in.	1.296 in.	1.179 in.
Load at full lift	84 lbs/sq.in.	52 lbs/sq.in.	18.5 lbs/sq.in.
		88 lbs/sq.in.	31 lbs/sq.in.

IGNITION

	<u>9C</u>	<u>9CG</u>
Type	Lucas 12 volt coil LA 12	
Distributor type	Lucas DM2 PH4	
Contact breaker gap	0.014--0.016 in. (.356-406%)	
Static setting	5° before T.D.C.	4° before T.D.C.
Sparking plug type	Champion N5	
Sparking plug gap	0.024-0.026 in. (.6196-.660%)	

CAPACITIES

Cooling system	10 pints (5.68 litres, 12 U.S. pints)
Fuel tank	6 gallons (27.3 litres, 7.2 U.S. gallons)
Gearbox	2½ pints (1.325 litres, 2.807 U.S. pints)
Rear axle	1¾ pints (1.0 litres, 2.1 U.S. pints)
Engine Sump	6 pints + 1 pint for filter

FUEL SYSTEM

Fuel delivery	A.C. Sphinx 'Y' Type, Mechanical	
Carburettor type	Two S.U. H.I. Semi down draught	Two HS2
Needle (normal)	GG	Y3

CLUTCH

Thickness of linings	¼ in. (3.175 %)
Number of springs	6 (Yellow and Dark Green).
Pedal free movement	0.156 in (3.969%)

GEARBOX

Type	Synchronesh on 2nd, 3rd and top	
Gear ratios:		
First	3.627 : 1	3.2 : 1
Second	2.374 : 1	1.916 : 1
Third	1.412 : 1	1.36 : 1
Top	1.0 : 1	1.0 : 1
Reverse	4.664 : 1	4.114 : 1
Layshaft bearing	23 needle rollers	

REAR SPRINGS

Type	¼ elliptic
Number of leaves	15

FRONT SUSPENSION

Type	Independent, coil springs & wishbones
Spring :	
Free length	9.4 in. (23.8%)
Fitted length	6.625 in. (16.85 cm) @ 750 lbs. (340 kilos)
Number of working coils	7
Spring rate	271 lbs./in. (19 kg/cm)
Track toe in	Parallel to ¼ in. (0 to 3.175%)
Castor angle	3°
Camber angle	1°
Swivel pin inclination	6½°

BRAKES

Make	Lockheed hydraulic
Drum diameter	7 ins.
Total friction area	67.5 sq.in. (435.37 sq.cm.)
Shoe Lining Width	1¼ in.
Pedal Free Movement	.156 in (3.969 %)

ELECTRICAL

Battery type	BT 7A, 12 volt
Generator	Lucas C39 OV2 with tacho drive
Cutting in speed	1,050 to 1,200 r.p.m.
Maximum output	13.5 volts 19 amps.
Starting motor type	Lucas M35 G1
Control box type	Lucas RB 106 2

WHEEL AND TYRE DATA

Tyre size	5.20 - 13 Tubeless
Pressures : front	18 lbs./sq.in. (1.27 kg.cm ²)
rear	20 lbs./sq.in. (1.41 kg.cm ²)
Wheel type	13 x 3.5D steel disc, 4 stud fixing

TORQUE SPANNER DATA

Cylinder head stud nuts	40 lb/ft. (5.5 kg/m)
Connecting rod big end bolts	35 lb/ft. (4.8 kg/m)
Main bearing set screws	60 lb/ft. (8.3 kg/m)
Flywheel set screws	40 lb/ft. (5.5 kg/m)
Rocker bracket nuts	25 lb/ft. (3.4 kg/m)
Gudgeon Pin Clamp screws	25 lb/ft. (3.4 kg/m)

GENERAL DIMENSIONS

Overall length	11 ft. 5 $\frac{1}{4}$ in. (3.49 m)
Wheelbase	6 ft. 9 in. (2.03 m)
Minimum ground clearance	5 in. (0.13 m)
Overall width	4 ft. 5 in. (1.35 m)
Track (front)	3 ft. 9 $\frac{3}{4}$ in. (1.16 m)
Track (rear)	3 ft. 8 $\frac{3}{4}$ in. (1.14 m)
Turning circle	31 ft. 6 in. (9.60 m)
Approximate kerbside weight	13 cwt. (660 kg).

WARNING

These cars have had a considerable amount of use by now and it is important to ensure that the whole of the car is in safe and satisfactory condition before carrying out any tuning.

Full information on the correct maintenance and repair of these cars is contained in Workshop Manual Part No. AKD 4884 (Mk. I Sprite), or AKD 4021D (Mk. II/III Sprite) and Mk.I/II Midget).

Introduced in 1958 with twin $1\frac{1}{8}$ " S.U. Carburettors the Sprite Mk.I utilised components from the then current A35 and was identified by the engine prefix 9C.

In 1961 the body was restyled and commonised with an MG Midget series (Sprite Mk.II - Midget Mk.I). The power unit was updated in this application with a slightly better camshaft (AEA 630) using three camshaft bearings, flat top pistons and larger inlet valves in an improved cylinder head. Twin $1\frac{1}{8}$ " S.U. carburettors were standard. The gearbox was also improved with closer ratios and gears on needle rollers in place of bushes, all identified by the engine prefix 9CG.

ENGINE TUNING 9C UNITS

An increase of some 2 B.H.P. can be obtained by general attention to the cylinder head and port polishing. Lightly grind and polish the exhaust and inlet ports throughout. They should not be ground out so heavily that the shape or valve choke diameters are impaired.

Match up the exhaust manifold ports with the cylinder head ports by grinding. Grind out the inlet bore of the manifold to $1\frac{1}{8}$ " diameter at the cylinder head face by grinding out right through to this diameter to match the carburettor bore, and then polish.

Do not grind out the combustion spaces as these are already quite clean and partly machined, but remove any frazes and lightly polish all over. Any enlargement around the combustion walls may cause the cylinder head gasket to overlap and destroy the efficiency of the seal. Also the compression ratio will be lowered and the tuning will be ineffective.

A further increase can be obtained by alteration to the inlet/exhaust ports. Grind out and enlarge at the inlet port neck.

Make up a sheet-metal template to the dimensions given in Fig. 1 and fasten it to a long bolt so that it may be used as a gauge when grinding out the inlet ports.

Be very careful to grind the inlet port throat central, between the push rod holes, as the wall left is only .086" thick. Ease off the port by grinding at the valve guide boss and the opposite port wall bend as depicted in Fig. 2.

Enlarge the exhaust ports at the bends by grinding at the valve guide boss and the opposite port wall as shown in Fig. 3.

Warning When carrying out alterations to the shape of the valve ports, the responsibility for any damage that may occur must rest with the owner or the person authorising the alteration.

Alternatively a polished and modified cylinder head can be purchased including the above modifications, under Part No. C-AHT 87. This head will also increase the compression ratio to 9:1, and already fitted with new valves and valve springs.

Retain standard carburettor needles GG, or GM without air cleaners. Set static ignition $3-4^{\circ}$ B.T.D.C.

Flat top pistons 12A 187 will give 9.3:1 compression with the standard head modified as above. Set ignition to 3° B.T.D.C.

When fitted with the modified head C-AHT 87 the compression ratio will increase to 10.6:1. Set ignition approximately 2° B.T.D.C.

A polished and modified version of the larger valve 9CG head C-AHT 90 could be fitted with the flat top pistons, compression would be 9.7:1. Ignition and carburetter needles as above.

After carrying out the earlier stages of tune, additional improvements can be obtained by fitting the following parts :-

Valve springs	8 off	Part No. C- 2A 950
Camshaft		Part No. 88G 229
Timing, Inlet; opens 16° B.T.D.C., closes 56° A.B.D.C.		
Exhaust opens 51° B.B.D.C., closes 21° A.T.D.C.		
Valve lift - .312 in. (7.94%)		
Distributor (use with camshaft 88G 229)		Part No. C-27H 7766

Retain the static ignition at 1° B.T.D.C. irrespective of cylinder head.

Carburetter needles GG Part No. AUD 1211 with air cleaners
GM Part No. AUD 1217 less air cleaners

Over 9.5:1 compression use the richer needle EB Part No. AUD 1149.

If the inlet manifold is polished out to accept the 1½" HS2 carburetters (Std. on 9CG) the needles would be

(Richer) V3 Part No. AUD 1411
V2 Part No. AUD 1410

Use cylinder head gasket C-AEA 647 in all cases of raised compression except with race cylinder head C-AHT 222 on which gasket C-AHT 188 should be used.

ENGINE TUNING 9CG

This power unit has a cylinder head with increased inlet valve diameter and port sizes.

C-AHT 90 is a polished and modified version available for immediate replacement, which again is complete with valves, springs and collets etc.

As the flat top pistons are standard to this model compression will be increased to 9.7:1. Static ignition should be 2° B.T.D.C. with standard needles.

As this model has AEA 311 and AEA 401 valve springs as standard the rev range is greater than 9C units (SEE SPECIAL ITEMS Valve Springs), the camshaft is AEA 630 with increased lift and exhaust valve period (See Data).

Camshaft 88G 229 and Distributor C-27H 7766 (details above) will provide increased power and r.p.m.

AT THIS POINT THE ENGINE SPECIFICATION BECOMES SIMILAR

EXHAUST SYSTEM

A special tuned exhaust system is available which will give an increase of some 2 to 3 B.H.P. according to the tuning condition it is used with. It may be used with any tuning condition.

The system consists of :	Part No.
Front Manifold (includes clip C-AHA 5450)	C-AHA 5448
Exhaust pipe	C-AHA 5449
Silencer assembly (including clip AHA 5450)	C-ARA 135

For racing applications using large carburettors, large valve heads, etc. the maximum extractor manifold C-AHT 11 should be fitted.

VALVE SPRINGS

- (a) The 9C unit with standard camshaft and standard valve springs will have valve crash occur at 6,100/6,300 r.p.m.
- (b) When using the competition camshaft Part No. 88G 229 and special valve spring C-2A 950, valve bounce will also occur at approximately 6,100 to 6,300 r.p.m.
- (c) The competition camshaft Part No. 88G 229 can also be used with the standard valve springs, when valve bounce will occur at 6,300 to 6,400.
- (d) The valve gear and drive are safely stressed to maintain the above conditions (a), (b) and (c). If, however, for very special competition purposes, it is desired to raise the valve bounce position to 6,700 r.p.m. it can be done by using outer valve springs Part No. C-2A 950 and fitting extra inner valve springs Part No. AEA 401. New top and bottom spring collars AEA 402 and C-AEA 432 must be fitted for this condition. To fit the bottom collar C-AEA 432 it will be necessary to spot face the small cast recesses on the top of the cylinder head, around the valve guides to a diameter of .875 in. (22.22 %) in order that the collars will drop in and seat squarely. The depth of the spot face should be 3/32 in. (2.38 %) below the outer valve spring face.
- (e) The valve bounce position can be further raised to 7,000 r.p.m. if the extra inner valve springs and collars fitted as explained in 'd' with the standard outer valve spring AEA 311.

This arrangement using bottom collar AEA 403 (not C-AEA 432) is the standard 9CG arrangement.

It is advised that the above valve spring re-arrangements be used only for special competition purposes, if used for everyday conditions the engine parts may have a shorter service life. The valve springs will not necessarily give an increase in brake-horse-power, but will extend the same horse-power up to a higher r.p.m. This is sometimes useful in enabling a lower rear axle ratio to be retained, and still maintain the same maximum speed, with increased power of acceleration.

Standard or competition camshafts may be used, the valve gear stresses being least with the competition camshafts.

VALVE GEAR

When preparing units for competition the ideal rocker gear to use is from the Cooper 'S' series. Rocker 12G 1221 is lighter with greater strength but requires new adjusting screw AEG 167 and locknut FNN 605. Shaft AEG 399 has the locating hole moved in one pillar requiring a drilled pillar for the oil way, dispense with one standard pillar. The locating screw 12G 1926 pillar should be moved to coincide with the shaft location. The rockers should be spaced by using distance tubes C-AEG 392 in place of the coil springs.

EXHAUST VALVE

When replacing valves in standard 9C and 9CG head or C-AHT 87 and C-AHT 90 cylinder heads, use ONLY AEA 400, KE 965 'Stellite' faced.

DUPLEX TIMING GEARS

The increased stresses created by higher lift cams, stronger valve springs etc., reduces the working life of the standard single row timing chain. For all competition or highly tuned units the Duplex chain should be fitted using Kit C-AJJ 3325, which contains all necessary parts and fitting instructions.

CRANKSHAFTS

Competition crankshafts have been available previously C-AEA 406 in better material and C-AEA 461 Nitrided.

C-AEA 461 had eight stud flange and required the centre main machining to clear the webs. Stocks of these types are now exhausted.

The latest competition crankshaft C-AEA 792 is in improved material and Tuftrided, it is a direct replacement of the standard types or C-AEA 406.

BALANCING

Where units are prepared for maximum output it is essential that the rotating assemblies are fully balanced i.e. crankshaft, flywheel and clutch assembly. Standard crankshafts are then safe to 6,500 rpm the C-AEA 792 may exceed 7,500 rpm while the F/J C-AEA 461 has exceeded 8,500 rpm. Re-ground crankshafts are not recommended for performance work, but if no alternative is available the crankshaft must be re-balanced afterwards. Nitrided shafts may accept .010" undersize and tuftrided .020" undersize without processing again, but THIS CAN NEVER BE DEFINITE.

The crankshaft alone does not limit rpm (assuming suitable cam, valve spring, carburettor arrangements, etc.). The standard clamp bolt type connecting rods are unsuitable for serious competition work, where fully floating gudgeon pins and rods are much better.

PISTONS AND RODS

For competition use the engine capacity can be increased to take advantage of the class limits (1000cc). Use head gasket C-AEA 647.

By boring the block .065" oversize to 2.543" the Cooper 998cc pistons 12A 674 can be accommodated together with rods 12G 123 & 126. Capacity would then be 998cc, increasing low speed torque. With cylinder heads polished but not reduced in capacity the compression ratios would be 10:1 and 9.4:1 for 9C and 9CG heads respectively.

With C-AHT 87 cylinder head, compression would be 11.6:1

With C-AHT 90 cylinder head, compression would be 10.4:1

Alternatively for a full race power unit, using the 2.543" Bore. Fit pistons set C-AJJ 4039 with con-rod set C-AJJ 4035, these pistons will not fit any other rods.

With these parts fitted the basic specification is very close to Formula Junior and it is suggested that only the 'race' cylinder head C-AHT 222 is used with gasket C-AHT 188.

This has greatly improved port sizes and larger valves, the compression ratio would be 12:1 nominal and larger carburetters would be required.

CARBURETTERS

In race tune with lightened flywheel (see below) fully balanced assembly, C-AHT 222 head and the race camshafts C-AEA 731 or C-AEA 648, larger 1½" S.U. H4 carburetters should be fitted. Use inlet manifold 12G 583 with plug ADP 210 and washer 1B 3664. Fit heat shield 12G 1509 if desired.

1½" S.U. Carburetters are available as a pair C-AUD 194 together with Installation Kit C-AJJ 3304. Remove the standard carburetters, but before removing the heat shield, use one of the insulators Part No. AHH 3713 provided in the Installation Kit C-AJJ 3304 to mark out the larger diameter induction holes in the heat shield and file out to suit. Holes should be drilled in the lower edge of the heat shield immediately under the throttle return spring levers to anchor the springs. Two insulators for each carburetter must be fitted over the heat shield, to maintain induction pipe length. The bore of the manifold is already chamfered to accept larger carburetters but can, with advantage, be cleaned and polished.

The existing connections for the throttle and mixture cables are used, but the mixture cable is clamped to the abutment bracket which, in turn, is bolted to the inside of the carburetter air cleaner flanges. No air cleaners are called for but trumpets C-AEA 485 (steel) are available to suit these carburetters.

The carburetters supplied C-AUD 194 are fitted with No.6 needles, but some engines may be better suited by AM needles which are slightly weaker throughout the range. For competition use, CP4 needles may be more suitable.

CAMSHAFT

C-AEA 731 camshaft has the following specification.

Inlet opens 24° B.T.D.C.	Exhaust opens 59° B.B.D.C.
closes 64° A.B.D.C.	closes 29° A.T.D.C.
Valve lift 0.320"	Tappet clearance 0.015"

C-AEA 648 camshaft timing is as follows :

Inlet opens 50° B.T.D.C.	Exhaust opens 75° B.B.D.C.
closes 70° A.B.D.C.	closes 35° A.T.D.C.
Valve lift 0.394"	Tappet clearance 0.015"

Either of these camshafts will extend the possible rev range to over 8,000 r.p.m. with greatly increased power at the expense of low speed torque.

With C-AEA 648 camshaft the block should have a recess cut beneath the exhaust valve head so that at least .060" clearance remains when the valve is on full lift.

This clearance should always be checked when building a power unit with a high lift camshaft and/or a modified cylinder head.

Use distributor C-27H 7766 with either of these camshafts.

FLYWHEEL

A lightened flywheel is no longer available but the special competition purposes flywheels may be lightened by machining as shown in Fig.4. It is most important that the flywheel is rebalanced after the machining operation.

MAIN BEARING CAP

At this stage it would be prudent to 'strap' the centre main bearing cap with a steel billet at least $\frac{1}{2}$ " thick held by longer studs and nyloc nuts in place of the standard bolts. Engines prior to No. 9C/U/H 1168 had the rear main cap drilled and plugged, which caused some weakening so these should be avoided.

CLUTCH

Competition clutches are no longer available for these models from the Factory, but Borg & Beck stockists can supply the following nine spring assembly, suitable for most purposes :

Cover Assembly	Borg & Beck Reference	50333
Driven Plate		45585/41
Spacers (8)		50332
Release Plate		50345

If the later 1098 flywheel 12G 180 is fitted it will accept the later competition clutch for 1098cc engines.

Cover Assembly	C-3HA 4448
Driven Plate	C-3HA 4449

GEARBOX

No alternative gears are available for the 9C or 9CG gearboxes now, but as shown in the chart the 9CG AEA 3021 had slightly closer ratios.

The 1098/1275 gearbox 38G 374 is much stronger in construction and easily adapted to earlier models, standard ratios are as 9CG. Use the later engine back plate 12G 453 together with flywheel 12G 180 and the 1098 clutch (see clutch paragraph).

For competition use the Close Ratio Spur Gear Kit C-AJJ 3319 should be fitted for greater strength, using the latest layshaft 22G 673.

The spur gear ratios are shown in the chart, top gear being direct in all cases.

<u>Gear Ratios</u>	<u>9C</u>	<u>9CG</u>	<u>SPUR GEARS</u>
3rd	1.412	1.357	1.255
2nd	2.374	1.916	1.722
1st	3.627	3.2	2.573

AXLE RATIO

Axles fitted after Austin Healey Sprite Car No. HAN7-24731 and MG Midget GAN2-16183 have changed pinion bearings and redesigned differential assembly. While the complete differential assemblies are interchangeable between early and late type axles, crown wheel and pinions are NOT interchangeable. Illustration 'A' page 13.

The differential cage ATA 7036 (illus. C) remains unaltered and ALL axles accept the Limited Slip Differential C-BTA 1226.

Ratio	No. of Teeth	C.W. & P. Part No. Illustration A	Carrier Assy. Part No. Illustration B	Differential Assy. Part No.	Standard Model
3.727	11/41	ATA 7240 *	ATA 7167	BTA 551	Riley 1.5
3.9	10/39	C-ATA 7354 *	ATA 7167	BTA 1222	
4.22	9/38	ATA 7266	ATA 7032	ATA 7326	Up to ↓
4.55	9/41	8G 7129	ATA 7032	ATA 7093	Morris ¼ ton van
4.875	8/39	C4 110	ATA 7032	2A 7230	A35 Van
5.375	8/43	ATA 7040	ATA 7032	ATA 7073 *	Morris GPO Van
3.727	11/41	BTA 535	BTA 549	BTA 551	Later Riley 1.5
3.9	10/39	BTA 1223	BTA 549	BTA 1222	Sprite/Midget Ø
4.22	9/38	BTA 539	BTA 549	BTA 550	From ↓ to Ø
4.55	9/41	C-BTA 816 *	BTA 549	ATA 7093	

* Information only No longer available

↓ Sprite/Midget Change Point HAN7-24731/GAN2-16183

Ø Sprite/Midget Change Point HAN9-66226/GAN4-77591

DRIVE SHAFTS

As all the Sprite/Midget axle shafts are interchangeable the latest shaft BTA 806 (for disc wheels) in improved material can be fitted to earlier types. C-BTA 940 is the strongest for competition use.

DEEP SUMP

Where oil surge is experienced causing loss of oil pressure momentarily, the deep sump set kit should be installed, C-AJJ 3324A.

This is complete with all necessary joints and an extended oil pick up pipe.

OIL PUMP

In all cases where the power unit is stripped the oil pump should be closely examined and if replacement is necessary use only 12G 793.

The Cooper 'S' oil pump cannot be fitted to these models unless the shaft is shortened, which would weaken the shaft and cause premature failure.

COOLING SYSTEM

Where sustained maximum speeds are required, the engine thermostat can be replaced with an outlet blanking sleeve kit C-AJJ 4012 to ensure the maximum flow of coolant to the engine at all times. Do not run without either thermostat or sleeve.

ROAD WHEEL BALANCE

The original degree of wheel balance may be affected by tyre wear, cover and tube repairs or tyre removal and damage to the road wheel. Balance may require re-checking statically and dynamically every few thousand miles dependent entirely upon the conditions under which the car has been operating. Use the tyres in the best condition or those with an even tread wear on the front of car. Balancing a tyre having flats or uneven wear is not usually very successful.

When fitting any non-standard wheels or tyres, it is essential to check that the tyre cannot touch the brake hose under any conditions. It is worth making occasional checks that nothing has changed which may permit the hose to become chafed.

WHEELS

For competition use, strengthened wheels AHA 6455 should be fitted, which may be identified by lack of ventilating holes.

SHOCK ABSORBERS

For improved handling stiffer shock absorbers C-AHA 6451 R.H. and C-AHA 6452 L.H. are available for the front of all models. Adjustable types are available for the rear C-AHA 7906 R.H. and C-AHA 7907 L.H. after chassis AN5-4333.

These require a plate 5/32" (3.9%) between the shock absorber and body, shape and measurements are detailed with the shock absorbers. The drop link (6") should be replaced by the standard 4³/₄" type of the existing car.

ROAD SPRINGS - Rear

A heavy duty rear road spring AHA 5468 (2 off) is still available, which requires longer fixing bolts HBZ 0624 (4 off). A taper packing is also available to angle the springs up or down to suit the required ride height. Part No. AHA 6456 (2 off).

ROAD SPRINGS - Front

The front end may be lowered using lowering kit C-AJJ 3322 or raised by fitting springs AHA 8003. Springs will be weakened if the shock absorbers are not in good condition, and it may be found that the standard springs 2A 4214 are quite satisfactory with new shock absorbers..

A combination of AHA 8003 and C-AJJ 3322 will effectively stiffen and slightly lower the front. This will create understeer or correct oversteer.

The anti-roll bar kit C-AJJ 3314 includes a 9/16" bar and requires the bottom suspension link to be drilled, alternatively ready drilled links are available AHA 7029/7030. Optional thicker bars C-AHT 56 (5/8") and C-AHT 57 (11/16") can also be obtained to correct oversteer or introduce understeer as required. If no roll bar has previously been fitted, installation kit C-AJJ 3357 will be required with either C-AHT 56 or 57.

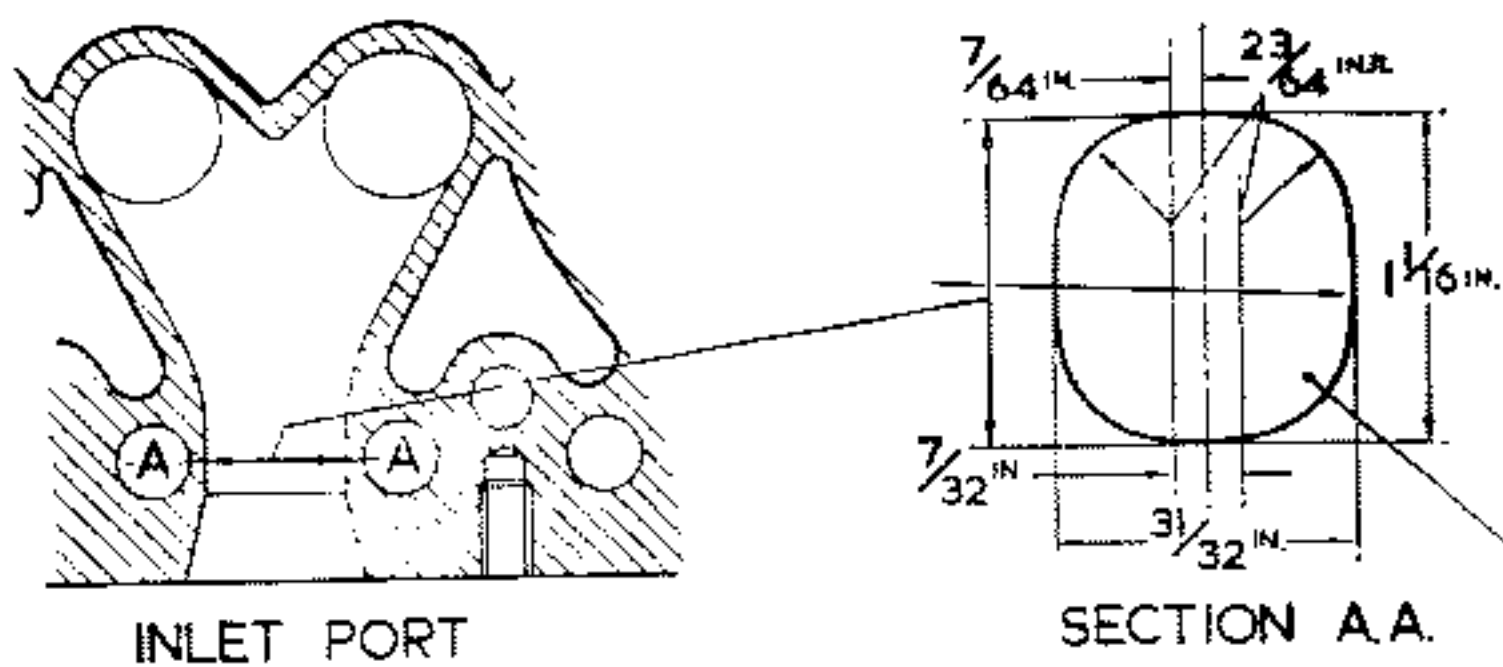
BRAKES

On an older car, close attention should be paid to the condition of all brake pipes and hoses to ensure they have not become damaged or perished with age.

Performance and handling will now be greatly increased and attention must be paid closely to stopping.

The standard 7" drum arrangement is well able to take care of normal performance, but will suffer from fade during high speed stops. Competition linings can be fitted to help reduce fade and VG 95/1 material is available C-8G 8998, 2 sets required per car. Lined shoes are also available C-8G 8997, 4 sets per car. These will require more pedal effort which can be compensated for by fitting Brake Servo Kit 8G 8732.

Conversion to later type disc front brakes is not approved by the factory because of the extreme difficulty of ensuring that the front brake hose run is correct to avoid it fouling the wheels.



INLET PORT

SECTION A.A.

MAKE METAL TEMPLATE TO THIS SHAPE AND GRIND OUT INLET PORT THROAT AT SECTION A.A. TO ALLOW PLATE TO JUST PASS THROUGH.

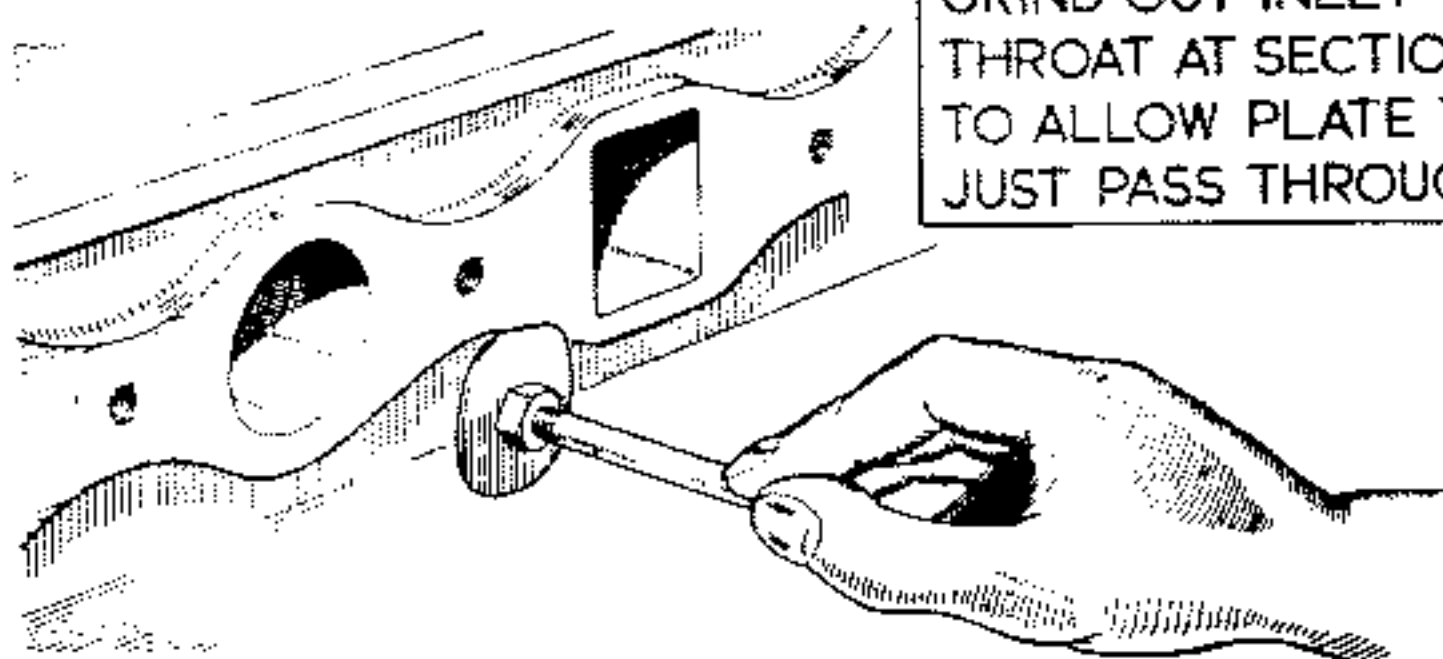


Fig. 1. Inlet port template.

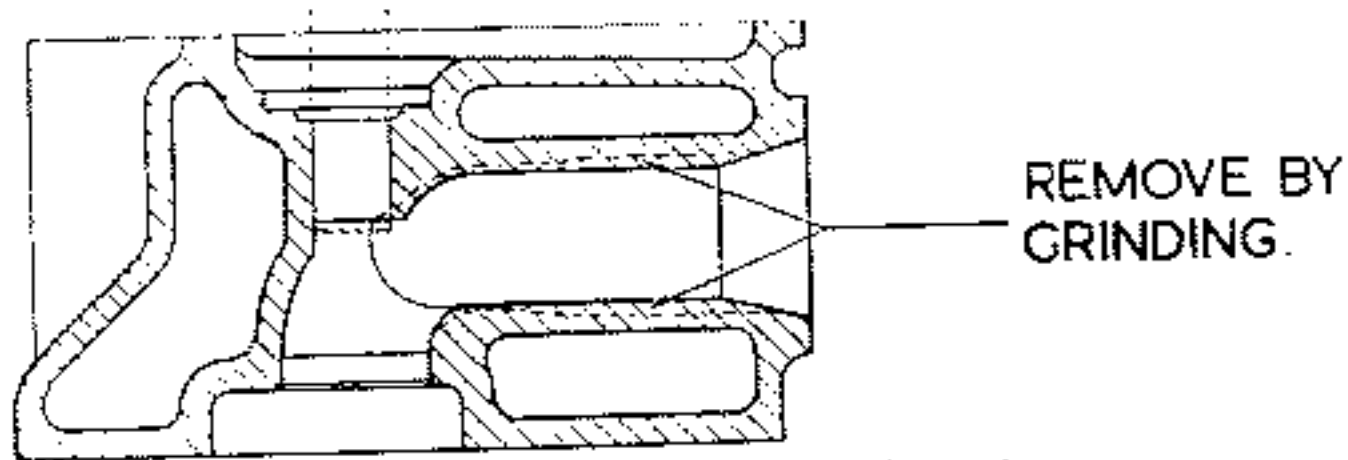


Fig. 2. Section through the inlet port.

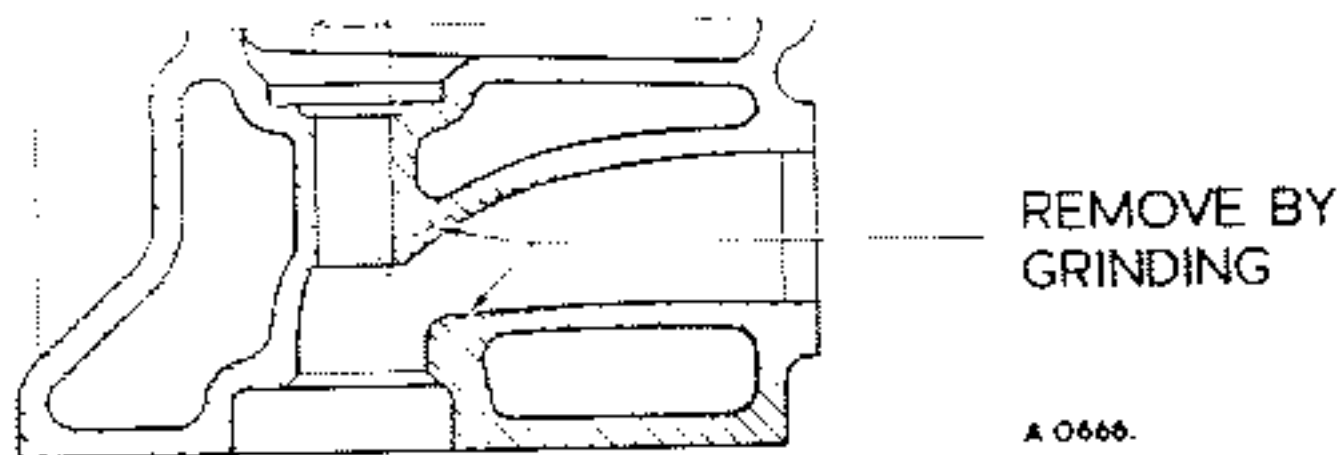


Fig. 3. Section through the exhaust port.

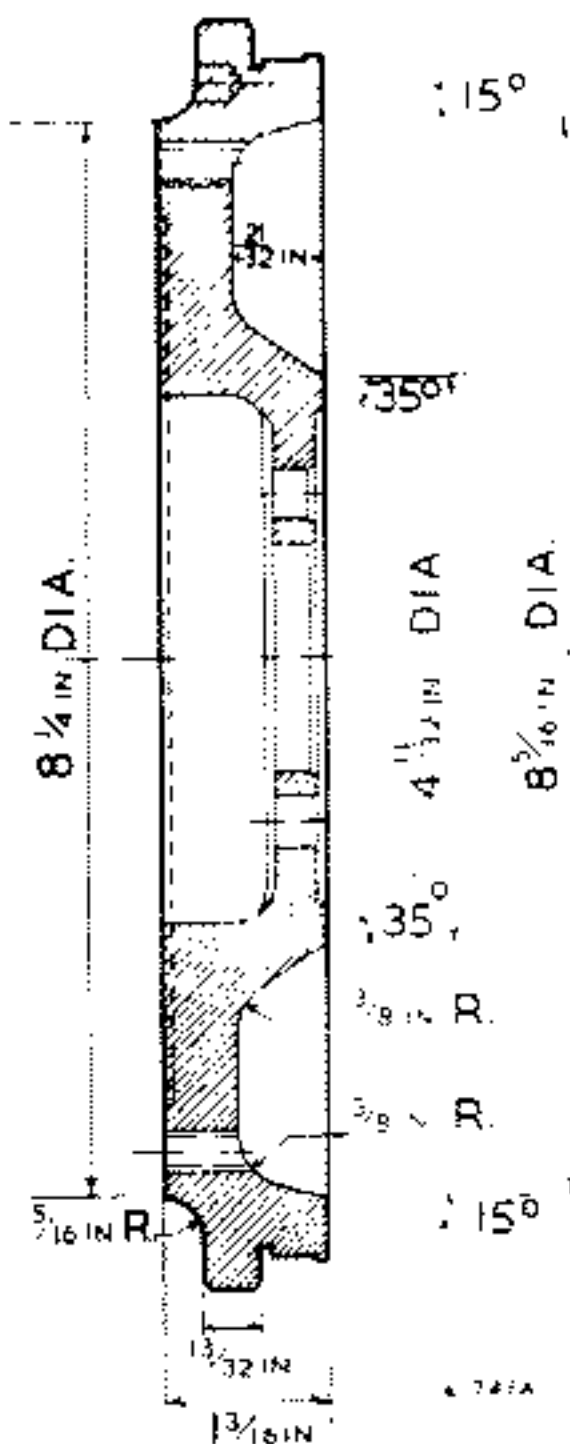


Fig. 4

A section through the flywheel showing the area where lightening is permissible together with the machining dimensions

