

Number B.53  
Section Engine

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Date July, 1968

HEPWORTH-GRANDAGE (SOLID SKIRT) PISTONS  
(4.2 Litre Engines)

4.2 litre engines (9:1 compression ratio) are now being fitted with HEPWORTH-GRANDAGE (SOLID SKIRT) pistons as alternatives to BRICO (SPLIT SKIRT) pistons.

The information in this Bulletin is applicable to these new pistons.

Piston

Make	- Hepworth and Grandage (Solid Skirt)
Jaguar Part Number	- C.26632
Skirt Clearance	- .0007"-.0013" (.018-.03 mm.) (Measure at bottom of skirt at 90° to gudgeon pin axis)

Piston Rings

Number - Top Compression (Chrome)	- 1
Lower Compression	- 1
Scraper	- 1
Width - Top Compression	- .077-.078 (1.97-2.00 mm.)
Lower Compression	- .077-.078 (1.97-2.00 mm.)
Scraper	- Self-expanding
Thickness - Top Compression	- .1501"-.1553" (3.835-4.013 mm.)
Lower Compression	- .1501"-.1553" (3.835-4.013 mm.)

Gap - when fitted to Bore	
Top Compression	- .015"-.020" (.38-.51 mm.)
Lower Compression	- .010"-.015" (.254-.38 mm.)
Scraper	- .015"-.045" (.38-1.143 mm.)

Side clearance in groove	- .001"-.003" (.02-.07 mm.)
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Gudgeon Pins

Grades	- (Red) .8753"-.8754" (22.23-22.24)
	- (Green) .8752"-.8753" (22.22-22.23 mm.)

Clearance in piston	- .0001"-.0003" (.0025-.0076 mm.)
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CARGRAPH TREATMENT (Piston Rings)

The chromium plated ring (top compression) is CARGRAPH treated on the outside diameter to assist in running in of the chrome surface. This coating is coloured RED for identification and SHOULD NOT BE REMOVED. Excess oil or grease may be removed with clean paraffin but rings should not be soaked in any degreasing agent.

PISTON GRADES

Piston grades, letters and dimensions are identical to those quoted for BRICO pistons in the relevant Service Manual - Section - Engine, under Sub-Section - Pistons and Gudgeon Pins.

Piston grade dimensions are measured at the bottom of the skirt.

PISTONS - FITTING

The work "Front" is stamped on the crown of the piston indicating the correct fitting position.



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## ENGINE CYLINDER BLOCK HEATER

<u>Models affected</u>	<u>Commencing Engine Number</u>
4.2 'E' Type	7E.16336
4.2 'E' Type 2 + 2	7E.54362
4.2 Mark 10	7D.57739
420	7F.8804
240	7J.2863
340	7J.51686
3.4 litre 'S' Type	7B.10459
3.8 litre 'S' Type	7B.65020

Commencing at the above engine numbers all cars exported to Canada will have cylinder block heaters fitted as standard equipment.

The heaters are of 110 mains voltage.

The heater unit, available under Jaguar Part Number C.30380, can be fitted to engines prior to the above commencement numbers if required.

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### IMPROVED CRANKSHAFT FRONT OIL SEAL

<u>Models affected</u>	<u>Commencing Engine Numbers</u>
4.2 'E' Type	7E.16377
4.2 'E' Type 2 + 2	7E.54441
4.2 Mark 10	7D.57853
420	7F.8770
240	7J.2863
340	7J.51712
3.4 litre 'S' Type	7B.10454
3.8 litre 'S' Type	7B.65030

Commencing at the above engine numbers an improved crankshaft front oil seal was fitted.

This oil seal, available under Jaguar Part No. C.24611/2, is fully interchangeable with the previous seal, C.24611, and it is recommended that the new seal is fitted in preference to the old one if replacement becomes necessary.

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## CRANKSHAFT DAMPER AND IGNITION TIMING POINTER

<u>Models affected</u>	<u>Commencing Engine Number</u>
420G	7D.58688
420	7F.11029
4.2 'E' Type	7R.1346
4.2 'E' Type	7R.35089

Commencing at the above engine numbers the timing scale pointer, previously only accessible from beneath the car, has now been repositioned to the left hand side of the engine and the timing scale on the damper has also been repositioned to conform.

This modification has been introduced to enable readings with a stroboscopic timing device (Reference Bulletin P.72) to be obtained more easily from above the engine with the bonnet raised.

The ignition timing data remains identical to that stated in the relevant Service Manual.

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## VALVE SEAT INSERTS

<u>Models affected</u>	<u>Commencing Engine Numbers</u>
240	7J.3670
340	7J.52453
3.4 'S' Type	7B.10826
3.8 'S' Type	7B.65120
420	7F.9957
420G	7D.58324
4.2 'E' Type (F.H.C.)	7E.17865
4.2 'E' Type (Open Sports)	7E.17865
4.2 'E' Type 2 + 2	7E.55280
XJ6 - 2.8 litre	7G.1026

Commencing at the above engine numbers sintered valve seat inserts were fitted.

These inserts (C.28224 Inlet, C.28225 Exhaust) have reduced depth which allows for an improved valve seat pattern, and may be fitted to engines prior to the above commencement numbers if required.

The removal and refitting details remain identical to that stated in the relevant Service Manual.

Certain individual engines prior to those quoted above were also fitted with the new inserts.

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SERVICE VALVE GUIDES  
XK ENGINES

Replacement valve guides will, in future, be available in three sizes and will have identification grooves machined in the shank as follows:-

1st oversize (one groove)	- .503" - .504" (12.77 mm. - 12.8 mm.)
2nd oversize (two grooves)	- .506" - .507" (12.85 mm. - 12.87 mm.)
3rd oversize (three grooves)	- .511" - .512" (12.98 mm. - 12.005 mm.)

Valve guides, fitted during initial engine assembly, are to one of the following dimensions and may be fitted in mixed form.

(1)	.501" - .502" (12.7 mm. - 12.725 mm.)
(2)	.503" - .504" (12.77 mm. - 12.8 mm.)

The valve guide (2) will be identified by the machining of one groove on the shank, and is identical to the 1st oversize guide mentioned above. Valve guide (1) will not have a groove.

Guides with one groove should only be fitted as replacements for those without the groove, and the bore in the cylinder head will not then require reaming. Guides with two grooves should be fitted as oversize for those with one groove, and those with three grooves for guides with two grooves. Cylinder head bores will require reaming if either the two or three-groove guides are used for replacement purposes. The undermentioned table lists the correct size of reaming for each guide.

<u>Valve Guide</u>	<u>Ream Size</u>
1st oversize (one groove)	Do not ream
2nd oversize (two grooves)	0.505" + .0005" (12.83 mm. + .012 mm.) - .0002" - .005 mm.)
3rd oversize (three grooves)	0.010" + .0005" (12.95 mm. + .012 mm.) - .0002" - .005 mm.)

When removing a worn guide, care must be taken to identify each individual guide to its particular bore in the cylinder head.

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## CONNECTING ROD BOLTS AND NUTS

<u>Models affected</u>	<u>Commencing Engine Numbers</u>
420	7F.11134
420G	7D.58837
XJ6 - 2.8	7G.1263
XJ6 - 4.2	7L.1225
240	7J.44610
340	7J.52826
4.2 'E' Type	7R.1795
4.2 'E' Type 2 + 2	7R.35310

Commencing at the above engine numbers the connecting rod bolts (C.3944), nuts (C.2361) and split pins (L.103/5/8U) were replaced by bolts (C.22236) and plain nuts (C.28535).

The tensile strength of both bolts and nuts has been increased, the torque tightening figure now being 37.5 lb./ft. (450 lb.in.) (5.1 kg/m.).



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ENGINE OIL PUMP  
(Shaft/rotor assembly)

<u>Models affected</u>	<u>Commencing Engine Number</u>
XJ.6 - 2.8 litre	7G.4841
XJ.6 - 4.2 litre	7L.6639
4.2 Mark 10	7D.60503
4.2 'E' type Open Sports/F.H.C.	7R.7504
4.2 'E' type - 2 + 2	7R.38502

Commencing at the above engine numbers, a revised oil pump shaft incorporating a pressed-on inner rotor was introduced, replacing the previous shaft with pinned-on rotor.

The new assemblies are fully interchangeable with the previous items, and replacements will be to the new part number when stocks of the original assemblies are exhausted.

The part numbers of the two shaft/rotor assemblies are as follows:-

Shaft with pinned-on rotor assembly - C.17664  
Shaft with pressed-on rotor assembly - C.17664/1

Certain individual engines prior to the above numbers were also fitted with the new shaft/rotor assembly.