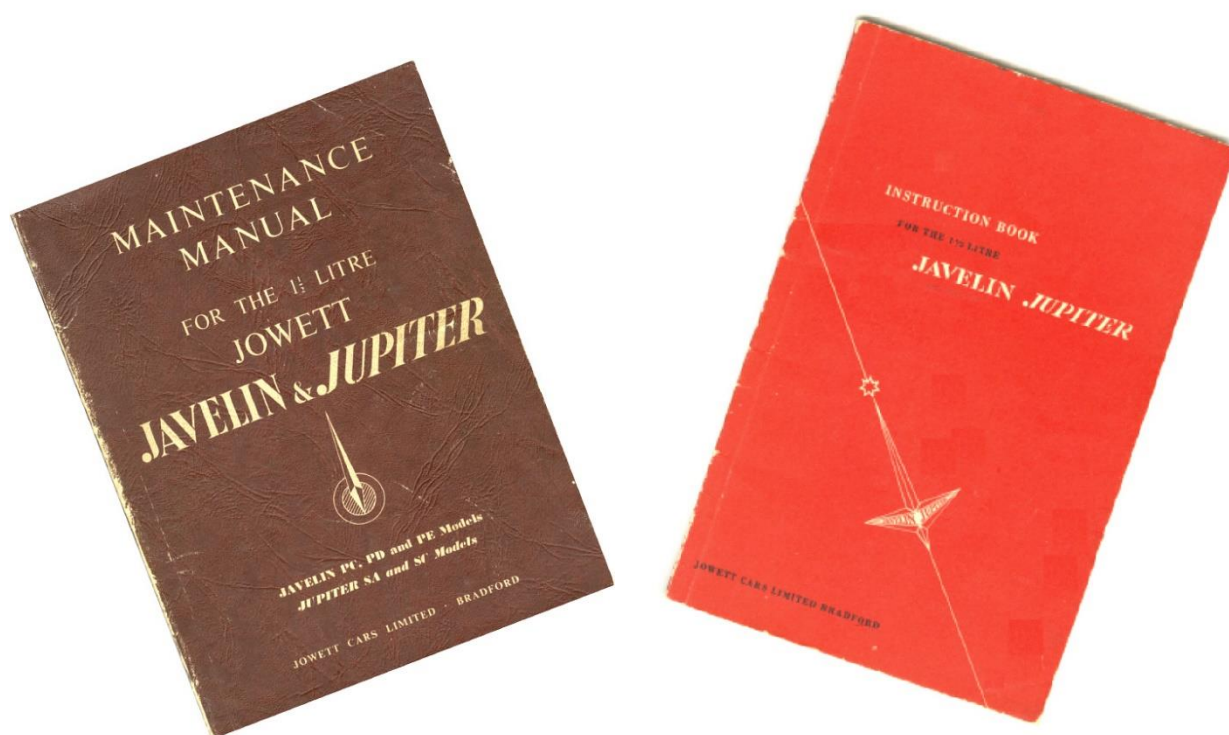


TECHNICAL NOTES SERIES

JOWETT JAVELIN – PA, PB, PC, PD & PE JOWETT JUPITER – SA & SC



Jowett Javelin and Jupiter Maintenance Manual and Jupiter Handbook.

PART IV – TECHNICAL DATA, JAVELIN AND JUPITER

The Jowett Car Club of Australia Incorporated is not responsible for any inaccuracies or changes that may occur within this document. Every effort has been made to ensure accuracy. It is not a Jowett Car Club publication and, therefore, the Club has no control over its contents. These Technical Notes have been compiled by using the information that was available, which was deemed accurate at the time.

INTRODUCTORY COMMENT FOR TECHNICAL NOTES

These introductory notes should be read prior to reading Part IV of the Technical Notes Series.

The Jowett Technical Notes Series have been an ongoing activity for several years. That means that some techniques and specifications may have been superseded in later notes on the same, or associated topics in the series. Also be aware that some topics and recommendations may be specific to certain Engine Serial Number ranges. It appears that, in Australia, the various State Main Agents did not carry out Service Bulletin information during Jowett active times. A set of known Service Bulletins is in Part III.

Some of the notes are restorations of what was written by members of the Jowett Car Club (UK), the Jowett Car Club (NZ) and by members of the JCCA.

Over the years of involvement with matters Jowett, and with the dawning of the personal computer age, a personal decision was made to help members of the Jowett Car Club of Australia Inc. with technical information. Included with the Technical Notes are 'restored' versions of the Javelin and Jupiter Maintenance Manuals and the associated Spare Parts Catalogues. Future generations will prefer to flick through images on their personal device screens, rather than leafing through pages in a tattered and oil stained book to access information.

The term 'restored' has been used because it soon became apparent that, as with our efforts in restoring Jowett vehicles, we desire excellent quality of workmanship in the reproduction of Jowett related documentation. Not for us the crude, and crooked, photocopies that have been issued over the years. These have, even though accurate at their time, become partly out of date.

Hence the decision to 'restore' the publications and documents that have come to hand.

It should be noted that the Javelin and Jupiter Spare Parts Catalogue is a combination of all the catalogues that were to hand (from 1948 to 1953).

The Maintenance Manuals were originally written on the assumption that they would be used by skilled motor mechanics who had attended service training courses conducted by Jowett Cars Limited and after works closure, were made available for owners who had reasonable mechanical knowledge of motor car maintenance and overhaul.

Included with the Technical Notes Series is a Lucas Overseas Correspondence Course, which can be of great assistance when trouble-shooting electrical problems related to your Jowett, or any other British vehicle of the same period.

Please be aware that this is an ongoing project

Mike Allfrey. – January, 2024

TECHNICAL NOTES SERIES – PART IV – INTRODUCTION

It should be carefully noted that these Technical Data sections have been taken from a wide range of sources. Every effort has been made to maintain accuracy and consistency of information in this part of the Technical Notes Series. Some of the information has been taken from very old and faded documents.

It is very likely that this is the first, and most comprehensive, document that contains both Javelin and Jupiter technical data. This document does not claim to be absolutely up to date. Jowett Javelin and Jupiter information is continuing to be found and there will, no doubt, be updates in the not too distant future.

It is vitally important that technical and service information be kept by the Jowett Car Club of Australia Inc. for future use by Jowett enthusiasts.

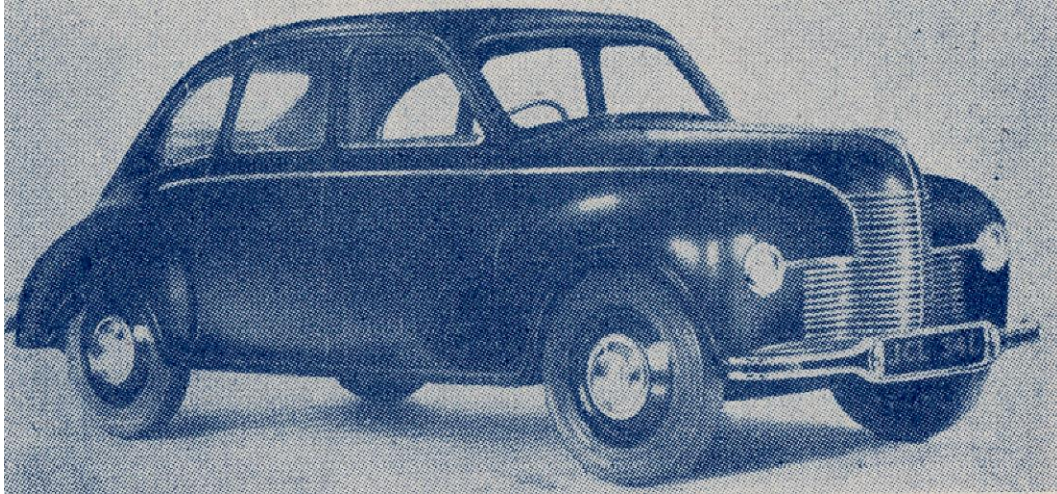
An attempt was made to combine the two Jowett models into one comprehensive section. However, even though the base running gear is the same (and similar to) as the Javelin, it was found best to have one section each for each of these Jowett models. The Javelin comes first with the Jupiter section commencing on Page 19.

Please make good use of this Part IV of the Technical Notes Series.

Mike Allfrey – January, 2007.

JOWETT JAVELIN

TECHNICAL DATA



Jowett Javelin from a pre-production sales brochure.

A GATHERING TOGETHER OF DATA FROM VARIOUS SOURCES

Revised – January, 2024.

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TECHNICAL DATA

MANUFACTURER: JOWETT CARS LTD. MODELS: JAVELIN PA – PE

MANUFACTURED FROM: 1947 – 1954

PRELIMINARY NOTE

This document is the result of an attempt to combine all technical data relating to the Jowett Javelin saloon. Some data has been taken from the Auto Trader Service Data No. 208, dated August 26th,

1953, some is from Scientific Magazines Publishing Co., 1952. Some original information has been taken from the Maintenance Manual, published by Jowett Cars Limited. All later information sourced from the Jowett Car Club (UK), Jupiter Owners Auto Club, Jowett Parts (NZ) and local experience. Every effort has been made to maintain accuracy of information. However, due to the Jowett Car Club of Australia Incorporated having no influence on the content of this document nor the changes which may happen, responsibility cannot be accepted by the club for any errors and/or changes.

VEHICLE IDENTIFICATION

Post-war Jowett vehicles have a Serial Number system which conveniently identifies the year of manufacture, the type of vehicle (Commercial, Passenger or Sports), the series of that model and the vehicle's individual number. These numbers were located on Javelin vehicles as follows:

Engine Number

This is stamped on to a raised plinth which is located on the left hand side front face of the crankcase. It is the same number as the Chassis Number (Serial Number).

Reconditioned engines have a riveted identification plate located on the rear top surface of the crankcase adjacent to the clutch housing and starter motor pinion.

Chassis And Body Numbers

These are stamped on to a brass plate which is fastened to the upper left hand side of the dash (firewall) and can be seen after raising the bonnet. Nearby, close to the bonnet hinge, is a plate showing the Briggs Body Number. It should be noted that there is also a Chassis Number stamped directly into the body frame at the bonnet catch cross member above the grille.

Sample Serial Number Identification

The sample Serial Number E1 PC 12778D, describes a Javelin vehicle which was manufactured in 1951, being a saloon car of the third series. The components of this Serial Number are deciphered as follows:

E = 5 Being the first digit of the decade. 'A' = 1, 'B' = 2, 'C' = 3, 'D' = 4, 'E' = 5.
1 = 1 Being the year in the decade (1951).
P = Passenger car.
C = Third build series. 'A' = First series, 'B' = Second series.
12778 = The individual vehicle number.
D = Deluxe version

The above describes a right hand drive vehicle, if it had been left-hand drive, the Serial Number would have been E1 PCL 12778D.

GENERAL VEHICLE DATA

Wheelbase	93-in. (236.22 cm)	Wheel Track – Front	51-in. (129.54 cm)
Wheel Track – Rear	49-in. (124.46 cm)	Ground Clearance	7.5-in. (190.5 mm)
Weight (Dry)	19 cwt. (983.40 kg)	Weight (Unladen)	20 cwt (1,024 kg)
Weight, Front to Rear Distribution 1,215 lbs. (551.1 kg) – 54%, 1,043 lbs. (473.1 kg) – 46%			
Towing Capacity	15 cwt. (762 kg)	Tyre Size	5.25 x 16, 4 ply
Tyre Pressure (F/R)	26 psi. (165/180 kPa)	Overall Length	168 in. (426.72 cm)
Overall Width	62-in. (157.48 cm)	Overall Height	56-in. (142.24 cm)

ENGINE PERFORMANCE DATA

Number of Cylinders	4
Bore x Stroke	2.854 x 3.545-in. (72.5 x 90 mm)
Cubic Capacity	90.9 cu.in. (1,486 cc)
RAC Rated Horse Power	13.05

Max. BHP (kW) @ erpm*	52.5 (39.2) @ 4100
Max Torque (lb. ft.) @ erpm	76 @ 3000
Maximum B.M.E.P. @ erpm	126 psi @ 2600
Compression Ratio	7.2 : 1
Compression Press @ 250 erpm	114 lbs/ins ² . (786 kPa)
Average Fuel Consumption	30 to 35 MPG at 40 to 50 MPH
Gearing	15.5 mph per 1,000 erpm in top gear
Piston Speed at 66 mph	2,500 ft per minute

* erpm – Engine Revolutions Per Minute

FUEL SYSTEM

Note: Early engines had two Zenith 30VM-4, later engines 30VM-5 carburettors. The Jowett Competition Tuning Notes booklet suggested use of 30VM carburettors as used in the later Jupiter.

Carburettor Specification	30VM-4*	30VM-5**	30VM-5	30VM
Zenith Contract Sheet Number	C1084	C1130	C1161	C1316
Carburettors, Jet Sizes – Main	90	90	90	120
Compensating	50	50	50	65
Progression	170 [#]	170 ⁺	110	120
Capacity Tube	2	2	2	2
Screw Over Capacity Well	2.6	2.6	2.6	2.5
Slow Running	50	50	45	45
Choke	23	23	23	27
Needle Seat	2 mm	2 mm	1.5 mm	1.5 mm
Needle Seating Washer	1 mm	1 mm	1 mm	1 mm (2x)
* Before D8-PA 1753; ** After D8 PA 1753; [#] With 2 mm Outlet Hole in Barrel; ⁺ With 180 Drilling.				
Fuel Pump (Mechanical)	AC (Type U) Driven by push rod from engine oil pump shaft.			
Fuel Pump Pressure (Static)	1.6 – 2.0 psi. (11.03 – 13.8 kPa)			
Fuel Pump Push Rod Length	1.656-in. (42.062 mm)			
Wear Limit	0.010-in. (0.25 mm)			
Air Cleaner (Before D9 PA 5374)	Dry elements in bonnet with wooden silencer.			
Air Cleaner (After D9 PA 5374)	Oil bath in bonnet with wooden silencer.			
Air Cleaner Oil Capacity	0.33 pint (0.189 litre)			
Fuel Tank Capacity	8 gallons (36.4 litres)			

IGNITION SYSTEM

Distributor Rotation	Clockwise (when viewed from driven end).	
Contact Breaker Gap	0.010 – 0.012-in. (0.254 – 0.305 mm) DKY H4A type 0.014 – 0.016-in. (0.356 – 0.406 mm) DM2 type	
High Tension Lead Lengths:	No. 1 = 24-in. (610 mm); No. 2 = 27-in. (686 mm); No. 3 = 29-in. (737 mm); No. 4 = 24-in. (610 mm); Distributor to Coil = 14-in. (356 mm). All 20 strand.	
Advance Data:	DKY H4A	DM2
Centrifugal (Crank Deg.)	18° – 22°	18° – 22°
Advance Starts (Crank rpm)	460 – 800	600 – 940
Max. Advance at Crank rpm	2260	1840 – 1960
Cam Angle (Closed Period)	49 ± 4°	60 ± 3°
Contact Spring Tension	20 – 24 oz. (567 – 680 g)	

Condenser Capacity 0.2 mf
Firing Point and Order T.D.C to 3 degrees **after** T.D.C. 1-4-2-3

Superseding Distributor Data

Distributor 40115, fitted to Javelins prior to 1952, had the following advance curve:

9 – 11° at 1,500 distributor rpm (18 – 22° at 3,000 engine rpm)
5 – 7° at 800 distributor rpm (10 – 14° at 1,600 engine rpm)
0 – 2° at 400 distributor rpm (0 – 4° at 800 engine rpm)

Distributor 40317, fitted to Javelins after 1952, having the following advance curve:

9 – 11° at 1,300 distributor rpm (18 – 22° at 2,600 engine rpm)
3 – 6° at 650 distributor rpm (6 – 12° at 1,300 engine rpm)
0.5 – 3.5° at 500 distributor rpm (1 – 7° at 1,000 engine rpm)

No advance below 250 distributor rpm (500 engine rpm)

Distributor DVXH4A number 40318 (fitted to the R1 Jupiter) and also the distributor number 40571 have the same advance curve as the 40317 above. The 40571 was replaced by the 40735 which is now (July 1972) replaced by the still current 40795, having this advance curve:

9 – 11° at 1,200 distributor rpm (18 – 22° at 2,400 engine rpm)
5 – 7° at 600 distributor rpm (10 – 14° at 1,200 engine rpm)
0 – 2° at 350 distributor rpm (0 – 4° at 700 engine rpm)

No advance below 225 distributor rpm (450 engine rpm).

Degrees and rpm are quoted at the distributor, and both should be doubled to arrive at the equivalent measured at the engine crankshaft, shown above in brackets.

Sparking Plugs:

Plug Types:	Champion L10	Bosch W8 AC	KLG F50*	AC 45F
Gap Setting		0.020 – 0.025-in. (0.508 – 0.635 mm)		
Thread Diameter		14.0 mm (0.55-in.)		
Reach		14.29 mm (0.5625-in.)		

* KLG Water Proof – WF 50

CRANKCASE DATA

Crankcase Material	DTD 133 B aluminium alloy
<i>Crankcase Set Number</i>	<i>The matching set number is stamped into the upper front faces.</i>
Carb. Balance Pipe Protrusion	0.009 – 0.015-in. (0.229 – 0.381 mm)*
Cylinder Liner Protrusion	0.008 – 0.010-in. (0.203 – 0.254 mm) Original PA and PB.
Cylinder Liner Protrusion	0.008 – 0.012-in. (0.203 – 0.3048 mm) PC. PD, PE.
<i>Cylinder Liner Protrusion</i>	<i>0.006 – 0.008-in. (0.102 – 0.203 mm) with solid shims only.</i>
Cylinder Liner Material	Cast Iron (Vacrit)
Cylinder Liner Oversizes	+0.010-in. (0.254 mm), +0.020-in. (0.508 mm), +0.030-in. (0.762 mm)
Cylinder Liner Bore (In Crankcase)	3.1880 – 3.1895-in. (80.975 – 81.013 mm)
Main Bearing Bore Diameter	2.395-in. (60.833 mm)
Camshaft Bearing Bore Diameter	1.501 – 1.503-in. (38.1254 – 38.1762 mm)
Clutch Housing, Front Timing Cover	Dedicated to crankcase set

* At Cylinder Head Gasket Face. *Average dimension is 0.012-in. (0.203 mm).*

CRANKSHAFT AND CONNECTING RODS

Crankshaft Grinding Data (As Of 1998)

The following grind specifications apply for the different types of bearing surface being used. It should be noted that, if a white metal rear main bearing set is used in conjunction with either copper/lead or 'Alutin' bearings at Nos. 1 & 2 main bearings, the grind tolerances immediately below

apply to the rear main journal. The grind tolerances, for white metal bearings (original early type) are as follows:

White Metal Bearings

Main Bearing Standard Size Specification 2.2500 – 2.2485-in. (57.150 – 57.112 mm)

Big End Bearing Standard Size Specification 2.000 – 1.9985 in. (50.800 – 50.762 mm)

Main Bearings: First Grind (– 0.010-in.) 2.240 – 2.2385-in. (56.896 – 56.858 mm)
Second Grind (– 0.020-in.) 2.230 – 2.2285-in. (56.642 – 56.604 mm)
Third Grind (– 0.040-in.) 2.210 – 2.2085-in. (56.134 – 56.096 mm)

Big End Bearings: First Grind (– 0.010-in.) 1.990 – 1.9885-in. (50.546 – 50.508 mm)
Second Grind (– 0.020-in.) 1.980 – 1.9785-in. (50.292 – 50.254 mm)
Third Grind (– 0.040-in.) 1.960 – 1.9585-in. (49.784 – 49.746 mm)

(Note: These tolerances apply to the early specification bearing surface material.)

Copper/Lead Bearings

It is possible that copper/lead type bearings can be obtained. Should this bearing surface material be used, then a different grind tolerance applies:

Main Bearing Standard Size Specification 2.2505 – 2.2500 in. (57.163 – 57.150 mm)

Big End Bearing Standard Size Specification 2.000 – 1.9995 in. (50.800 – 50.787 mm)

Main Bearings: First Grind (– 0.010-in.) 2.2405 – 2.2400-in. (56.909 – 56.896 mm)
Second Grind (– 0.020-in.) 2.2305 – 2.2300-in. (56.655 – 56.642 mm)
Third Grind (– 0.030-in.) 2.2205 – 2.2200-in. (56.401 – 56.388 mm)
Fourth Grind (– 0.040-in.) 2.2105 – 2.2100-in. (56.147 – 56.134 mm)

Big End Bearings: First Grind (– 0.010-in.) 1.9900 – 1.9895-in. (50.546 – 50.533 mm)
Second Grind (– 0.020-in.) 1.9800 – 1.9795-in. (50.292 – 50.279 mm)
Third Grind (– 0.030-in.) 1.9700 – 1.9695-in. (50.038 – 50.025 mm)
Fourth Grind (– 0.040-in.) 1.9600 – 1.9595-in. (49.784 – 49.771 mm)

(Note: When copper/lead bearing surface is used the crankshaft journals could wear prematurely.)

‘Alutin’ Bearings

It is also possible that ‘Alutin’ type bearings can be obtained. Should this bearing surface material be used, then the following grind specification applies:

Main Bearing Standard Size Specification 2.250 – 2.2498 in. (57.150 – 57.145 mm)

Big End Bearing Standard Size Specification 2.0000 – 1.9998 in. (50.800 – 50.795 mm)

Main Bearings: First Grind (– 0.010-in.) 2.2400 – 2.2398-in. (56.896 – 56.891 mm)
Second Grind (– 0.020-in.) 2.2300 – 2.2298-in. (56.642 – 56.637 mm)
Third Grind (– 0.030-in.) 2.2200 – 2.2198-in. (56.388 – 56.383 mm)
Fourth Grind (– 0.040-in.) 2.2100 – 2.2098-in. (56.134 – 56.129 mm)

Big End Bearings: First Grind (– 0.010-in.) 1.9900 – 1.9898-in. (50.546 – 50.541 mm)
Second Grind (– 0.020-in.) 1.9800 – 1.9798-in. (50.292 – 50.287 mm)
Third Grind (– 0.030-in.) 1.9700 – 1.9698-in. (50.038 – 50.033 mm)
Fourth Grind (– 0.040-in.) 1.9600 – 1.9598-in. (49.784 – 49.779 mm)

‘Alutin’ Bearing Note

Perkins diesel engines of 3A-152 model (Massey-Ferguson 35), big end bearings are suitable for use as Jowett Javelin/Jupiter main bearings. The Perkins engine being a 3-cylinder unit, provides three sets in kit. To suit the Jowett application, the crankcase bearing bores should be grooved as per Series III Jowett practice. The shell bearings require lubrication drillings and locating dowel drillings. The original locating tangs should be filed flush with the bearing’s steel backing.

Ideally, the crankshaft should run in three main bearings that are of ‘Alutin’ type. For this type of bearing installation, separate thrust bearings must be installed.

SPECIAL NOTES FOR GRINDING CRANKSHAFTS

When grinding the crankshaft at main and big end bearing journals, particular care should be taken to ensure that a suitable radius (0.100-in. [2.54 mm]) is ground at the journal fillets.

Total ovality and taper of each journal should not exceed 0.002-in. (0.0508 mm). At the journals there must be a high surface finish, with a maximum surface roughness of 12 micro-inch.

The spigot end of the crankshaft, where rear main oil seal runs, **MUST NOT BE GROUND**. This is the spigot for flywheel location.

Laystall Crankshaft (Machined Oval Web) Special Note

Certain precautions are necessary when nitriding Laystall oval-web crankshafts. This note has been taken from a letter from Laystall Engineering Co. Ltd., London in 1970, following a query from a club member who had a shaft reground to within limits specified and then nitrided. Two main bearings were outside limits, and the crankshaft was too stiff to turn after assembly.

“ . . . We (Laystall) normally nitride these shafts for 50 hours, giving a depth of hardness of 0.012 – 0.016-in., the maximum hardness is down to approximately 0.006 – 0.008-in. (0.152 – 0.203 mm) and then gradually tapers away . . . (and) there is a slight build-up of approximately 0.0005-in. (0.0127 mm). It is advisable to grind both before and after nitriding, due to possible distortion that can take place when the stresses in the steel are released during nitriding, leaving approximately 0.003 – 0.005-in. (0.0762 – 0.127 mm) on diameter for this operation.”

Note: A printed copy of these pages should be handed to whoever is grinding the crankshaft.

PISTON DATA

Material	HG .413 Aluminium silicon die casting
Nominal Diameter	2.8542 – 2.8534-in. (72.497 – 72.476 mm) at gudgeon pin bore c/l
Clearance (Skirt)	0.0015-in. (0.0381 mm)
Over Sizes available	0.010, 0.020, 0.030, 0.040, 0.050-in. (See below)
Weight $\frac{c}{w}$ Rings, Pin, Circlips	13.75 oz. (389.8 grammes)
Gudgeon Pin:	
Material	S.14 Steel
Diameter	0.8125-in. (20.64 mm)
Fit in Piston	0.000 – 0.0004-in. (0.000 – 0.01016 mm) (Clearance)
Fit in Connecting Rod Bush	0.000 – 0.0007-in. (0.000 – 0.01778 mm) (Clearance)
Compression Height	1.555-in. (39.5 mm)

Piston Rings:

	Compression	Oil Control
Number of Rings	2	1
Ring Gap in Cylinder	0.007 – 0.015-in. (0.178 – 0.381 mm)	
Clearance in Grooves	0.0015 – 0.002-in. (0.038 – 0.051 mm)	
Width of Rings	0.156-in. (3.96 mm)	0.180-in. (4.57 mm)

CYLINDER BORE OVERSIZES

The *thick wall* cylinder liners can be bored to the following oversizes:

First Oversize 0.010 in.	2.864-in. (72.746 mm)
Second Oversize 0.020 in.	2.874-in. (73.000 mm)
Third Oversize 0.030 in.	2.884-in. (73.254 mm)
Fourth Oversize 0.040 in.	2.894-in. (73.508 mm)
Fifth Oversize 0.050 in.	2.904-in. (73.762 mm)

CAMSHAFT DATA

Camshaft Material	EN 32B Steel or cast iron
Bearing Journal Diameter	1.50-in. (38.10 mm)
Bearing Journal Length	1.156-in. (29.362 mm)
Bearing Clearance	0.001 – 0.003-in. (0.025 – 0.076 mm)

Wear Limit on Journals	0.002 – 0.003-in. (0.051 – 0.076 mm)
Overall Height of Cam – Tip to Base	1.266-in. (32.156 mm)
Amount of Lift	0.224-in. (5.69 mm)
Valve Timing	Inlet opens: 12° B.T.D.C., inlet closes: 53° A.B.D.C. Exhaust opens: 50° B.B.D.C., Exhaust closes: 15° A.T.D.C.
Camshaft End Float	Controlled by spring, plunger and thrust peg.
Camshaft End Float (Adjustable)	From Engine No, E1 PD 19295 the adjustable peg was introduced. With engine stopped. To adjust – screw adjusting screw in to light contact with the camshaft, then back off one eighth of a turn and tighten lock nut while holding adjusting screw in set position.
Camshaft Drive	Endless Duplex chain
Timing Chain Pitch	0.375-in. (Renold Duplex Chain)
Timing Chain Number of pitches	56 (Endless Chain – Renold)
Number of Teeth on Chain Wheels:	
Crankshaft Pinion	21
Camshaft Wheel	42
Dimension Between Centres	4.413 – 4.415-in. (112.09 – 112.14 mm)

VALVE AND VALVE SPRING DATA

Valve	Inlet	Exhaust
Head Diameter	1.4375-in. (36.51 mm)	1.21875-in. (32.56 mm)
Stem Diameter	0.3125-in. (7.94 mm)	0.3125-in. (7.94 mm)
Face Angle	30°	45°
Valve Material:		
Exhaust	XB Austentic steel (<i>Stainless steel also available</i>)	
Inlet	Silicon chrome steel	
Valve Guide Material	Close-grain cast iron	
Valve Guide Protrusion	0.6875-in. (17.5 mm) above cylinder head outer surface	
Tappet Clearance (Engine Cold)	0.060-in. (1.524 mm)*	0.060-in. (1.524 mm)*
Tappet Clearance (Engine Cold)	0.003-in. (0.0762 mm)	0.006-in. (0.1524 mm)

* Hydraulic tappets adjusted with tappet piston spring fully compressed.

Valve Springs	Inner	Outer
Free Length	1.935-in. (49.15 mm)	2.022-in. (51.36 mm)
Fitted Length	1.455-in. (36.96 mm)	1.468-in. (37.29 mm)
Static Load	58 lb. (25.9 kg)	71 lb. (31.6 kg)
External Diameter	0.997-in. (25.32 mm)	1.378-in. (35.00 mm)
Internal Diameter	0.753-in. (19.13 mm)	1.0588-in. (26.89 mm)
Wire Diameter	10.5 SWG	8 SWG

ENGINE LUBRICATION DATA

Lubrication System Pressure	50 – 60 psi. (345 – 414 kPa) at 2,000 erpm before E1/PC/15098 65 – 70 psi. (448 – 483 kPa) at 2,000 erpm after E1/PC/15098
Ratio of Pump Drive	Half engine speed.
Pump Capacity	3 gal. (13.64 litres) at 4,000 erpm
Pump Internal Gears:	
Number of Teeth	10
Pitch Circle	1.079-in. (27.407 mm)

Gear Bore Diameter	0.5002 – 0.4997-in. (12.705 – 12.692 mm)
Gear Overall Diameter	1.278 – 1.279-in. (32.461 – 32.487 mm)
Clearance, Gears to Cover	0.004-in. (0.102 mm) Including Gasket
Balance Valve Opens at	7 psi. (48.26 kPa)
Relief Valve (Non-adjustable)	Prior to Engine No. E2 PE 23122
Relief Valve (Adjustable)	From Engine No. E2 PE 23122
Relief Valve Spring Length	2.0-in. (50.8 mm) – Before E1/PC/15098
Relief Valve Spring Length	1.75-in. (44.45 mm) – After E1/PC/15098
Spring Load	9 lbs. (4.08 kg) at 1.1875-in. (30.162 mm)* – Before E1/PC/15098
Spring Load	10 lbs. (4.54 kg) at 1.1875-in. (30.162 mm)* – After E1/PC/15098
Spring Rate	11.08 lbs. per inch (1.978 kg. per cm) – Before E1/PC/15098
Spring Rate	19.78 lbs. per inch (3.20 kg. per cm) – After E1/PC/15098
Oil Pressure Switch	Breaks contact at 8 psi (55.2 kPa)
Sump Capacity	9 pints (5.11 litres) – Less oil cooler
Sump Capacity	10 pints (5.7 litres) – Includes oil cooler

* Spring compressed length.

ENGINE COOLING SYSTEM

Water Pump Capacity	Flow – 7.5 gallons (34.1 litres) per minute at 2100 pump rpm
Drive Belt	B44
Radiator Type	4 Row fin and tube
Radiator Dimensions	17.812-in. (452 mm) wide x 18.75-in. (476 mm) deep
Capacity of System	2 gallons (9.1 litres)
Capacity of Heater	1 pint (0.57 litre)
Corrosion Inhibitor*	Tectalloy Gold Xtra Cool as per instructions (AS 2108-2004)..
Antifreeze*	Castrol Anti-Freeze/Anti Boil 50% soft water mix (AS2108-84)
Thermostat Opens at	167° F (75 °C)

* *Cooling system should be drained, flushed and filled with fresh mix of corrosion inhibitor or anti-freeze at two year intervals. Top-up coolant should be thoroughly pre-mixed as indicated above. Use corrosion inhibitor when temperature does not drop below 0 °C. Do not mix products.*

ENGINE BOLT AND NUT TORQUE DATA

Description	Bolt/Stud Size	Specified Torque
Cylinder Head Nut No. 1 (Original)	0.375-in.	42 lb. ft.
Cylinder Head Nut No. 1 (Revised)	0.375-in.	40 lb. ft.
<i>Cylinder Head Nut No. 1 (Aged Thread)</i>	<i>0.375-in.</i>	<i>28 lb.ft.*</i>
Cylinder Head Nuts (Remainder, Original)	0.375-in.	42 lb. ft.
Cylinder Head Nuts (Remainder, Revised)^	0.375-in.	40 lb. ft.
Cylinder Head Nuts (Remainder, Revised)#	0.375-in.	37.5 lb. ft.**
Big End Bolts	0.375-in	33 lb. ft.
Flywheel Bolts	0.4375-in.	60 lb. ft.
Crankcase Through Studs	0.562-in.	75 lb. ft.
Crankcase Tie Bolts	0.500-in.	75 lb. ft.

^ From introduction of PC Model. # Introduced with rubber ring seal for cylinder liners, S.B. Item 149.

* *Short thread linking to oil gallery, drilled stud.* ** *For cylinder liners on solid copper shims.*

Cylinder Head Nuts Clarification of cylinder head nut torque – in 1963 Jowett Engineering were attaching labels to their reconditioned Javelin engines drawing attention to the revised cylinder head nut torque wrench setting:

“ . . . Cylinder head torque wrench setting now reduced to 450 lbs. inches”
This figure of 37.5 lb. ft. in applying to ‘O’ ring liner engines is also relevant to the present practice of using copper liner seals. However, cylinder head nuts have been, under the same circumstances, successfully tightened to 35 lb. ft. torque.

CLUTCH

Manufacturer	Borg & Beck
Type	7¼ AS
Friction Disc:	
External Diameter	7.25-in. (184 mm)
Internal Diameter	5.00-in. (127 mm)
Lining Material Thickness	0.125-in. (3.2 mm)
Lining Material – R.H.D	Ferodo moulded asbestos (<i>now superseded</i>)
Lining Material – L.H.D.	Ferodo woven yarn (<i>now superseded</i>)
Drive Springs	3 – blue
Overrun Springs	3 – green
Pressure Plate Assembly:	
Release Lever Setting	1.665-in. (42.29 mm) – Tip of lever above flywheel face
Maximum Variation in Height	1.655 – 1.665-in. (42.037 – 42.29 mm) with bias stressed to the top limit rather than the bottom
Pressure Springs – R.H.D	3 – yellow 120 lbs. (54.432 kg) 3 – red 135 lbs. (61.236 kg)
Pressure Springs – L.H.D.	3 – yellow 120 lbs. (54.432 kg) 3 – Maroon 105 lbs. (47.628 kg)
Spring Data:	
Red	Free length – 1.96-in. (49.784 mm) Rating – 223 lbs. per inch (41 kg per cm)
Yellow	Free Length – 2.255-in. (57.277 mm) Rating – 142 lbs. per inch (25.5 kg per cm)
Maroon	Free length – 2.150-in. (54.61 mm) Rating – 142 lbs. per inch (25.5 kg per cm)

GEARBOX

Speeds	4 Forward & Reverse
Synchronisers	2 nd , 3 rd , 4 th speeds
Gear Ratios:	
Before Eng. No. E1/PC/11270	First – 3.88:1, Second – 2.38:1, Third – 1.50:1, Fourth – 1:1, Reverse – 3.88:1
After Eng. No. E1/PC/11270	First – 3.56:1, Second – 2.17:1, Third – 1.37:1, Fourth – 1:1, Reverse – 3.56:1
Oil Capacity	1 pint (0.57 litre)
Oil Type	S.A.E. 30 (<i>Penrite 80 Manual Transmission Oil works well</i>). <i>Multi-grade oils and additives can affect synchroniser performance.</i>

PROPELLOR SHAFT

Type and Make of Joints	Layrub 55 x 1.125
Number of Joints	3

Maximum Longitudinal Travel	0.563-in. (14.29 mm)
Outside Diameter of Shaft	2-in. (50.8 mm)

REAR AXLE

Manufacturer	Salisbury
Type	3HA Hypoid bevel drive
Crown Wheel/Pinion Teeth	39/8
Ratio	4.875 : 1
Axle Shaft End Float	0.006 – 0.008-in. (0.152 – 0.203 mm)
Crown Wheel/Pinion Backlash	0.004-in. (0.102 mm) Minimum
Differential Side Bearings (2)	Timken 24788/4 and 24721/4
Pinion Bearing (Front)	Timken 02872/4
Pinion Bearing (Rear)	Timken 315931–3150/4
Pinion Bearing Pre-load	8 – 12 lbs.in. (9.2 – 13.8 kg.cm.)
Drive Gear Pre-load Shim Allowance	0.008 in. (0.203 mm)
Drive Gear Bolts – Torque	40 – 50 lb. ft. (5.51 – 6.9 kg. m.)
Oil Capacity	2.25 pints (1.57 litres) SAE 90 Hypoid Oil

STEERING SYSTEM

Castor Angle*	Nil
Camber Angle	Nil (with upper links horizontal)
King Pin Inclination**	10°
Front Wheel Tracking	Parallel to 0.0625 (1.6 mm) toe-out
Chassis Height from Ground	10.25-in. (260.35 mm) – at front of gearbox cross member
Steering Box Ratio	12:1
Vehicle Turning Circle	32-ft. (9.754 metres)
Number of Turns, Lock to Lock	3

* Vehicle unladen.

** Kingpins offset 0.8125-in. (20.64 mm)

Note: Maintenance Manual calls for upper links to be set horizontal, Service Bulletins mention that the spring arms should be horizontal – both are the same at this point in their travel.

BRAKING SYSTEM

Manufacturer	Girling
Before E0 PB 10594:	
Type – Front	Hydraulic, with single hydraulic expander unit
Type – Rear	Mechanical, with cable, compensator and rod actuation
Drum Diameter	9-in. (228.6 mm)
Drum Material	Malleable iron
Lining Length	7.3125-in. (185.74 mm)
Lining Width (Front)	1.5-in. (38.1 mm)
Lining Width (Rear)	1.25-in. (31.75 mm)
Friction Lining Area	88-in ² . (567.74 cm ²)
Lining Thickness	0.1875-in. (4.76 mm)
Number of Rivets Per Shoe	10
After E0 PB 10594:	
Type – Front	Full hydraulic, 2 leading shoe
Type – Rear	Full hydraulic, fully floating incorporating hand brake actuator
Drum Material	Malleable iron

Lining Length	8.75-in. (222.25 mm)
Lining Width	1.75-in. (44.45 mm)
Friction Lining Area	123-in ² . (793.55 cm ²)
Lining Thickness	0.1875-in. (4.76 mm)
Number of Rivets Per Shoe	10
Wheel Cylinder Diameter (Front)	0.875-in. (22.23 mm)
Wheel Cylinder Diameter (Rear)	0.875-in. (22.23 mm)
Braking Effort (Front)	65%
Braking Effort (Rear)	35%
Brake Pedal Ratio	6 : 1
Brake Retardation at 30 mph (One up) – <i>Stopping distance of non-asbestos linings can be changed:</i>	
	Pedal Pressure Stopping Distance
	25 lbs. (11.3 kg) 130 ft. (39.6 metres)
	50 lbs. (22.7 kg) 59 ft. (18 metres)
	75 lbs. (34 kg) 43 ft. (13.1 metres)
	100 lbs. (45.4 kg) 39 ft. (11.9 metres)
Brake Fluid (For Both Types)	Castrol Crimson Brake Fluid (authentic), Castrol Ultra-Stop Colour – Amber. AS1960-1983 Grade 3.
Brake Fluid Capacity	1 pint (0.57 litre)

WHEELS AND TYRES

Type of Wheel	Steel disc
Wheel Manufacturer	Dunlop
Wheel Size	3.00 x 16
Tyre Size	5.25 x 16 4 Ply
Tyre Pressure (Front)	Normal – 26 psi. (180 kPa) – from Owner's Handbook.
Tyre Pressure (Rear)	Normal – 26 psi. (180 kPa) – from Owner's Handbook.

ELECTRICAL SYSTEM

LUCAS

Component Summary	Model No.	Part No.
Battery	12-volt (1 off)	GTW 9A
Dynamo	C39 PV2	22438
Starter Motor	M 35 G	25025
Solenoid Starter Switch	ST 950	76411
Ignition and Lighting Switch	PLC 6	34067
Ignition and Lighting Switch	PRS 3	31270
Control Box – Early	RF 95	37076
Control Box – Later	RB 106	37139
Distributor – Early	DKY H4A	40115
Distributor – Later*	DM2	40317
Ignition Coil	B 12	45012
Headlamp – R.H.D.	7-inch	–
Headlamp – L.H.D.	7-inch	–
Side Lamp	489	32139
Tail and Stop Lamp	–	53150
Number Plate Lamp (Deluxe)	487-1	53093
Trafficator	8F 40 N	54041
Trafficator Switch (Smiths)	–	–

Trafficator Switch (Trico)	–	031046
Screen Wiper – Early	CR 4	75088
Screen Wiper – Later	CRT 14	75151
Horn – Low Note	WT 29	690798
Horn – High Note	WT 29	690799
Horn Relay	SB 40	33116B
Cigar Lighter (Smiths)	–	SK40503/10
Fuses	3 x 25 amp	
Wiring Harness	Standard Lucas Colour Codes	
* Other Part Numbers for Lucas DM2 Distributor – 40318, 40571, 40735, 40795.		

Bulbs:	Cap	Voltage	Wattage
Headlamps	Pre-focus	12	36/36
Side and Number Plate Lamps	MCS	12	6
Tail and Stop Lamps	SBC**	12	6/24
Boot Lamp	Lucas 207	12	6
Roof Lamp	Festoon	12	6
Panel and Warning Lamps	MCS	12	2·4
Trafficators	Festoon (256)	12	3

** Offset pins for bayonet.

It is assumed that the information above relates to PC, PD and PE Javelin models.

Electrical Component Details

Battery:

Voltage	12-volts
Earth Terminal	Positive
Number of Plates/Cell	9
Capacity	51 ampere hours at 10 hour rate
Height	8-in. (203 mm)
Width	6·75-in. (172 mm)
Length	12·5-in. (318 mm)

Starter Motor:

Lock Torque	9·3 lb. ft.
Lock Voltage	7·9-volts
Lock Current Draw	335 amps
Brush Spring Tension	32 – 40 oz. (907 – 1134 g)
Number of Pinion Teeth	9
Cranking Ratio	12 : 3

Dynamo:

Maximum Output	15 amps at 13·5-volts
Cut-in Speed	1050 – 1200 rpm at 13-volts
Field Resistance	6·1 Ohms
Brush Spring Tension	22 – 25 oz. (624 – 709 g)
Direction of Rotation	Clockwise (Commutator End)

Control Box Electrical Settings	10° C (50° F)	16·1 – 16·7-volts
	20° C (68° F)	15·8 – 16·4-volts
	30° C (86° F)	15·6 – 16·2-volts
	40° C (104° F)	15·3 – 15·9-volts

Horn Current Drain 12 – 15 amps

Wiper Motor Current Drain 2 – 3 amps

INSTRUMENTS

Temperature Gauge	Smiths, X70971/2
Engine Oil Pressure	Smiths, X76634/1
Fuel Gauge	Smiths,
Speedometer	Smiths, X70802/9
Ammeter	Lucas, 36135A
Clock	Smiths Industries

SUMMARY OF JAVELIN ENGINEERING CHANGES

CHANGE DESCRIPTION	EFFECTIVE FROM
Flywheel and clutch assembly balanced as a unit.	D8 PA 100
Exhaust manifold flanges increased in diameter.	D8 PA 164
Redesigned air silencer.	D8 PA 185
Hydraulic tappet fitted with end cover.	D8 PA 781
Expansion chamber fitted to exhaust system.	D8 PA 997
Carburettors Changed from 30VM4 to 30VM5 (Type 'M').	D8 PA 1753
Flywheel bolts, diameter increased from $\frac{3}{8}$ -in. to $\frac{7}{16}$ -in.	D9 PA 2200
Dynamo changed from C.45 to C.39.	D9 PA 2259
Connecting rod bolts, diameter increased from $\frac{5}{16}$ -in. to $\frac{3}{8}$ -in.	D9 PA 2373
Spring arm trunnion bushes pressed on, retaining nuts deleted.	D9 PA 2554
Steering box eccentric bush incorporated.	D9 PA 2871
Exhaust system, single rear silencer.	D9 PA 3138
12-volt single battery fitted.	D9 PA 3696
Copper-lead connecting rod bearings fitted.	D9 PA 3794
Fitting of starter solenoid and electrical harness alterations (R.H.D.).	D9 PA 4243
Copper-lead front and centre main bearings fitted.	D9 PA 4322
Oil bath air filter fitted (export only).	D9 PA 4431
Oil bath air filter fitted (all models).	D9 PA 5374
Vacrom piston rings fitted (T/C 27).	D9 PA 5756
Modified water pump (T/C 26).	D9 PA 5857
Front suspension lubrication, revised method (T/C 27).	D9 PB 5979
Adjustable steering ball joints fitted (R.H.D.).	D9 PB 6572
Adjustable steering ball joints fitted (all models).	E0 PB 6801
Exhaust system, introduction of detachable tail pipe.	E0 PB 7509
Redesigned rear timing case cover.	E0 PB 7676
Introduction of detachable exhaust tail pipe.	E0 PB 8276
Trico type windshield wiper blades fitted.	E0 PB 8276
New type steering link fitted ('H' section stamping).	E0 PB 8313
Oil cup added to water pump housing.	E0 PB 8472
Small end bearing changed from 'Glacier' to 'Clevite' metal.	E0 PB 8737
Introduction of strengthened cylinder liners and 'barrel ground' pistons.	E0 PB 8825
Hardened crankshaft fitted (R.H.D.).	E0 PB 8902
Hardened crankshaft fitted (L.H.D.).	E0 PB 8937
Change to screws in air filter assembly.	E0 PB 8950
Horn relay fitted to horn wiring circuit.	E0 PB 9293
Engine oil filter outer casing strengthened.	E0 PB 9423
Main bearing dowel drilled.	E0 PB 9540
Engine oil delivery pipe union wired for locking purposes.	E0 PB 9860
New type lower fixing arrangement for front shock absorbers.	E0 PB 9877
Steel sump tray assembly.	E0 PB 9878

Reinforced front engine mountings (vertical stay deleted).	E0 PB 10450
Introduction of serrated connecting rod assemblies.	E0 PB 10506
Introduction of four wheel hydraulic braking system.	E0 PB 10594
Redesigned steering rod ball joints.	E0 PB 10789
Change to gear ratios.	E0 PC 11270
1951 Javelin model commences from –	E0 PC 11326
Solid type tappet fitted (R.H.D.).	E0 PC 11907
Solid type tappet fitted (L.H.D.).	E0 PC 11940
Adjustable type selector and gearchange links (R.H.D.).	E0 PC 12340
New 'clear view' steering wheel and lengthened steering column.	E0 PC 13111
New design oil pump relief valve and spring, pressure now 70 psi.	E1 PC 15098
Redesigned front grille (die cast) and bonnet motif.	E0 PC 15631
Rubber bonded exhaust system mountings.	E0 PC 15432
Increased strength front shock absorbers.	E1 PC 16500
Full flow engine oil filter (Tecalemit).	E1 PC 16603
Lubrication groove, centre main crankshaft bearing.	E1 PC 16744
Sludge release hole, big end bearings.	E1 PC 17402
Cylinder head gasket support.	E1 PC 17900
Water pump modifications.	E1 PC 18140
Gearbox extension bearing washer.	E1 PC 18141
Connecting rod bearings, drilled hole in connecting rod half shell deleted.	E1 PC 18646
Throttle rod assembly, redesigned clamp bolts (R.H.D. & L.H.D.).	E1 PC 18550
Engine oil return from release valve into suction pipe (adjustable valve).	E1 PC 18985
Camshaft and chainwheel with vernier adjustment.	E1 PD 19295
Improved waterproof plug lead covers.	E1 PD 19760
Introduction of adjustable gear change stay (R.H.D. & L.H.D.).	E1 PD 20135
Revised taper at water pump shaft and fan hub introduced.	E2 PD 20379
Deletion of oil sludge drilling in connecting rod cap.	E2 PD 20977
Introduction of Lucas DM2 model distributor.	E2 PD 21016
Introduction of petrol filter in feed pipe.	E2 PD 21147
Rubber bushed front suspension introduced.	E2 PD 21868
Updated crankshaft introduced.	E3 PE 22873
Engine lubricating oil pump with extended body introduced.	E3 PE 23122
'O' Ring type cylinder liner seal introduced.	E3 PE 23184
Adjustable camshaft end-float introduced.	E3 PE 23643

SERIES III ENGINE – DISTINGUISHING FEATURES

1. Stiffer crankcase and enlarged oil ways to improve oil flow to main and big end bearings. Crankcase can be identified by '3' stamped on upper front face of R.H.S. casing. Also internal cross webbing to stiffen main bearing webs. Enlarged area above longitudinal oil galleries. Final crankcases had rear cylinder head studs screwed through coolant inlet ports.
 2. Large radii crankshaft with or without lightening holes.
 3. Adjustable camshaft thrust pad.
 4. No water splash protection plate on cylinder head (which necessitated the fitting of the latest sparking plug water proofing modifications). The combustion chamber was polished and slightly modified in shape.
 5. Improved engine oil pump, upper housing changed to lower the pump body closer to oil level. Oil pump now featured relief valve venting to suction side of pump. Relief valve adjustable. Delivery pipe enlarged.
 6. The fitting of an improved type rear timing cover with larger oil cooler banjo fittings.
-

RECONDITIONED ENGINE NOTES

Jowett Engineering advised in 1960 that, if the engine number is prefixed with the letter 'R', it indicates a factory replacement unit. In order to clarify the position regarding replacement engines, it can be said that any engine bearing a number later than 'R' 10,000, will be the equivalent of a Series III engine. The following shows reconditioning practice since Series III engines were introduced.

1. In the instance where a pre-Series III crankcase is used, machined work is carried out in a number of places on the crankcase to improve the flow of oil to the main bearings, and as a consequence, to the big end bearings. The cylinder head stud holes in the crankcase are counter bored and the crankcase machined and fitted with new type oil gallery plugs. By these means most of the benefits of the Series III crankcase are obtained.
 2. Nothing earlier than a Series III crankshaft is fitted, in fact all present engines are fitted with an improved shaft, i.e. Blacksided or Oval-Web.
 3. All reconditioned engines are fitted with the adjustable camshaft thrust peg.
 4. Cylinder head combustion chambers are being polished and modified.
 5. Improved engine oil pump base with adjustable relief valve features. In many cases the pump with extended body is fitted. All pumps are tested to a higher standard than was originally used in production of Series III engines.
 6. All reconditioned engines have the improved rear timing case cover fitted.
-

Prepared By Mike Allfrey – Using Various Sources of Information.

Revised – January, 2024.

JOWETT *JUPITER*

TECHNICAL DATA



Jowett Jupiter – 1950. Photographed in summer 2018.

A GATHERING TOGETHER OF DATA FROM VARIOUS SOURCES

*Compiled by Mike Allfrey – 1998.
Revised – January, 2024.*

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INTRODUCTORY COMMENT FOR TECHNICAL NOTES

These introductory notes should be read prior to reading Part IV of the Technical Notes Series.

The Jowett Technical Notes Series have been an ongoing activity for several years. That means that some techniques and specifications may have been superseded in later notes on the same, or associated topics in the series. Also be aware that some topics and recommendations may be specific to certain Engine Serial Number ranges. It appears that, in Australia, the various State Main Agents did not carry out Service Bulletin information during Jowett active times. A set of known Service Bulletins is in Part III.

Some of the notes are restorations of what was written by members of the Jowett Car Club (UK), the Jowett Car Club (NZ) and by members of the JCCA.

Over the years of involvement with matters Jowett, and with the dawning of the personal computer age, a personal decision was made to help members of the Jowett Car Club of Australia Inc. with technical information. Included with the Technical Notes are 'restored' versions of the Javelin and Jupiter Maintenance Manuals and the associated Spare Parts Catalogues. Future generations will prefer to flick through images on their personal device screens, rather than leafing through pages in a tattered and oil stained book to access information.

The term 'restored' has been used because it soon became apparent that, as with our efforts in restoring Jowett vehicles, we desire excellent quality of workmanship in the reproduction of Jowett related documentation. Not for us the crude, and crooked, photocopies that have been issued over the years. These have, even though accurate at their time, become partly out of date.

Hence the decision to 'restore' the publications and documents that have come to hand.

It should be noted that the Javelin and Jupiter Spare Parts Catalogue is a combination of all the catalogues that were to hand (from 1948 to 1953).

The Maintenance Manuals were originally written on the assumption that they would be used by skilled motor mechanics who had attended service training courses conducted by Jowett Cars Limited and after works closure, were made available for owners who had reasonable mechanical knowledge of motor car maintenance and overhaul.

Included with the Technical Notes Series is a Lucas Overseas Correspondence Course, which can be of great assistance when trouble-shooting electrical problems related to your Jowett, or any other British vehicle of the same period.

Please be aware that this is an ongoing project

Mike Allfrey. – January, 2024

TECHNICAL DATA

MANUFACTURER: JOWETT CARS LTD. MODELS: JUPITER SA & SC

MANUFACTURED FROM: 1950 – 1954

PRELIMINARY NOTE

This document is the result of an attempt to combine all technical data relating to the Jowett Jupiter sport scar. Original data has been taken from the Auto Trader Service Data No. 208, dated August 26th, 1953. Some original information has been taken from the Maintenance Manual, published by Jowett Cars Limited. All later information sourced from the Jowett Car Club (UK), Jupiter Owners Auto Club, Jowett Parts (NZ) and local experience. Every effort has been made to maintain accuracy of information. However, due to the Jowett Car Club of Australia Incorporated having no influence on this document nor the changes which may happen, responsibility cannot be accepted by the Club for any errors and/or changes.

VEHICLE IDENTIFICATION

Post-war Jowett vehicles have a Serial Number system which conveniently identifies the year of manufacture, the type of vehicle (Commercial, Passenger or Sports), the series of that model and the vehicle's individual number. These numbers were located on Jupiter vehicles as follows:

Engine Number

This is stamped on to a raised plinth which is located on the left hand side front face of the crankcase. Reconditioned engines have a riveted identification plate located on the rear top surface of the crankcase adjacent to the clutch housing and starter motor pinion.

Chassis And Body Numbers

These are stamped on to a plate which is fastened to the right hand side front wing apron. It should be noted that there is also a chassis number stamped directly into the chassis frame at the radiator mount tower (early cars) or on the left hand bonnet catch bracket on the chassis front cross member.

Sample Serial Number Identification

The sample Serial Number E0 SA 42R, describes a Jupiter vehicle which was manufactured in 1950, being a sports car of the first series. The components of this Serial Number are deciphered as follows:

E = 5 Being the first digit of the decade. 'A' = 1, 'B' = 2, 'C' = 3 and 'D' = 4.

0 = 0 Being the year in the decade.

S = Sports car.

A = First build series. 'A' = First series, 'B' = Second series. (Note: 'B' was not used in the case of the Jupiter)

42R = The individual vehicle number, showing R.H.D.

The above describes a right hand drive vehicle, if it had been left hand drive the Serial Number would have been E0 SAL 42R.

The second series was identified by having 'SC' within the Serial Number and that model was also described as the MK 1a. There was a third series, the R4 that was to have been introduced, but did not reach full production.

GENERAL VEHICLE DATA

Wheelbase	93-in. (236.22 cm)	Wheel Track – Front	51-in. (129.54 cm)
Wheel Track – Rear	49-in. (124.46 cm)	Ground Clearance	8-in. (203.2 mm)
Weight (Dry)	16 cwt. (812.85 kg)	Tyre Size	5.50 x 16, 4 ply
Tyre Pressure – F/R	26 psi. (179 kPa)	Overall Length	168-in. (426.72 cm)
Overall Width	62-in. (157.48 cm)	Overall Height	56-in. (142.24 cm)

ENGINE PERFORMANCE DATA

Number of Cylinders	4
Bore x Stroke (Standard):	2.854 x 3.54-inches (72.5 x 90 mm)
Cubic Capacity:	90.682 cu.in. (1486 cc)
RAC Rated Horse Power	13.05
Max. BHP (kW) @ erpm*	62.5 (46.6) @ 4500
Max Torque (lb. ft.) @ erpm	84 @ 3000
Compression Ratio	8 : 1
Compression Pressure @ 250 erpm	130 lbs/ins ² (896 kPa)
Gearing	17 mph per 1000 erpm in top gear

* Engine Revolutions Per Minute.

FUEL SYSTEM

Note: Before Engine No. E2 SA 657 2 - type 30VIG-5, from Engine No. E2 SA 657 2 - type 30VM

	30VIG-5	30VM
Zenith Contract Sheet Number	C1245	C1316
Carburettors, Jet Sizes:		
Main	105	120
Compensating	60	65
Pump Jet	90	—
Progression	—	120
Leak	70	—
Vent	—	2.5
Slow Running	45	45
Choke	26	27
Needle Seat	1.5 mm	1.5 mm
Needle Seating Washer	1 mm	1 mm (Plus Deflector)
Fuel Pump (Dash Mount)	SU Type L electric (before E1/SA/439)	
Fuel Pump (Chassis Mount)	SU Type PP36L electric (after E1/SA/439)	
Fuel Pump Pressure (Type L)	0.75 – 1.0 psi. (5.2 – 6.9 kPa)	
Fuel Pump Pressure (Type PP36L)	1.5 – 2 psi. (10.3 – 13.8 kPa)	
Air Cleaner	Vokes Dry Type DX39868 (before E2/SA/590)	
Air Cleaners	AC Dry Type 1579035 (after E2/SA/590)	
Fuel Tank Capacity (SA) Model	10 gallons (45.5 litres)	
Fuel Tank Capacity (SC) Model	8 gallons (36.4 litres)	

IGNITION SYSTEM

Distributor Rotation	Clockwise (when viewed from driven end)
Contact Breaker Gap	0.010 – 0.012-in. (0.254 – 0.305 mm) DKY H4A type 0.014 – 0.016-in. (0.356 – 0.406 mm) DM2 type
High Tension Lead Lengths:	No. 1 = 24-in. (610 mm); No. 2 = 27-in. (686 mm); No. 3 = 29-in. (737 mm); No. 4 = 24-in. (610 mm); Distributor to Coil = 14-in. (356 mm); All 20 strand.

Advance Data:

	DKY H4A	DM2
Centrifugal (Crank Deg.)	18 – 22 deg.	18 – 22 deg.
Advance Starts (Crank rpm)	460 – 800	600 – 940
Max. Advance at Crank rpm (2,260)	1840 – 1960	
Cam Angle (Closed Period)	49 ± 4 deg.	60 ± 3 deg.
Contact Spring Tension	20 – 24 oz. (567 – 680 g)	
Condenser Capacity	0.2 mf	

Superseding Distributor Data

Distributor 40115, fitted to Jupiters prior to E2 SA 717, had the following advance curve:

9 – 11°	at 1,500 distributor rpm (18 – 22° at 3,000 engine rpm)
5 – 7°	at 800 distributor rpm (10 – 14° at 1,600 engine rpm)
0 – 2°	at 400 distributor rpm (0 – 4° at 800 engine rpm)

Distributor 40317, fitted to Jupiters after E2 SA 717, having the following advance curve:

9 – 11°	at 1,300 distributor rpm (18 – 22° at 2,600 engine rpm)
3 – 6°	at 650 distributor rpm (6 – 12° at 1,300 engine rpm)
0.5 – 3.5°	at 500 distributor rpm (1 – 7° at 1,000 engine rpm)

No advance below 250 distributor rpm (500 engine rpm)

Distributor DVX H4A number 40318 (fitted to the R1 Jupiter) and also the distributor number 40571 have the same advance curve as the 40317 above. The 40571 was replaced by the 40735 which is now (July, 1972) replaced by the still current 40795, having this advance curve:

9 – 11° at 1,200 distributor rpm (18 – 22° at 2,400 engine rpm)
 5 – 7° at 600 distributor rpm (10 – 14° at 1,200 engine rpm)
 0 – 2° at 350 distributor rpm (0 – 4° at 700 engine rpm)

No advance below 225 distributor rpm (450 engine rpm)

Degrees and rpm are quoted at the distributor, and both should be doubled to arrive at the equivalent measured at the engine crankshaft, shown above in brackets.

Firing Point & Order	T.D.C. to 3 degrees after T.D.C.; 1 - 4 - 2 - 3
Sparking Plugs:	
Plug Type	Champion L10 S (or L87YC); Bosch W8 AC (or W6 BC); KLG F70 (Water Proof – WF 70); AC 45F
Gap Setting	0.020 – 0.025-in. (0.508 – 0.635 mm)
Thread Diameter	0.55-in. (14.0 mm)
Reach	0.5625-in. (14.29 mm)

CRANKCASE DATA

Crankcase Material	DTD 133 B aluminium alloy,
<i>Crankcase Set Number</i>	<i>Stamped into upper front faces of crankcase set.</i>
Carb. Balance Pipe Protrusion	0.009 – 0.015-in. (0.229 – 0.381 mm)*
Cylinder Liner Protrusion	0.008 – 0.010-in. (0.203 – 0.254 mm) Original.
Cylinder Liner Protrusion	0.008 – 0.012-in. (0.203 – 0.3048 mm) PC. PD, PE.
<i>Cylinder Liner Protrusion</i>	<i>0.006 – 0.008-in. (0.102 – 0.203 mm) with solid shims only.</i>
Cylinder Liner Material	Cast Iron (Vacrit)
Cylinder Liner Oversizes	+0.010-in. (0.254 mm), +0.020-in. (0.508 mm), +0.030-in. (0.762 mm)
Cylinder Liner Bore (In Crankcase)	3.1880 – 3.1895-in. (80.975 – 81.013 mm)
Main Bearing Bore Diameter	2.395-in. (60.833 mm)
Camshaft Bearing Bore Diameter	1.501 – 1.503-in. (38.1254 – 38.1762 mm)
Clutch Housing, Front Timing Cover	Dedicated to crankcase set

* At Cylinder Head Gasket Face. Average dimension is 0.012-in. (0.203 mm).

CRANKSHAFT & CONNECTING RODS

Crankshaft Grinding Data (As Of 1998)

The following grind specifications apply for the different types of bearing surface being used. It should be noted that, if a white metal rear main bearing set is used in conjunction with either copper/lead or 'Alutin' bearings at Nos. 1 & 2 main bearings, the grind tolerances immediately below apply to the rear main journal. The grind tolerances, for white metal bearings (original early type) are as follows:

White Metal Bearings

Main Bearing Standard Size Specification	2.2500 – 2.2485-in. (57.150 – 57.112 mm)
Big End Bearing Standard Size Specification	2.000 – 1.9985 in. (50.800 – 50.762 mm)
Main Bearings:	
First Grind	(– 0.010-in.) 2.240 – 2.2385-in. (56.896 – 56.858 mm)
Second Grind	(– 0.020-in.) 2.230 – 2.2285-in. (56.642 – 56.604 mm)
Third Grind	(– 0.040-in.) 2.210 – 2.2085-in. (56.134 – 56.096 mm)
Big End Bearings:	
First Grind	(– 0.010-in.) 1.990 – 1.9885-in. (50.546 – 50.508 mm)
Second Grind	(– 0.020-in.) 1.980 – 1.9785-in. (50.292 – 50.254 mm)
Third Grind	(– 0.040-in.) 1.960 – 1.9585-in. (49.784 – 49.746 mm)

(Note: These tolerances apply to the early specification bearing surface material.)

Copper/Lead Bearings

It is possible that copper/lead type bearings can be obtained. Should this bearing surface material be used, then a different grind tolerance applies:

Main Bearing Standard Size Specification 2.2505 – 2.2500 in. (57.163 – 57.150 mm)

Big End Bearing Standard Size Specification 2.000 – 1.9995 in. (50.800 – 50.787 mm)

Main Bearings: First Grind (– 0.010-in.) 2.2405 – 2.2400-in. (56.909 – 56.896 mm)
 Second Grind (– 0.020-in.) 2.2305 – 2.2300-in. (56.655 – 56.642 mm)
 Third Grind (– 0.030-in.) 2.2205 – 2.2200-in. (56.401 – 56.388 mm)
 Fourth Grind (– 0.040-in.) 2.2105 – 2.2100-in. (56.147 – 56.134 mm)

Big End Bearings: First Grind (– 0.010-in.) 1.9900 – 1.9895-in. (50.546 – 50.533 mm)
 Second Grind (– 0.020-in.) 1.9800 – 1.9795-in. (50.292 – 50.279 mm)
 Third Grind (– 0.030-in.) 1.9700 – 1.9695-in. (50.038 – 50.025 mm)
 Fourth Grind (– 0.040-in.) 1.9600 – 1.9595-in. (49.784 – 49.771 mm)

(Note: When copper/lead bearing surface is used the crankshaft journals could wear prematurely.)

‘Alutin’ Bearings

It is also possible that ‘Alutin’ type bearings can be obtained. Should this bearing surface material be used, then the following grind specification applies:

Main Bearing Standard Size Specification 2.250 – 2.2498 in. (57.150 – 57.145 mm)

Big End Bearing Standard Size Specification 2.0000 – 1.9998 in. (50.800 – 50.795 mm)

Main Bearings: First Grind (– 0.010-in.) 2.2400 – 2.2398-in. (56.896 – 56.891 mm)
 Second Grind (– 0.020-in.) 2.2300 – 2.2298-in. (56.642 – 56.637 mm)
 Third Grind (– 0.030-in.) 2.2200 – 2.2198-in. (56.388 – 56.383 mm)
 Fourth Grind (– 0.040-in.) 2.2100 – 2.2098-in. (56.134 – 56.129 mm)

Big End Bearings: First Grind (– 0.010-in.) 1.9900 – 1.9898-in. (50.546 – 50.541 mm)
 Second Grind (– 0.020-in.) 1.9800 – 1.9798-in. (50.292 – 50.287 mm)
 Third Grind (– 0.030-in.) 1.9700 – 1.9698-in. (50.038 – 50.033 mm)
 Fourth Grind (– 0.040-in.) 1.9600 – 1.9598-in. (49.784 – 49.779 mm)

‘Alutin’ Bearing Note

Perkins diesel engines of 3A-152 model, big end bearings are suitable for use as Jowett Javelin/Jupiter main bearings. The Perkins engine being a 3-cylinder unit, provides three sets in kit. To suit the Jowett application, the crankcase bearing bores should be grooved as per Series III Jowett practice. The shell bearings require lubrication drillings and locating dowel drillings. The original locating tangs should be filed flush with the bearing’s steel backing.

Ideally, the crankshaft should run in three main bearings that are of ‘Alutin’ type. *For this type of bearing installation, separate thrust bearings must be installed.*

SPECIAL NOTES FOR GRINDING CRANKSHAFTS

When grinding the crankshaft at main and big end bearing journals, particular care should be taken to ensure that a suitable radius (0.100-in. [2.54 mm]) is ground at the journal fillets. Total ovality and taper of each journal should not exceed 0.002-in. (0.0508 mm). At the journals there must be a high surface finish, with a maximum surface roughness of 12 micro-inch.

The spigot end of the crankshaft, where rear main oil seal runs, **MUST NOT BE GROUND.** This is the spigot for flywheel location.

Laystall Crankshaft (Machined Oval Web) Special Note

Certain precautions are necessary when nitriding Laystall oval-web crankshafts. This note has been taken from a letter from Laystall Engineering Co. Ltd., London in 1970, following a query from a club member who had a shaft reground to within limits specified and then nitrided. Two main bearings were outside limits, and the crankshaft was too stiff to turn after assembly.

“ . . . We (Laystall) normally nitride these shafts for 50 hours, giving a depth of hardness of 0.012 – 0.016-in., the maximum hardness is down to approximately 0.006 – 0.008-in. (0.152 – 0.203 mm) and then gradually tapers away . . . (and) there is a slight build-up of approximately 0.0005-in.

(0.0127 mm). It is advisable to grind both before and after nitriding, due to possible distortion that can take place when the stresses in the steel are released during nitriding, leaving approximately 0.003 – 0.005-in. (0.0762 – 0.127 mm) on diameter for this operation.”

Note: A printed copy of these pages should be handed to whoever is grinding the crankshaft.

PISTON DATA

Material	HG .413 Aluminium silicon die casting	
Nominal Diameter	2.8542 – 2.8534-in. (72.497 – 72.476 mm) at gudgeon pin c/l	
Clearance (Skirt)	0.0015-in. (0.0381 mm)	
Over Sizes available	0.010; 0.020; 0.030; 0.040, 0.050-in. (See below)	
Weight ^{c/w} Rings, Pin & Circlips	13.75 oz. (389.8 grammes)	
Gudgeon Pin:		
Material	S.14 Steel	
Diameter	0.8125-in. (20.64 mm)	
Fit in Piston	0.000 – 0.0004-in. (0.000 – 0.01016 mm) (Clearance)	
Fit in Connecting Rod (Small End)	0.000 – 0.0007-in. (0.000 – 0.01778 mm) (Clearance)	
Compression Height	1.555-in. (39.5 mm)	
Piston Rings:		
	Compression	Oil Control
Number of Rings	2	1
Ring Gap in Cylinder	0.007 – 0.015-in. (0.178 – 0.381 mm)	
Clearance in Grooves	0.0015 – 0.002-in. (0.038 – 0.051 mm)	
Width of Rings	0.156-in. (3.96 mm)	0.180-in. (4.57 mm)

CYLINDER BORE OVERSIZES

The *thick wall* cylinder liners can be bored to the following oversizes:

First Oversize 0.010 in.	2.864-in. (72.746 mm)
Second Oversize 0.020 in.	2.874-in. (73.000 mm)
Third Oversize 0.030 in.	2.884-in. (73.254 mm)
Fourth Oversize 0.040 in.	2.894-in. (73.508 mm)
Fifth Oversize 0.050 in.	2.904-in. (73.762 mm)

CAMSHAFT DATA

Camshaft Material	EN 32B Steel or cast iron
Bearing Journal Diameter	1.50-in. (38.10 mm)
Bearing Journal Length	1.156-in. (29.362 mm)
Bearing Clearance	0.001 – 0.003-in. (0.025 – 0.076 mm)
Wear Limit on Journals	0.002 – 0.003-in. (0.051 – 0.076 mm)
Overall Height of Cam – Tip to Base	1.266-in. (32.156 mm)
Amount of Lift	0.224-in. (5.69 mm)
Valve Timing	Inlet opens: 12° B.T.D.C., inlet closes: 53° A.B.D.C. Exhaust opens: 50° B.B.D.C., Exhaust closes: 15° A.T.D.C.
Camshaft End Float	Controlled by spring, plunger and thrust peg.
Camshaft End Float (Adjustable)	From Engine No, E2 SC 957 the adjustable peg was introduced. With engine stopped. To adjust – screw adjusting screw in to light contact with the camshaft, then back off one eighth of a turn and tighten lock nut while holding adjusting screw in set position.
Camshaft Drive	Endless Duplex chain

Timing Chain Pitch	0.375-in. (Renold Duplex Chain)
Timing Chain Number of pitches	56 (Endless Chain – Renold)
Number of Teeth on Chain Wheels:	
Crankshaft Pinion	21
Camshaft Wheel	42
Dimension Between Centres	4.413 – 4.415-in. (112.09 – 112.14 mm)

VALVE AND VALVE SPRING DATA

Valve	Inlet	Exhaust
Head Diameter	1.4375-in. (36.51 mm)	1.21875-in. (32.56 mm)
Stem Diameter	0.3125-in. (7.94 mm)	0.3125-in. (7.94 mm)
Face Angle	30°	45°
Valve Material:		
Exhaust	XB Austentic steel (<i>Stainless steel also available</i>)	
Inlet	Silicon chrome steel	
Valve Guide Material	Close-grain cast iron	
Valve Guide Protrusion	0.6875-in. (17.5 mm) above cylinder head outer surface	
Tappet Clearance (Engine Cold)	0.060-in. (1.524 mm)*	0.060-in. (1.524 mm)*
Tappet Clearance (Engine Cold)	0.003-in. (0.0762 mm)	0.006-in. (0.1524 mm)

* Hydraulic tappets adjusted with tappet piston spring fully compressed.

Valve Springs	Inner	Outer
Free Length	1.935-in. (49.15 mm)	2.022-in. (51.36 mm)
Fitted Length	1.455-in. (36.96 mm)	1.468-in. (37.29 mm)
Static Load	58 lb. (25.9 kg)	71 lb. (31.6 kg)
External Diameter	0.997-in. (25.32 mm)	1.378-in. (35.00 mm)
Internal Diameter	0.753-in. (19.13 mm)	1.0588-in. (26.89 mm)
Wire Diameter	10.5 SWG	8 SWG

ENGINE LUBRICATION DATA

Lubrication System Pressure	50 – 60 psi. (345 – 414 kPa) at 2,000 erpm before E1/PC/15098 65 – 70 psi. (448 – 483 kPa) at 2,000 erpm after E1/PC/15098
Ratio of Pump Drive	Half engine speed
Pump Capacity	3 gal. (13.64 litres) at 4,000 erpm
Pump Internal Gears:	
Number of Teeth	10
Pitch Circle	1.079-in. (27.407 mm)
Gear Bore Diameter	0.5002 – 0.4997-in. (12.705 – 12.692 mm)
Gear Overall Diameter	1.278 – 1.279-in. (32.461 – 32.487 mm)
Clearance, Gears to Cover	0.004-in. (0.102 mm) Including Gasket
Balance Valve Opens at	7 psi. (48.26 kPa)
Relief Valve (Non-adjustable)	Prior to Engine No. E2 SC 945
Relief Valve (Adjustable)	From Engine No. E2 SC 945
Relief Valve Spring Length	2.0-in. (50.8 mm) – Before E1 SA ???
Relief Valve Spring Length	1.75-in. (44.45 mm) – After E1 SA ???
Spring Load	9 lbs. (4.08 kg) at 1.1875-in. (30.162 mm)* – Before E1 SA ???
Spring Load	10 lbs. (4.54 kg) at 1.1875-in. (30.162 mm)* – After E1 SA ???
Spring Rate	11.08 lbs. per inch (1.978 kg. per cm) – Before E1 SA ???
Spring Rate	19.78 lbs. per inch (3.20 kg. per cm) – After E1 SA ???

Oil Pressure Switch	Breaks contact at 8 psi (55.2 kPa)
Sump Capacity	9 pints (5.11 litres) – Less oil cooler
Sump Capacity	10 pints (5.7 litres) – Includes oil cooler

* Spring compressed length.

ENGINE COOLING SYSTEM

Water Pump Capacity	7.5 gallons (34.1 litres) per minute at 2100 pump rpm
Drive Belt	B42
Radiator Type	4 Row fin and tube
Radiator Dimensions	17.812-in. (452 mm) wide x 18.75-in. (476 mm) deep
Capacity of System	2 gallons (9.1 litres)
Capacity of Heater	1 pint (0.57 litre)
Corrosion Inhibitor*	Tectalloy Xtra Gold – 1 litre makes 15 litres coolant (AS 2108-2004)
Antifreeze*	Castrol Anti Freeze/Anti Boil 50% soft water mix (AS2108-84)
Thermostat Opens at	167 °Fahrenheit (75 °C)

* *Cooling system should be drained, flushed and filled with fresh mix of corrosion inhibitor or anti-freeze at two year intervals. Top-up coolant should be thoroughly pre-mixed as indicated above.*

ENGINE BOLT AND NUT TORQUE DATA

Description	Bolt/Stud Size	Specified Torque
Cylinder Head Nut No. 1 (Original)	0.375-in.	42 lb. ft.
Cylinder Head Nut No. 1 (Revised)^	0.375-in.	40 lb. ft.
<i>Cylinder Head Nut No. 1 (Aged Thread)</i>	<i>0.375-in.</i>	<i>28 lb.ft.*</i>
Cylinder Head Nuts (Remainder, Original)	0.375-in.	42 lb. ft.
Cylinder Head Nuts (Remainder, Revised)^	0.375-in.	40 lb. ft.
Cylinder Head Nuts (Remainder, Revised)^#	0.375-in.	37.5 lb. ft.**
Big End Bolts	0.375-in.	33 lb. ft.
Flywheel Bolts	0.4375-in.	60 lb. ft.
Crankcase Through Studs	0.562-in.	75 lb. ft.
Crankcase Tie Bolts	0.500-in.	75 lb. ft.

^ From November, 1950. # Introduced with rubber ring seal for cylinder liners, S.B. Item 149.

* *Short thread linking to oil gallery, drilled stud.* ** *For cylinder liners on solid copper shims.*

Cylinder Head Nuts Clarification of cylinder head nut torque – in 1963 Jowett Engineering were attaching labels to their reconditioned Javelin engines drawing attention to the revised cylinder head nut torque wrench setting:

“ . . . Cylinder head torque wrench setting now reduced to 450 lbs. inches”
This figure of 37.5 lb. ft. in applying to ‘O’ ring liner engines is also relevant to the present practice of using copper liner seals. However, cylinder head nuts have been, under the same circumstances, successfully tightened to 35 lb. ft. torque.

CLUTCH

Manufacturer	Borg & Beck
Type	7¼ AS

Friction Disc

External Diameter	7.25-in. (184 mm)
Internal Diameter	5.00-in. (127 mm)
Lining Material Thickness	0.125-in. (3.2 mm)
Lining Material	Ferodo woven yarn (now superseded with non-asbestos).
Drive Springs	3 – blue
Overrun Springs	3 – green

Pressure Plate Assembly

Release Lever Setting	1.665-in. (42.29 mm) – Tip of lever above flywheel face.
Maximum Variation in Height	1.655 – 1.665-in. (42.037 – 42.29 mm) with bias stressed to the top limit rather than the bottom.
Pressure Springs	6 – light blue (145 – 155 lbs.) (65.8 – 70.3 kg).

GEARBOX

Speeds	4 Forward and Reverse
Synchronisers	2 nd , 3 rd , 4 th Speeds
Final Gear Ratios:	First – 16.25:1, Second – 9.90:1, Third – 6.25:1, Fourth – 4.56:1, Reverse – 16.25 : 1
Crown Wheel/Pinion Teeth	41/9 (rear axle)
Oil Capacity	1 pint (0.57 litre)
Oil Type	S.A.E. 30 (<i>Penrite 80 Manual Transmission oil works well</i>). <i>Multi-grade oils and additives can affect synchroniser performance.</i>

Road Speed Chart:

In Speed Four = 1.7 mph per 100 engine rpm

In Speed Four = 17 mph per 1000 engine rpm

ERPM	MPH	KPH	ERPM	MPH	KPH
800	13.6	21.9	3500	59.5	95.7
900	15.3	24.6	3600	61.2	98.5
1000	17.0	27.4	3700	62.9	101.2
1100	18.7	30.1	3800	64.6	104.0
1200	20.4	32.8	3900	66.3	106.7
1300	22.1	35.6	4000	68.0	109.4
1400	23.8	38.3	4100	69.7	112.2
1500	25.5	41.0	4200	71.4	114.9
1600	27.2	43.8	4300	73.1	117.6
1700	28.9	46.5	4400	74.8	120.4
1800	30.6	49.2	4500	76.5	123.1
1900	32.3	52.0	4600	78.2	125.5
2000	34.0	54.7	4700	79.9	128.6
2100	35.7	57.5	4800	81.6	131.3
2200	37.4	60.2	4900	83.3	134.1
2300	39.1	62.9	5000	85.0	136.8
2400	40.8	65.7	5100	86.7	139.5
2500	42.5	68.4	5200	88.4	142.3
2600	44.2	71.1	5300	90.1	145.0
2700	45.9	73.9	5400	91.8	147.7

2800	47.6	76.6	5500	93.5	150.5
2900	49.3	79.3	5600	95.2	153.2
3000	51.0	82.1	5700	96.9	155.9
3100	52.7	84.8	5800	98.6	158.7
3200	54.4	87.5	5900	100.3	161.4
3300	56.1	90.3	6000	102.0	164.1
3400	57.8	93.0			

PROPELLOR SHAFT

Type and Make of Joints	Layrub 55 x 1.125 (1 off), Hardy Spicer (2 off)
Total Number of Joints	3
Maximum Longitudinal Travel	0.563-in. (14.29 mm)
Outside Diameter of Shaft	2-in. (50.8 mm)

REAR AXLE

Manufacturer	Salisbury
Type	3HA Hypoid bevel drive
Crown Wheel/Pinion Teeth	41/9
Ratio	4.555 : 1
Axle Shaft End Float	0.006 – 0.008-in. (0.152 – 0.203 mm)
Crown Wheel/Pinion Backlash	0.004-in. (0.102 mm) Minimum
Differential Side Bearings (2)	Timken 24788/4 and 24721/4
Pinion Bearing (Front)	Timken 02872/4
Pinion Bearing (Rear)	Timken 315931–3150/4
Pinion Bearing Pre-load	8 – 12 lb. ins. (9.2 – 13.8 kg. cm.)
Drive Gear Pre-load Shim Allowance	0.008 in. (0.203 mm)
Drive Gear Bolts – Torque	40 – 50 lb. ft. (5.51 – 6.9 kg. m.)
Oil Capacity	2.25 pints (1.57 litres) SAE 90 Hypoid Oil

FRONT SUSPENSION

Type	Unequal Arm Transverse Link
Length Top Link	7.75-in. (196.85 mm)
Length Bottom Link (Spring Arm)	14.94-in. (379.48 mm)
King Pin Inclination	10°
King Pin Offset	0.75-in. (19.05 mm)
Total Wheel Movement	6.375-in. (161.93 mm)
Normal Load to Rebound	1.875-in. (47.63 mm)
Normal Load to Bump	4.50-in. (114.30 mm)
Normal Wheel Camber	0°
Camber at Rebound	1 – ½°
Negative. Camber at Bump	1 – ½° Negative
Caster Angle	0°
Torsion Bar Spring Diameter	0.880-in. (22.35 mm)
Effective length	36.25-in.
Torsion Bar Material	Silicone-Manganese Spring Steel
Normal Load on Spring .Arm	672 lbs. (304.82 kg.)
Stress in Torsion Bar at this Load	33.5 tons per square inch
Stress at Full Bump	55.9 tons per square inch
Wheel Deflection at Normal Load	7-in. (177.8 mm)
Spring Periodicity at Normal Load	71 cycles per minute

REAR SUSPENSION

Spring Arm Length	13·625-in. (346·10 mm)
Size of Torsion Bar	As for Front Suspension
Total Wheel Movement	7·25-in. (184·15 mm)
Normal Load to Re bound	3-in. (76·2 mm)
Normal Load to Bump	4·25-in. (107·95 mm)
Normal Load on Spring Arm	712 Lbs.
Stress in Torsion Bar at this Load	32·8 tons per square inch
Stress in Torsion Bar at Full Bump	55·5 tons per square inch
Wheel Deflection at Normal Load	6·5-in. (165·1 mm)
Spring Periodicity at Normal Load	73 cycles per minute

SHOCK ABSORBERS

Type	Woodhead Monroe, 1-in. diameter
Front:	
Closed Length	8-in. (203·2 mm)
Extended Length	11·5-in. (292·1 mm)
Rear:	
Closed Length	11·75-in. (298·45 mm)
Extended Length	19-in. (482·6 mm)

STEERING SYSTEM

Castor Angle*	0°
Camber Angle*	0°
King Pin Inclination**	10°
Front Wheel Tracking	Parallel to 0·125-in. (3·2 mm) toe-out
Chassis Height from Ground	8·25-in. (209·55 mm) Measured at front spring arm mounting
Number of Teeth on Rack	20
Number of Teeth on Pinion	6
Vehicle Turning Circle	31-ft. (9·45 metres)
Number of Turns, Lock to Lock	2¾

* Castor and camber measured with spring arm horizontal.

** Kingpins offset 0·8125 in. (20·64 mm).

BRAKING SYSTEM

Manufacturer	Girling
Before Jupiter Chassis No. E0 SA 56:	
Type – Front	Hydraulic, with single hydraulic expander unit
Type – Rear	Mechanical, with cable, compensator and rod actuation
Drum Diameter	9-in. (228·6 mm)
Drum Material	Malleable iron
Lining Length	7·3125-in. (185·74 mm)
Lining Width (Front)	1·5-in. (38·1 mm)
Lining Width (Rear)	1·25-in. (31·75 mm)
Friction Lining Area	88-in ² . (567·74 cm ²)
Lining Thickness	0·1875-in. (4·76 mm)
Number of Rivets Per Shoe	10
After Jupiter Chassis No. E0 SA 56:	
Type – Front	Hydraulic, 2 leading shoe

Type – Rear	Hydraulic, fully floating incorporating hand brake actuator
Drum Material	Malleable iron
Lining Length	8.75-in. (222.25 mm)
Lining Width	1.75-in. (44.45 mm)
Friction Lining Area	123-in ² . (793.55 cm ²)
Lining Thickness	0.1875-in. (4.76 mm)
Number of Rivets Per Shoe	10
Wheel Cylinder Diameter (Front)	0.875-in. (22.23 mm)
Wheel Cylinder Diameter (Rear)	0.875-in. (22.23 mm)
Braking Effort (Front)	65%
Braking Effort (Rear)	35%
Brake Pedal Ratio	6 : 1

Brake Retardation at 30 mph (One up):

Pedal Pressure	Stopping Distance
25 lbs. (11.3 kg)	30 ft. (39.6 metres)
50 lbs. (22.7 kg)	59 ft. (18.0 metres)
75 lbs. (34 kg)	43 ft. (13.1 metres)
100 lbs. (45.4 kg)	39 ft. (11.9 metres)

Distances could be different for modern linings.

Brake Fluid (For Both Types)	Castrol crimson brake fluid (authentic), Castrol Ultra-Stop – Colour, Amber. AS1960-1983 Grade 3.
Brake Fluid Capacity	1 pint (0.57 litre)

WHEELS AND TYRES

Type of Wheel	Steel disc (with ventilation holes)
Wheel Manufacturer	Dunlop
Wheel Size	3.00 x 16
Tyre Size	5.50 x 16 4-Ply
Tyre Pressure (Front)	Normal – 26 psi. (180 kPa) – from Owner's Handbook.
Tyre Pressure (Rear)	Normal – 26 psi. (180 kPa) – from Owner's Handbook.

ELECTRICAL SYSTEM

Manufacturer	Lucas	
Component Summary:	Model No.	Part No.
Battery – MK 1	2 x 6-volt 3LTW 11E	–
Battery – MK 1A	1 x 12-volt GTW 9A/2	–
Dynamo	C45 PV4	22436
Starter Motor	M 35 G	25025
Solenoid Starter Switch	ST 950	76411
Ignition/Lighting Switch – MK 1	PLC 6	34067
Ignition/Lighting Switch – MK 1A	PRS 3	31270
Control Box – Early	RF 95	37076
Control Box – Later	RB 106	37065
Distributor – Early	DKY H4A	40115
Distributor – Later	DM2	40317*
Ignition Coil	B 12	45012
Headlamp – R.H.D.	PF 770 MK II	51121
Headlamp – L.H.D.	PF 770 MK II	51121A
Front Side Lamp	489	32139
Tail/Stop Lamp	488	53178
Number Plate Lamp	487-1	53093
Trafficator	8F 40 N	54041

Trafficator Switch (Smiths)	—	—
Trafficator Switch (Trico)	—	031046
Screen Wiper	CR 4	75075
Horn – Low Note (Early)	WT 614	69011
Horn – High Note (Early)	WT 614	69012
Horn – Low Note (Later)	WT 29	690798
Horn – High Note (Later)	WT 29	690799
Horn Relay	SB 40	33116B
Cigar Lighter (Smiths)	—	SK40503/10

* Later versions of Lucas DM2 Distributor: 40318, 40571, 40735, 40795.

Bulbs:	Cap	Voltage	Wattage
Headlamps, L.H. Dip (R.H.D.)	Pre-focus	12	48/48
Headlamps, R.H. Dip (L.H.D.)	Pre-focus	12	48/48
Side/Number Plate Lamps	MCS	12	6
Tail/Stop Lamps	SBC*	12	6/24
Panel/Warning Lamps	MCS	12	2·4
Trafficators	Festoon (Lucas 256)	12	3

* Off-Set Bayonet

Fuses 3 x 25 amp
Wiring Harness Standard Lucas Colour Codes

Electrical Component Details

Batteries – 2-off Century No. 03:

Voltage	12-volts Total (2 x 6-volt)
Earth Terminal	Positive
C.C.A.	270
Capacity	65 ampere hours at 10 hour rate
Height (Total)	7·32-in. (186 mm)
Width	6·57-in. (167 mm)
Length	7·24-in. (184 mm)

Starter Motor:

Lock Torque	9·3 lb. ft.
Lock Voltage	7·9-volts
Lock Current Draw	335 amps
Brush Spring Tension	32 – 40 oz. (907 – 1134 g)
Number of Pinion Teeth	9
Cranking Ratio	12 : 3

Dynamo:

Maximum Output	17 amps at 13·5-volts
Cut-in Speed	1050 – 1200 rpm at 13-volts
Field Resistance	6·1 Ohms
Brush Spring Tension	22 – 25 oz. (624 – 709 g)
Direction of Rotation	Clockwise (commutator end)

Control Box Electrical Settings:

10° C (50° F)	16·1 – 16·7-volts
20° C (68° F)	15·8 – 16·4-volts
30° C (86° F)	15·6 – 16·2-volts
40° C (104° F)	15·3 – 15·9-volts

Horn Current Drain 12 – 15 amps
Wiper Motor Current Drain 2 – 3 amps

Lucas Parts Listing

Set out below is a listing of the Lucas part numbers for components manufactured by Lucas and installed in Jowett Jupiter motor cars from 1951-54. It would be a good idea to make a copy of these pages and take them with you to swap meets etc., so that Lucas parts, if still in their boxes, can be easily identified. Those items marked with an asterisk are Lucas components that have been superseded since Jowett Jupiters were in production.

	Part Description	In Production	Lucas Part No.
General	Ammeter	1951/2	031214
	Ammeter (Plate Fixing)	1951/2	36135A
	Ammeter (Clamp Fixing)	1951/4	36155A
	Battery (Two off – 6-volt	1951/2	SLG11E
	Battery (One off – 12-volt	1953/4	GT9A
	Fuse Box	1952/4	033240
	Coil - Ignition	1951/4	45012A/D*
	Control Box	1951	37065E
	Control Box	1952	37076E*
	Control Box	1952/4	37139D*
Distributor	Ignition Distributor (DKY H4A)	1951/2	40115H
	Ignition Distributor (DM2)	1953/4	40317A*
	Ignition Distributor (Racing)	1953/4	40318A/B
	Distributor Rotor Arm	1951/4	400051
	Brush and Spring	1951/4	418856
	Contact Set	1951/4	416617
Generator	Condenser	1951/4	418654
	Generator Assembly	1951/4	22436A*
	Generator Brushes	1951/4	238061
	Brush Tension Spring	1951/4	238062
	Cover Band	1951/4	227015
	Commutator End bracket	1951/4	23887
	Commutator End Bush	1951/4	238567
	Oiler	1951/4	238367
	Drive End Bearing	1951/4	189308
	Drive End Bracket	1951/4	237119
	Nut - Shaft	1951/4	180620
	Armature Assembly	1951/4	238833
	Field Coil	1951/4	238820
	Sundry Parts (Set)	1951/4	239024
Starter Motor	Starter Motor Assembly	1951/4	25025A/D
	Starter Motor Brushes	1951/4	251187
	Pinion and Sleeve Assembly	1951/4	250849
	Main Drive Spring	1951/4	250404
	Starter Motor Solenoid	1951/4	76411D*
Horns	Horn Assembly (Low Tone)	1951/4	69011F*
	Horn Assembly (High Tone)	1951/4	69012E*
	Horn Button	1951/52	32764D
	Horn Button (Later)	1952/4	32877A
	Horn Slip Ring	1951/2	38252A
	Horn Slip Ring (Later)	1952/4	38258A
	Relay – Horns	1951/4	33116B*
Lamps	Headlamp (R.H.D. Dip Left)	1951	50825A
	Headlamp (R.H.D. Dip Left)	1952/4	51065A
	Headlamp (R.H.D. Export, Dip Left)	1951	50825A
	Headlamp (R.H.D. Export, Dip Left)	1952/4	51065A
	Rear Number Plate	1951	052410D
	Rear Number Plate	1951/4	53093E

	Side Lamp – Front	1951	052558
	Side Lamp – Front	1951/4	52139B
	Tail/Brake	1951	052626
	Tail/Brake	1951/2	53178D
	Tail/Brake (Later)	1952/4	53204B*
	Panel Light Bulb Holder	1951/4	39020B
Warning Lights	C/W Red Glass	1951/4	38013B*
	C/W Green Glass	1951/4	38042A*
	C/W Blue Glass	1951/4	38081A*
Switches	Headlamp Dip	1951/4	31284A
	Fog Lamp	1951/4	31201B
	Knob – Fog Lamp	1951/2	316288*
	Knob – Fog Lamp (Later – <i>Black?</i>)	1952/4	317303*
	Heater	1951/4	31201B
	Knob – Heater	1951/2	316225*
	Knob – Heater (Later – <i>Black?</i>)	1952/4	316244*
	Instrument Lights	1951/4	31201B
	Knob – Instrument Lights	1951/2	316227*
	Knob – Instrument Lights (Later – <i>Black?</i>)	1952/4	317501*
	Screen Wiper	1951/4	31201B
	Knob – Screen Wiper	1951/2	316226*
	Knob – ScreenWiper (Later – <i>Black?</i>)	1952/4	317502*
	Trafficators	1951/4	031046
	Ignition and Lighting	1951/3	34067A*
	Ignition and Lighting (Later)	1953/4	31270A
	Knob – Lighting	1951/4	316285
	Starter Motor	1951/3	31289A*
	Starter Motor (Later)	1953/4	31071A*
	Brake Light	1951/4	31281B
	Brake Light Switch Spring	1951/4	315723*
	Cigar Lighter (Smiths)	1951/4	SK40503/10
Screen Wiper	Motor Assembly	1951	75075K*
	Motor Assembly	1952	75088M*
	Motor Assembly (Later)	1952/4	75151A
	Wheel box Assembly	1951/4	72590AK
	Crosshead & Rack Assy. (44-in.)	1951/4	736307
	Outer Casing (Motor to Wheel Box)	1951/4	739832*
	Outer Casing (Wheel Box to Wheel Box)	1951/4	739832*
	Outer Casing (End Tube)	1951/4	740031
	Grommet (Wheel Box Shaft)	1951/4	734697
	Arm Assembly (R.H.)	1951/4	737660*
	Arm Assembly (L.H.)	1951/4	737661*
	Blade	1951/2	737516*
	Blade	1953/4	737681
Overdrive	Relay	1953/4	33094A
	Switch (Gear Lever)	1953/4	31077A*
	Solenoid (Overdrive Unit)	1953/4	76500A*

The information in the above table came from a non-Jowett publication.

Those items marked with an asterisk (*) are Lucas components that have been superseded since Jowett Jupiters were in production.

INSTRUMENTS

Temperature Gauge	Smiths Industries X70971/2
Engine Oil Pressure/Temperature	Smiths Industries X76634/1
Fuel Gauge	Smiths Industries
Rev-counter	Smiths Industries X76490 2:1
Speedometer	Smiths Industries X70802/9
Ammeter	Lucas, 36135A
Clock	Smiths Industries

SUMMARY OF ENGINEERING CHANGES

Change Description	Engine No.
Four-wheel Hydraulic Brake System	E1 SA 056
Revised cylinder head gasket support.	E1 SA 270
Revised throttle rod clamp.	E1 SA 270
Petrol pump mounting changed from scuttle to chassis amidships.	E1 SA 439
Petrol pump changed from Type L to Type PP36L.	E1 SA 439
Camshaft drive sprocket changed to vernier adjustment.	E1 SA 481
Revised engine oil filler tube (shortened).	E1 SA 504
Three-way petrol tap deleted.	E1 SA 504
Improved waterproof plug lead connections.	E1 SA 520
Waterproof rubber cover introduced on petrol pump.	E1 SA 520
Fan shaft taper increased (fan and shaft interchangeable as an assembly).	E2 SA 575
Air cleaner changed from Vokes (scuttle mount) to AC (carburettor mount).	E2 SA 590
Oil cooler mounted on engine (replaced chassis mounted oil cooler).	E2 SA 631
Left Hand Drive Break-in Point	E2 SAL 594
Carburettor type changed from 30VIG 5 to 30VM.	E2 SA 657
First gear locking plunger (spring added), new main-shaft, synchro and sleeve.	E2 SA 657
Sludge release drilling in connecting rod cap deleted.	E2 SA 692
Distributor changed from DKY H4A to DM2 (not interchangeable).	E2 SA 717
Steering column universal joint changed to Hardy Spicer.	E2 SA 730
Rubber bushed front suspension introduced.	E2 SA 865
Series III basic engine introduced.	E2 SA 882
Cross bracing between scuttle and chassis.	E2 SA 940
Crankshaft tolerance tightened (new shaft and connecting rods).	E2 SC 942
Steering rack housing mounting changed from spigot to lugs.	E2 SC 942
Engine oil pump – adjustable relief valve added.	E2 SC 945
Camshaft adjustable thrust pad added.	E2 SC 957

This list is by no means complete.

SERIES III ENGINE – DISTINGUISHING FEATURES

1. Stiffer crankcase and enlarged oil ways to improve oil flow to main and big end bearings. Crankcase can be identified by '3' stamped on upper front face of RHS casing. Also internal cross webbing to stiffen main bearing webs. Enlarged area above longitudinal oil galleries. Final crankcases had rear cylinder head studs screwed through coolant inlet ports.
2. Large radii crankshaft with or without lightening holes.
3. Adjustable camshaft thrust pad.
4. No splash protection plate on cylinder head (which necessitated the fitting of the latest sparking plug water proofing modifications). The combustion chamber was polished and slightly modified in shape.

5. Improved engine oil pump, upper housing changed to lower the pump body closer to oil level. Oil pump now featured relief valve venting to suction side of pump. Relief valve adjustable. Delivery pipe enlarged.
 6. The fitting of an improved type rear timing cover with larger oil cooler banjo fittings.
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RECONDITIONED ENGINE NOTES

Jowett Engineering advised in 1960 that, if the engine number is prefixed with the letter 'R', it indicates a factory replacement unit. In order to clarify the position regarding replacement engines, it can be said that any engine bearing a number later than 'R' 10,000, will be the equivalent of a Series III engine. The following shows reconditioning practice since Series III engines were introduced.

1. In the instance where a pre-Series III crankcase is used, machined work is carried out in a number of places on the crankcase to improve the flow of oil to the main bearings, and as a consequence, to the big end bearings. The cylinder head stud holes in the crankcase are counter bored and the crankcase machined and fitted with new type oil gallery plugs. By these means most of the benefits of the Series III crankcase are obtained.
 2. Nothing earlier than a Series III crankshaft is fitted, in fact all present engines are fitted with an improved shaft i.e. Black-sided or Oval-Web.
 3. All reconditioned engines are fitted with the adjustable camshaft thrust peg.
 4. Cylinder head combustion chambers are being polished and modified.
 5. Improved engine oil pump base with adjustable relief valve features. In many cases the pump with extended body is fitted. All pumps are tested to a higher standard than was originally used in production of Series III engines.
 6. All reconditioned engines have the improved rear timing case cover fitted.
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