

F.I.A. Recognition No. 5303

Group 1 Series Production Touring Cars



ROYAL AUTOMOBILE CLUB

31, Belgrave Square, London, S.W.1

Form of recognition in accordance with appendix J to the International Sporting Code of the
FEDERATION INTERNATIONALE DE L'AUTOMOBILE

Cylinder-capacity 1159 cm.³ 70.7 in.³
 Manufacturer Vauxhall Motors Ltd. Model Viva Epic 'Deluxe' 90 (HBD)
 Serial No. of chassis/body HBD 7500001 Manufacturer Vauxhall
 Serial No. of engine HB22 2001 Code 460 Manufacturer Vauxhall
 Recognition is valid from 1st July 1969 List 1969/5
 The manufacturing of the model described in this recognition form started on January 1st 1968
 and the minimum production of 5000 identical cars, in accordance with the specifications of
 this form was reached on December 1st 1968.

Photograph A, ¾ view of car from front



F.I.A. Stamp

R.A.C. Stamp



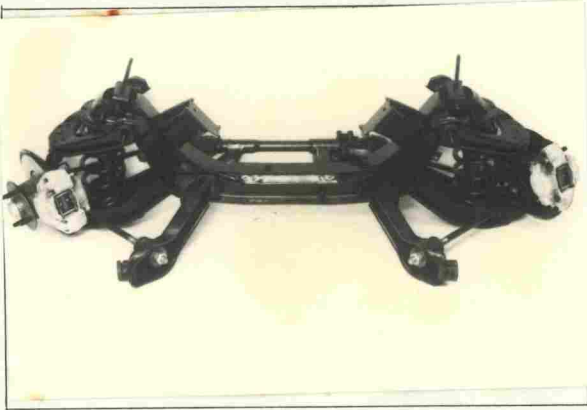
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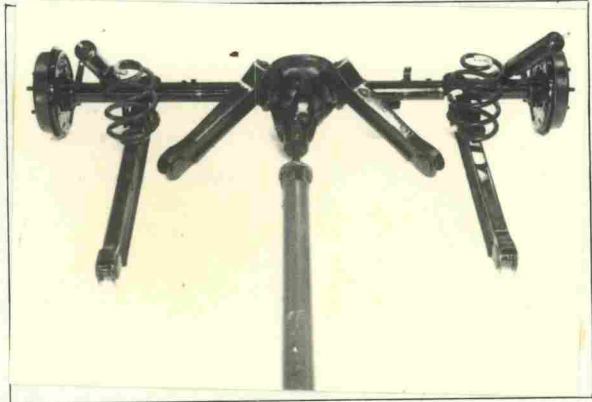
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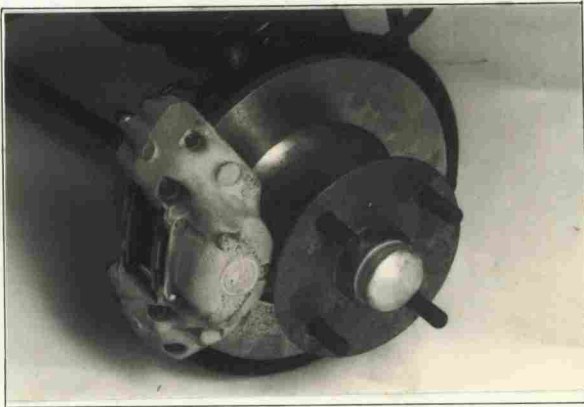
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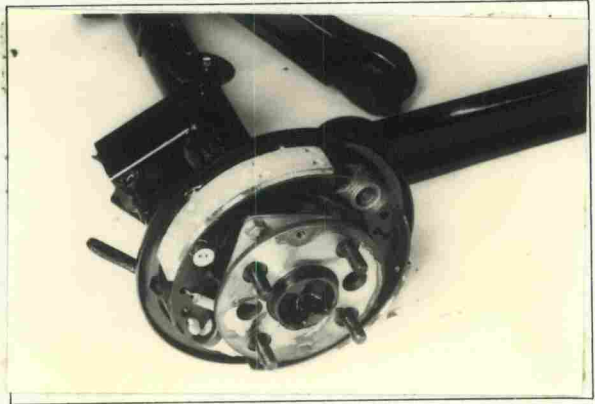
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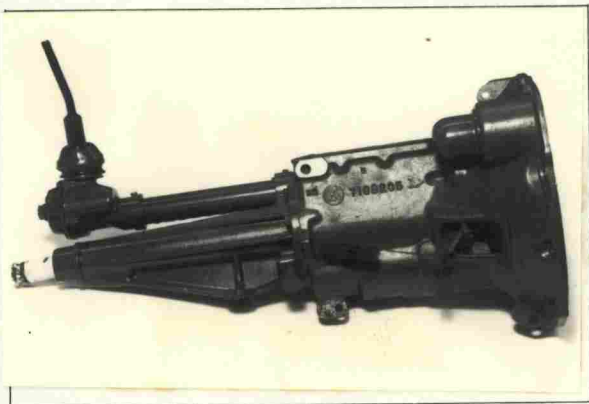
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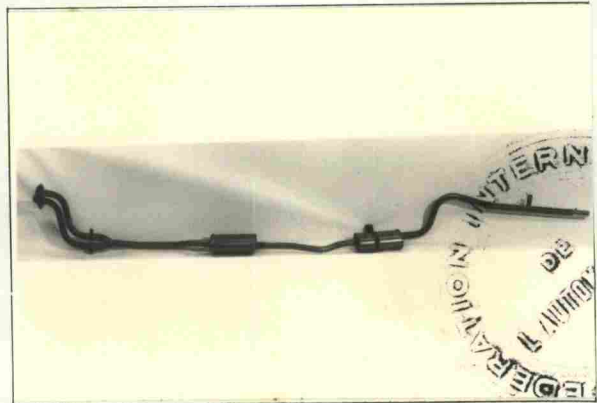
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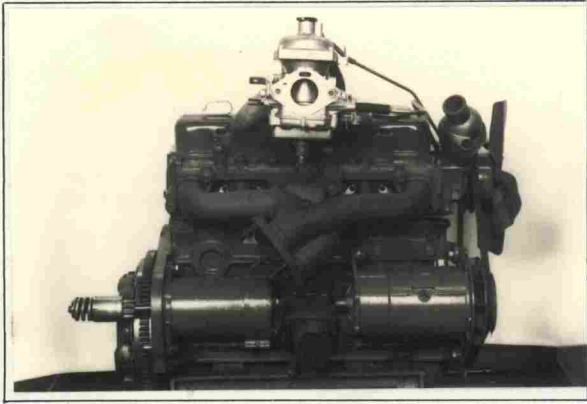
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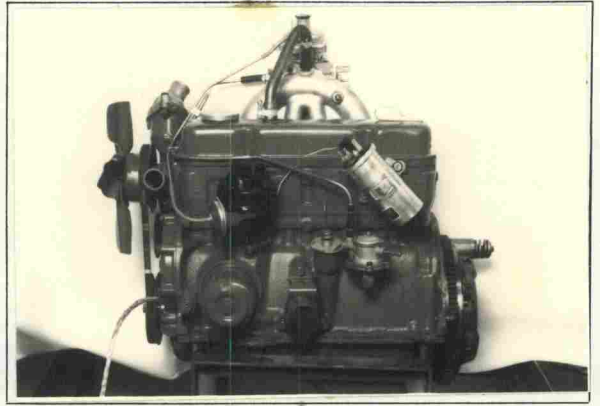
I



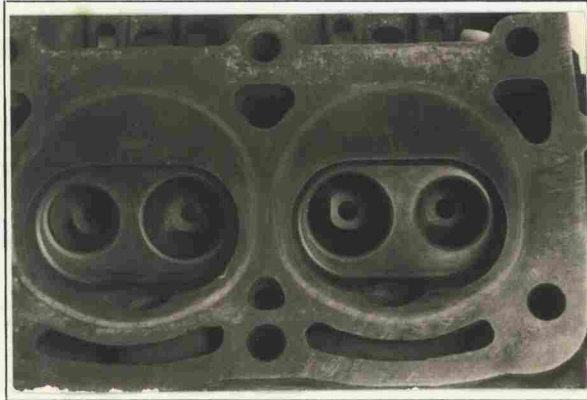
J



K



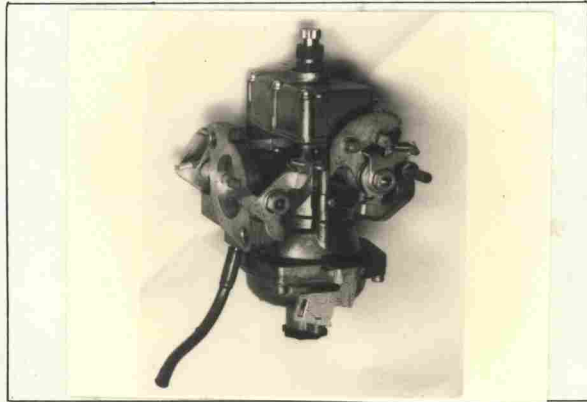
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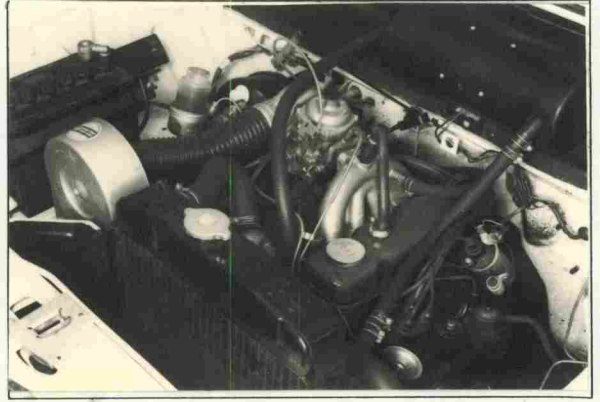
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N



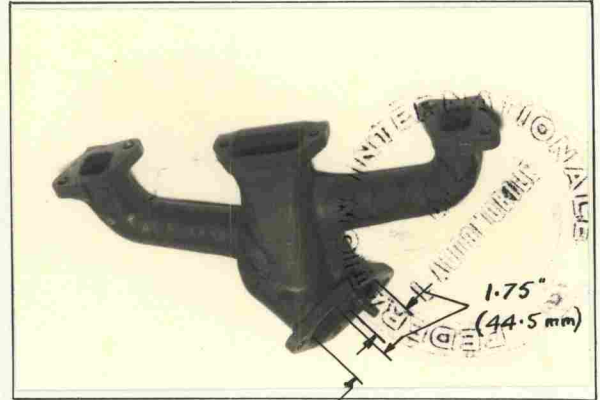
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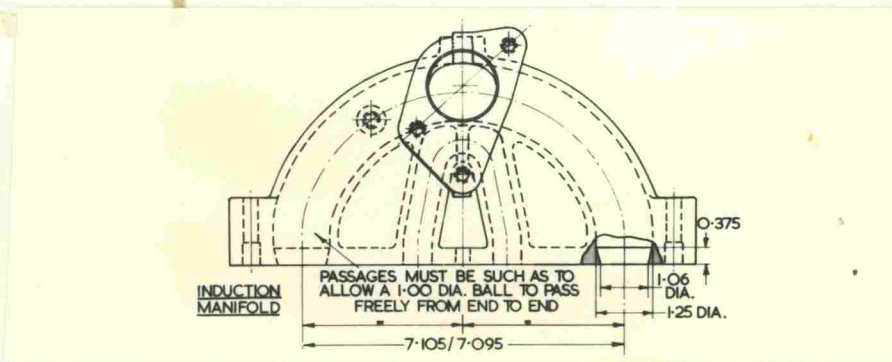
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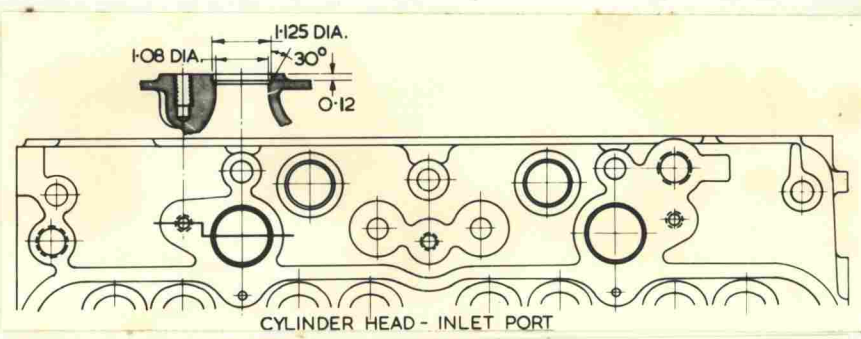
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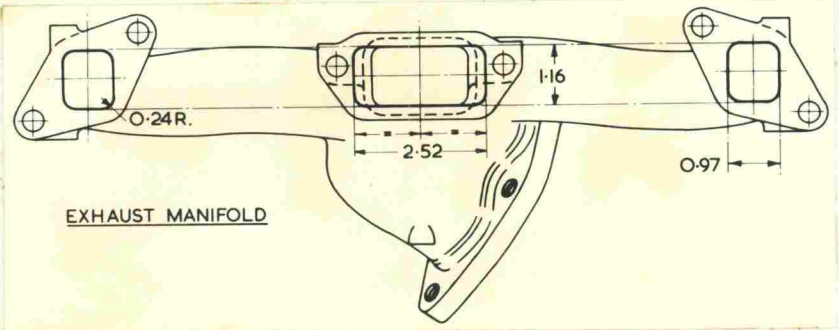
Drawing inlet manifold ports, side of cylinderhead. Indicate scale or dimensions and manufacturing tolerance.



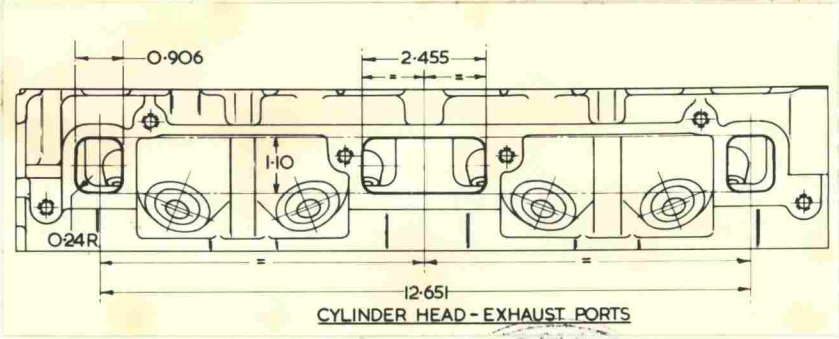
Drawing of entrance to inlet port of cylinderhead. Indicate scale or dimensions and manufacturing tolerance.



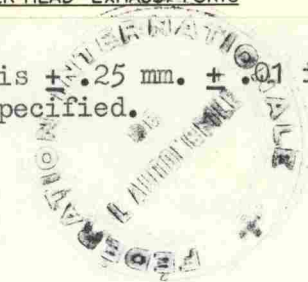
Drawing of exhaust manifold ports, side of cylinderhead. Indicate scale or dimensions and manufacturing tolerance.



Drawing of exit to exhaust port of cylinderhead. Indicate scale or dimensions and manufacturing tolerance.



Allowable variation on dimensions is $\pm .25$ mm. $\pm .01$ in. unless otherwise specified.

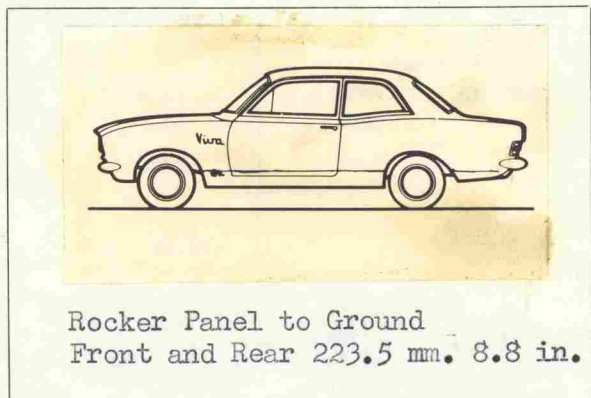


NOTE 1.

All dimensions must be given in two measuring systems, see Note 3.

CAPACITIES AND DIMENSIONS

- | | | | | |
|----------------|--------|-----|------|--------|
| 1. Wheelbase | 2433.3 | mm. | 95.8 | inches |
| 2. Front track | | | | |
| | 1295 | mm. | 51.0 | inches |
| 3. Rear track | | | | |
| | 1295 | mm. | 51.0 | inches |



- | | | | | |
|--|--------|-------|-------|------------|
| 4. Overall length of the car | 409.45 | cm. | 161.2 | inches |
| 5. Overall width of the car | 160.02 | cm. | 63 | inches |
| 6. Overall height of the car | 137.41 | cm. | 54.1 | inches |
| 7. Capacity of fuel tank (reserve included) | 36.37 | ltrs. | 9.61 | gall. U.S. |
| | | | 8.0 | gall. Imp. |
| 8. Seating Capacity. | Four | | | |
| 9. Weight. Total weight of the car with normal equipment, water, oil, and spare wheel but without fuel or repair tools : | 780.6 | kg. | 1721 | lbs. |
| | | | 15.37 | cwts. |

NOTE 2.

Differences in track caused by the use of other wheels with different rim widths must be stated when recognition is requested for the wheels concerned. Specify ground clearance in relation to the track and give drawing of two easily recognisable points at front and rear at which measurements are taken. These ground clearance dimensions are only for information when checking the track and can in no way affect the eligibility of the car.

NOTE 3.

CONVERSION TABLE

1 inch/pouce	— 2.54	cm.	1 quart US	— 0.9464	ltrs.
1 foot/pied	— 30.4794	cm.	1 pint (pt)	— 0.568	ltrs.
1 sq. inch/pouce carre	— 6.452	cm. ²	1 gallon Imp.	— 4.546	ltrs.
1 cubic inch/pouce cube	— 16.387	cm. ³	1 gallon US	— 3.785	ltrs.
1 pound/livre (lb)	— 453.593	gr.	1 hundred weight (cwt.)	— 50.802	kg.



CHASSIS AND COACHWORK (Photographs A, B and C)

- 20. Chassis/body construction: ~~Separate~~/unitary construction
- 21. Unitary construction, material(s) Steel
- 22. Separate construction, Material(s) of chassis -
- 23. Material(s) of coachwork Steel
- 24. Number of doors 2 Material(s) Steel
- 25. Material(s) of bonnet Steel
- 26. Material(s) of boot lid Steel
- 27. Material(s) of rear-window Glass
- 28. Material(s) of windscreen Laminated or Toughened Glass
- 29. Material(s) of front-door windows Glass
- 30. Material(s) of rear-door windows None
- 31. Sliding system of door windows Gear Operated - Drop Glass
- 32. Material(s) of rear-quarter light Glass

ACCESSORIES AND UPHOLSTERY

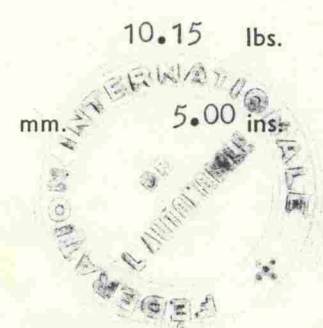
- 38. Interior heating : yes — ~~no~~
- 39. Air conditioning : ~~yes~~ — no
- 40. Ventilation : yes — ~~no~~
- 41. Front seats, type of seat and upholstery Blown PVC
- 42. Weight of front seat(s), complete with supports and rails, out of the car : Tubular Frame
9.843 kg. 21.7 lbs.
- 43. Rear seats, type of seat and upholstery Blown PVC - Spring Case
- 44. Front bumper, material(s) Steel Weight 3.209 kg. 7.076 lbs.
- 45. Rear bumper, material(s) Steel Weight 3.299 kg. 7.274 lbs.

WHEELS

- 50. Type Disc
- 51. Weight (per wheel, without tyre) 4.6 kg. 10.15 lbs.
- 52. Method of attachment 4 Stud
- 53. Rim diameter 304.8 mm. 12.0 ins. 54. Rim width 127 mm. 5.00 ins.

STEERING

- 60. Type Rack & Pinion
- 61. Servo-assistance : ~~yes~~ — no
- 62. Number of turns of steering wheel from lock to lock 3.2
- 63. In case of servo-assistance



Make Vauxhall

Model HBD 90

F.I.A. Rec. No. 5137

SUSPENSION

- 70. Front suspension (photograph D), type Independent - Wishbone
- 71. Type of spring Coil
- 72. Stabiliser (if fitted) Not fitted
- 73. Number of shock absorbers Two 74. Type Telescopic - Double Acting
- 78. Rear suspension (photograph E), type Beam Axle - 4 Link Suspension
- 79. Type of spring Coil
- 80. Stabiliser (if fitted) Not Fitted
- 81. Number of shock absorbers Two 82. Type Telescopic - Double Acting

BRAKES (photographs F and G)

- 90. Method of operation Hydraulic
- 91. Servo-assistance (if fitted), type Suspended Vacuum
- 92. Number of hydraulic master cylinders One

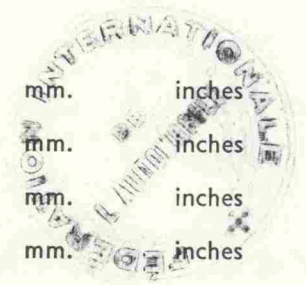
		FRONT		REAR
93. Number of cylinders per wheel	<u>Two</u>			<u>One</u>
94. Bore of wheel cylinder(s)	<u>48.26</u>	mm. <u>1.90</u> inches		<u>17.78</u> mm. <u>0.70</u> inches

Drum Brakes

95. Inside diameter		mm. inches	<u>203.20</u> mm. <u>8.00</u> inches
96. Length of brake linings		mm. inches	<u>159.51</u> mm. <u>6.28</u> inches
97. Width of brake linings		mm. inches	<u>31.75</u> mm. <u>1.25</u> inches
98. Number of shoes per brake			<u>Two</u>
99. Total area per brake		mm. ² sq. in.	<u>10136</u> mm. ² <u>15.71</u> sq. in.

Disc Brakes

100. Outside diameter	<u>213.36</u>	mm. inches		mm. inches
101. Thickness of disc	<u>9.53</u>	mm. inches		mm. inches
102. Length of brake linings		mm. inches		mm. inches
103. Width of brake linings		mm. inches		mm. inches
104. Number of pads per brake			<u>Two</u>	
105. Total area per brake	<u>5032.6</u>	mm. ² sq. in.		mm. ² sq. in.



ENGINE (photographs J and K)

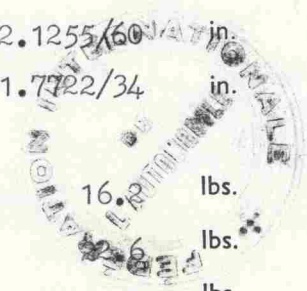
- | | | | |
|---|----------------------|---|---|
| 130. Cycle | 4 - Stroke | 131. Number of cylinders | Four |
| 132. Cylinder Arrangement | Vertical - In Line | | |
| 133. Bore | 77.77 mm. 3.062 in. | 134. Stroke | 60.96 mm. 2.40 in. |
| 135. Capacity per cylinder | | | 289.7 cm. ³ 17.679 cu. in. |
| 136. Total cylinder capacity | | | 1158.8 cm. ³ 70.714 cu. in. |
| 137. Material(s) of cylinder block | Cast Iron | 138. Material(s) of sleeves (if fitted) | Not Fitted |
| 139. Cylinder head, material(s) | Cast Iron | Number fitted | One |
| 140. Number of inlet ports | Two | 141. Number of exhaust ports | Three |
| 142. Compression ratio | 9.0:1 | | |
| 143. Volume of one combustion chamber | | | 28.23 ± .30 cm. ³ 1.723 ± .018 cu. in. |
| 144. Piston, material | Aluminium Alloy | 145. Number of rings | Three |
| 146. Distance from gudgeon pin centre line to highest point of piston crown | | | 37.59 mm. 1.48 in. |
| 147. Crankshaft: made /stamped | | 148. Type of crankshaft: integral/..... | Yes... |
| 149. Number of crankshaft main bearings | Three | | |
| 150. Material of bearing cap | Cast Iron | | |
| 151. System of lubrication: dry sump /oil in sump | | | |
| 152. Capacity, lubricant | 3.124 ltrs. 5.5 pts. | | 3.3 quarts U.S. |
| 153. Oil cooler: yes /no | | 154. Method of engine cooling | Water |
| 155. Capacity of cooling system | 5.79 ltrs. 10.2 pts. | | 6.12 quarts U.S. |
| 156. Cooling fan (if fitted) dia. | | | 24.13 cm. 9.5 in. |
| 157. Number of blades of cooling fan | Four | | |

Bearings

- | | | | |
|-----------------------------------|-----------------------------|------|--------------------------------|
| 158. Crankshaft main, type | White Metal - Upper | dia. | 53.99/54.00 m.m. 2.1255/60 in. |
| | Aluminium Tin Alloy - Lower | | |
| 159. Connecting rod big end, type | Copper/Lead/Aluminium/Tin | dia. | 45.01/45.04 m.m. 1.7722/34 in. |

Weights

- | | | | | | |
|---|----------------------|-------|-----|-------|------|
| 160. Flywheel (clean) (With Ring Gear) | | 7.35 | kg. | 16.0 | lbs. |
| 161. Flywheel with clutch (all turning parts) | | 10.25 | kg. | 22.6 | lbs. |
| 162. Crankshaft | 10.67 kg. 23.52 lbs. | | | | |
| 163. Connecting rod | | .51 | kg. | 1.12 | lbs. |
| 164. Piston with rings and pin | | .49 | kg. | 1.071 | lbs. |



FOUR STROKE ENGINES

170. Number of camshafts One 171. Location Cylinder Block
 172. Type of camshaft drive Endless Chain at Front
 173. Type of valve operation Push Rod

INLET (see page 4)*

180. Material(s) of inlet manifold Aluminium Alloy Casting
 181. Diameter of valves 33.604 mm. 1.323 ins.
 182. Max. valve lift 8.6 mm. .339 in. 183. Number of valve springs One
 184. Type of spring Helical Coil 185. Number of valves per cylinder One
 186. Tappet clearance for checking timing (cold) .2032 mm. .008 ins.
 187. Valves open at (with tolerance for tappet clearance indicated) 39° BTDC
 188. Valves close at (with tolerance for tappet clearance indicated) 73° ABDC
 189. Air filter, type Oil Wetted or Paper Element

EXHAUST (see page 4)*

195. Material(s) of exhaust manifold Cast Iron
 196. Diameter of valves 30.048 mm. 1.183 ins.
 197. Max. valve lift 8.6 mm. .339 in. 198. Number of valve springs One
 199. Type of spring Helical Coil 200. Number of valves per cylinder One
 201. Tappet clearance for checking timing (cold) .2032 mm. .008 ins.
 202. Valves open at (with tolerance for tappet clearance indicated) 71° BBDC
 203. Valves close at (with tolerance for tappet clearance indicated) 41° ATDC

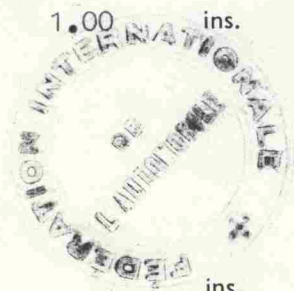
CARBURETION (photograph N)

210. Number of carburettors fitted One 211. Type Variable Choke
 212. Make Zenith/Stromberg 213. Model 150 - CD
 214. Number of mixture passages per carburettor
 215. Flange hole diameter of exit port(s) of carburettor 38.1 mm. 1.50 ins.
 216. Minimum diameter of venturi/minimum diam., with piston at maximum height (example : SU)
25.4 mm. 1.00 ins.

INJECTION (if fitted)

220. Make of pump 221. Number of plungers
 222. Model or type of pump 223. Total number of injectors
 224. Location of injectors
 225. Minimum diameter of inlet pipe mm. ins.

* For additional information concerning two-stroke engines and super-charged engines, see page 13.

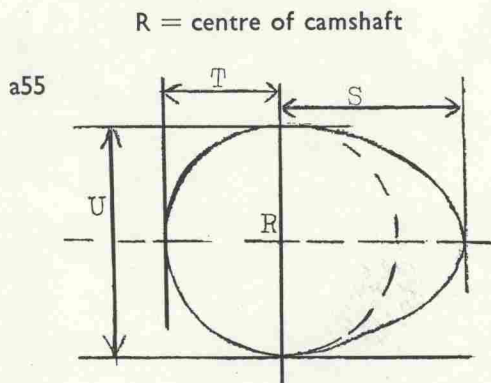


ENGINE ACCESSORIES

- 230. Fuel pump : mechanical ~~and/or electrical~~
- 231. No. fitted One
- 232. Type of ignition system Coil
- 233. No. of distributors One
- 234. No. of ignition coils One
- 235. No. of spark plugs per cylinder One
- 236. Generator, type : dynamo/~~alternator~~—number fitted One
- 237. Method of drive Belt
- 238. Voltage of generator 12 volts
- 239. Battery, number One
- 240. Location In Engine Compartment
- 241. Voltage of battery 12 volts

ENGINE AND CAR PERFORMANCES (as declared by manufacturer in catalogue)

- 250. Max. engine output 68.9 (type of horsepower: BHP (GROSS) at 5.800 r.p.m.
- 251. Max. r.p.m. 6.800 output at that figure Not Available for Publication
- 252. Max. torque 68.7 lb/ft. at 4200 r.p.m.
- 253. Max. speed of the car 139.5 km./hour 86.7 miles/hour

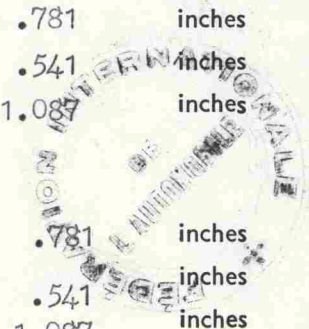


Inlet cam

S =	19.844	mm.	.781	inches
T =	13.741	mm.	.541	inches
U =	27.619	mm.	1.087	inches

Exhaust cam

S =	19.844	mm.	.781	inches
T =	13.741	mm.	.541	inches
U =	27.619	mm.	1.087	inches



DRIVE TRAIN

CLUTCH

260. Type of clutch Diaphragm 261. No. of plates One
262. Dia. of clutch plates 15.875 cm. 6.25 ins.
263. Dia. of linings, inside 11.43 cm. 4.50 ins.
- outside 15.875 cm. 6.25 ins.
264. Method of operating clutch Mechanical

GEAR BOX (photograph H)

270. Manual type, make Vauxhall Method of operation Lever - Direct
271. No. of gear-box ratios forward 4 272. Synchronized forward ratios 4
273. Location of gear-shift Central - Floor
274. Automatic, make _____ type _____
275. No. of forward ratios _____ 276. Location of gear shift _____

277.	Manual		Automatic		Alternative manual/automatic			
	Ratio	No. teeth	Ratio	No. teeth	Ratio	No. teeth	Ratio	No. teeth
1	<u>3.765:1</u>	<u>37/15</u>						
2	<u>2.213:1</u>	<u>29/20</u>						
3	<u>1.404:1</u>	<u>23/25</u>						
4	<u>Direct</u>							
5	<u>-</u>	<u>-</u>						
6	<u>-</u>	<u>-</u>						
reverse	<u>3.707:1</u>	<u>14/34</u>						

278. Overdrive, type _____
279. Forward gears on which overdrive can be selected _____
280. Overdrive ratio _____

FINAL DRIVE

290. Type of final drive Hypoid 291. Type of differential Bevel
292. Type of limited slip differential (if fitted) _____
293. Final drive ratio 4.125 (or 3.9) Number of teeth 8/33 (or 9/35)



IMPORTANT—The conformity of the car with the following items of the present recognition form is to be disregarded during the scrutineering, when the vehicle has been entered in group 2 (Touring cars) or 3 (Grand Touring cars) : 41, 72, 80, 91, 142, 143, 144, 145, 146, 153, 156, 157, 160, 161, 162, 163, 164, 182, 186, 187, 188, 189, 201, 202, 203, 212, 213, 215, 216 222, 225, 230, 250, 251, 252, 253, 255 photographs I, M and N and page 4.

During the scrutineering of cars entered in group 4 (Sportscars) only the following items of the present recognition form are to be taken into consideration : 1, 2, 3, 9, 20, 21, 22, 23, 24, 25, 26, 70, 71, 78, 79, 90, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 147, 148, 149, 150, 158, 159, 170, 171, 172, 173, 185, 200, 270, 271, 274, 275, 290, 291, 292 and photographs A, B, D, E, F, G, H, J, K and O.

The vehicle described in this form has been subject to the following amendments :

on.....	19.....	rec. no.....	List.....	on.....	19.....	rec. no.....	List.....
on.....	19.....	rec. no.....	List.....	on.....	19.....	rec. no.....	List.....
on.....	19.....	rec. no.....	List.....	on.....	19.....	rec. no.....	List.....
on.....	19.....	rec. no.....	List.....	on.....	19.....	rec. no.....	List.....
on.....	19.....	rec. no.....	List.....	on.....	19.....	rec. no.....	List.....

Optional equipment affecting preceding information. This to be stated together with reference number.

<u>No.</u>	<u>Reference No.</u>		<u>Group 1</u>
		<u>Heavy Duty Suspension - Code 357</u>	
1.	71.	7198454 Front Spring RH (Fitted to LH side)	
	79.	7198458 Rear Spring - 2 off	
	78.	7192353 Rear Axle Assy. 9/35	
		7192352 Rear Axle Assy. 8/33	
			<u>Group 2</u>
		<u>Increased Dia. Wheels - Code 462 and 463</u>	
2.	50.	6396895 Wheel - Disc 4 x 13 WB	

Dia. 330.2 mm. 13 ins.
Width. 133 mm. 5.24 ins.

Note: When these wheels are used the track width must be reduced by .62 inches.





MOTOR SPORT DIVISION
The Royal Automobile Club,
31 Belgrave Square, London, S.W.1

Manufacturer VAUXHALL MOTORS LTD

Model VIVA - HBD 90

F.I.A. Recognition No. 5303

Amendment No. 111E

Amendment to Form of Recognition

FEDERATION INTERNATIONALE DE L'AUTOMOBILE

No.

Reference No.

CAPACITIES AND DIMENSIONS 2

FRONT TRACK 52.20 INS. 1326 MM.

PRODUCTION CHANGE

Date amendment is valid from 1/1/70



Stamp of F.I.A./R.A.C.