

F.I.A. Recognition No. 5231

Group 1



# 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

Manufacturer Rootes Motors Ltd.  
 Serial No. of chassis/body B.011000100  
 Serial No. of engine B.711000100  
 Recognition is valid from 1st May, 1968  
 The manufacturing of the model described in this recognition form started on 3rd November 1966  
 and the minimum production of 5,000 identical cars, in accordance with the specifications of  
 this form was reached on 17th May, 1967.

Cylinder-capacity 1496 cm.<sup>3</sup> 91.26 in.<sup>3</sup>  
 Model Hillman Minx/Singer Gazelle  
 Manufacturer Rootes Motors Ltd.  
 Manufacturer Rootes Motors Ltd.  
 List 1968/6

Photograph A,  $\frac{3}{4}$  view of car from front



F.I.A. Stamp

*Hubert Brown*

R.A.C. Stamp



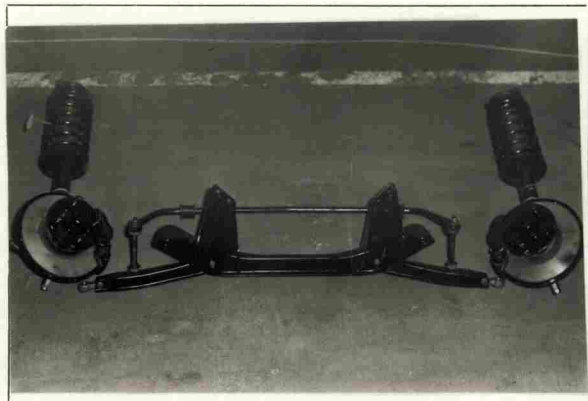
B



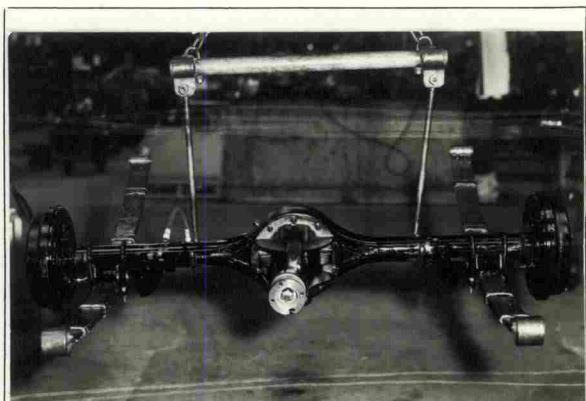
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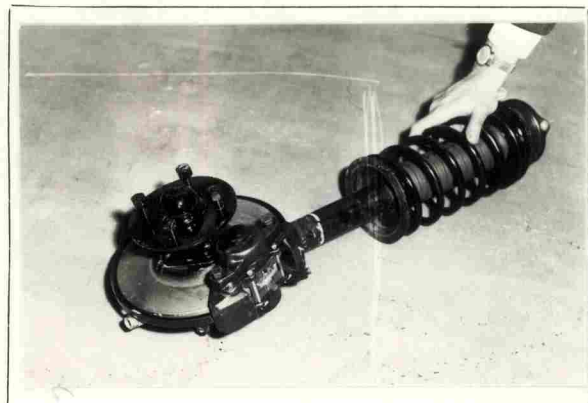
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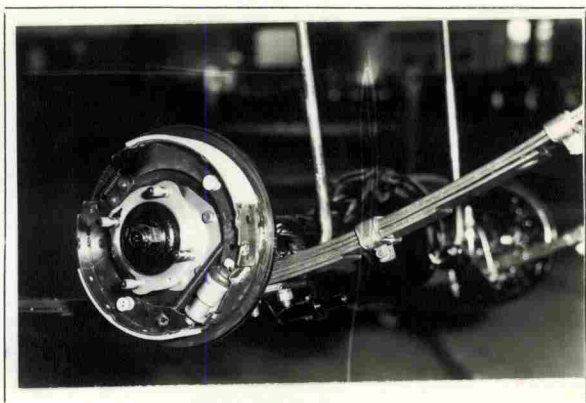
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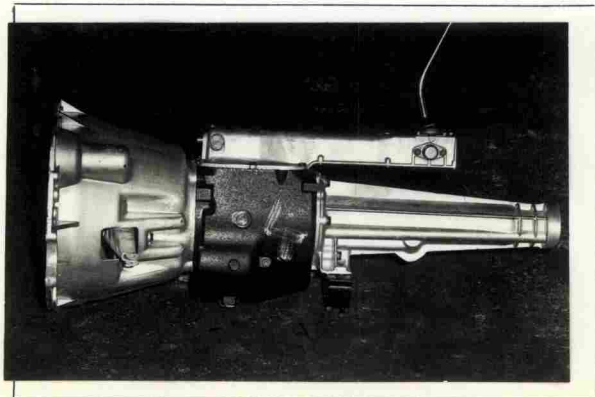
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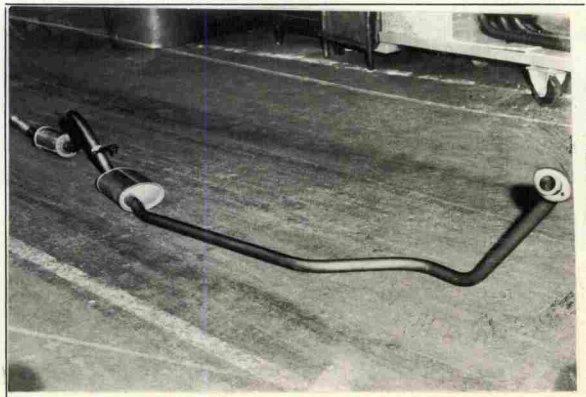
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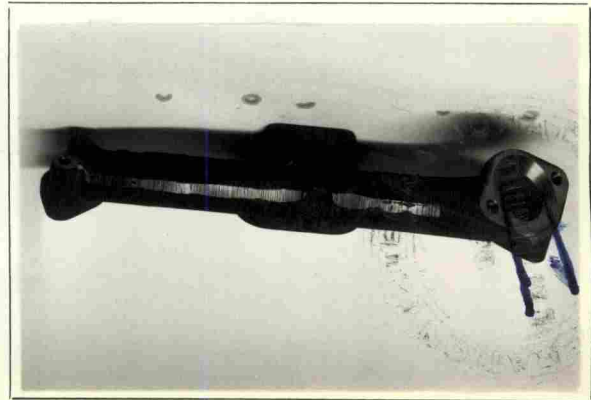
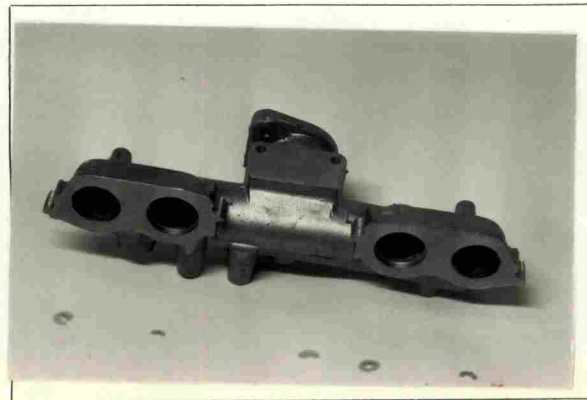
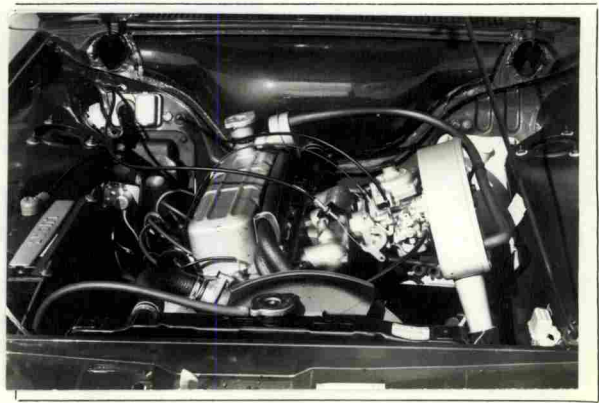
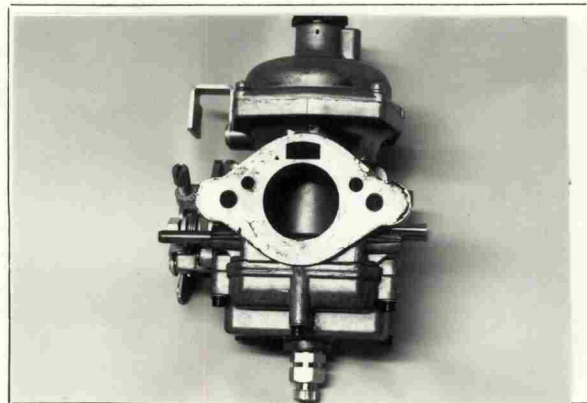
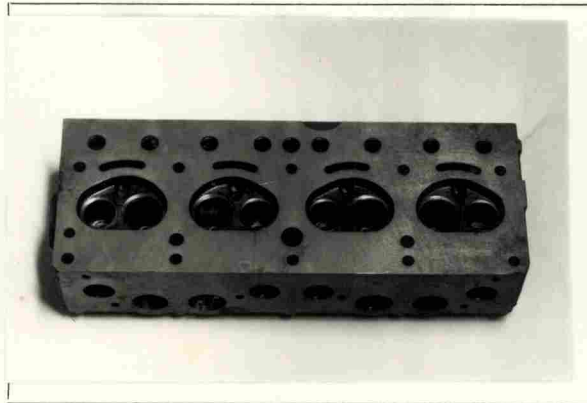
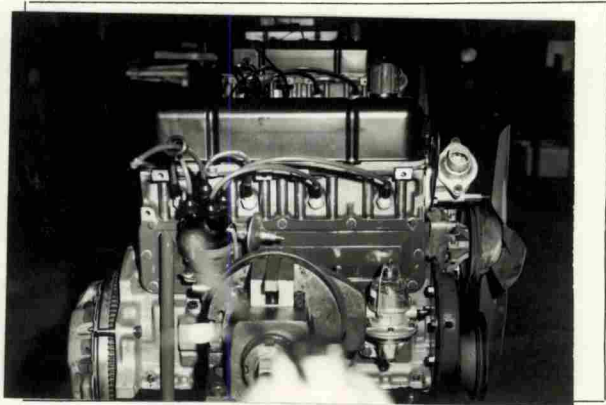
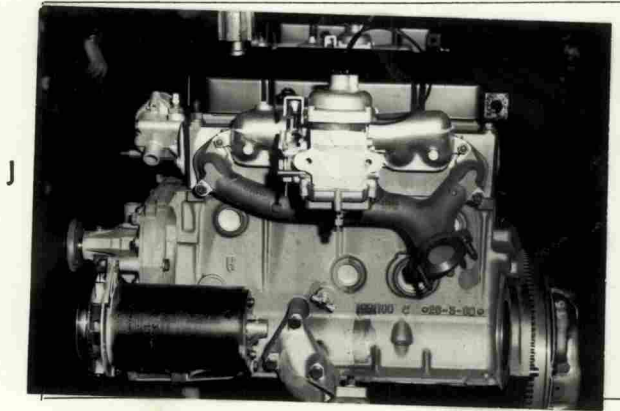


H



I



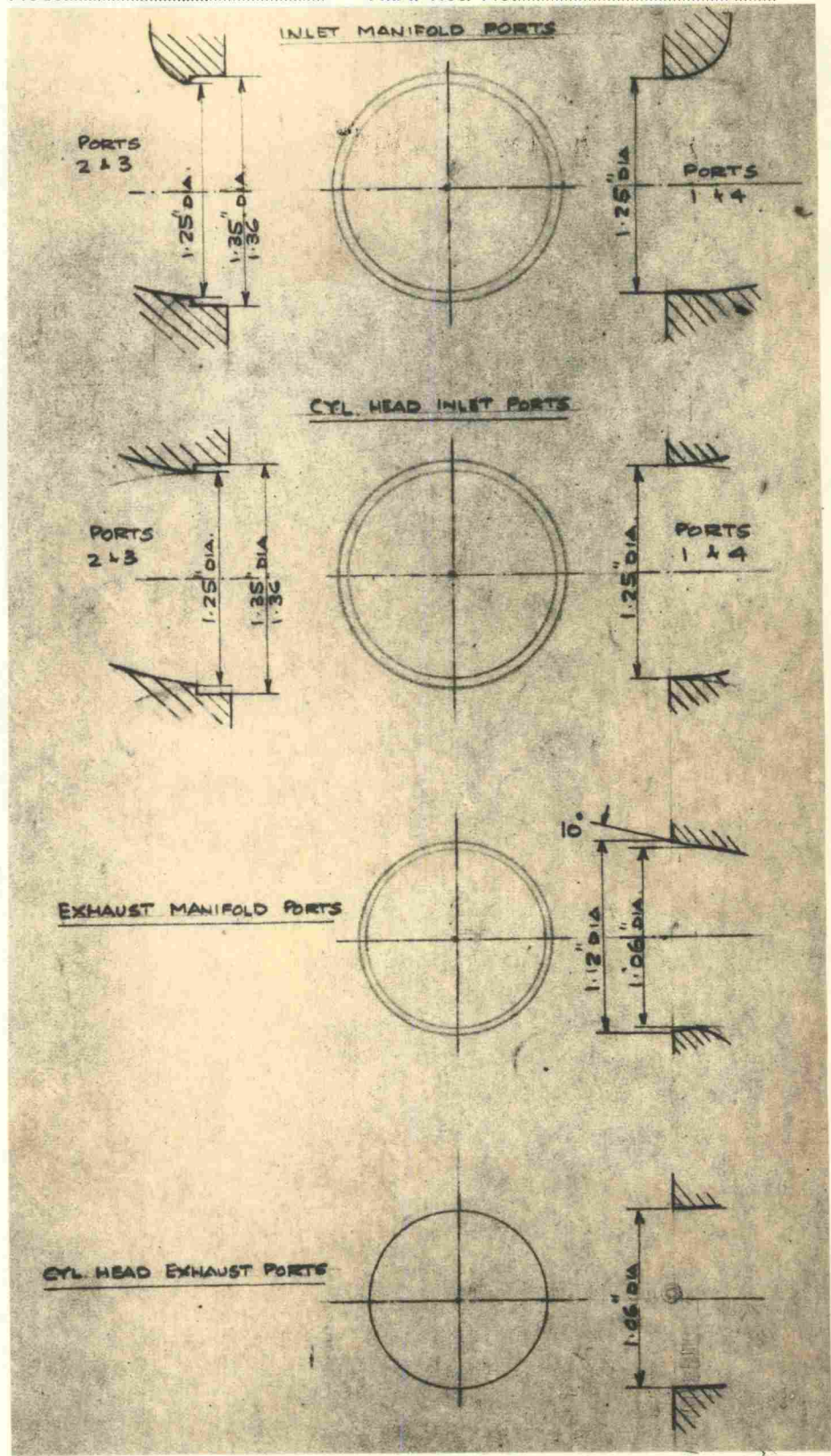


Drawing inlet manifold ports, side of cylinderhead. Indicate scale or dimensions and manufacturing tolerance.

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.

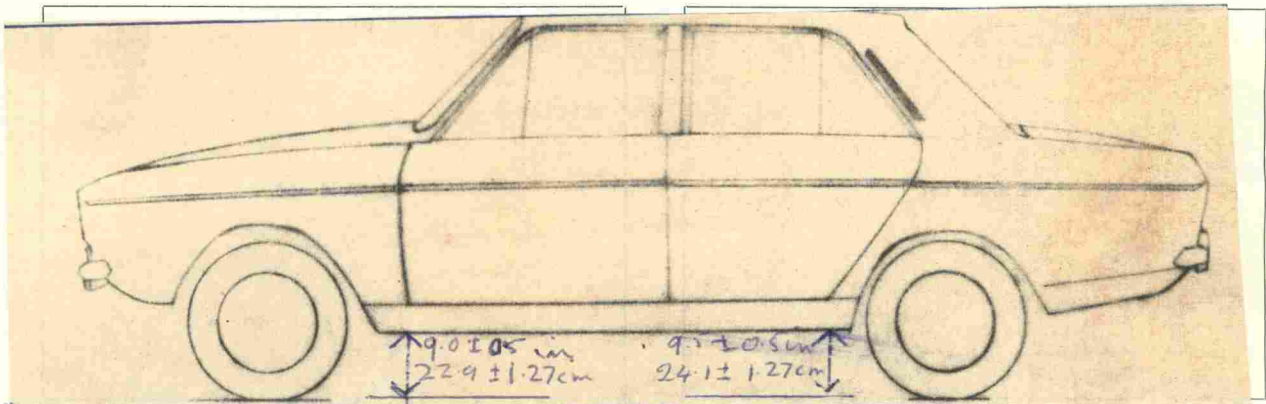


**NOTE 1.**

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

**CAPACITIES AND DIMENSIONS**

- |                |             |     |          |        |
|----------------|-------------|-----|----------|--------|
| 1. Wheelbase   | 2502        | mm. | 98.5     | inches |
| 2. Front track |             |     |          |        |
|                | 1321 ± 12.7 | mm. | 52 ± 0.5 | inches |
| 3. Rear track  |             |     |          |        |
|                | 1321 ± 12.7 | mm. | 52 ± 0.5 | inches |



- |   |       |       |      |            |
|---|-------|-------|------|------------|
| 4. Overall length of the car                | 4267  | cm.   | 168  | inches     |
| 5. Overall width of the car                 | 161.3 | cm.   | 63.5 | inches     |
| 6. Overall height of the car                | 142.2 | cm.   | 56   | inches     |
| 7. Capacity of fuel tank (reserve included) |       |       |      |            |
|   | 45    | ltrs. | 12   | gall. U.S. |
|   |       |       |      | 10         |
|   |       |       |      | gall. Imp. |

8. Seating Capacity. 4/5

9. Weight. Total weight of the car with normal equipment, water, oil, and spare wheel but without fuel or repair tools :

894	kg.	1970	lbs.	17.59	cwts.
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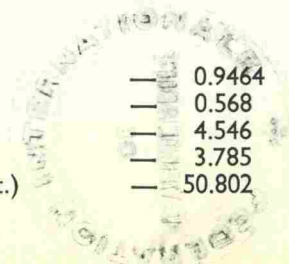
**NOTE 2.**

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. <sup>2</sup>	1 gallon Imp.	— 4.546	ltrs.
1 cubic inch/pouce cube	— 16.387	cm. <sup>3</sup>	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 4 Material(s) Steel
- 25. Material(s) of bonnet Steel
- 26. Material(s) of boot lid Steel
- 27. Material(s) of rear-window Safety glass
- 28. Material(s) of windscreen Safety glass
- 29. Material(s) of front-door windows Safety glass
- 30. Material(s) of rear-door windows Safety glass
- 31. Sliding system of door windows Vertical winding
- 32. Material(s) of rear-quarter light Safety glass

**ACCESSORIES AND UPHOLSTERY**

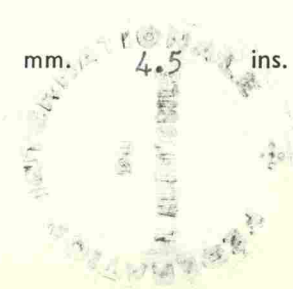
- 38. Interior heating : yes — ~~no~~
- 39. Air conditioning : ~~yes~~ — no
- 40. Ventilation : yes — ~~no~~
- 41. Front seats, type of seat and upholstery Ambla
- 42. Weight of front seat(s), complete with supports and rails, out of the car : plastic foam underlay  
(One seat) 10.66kg. 23.5 lbs.
- 43. Rear seats, type of seat and upholstery Ambla, plastic foam underlay
- 44. Front bumper, material(s) Steel Weight 2.5 kg. 5.5 lbs.
- 45. Rear bumper, material(s) Steel Weight 2.54 kg. 5.609 lbs.

**WHEELS**

- 50. Type Pressed steel ventilated disc
- 51. Weight (per wheel, without tyre) 5.9 kg. 13 lbs.
- 52. Method of attachment 4 stud
- 53. Rim diameter 330.2 mm. 13 ins. 54. Rim width 114.3 mm. 4.5 ins.

**STEERING**

- 60. Type Recirculating ball
- 61. Servo-assistance : ~~yes~~ — no
- 62. Number of turns of steering wheel from lock to lock 3.3
- 63. In case of servo-assistance -



**SUSPENSION**

- 70. Front suspension (photograph D), type Independent Armstrong strut
- 71. Type of spring Coil
- 72. Stabiliser (if fitted) Bar and brake reaction rod
- 73. Number of shock absorbers 2      74. Type Telescopic
- 78. Rear suspension (photograph E), type Rigid axle
- 79. Type of spring b Semi elliptic leaf
- 80. Stabiliser (if fitted) Nil
- 81. Number of shock absorbers 2      82. Type Telescopic

**BRAKES** (photographs F and G)

- 90. Method of operation Hydraulic
- 91. Servo-assistance (if fitted), type -
- 92. Number of hydraulic master cylinders 1

	FRONT		REAR	
93. Number of cylinders per wheel	2		1	
94. Bore of wheel cylinder(s)	53.98 mm.	2.125 inches	19.05 mm.	0.75 inches

**Drum Brakes**

95. Inside diameter	mm.	inches	228.6 mm.	9 inches
96. Length of brake linings	mm.	inches	219 mm.	8.62 inches
97. Width of brake linings	mm.	inches	43.68 mm.	1.72 inches
98. Number of shoes per brake			2	
99. Total area per brake	mm. <sup>2</sup>	sq. in.	17967.7 mm. <sup>2</sup>	27.85 sq. in.

**Disc Brakes**

100. Outside diameter	243.84 mm.	9.6 inches	mm.	inches
101. Thickness of disc	8.64 - 8.89 mm.	0.34 - 0.35 inches	mm.	inches
102. Length of brake linings (Tapered)	66.55 mm.	2.62 inches	mm.	inches
103. Width of brake linings	46.5 mm.	1.83 inches	mm.	inches
104. Number of pads per brake		2		
105. Total area per brake	5032 mm. <sup>2</sup>	7.8 sq. in.	mm. <sup>2</sup>	sq. in.

**ENGINE** (photographs J and K)

- |   |                         |   |                                     |
|---|-------------------------|---|-------------------------------------|
| 130. Cycle  | 4 stroke                | 131. Number of cylinders                | 4                                   |
| 132. Cylinder Arrangement   | In line inclined at 10° |   |                                     |
| 133. Bore   | 81.5 mm. 3.21 in.       | 134. Stroke                             | 71.6 mm. 2.82 in.                   |
| 135. Capacity per cylinder  |                         |   | 374 cm. <sup>3</sup> 22.81 cu. in.  |
| 136. Total cylinder capacity  |                         |   | 1496 cm. <sup>3</sup> 91.26 cu. in. |
| 137. Material(s) of cylinder block  | Cast iron               | 138. Material(s) of sleeves (if fitted) | -                                   |
| 139. Cylinder head, material(s)   | Cast iron               | Number fitted                           | 1                                   |
| 140. Number of inlet ports  | 4                       | 141. Number of exhaust ports            | 4                                   |
| 142. Compression ratio  | 8.4 : 1                 |   |                                     |
| 143. Volume of one combustion chamber (in head)                             |                         | 45 ± 1 cm. <sup>3</sup>                 | 2.746 ± 0.6 cu. in.                 |
| 144. Piston, material   | Aluminium               | 145. Number of rings                    | 3                                   |
| 146. Distance from gudgeon pin centre line to highest point of piston crown | 46.86 - 47.0 mm.        |   | 1.845 - 1.850 in.                   |
| 147. Crankshaft : moulded/ <del>stamped</del>                               |                         | 148. Type of crankshaft: integral/      | Yes                                 |
| 149. Number of crankshaft main bearings                                     |                         |   | 5                                   |
| 150. Material of bearing cap  |                         |   | Cast iron                           |
| 151. System of lubrication : <del>dry sump</del> /oil in sump               |                         |   |                                     |
| 152. Capacity, lubricant  | 3.7 ltrs. 6.5 pts.      | 3.9 quarts U.S.                         | Without filter, 7.5 pints with      |
| 153. Oil cooler : <del>yes</del> /no  |                         | 154. Method of engine cooling           | Water                               |
| 155. Capacity of cooling system   | 7.1 ltrs. 12.6 pts.     |   | 7.56 quarts U.S.                    |
| 156. Cooling fan (if fitted) dia.   |                         |   | 37.0 cm. 14.5 in.                   |
| 157. Number of blades of cooling fan  | 4                       |   |                                     |

**Bearings**

- |                                   |       |      |           |           |
|-----------------------------------|-------|------|-----------|-----------|
| 158. Crankshaft main, type        | Shell | dia. | 60.3 m.m. | 2.374 in. |
| 159. Connecting rod big end, type | Shell | dia. | 54.0 m.m. | 2.126 in. |

**Weights**

- |   |                   |                     |                     |
|---|-------------------|---------------------|---------------------|
| 160. Flywheel (clean)                         |                   | 10.036 kg.          | 22.125 lbs.         |
| 161. Flywheel with clutch (all turning parts) |                   | 14.72 kg.           | 32.448 lbs.         |
| 162. Crankshaft                               | 14.97 kg. 33 lbs. | 163. Connecting rod | 0.75 kg. 1.653 lbs. |
| 164. Piston with rings and pin                |                   | 0.626 kg.           | 1.379 lbs.          |

Top limit



**FOUR STROKE ENGINES**

170. Number of camshafts 1 171. Location Right hand side of crankcase  
 172. Type of camshaft drive Single stage duplex chain  
 173. Type of valve operation Pushrod and rocker

**INLET** (see page 4)\*

180. Material(s) of inlet manifold Aluminium  
 181. Diameter of valves (valve head) 36.4 mm. 1.434 ins.  
 182. Max. valve lift 8.43 mm. 0.332 in. 183. Number of valve springs 1  
 184. Type of spring Coil 185. Number of valves per cylinder 1  
 186. Tappet clearance for checking timing (~~cold~~) hot 0.305 mm. 0.012 ins.  
 187. Valves open at (with tolerance for tappet clearance indicated) 0.015 in 14° B.T.D.C.  
 188. Valves close at (with tolerance for tappet clearance indicated) 0.015 in 41° A.B.D.C.  
 189. Air filter, type Paper element

**EXHAUST** (see page 4)\*

195. Material(s) of exhaust manifold Cast Iron  
 196. Diameter of valves (valve head) 29.81 mm. 1.174 ins.  
 197. Max. valve lift 8.43 mm. 0.332 in. 198. Number of valve springs 1  
 199. Type of spring Coil 200. Number of valves per cylinder 1  
 201. Tappet clearance for checking timing (~~cold~~) hot 0.356 mm. 0.014 ins.  
 202. Valves open at (with tolerance for tappet clearance indicated) 0.015 in 50° B.B.D.C.  
 203. Valves close at (with tolerance for tappet clearance indicated) 0.015 in 5° A.T.D.C.

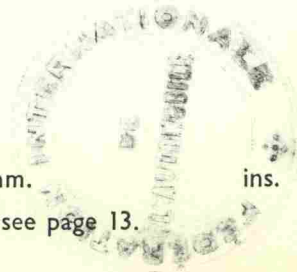
**CARBURETION** (photograph N)

210. Number of carburettors fitted 1 211. Type Horizontal  
 212. Make Zenith Stromberg 213. Model C.D.S. 150  
 214. Number of mixture passages per carburettor 1  
 215. Flange hole diameter of exit port(s) of carburettor 38.1 mm. 1.5 ins.  
 216. Minimum diameter of venturi/minimum diam., with piston at maximum height (example : SU)  
 Nominal piston lift 25.4 mm. 1.0 ins.

**INJECTION** (if fitted)

- Nil  
 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.

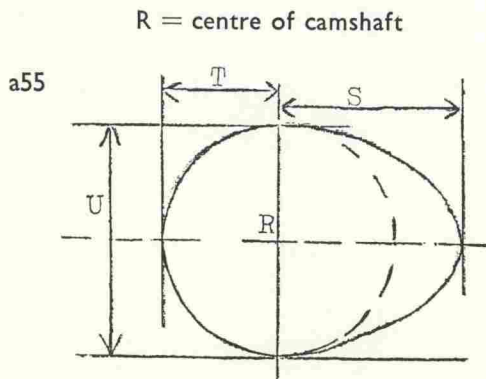


**ENGINE ACCESSORIES**

- 230. Fuel pump : mechanical ~~and/or electrical~~
- 231. No. fitted 1
- 232. Type of ignition system Coil
- 233. No. of distributors 1
- 234. No. of ignition coils 1
- 235. No. of spark plugs per cylinder 1
- 236. Generator, type : dynamo/~~alternator~~—number fitted 1
- 237. Method of drive Belt
- 238. Voltage of generator 12 volts
- 239. Battery, number 1
- 240. Location Engine compartment
- 241. Voltage of battery 12 volts

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

- 250. Max. engine output 80 (type of horsepower: B.H.P. ) at 4,800 r.p.m.
- 251. Max. r.p.m. 5,500 output at that figure Not available for publication
- 252. Max. torque 86 lbs. ft. at 2,600 r.p.m.
- 253. Max. speed of the car 133 km./hour 83 miles/hour



**Inlet cam**

S =	21.08 mm.	.830	inches
T =	14.60 mm.	.575	inches
U =	29.28 mm.	1.1528	inches

**Exhaust cam**

S =	21.08 mm.	.830	inches
T =	14.60 mm.	.575	inches
U =	29.28 mm.	1.1528	inches

Make Hillman/Singer

Model Minx/Gazelle

F.I.A. Rec. No. ....

**DRIVE TRAIN**

**CLUTCH**

- 260. Type of clutch Dryplate diaphragm      261. No. of plates      1
- 262. Dia. of clutch plates      19.05    cm.      7.5    ins.
- 263. Dia. of linings, inside      13.65    cm.      5.375    ins.
- outside      19.05    cm.      7.5    ins.
- 264. Method of operating clutch      Hydraulic

**GEAR BOX** (photograph H)

- 270. Manual type, make      Rootes      Method of operation      Manual
- 271. No. of gear-box ratios forward      4      272. Synchronized forward ratios      4
- 273. Location of gear-shift      Centre 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	3.353	37 16						
2	2.141	31 21						
3	1.392	24 25						
4	1.0	20 29						
5								
6								
reverse	3.569	32 13						

- 278. Overdrive, type      None
- 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 gear
- 292. Type of limited slip differential (if fitted)      -
- 293. Final drive ratio      3.89 : 1      Number of teeth      35 / 9



Make Hillman/Singer Model Minx/Gazelle F.I.A. Rec. No. ....

**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.

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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.....

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





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

Manufacturer Rootes Motors Ltd.  
Model Hillman Minx/Singer Gazelle  
F.I.A. Recognition No. 5231  
Amendment No. 1/IV

Amendment to Form of Recognition

**FEDERATION INTERNATIONALE DE L'AUTOMOBILE**

No. | Reference No.

VARIANT - SINGER GAZELLE

Identical in every way with Hillman Minx described in the foregoing Form of Recognition apart from minor differences in trim and exterior mouldings.

Photograph A,  $\frac{3}{4}$  view of car from front



Date amendment is valid from

*1st May '68*  
*Dist 1968/6*

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

*Robert [Signature]*



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

Manufacturer Rootes Motors Ltd.  
Model Hillman Minx/Singer Gazelle  
F.I.A. Recognition No. 5231  
Amendment No. 2/2V

Amendment to Form of Recognition

**FEDERATION INTERNATIONALE DE L'AUTOMOBILE**

No.

Reference No.

VARIANT - SINGER GAZELLE

Photograph B,  $\frac{3}{4}$  view of car from rear



Photograph C, Interior view of car through driver's door



Date amendment is valid from

*1st May 1968*  
*List 1968/6*

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

*Hubert [Signature]*



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

Manufacturer Rootes Motors Ltd.

Model Hillman Minx/Singer Gazelle

F.I.A. Recognition No. 5231

Amendment No. 3/3V

*Amendment to Form of Recognition*

**FEDERATION INTERNATIONALE DE L'AUTOMOBILE**

No.

Reference No.

VARIANT - SINGER GAZELLE

9      Weight      Total weight of car with normal equipment, water, oil,  
and spare wheel, but without fuel or repair tools.  
  
883 kgs.      1945 lbs.      17.36 cwts.

FURTHER VARIANTS

Title      Both the Hillman Minx and Singer Gazelle are marketed in  
certain export territories under the name of 'Sunbeam'.

Date amendment is valid from

*1st May 1968*  
*with 1968/6*

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

*Hubert Johnson*





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

Manufacturer Rootes Motors Ltd.  
Model Hillman Minx/Singer Gazelle  
F.I.A. Recognition No. 5231  
Amendment No. 4/4V

Amendment to Form of Recognition

FEDERATION INTERNATIONALE DE L'AUTOMOBILE

No.	Reference No.
	<u>OPTIONAL EQUIPMENT - GROUP 2</u>
7.	Long Range Fuel tank, Part No. 1241800 Capacity of tank 100.0 litres 21.9 galls. Imp. 26.6 Galls. U.S.
292	Type of limited slip differential (if fitted) Borg Warner Part No. 1241807
292	Type of limited slip differential (iffitted) Salisbury Powr Lok Part No. 1241808
60	Steering - type: Recirculating ball
61	Servo Assistance - No
62	Number of turns of steering wheel from lock to lock: 3.25
63.	In case of servo assistance: -
290	Final Drive - type: Hypoid 291. Type of differential: Bevel Gear
292	Type of limited slip differential (if fitted): Nil
293	Final drive ratio: 3.7 No. of teeth 10 - 37
290	Final Drive - type: Hypoid 291. Type of differential: Bevel Gear
292	Type of limited slip differential (if fitted): Nil
293	Final drive ratio: 4.22 No. of teeth 9 - 38
290	Final Drive - type: Hypoid 291. Type of differential: Bevel Gear
292	Type of limited slip differential (if fitted): Nil
293	Final drive ratio: 4.86 No. of teeth 7 - 34

Date amendment is valid from 1st of May 1968  
with 1968/6

Stamp of F.I.A./R.A.C.  
*Hubert [Signature]*