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F.I.A. Recognition No. 1401

# CONFEDERATION OF AUSTRALIAN MOTOR SPORT

(Authorised to control the sport of Automobilmism in the Commonwealth of Australia.)

## Federation Internationale de l'Automobile.

Form of Recognition in accordance with  
Appendix J to the  
International Sporting Code.

Manufacturer GENERAL MOTORS-HOLDEN'S PTY. LIMITED.

Model HOLDEN 'HD' PASSENGER CARS Year of Manufacture 1965

Serial No. of Chassis .....

Engine .....

Type of Coachwork INTEGRAL BODY & CHASSIS 4-DOOR, WITH LUGGAGE COMPARTMENT

Recognition is valid from 1st October 1965 In category Touring

- HD/215M Standard Sedan (Manual Transmission)
- HD/225M Special Sedan (Manual Transmission)
- HD/225A Special Sedan (Automatic Transmission)
- HD/235M Premier Sedan (Manual Transmission)
- HD/235A Premier Sedan (Automatic Transmission)



Stamp of F.I.A. to be  
affixed here.

*Hubert Johnston*

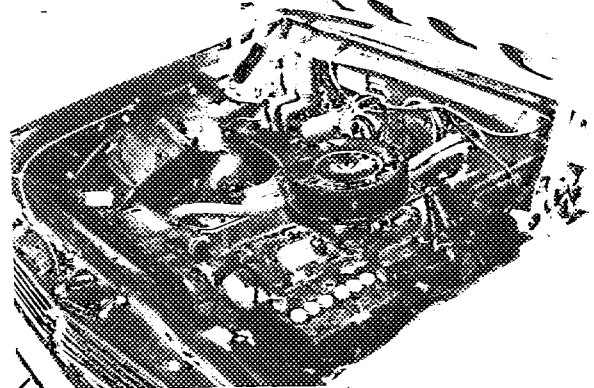
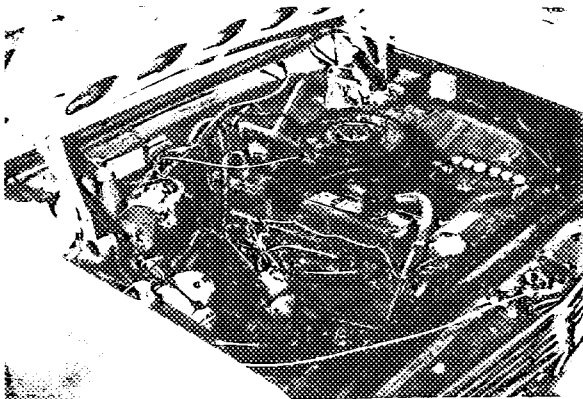
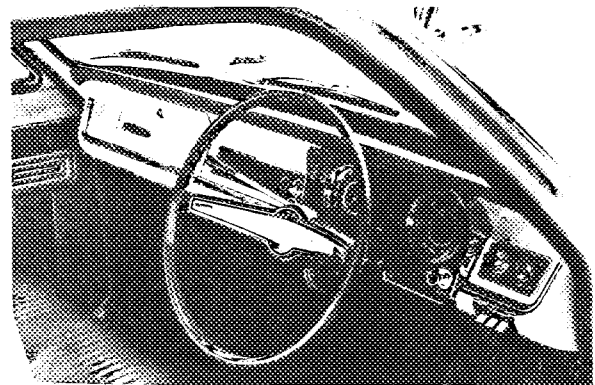
### C O N T E N T S

Sheets : 1, 2, 2A, 3, 3A, 3B,  
4, 4A, 5, 6, 7. and 8.

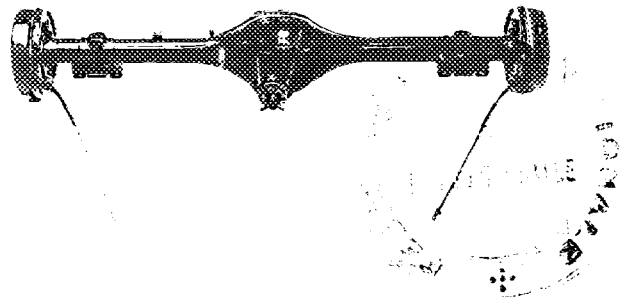
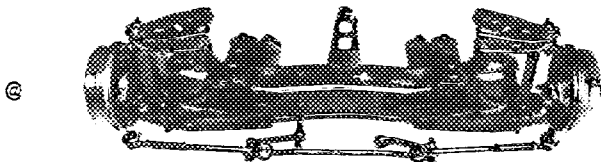


General description of car: specifying materials of coachwork

Photographs to be affixed below.



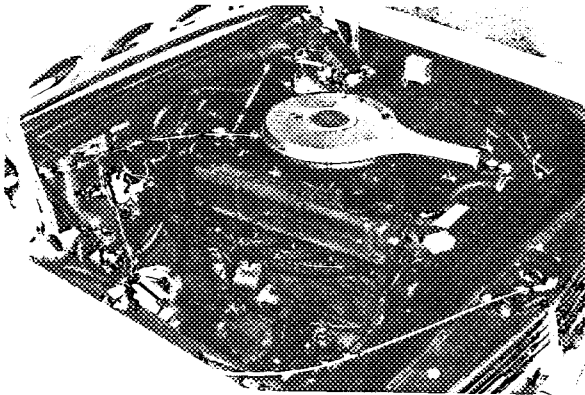
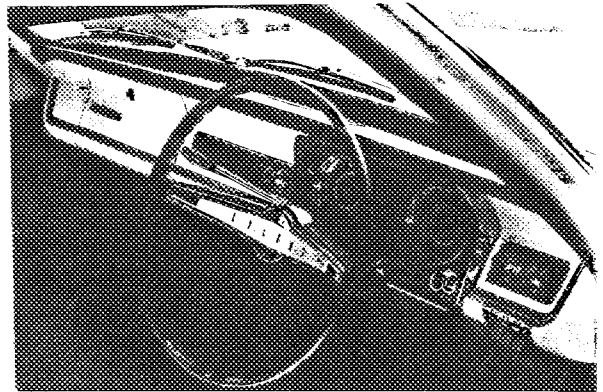
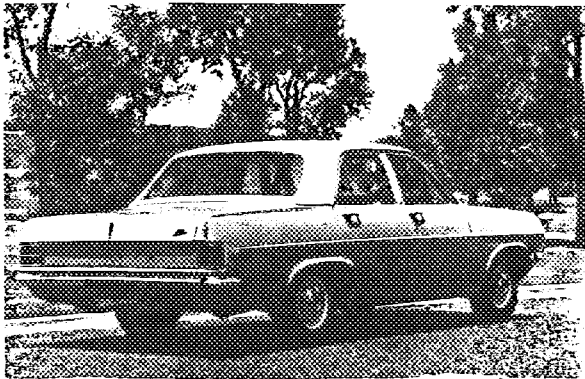
Front axle complete (without wheels).



© Information revised.

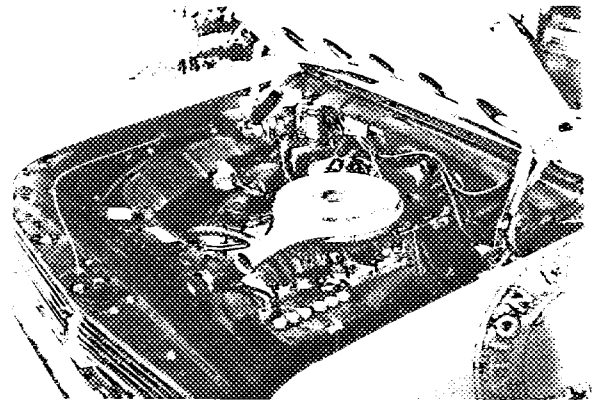
General description of car: specifying materials of coachwork

Photographs to be affixed below.



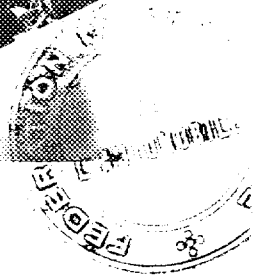
*Front axle complete (without wheels).*

Same as  
Standard Models.



*Rear axle complete (without wheels).*

Same as  
Standard Models.



179 cu.in. Engine - Standard on HD/235 Models  
 - Optional on HD/215 & 225 Models.

**ENGINE**

In line Yes  
 No. of cylinders 6 in V -  
 opposed -  
 Cycle 4-stroke (Otto cycle) Firing order 1-5-3-6-2-4  
 Capacity 2930 c.c. Bore 90.50 m.m. Stroke 76.2 m.m.  
 Maximum rebore 91.52 Resultant capacity 3007 c.c.  
 Material of cylinder block Cast Iron Material of sleeves, if fitted -  
 Distance from crankshaft centre line to top face of block at centre line of cylinders 217.705 (Nom) m.m.  
 Material of cylinder head Cast Iron Volume of one combustion chamber 53.544 ± 1 c.c.  
 Compression ratio 8.8 to 1  
 Material of piston Aluminium Alloy No. of piston rings Three  
 Distance from gudgeon pin centre line to highest point of piston crown 45.72 m.m.  
 Bearings { Crankshaft main bearings: Type @ Dia. 55.88 m.m.  
 Connecting rod big end: Type @ Dia. 48.29 m.m.  
 Weights { Flywheel & Ring Gear 6 kg. 10.43  
 Crankshaft kg. 20.40  
 Connecting rod Assy & Nuts & Bolts kg. 0.49  
 Piston with rings kg.) 0.65  
 Gudgeon pin kg.)  
 No. of valves per cylinder Two Method of valve operation Push rods & rocker arm  
 No. of camshafts One Location of camshafts Crank case at top RH Side  
 Type of camshaft drive Gear  
 Diameter of valves: Inlet 37.92 (Nom.) m.m. Exhaust 32.41 (Nom.) m.m.  
 Diameter of port at valve seat: Inlet 34.80 (Nom.) m.m. Exhaust 28.22 (Nom.) m.m.  
 Tappet clearance for checking timing: Inlet Zero m.m. Exhaust Zero m.m.  
 Valves open: Inlet \* 15°BTC % 35°BTC Exhaust \*50°BBC % 70°BBC  
 Valves close: Inlet \* 45°ABC % 75°ABC Exhaust \*10°ATC % 40°ATC  
 Maximum valve lift: Inlet 8.585 m.m. Exhaust 8.585 m.m.  
 Degrees of crankshaft rotation from zero to—  
 Maximum lift: Inlet 105° Exhaust 250°  
 1/2 Maximum lift: Inlet 57° Exhaust 202°  
 Valve springs: Inlet Exhaust  
 Type Coil Coil  
 No. per valve One One  
 Carburettor: Type Downdraft No. fitted One  
 (up or down draft, horizontal)  
 Make BENDIX-STROMBERG Model BXV-2  
 Flange hole diameter 36.58 m.m. Choke diameter 29.36 m.m.  
 Main jet identification No. .058 ⊗



3  
 ⊕ 'M' Models only. % With ramps.  
 \* Without ramps.

⊗ Jet sizes subject to variation by carburettor manufacturer to meet Holden flow curve requirements.

⊗ Trimetal - lead base babbitt on coppernickel matrix sintered to steel back. Precision Removable.

149 cu.in. Engine - Standard on HD/215 & HD/225 Models.

**ENGINE**

In line Yes  
 No. of cylinders 6 in V -  
 opposed -  
 Cycle 4-Stroke (Otto cycle) Firing order 1-5-3-6-2-4  
 Capacity 2440 c.c. Bore 82.55 m.m. Stroke 76.2 m.m.  
 Maximum rebore 83.56 Resultant capacity 2507 c.c.  
 Material of cylinder block Cast Iron Material of sleeves, if fitted -  
 Distance from crankshaft centre line to top face of block at centre line of cylinders 217.705 (Nom.) m.m.  
 Material of cylinder head Cast Iron Volume of one combustion chamber 45.37 ± 1 c.c. (8.8:1)  
 Compression ratio 8.8:1 Standard 7.7:1 Optional. 53.544 ± 1 (7.7:1)  
 Material of piston Aluminium Alloy No. of piston rings 3  
 Distance from gudgeon pin centre line to highest point of piston crown 45.72 m.m.  
 Bearings { Crankshaft main bearings: Type @ Dia. 55.88 m.m.  
 Connecting rod big end: Type @ Dia. 48.29 m.m.  
 Weights { Flywheel & Ring Gear 6 kg. 10.43  
 Crankshaft kg. 20.40  
 Connecting rod Assy & Nuts & Bolts kg. 0.49  
 Piston with rings kg.) 0.548  
 Gudgeon pin kg.)  
 No. of valves per cylinder Two Method of valve operation Push rods & rocker arm  
 No. of camshafts One Location of camshafts Crankcase @ top RH Side.  
 Type of camshaft drive Gear  
 Diameter of valves: Inlet 37.92 (Nom.) m.m. Exhaust 32.41 (Nom.) m.m.  
 Diameter of port at valve seat: Inlet 34.80 (Nom.) m.m. Exhaust 28.22 (Nom.) m.m.  
 Tappet clearance for checking timing: Inlet Zero m.m. Exhaust Zero m.m.  
 Valves open: Inlet \*15° BTC % 35° BTC Exhaust \*50° BBC % 70° BBC  
 Valves close: Inlet \*45° ABC % 75° ABC Exhaust \*10° ATC % 40° ATC  
 Maximum valve lift: Inlet 8.585 m.m. Exhaust 8.585 m.m.  
 Degrees of crankshaft rotation from zero to—  
 Maximum lift: Inlet 105° Exhaust 250°  
 1/2 Maximum lift: Inlet 57° Exhaust 202°  
 Valve springs: Inlet Coil Exhaust Coil  
 Type Coil Coil  
 No. per valve One One  
 Carburettor: Type Downdraft No. fitted One  
 (up or down draft, horizontal)

Make BENDIX-STROMBERG Model BXUV-2  
 Flange hole diameter 33.27 m.m. Choke diameter 27.79 m.m.

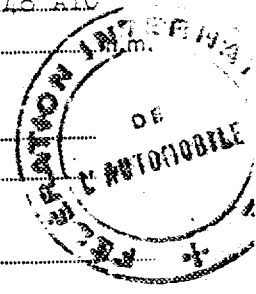
Main jet identification No. 055 <sup>III</sup> Jet sizes subject to variation by carburettor manufacturer to meet Holden flow curve requirements.  
 \* Without ramps, (3A)  
 % With ramps,  
 6 'M' Models only.  
 @ Trimetal - lead base babbitt on coppernickel matrix sintered to steel back.  
 Precision Removable.



'X2' ENGINE - Optional on HD/225 & HD/235 Models.

ENGINE

in line Yes  
 No. of cylinders 6 in V -  
 opposed -  
 Cycle 4-Stroke (Otto cycle) Firing order 1-5-3-6-2-4  
 Capacity 2930 c.c. Bore 90.50 m.m. Stroke 76.2 m.m.  
 Maximum rebore 91.52 Resultant capacity 3007 c.c.  
 Material of cylinder block Cast Iron Material of sleeves, if fitted -  
 Distance from crankshaft centre line to top face of block at centre line of cylinders 217.705 (Nom.) m.m.  
 Material of cylinder head Cast Iron Volume of one combustion chamber 53.544<sup>±1</sup> c.c.  
 Compression ratio 8.8:1  
 Material of piston Aluminium Alloy No. of piston rings Three  
 Distance from gudgeon pin centre line to highest point of piston crown 45.72 m.m.  
 Bearings { Crankshaft main bearings: Type @ Dia. 55.88 m.m.  
 Connecting rod big end: Type @ Dia. 48.29 m.m.  
 Weights { Flywheel & Ring Gear X kg. 10.43  
 Crankshaft kg. 20.40  
 Connecting rod Assy & Nuts & Bolts kg. 0.49  
 Piston with rings (kg.) 0.65  
 Gudgeon pin (kg.) 0.65  
 No. of valves per cylinder Two Method of valve operation Push rods & rocker arm  
 No. of camshafts One Location of camshafts Crankcase @ top RH Side  
 Type of camshaft drive Gear  
 Diameter of valves: Inlet 37.92 (Nom.) m.m. Exhaust 32.41 (Nom.) m.m.  
 Diameter of port at valve seat: Inlet 34.80 (Nom.) m.m. Exhaust 28.22 (Nom.) m.m.  
 Tappet clearance for checking timing: Inlet Zero m.m. Exhaust Zero m.m.  
 Valves open: Inlet \*23° BTC % 43° BTC Exhaust \*58° BDC % 78° BDC  
 Valves close: Inlet \*53° ABC % 83° ABC Exhaust \*16° ATC % 18° ATC  
 Maximum valve lift: Inlet 8.585 m.m. Exhaust 8.585 m.m.  
 Degrees of crankshaft rotation from zero to—  
 Maximum lift: Inlet 105° Exhaust 250°  
 ½ Maximum lift: Inlet 48° Exhaust 193°  
 Valve springs: Inlet Exhaust  
 Type Coil Coil  
 No. per valve One One  
 Carburettor: Type Downdraft No. fitted Two  
 (up or down draft, horizontal)  
 Make BENDIX-STROMBERG Model BXIV-2  
 Flange hole diameter 33.27 m.m. Choke diameter 27.79 m.m.  
 Main jet identification No. 055<sup>b</sup>



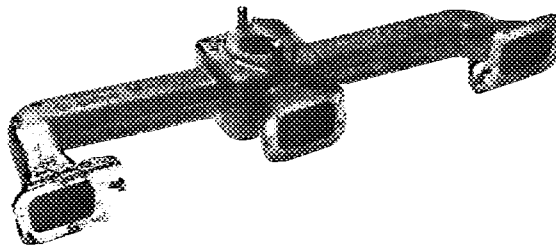
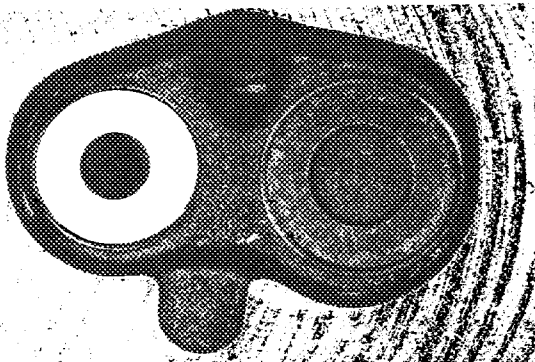
X 'M' Models only.  
 \* Without ramps.  
 % With ramps.

(3 B) <sup>b</sup> Jet sizes subject to variation by carburettor manufacturer to meet Holden flow curve requirements.

@ Composite bearing material incorporating aluminium bearing alloy bonded to Steel & electroplated with high lead base babbitt. Precision Removable.

149 cu.in. & 179 cu.in. Engines

Air filter: Type Fluid treated paper element. No. fitted One  
 Inlet manifold: 36.373 (179 cu.in. Engine)  
 Diameter of flange hole at carburettor 33.528 (149 cu.in. Engine) m.m.  
 Diameter of flange hole at port Length 52.832 x width 35.052. Radius corners 9.144

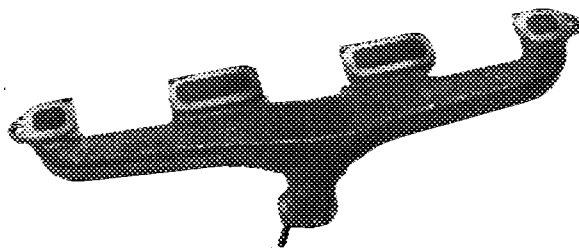


SHAPE AND SIZE OF PORT

Ports Each End	33.528x36.068 with Radius Corners 11.176	Centre Ports (2)	52.832 x 35.528 with Radius Corners 11.176 m.m.
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Exhaust manifold:

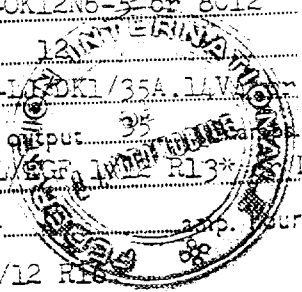
Diameter of flange hole at port 11.656 (Cast) m.m.  
 Diameter of flange hole at connection to silencer inlet pipe 11.656 (Cast) m.m.



**ENGINE ACCESSORIES**

Make of fuel pump AC No. fitted One  
 Method of operation Driven from Camshaft  
 Type of ignition system Coil coil or magneto  
 Make of ignition Distributor Bosch or Lucas Model U-ZV/PDU6R1 or 2936  
 Method of advance and retard Vacuum and Centrifugal  
 Make of ignition coil Bosch or Lucas Model U-OK12N6-5 or 8012  
 No. of ignition coils One Voltage 12  
 Make of dynamo Bosch or Lucas Model U-1/2DK1/35A.11V 11AC  
 Voltage of dynamo 11 (Mean) Maximum output 35  
 Make of starter motor Bosch or Lucas Model AL/EGF 1/12 R13\* 11AC  
 Battery: No. fitted One Voltage 12 Capacity 20 amp. hour

4 \* L.D. AL/EGF 1/12 R13

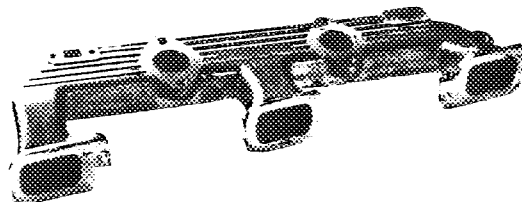


'X2' Engine

Air filter: Type Oil wetted polyurethane element. No. fitted One  $\emptyset$

Inlet manifold:  
 Diameter of flange hole at carburettor 33.528 m.m.  
 Diameter of flange hole at port Length 54.332 x width 35.032 Radius Corners 9.144 m.m.

Photograph of combustion chamber to be affixed here.

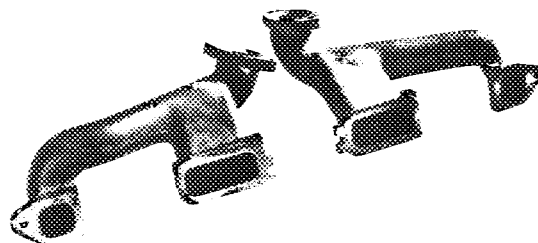


Same as 149 cu.in. Engine.

SHAPE AND SIZE OF PORT

Exhaust manifold: Front & rear	Ports each	33.528 x 36.068 with Radius	Inner Ports (2)	84.328 x 33.528 with Radius
	end	Corners 11.176		Corners 11.176 m.m.
Diameter of flange hole at port				
Diameter of flange hole at connection to silencer inlet pipe		41.656 (Cast) m.m.		

Photograph of piston showing crown to be affixed here.



Same as 149 cu.in. Engine.

ENGINE ACCESSORIES

Make of fuel pump A.C. No. fitted One  
 Method of operation Driven From Camshaft  
 Type of ignition system Coil coil or magneto  
 Make of ignition Distributor Bosch Model U-ZV/PDU6R2 MS  
 Method of advance and retard Vacuum and Centrifugal  
 Make of ignition coil Bosch or Lucas Model U-OK12N6-5 or 8012  
 No. of ignition coils One Voltage 12  
 Make of dynamo Bosch or Lucas Model U-LJ/DK1/35A.14V4 11AC  
 Voltage of dynamo 14 (Mean) Maximum output 30E amps.  
 Make of starter motor Bosch or Lucas Model AL/EG12/12 or 12 R46  
 Battery: No. fitted One Voltage 12 Capacity 4A amp. hours  
 \* L.D. AL/EG12 R46

$\emptyset$  Single unit with twin adaptors.



Make HOLDEN Model 'HD' F.I.A. Recognition No. \_\_\_\_\_  
 Manufacturers Reference No. of Application \_\_\_\_\_

**TRANSMISSION**

Make of clutch Own Type Diaphragm Spring Dry Plate  
 Diameter of clutch plate 21.89 C.M. No. of plates One  
 Method of operating clutch Hydraulic Linkage  
 Make of gearbox Own (Man.) Powerglide (Auto) Type \* 3-Speed synchro mesh (Man.)  
 No. of gearbox ratios Man - 3 Forward, 1 reverse Auto - 2 Forward, 1 Reverse.  
 Method of operating gearshift Remote - Manual Shift Lever  
 Location of gearshift Mounted on Steering Column  
 Is overdrive fitted? No  
 Method of controlling overdrive, if fitted \_\_\_\_\_

	GEARBOX RATIOS		Automatic Transmission		ALTERNATIVE RATIOS			
	Ratio	No. of Teeth	Ratio	No. of Teeth	Ratio	No. of Teeth	Ratio	No. of Teeth
1.	2.99	$\frac{17}{20} \times \frac{13}{33}$	Torque Multiplication Max.		overall ratio 4.50:1			
2.	1.59	$\frac{17}{20} \times \frac{17}{23}$	Low and reverse		4.50 to 1.82:1			
3.								
4.	Direct							
5.								

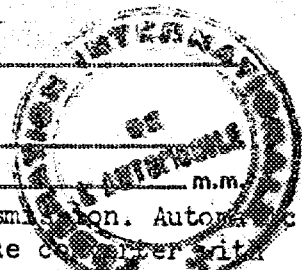
Type of final drive Spiral Hypoid  
 Type of differential Two Pinion  
 Final drive ratio 3.55:1 Alternatives Ratios Optional to each other  
 No. of teeth 3.55:1 - 39 Ring Gear 11 Pinion 3.36:1 - 37 Ring Gear 11 Pinion  
 Overdrive ratio, if fitted \_\_\_\_\_

**WHEELS**

Type Short Spoke Disc Weight 5.3238 kg.  
 Method of attachment 5 Bolts 7/16 in. - 20 UNF 2A Thread  
 Rim diameter 330.2 m.m. Rim width 114.3 m.m.  
 Tyre size: Front 6.40 - 13 inch Rear 6.40 x 13 inch

**BRAKES -AND FRONT WHEEL DISC BRAKE OPTION**

Method of operation Hydraulic  
 Is servo assistance fitted? Yes on Disc Brake  
 Type of servo, if fitted Vacuum  
 No. of hydraulic master cylinders One Bore 25.4 m.m.  
 \* 3.55:1 HD/215  
HD/225  
HD/235M  
3.36:1 HD/235A  
 (Automatic Transmission. Automatic hydraulic torque converter with planetary gear system for low and reverse)



@ Information revised.

Disc Brake Option. | Standard Drum Brakes

	Front	Rear
No. of wheel cylinders	One	One
Bore of wheel cylinders	53.98	26.99 m.m.
Inside diameter of brake drums	-	228.6 (Nom) m.m.
No. of shoes per brake	Two	Two
Outside diameter of brake discs	251.0 (Nom.)	- m.m.
No. of pads per brake	2	-

Dimensions of brake linings per shoe or pad (if all shoes or pads in each brake are not of same dimensions, specify each)

	Front	Rear
Length Primary	-	205.7 m.m.
Secondary	-	231.3 m.m.
Width	-	56.64/57.40 m.m.
Total area per brake	6451.6	24920.1 m.m. <sup>2</sup>

**SUSPENSION**

	Front	Rear
Type	Independant, Ball Joint Short & Long Arm	Hotchkiss-Rigid Rear Axle
Type of spring	Coil	Semi-Elliptic
Is stabiliser fitted?	Yes	No
Type of shock absorber	Direct Acting	Direct Acting
No. of shock absorbers	Two	Two

**STEERING**

Type of steering gear Recirculating Ball  
 Turning circle of car 11.125 m., approx.  
 No. of turns of steering wheel from lock to lock 3.28

**CAPACITIES AND DIMENSIONS**

Fuel tank 52.3 litres Sump 3.4 litres  
 Radiator 4 litres  
 Overall length of car 420.9 cm. Overall width of car 177.8 cm.  
 Overall height of car, untidened (with hood up, if appropriate) 145.0 cm.  
 Distance from front to top of windscreen:  
 Highest point 92.9 cm. Lowest point 99.1 cm.

Width of windscreen:  
 Maximum width 145.6 cm. Minimum width 127 cm.

\*Interior width of car 146.7 cm.

No. of seats 6

Track: Front 136.9 cm. Rear 138.4 cm.

Wheelbase 269.2 cm. Ground clearance 185.4 cm.

\* (To be measured at the immediate rear of the steering wheel, and the width quoted to be maintained in a vertical plane of not less than 25 cms.)

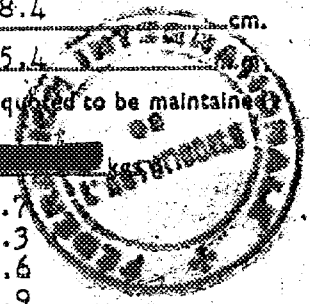
Overall weight with water, oil and spare wheel, but without fuel

HD/215M)	8.75	6 @ HD/215M	1140.7
HD/225M)		@ HD/225M	1144.3
HD/225A	8.52	@ HD/225A	1161.6
HD/235A	9.43	@ HD/235M	1177.9
HD/235M	9.66	@ HD/235A	1195.1

Information revised. / 14.29 m.m. with Disc Brake Option.

106  
254/20920

538  
254/1369  
11270  
99262 2080



**Additional information for cars fitted with two-cycle engines**

System of cylinder scavenging.....

Type of lubrication.....

**Size of Inlet port:**

Length measured around cylinder wall.....m.m.

Height.....m.m. Area.....m.m.<sup>2</sup>

**Size of exhaust port:**

Length measured around cylinder wall.....m.m.

Height.....m.m. Area.....m.m.<sup>2</sup>

**Size of transfer port:**

Length measured around cylinder wall.....m.m.

Height.....m.m. Area.....m.m.<sup>2</sup>

**Size of piston port:**

Length measured around piston.....m.m.

Height.....m.m. Area.....m.m.<sup>2</sup>

Method of pre-compression.....

Bore and stroke of pre-compression cylinder, if fitted.....m.m.

Distance from top of cylinder block to lowest point of inlet port.....m.m.

Distance from top of cylinder block to highest point of exhaust port.....m.m.

Distance from top of cylinder block to highest point of transfer port.....m.m.

Drawing of cylinder ports.

**Supercharger, if fitted**

Make..... Model or Type No.....

Type of drive..... Ratio of drive.....

**Fuel injection, if fitted**

Make of pump..... Model or Type No.....

Make of injectors..... Model or Type No.....

Location of injectors.....

M