

AUSTIN-HEALEY '100 S'
SPECIFICATIONS

Engine: Bore 5.4375 in. (87.3mm.); stroke 4.375 in. (111.1 mm.); capacity 162.2 cu. in. (2660 c.c.); b.h.p. 132 at 4,700 r.p.m.; maximum torque 168 lb. ft. at 2,500 r.p.m.; compression ratio 8.3:1; maximum B.M.E.P. 157 lbs./sq./in. at 2,500 r.p.m.

Cylinders: Four cylinders cast integral with crankcase. Full length water jackets, aluminium alloy cylinder head with valve seat inserts.

Crankshaft: Forged-Steel, counterbalanced crankshaft supported in three detachable steel-backed tri-metal bearings. Crankshaft nitride hardened.

Connecting Rods: Forged-Steel with detachable steel-backed tri-metal big-end bearings. Fully floating wrist pin.

Pistons: Solid skirt type in low expansion aluminium alloy with aluminite finish. Two compression rings and one oil control ring fitted.

Camshaft: High-lift forged-steel, supported in three detachable steel-backed white-metal bearings. Cams of patented design for quiet operation. Driven by Duplex roller chain from crankshaft with oil catchers to maintain chain lubrication.

Valves: Overhead valves operated by push-rods. Large inlet valves of silicon chrome steel; exhaust valves "KE.965" steel designed to resist corrosion from leaded fuels.

Lubrication: Pressure gear pump forces oil to all main, big-end, camshaft and overhead-valve rocker-shaft bearings. Holes in the big-end bearings provide for jet lubrication of the cylinder walls, and the front camshaft bearing provides a controlled feed of oil to the timing chain. Both main and big-end bearing oil feeds are of patented design which ensures longer crankshaft life. A full-flow oil cooler with renewable filter element is fitted. Oil capacity approximately 20 IMP. Pints. 24 US. Pints.

Cooling: Circulation by centrifugal type of pump. Fan-cooled pressurised radiator. Water is directed to sparking plug bosses and exhaust port walls. Cooling system capacity 20 pints (24 US Pints).

Fuel System: Fuel from a rear tank of 20 Imp. gallons (24 US. gallons) capacity is fed by two S.U. large capacity electrical pumps to twin S.U. carburettors fitted with cold air intake pipe.

Exhaust: High efficiency twin-pipe system.

Ignition: Coil and battery ignition with automatic advance and retard and additional vacuum control.

Dynamo: 12-volt fan-ventilated unit with compensated voltage control.

Starter: Operated by push-button solenoid type switch.

Clutch: Flexible dry single-plate Borg and Beck clutch is fitted, with spring cushion drive. Clutch diameter 10 in. Specially constructed for racing.

Gearbox: Four forward speeds and reverse controlled by a short central gear lever and with synchromesh engagement for top, 3rd and 2nd gears. Oil capacity 5 Imp. pints, 6 US. Pints.

Propeller Shaft: Hardy Spicer propeller shaft with needle roller bearing Universal Joints. Lubrication nipples to each joint.

Rear Axle: Spiral bevel three-quarter floating in a banjo-type casing. The pinion is carried by pre-loaded taper roller bearings. Oil capacity 2 1/2 pints (1.29 litres) Normal ratio 2.92, alternative ratios available 3.66:1, 4.125 and 2.69.

Overall Gear Ratios: 8.98, 5.57, 3.88 and 2.92 with 12.2 reverse.

Steering: Burman cam and lever steering gear. Adjustable steering wheel with aluminium alloy spokes and wooden rim.

Suspension: Front - Independent coil springs controlled by double-acting Armstrong R.X.P. hydraulic shock absorbers interconnected by an anti-roll torsion bar. Rear - Semi-elliptic springs controlled by double-acting Armstrong R.X.P. hydraulic shock absorbers and anti-sway bar.

Brakes: Dunlop disc Brakes on front and rear wheels, Handbrake operates on rear discs only.

Wheels and Tyres: Wire-spoke knock-on wheels with 5.50 x 15 Dunlop racing tyres. Quick-lift jacking points and racing jack.

Electrical: One 12-volt 38 AH battery; positive earth; built-in side - and twin tail-lamps; twin horns; Le-Mans type head-lamps. Spark plugs Champion NA.10.

Instruments: Fuel gauge; oil pressure, oil temperature and water temperature gauges; 140 m.p.h. speedometer; 0-6,000 r.p.m. tachometer.

Coachwork: Open two-seater with individual bucket seats; all - aluminium body; one piece perspex screen.

Overall Dimensions: Wheelbase 7 ft. 6 in.; track and front 4 ft. 1.5/8 in.; track at rear 4 ft. 2.3/4 in.; overall length 12 ft. 4 in.; overall width 5 ft. 0.1/2 in.; height over scuttle 2 ft. 11.7/8 in.; height over windshield 3 ft. 6 in.; ground clearance 5.1/2 in.; turning circle 35 ft.

Weight: Dry 1888 lbs. Curb Water, oil and 5 gallons petrol - 1988 lbs.

Performance Data: Piston Area 37.2 sq.in. Top Gear m.p.h. per 1,000 r.p.m. = 26.6.

ENGINE:-

Number of Cylinders	4
Bore	3.4375 in. (87.3 mm.)
Stroke	4.375 in. (111.1 mm.)
Capacity	162.2 cu. in. (2,660 c.c.)
Brake Horse Power	130 at 4,700 r.p.m.
Max. Torque	168 lb. ft. at 2,500 r.p.m.
Compression Ratio	8.4:1
Firing Order	1, 3, 4, 2
Valves	Overhead, push rod operated, double springs.
Valve Timing:	Inlet Opens
	Inlet Closes 16° B. T.D.C.
	Exhaust 50° A. B.D.C.
	Opens 45° B. B.D.C.
	Exhaust 15° A. T.D.C.
Closes	
Valve Clearance (cold)	.015. in.

LUBRICATION:-

Pump	Straight gear or rotor
Running Pressures	50/55 lbs. per sq. in.
Sump Capacity	20 Imp. pints: 14.11 U.S. pints
Filter	Full flow

FUEL SYSTEM:-

Carburettors	Twin S. U. H. 6
Pump	2 S.U. Electric
Model	LCS High Pressure
Tank Capacity	20 Imp. gal. 24 U.S. gal

COOLING SYSTEM:-

Circulation	Pump and fan
Capacity	20 Imp. pints: 24 U.S. pints

IGNITION:-

Coil	Lucas B12.
Distributor	Lucas DM2.
Contact Breaker Gap	.014 - .016 in.
Timing	6° B.T.D.C.
Sparking Plugs	NA.10
Plug Gap	.025 in.

CLUTCH:-

Make	Borg and Beck.
Type	Single dry Plate.
Diameter	10 in.
Withdrawal Bearing	Self lubricating carbon ring

GEARBOX:-

Number of Gears	.	4 forward; 1 reverse.
Gear Ratios:	1st.	3.08 (1)
	2nd.	1.91 (2)
	3rd.	1.33 (3)
	Top	Direct.
Oil Capacity		4 ½ pints; 5.35 U.S. pints

PROPELLER SHAFT:-

Make	Hardy Spicer
Type	Open shaft; needle roller brgs.

REAR AXLE:-

Type	Spiral bevel.
Oil Capacity	2¼ Imp. pints; 2.7 U.S. pints.

Overall Gear Ratios:-	1st. Gear	8.98
	2nd.Gear	5.57
	3rd. Gear	3.88
	Top Gear	2.92
	Reverse	12.2

STEERING:-

Type	Burman Cam and Lever
Ratio	12.6:1
Steering Wheel Diameter	16½ in.
Turning Circle	35 ft.0 in.
Toe-in	1/16 - 1/8 in.

SUSPENSION:-

Front	Independent: Coil Spring
Rear	Semi-elliptic leaf Spring
Shock Absorber- front & rear	Armstrong double acting hydraulic RXP.
Stabiliser - front	Anti-roll torsion bar.
- rear	Anti-sway bar.

BRAKES:-

Make	Dunlop
Type	Hydraulic Disc
Handbrake	Mechanical, rear wheels only.

WHEELS:-

Type	Wire spoked.
Hub	Knock-on cap.

TYRES:-

Size	5.50 x 15 Racing.
Pressure: front (normal)	28 lb./sq. in.
rear (normal)	32 lb./sq. in.

CHASSIS:-

Type	Integral body and frame
Frame	Box section-cross bracing

ELECTRICAL EQUIPMENT:-

Battery	1 x 12-volt positive earth
Capacity	38 amp.hr. at 10 hr. rate.
Dynamo	Lucas type C.39 PV2.
Starter	Lucas type M.418.G.
Cut-out and Regulator	Lucas type RB.106.
Fuse Unit	Lucas type SF.6.

The following table gives the relationship between Engine speed and Road speed in the various gears. these figures are based on the Dunlop 5.50 x 15 Racing tyres at 32 lbs/sq. rear pressure and 2.92 axle ratio:-

M.P.H.	<u>ROAD SPEED</u>		<u>ENGINE R.P.M.</u>	
	1st.	2nd.	.3rd.	Top.
10	1155	716	499	375
20	2310	1432	997	750
30	3465	2148	1496	1125
40	4620	2865	1995	1500
50		3581	2494	1875
60		4297	2992	2250
70		5013	3491	2625
80			3990	3000
90			4489	3375
100			4987	3750
110				4125
120				4500
130				4875
140				5250

INSTRUMENTS:-

Speedometer: Registers the vehicle speed and total mileage. the trip figures at the top of the speedometer can be set to zero by pushing up the knob at the bottom of the speedometer and turning it to the right.

Tachometer: This instrument indicates the revolutions per minute of the engine and thus assists the driver in determining the most effective engine speed range for maximum performance in any gear.

Oil Pressure Gauge: Indicates the oil pressure in the engine. It does not show the quantity of oil in the sump.

Ignition Warning Light: Glows red when the ignition is switched 'on' and fades out when the dynamo is charging the battery.

Headlight Beam Warning Light: A red light appears and when both headlights are switched on, with the two beams full ahead. the light goes out when the headlights are dipped.

Fuel Gauge: Indicates the contents of the petrol tank when the ignition is switched on. When the tank is being filled switch off to stop engine, switch on again and the needle will record the amount of fuel entering the tank.

Water Temperature Gauge: This records the temperature of the cooling water circulating the cylinder block and radiator.

Fuel Reserve Switch and Warning Light: The lower left hand switch control the switching of the pumps. Operation of the reverse pump is indicated by the green light in the centre of the panel.

Oil Temperature Gauge: Records the temperature of the oil in the sump. The oil then passes through the cooler and is delivered to the bearings at the lower temperature.

Battery Master Switch: This switch is located in the engine compartment.

FOOTCONTROL:-

Accelerator: The right pedal.

Brakes: The centre pedal which operates the hydraulic brakes on all four wheels.

Clutch: The left pedal. Do not rest the foot on this pedal when driving, and do not hold the clutch out to 'free wheel'.

Dip Switch: If the headlights are on full, a touch on the foot dip switch alters the lights to the 'dipped' position and they remain so until another touch returns them to 'full on'.

HAND CONTROLS:-

Hand Brake: Situated on the right-hand side of the propeller shaft tunnel, between the seats. To release, pull rearwards slightly and depress button, then push forward fully. Operates on rear wheels only.

Gear Lever: Should always be left in neutral when starting the engine. the lever is mounted on the left side of the gearbox. To engage a gear, depress the clutch and move the lever to the required position.

Choke Control: Located on the left of the steering, underneath the facia. For use when the engine is cold. Pull out to limit until the engine fires, and return it to the half-way position for rapid warming up. The choke must be fully released at the earliest moment possible.

Ignition Switch: Turn the key clockwise to switch on. Do not leave the switch 'on' when the vehicle is stationary - the warning light is a reminder. The ignition key may also be used for locking the luggage compartment.

Lighting Switch: Mounted above the ignition switch. Pull out to put on sidelights; twist to right and pull again to put on headlights. the headlights are dipped by foot operation.

Starter Switch: Press in the control to start, and release as soon as the engine fires. If the engine fails to start after a few revolutions, do not operate the starter again until the engine is stationary.

Panel Light Switch: Slide the switch to the right to illuminate the instruments. Only operates when the sidelights are 'on'.

Air Intake Control: A supply of cold air can be admitted to the car interior for ventilating purposes by pulling out the control on the left hand side of the car. The cold air is directed into the right-hand foot well.

Horn Button: Mounted at the centre of the steering wheel; operated independently of the ignition switch.

Steering Column Adjustment: The steering column may be adjusted to give the most suitable steering wheel position. to raise or lower the steering wheel, first release the locking ring immediately behind the steering wheel hub. Slacken this locking ring two or three turns in a clockwise direction, move the steering wheel up or down as desired, then re-lock in the new position.

Bonnet: The bonnet is secured by two hooks and a strap. To open bonnet, lift hooks and turn 180° then undo one side of strap only. There is a rod to hold bonnet in open position.

OPERATING INSTRUMENTS:-

New cars direct from Factory.

The car is road tested and part run-in. The engine is filled with SAE.20 Oil. This oil should be changed at 500 miles and the engine filled with a recommended oil. The normal Austin-Healey 500 mile check should be carried out.

The Engine is built with racing clearances and it will be noisier than standard engines. Do not reduce valve clearance in an attempt to reduce noise. The correct clearance of .015" must be maintained.

The Special Equipment available for the Austin-Healey '100' (Model BNI) is not suitable for the Austin-Healey '100 S'.

The Dunlop disc brakes are covered by a separate leaflet.

The quicklift racing jack is designed for racing use. Under the nose and tail of the car there are two jack locating points. Assemble the jack and roll it under the car and locate the top rail in the location points. Then pull the handle to the ground this raises the end of the car for wheel changing. A bottle screw jack is provided in the tool kit for normal use.

Front wheel bearings are of the Timken Tapered roller type. Adjust as follows:-

Relieve the bearings of all load by raising the wheel from the ground.

Remove the hub cap and cotter pin.

Tighten up the adjusting nut whilst rotating the wheel in both directions until a slight bind is felt indicating that all the surfaces of the bearings are in contact.

Back off the adjusting nut $\frac{1}{6}$ to $\frac{1}{4}$ of a turn or sufficiently to allow the wheel to rotate freely without excessive end play. Recommended end play .004" - .006".

Lock the adjusting nut, ensuring that the bearing adjustment is not disturbed.

A slight rock will be perceptible at the wheel rim or edge of brake disc, which should not be confused with slackness in the swivel Pins.

Oil filter should be removed and element changed every 15,000 miles.

Do not overstrain the banjo bolts and always use good washers.

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