AUTOTEST

ROVER 3500 (3,528 c.c.)

AT-A-GLANCE: New version of 3500 with much improved facia treatment. Quiet, smooth engine—performance unchanged. New power steering fairly positive but directional stability poor. Comfortable ride, best in front. Excellent brakes. Beautifully finished and very refined car.

MANUFACTURER
Rover Co. Ltd., Solihull, Warwickshire.

PRICES

Basic	£1,568	0s	0d
Purchase Tax	£481	8s	0d
Seat belts (approx.)	£3	7s	6d
Total (in G.B.)	£2,052	15s	6d

EXTRAS (inc. P.T.)

*Power assisted steering	£74	8s	4d
*Heated rear window	£14	13s	9d
*Radiomobile	£41	9s	5d

*Fitted to test car

PRICE AS TESTED £2,183 7s 0d

PERFORMANCE SUMMARY

Mean maximum speed	112 mph
Standing start ¼-mile	17.9 sec
0-60 mph	10.8 sec
30-70 mph through gears	10.6 sec
Typical fuel consumption	19 mpg
Miles per tankful	285

IT is a great credit to Rover engineering that in the substantial revisions described in our 1 October issue, the mechanical side has been left largely alone—the overdue introduction of power-assisted steering as an option on the 3500 is about the only change in this respect. When the 3500 was first tried in April 1968, we remember that the steering felt rather heavy and out of character in such a refined and otherwise easy-to-drive car; now at £74 extra, power steering can be specified to complete the package for a luxury car within compact dimensions.

The system used for the steering is the Adwest arrangement as first used by Jaguar on the 420 and parallel Daimler Sovereign, and features a varying ratio. Near the centre position, the ratio is relatively low, giving small response to wheel movement. As the wheel is turned, the steering becomes effectively higher-geared and small movement of the wheel then has greater effect. The result is particularly satisfactory on a winding road, when the car can be hurried along with a minimum of steering wheel movement for successive bends. The turning circles have increased from just over 33ft (between kerbs) to 34ft 9in. (right) and 37ft 1in., but there is a useful reduction of steering wheel turns lock to lock from 4.5 to only 3.2. This and the much lower steering effort make the 3500 very easy to manoeuvre in tight spaces.

As before, there is quite a lot of body roll on corners, and fairly strong understeer. Initial steering movement seems to settle the car into its angle of roll and line it up for the corner, and it then follows through very well. On the

There are no child locks on the rear doors, but the sill lock secures the inside handle. The new rotary control for front quarter vents enables them to be closed really tight, and makes them thief-proof. The steering column lock is standard

More noticeable than is apparent from these pictures, the PVC-covered rear quarters identify the new model from the side and at the rear the new position of the reflectors, beneath the reversing lamps, is a recognition feature. Bonnet bulges are purely for styling

straight, the lack of play in the steering remains good, but directional stability is poor. The car wanders off course badly even in mild cross winds, and rather delicate control of the steering is needed to avoid accentuating these movements at high speed. Slight sucking noises are heard from the high pressure fluid in the steering, especially when manoeuvring and using nearly full lock.

The test car was on Dunlop SP Sport tyres. The Rover 2000 series has always been noted for its excellent grip and for the very high cornering speeds possible in the wet without making the wheels slide, and this adhesion in tricky conditions is made even more impressive by these excellent tyres.

Suspension refinement seems even better than before, though we have been told of no reason for improvement here. Soft initial movement is backed up by strong damping so that undulations can be taken fast without any disturbing plunge or floating, and ordinary surface irregularities are ironed out very well. In the back, the ride is appreciably less comfortable, and quite a lot of pattering reaction is noticed. Road roar is well subdued without being entirely eliminated.

Judging from appearance only, the new front, with its four headlamps set in rather deep wind traps, looks a little less aero-dynamic than before, and perhaps this may explain a small reduction in maximum speed from 114 mph to 112 mph; but this is a very marginal difference, and the optimistic rev counter is in any case just reaching the beginning of its red section at 5,200 rpm, which the handbook says should not be exceeded. All the standing start acceleration figures up to 90 mph were within half a second of the times recorded by the original 3500, and the acceleration to 100 mph in 36.4 sec shows a small reduction on the 37.7 sec previously timed.

On the road the car seems fast without having any pretensions to sporting performance. The vee-8 engine is extremely quiet from the aspect of mechanical noise, though quite a lot of the characteristic exhaust beat is audible under acceleration. An ordinary pressed steel fan replaces the earlier Rover fan which had long blades with curved ends. Extensive sound-proofing on the underneath of the bonnet helps to deaden any fan roar. Those raised pressings on the bonnet panel, incidentally, are for appearance only and not—as may be presumed—to give clearance for the twin SU carburettors.

Up to 100 mph or a little more is well within the 3500's capacity for sustained cruising in still air, and as well as the low level of mechanical noise, improved door seals and the tight fastening of the front quarter vents possible with the new winding fasteners helps to keep wind noise fairly low.

Borg-Warner Type 35 automatic transmission is retained, but a change which, in the first 3500 Road Test, we said we would like to see—adoption of D-2-1 selector in place of the D2-D1-L control—has been introduced. As before, the selector has a safety knob in the top of the lever, which must be pressed in to safeguard park, reverse and low. Pleasantly easy and unobstructed to and fro movement of the lever is allowed between Drive (where all gears change automatically) and 2 (in which the transmission remains in second regardless of speed). Because of this very convenient overriding control it was less embarrassing than it might have been that the throttle valve in the transmission had seized on the test car, though eventually this broke the throttle linkage. Without kickdown, the transmission changed up at much lower speeds than normal, so it was not surprising that using the selector knocked nearly 6 sec off the rest to 100 mph time.

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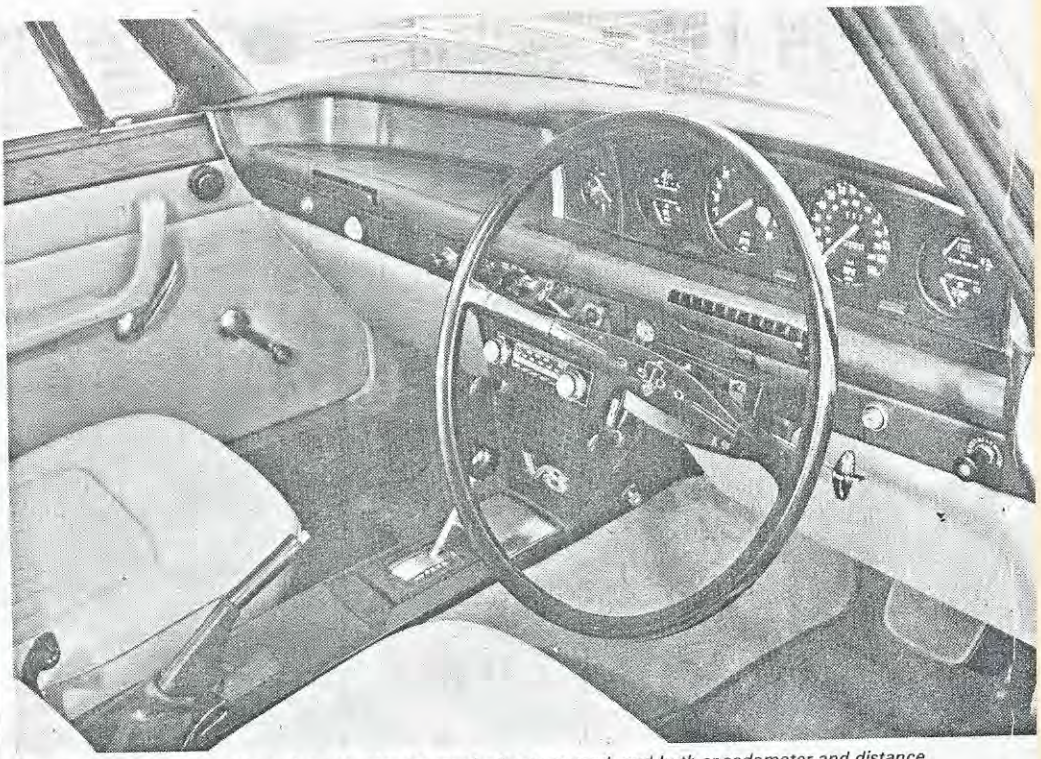
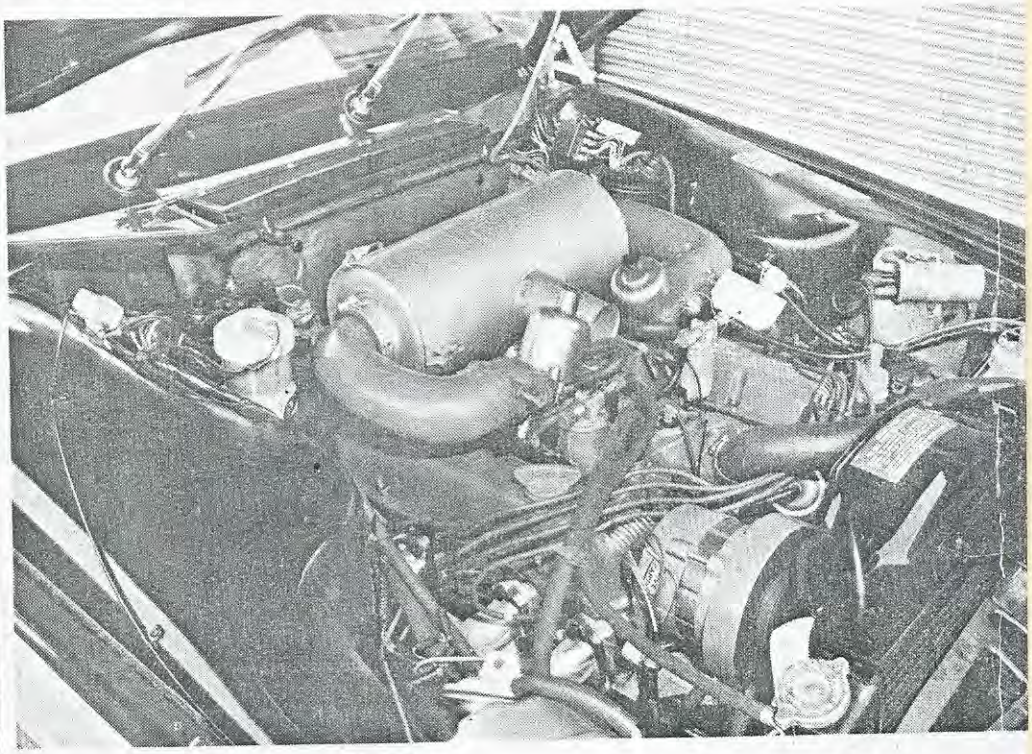
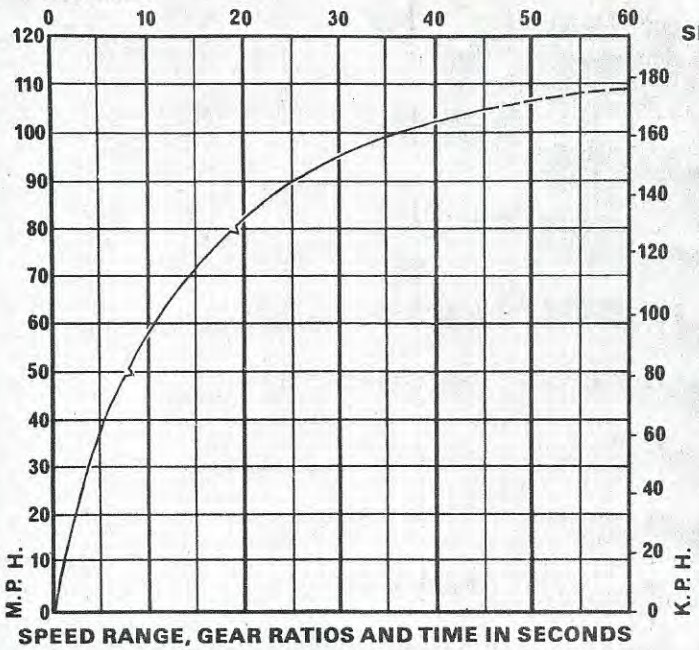


The new round speedometer and rev counter are much clearer to read, and both speedometer and distance recorder are extremely accurate. The large brake pedal pad suits left or right foot braking to choice



Special grey finish on the engine gives it an attractive appearance. Access to most components is good, especially carburettor, dip stick and distributor Wing nuts allow moulded battery cover to be removed. Tools are stowed behind a protective flap, in the left rear wing valance

ACCELERATION



SPEED MPH TRUE	INDICATED	TIME IN SECS
30	31	3.8
40	41	5.7
50	51	7.9
60	61	10.8
70	70	14.4
80	80	18.6
90	90	25.4
100	101	36.4
110	112	

SPEED RANGE, GEAR RATIOS AND TIME IN SECONDS

mph	Top (3.08-6.47)	Inter (4.47-9.37)	Low (7.36-15.46)
0-20	—	3.2	2.2
10-30	—	3.8	3.0
20-40	—	4.6	3.7
30-50	—	5.3	4.1
40-60	8.1	5.8	—
50-70	8.8	6.5	—
60-80	10.8	8.0	—
70.90	14.1	—	—
80-100	19.1	—	—

Standing ¼-mile
17.9 sec 79 mph

Standing kilometre
33.2 sec 97 mph
Test distance
1,024 miles
Mileage recorder
1 per cent over-reading

PERFORMANCE

MAXIMUM SPEEDS

Gear	mph	kph	rpm
Top (mean)	112	180	4,75
(best)	113	182	4,80
Inter	82	132	5,10
Low	50	80	5,10

BRAKES

(from 70 mph in neutral)
Pedal load for 0.5g stops in lb

1	**25**	**6**	**3**
2	**25**	**7**	**3**
3	**30**	**8**	**3**
4	**30**	**9**	**3**
5	**30**	**10**	**3**

RESPONSE (from 30 mph in neutral)

Load	g	Distance
20lb	0.35	86
40lb	0.80	38
60lb	1.00	30
80lb	1.05	28.7
Handbrake	0.35	86

Max. Gradient 1 in 4

MOTORWAY CRUISING

Indicated speed at 70 mph	70 m
Engine (rpm at 70 mph)	3,000 r
(mean piston speed)	1,400 ft/m
Fuel (mpg at 70 mph)	23.5 m
Passing (50-70 mph)	6.5 s

COMPARISONS

MAXIMUM SPEED MPH

Jaguar XJ6 auto	(£2,754)	120
Rover 3500 auto	**(£2,049)**	**112**
Volvo 164 auto	(£2,320)	107
Austin 3-litre auto	(£1,849)	99
Toyota Crown auto	(£1,549)	96

0-60 MPH, SEC

Jaguar XJ6	10.1
Rover 3500	**10.8**
Volvo 164	12.8
Austin 3-litre	14.8
Toyota Crown	16.0

STANDING ¼-MILE, SEC

Jaguar XJ6	17.5
Rover 3500	**17.9**
Volvo 164	19.0
Toyota Crown	20.1
Austin 3-litre	20.3

OVERALL MPG

Rover 3500	**18.0**
Volvo 164	17.9
Toyota Crown	17.3
Jaguar XJ6	15.2
Austin 3-litre	14.9

GEARING (with 185-14in. tyres)

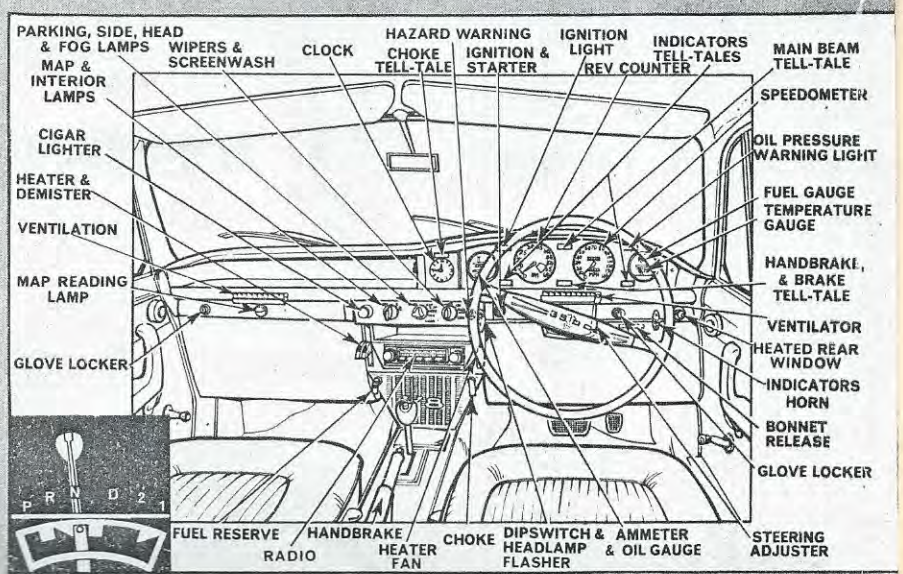
Top	23.5 mph per 1,000 rpm
Inter	16.2 mph per 1,000 rpm
Low	9.8 mph per 1,000 rpm

TEST CONDITIONS:
Weather: Fine. Wind: 10-20 mph. Temperature: 16 deg. C. (60 deg.F). Barometer 29.7 in. hg. Humidity: 30 per cent. Surfaces: Dry concrete and asphalt. 5 mph wind for maximum speed runs.

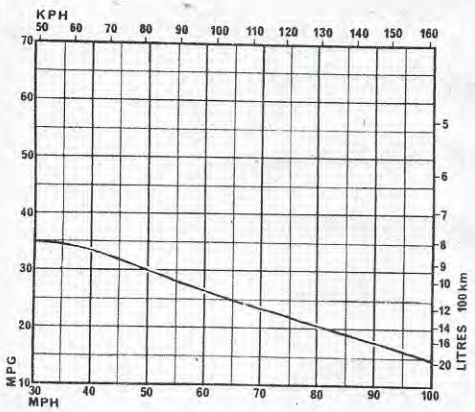
WEIGHT:
Kerb weight 26.6 cwt (2,980lb-1,350kg) (with oil, water and half full fuel tank). Distribution, per cent F, 52.6; R, 47.4. Laden as tested: 29.9 cwt (3,350lb-1,520kg).

TURNING CIRCLES:
Between kerbs L, 37ft 1in.; R, 34ft 9in. Between Walls L, 38ft 11in.; R, 36ft 8in. steering wheel turns, lock to lock 3.2.

Figures taken at 1,300 miles by our own staff at the Motor Industry Research Association proving ground at Nuneaton and on the Continent.



CONSUMPTION



FUEL

(At constant speeds—mpg)

30 mph	34.8
40 mph	33.3
50 mph	29.9
60 mph	26.1
70 mph	23.5
80 mph	20.0
90 mph	17.5
100 mph	14.7

Typical mpg 19 (14.9 litres/100km)
Calculated (DIN) mpg 21.4 (13.2 litres/100km)
Overall mpg 18.0 (15.7 litres/100km)
Grade of fuel . . . . . Super Premium, 5-star (min. 100 RM)

OIL

Miles per pint (SAE 20W) 500

SPECIFICATION FRONT ENGINE, REAR WHEEL DRIVE

ENGINE

Cylinders	8, in 90 deg. vee
Main bearings	5
Cooling system	Water; pump, fan and thermostat
Bore	88.9mm (3.50 in.)
Stroke	71.12mm (2.80 in.)
Displacement	3,528 c.c. (215 cu. in.)
Valve gear	Overhead, pushrods and rockers with hydraulic tappets
Compression ratio	10.5-to-1 Min. octane rating: 100RM
Carburettors	Two SU HS6
Fuel pump	AC mechanical
Oil filter	Full flow, renewable element
Max. power	160.5 bhp (net) at 5,200 rpm
Max. torque	210 lb. ft. (net) at 2,600 rpm

TRANSMISSION

Automatic	Borg Warner Type 35 three-speed
Gear ratios	Top (auto) 1.0-2.1 Inter 1.45-3.04 Low 2.39-5.02 Reverse 2.09-4.39
Final drive	Hypoid bevel, 3.08-to-1

CHASSIS and BODY

Construction	Integral. Base unit with bolt-on skin panels; all steel base unit, some aluminium panels

SUSPENSION

Front	Independent, lower wishbones, leading top links, coil springs, telescopic dampers, anti-roll bar
Rear	De Dion sliding tube, leading and trailing arms, Watts linkage, coil springs, telescopic dampers

STEERING

Type	Adwest Varamatic varying ratio, with power assistance. Ratio 19.4-to-1 straight ahead, 15.4 on full lock
Wheel dia.	17 in.

BRAKES

Make and type	Girling discs all round
Servo	Lockheed vacuum
Dimensions	F10.82 in. dia. discs R 10.69 in. dia. discs
Swept area	F 220 sq. in., R 152 sq. in. Total 372 sq. in (244 sq. in./ton laden)

WHEELS

Type	Pressed steel disc, 5-stud fixing, 5.5in. wide rim
Tyres—make	Dunlop Sport
—type	radial ply tubeless
—size	185HR-14 in.

EQUIPMENT

Battery	12 Volt 60 Ah
Alternator	Lucas 11AC 45 amp a.c.
Headlamps	Lucas four-lamp system 175/100 watt (total)
Reversing lamps	Two standard
Electric fuses	2
Screen wipers	Two-speed with variable pause control
Screen washer	Standard, Trico electric
Interior heater	Standard, air blending
Heated backlight	Extra
Safety belts	Extra; anchorages built-in
Interior trim	Leather on wearing surfaces of seats, (brushed nylon optional); pvc headlining
Floor covering	Carpet
Jack	Screw pillar
Jacking points	2 (1 each side)
Windscreen	Zone toughened
Underbody protection	Bitumastic compound on surfaces exposed to road

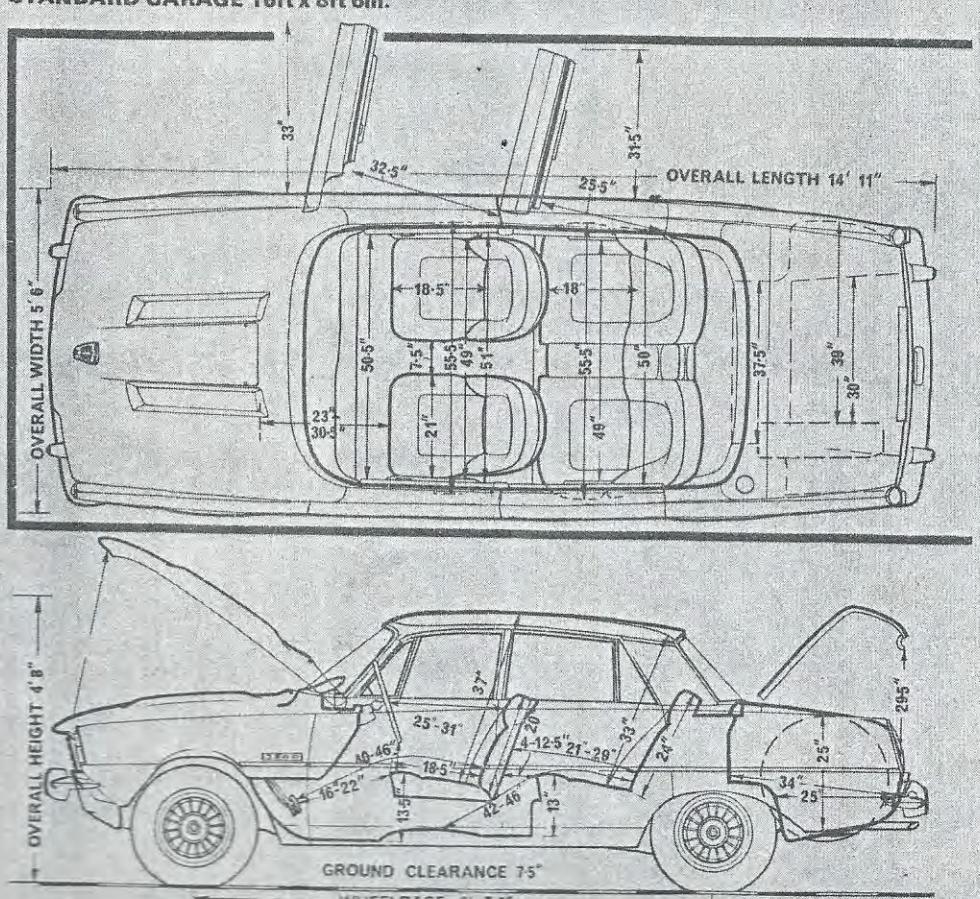
MAINTENANCE

Fuel tank	15 Imp. gallons (2.5 gal. reserve) (68 litres)
Cooling system	15.25 pints (including heater)
Engine sump	8 pints (4.6 litres) SAE 20W. Change oil every 5,000 miles. Change filter element every 5,000 miles
Automatic transmission	14 pints ATF. No change needed. Check oil level every 5,000 miles
Final drive	2.25 pints SAE 90EP. Change oil every 5,000 miles
Grease	1 point every 5,000 miles
Tyre pressures	F28; R 30 psi (normal driving) F 30; R 34 psi (full load) Max payload 858 lb. (399 Kg)

PERFORMANCE DATA

Top gear mph per 1,000 rpm	23.5
Mean piston speed at max. power	2,430
Bhp per ton laden	107

STANDARD GARAGE 16ft x 8ft 6in.



SCALE 0.3in. to 1ft.
Cushions uncompressed

AUTOTEST ROVER 3500...

It is as well to remember that bottom gear is not available with the lever at position 2; sometimes after changing down with the hold, traffic may force the car to a halt, and it will then restart in second unless the lever is moved either to Drive or to 1

Changes occur smoothly but not without a slight jerk which occupants usually notice; and if low is selected, it sometimes goes in with quite a thud. The transmission can be left to its own devices most of the time, when the torque convertor, plus the ample engine torque available, cope very well. Although Rover ally this engine to a four-speed manual gearbox in the Range Rover, the 3500 is still available only as an automatic car.

Starting is always prompt, and when the engine is cold there is no stalling if the mixture control is pulled out and turned to lock. Warm-up is rapid, and the enrichment can soon be dispensed with; if it is forgotten a "choke warning" tell-tale lights up when the engine reaches its normal running temperature.

The Rover 2000-3500 series has always had disc brakes all round, and on the 3500 with standard servo they work extr mely well, giving really reassuring efficiency for moderate pedal loads. A firm tread on the pedal—yet still only 60 lb—brings a 1.0g stop, and even as much as 1.05g was obtained with 80 lb effort. In repeated hard use there is negligible fade. The handbrake is not quite up to the same high standard, and although it will lock the rear wheels at 30 mph, it would not quite hold on 1 in 3; there is a slightly soft feel to the well-placed handbrake lever between the seats, giving the impression that if it is pulled too hard it would just stretch the cables.

Vertical adjustment of the steering wheel is retained, and it enables the driver to position the wheel so as not to obscure the tops of the new circular instruments. All who used the car were impressed by the new layout, and we were delighted to see that the clear minor instruments flanking rev counter and speedometer include an ammeter (against the trend towards voltmeters). There are also an oil pressure gauge, temperature and fuel gauges. All instruments and warning lamps are set behind a single transparent cover, easily kept clean. On the left is the clock—a Kienzle electric self-winding unit keeping excellent time—and above it is the choke warning tell-tale. Ignition, headlamp main beam and oil pressure tell-tales (as well as an oil pressure gauge) are dispersed between the tops of the four instrument dials, and indicator repeaters are at the bottom. Well placed between the bottom of the speedometer and rev counter is the triple-function brake warning light, which comes on with handbrake, low brake fluid, or worn front or rear brake pads.

Also in a single transparent panel is the lettering identifying the minor controls, and we were impressed at the way in which the lettering is illuminated from behind, beautifully clear to read at night when the panel lamps are on. A cigarette lighter on the left is flanked by a two-position interior light switch; first movement turns on the map reading lamp above the passenger map pocket, and further rotation brings on the roof lamp in addition.

The lighting control is new and less complicated than Rover's previous arrangement. A single rotary switch is turned clockwise to bring on side, then headlamps; and it can be pushed in and turned to a further position for fog lamps if fitted. There is also a parking lamp position (push and turn anti-clockwise), which turns on the offside side and tail lamps without panel lamps. The lighting knob is triangular and can be found easily by touch (adjacent interior light and wiper switches have a straight raised grip). As before, a column-mounted lever dips or flashes the headlamps, and a raised pip at the top of the side lamps reflects a bead of light visible from the driving seat, when side lamps are switched on. The four headlamps give very good range, and generous spread of light when dipped.

A hazard warning switch to flash all indicators together is a new feature, and its position is identified at night by four small green light points round it.

Rover still fit an interior mirror of diminishing glass, mounted too high for a long view behind, and giving a misleading impression that following vehicles are farther away than they really are.

As well as fast and slow speed for the wipers, the switch is turned anti-clockwise for the new pause facility, introduced on a British car for the first time. A small white knob on the left of the steering column is turned to alter the setting, which can be varied to give one wipe every 17 seconds, or more frequently to almost continuous wiping. This is an excellent arrangement for drizzle, road splash or mist.

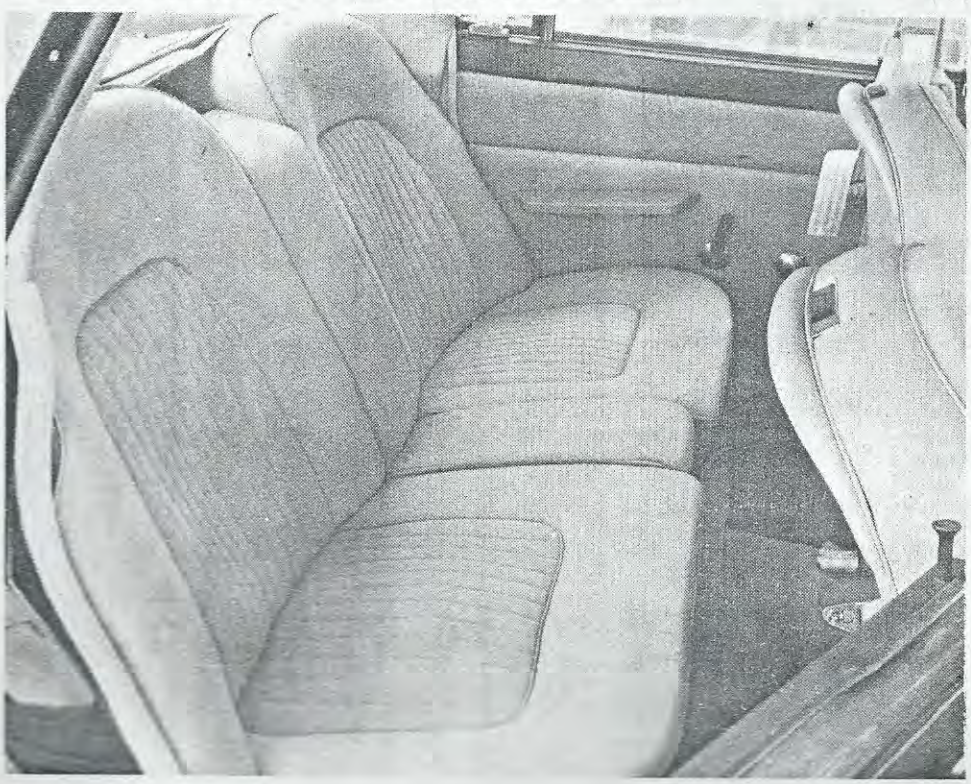
Heating and ventilation are unchanged, Rover's system on this model being one of the best on any car in current production. As well as an efficient air blending heater, with convenient on-off air control and three-speed fan, it includes face level ventilators for cool air, immediately in front of the driver and front passenger. The air lever can instantly be moved up to close off all incoming air for a tunnel or to exclude dirty exhaust fumes from the vehicle ahead. The efficiency of the whole system has been increased by introduction of extraction on the rear quarters. Air escapes at the edge of the rear window and from the junction with the roof lining, through one-way flap valves concealed behind the rear quarter panels and is evacuated above and below. In muggy weather it still proved necessary to open a rear window to obtain adequate air flow through the car, and this greatly increases wind noise. Black pvc covering over the rear quarter panels is one of the external identifying features of the new model.

Seats re-shaped

Seats have been slightly reshaped to allow inertia reel safety harness to be fitted more easily, though the test car was again fitted with rather clumsy-looking fixed Irvin belts. Spacers are provided in the toolkit for alteration of height or rake of the seat, and of course Rover's excellent infinitely variable rake adjustment for backrests is retained.

Leather upholstery remains standard, but on the test car we had brushed-nylon upholstery on the wearing surfaces—a no-cost option which we recommend. It is treated with Scotchguard, making it impervious to stains. The seats are very well shaped, with ample small of the back support and good lateral location; but the cushions seem a little short for the thighs. They are very comfortable seats, and as before the rear compartment is shaped to carry two, with a large folding armrest between.

Excellent features continued from the previous model are lockable drop-down map pockets in front of driver and passenger, the one on the driver's side revealing the concealed bonnet release—and a positive fuel reserve, whose capacity has now been increased from 1.25 to 2.5 gallons. Overall consumption proved quite good, at 18 mpg, allowing over 220 miles before going on to reserve. For touring the somewhat restricted luggage capacity can be increased by the optional exterior mounting for the spare wheel.

Rover could easily have remained complacent with their continued strong demand for the 2000-3500 series, but instead they have made a big effort to improve the appeal of the cars. A really desirable car like the 3500 thus becomes even better. □

We recommend the new brushed nylon Scotchguard-treated upholstery which is a no-cost option. It does not harbour stains, which used to be the old objection to any form of fabric upholstery