

ROLLS-ROYCE AUTOMATIC GEARBOX

SECTION 2 — TESTING

There are two tests which can be made in order to check the functioning of the automatic gearbox.

- 1 A road test is necessary to ensure that the gear changes are occurring at the correct road speed and engine power.
- 2 The second test is to check the operating oil pressures to assist diagnosis of a suspected defect. This entails the fitting of a gauge to a pressure tapping in the gearbox and testing to record the operating pressures.

Change points — To test

The change points are given in the table in the sequence in which the tests should be made. The oil level, engine tune and control settings should be correct before the test is made, otherwise subsequent analysis of the results will be very difficult.

The point at which the gear change occurs can be recognised by a slight change in note of the engine. The change should be smooth at low throttle openings but may be more noticeable at higher engine torques. Slipping can be recognised by a tendency for the engine to speed up at the change point on the up-changes, or a tendency for the car to lose road speed on the down-changes.

The speedometer readings at which each change point occurs should be recorded, whether correct or faulty, and the test continued until all results are obtained. The test should not be terminated because of a defect unless damage to the transmission can be caused by continued running.

Compare the recorded results with the table of change points and, if a defect exists, with the Fault Diagnosis Section which gives the action required for rectification, on the assumption that oil level, engine tune and idling speed are correct.

Although the symptoms for faulty control settings are included in the Fault Diagnosis Section, it will simplify diagnosis if they are checked before the road test, because many of the possible faults can be caused by incorrect control settings.

The speedometer reading at which the change occurs will be dependent on throttle position, increasing progressively from light throttle to the full throttle position; **slight variation from the figures quoted in the table is permissible providing the changes are smooth and that there are no other symptoms of incorrect operation.**

Change points for Phantom IV and Phantom V cars are slightly lower than the figures given for 'S' Series cars, whilst Bentley Continental cars have higher change points due to a smaller weight on the governor G2 valve.

CHANGE POINTS BENTLEY 'R' SERIES AND SILVER DAWN

RANGE 4	UP-CHANGES (M.P.H.)				DOWN-CHANGES (M.P.H.)		
	1-2	2-3	3-4		4-3	3-2	2-1
Light throttle	5-7	9-12	18-21	Closed throttle	12-10	8-5	5-3
Full throttle	14-16	26-30	55-62	Kick-down	53-48	19-15	8-6

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BENTLEY S1 SERIES AND SILVER CLOUD

RANGE 4	UP-CHANGES (M.P.H.)		DOWN-CHANGES (M.P.H.)
	1-2 2-3 3-4		4-3 3-2 2-1
Light throttle	5-8 11-14 20-24	Closed throttle	14-11 9-6 6-3
Full throttle	16-18 30-34 63-70	Kick-down	60-55 21-17 9-7

BENTLEY S2, S3 SERIES AND SILVER CLOUD II AND III

RANGE 4	UP-CHANGES (M.P.H.)		DOWN-CHANGES (M.P.H.)
	1-2 2-3 3-4		4-3 3-2 2-1
Light throttle	8-10 15-16 24-26	Closed throttle	16-12 10-6 7-3
Full throttle	26-27 40-41 78-80	Kick-down	73-71 38-33 20-17

Oil pressure tests

If a road test is being made to check for a suspected defect, or if a defect has been found on a previous road test, some of the possible causes listed in the Fault Diagnosis Section can be eliminated by jacking up the rear wheels to check the operating oil pressures.

For this test it is necessary to fit a tachometer for checking engine r.p.m. also to fit a pressure gauge (R 5244) to the pressure tapping between the band adjusting screws, in such a way that the gauge can be observed while testing (see Fig. 27).

Oil pressure tests should be performed in the order given in the table, after fitting the gauge and tachometer and running the engine for a few minutes to warm the gearbox oil.

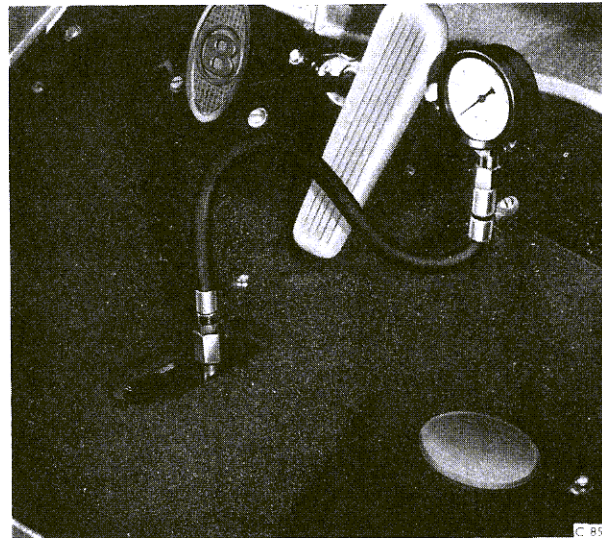


Fig. 27 Checking oil pressure

OIL PRESSURE TESTS

TEST CONDITION	RANGE	TACHOMETER READING	OIL PRESSURE LB./SQ. IN.
Engine running, car stationary	4	450 r.p.m.	75 (min.)
Engine running, car stationary	R	450 r.p.m.	90 (min.)