"MAKING SURE" - *NUFFIELD ORGANIZATION BOOKLET SEPT 1951*

Making

sure

NUFFIELD
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YOU cannot build a sound car business as the Nuffield Organization have done if the product isn't right—unless the cars stand up to all the vagaries of climate and conditions which exist throughout the world. Nuffield technicians leave nothing to chance. They have perfected a system of exhaustive tests which simulate, as nearly as is possible, the actual physical conditions of driving sand storms, torrid heat, below zero cold, penetrating torrential rains and murderous pot-holes capable of putting any suspension through its paces.

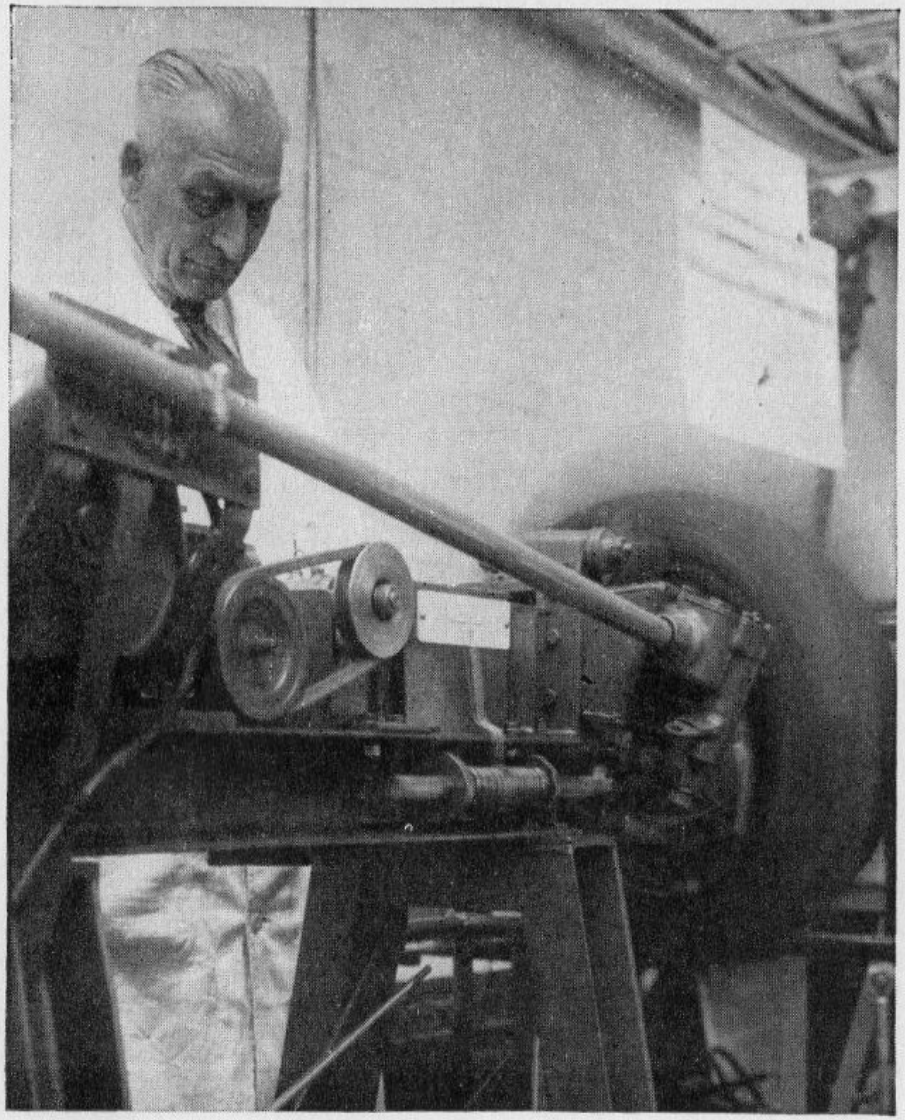
Illustrated on these pages are but a few of the dramatic tests which go on day after day in the Nuffield Development Department. The results are tabulated, faults noted and adjustments made. Backroom boys in the Nuffield Research Department are given any major problems for solution.

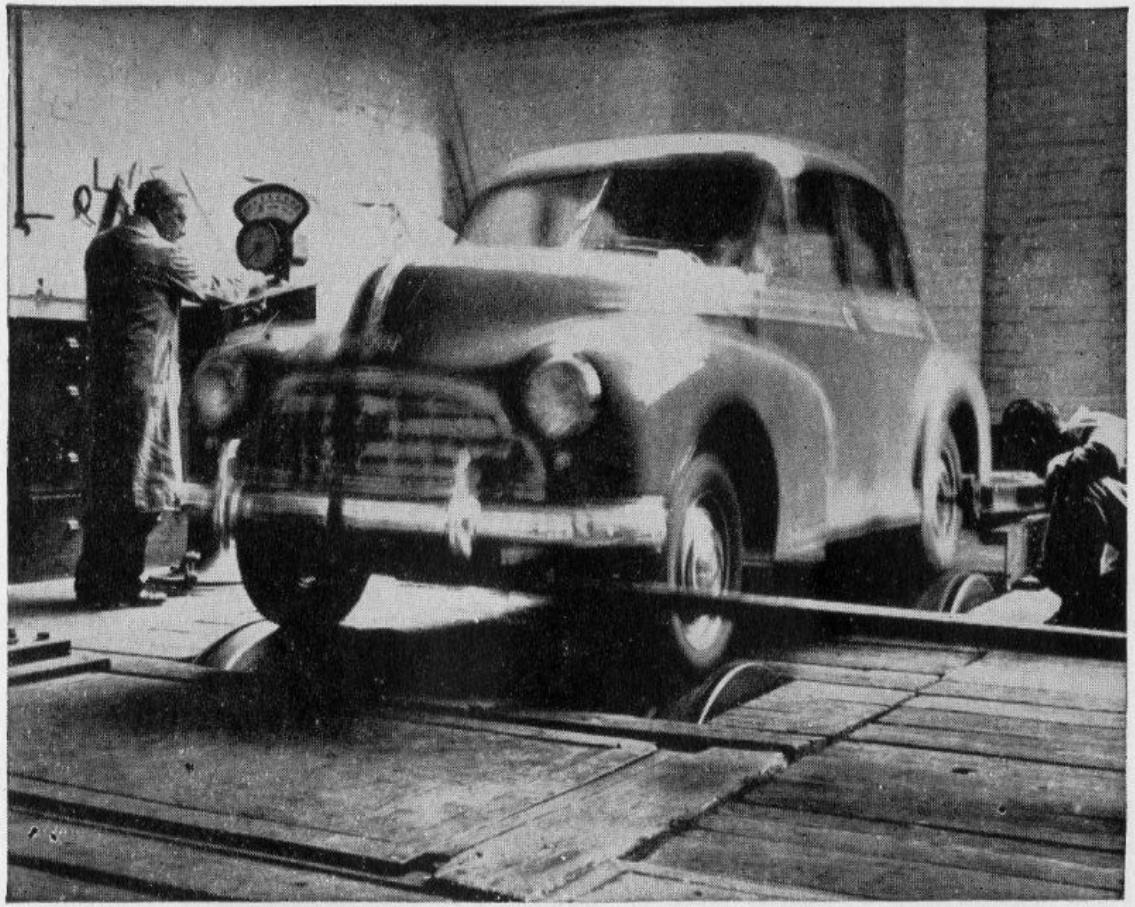
We know we have the right products . . .

. . . by constant testing we are

MAKING SURE *we keep them right*

MAKING SURE the suspension system will withstand the severest road conditions found overseas requires that those conditions be reproduced mechanically so that the rigours of many months of hard driving can be concentrated into a few days. This is the function of this apparatus which, by means of a stylus, records the vertical movement of the wheels while the test is in progress.

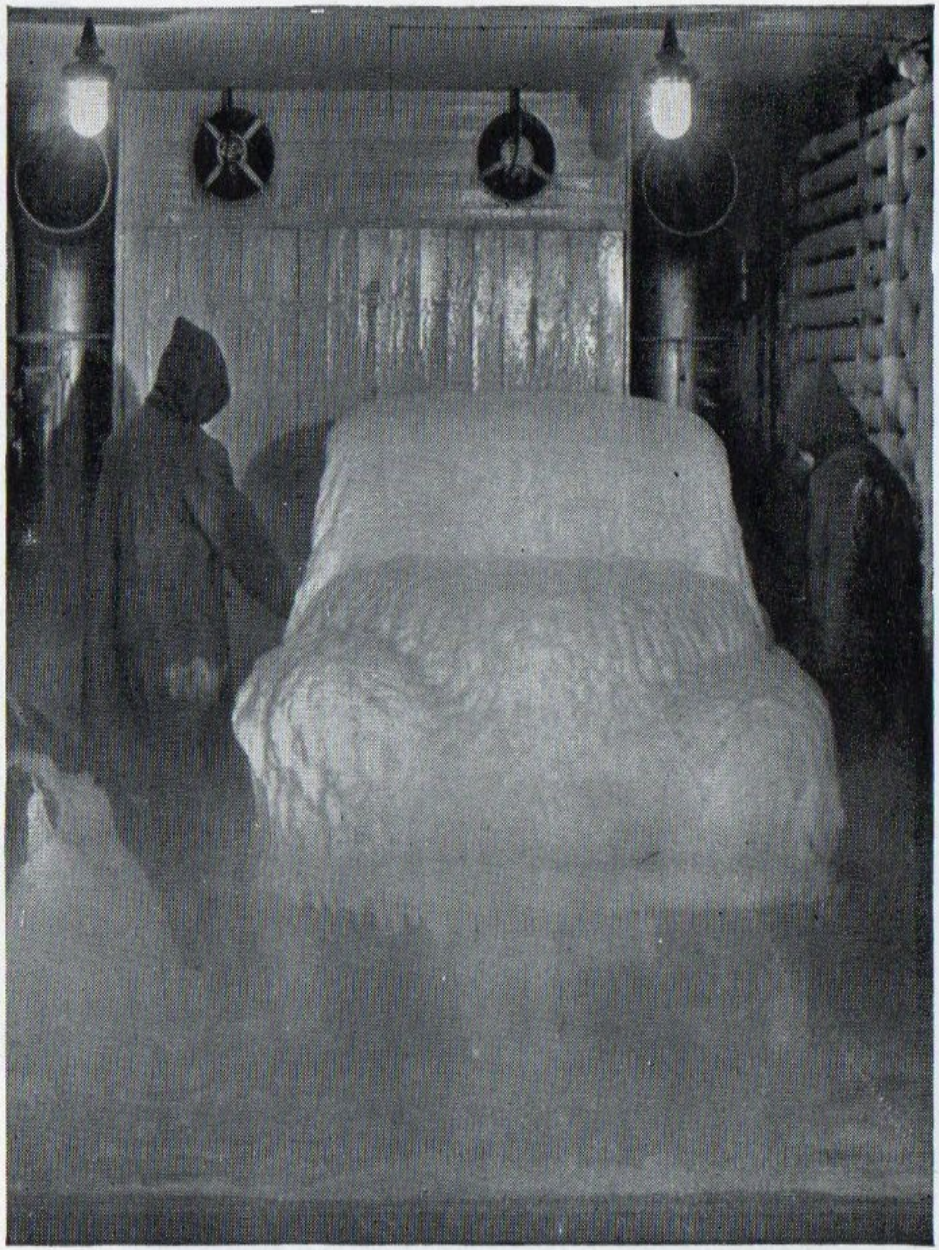




MAKING SURE on a universal dynamometer sounds like something formidable, as indeed it is. The car is mounted on four revolving drums having bumps and hollows on their surfaces in imitation of the most punishing colonial and overseas tracks. The results of years of wear can be compressed into a fifty-hour test. This test rig clearly shows which parts are most liable to fatigue and how improvements in design can be made.

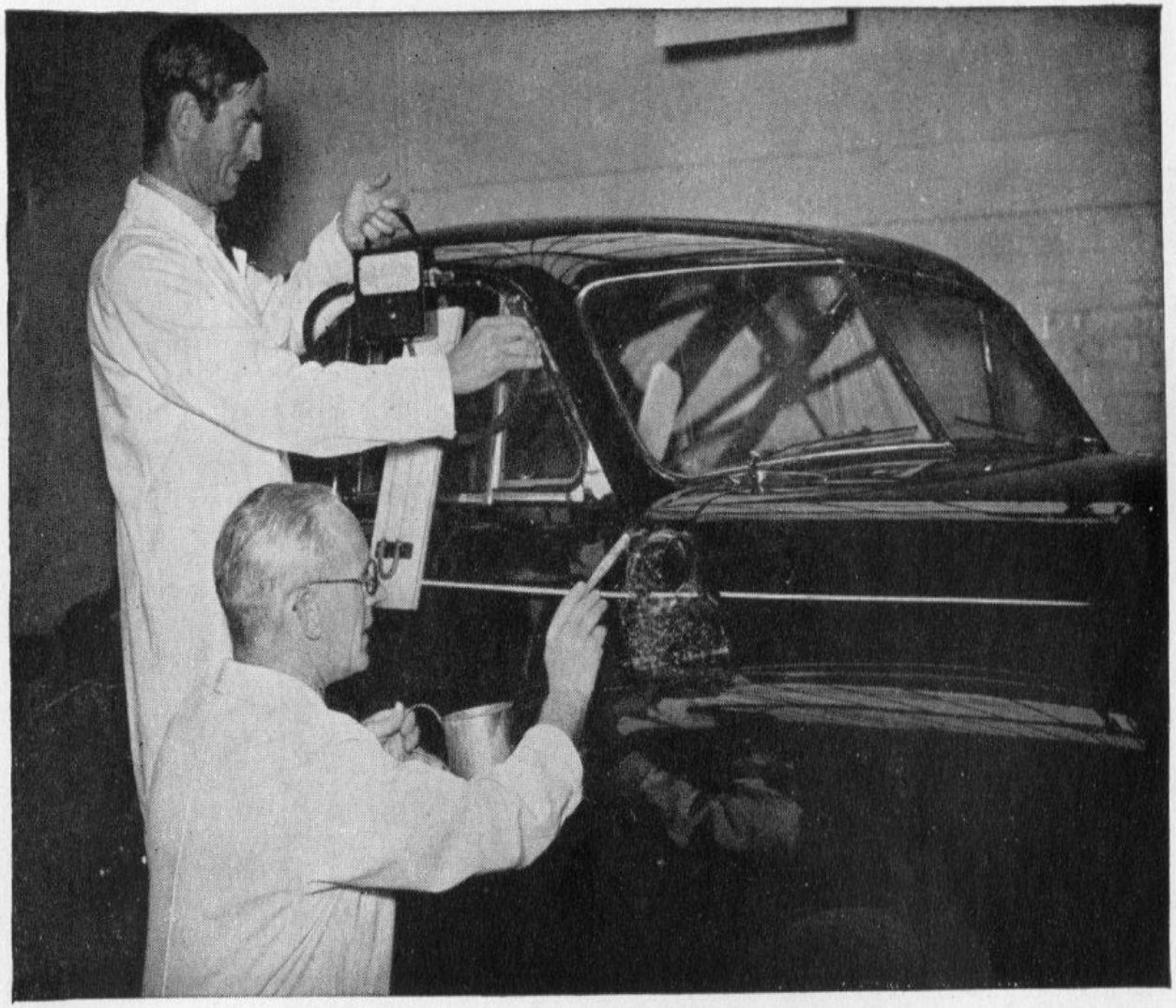
MAKING SURE, and very sure indeed, that the car will withstand tropical rain is the reason for this cascade. Equalling a rainfall of fifteen inches an hour, fifteen hundred jets of water are directed on the car from all angles. Such a downpour quickly searches out the smallest chink in the assembly of the bodywork.

MAKING SURE he avoided a hundred-mile-an-hour dust storm would be the normal reaction of a driver. This experimental engineer is deliberately driving into such a storm, created mechanically in a wind tunnel. From this test is obtained valuable information concerning the penetrating powers of dust encountered, for instance, during a South American cyclone, the Sahara Desert or, in fact, wherever exceptionally dusty conditions prevail.

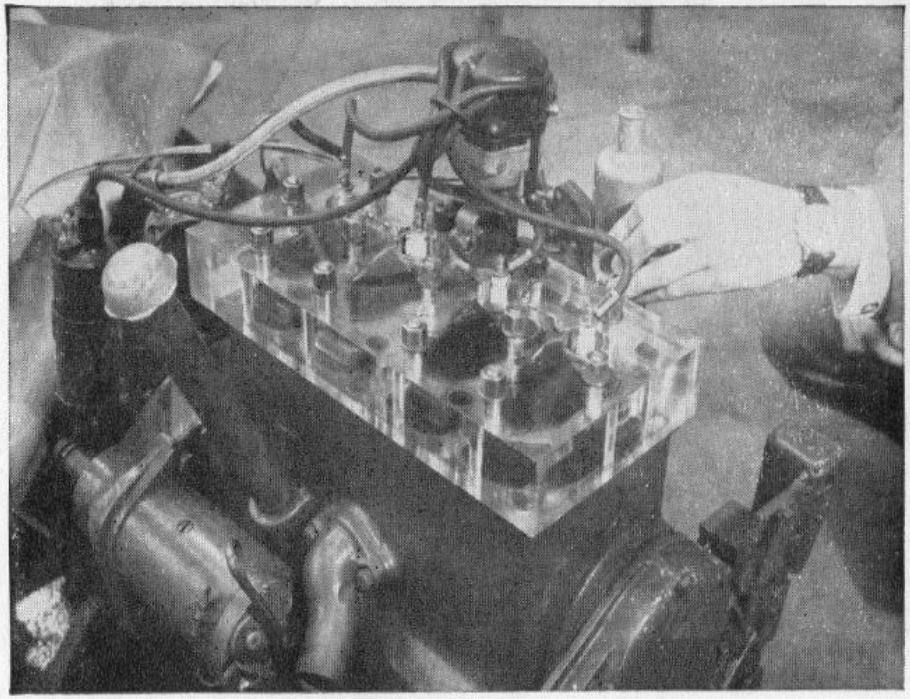


MAKING SURE in this test calls for very severe treatment. In the freezer, temperatures as low as 100° of frost can be produced. Nuffield technicians are thus enabled to study problems of starting from cold in arctic climates and to test new developments in engine operations.

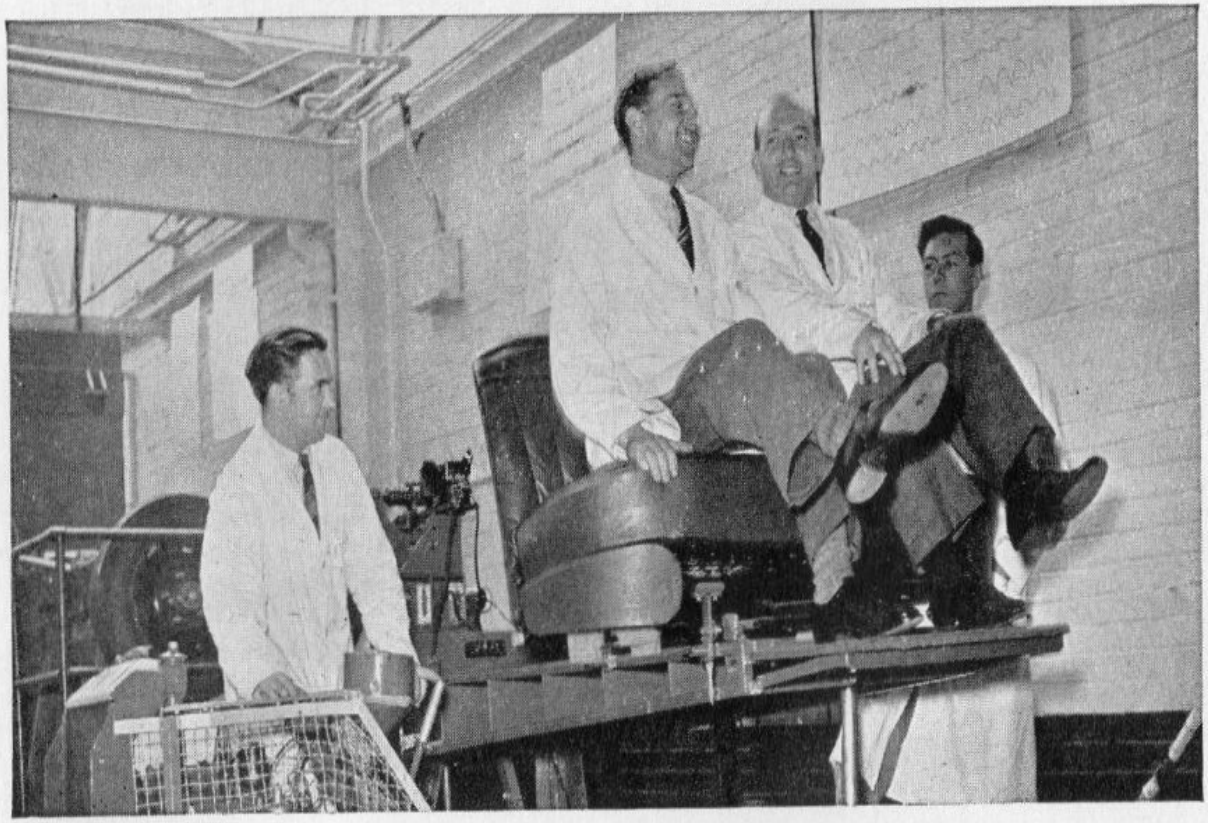
MAKING SURE a car will not blow bubbles is not a new game devised by Nuffield engineers. It is a test designed to track down draughts. A soap solution is brushed over the suspected joints, then air is injected under pressure into the body. Tell-tale soap bubbles show immediately where there is any leakage of air.



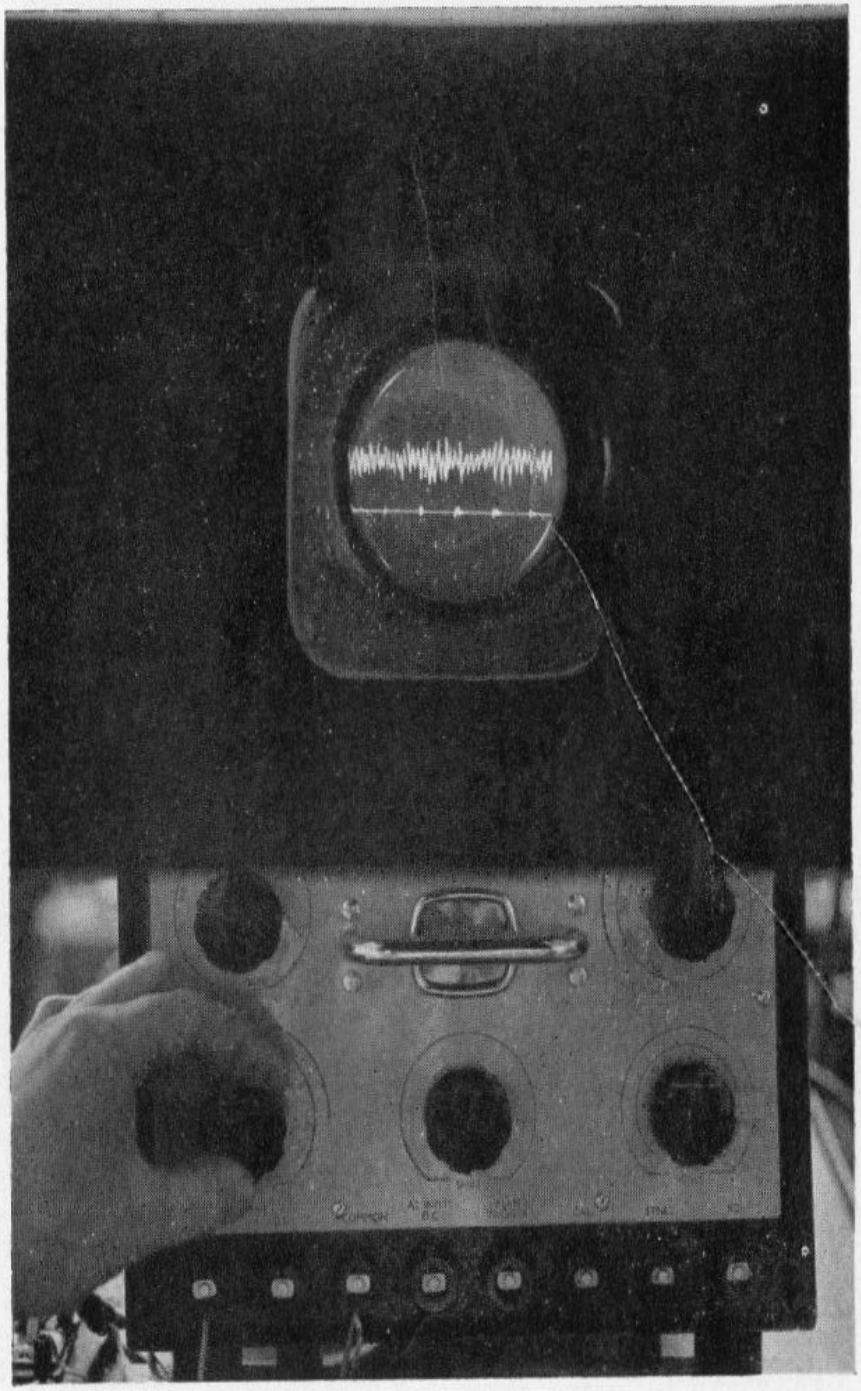
MAKING SURE often demands great ingenuity. For this novel test a perspex cylinder head is fitted to an engine, thus allowing Nuffield experimental engineers to study in detail the upper cylinder head action while the engine is running.

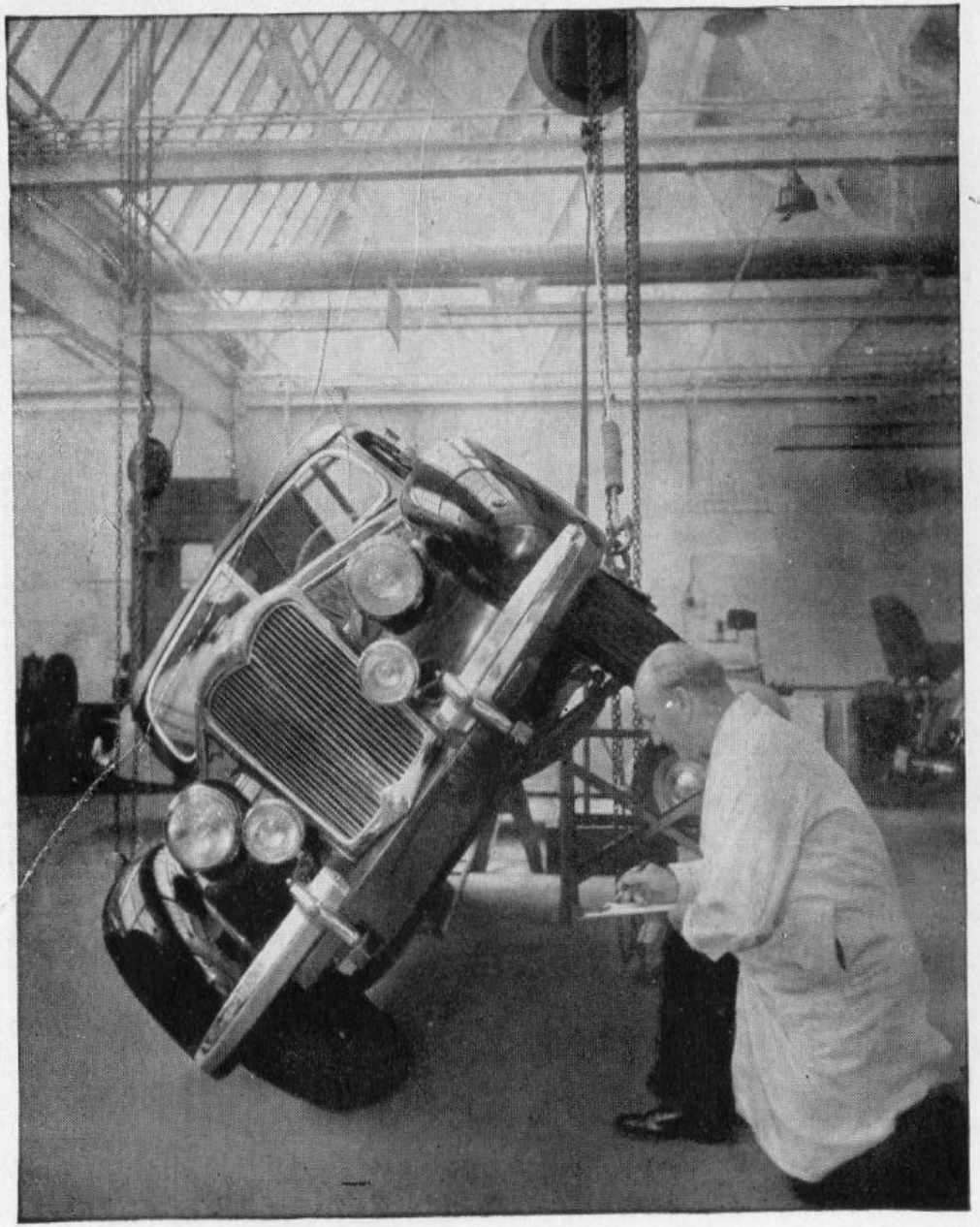


MAKING SURE these men in the Experimental Department have a rough ride is a certain way of making sure the eventual driver and passengers will have a comfortable one, even on the roughest roads of Africa. The seat ride vibration tester soon finds any weaknesses in the springing or in the wearing qualities of the upholstery.



MAKING SURE has its ups and downs, of course. Those on the screen result from studying and recording problems relating to noise and vibration. Waveforms traced on a recorder film are projected on the screen at a magnification of ten times their actual size, enabling Nuffield engineers to measure variations to an accuracy of one-thousandth of an inch.





MAKING SURE sometimes tests the ingenuity of even Nuffield engineers. In order to use this machine, one of three of the kind in existence, it was necessary to evolve a special technique. Study with the aid of this apparatus yields valuable information about the film of oil necessary to give adequate protection to metal surfaces under conditions varying from arctic cold to tropical heat.

MAKING SURE is here a matter of some gravity. The car has been put in this awkward position to ascertain whether the centre of gravity established in the original design is being maintained. This test ensures that a high standard of road stability and safety during fast cornering is maintained.

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