

DUNLOP-FERGUSON ANTI-SKID BRAKING CONTROL SYSTEM AS FITTED TO JENSEN 'FF'



One of the outstanding features of the newly announced Jensen 'FF' (Ferguson Formula) saloon is the incorporation of the Dunlop - Ferguson anti-skid braking control system in this radical four-wheel-drive model. Jensen are the first manufacturer to offer a production car with this braking system. Not only does its use resist wheel-lock, but it also increases driver control and directional stability during heavy braking.

Development

The Dunlop "Maxaret" anti-skid unit was first made available to the aircraft industry in 1952, and was developed to ensure that optimum braking power can be applied in all conditions of weather and runway, without wheel-lock and skidding resulting. This unit, consisting of a spring-loaded flywheel linked with each of the aircraft's landing wheels, senses the rate of wheel deceleration and reduces braking pressure at the point where an increase in the deceleration rate would induce wheel-lock. The resulting increase in the forward speed of the wheel is sensed by the "Maxaret", which then causes the brake pressure to be correspondingly increased. Completely automatic in operation, this ingenious device leaves the pilot free to concentrate on the other aspects of his landing run, and has proved enormously successful in

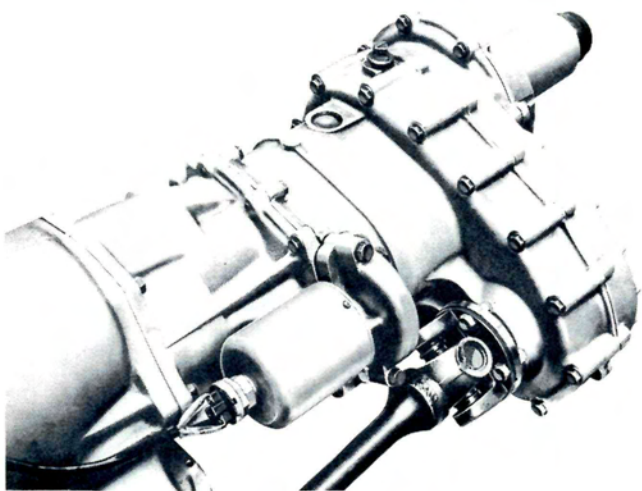
service on many civil and military aircraft.

Ferguson engineers, in developing their advanced 'Ferguson Formula' 4-wheel-drive system, found the answer to the problem of safe braking on the road with this device, the uses of which Dunlop were extending to road vehicles following its success with aircraft.

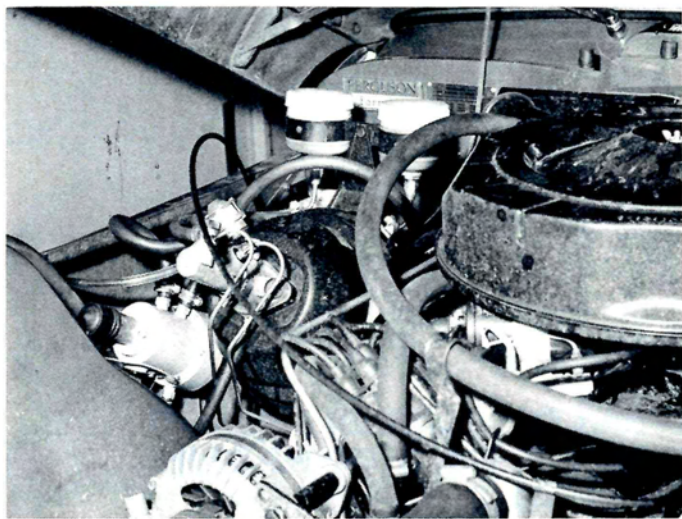
Tests carried out by Dunlop and the Road Research Laboratory in 1958, using "Maxaret" units on all four wheels of a conventional front-engine-rear-wheel-drive car, provided convincing proof of the capabilities of the "Maxaret": during heavy braking a marked increase in both directional stability and controllability was achieved. More recent tests by the Road Research Laboratory illustrate the remarkable effectiveness of the "Maxaret" system in the form adopted by Ferguson: (stopping distance from 45 mph under EMERGENCY BRAKING on the same test surface).

1. Average of a number of conventional road vehicles:
220 ft (all wheels locked)
2. Ferguson prototype with "Maxaret":
149 ft (no wheels locked)

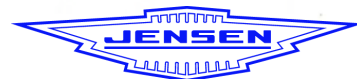
SAVING IN STOPPING DISTANCE BY FERGUSON
WITH "MAXARET": 71 ft.



"Maxaret" unit "in situ"



Shown here are the servo master cylinder assembly and servo control valve.



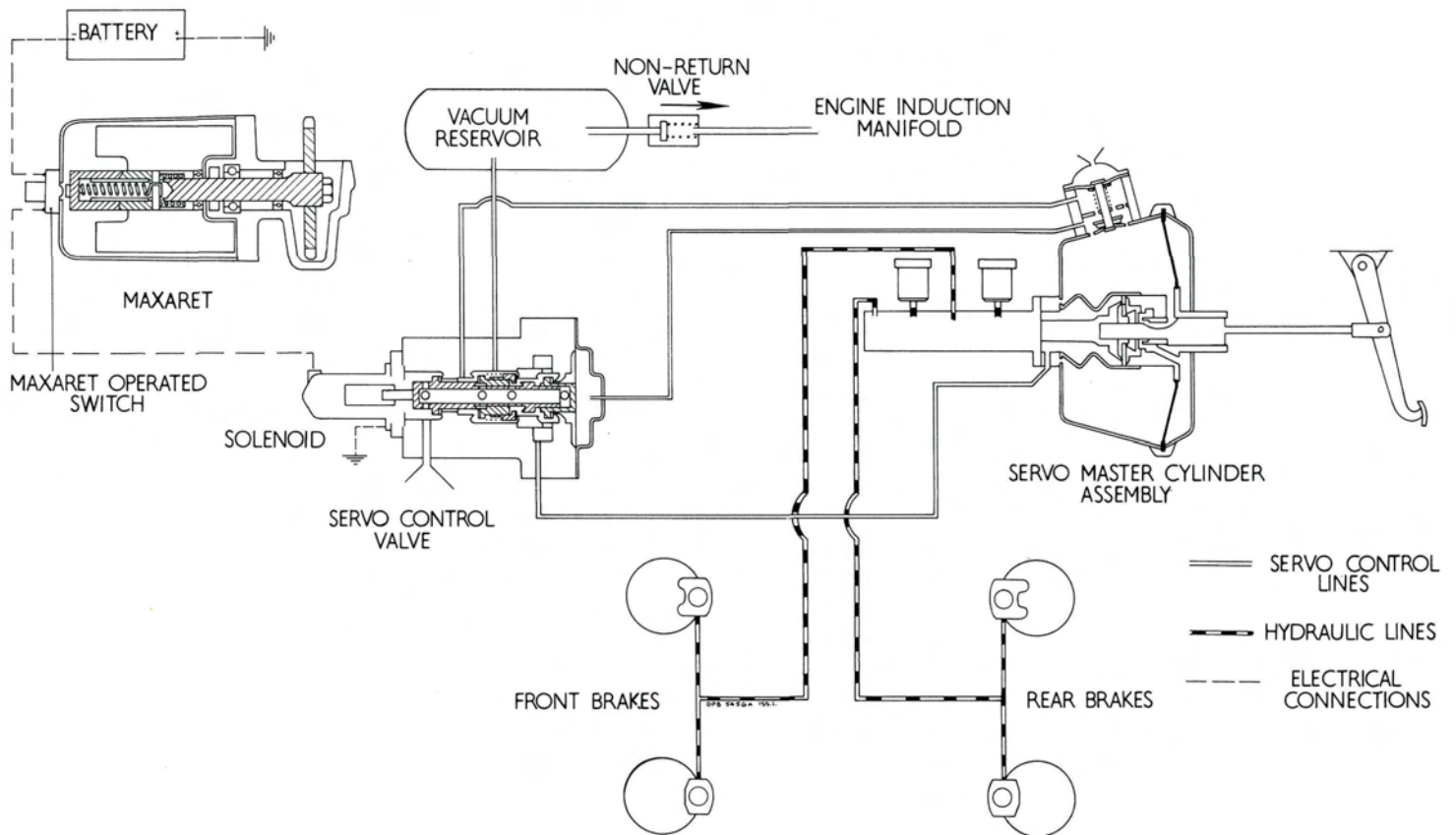
The 4-wheel-drive car with no wheels locked was always completely under control and could be steered to safety.

With the development of the Ferguson 4-wheel-drive system it was found possible to combine the anti-skid advantages derived from the Ferguson system and its "master" centre differential with the advantages derived from the Dunlop "Maxaret" anti-skid unit using only one "Maxaret" unit.

This was possible because the differential itself makes it impossible for the front or rear pair of wheels to lock separately, and, if front and rear wheels tend to lock together, the single "Maxaret" will at once come into operation and momentarily

relieve the brake pressure on all wheels. This takes place without "spilling" any of the fluid in the hydraulic braking system because, in the Ferguson design, the "Maxaret" unit, which normally releases brake fluid, does not operate on the brakes themselves but only on the vacuum servo unit.

The Dunlop-Ferguson anti-skid braking control system as developed for the Jensen 'FF' is not at present available for cars with conventional drive layouts, but the "Maxaret" is being intensively developed for other vehicle applications—such as articulated commercial vehicles where it offers an effective solution to the problem of "jack-knifing".



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