

PACKARD MOTOR CAR COMPANY

DETROIT MICHIGAN

January 21, 1927.

To: Packard Distributors and Dealers

Subject: Piston Scoring and Scuffing

TO BE NOTED AND INITIALED BY	

Gentlemen:

Where pistons are damaged in service, it is usually by either scoring or scuffing.

Scoring is caused by the generation of heat thru friction between the pistons and cylinder walls. The heat thus generated in addition to that absorbed from the hot gases, causes the pistons to exceed normal expansion with resultant tightening in the bore and a further increase in frictional heat. When the temperature increases to a point where all the clearance is taken up thru expansion, scoring is the result. To avoid scoring, the cylinder pistons and ring surfaces must be run at a temperature low enough to prevent excessive expansion until the wearing surfaces are polished and smooth.

During the period when the motor is new and being worn in, sustained high speed driving should not be done. On the other hand, it is not necessary or desirable to operate the motor during this period only at low speed and with light throttle. Better results will be obtained by gradually increasing the speed, provided the higher speeds are not maintained for more than a few seconds. Using full throttle for accelerating will also help. By breaking the motor in in this way the cylinder and piston surfaces are subjected to enough pressure to wear them to a smooth finish.

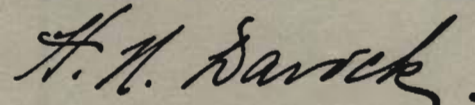
Scuffing is caused by abrasion between the pistons and cylinder walls due to insufficient lubrication. It occurs in the first few minutes of running after starting a cold motor when large quantities of fuel have been taken into the cylinder by using the choke. This trouble is encountered almost entirely during cold weather and is, to some extent, aggravated by the presence of condensed moisture on the cylinder walls. Scuffing is more apt to occur on a new motor where the surfaces are not well worn in, than in a motor which has been in use for some time.

To avoid scuffing, a film of lubricant must be maintained between the pistons and cylinders. The choke should, therefore, not be used more than necessary and the motor should not be raced during the warming-up period. During the running-in period, motor oil should be added to the gasoline in the proportion of one quart for each five gallons of gasoline. The owner should be instructed to continue this practice for the first fifteen hundred miles of service to insure adequate piston lubrication.

To insure delivery of cars in good condition to owners, precautionary measures should be taken in the handling of new cars from the time they are unloaded until delivery. Before starting motors for the first time in new cars received and also in starting motors in cars which have been in storage for more than a few days, two tablespoons of oil must be poured into each cylinder thru the sparkplug hole before cranking. After this has been done, it is best to crank the motor over a few revolutions before turning on the ignition switch.

Yours very truly,

PACKARD MOTOR CAR COMPANY



H. N. DAVOCK,

General Service Manager.

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