Some Kind Of Turbine Drive Seen

Auto Engineer Thinks It's Probable Solution of Desire for Automatic Transmission

By EDWARD W. MORRISON.

Detroit, Mich., April 20.—Some form of turbine drive is the probable solution for the multiplicities that confront the engineer in trying to work out the problems involved in the much-sought automatic transmission for the modern car.

This, at least, is the opinion of S. O. White, director of engineering of the Warner Gear Division of the Borg-Warner Corporation. Speaking before the Detroit chapter of the Society of Automotive Engineers, White suggested that some modification of the turbine drive might furnish the logical development from the fuid coupling which has been recently employed.

The fluid coupling, he said, does much to smooth out the gaps in the stepped transmission.

"By bringing an oil-cushioned, flexible drive into the line we seem to have an adjunct to the smooth final device we are hoping to achieve," he added.

He pointed out, however, that the fluid coupling, as its name suggests, is only a coupling. It has no properties of torque increase.

"It would seem to point logically," he said, "as the next step forward, to its near relative, the fluid torque converter of turbine type. This latter is merely an extension and development of the fluid coupling, having blades of a more highly developed form and a third member to take the fluid reaction.

"It has all the smoothness of the coupling and acts as a coupling, but in addition has properties of torque increase in that it is clutch, coupling and transmission, all in itself. It requires no governors nor controls, no effort nor special knowledge on the part of the driver. He merely steps on the throttle and drives. It makes no noise; there is nothing to adjust or wear out or replace for any reason."

What Engineers Really Seek.

Instead of trying to find an automatic transmission, engineers, he said, are after all merely seeking some piece of mechanism which will take the present-day gas engine and transmit its power to the wheels of our cars, smoothly, quietly, effortlessly and economically.

"Does it not seem", White asked, "that some form of turbine drive is likely to lend itself to doing what we want in an easier and simpler way than the elaborate mechanisms we have been struggling with in the past?"

Reviewing the attitude of the car owner toward an automatic transmission, he said:

"I believe he expects an automatic transmission to do his clutch work and gear shifting for him. He wants it to get relief from a certain amount of skill requirement and manuel effort. There may be features of economy, performance and safety, but it is chiefly to be regarded as a labor-saving device."

Engineers, however, must not make this factor their prime consideration, he asserted.

"After all," White continued, "The driver still wants to drive, and traffic conditions may cause him to want to do something that is not theoretically correct. If the automatic controls or brain of the transmission will not let him do this, he will not be satisfied with the results.

Driver Must Still Control.

"Making the gear-shifting automatic is not enough. We must allow the driver to retain at will almost the same amount of control he has always had.

"The matter of promptness of speed change is particularly desirable for the driver. Having been used to certain motions in hand-shifting gears, if he has nothing to do but wait for the shift to occur, the psychological effect on him is to make the time interval seem longer than it actually is.

"Then too the driver should get what he expects. That is, the transmission should definitely go through the expected series and not sometimes startle the driver by doing something else, such as occasionally missing a speed.

"Right here is where the strictly automatic device is apt to be unsatisfactory. The driver must be able to control, to quite an extent, the moment at which the shift is made.

"He may, for acceleration purposes, want to dwell longer in the geared speeds, or the situation may be such that he would like to get on up into top speed quite promptly. He may also wish to remain in top or perhaps third at a comparatively slow speed for some indefinite distance. Such requirements are most difficult to meet either by torque or speed controlled governors."

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