

Steering Boxes, Gearboxes and Differentials - just what is 600W Oil?

600W Oil was used in Model A transmissions, differentials and steering boxes when they were first manufactured. It was the oil weight of Henry's choice and it must have done its job as so many Model As have survived till today. With change in the industry, and with little in the way of a technical specification for the 600W oil and that Henry changed specifications as he developed newer cars, the original 600W oil became harder to find resulting in many car owners using any oil they could find. With these newer oils, people did often notice the puddles underneath their cars but they thought was normal for a Model A. The saying went *"If it wasn't leaking it must be empty."*

It is a mystery how or why the term "600W" became synonymous with Model A steering-gearbox-differential lubrication. The only reference to "600" or "600W" that can be found in Model A Ford literature is on page 377 of the Service Bulletin where they are discussing the seven tooth steering system. On page 375 of the Service Bulletin they recommend M-533 lubricant for the transmission and differential whereas on page 216 Ford recommend simply "gear lubricant."

As Model A's started to go through restoration, it became apparent that the wrong grade of oil was being used. Transmissions and rear differentials were using 90 weight. People were putting grease in the steering boxes. These oils and greases were used in more modern cars. It was assumed new oils meant they were better. There are a number of people and books that have tricks for matching the original type of oil. This includes STP oil treatment with a supplier's version of 600W. Some also warn against these tricks. If you ask other Model A enthusiasts you will get even more suggestions.

Quote "I would prefer using known viscosity oil rather than an oil about which I know nothing. Rather than buy an unknown, I would recommend a quality high pressure gear lubricant for the Model A steering-transmission-differential such as SAE 250 or SAE 140 in that order. SAE 80W-90 is a little thin for quiet shifting and you will probably hear more transmission and differential noise than with 250 or 140. Some companies are packaging an 85W-140 oil which is a little thin for our purpose". -- Lyle Meek, Technical Director MAFCA.

Information on 600W Oil

Everything I've found indicates 600W was mineral based gear oil, early Model T data talks about 600W Steam Cylinder Oil, which research showed having a viscosity of ISO600/ 680. ISO 320 is equivalent to SAE 85W140, ISO 460 is equivalent to SAE 140, ISO 680-1000 is equivalent to SAE 250.

The following are the ISO 600/680 equivalents available in New Zealand:

Mobil: Mobilgear 600 XP 680
BP: Energol GR-XP 680
Fuchs: Renolin CLP Gear Oil 680

Model A Ford Capacities - gearbox- differential

Add just enough fluid to the differential to bring the level to just below the opening. A good gauge is to insert your little finger to the first joint and it should have fluid on it when removed. The same goes for the transmission. Remove the filler plug on the side and fill with fluid until it comes up to just below the opening.

There is a wealth of information waiting out there, all we have to do is Google it and have plenty of spare time surfing the Internet.

Paul Hunter

The above is written following research through via the Internet, and the information presented is the author's opinion, I would encourage readers to ensure that they undertake confirmation of the above,

if changing from their oil/s currently used. Will I be changing; yes the technical arguments are in favour of the heavier oil, what have I got to lose, apart from some time and money, nothing. I believe that it is a well worthwhile exercise. WE have club members using oil weights from SAE 85 – SAE250, with everyone having their beliefs about the performance of their oil weight choice, talk to your fellow club members for their thoughts and views.

PS

To all who came along to the Club night in April, my thanks to Stephen Upson for allowing us the use of his workshop and everyone else that night for all the help given in stripping and setting up the new high ratio crown wheel and pinion. This was the first time that I had stripped down a differential and to be honest it seemed a little daunting, but with the level of expertise on hand that evening, it made the task look simple. It is not a simple task, but it is the hands-on touch/feel that was there that evening demystified the task. Henry did not afford the assembly line the time to set up the preload, blue the crown wheel and pinion, then set up shims etc to get it perfect, it must have been a first time fit on the assembly line with tolerances set well within today's criteria, a mark of Henry's quality engineering as these cars are still running today. The old crown wheel and pinion, plus the spider gears were all showing sign of the case hardening well worn, it was not noisy, it would have run well for many years to come, but I am pleased that the job has now been done, ready for Rosco's northern run this month.



Photos by Terry Costello