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**BRITISH TRANSMISSIONS / OVERDRIVES / DIFFERENTIALS
COMPONENT REBUILDING AND PARTS - NEW / REBUILT / USED**

April 2003 – Topic of the Month – Proper shifting of a Laycock overdrive

OK everybody, calm down out there. We have received some interesting emails over the last few months asking (and telling) us about the proper way to shift in and out of overdrive on the Laycock deNormanville overdrives as used on the British cars (A, J, LH, D and compact A types). We received some spirited responses – use the clutch, don't use the clutch, etc. I would like to express our opinion on the proper method to shift in and out of these overdrive units.

First let me admit that when I had cars with overdrive, especially Big Healeys, I did not shift the recommended way. It is way too cool and impossible to resist the temptation to pull up next to someone at 50 or 60 MPH and, as you shift into overdrive, accelerate away into the great beyond. This usually gets very interesting and surprised looks from the other drivers and passengers and really impresses the people who are with you in the car. What was that, warp drive? Like, you still have another gear? How many gears does his car have???!!!!

It is also way too cool to kick down from overdrive at 50 or 60 and watch the expression on the faces of other people as the engine revs on the downshift. This is especially true on the Big Healey, as the 6 cylinder really sounds great at speed. You get the fantasy of what it must feel like downshifting at the end of the straight at LeMans.

Anyway, back to the proper way to do it. Let's think for a minute why overdrives were put in cars in the first place. I mean after all, anyone can put in a 5th gear on a transmission, why an overdrive? First of all the British never do anything the way we expect or anyone else does it. This was especially true in the 40's, 50's and 60's and is why we have such interesting cars from that period. Laycock overdrives are really like a manually initiated mini automatic transmission. (I personally think a guy named Rube Goldberg had a major part in their design). The important thing to remember is that it was added as an option on most cars in order to reduce engine RPM (and consequently wear) on the highway and increase fuel mileage. Secondly it was also used to increase the number of speeds forward, giving a better selection of gear ratios for driving.

Given this objective, we can understand that the proper way to shift into overdrive is to reduce the engine RPM's, not increase the road speed of the vehicle. In fact, it is somewhat damaging to the overdrive clutch to accelerate under power during the shift process. This is akin to slipping the clutch or power shifting during the normal shifting of a regular gear. It can tend to lead to premature overdrive brake ring and clutch wear and failure. You do not need to use the regular clutch pedal at all. Get to a reasonable speed, say 45 to 50 MPH. Activate the overdrive switch. As the overdrive engages,

feather the throttle so that the road speed of the car remains the same and the engine RPM's are reduced. Voila, you have shifted the overdrive with minimum stress to it and now are cruising at a lower engine RPM. Objective achieved. Now you can accelerate to any cruising speed you desire as the overdrive is fully engaged. It is not recommended shifting into overdrive at too low a speed as this also can cause stress on the clutch and lugging the engine is not a good practice either. In fact the early overdrives had a mini Lucas centrifugal type regulator on the output shaft of the overdrive that would not allow the overdrive to be engaged below a specified speed

Shifting out of overdrive is the reverse of this process. Turn the overdrive switch to the off position. As the overdrive disengages back to normal drive, push down on the throttle to keep the car's road speed the same and increase the engine RPM until the overdrive shift is complete. This again minimizes wear to the overdrive clutch and brake ring. You can now decelerate the car as you would normally. Again, you would not want to shift out of overdrive at too high a speed as you could over-rev the engine and cause damage to it as a result.

As you can see, the basic objective of proper shifting is to reduce the wear on the clutch during the shifting process. This can easily be done with some practice and will significantly increase the life of the overdrive unit.

We have determined this shift procedure from observing many overdrive units and the wear on the key overdrive clutch components, as well as just plain common sense.

We hope this will clear up any questions on the proper way to shift these overdrives to reduce the wear on them and keep them running longer. Most likely we will generate a new set of questions on the procedure, but that is what it is all about! As always, comments and feedback are welcome! Thanks! John