Road & Track
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E code gearbox information

The E-code gearbox was a heavy duty transaxle type gearbox first used in 1988 models. Its outwards appearance stayed much the same from 1988 to 2005. Both 2 and 4WD versions were made. It was used in various vehicles such as Corolla, GT4, Celica, MR2 turbo, Camry, Caldina, RAV4. Whist technically similar to the C & S transaxles used in 'smaller vehicles", no significant parts interchange. It is probably the 1st Toyota transaxle to incorporate an internal oil pump.

The vehicle "build plate" will show under "trans" a unique code such as E50 or E153F5…

E- Signifying the heavy duty transaxle type transmission
XX or XXX- signifying the exact model, such as 53,150 etc.
F- Signifying 4WD version
5- ?????no idea. This final digit is only used on "later" models

There is no model info marked on the transaxle case. The manufacturing year can be determined by the 1st digit of the serial number. The 2nd & 3rd digits refer to the month (01 to 12). The serial number is usually found stamped on the rectangular slot where the clutch lever goes. Eg, 20988888, was made in September 1992 or 2002.

These boxes were originally designed for GL4 rated oil. In most cases, the oil will be described as "gear oil 75" (not to be confused with hypoid 75 which is diff oil). These oils are conventional gear oils and do not contain extensive anti-friction agents as the old style bronze syncro cones cannot handle really slippery oils. Gearboxes that have been operated with low friction oil additives, often eventually develop very poor syncro action as the gears become so slippery, the syncros cannot bite and slow down the heavy gears to the correct speed. When dismantled, the syncros are often not worn out, just coated. The later 2-piece syncros are very sensitive to wear.

The MR2 versions all have the selector shaft pointing towards the front of the car, with the arms for the cables connected to the selector shaft with a cotter pin. The other cases can be modified so the selector fits the other way, but it requires complete dismantling and is a lot of work and hardly worth the effort. You cannot just swap one half of the case for another as they are machined as a pair.

All except the 4wd versions could be factory fitted with a viscous limited slip diff centre. If you look down the holes where the axles go, the LSD version can be identified by:

- A pin being seen that travels across the opening (rather than a disc occupying the entire hole). The axles bottom out on this pin
- 2 separated splines on the right-hand (long axle) side

All such LSD's require special axles with longer splines on the double spline side and different sizes on the opposite side. The non LSD axle can be modified for the short axle side, but not the opposite side, as the stock axle does not have enough spline length cut on it, and it does not have enough metal to cut further. The LSD

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diff centre has a different speedo gear fitted to it and it won't swap with non-LSD speedo gears. The factory viscous LSD centre can be swapped for an aftermarket plate-type LSD, but in some cases a new (later type) speedo gear has to be fitted.

The gear ratios changed over the years and for various models. The input shaft has the gears ground onto it for 1st, reverse and 2nd, so you can't easily swap these to change the ratios, unless you change the shaft. For race use, these gears can be ground off and new gears of the chosen ratio, welded or splined on.. If you do decide to swap shafts, then the input shaft changed when 2–piece syncro rings were introduced for 2nd and 3rd gears. This change began sometime in 1992.

If you want to change the final drive (diff) ratio you need to swap:

- Output shaft which has the pinion gear ground onto it (the lower one in the gearbox)
- Crown wheel
- Oil pump drive gear

All crown wheels will physically bolt to all of the diff hemispheres, so swapping is easy.

If you dismantle the gearbox, you might note some of the gears have "nicks" around the edges of the teeth. This identifies the use of the shaft/gear, and the ratio. I can only presume this was done to limit confusion at the factory.

DATA WANTED

Anyone reading this who has a gearbox apart, or who has the original E code box in their car, can send in information and I will compile it into a table and publish it here. This is the sort of info I need……..

	1991-93 ST185	Camry V6 1MZFE 1997-9 9	1992 MR2 SW20 3sgte with LSD	
	E150F	E153		
Diff	60/14=4.285	59/15=3.933		
1	43/12=3.583	3.230	42/13	
2	45/22=2.045	1.913	44/23	
3	40/30=1.333	1.258	39/31	
4	35/36=0.972	0.918	34/37	
5	30/41=0.732	0.731	30/41=0.732	
speedo				
External ID	Triangular plate with 3 holes on transfer case—workshop selection of 2WD for m'tence purposes	Damper on the hydraulic clutch line		
Internal ID			Double syncro on 2nd , 3rd & 5th 3 notches ground onto reverse on input shaft. 1 notch ground onto 3rd & 4th on input shaft, 1st, 2nd, 3rd & 4th on laygear	