# Mercedes 722.6 Special Instructions Ver 3.6C

The following items must be considered before buying this product for the Mercedes 722.6 five speed transmission.

- The shifter is CAN bus operated and part of the Mercedes security system. The codes cannot be subtracted with the Mercury TCU. You need to open the shifter and do some modifications to connect the digital optic couplers or magnetic reed switches or Linear analogue signal via a converter board to the Mercury. The shifter position sensor is important as the TCU must do different controls on the solenoids in P R N and D positions.
- 2. The transmission does not have a speed sensor as it uses the can bus to relay speed from the wheel speed sensors of the ABS system. You can build a sensor to scan bolts on the prop shaft.

## Shift Solenoid Time

This transmission works in a different manner than normal. Here a shift solenoid is pulsed for about 0.7 seconds and switched off again. This time is set on Auxiliary output in 0.1 seconds resolution. 7=0.7 ms.

Auxiliary		
Driver Output	GP Output 1	
Auxiliary 1		7 👟

### Line- and Shift- Pressure

Line Pressure Blue will become softer as the line goes higher. Usually, a 70% valve will be maxed out so no need to make it higher and push too much current through it. At the low en 15% to 20% Duty will be required to start open the valve. So, there will be no effect below that but it will not damage if you go to zero %.

Shift Pressure yellow will become softer as the line goes higher. Usually, a 70% valve will be maxed out so no need to make it higher and push too much current through it. At the low en 15% to 20% Duty will be required to start open the valve. So, there will be no effect below that but it will not damage if you go to zero %. This solenoid is off during no shift and on for the shift time during gear changes.

There is no Map available so take care adjusting pressures. Start with a firm shift shock and work towards a more comfortable shift shock. Very important to connect the Retard output to the ECU so that torque control can be activated during shifts. No transmission today is used without torque control. It will reduce the lifetime of the transmission drastically.

See below an example of the pressure graph to use as a startup map.

NB! If at anytime you feel or see slip backoff immediately on the throttle and increase pressures by lowering the lines on the graph where the slip occurs.



### Shifting gears.

Due to the way that this box work it is impossible to go straight from ex 4<sup>th</sup> to 2<sup>nd</sup> gear. The box must go to 3<sup>rd</sup> and then 2<sup>nd</sup>. What Mercedes does is take power away from your foot and shift these solenoids as quickly as mechanically sound, then give power back to you. This makes a short delay if you blip the throttle. To prevent this delay, you may use the Tiptronic to take you to the right gear before you blip. When you finished your tuning, you can reduce the shift times and see what is the minimum you can use to ensure that shifting is solid. Remember it cannot be shorter a 1 second as the shift solenoid is already at 0.7 seconds and 2 solenoids cannot be activated at the same time. You may also try and reduce the 0.7 seconds to see what is the minimum that a shift requires. Shift times should be the longest during low power conditions due to the lower pressures. Make sure the transmission is correct here during hot and cold temperatures.

### Lockup Clutch

The manual says the lockup can be used from 2<sup>nd</sup> to 5<sup>th</sup>. Normally other boxed is from 3<sup>rd</sup>. Below is a typical setup profile for a gear on how to bring it in. Never bring a lockup in under load as the clutches is not very strong there. A good setting is 40% maximum. If you don't have torque control on the engine then rather bring it only in in higher gears and very light loads. Some very powerful engines may require you to release the lockup over a certain load. Then add this setting to open it.

Lockup TPS High



