

transmission model with seven speeds. The main focus was the modeling of the mechanical lever system. The detailed clutch model provides engineers the opportunity to develop new control algorithms in model-in-the-loop simulations. As example a cascaded PI controller was designed. The clutch model, the suitable control algorithm, the performance and the functional capabilities of a basic shift strategy were shown in a simulation run. The verification of the simulation models with the real transmission is in progress. Therefore a new transmission test bench at the TU Berlin, Chair of Electronic Measurement and Diagnostic Technology is used. At the moment the extensible hydraulic interface is used to implement a detailed synchronization model for the gear shift process. With this synchronization model in combination with the clutch model the calibration of the shifting and clutch algorithms in a model-in-the-loop simulation is feasible.

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