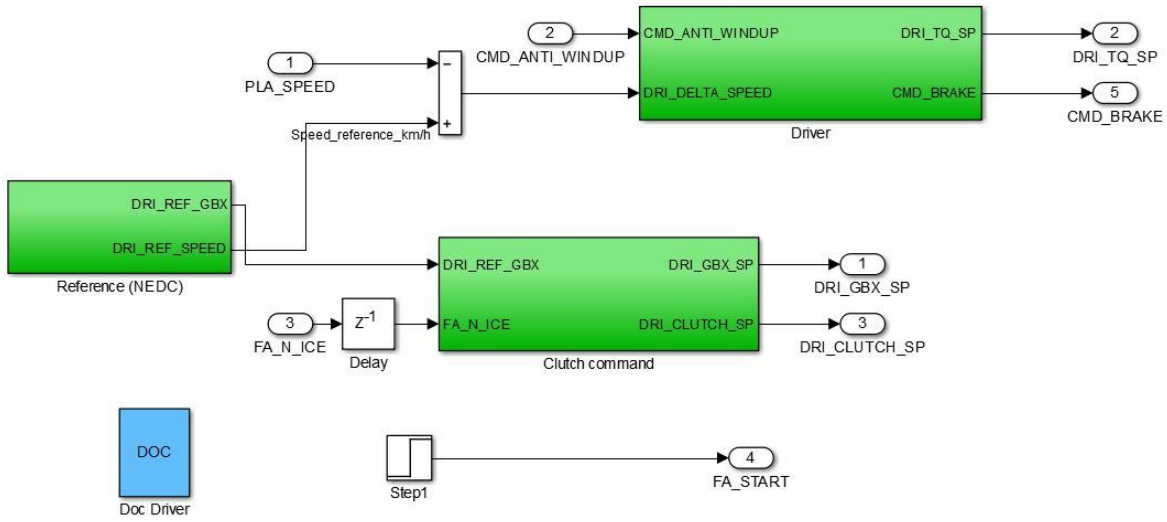
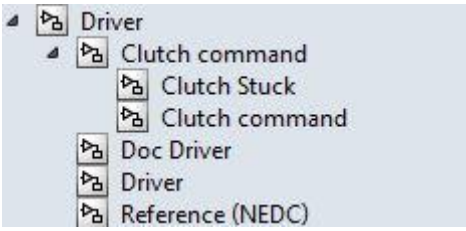
Driver model

1 System description

Model of the driver. The driver gives basic orders and follows a driving cycle (speed reference). The basic model includes the NEDC cycle references.

2 System organization





3 Signals and parameters

Inputs

Name	Description	Note
PLA_SPEED	Car speed	In km/h
CMD_ANTI_WINDUP	Input for the anti windup setting for the driver corrector	-
FA_N_ICE	Rotation speed of the ICE	rpm

Outputs

Name	Description	Note	Destination
DRI_TQ_SP	Torque request from the driver	-	Command,
DRI_CLUTCH_SP	Clutch pedal value	Range [0, 1]	Command, front axle
DRI_GBX_SP	Gearbox engaged gear	For a manual gearbox	Command, front axle
DRI_CMD_BRAKE	Brake request from the driver	Torque N.m	Command
FA_START	Request of starting ICE	binary	Command

Parameters

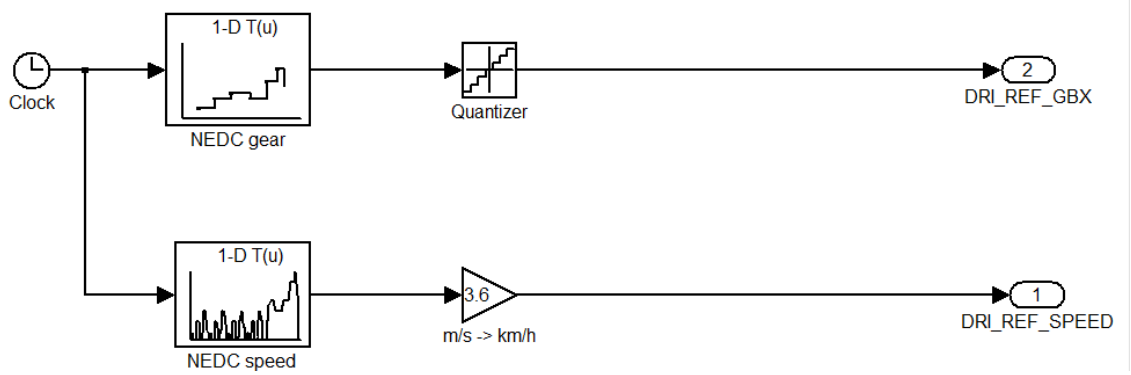
Native

Name	Type	Unit	Description	Source	Linked to
dri_cycle_speed	vector	m/s	cartonedc	Continental	dri_cycle_time
dri_cycle_time	vector	s	cartonedc	Continental	dri_cycle_speed
dri_gbx_sp	vector	-	cartonedc	Continental	dri_gbx_time
dri_gbx_time	vector	s	cartonedc	Continental	dri_gbx_sp
dri_ki	var	-	Driver corrector parameter	BEI N7 2014	
dri_kp	var	-	Driver corrector parameter	BEI N7 2014	

4 Subsystems description

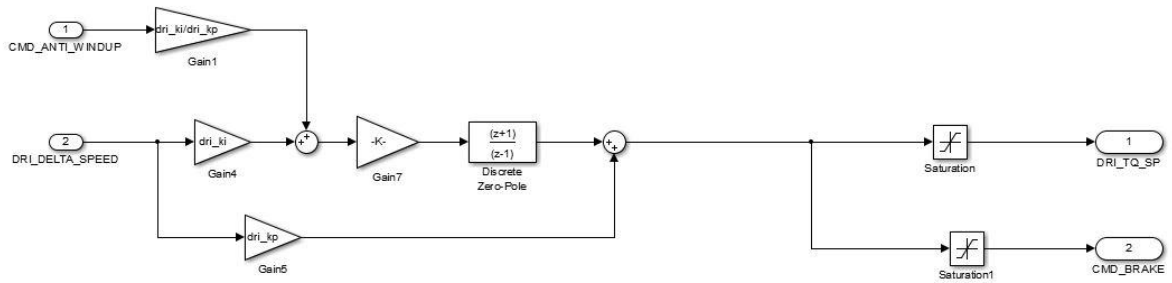
<u>Reference (NEDC):</u>

Provide the speed reference and the gear reference for the NEDC cycle



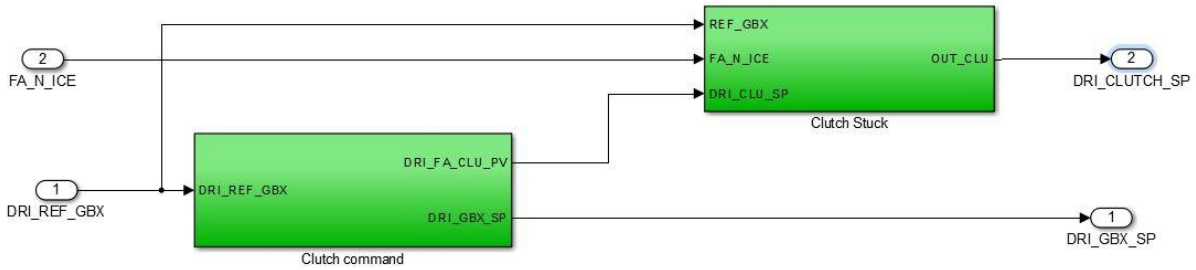
Driver:

Controller for following the speed reference. Design detailed in the BEI N7 2014.

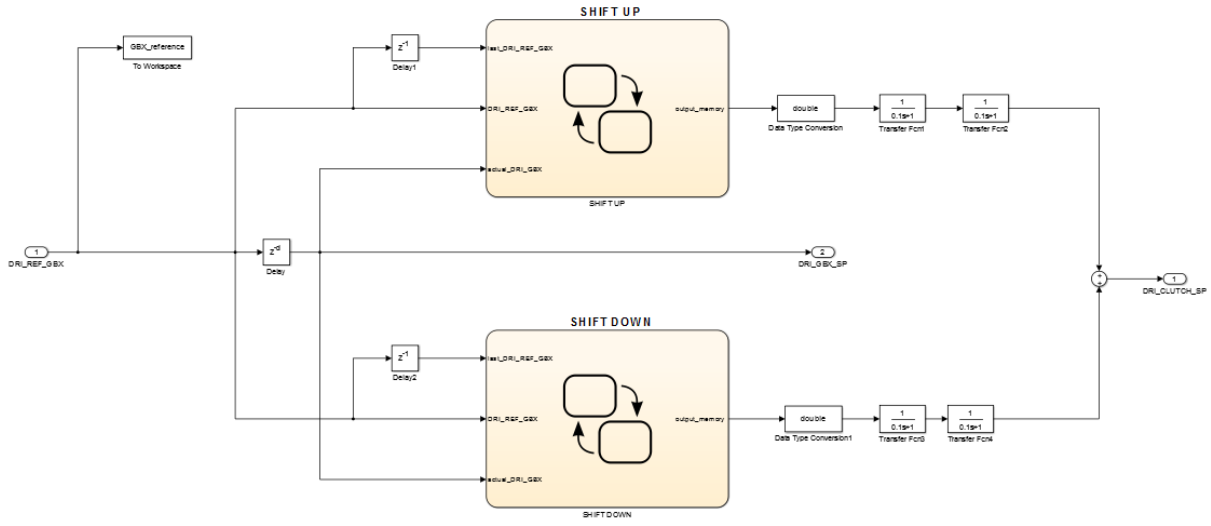


Clutch command:

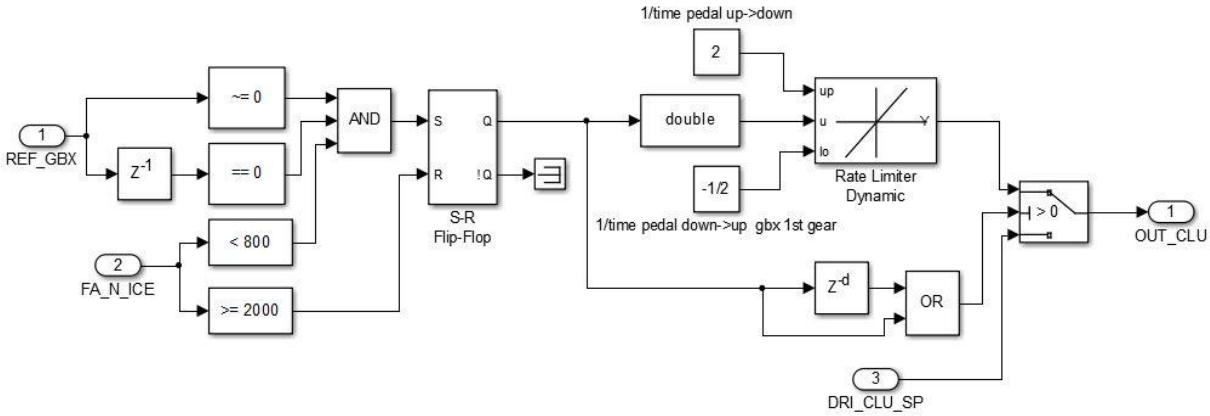
Determine automatically the clutch pedal value. The clutch also is considered open when the gearbox is set at neutral and maintained open at null speed.



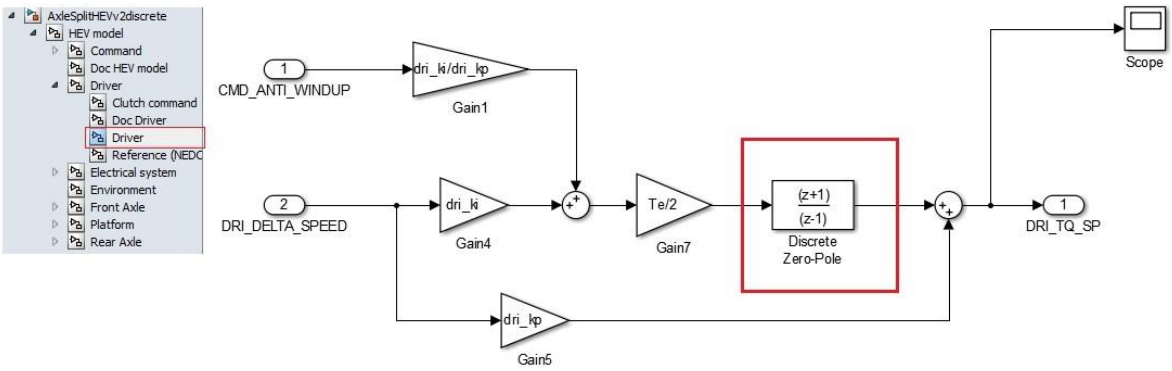
- Clutch command: determines the command of the clutch when changing gear



- Clutch Stuck: Avoids the clutch to be unstuck when gear is null



5 Discrete Model



Same inputs, outputs and parameters. The only changes are in the red square.
See part 5 (“Discrete model”) of the document “HEV model” to know how are made the discrete blocs.