MSS54

Cat heating over
ignition angle efficiency

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1st **IGNITION ANGLE ENGAGEMENT CATHER HEATING FUNCTION**

The ignition angle intervention for catalytic converter heating is controlled by the catalytic converter heating module via the condition B_KATH_AKTIV_TZ (bit 1 = 1 in the variable kath_st).

The ignition angle retardation is achieved by specifying a reduction in efficiency, which is converted into an ignition angle retardation via the torque manager depending on the operating point.
At the same time, the loss of torque caused by the late pull is compensated by increasing the filling, so that the engine torque delivered continues to correspond to the driver's specifications.

The deterioration in efficiency is made up of the following:

tz_kath_eta_offset
= KF_TZ_KATH_ETA TL/VL efficiency deterioration
KL_TZ_KATH_ETA_LL or LL efficiency deterioration

* KF_TZ_KATH_FAKTOR VL/TL weighting factor = f(tmot, t_ml)
KF_TZ_KATH_LLFAKTOR LL weighting factor = f(tmot, t_ml)

* tz_kath_factor weighting factor up/down regulation

The determination of the weighting factor tz_kath_faktor itself can be divided into five areas:

Area 1: Start or re-start (until the start torque is reduced)
Weighting factor = K_TZ_KATH_START

Area 2: Adjustment of the weighting factor The
weighting factor is adjusted linearly from the starting value with the step size
K_TZ_KATH_T_AUFREG adjusted to the value 1.0

Area 3: Ignition angle intervention fully active
weighting factor = 1.0

Area 4: Reduction of the weighting factor After
removing the condition B_KATH_AKTIV_TZ, the weighting factor is reduced linearly to zero
with the step size K_TZ_KATH_T_ABREG.

Area 5: Ignition angle intervention inactive
weighting factor = 0

The ignition angle intervention for catalytic converter heating can be blocked via the constant K_TZ_KATH_CONTROL.
equal to zero: blocked
not equal to zero: released

The control parameter K_TZ_KATH_RF_CONTROL can be used to set whether the characteristic maps are calculated with the HFM measured variable or with the rf substitute value.
equal to rf input value rf measured =
zero: not equal to zero: rf input value rf_ersatz =

Image: Overview of global ignition angle intervention for catalytic converter heaters