MSS54

module description PDR

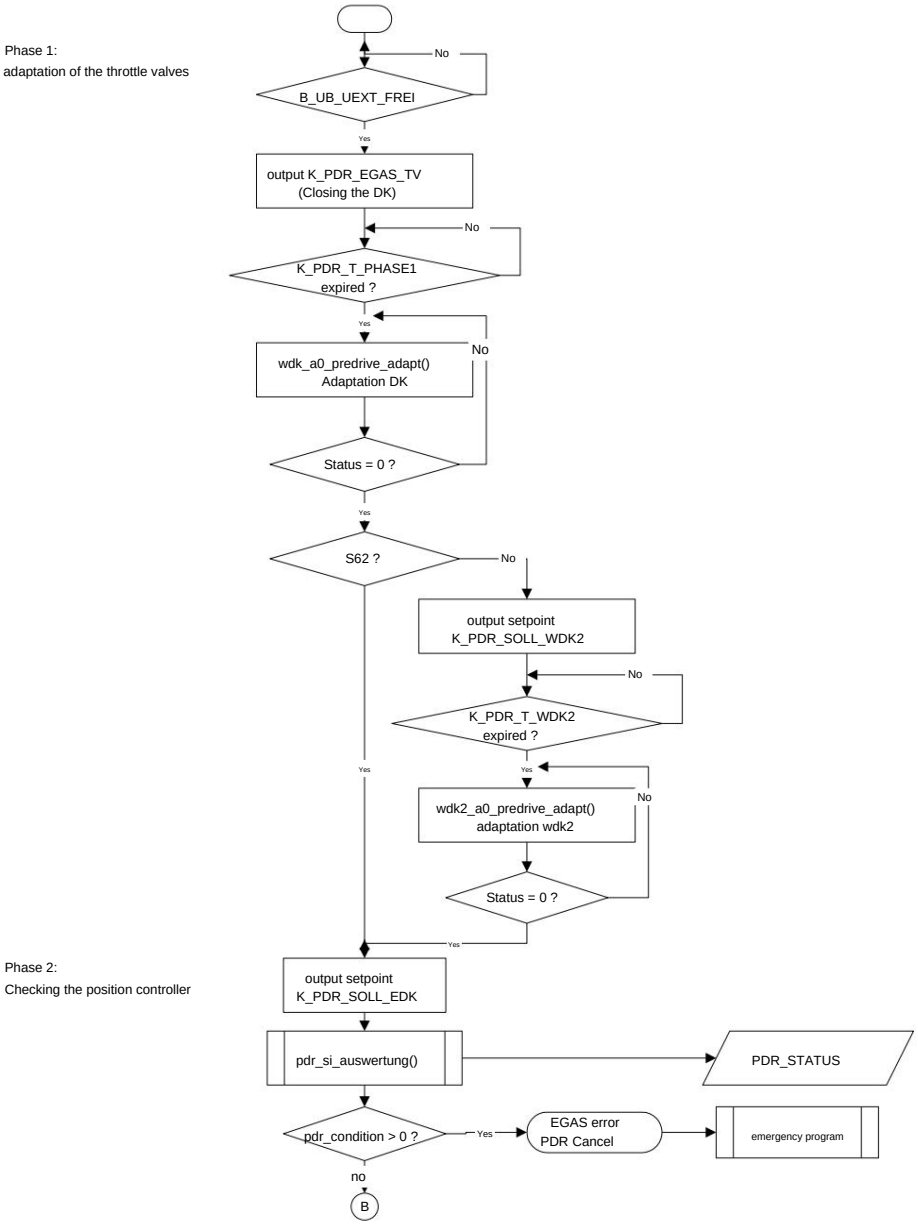
	Department	Date	name	Filename
editor	EE-221	December 4, 2003		3.03

Table of Contents: 1. (automatically from chapter headings)

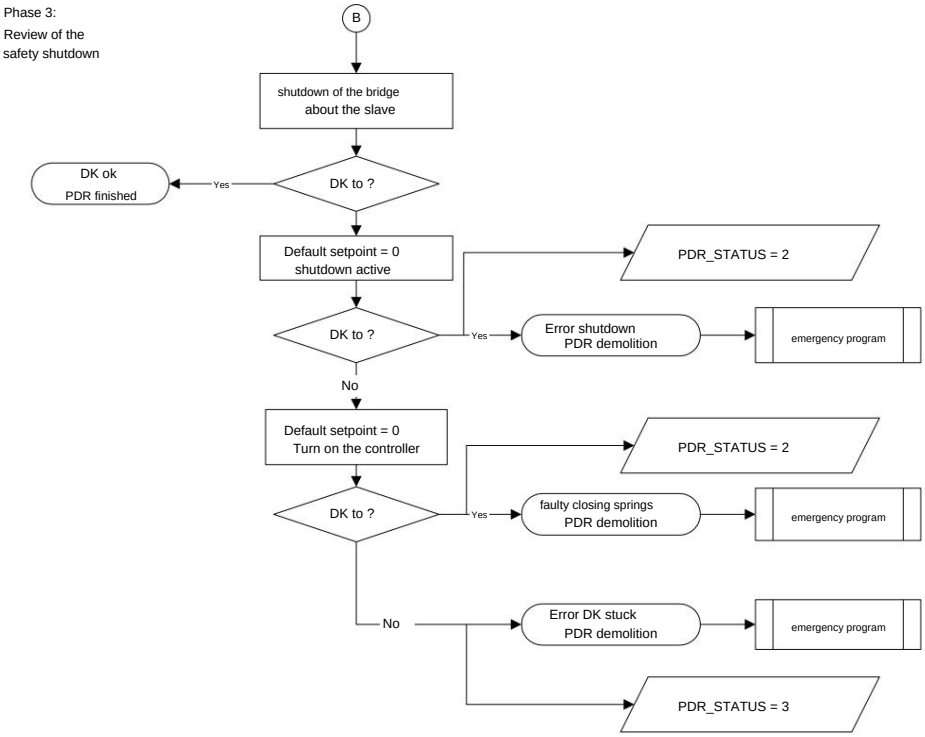
1st PRE DRIVE CHECK

After KI15 on, a predrive check runs on the master.

pdr_m is called once after KL15 when the engine is stopped by **task_pdr_m .** During the predrive check, the zero point of the throttle valves is adapted **(pdr_phase** = 1), the function of the position controller is checked **(pdr_phase** = 2) and then the safety shutdown of the slave is tested **(pdr_phase** = 3). Phase 1 is run through after every start and cannot be interrupted; phase 2 and phase 3 are aborted at engine speed. During phase 1, ignition and injection are blocked.



	Department	Date	name	Filename
editor	EE-221	December 4, 2003		3.03



1.1. ZERO POINT ADAPTION OF THE DK (PHASE 1)

The zero point adaptation is different for the motor types S62 (V-8, 2 DK potentiometers) and S54 (R-6, one DK potentiometer and one potentiometer integrated in the controller).

- Pressing the EDK with duty cycle **K_PDR_EGAS_TV** with the position controller switched off for **K_PDR_T_START** runs.
- Remain with DK pressed closed for **K_PDR_T_PHASE1** runs.

B_CFG_S62 fulfilled (S62):

- Call **wdk_a0_predrive_adapt** to adapt the DK (wdk1 and wdk2 on the S62).

B_CFG_S62 not fulfilled (S54):

- Call **wdk_a0_predrive_adapt** to adapt wdk1 via **wdk_a0_predrive_adapt**
- Setting the setpoint **K_PDR_SOLL_WDK2**
- Remain with set target value for **K_PDR_T_WDK2** runs.
- Adaptation of wdk2 by calling **wdk2_a0_predrive_adapt**

1.2. CHECKING THE POSITION CONTROLLER (PHASE 2)

- Switch on the position controller, setpoint is **K_PDR_SOLL_EDK.**
- Remain with adjusted setpoint for **K_PDR_T_PHASE1** runs.

• Call **edksi_abfrage()** to evaluate the result of the check.

The control deviation of the position controller is checked by comparing the setpoint and actual values. The result is **pdr_zustand** laid down.

1.3. CHECKING THE SLAVE SAFETY SHUTDOWN (PHASE 3)

• When the setpoint is adjusted, request the slave to switch off the bridge via Bit0 in **egas_ipk .**

• Wait until **dkm_word** is less than **K_PDR_DKM0** or timeout (counter of **K_PDR_T_PHASE3** expired).

• If DK is not closed, set position controller setpoint 0.

• If DK is now closed, the safety shutdown of the slave does not work. => Error

• If DK is still open, terminate shutdown of slave.

• If Dk is now closed, the mechanical closing of the DK works via the spring packs not. => Error

• If DK is still open, the DK is stuck. => Error.

• End of the EGAS check, switch on the bridge from the slave, position controller on, setpoint off normal operation.

After the PDR is completed, bit7 in **pdr_status** is set.

If the DK does not fall within the counting time **(K_PDR_T_PHASE3)** when the controller is switched off , Bit3 is set to **pdr_status** set.

Detected errors are entered into the error memory via **pdr_ed .**
If necessary, **pdr_zustand** can be used to branch into various emergency programs.

Mistake	impact	measure
Timeout DK 0% adaptation		emergency program 1
Time-out position controller	EGAS system cannot be operated reliably	Emergency program 1,2 or 4 (depending on result of edksi_abfrage)
Controller shutdown slave does not work.	Security concept loses intervention option	emergency program 2
Closing springs defective. After the safety shutdown, the flaps do not close.		Store DK error, emergency program 2
flaps jam		DK off, emergency program 4

1.4. FURTHER TESTS

If necessary, additional tests can be added after State 13.

1.5. CONTROL VIA DIAGNOSIS

Via the DS2 interface, when the engine is stopped, the call to **pdr_write()** the pre-drive check can be initiated.

2nd CONSTANTS, CHARACTERISTIC CURVES AND VARIABLES

2.1. CONSTANTS

K_PDR_T_START	Press the DK expiry time
K_PDR_T_PHASE1	Expiry time DK press and adaptation wdk
K_PDR_T_PHASE2	Adjusting the DK expiry time
K_PDR_T_PHASE3	expiration time DK accrue
K_PDR_A0_TIMEOUT	Timeout DK zero point adaptation
K_PDR_SOLL_EDK	setpoint value position controller
K_PDR_EGAS_TV	setpoint duty cycle
K_PDR_EDK_DMAX	allowed deviation for position controller
K_PDR_DKM0	allowed deviation for position controller from
K_PDR_T_WDK2	Adjusting the DK expiry time for adaptation of wdk2 (S54 only)
K_PDR_SOLL_WDK2	Setpoint value position controller for adaptation of wdk2 (only S54)

2.2. CHARACTERISTIC CURVES

KL_PDR_???	So far no

2.3. VARIABLES

pdr_status — status variable

Bit 0:	PDR active
Bit 1:	setpoint specification of PDR
Bit 2:	Position controller does not reach setpoint
Bit 3:	DK does not close (time out shutdown of slave)
Bit 4:	Time out Adaptation DK
Bit 5:	Error shutdown slave -> setpoint specification = 0
Bit 6:	free
Bit 7:	PDR completed and completed

pdr_ed — diagnostic status PreDRive Check

Bit 0:	flap clamps
Bit 1:	timeout shutdown by the slave
Bit 2:	timeout EGAS position controller
Bit 3:	closing springs defective
Bit 4:	-
Bit 5:	error counter greater than 0
Bit 6:	Error entered in the error log
Bit 7:	-

pdr_phase — PDR progress bar

0:	Waiting for Uext ok
1:	Adaptation DK
2:	test position controller
3:	Test emergency shutdown slave
4:	PDR finished

pdr_m_zustand — status variable PDR

0:	PDR ok
1:	Adaptation DK failed
2:	DK implausible
3:	- (doesn't exist)
4:	Actual value too large
5:	PDR implausible

pdr_abl_count — state counter