SRT / SRAE
SOFTWARE
DOCUMENTATION
SUPER-USER

14. OTHER STRATEGIES

chapter 14

Release : 1.0

REVISIONS DOCUMENT

Release	*Author*	*Date*	*Modifications*
1.0	**M.Mersier**	**01/12/2004**	• **Creation (SRA)**
2.0	**M.Mersier**	**09/19/2006**	• **Update (SRT/SRAE)**

14.1 PWM Functions

There are two PWM (Pulse Width Modulation) functions independently programmable , and that can be output on any of the three LS 1 to 3 or the four ELV 1 to 4 .
Two outputs can be selected for the PWM1 by the maps **EE.CfgU.OutputPwm1_1** and **EE.CfgU.OutputPwm1_2,** and one output can be selected for PW2 by the map **EE.CfgU.OutputPwm2** (For more details see Client_Configuration_x.doc)

14.1.1 PWM Frequency

- The PWM1 Frequency is programmable in the map **EE.Plus.FreqPwm1.**
- The PWM2 Frequency is programmable in the map **EE.Plus.FreqPwm2.**

14.1.2 Command Ratio

The ratios (duty cycle of the command) are expressed in percentage in two similar maps as a function of engine speed and inlet air pressure for PWM1 and PWM2.

- The PWM1 ratio is programmable in the map **EE.Plus.TabPwm1**
- The PWM2 ratio is programmable in the map **EE.Plus.TabPwm2**

14.2 Alarm Lamp

Three specific channels can be associated with alarm conditions: oil pressure, water temperature and battery voltage.

If any of the three alarm conditions described hereafter are met, the corresponding alarm flag(s) is(are) set in “AlarmeAcq” (see Vision.doc).
As well as the flag(s), an alarm lamp can also be switched on if an output is selected by the map **EE.CfgU.OutputAlarm** (For more details see Client_Configuration.doc).

14.2.1 Alarm Conditions

14.2.1.1 Oil Pressure

The alarm lamp is “ON” if the oil pressure is lower than the threshold **EE.Plus.SAlarmePoil,** in Bar.

14.2.1.2 Water Temperature

The alarm lamp is “ON” if the water temperature is higher than the threshold **EE.Plus.SalarmeTeau**, in °C.

14.2.1.3 Battery Voltage

The alarm lamp is "ON" if the battery voltage is lower than the threshold **EE.Plus.SAlarmeVbatt**, in Volt, and the RPM is higher than the threshold **EE.Acq.SAnaVbatt_rpm** detailed in the battery voltage chapter in the "Inputs.doc".

14.3 Fuel Pump

The fuel pump signal can be selected by the map **EE.CfgU.OutputFuelPump** to be output on any free ECU pin (LS 1 to 3, Elv 1 to 4, injector output, ignition coil output , or Lambda heater output) (see client_configuration.doc for more details).

14.3.1 Fuel pump control strategy

The fuel pump can be controlled either in a standard way, or in combination with any of the four "User strategies".
The parameter **EE.CfgU.TypePpeStrat** , selects the way the fuel pump is controlled:

The possible choices are:

- 0 : No strategy (standard one applies)
- 1 : User strategy 2a
- 2 : User strategy 2b
- 3 : User strategy 3a
- 4 : User strategy 3b

If the choice made is "0", the standard strategy is applied: the fuel pump is activated for 3 seconds on ECU power-up (to pressurise the fuel ramp), and then as soon as the engine speed is above zero. It is also active for 3 seconds after the engine speed goes back to zero (if the engine stalls, or is voluntarily killed; which repressurises the fuel ramp thus enabling a quick new restart).

Otherwise (choices 1 to 4), the fuel pump is activated if the RPM is above zero AND the associated strategy is active (the 3 seconds ON on power-up of the ECU are always valid, whatever the choices made).
It is deactivated with a certain delay depending on the conditions for deactivation:

- if it is deactivated because the RPM goes down to zero, the standard 3 seconds delay is applied.
- whereas if it is deactivated because of the User strategy exiting its own conditions, a different, programmable delay (in seconds) is applied (**EE.Plus.TempoPpeStrat**

14.4 Fuel Level Initialisation

This permits the initialisation of the fuel level variable ***"NiveauEssence"*** by the action of a switch defined for this function by the map **EE.CfgU.SwPleinInput**.(See Client_Configuration for more details) If there is no switch defined, the fuel level can only be initialised manually using "VISION".

The fuel level is saved in permanent memory (not lost on shutdown of the ECU), and the quantity of fuel injected is withdrawn, in real time, from the fuel level. Note that if the level is not initialised, it starts from whichever value was in the memory and is decreasing with fuel consumption (it can become negative if not reset).

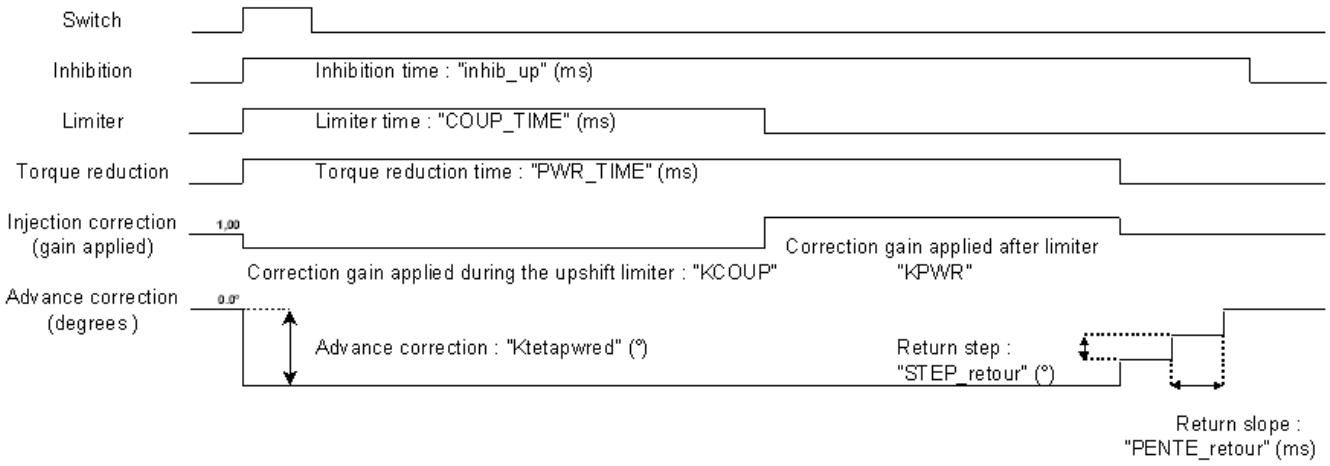
14.4.1.1 Fuel Level Initial value

When the fuel level switch is activated (or manually with Vision), the value of fuel level is initialised to the value (**EE.Ti.Plein** (in litres).

14.5 Upshift

The following maps permit the configuration of the upshift strategy on gear change .
Note that for this strategy, all the maps function of the gear position, refer to the initial gear position at the time of the upshift request (open-loop strategy).

14.5.1 Upshift Function Timing Diagram



14.5.2 Upshift Authorisation

14.5.2.1 Upshift RPM Threshold

The Upshift function is only authorised when the engine speed is greater than the threshold
EE.Plus.seuil_rpm_SW1_SW1 Upshift Threshold of engine speed above which Upshift is enabled.
Rpm

14.5.2.2 Inhibition Time

In order to avoid undesired multiple upshift requests, as well as the de-bounce, there is an inhibition time **EE.Plus.inhib_up** Upshift Time in mSec to inhibit a new upshift. mSduring which no new upshift request is taken into account.

14.5.3 Torque Reduction

This is active from the start of the upshift for a time as a function of the initial gear position. It operates on the injection with two different corrections (during and after the limiter cut), and on the ignition advance for the whole duration. After this phase, the normal injection is restored immediately, and the normal ignition advance is progressively restored by a step value every step delay, both of which are a function of the initial gear position.

14.5.3.1 Upshift Limiter

Limiter application is described in §4.5 Upshift Limiter in Speed_Limiter_x.doc

14.5.3.2 Torque reduction time

The torque reduction time **EE.Plus.PWR_TIME** Upshift Time to apply the Torque limitation in mSec mS starting at the end of the limiter as a function of initial gear position is expressed in mSec, and if the values are set to 0, the torque reduction is stopped on release of the switch.

14.5.3.3 Torque Reduction Injection Correction

During the limiter phase, the injection correction gain **FD.Plus.Kinjfil** is read in the map **EE.Plus.Kcoup** Upshift Torque Reduction Injection Correction during upshift limiteras a function of initial gear position . (gain from 0.00 to 2.00; neutral gain = 1.00)

After the limiter phase and during the torque reduction phase, the injection correction gain **FD.Plus.Kinjfil** is read in the map **EE.Plus.Kpwr** Upshift Torque Reduction Injection Correction After the limiter phase and during the torque reduction phase as a function of initial gear position . (gain from 0.00 to 2.00; neutral gain = 1.00) .

14.5.3.4 Ignition Advance Correction

The ignition advance correction **FD.Plus.Ktetafil** is read in the map **EE.Plus.Ktetapwrred** Upshift Torque Reduction Ignition Advance Correction during the application of torque reduction as a function of gear position and is applied during the application of torque reduction. (COUP_TIME + PWR_TIME)

14.5.3.5 Return Slope of Ignition Advance to Normal

These two maps **EE.Plus.STEP_retour** Upshift Step in °crankshaft applied every return time to the ignition advance returning the correction to zero after upshift and **EE.Plus.PENTE_retour**, Upshift returning the correction to zero after upshift as a function of gear position, define the return slope of the ignition advance from torque reduction to normal operation. The first defines the ignition step size in crankshaft degrees, and the second defines the time between steps.

14.6 Vehicle Speed

Not implemented