PEUGEOT 106 KDX MA 3.0
205 " MARELLI G6
306 " MARELLI 8 P

The Peugeot KDX power plant is fitted to a variety of body formats and shares three engine control systems. However they share some similar problems of note.
The systems in question are Bosch MA 3 Marelli G 6 and 8P. We are focusing on the 106 KDX MA 3.0 so be careful and ensure you identify the control system before commencing your specific system checks. It is worth noting this system can also be found on various Citroen vehicles.

The PCM is essentially a 55-pin connector utilising only two rows of connectors, the housing is in an exposed position and has been known to suffer moisture ingress, check carefully for signs of corrosion damage on the edge connectors. Later vehicles equipped with keypad or radio coupled immobilisation will retain the PCM with self-sheer bolts.

The relay is mounted underside the PCM retaining plate, it is a complex 15 pin arrangement which contains several circuits controlled by twin relays. Often the socket is sealed or made inaccessible to back probing, however spend some time studying the pin arrangement which is often available on the relay cover itself, or by carrying out continuity checks from each pin to a specific cable

If you have a 15 pin break out box modify the pin coding to enable it to fit any 15 pin arrangement and off you go, LE3 injection, SEH ABS, EZ ignition and now MA3.0 relays.

Check carefully the key on, key on crank and key on run, power up circuits, check for voltage drop and poor ground references which will result in insufficient current to either a component or the relay itself, resulting in drop out and power failure. A peak voltage drop to 10v at cranking is ok but should recover quickly to 12v when running and maintain a value no less than NBV –1v. Be especially careful of voltage drop on the ground terminals. Peugeot and Citroen have never been noted for good ground references and often suffer corrosion on the gearbox or chassis terminals, resulting in excessive voltage drop on the system grounds. Many technicians have fallen foul of checking power and ground under static conditions, or by using DMM, without selecting a peak max setting or using a genuine RMS DMM or even better by using an oscilloscope.

Remember the most simple of rules **no load-no voltage drop –no fault found**.
The keypad immobiliser or transponder gives rise to non-start intermittent problems.
The most common cause is the multi pin round socket, front near side chassis rail
The socket is a Zero friction device, whereby the pins locate side by side. They are in fact two male pins, which in turn have lateral contact. They suffer intermittent connection error resulting in cutting out or non-start errors. The symptoms often are both Red and Green LED's illuminated on the keypad.

Remove both parts of the socket from the chassis's, study the location of pins and adjust carefully to increase lateral force. Lubricate and clean the socket thoroughly before reassembling.

Fuelling errors both rich and lean can be caused by several factors, so lets take them in logical progression.

Check the fuel pressure and flow look for air bubbles in the supply correct pressure @ 1 bar. Ensure air cleaner is not restricted but I guess by now it's off the car to gain access to the SPI body. Ensure the injector seals are not leaking and allowing fuel directly into the engine intake. Check DTC's and of more importance sensor reference values as "seen" by the PCM, be stringent in their value, small errors can accumulate in fuelling errors. Check for faulty charcoal canister operation allowing fuel or vapour intothe manifold. Check the oil for fuel contamination, short journeys or poor servicing often causes this. Check the correct operation of the Lambda sensor. Oxygen sensors often go "lazy" whilst switching, do not maintain the AFR within the sticiometre window. Use only quality sensors Fuel Parts offer an excellent alternative range of sensors to O/E. Check for air leaks and poor manifold vacuum.

Check the fuel pulse time very carefully, the duration should vary subtly in keeping with closed loop control.
The injector should be removed, tested and cleaned ultrasonically if full performance is to be restored.

Finally after all this you can dial in subtle mixture correction by adjusting the potentiometer on the throttle body, but first check the twin tracks using a scope any noise or drop outs will require a new replacement.

The fuel mapping is calculated from the relevant position of the two tracks plus the rate of change, this is compared with the adaptive memory.

A word of warning here only minor changes should be made and only after all the other checks have been made, and don't forget you will never burn what you don't set fire to, so make sure the ignition energy at the plug is correct.