Generic Mode 1 PID Cross Reference

GM-UART Parameter	OBDII PID	Response	Equation	Note
Fuel Used	-	-	-	See Note 1
Vehicle Speed	01 0D	41 0D 00	XX_{16}	Speed in KPH
Engine Temp	01 05	41 05 4A	$XX_{16} - 40_{10}$	Engine Temp in DEG C
Intake Air Temp	01 0F	41 0F 42	$XX_{16} - 40_{10}$	Intake Temp in DEG C
Engine RPM	01 0C	41 0C 00 00	$((XX_{16}*256_{10})+YY_{16})/4_{10}$	RPM
Torque Multiplier				Probably have to calc
Bit Mask Group A	-	-	-	See Bit Masks Below
Bit Mask Group B	-	-	-	See Bit Masks Below
A/C Pressure	-	-	-	See Note 5
Fuel Flow	01 5E		$((256_{10} * XX_{16}) + YY_{16}) / 4_{10}$	L/hr
Bit Mask Group C	-	-	-	See Bit Masks Below
Bit Masks	-	-	-	-
Check Engine Light	01 01	41 01 00 00 20 00	-	See Note 7
Power/Economy	-	-	-	Hard Code ECONOMY
Oil Pressure	-	-	-	See Note 3
Coolant Temp	-	-	-	See Note 4
DTC Set	-	-	-	See Note 7
Vats	-	-	-	Hard Code PASSED
Fuel	01 51			See Note 2
Low Speed Fan Request	-	-	-	Hard Code OFF
Low Speed Fan Run On	-	-	-	Hard Code OFF
Ac Compressor	-	-	-	See Note 5
Trans	-	-	-	Select Option on Arduino
Gear Stick Position	-	-	-	See Note 6
Additional PIDS	-	-	-	-
Engine Run Time Since Start	01 1F	NO DATA	$(XX_{16}*256_{10})+YY_{16}$	Seconds

Notes:

PCM Shall not require a VATS/PATS handshake
High Speed fan shall not be run through BCM

Note 1:

There is no Fuel Used PID that I can find, it will be calculated by using the values from PID 015E (Fuel Flow) and 011F (Engine Run Time) ---- Probably not the best idea

Note 2:

This PID has 23 response options GM-UART only has 2, *See the Fuel Used item in Decision Logic*

0x01 = Petrol
0x05 = LPG

Note 3:

Oil Pressure is a Manufacture Specific PID, also needs to be calculated and compared against a user defined threshold

GM = 22115C - (A_{16} * 0.65_{10}) - 17.5_{10}
Ford = Unavailable on Ford – Hard Code to NORMAL
Generic OBDII will probably be Hard Coded to NORMAL

Note 4:

Coolant Temp Bit Mask will be set by comparing the actual coolant temperature PID 0105 against a User Set value, if the temperature is higher than the user specifies then the bit is set otherwise it will not be set

Note 5:

A/C Refrigerant Pressure and Compressor Status are manufacturer specific

GM = A/C High Pressure 22 15 64 – XX_{16} A/C Compressor State xx xx xx
Ford = A/C High Pressure xx xx xx A/C Compressor State 22 09 9B
Generic OBDII will probably be hard coded to prevent A/C from working

Note 6:

Gear Position is manufacturer specific

GM = 22 28 89 unsure of responses
Ford = 22 1E 23

0x70 = Park 0x60 = Reverse 50 = Neutral
0x40 = Drive 0x40 = Manual Mode

Generic = Unavailable – Hard Code Drive or Park?

Note 7:

CEL and DTC Set are available in 01 01 (bitwise encoded PID)
A request for this PID returns 4 bytes of data, labelled A B C and D.

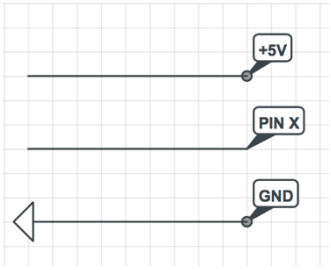
The first byte(A) contains two pieces of information. Bit A7 (MSB of byte A, the first byte) indicates whether or not the MIL (check engine light) is illuminated. Bits A6 through A0 represent the number of diagnostic trouble codes currently flagged in the ECU.

Bit	Name	Definition
A7	MIL	Off or On, indicates if the CEL/MIL is on (or should be on)
A6-A0	DTC_CNT	Number of confirmed emissions-related DTCs available for display.

Option Selection and Logic

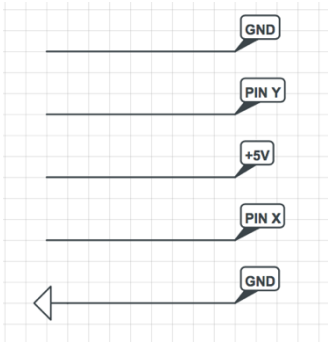
Vehicle Selection

```
If (pin x == HIGH){
        Vehicle = VT
}
Else {
        Vehicle = VX/VY/VZ
}
```



Protocol Selection

```
If (pin x == HIGH && pin y == LOW){
        Protocol = Ford
}
Else if (pin y == HIGH && pin x == LOW){
        Protocol = GM
}
Else {
        Protocol = Generic
}
```



Transmission Selection

```
If (pin x == HIGH){
        Trans = Auto
}
Else {
        Trans = Manual
}
```