This document was prepared in the following main sections (worksheets) for MY12 ERFS

Section 3 : S3-C101_HFV6_Variant1
Contains information that is common to all C101-controller ERFS applications within 12OBDG5
with engine RPOs   1) LFW 3.0L High Feature V6 SIDI, 2) LFX 3.6L HFV6 SIDI
and VPPCs   1) GMX511, GMX521

Section 4 : S4-C101_HFV6_Variant2
Contains information that is common to all C101-controller ERFS applications within 12OBDG5
with engine RPOs   1) LFW 3.0L High Feature V6 SIDI, 2) LFX 3.6L HFV6 SIDI
and VPPCs   1) GMT166, GMT168, 2) GMT172, GMT177, 3) GMT311, 4) Z1LC

Section 5 : S5-C202_HFV6_Variant1
Contains information that is common to all C202-controller ERFS applications within 12OBDG5
with engine RPOs   1) LFW 3.0L High Feature V6 SIDI, 2) LFX 3.6L HFV6 SIDI, 3) LLT 3.6L HFV6 SIDI
and VPPCs   1) GMT561, GMT967, GMT968, 2) GMX206, GMX226, GMX322,

Section 6 : S6-C202_HFV6_Variant2
Contains information that is common to all C202-controller ERFS applications within 12OBDG5
with engine RPOs   1) LFW 3.0L High Feature V6 SIDI, 2) LFX 3.6L HFV6 SIDI
and VPPC   1) GMX211, 2) GMX353

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Rail Pressure (FRP) Sensor Performance (rationality)	P018B	This DTC detects a fuel pressure sensor response stuck within the normal operating range	Absolute value of fuel pressure change as sensed during intrusive test.	<= 30 kPa			Frequency: Continuous; 12.5 ms loop. 60 seconds between intrusive tests that pass Intrusive test requested if fuel system is clamped for >= 5 seconds or fuel pressure error variance <= typically (0.3 to 0.6) (calculated over a 2.5sec period); otherwise report pass	DTC Type A 1 trip
					1. FRP Circuit Low DTC (P018C)	not active		
					2. FRP Circuit High DTC (P018D)	not active		
					3. FuelPump Circuit Low DTC (P0231)		Duration of intrusive test is fueling related (5 to 12 seconds).	
					4. FuelPump Circuit High DTC (P0232)	not active not active		
					5. FuelPump Circuit Open DTC (P023F)	not active	Intrusive test is run when fuel flow is below Max allowed fuel flow rate (Typical values in the range of 11 to 50 g/s)	
					6. Reference Voltage DTC (P0641)	not active		
					7. Fuel Pump Control Module Driver Over-temperature DTC (P064A)	not active		
					8. Control Module Internal Performance DTC (P0606)	not active		
					9. Engine run time	>=5 seconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					10. Emissions fuel level (PPEI $3FB)	not low		
					11. Fuel pump control	enabled		
					12. Fuel pump control state	normal or FRP Rationality control		
					13. Engine fuel flow	> 0.047 g/s		
					14. ECM fuel control system failure (PPEI $1ED)	failure has not occurred		
Fuel Rail Pressure (FRP) Sensor Circuit Low Voltage	P018C	This DTC detects if the fuel pressure sensor circuit is shorted low	FRP sensor voltage	< 0.14 V			72 failures out of 80 samples	DTC Type A 1 trip
					Ignition	Run or Crank	1 sample/12.5 ms	
Fuel Rail Pressure (FRP) Sensor Circuit High Voltage	P018D	This DTC detects if the fuel pressure sensor circuit is shorted high	FRP sensor voltage	> 4.86 V			72 failures out of 80 samples	DTC Type A 1 trip
					Ignition	Run or Crank	1 sample/12.5 ms	
Fuel Pump Control Circuit Low Voltage	P0231	This DTC detects if the fuel pump control circuit is shorted to low	Fuel Pump Current	> 14.48A			72 test failures in 80 test samples if Fuel Pump Current <100A	DTC Type A 1 trip
					Ignition OR	Run or Crank		
					HS Comm OR	enabled	1 sample/12.5 ms	
					Fuel Pump Control AND	enabled		
					Ignition Run/Crank Voltage	9V < voltage < 32V		
Fuel Pump Control Circuit High Voltage	P0232	This DTC detects if the fuel pump control circuit is shorted to high	Voltage measured at fuel pump circuit	> 3.86 V	Commanded fuel pump output	0% duty cycle (off)	36 test failures in 40 test samples; 1 sample/12.5ms	DTC Type A 1 trip
					Fuel pump control enable	False	Pass/Fail determination made only once per trip	
					Time that above conditions are met	>=4.0 seconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Control Circuit (Open)	P023F	This DTC detects if the fuel pump control circuit is open	Fuel Pump Current AND Fuel Pump Duty Cycle	<=0.5A >20%	 Ignition OR HS Comm OR Fuel Pump Control AND Ignition Run/Crank Voltage	 Run or Crank enabled enabled 9V < voltage < 32V	72 test failures in 80 test samples; 1 sample/12.5ms	DTC Type A 1 trip
Fuel System Control Module Enable Control Circuit	P025A	This DTC detects if there is a fault in the fuel pump control enable circuit	PPEI (PPEI (Powertrain Platform Electrical Interface) Fuel System Request ($1ED)	≠ Fuel Pump Control Module Enable Control Circuit	 Ignition AND PPEI Fuel System Request ($1ED)	 Run or Crank valid	72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip
Control Module Read Only Memory (ROM)	P0601	This DTC will be stored if any software or calibration check sum is incorrect	Calculated Checksum (CRC16)	≠ stored checksum for any of the parts (boot, software, application calibration, system calibration)	 Ignition OR HS Comm OR Fuel Pump Control	 Run or Crank enabled enabled	1 failure if it occurs during the first ROM test of the ignition cycle, otherwise 5 failures Frequency: Runs continuously in the background	DTC Type A 1 trip
Control Module Not Programmed	P0602	Indicates that the FSCM needs to be programmed	This DTC is set via calibration, when KeMEMD_b_NoStartCal	= TRUE	 Ignition	 Run or Crank	Runs once at power up	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					OR HS Comm OR Fuel Pump Control	enabled enabled		
Control Module Long Term Memory Reset	P0603	Non-volatile memory checksum error at controller power-up	Checksum at power-up	≠ checksum at power-down	 Ignition OR HS Comm OR Fuel Pump Control	 Run or Crank enabled enabled	1 failure Frequency: Once at power-up	DTC Type A 1 trip
Control Module Random Access Memory (RAM)	P0604	Indicates that control module is unable to correctly write and read data to and from RAM	Data read	≠ Data written	 Ignition OR HS Comm OR Fuel Pump Control	 Run or Crank enabled enabled	1 failure if it occurs during the first RAM test of the ignition cycle, otherwise 5 failures Frequency: Runs continuously in the background.	DTC Type A 1 trip
Control Module Internal Performance 1. Main Processor Configuration Register Test	P0606	This DTC indicates the FSCM has detected an internal processor fault or external watchdog fault (PID 2032 discriminates the source of the fault)	1. For all I/O configuration register faults: •Register contents	 Incorrect value.	 Ignition OR HS Comm OR Fuel Pump Control	 Run or Crank enabled enabled	Tests 1 and 2 1 failure Frequency: Continuously (12.5ms)	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
2. Processor clock test 3. External watchdog test			2. For Processor Clock Fault: •EE latch flag in EEPROM. OR • RAM latch flag. 3. For External Watchdog Fault: • Software control of fuel pump driver	0x5A5A 0x5A Control Lost	1. For all I/O configuration register faults: •KeMEMD_b_ProcFltCfgRegEnbl 2. For Processor Clock Fault: •KeMEMD_b_ProcFltCLKDiagEnbl 3. For External Watchdog Fault: •KeFRPD_b_FPExtWDogDiagEnbl 3. For External Watchdog Fault: •Control Module ROM(P0601) 3. For External Watchdog Fault: •Control Module RAM(P0604)	TRUE TRUE TRUE not active not active	Test 3 3 failures out of 15 samples 1 sample/12.5 ms	
Control Module Long Term Memory (EEPROM) Performance	P062F	Indicates that the NVM Error flag has not been cleared	Last EEPROM write	Did not complete	 Ignition OR HS Comm OR Fuel Pump Control	 Run or Crank enabled enabled	1 test failure Once on controller power-up	DTC Type A 1 trip
5Volt Reference Circuit (Short High/Low/Out of Range)	P0641	Detects continuous short or out of range on the #1 5V sensor reference circuit	 Reference voltage AND Output	 >= 0.5V inactive	Ignition	Run or Crank	15 failures out of 20 samples 1 sample/12.5 ms	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			OR Reference voltage AND Output OR Reference voltage AND Output	>= 5.5V active <= 4.5V active				
			OR Reference voltage	> 105% nominal (i.e., 5.25V) OR <95% nominal (i.e., 4.75V)				
Fuel Pump Control Module - Driver Over-temperature 1	P064A	This DTC detects if an internal fuel pump driver overtemperature condition exists under normal operating conditions	Pump Driver Temp	> 150C	Ignition OR HS Comm OR Fuel Pump Control KeFRPD_b_FPOverTempDiagEnbl Ignition Run/Crank	Run or Crank enabled enabled TRUE 9V<voltage<32V	3 failures out of 15 samples 1 sample/12.5 ms	DTC Type B 2 trips
Ignition 1 Switch Circuit Low Voltage	P2534	This DTC detects if the Ignition1 Switch circuit is shorted to low or open	Ignition 1 voltage	<= 6 V	Engine	Running	180 failures out of 200 samples 1 sample/25.0 ms	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Flow Performance (rationality)	P2635	This DTC detects degradation in the performance of the SIDI electronic return-less fuel system	Filtered fuel rail pressure error	<= Low Threshold (function of desired fuel rail pressure and fuel flow rate. 15% of resultant Target Pressure) OR >= High Threshold (function of desired fuel rail pressure and fuel flow rate. 15% of resultant Target Pressure) **(See Supporting Tables tab)**	1. FRP Circuit Low DTC (P018C)	not active	Filtered fuel rail pressure error Time Constant = 12.5 seconds Frequency: Continuous 12.5 ms loop	DTC Type B 2 trips
					2. FRP Circuit High DTC (P018D)	not active .		
					3. Fuel Rail Pressure Sensor Performance DTC (P018B)	not active		
					4. FuelPump Circuit Low DTC (P0231)	not active		
					5. FuelPump Circuit High DTC (P0232)	not active		
					6. FuelPump Circuit Open DTC (P023F)	not active		
					7. Reference Voltage DTC (P0641)	not active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					8. Fuel Pump Control Module Driver Over-temperature DTC's (P064A)	not active		
					9. Control Module Internal Performance DTC (P0606)	not active		
					10. An ECM fuel control system failure (PPEI $1ED)	has not occurred		
					11. The Barometric pressure (PPEI $4C1) signal	valid (for absolute fuel pressure sensor)		
					12. Engine run time	>= 30 seconds		
					13. Emissions fuel level (PPEI $3FB)	not low		
					14. Fuel pump control	enabled		
					15. Fuel pump control state	normal		
					16. Battery Voltage	11V<=voltage=<32V		
					17. Fuel flow rate **(See Supporting Tables tab)**	> 0.047 g/s **AND** <= Max allowed fuel flow rate as a function of desired rail pressure & Vbatt (Typical values in the range of 11 to 50 g/s)		
					18. Fuel Pressure Control System	Is not responding to an over-pressurization due to pressure build during DFCO or a decreasing desired pressure command.		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communication Bus "A" Off	U0073	Detects that a CAN serial data bus shorted condition has occurred to force the CAN device driver to enter a bus-off state	Bus Status	Off	Power mode	Run/Crank	5 failures out of 5 samples (5 seconds)	DTC Type B 2 trips
Lost Communication With ECM/PCM "A"	U0100	Detects that CAN serial data communication has been lost with the ECM	Message $0C9	Undetected	1. Power mode 2. Ignition Run/Crank Voltage 3. U0073	Run/Crank 11V<voltage<32V not active	12 failures out of 12 samples (12 seconds)	DTC Type B 2 trips

S3 Support Tables--FSCM

P2635   Fuel Pump Performance Maximum Fuel Flow map (grams / s)

X-axis= Desired Fuel Pressure (kiloPascals)
Y-axis= Battery voltage (volts)

	200	250	300	350	400	450	500	550	600
4.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	19.57031	16.26563	13.01563
6	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	19.57031	16.26563	13.01563
7.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	19.57031	16.26563	13.01563
9	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	19.57031	16.26563	13.01563
10.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	19.57031	16.26563	13.01563
12	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
13.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
15	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
16.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
18	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
19.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
21	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
22.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
24	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
25.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
27	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
28.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844

S3 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault Threshold High map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	30	37.5	45	52.5	60	67.5	75	82.5	90
1.5	30	37.5	45	52.5	60	67.5	75	82.5	90
3	30	37.5	45	52.5	60	67.5	75	82.5	90
4.5	30	37.5	45	52.5	60	67.5	75	82.5	90
6	30	37.5	45	52.5	60	67.5	75	82.5	90
7.5	30	37.5	45	52.5	60	67.5	75	82.5	90
9	30	37.5	45	52.5	60	67.5	75	82.5	90
10.5	30	37.5	45	52.5	60	67.5	75	82.5	90
12	30	37.5	45	52.5	60	67.5	75	82.5	90
13.5	30	37.5	45	52.5	60	67.5	75	82.5	90
15	30	37.5	45	52.5	60	67.5	75	82.5	90
16.5	30	37.5	45	52.5	60	67.5	75	82.5	90
18	30	37.5	45	52.5	60	67.5	75	82.5	90
19.5	30	37.5	45	52.5	60	67.5	75	82.5	90
21	30	37.5	45	52.5	60	67.5	75	82.5	90
22.5	30	37.5	45	52.5	60	67.5	75	82.5	90
24	30	37.5	45	52.5	60	67.5	75	82.5	90
25.5	30	37.5	45	52.5	60	67.5	75	82.5	90
27	30	37.5	45	52.5	60	67.5	75	82.5	90
28.5	30	37.5	45	52.5	60	67.5	75	82.5	90
30	30	37.5	45	52.5	60	67.5	75	82.5	90
31.5	30	37.5	45	52.5	60	67.5	75	82.5	90
33	30	37.5	45	52.5	60	67.5	75	82.5	90
34.5	30	37.5	45	52.5	60	67.5	75	82.5	90
36	30	37.5	45	52.5	60	67.5	75	82.5	90
37.5	30	37.5	45	52.5	60	67.5	75	82.5	90
39	30	37.5	45	52.5	60	67.5	75	82.5	90
40.5	30	37.5	45	52.5	60	67.5	75	82.5	90
42	30	37.5	45	52.5	60	67.5	75	82.5	90
43.5	30	37.5	45	52.5	60	67.5	75	82.5	90
45	30	37.5	45	52.5	60	67.5	75	82.5	90
46.5	30	37.5	45	52.5	60	67.5	75	82.5	90
48	30	37.5	45	52.5	60	67.5	75	82.5	90

S3 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold High map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
1.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
3	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
4.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
6	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
7.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
9	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
10.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
12	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
13.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
15	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
16.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
18	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
19.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
21	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
22.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
24	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
25.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
27	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
28.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
30	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
31.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
33	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
34.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
36	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
37.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
39	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
40.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
42	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
43.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
45	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
46.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
48	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5

S3 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault Threshold Low map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
1.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
3	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
4.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
6	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
7.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
9	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
10.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
12	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
13.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
15	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
16.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
18	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
19.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
21	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
22.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
24	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
25.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
27	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
28.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
30	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
31.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
33	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
34.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
36	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
37.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
39	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
40.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
42	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
43.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
45	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
46.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
48	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90

S3 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold Low map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
1.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
3	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
4.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
6	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
7.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
9	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
10.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
12	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
13.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
15	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
16.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
18	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
19.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
21	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
22.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
24	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
25.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
27	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
28.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
30	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
31.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
33	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
34.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
36	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
37.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
39	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
40.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
42	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
43.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
45	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
46.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
48	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Rail Pressure (FRP) Sensor Performance (rationality)	P018B	This DTC detects a fuel pressure sensor response stuck within the normal operating range	Absolute value of fuel pressure change as sensed during intrusive test.	<= 30 kPa			<u>Frequency:</u> Continuous; 12.5 ms loop. 60 seconds between intrusive tests that pass Intrusive test requested if fuel system is clamped for >= 5 seconds or fuel pressure error variance <= typically (0.3 to 0.6) (calculated over a 2.5sec period); otherwise report pass	DTC Type A 1 trip
					1. FRP Circuit Low DTC (P018C)	not active		
					2. FRP Circuit High DTC (P018D)	not active		
					3. FuelPump Circuit Low DTC (P0231)	not active	Duration of intrusive test is fueling related (5 to 12 seconds).	
					4. FuelPump Circuit High DTC (P0232)	not active		
					5. FuelPump Circuit Open DTC (P023F)	not active		
					6. Reference Voltage DTC (P0641)	not active	Intrusive test is run when fuel flow is below Max allowed fuel flow rate (Typical values in the range of 11 to 50 g/s)	
					7. Fuel Pump Control Module Driver Over-temperature DTC (P064A)	not active		
					8. Control Module Internal Performance DTC (P0606)	not active		
					9. Engine run time	>=5 seconds		
					10. Emissions fuel level (PPEI $3FB)	not low		
					11. Fuel pump control	enabled		
					12. Fuel pump control state	normal or FRP Rationality control		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					13. Engine fuel flow 14. ECM fuel control system failure (PPEI $1ED)	> 0.047 g/s failure has not occurred		
Fuel Rail Pressure (FRP) Sensor Circuit Low Voltage	P018C	This DTC detects if the fuel pressure sensor circuit is shorted low	FRP sensor voltage	< 0.14 V	Ignition	Run or Crank	72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip
Fuel Rail Pressure (FRP) Sensor Circuit High Voltage	P018D	This DTC detects if the fuel pressure sensor circuit is shorted high	FRP sensor voltage	> 4.86 V	Ignition	Run or Crank	72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip
Fuel Pump Control Circuit Low Voltage	P0231	This DTC detects if the fuel pump control circuit is shorted to low	Fuel Pump Current	> 14.48A	Ignition OR HS Comm OR Fuel Pump Control AND Ignition Run/Crank Voltage	Run or Crank enabled enabled 9V < voltage < 32V	72 test failures in 80 test samples if Fuel Pump Current <100A 1 sample/12.5 ms	DTC Type A 1 trip
Fuel Pump Control Circuit High Voltage	P0232	This DTC detects if the fuel pump control circuit is shorted to high	Voltage measured at fuel pump circuit	> 3.86 V	Commanded fuel pump output Fuel pump control enable Time that above conditions are met	0% duty cycle (off) False >=4.0 seconds	36 test failures in 40 test samples; 1 sample/12.5ms Pass/Fail determination made only once per trip	DTC Type A 1 trip
Fuel Pump Control Circuit (Open)	P023F	This DTC detects if the fuel pump control circuit is open	Fuel Pump Current	<=0.5A	Ignition	Run or Crank	72 test failures in 80 test samples; 1 sample/12.5ms	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			AND Fuel Pump Duty Cycle	>20%	OR HS Comm OR Fuel Pump Control AND Ignition Run/Crank Voltage	enabled enabled 9V < voltage < 32V		
Fuel System Control Module Enable Control Circuit	P025A	This DTC detects if there is a fault in the fuel pump control enable circuit	PPEI (PPEI (Powertrain Platform Electrical Interface) Fuel System Request ($1ED)	≠ Fuel Pump Control Module Enable Control Circuit	Ignition AND PPEI Fuel System Request ($1ED)	Run or Crank valid	72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip
Control Module Read Only Memory (ROM)	P0601	This DTC will be stored if any software or calibration check sum is incorrect	Calculated Checksum (CRC16)	≠ stored checksum for any of the parts (boot, software, application calibration, system calibration)	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	1 failure if it occurs during the first ROM test of the ignition cycle, otherwise 5 failures Frequency: Runs continuously in the background	DTC Type A 1 trip
Control Module Not Programmed	P0602	Indicates that the FSCM needs to be programmed	This DTC is set via calibration, when KeMEMD_b_NoStartCal = TRUE		Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	Runs once at power up	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Reset	P0603	Non-volatile memory checksum error at controller power-up	Checksum at power-up	≠ checksum at power-down	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	1 failure Frequency: Once at power-up	DTC Type A 1 trip
Control Module Random Access Memory (RAM)	P0604	Indicates that control module is unable to correctly write and read data to and from RAM	Data read	≠ Data written	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	1 failure if it occurs during the first RAM test of the ignition cycle, otherwise 5 failures Frequency: Runs continuously in the background.	DTC Type A 1 trip
Control Module Internal Performance 1. Main Processor Configuration Register Test 2. Processor clock test	P0606	This DTC indicates the FSCM has detected an internal processor fault or external watchdog fault (PID 2032 discriminates the source of the fault)	1. For all I/O configuration register faults: •Register contents 2. For Processor Clock Fault: •EE latch flag in EEPROM. OR	Incorrect value. 0x5A5A	Ignition OR HS Comm OR Fuel Pump Control 1. For all I/O configuration register faults: •KeMEMD_b_ProcFltCfgRegEnbl	Run or Crank enabled enabled TRUE	Tests 1 and 2 1 failure Frequency: Continuously (12.5ms) Test 3 3 failures out of 15 samples 1 sample/12.5 ms	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
3. External watchdog test			• RAM latch flag.	0x5A	2. For Processor Clock Fault: •KeMEMD_b_ProcFltCLKDiagEnbl	TRUE		
			3. For External Watchdog Fault: • Software control of fuel pump driver	Control Lost	3. For External Watchdog Fault: •KeFRPD_b_FPExtWDogDiagEnbl	TRUE		
					3. For External Watchdog Fault: •Control Module ROM(P0601)	not active		
					3. For External Watchdog Fault: •Control Module RAM(P0604)	not active		
Control Module Long Term Memory (EEPROM) Performance	P062F	Indicates that the NVM Error flag has not been cleared	Last EEPROM write	Did not complete	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	1 test failure Once on controller power-up	DTC Type A 1 trip
5Volt Reference Circuit (Short High/Low/Out of Range)	P0641	Detects continuous short or out of range on the #1 5V sensor reference circuit	Reference voltage AND Output OR Reference voltage AND Output	>= 0.5V inactive >= 5.5V active	Ignition	Run or Crank	15 failures out of 20 samples 1 sample/12.5 ms	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			OR Reference voltage AND Output	<= 4.5V active				
			OR Reference voltage	> 105% nominal (i.e., 5.25V) OR <95% nominal (i.e., 4.75V)				
Fuel Pump Control Module - Driver Over-temperature 1	P064A	This DTC detects if an internal fuel pump driver overtemperature condition exists under normal operating conditions	Pump Driver Temp	> 150C	Ignition OR HS Comm OR Fuel Pump Control KeFRPD_b_FPOverTempDiagEnbl Ignition Run/Crank	Run or Crank enabled enabled TRUE 9V<voltage<32V	3 failures out of 15 samples 1 sample/12.5 ms	DTC Type B 2 trips
Ignition 1 Switch Circuit Low Voltage	P2534	This DTC detects if the Ignition1 Switch circuit is shorted to low or open	Ignition 1 voltage	<= 6 V	Engine	Running	180 failures out of 200 samples 1 sample/25.0 ms	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Flow Performance (rationality)	P2635	This DTC detects degradation in the performance of the SIDI electronic return-less fuel system	Filtered fuel rail pressure error	<= Low Threshold (Function of desired fuel rail pressure and fuel flow rate. Margin is 15% of resultant target pressure except at flow <= 1.5g/s and target pressure <= 350kPa where the margin increases continuously at 66.6kPa/g/s as flow decreases) OR >= High Threshold (function of desired fuel rail pressure and fuel flow rate. 15% of resultant Target Pressure) **(See Supporting Tables tab)**	1. FRP Circuit Low DTC (P018C)	not active	Filtered fuel rail pressure error Time Constant = 12.5 seconds Frequency: Continuous 12.5 ms loop	DTC Type B 2 trips
					2. FRP Circuit High DTC (P018D)	not active .		
					3. Fuel Rail Pressure Sensor Performance DTC (P018B)	not active		
					4. FuelPump Circuit Low DTC (P0231)	not active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					5. FuelPump Circuit High DTC (P0232)	not active		
					6. FuelPump Circuit Open DTC (P023F)	not active		
					7. Reference Voltage DTC (P0641)	not active		
					8. Fuel Pump Control Module Driver Over-temperature DTC's (P064A)	not active		
					9. Control Module Internal Performance DTC (P0606)	not active		
					10. An ECM fuel control system failure (PPEI $1ED)	has not occurred		
					11. The Barometric pressure (PPEI $4C1) signal	valid (for absolute fuel pressure sensor)		
					12. Engine run time	>= 30 seconds		
					13. Emissions fuel level (PPEI $3FB)	not low		
					14. Fuel pump control	enabled		
					15. Fuel pump control state	normal		
					16. Battery Voltage	11V<=voltage=<32V		
					17. Fuel flow rate **(See Supporting Tables tab)**	> 0.047 g/s **AND** <= Max allowed fuel flow rate as a function of desired rail pressure & Vbatt (Typical values in the range of 11 to 50 g/s)		
					18. Fuel Pressure Control System	Is not responding to an over-pressurization due to pressure build during DFCO or a decreasing desired pressure command.		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicatio n Bus "A" Off	U0073	Detects that a CAN serial data bus shorted condition has occurred to force the CAN device driver to enter a bus-off state	Bus Status	Off	Power mode	Run/Crank	5 failures out of 5 samples (5 seconds)	DTC Type B 2 trips
Lost Communicatio n With ECM/PCM "A"	U0100	Detects that CAN serial data communication has been lost with the ECM	Message $0C9	Undetected	1. Power mode 2. Ignition Run/Crank Voltage 3. U0073	Run/Crank 11V<voltage<32V not active	12 failures out of 12 samples (12 seconds)	DTC Type B 2 trips

S4 Support Tables--FSCM

P2635   **Fuel Pump Performance Maximum Fuel Flow map (grams / s)**

X-axis= Desired Fuel Pressure (kiloPascals)
Y-axis= Battery voltage (volts)

	200	250	300	350	400	450	500	550	600
4.5	24	24	21.9375	18.75781	15.67188	12.6875	9.789063	6.976563	4.25
6	24	24	21.9375	18.75781	15.67188	12.6875	9.789063	6.976563	4.25
7.5	24	24	21.9375	18.75781	15.67188	12.6875	9.789063	6.976563	4.25
9	24	24	21.9375	18.75781	15.67188	12.6875	9.789063	6.976563	4.25
10.5	24	24	21.9375	18.75781	15.67188	12.6875	9.789063	6.976563	4.25
12	24	24	24	24	22.73438	19.64063	16.64063	13.72656	10.89844
13.5	24	24	24	24	24	24	23.5	20.48438	17.5625
15	24	24	24	24	24	24	24	24	24
16.5	24	24	24	24	24	24	24	24	24
18	24	24	24	24	24	24	24	24	24
19.5	24	24	24	24	24	24	24	24	24
21	24	24	24	24	24	24	24	24	24
22.5	24	24	24	24	24	24	24	24	24
24	24	24	24	24	24	24	24	24	24
25.5	24	24	24	24	24	24	24	24	24
27	24	24	24	24	24	24	24	24	24
28.5	24	24	24	24	24	24	24	24	24

S4 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault Threshold High map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	30	37.5	45	52.5	60	67.5	75	82.5	90
1.5	30	37.5	45	52.5	60	67.5	75	82.5	90
3	30	37.5	45	52.5	60	67.5	75	82.5	90
4.5	30	37.5	45	52.5	60	67.5	75	82.5	90
6	30	37.5	45	52.5	60	67.5	75	82.5	90
7.5	30	37.5	45	52.5	60	67.5	75	82.5	90
9	30	37.5	45	52.5	60	67.5	75	82.5	90
10.5	30	37.5	45	52.5	60	67.5	75	82.5	90
12	30	37.5	45	52.5	60	67.5	75	82.5	90
13.5	30	37.5	45	52.5	60	67.5	75	82.5	90
15	30	37.5	45	52.5	60	67.5	75	82.5	90
16.5	30	37.5	45	52.5	60	67.5	75	82.5	90
18	30	37.5	45	52.5	60	67.5	75	82.5	90
19.5	30	37.5	45	52.5	60	67.5	75	82.5	90
21	30	37.5	45	52.5	60	67.5	75	82.5	90
22.5	30	37.5	45	52.5	60	67.5	75	82.5	90
24	30	37.5	45	52.5	60	67.5	75	82.5	90
25.5	30	37.5	45	52.5	60	67.5	75	82.5	90
27	30	37.5	45	52.5	60	67.5	75	82.5	90
28.5	30	37.5	45	52.5	60	67.5	75	82.5	90
30	30	37.5	45	52.5	60	67.5	75	82.5	90
31.5	30	37.5	45	52.5	60	67.5	75	82.5	90
33	30	37.5	45	52.5	60	67.5	75	82.5	90
34.5	30	37.5	45	52.5	60	67.5	75	82.5	90
36	30	37.5	45	52.5	60	67.5	75	82.5	90
37.5	30	37.5	45	52.5	60	67.5	75	82.5	90
39	30	37.5	45	52.5	60	67.5	75	82.5	90
40.5	30	37.5	45	52.5	60	67.5	75	82.5	90
42	30	37.5	45	52.5	60	67.5	75	82.5	90
43.5	30	37.5	45	52.5	60	67.5	75	82.5	90
45	30	37.5	45	52.5	60	67.5	75	82.5	90
46.5	30	37.5	45	52.5	60	67.5	75	82.5	90
48	30	37.5	45	52.5	60	67.5	75	82.5	90

S4 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold High map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
1.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
3	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
4.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
6	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
7.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
9	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
10.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
12	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
13.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
15	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
16.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
18	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
19.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
21	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
22.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
24	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
25.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
27	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
28.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
30	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
31.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
33	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
34.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
36	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
37.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
39	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
40.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
42	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
43.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
45	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
46.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
48	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5

S4 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault Threshold Low map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	-260	-210	-160	-110	-60	-67.5	-75	-82.5	-90
1.5	-145	-125	-102.5	-81.25	-60	-67.5	-75	-82.5	-90
3	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
4.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
6	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
7.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
9	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
10.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
12	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
13.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
15	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
16.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
18	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
19.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
21	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
22.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
24	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
25.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
27	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
28.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
30	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
31.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
33	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
34.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
36	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
37.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
39	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
40.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
42	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
43.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
45	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
46.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
48	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90

S4 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold Low map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	-221	-178.5	-136	-93.5	-51	-57.375	-63.75	-70.125	-76.5
1.5	-123.25	-106.25	-87.125	-69.0625	-51	-57.375	-63.75	-70.125	-76.5
3	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
4.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
6	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
7.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
9	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
10.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
12	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
13.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
15	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
16.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
18	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
19.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
21	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
22.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
24	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
25.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
27	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
28.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
30	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
31.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
33	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
34.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
36	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
37.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
39	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
40.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
42	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
43.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
45	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
46.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
48	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Rail Pressure (FRP) Sensor Performance (rationality)	P018B	This DTC detects a fuel pressure sensor response stuck within the normal operating range	Absolute value of change in fuel pressure as sensed during intrusive test.	<= 30 kPa			Frequency: Continuous; 12.5 ms loop. 60 seconds between intrusive tests that pass Intrusive test requested if fuel system is clamped for >= 5 seconds or fuel pressure error variance <= typically (0.3 to 0.6) (calculated over a 2.5sec period); otherwise report pass	DTC Type A 1 trip
					1. FRP Circuit Low DTC (P018C)	not active		
					2. FRP Circuit High DTC (P01	not active		
					3. FuelPump Circuit Low DTC (P0231)		Duration of intrusive test is fueling related (5 to 12 seconds).	
						not active		
					4. FuelPump Circuit High DTC (P0232)	not active		
					5. FuelPump Circuit Open DTC (P023F)	not active	Intrusive test is run when fuel flow is below Max allowed fuel flow rate (Typical values in the range of 11 to 50 g/s)	
					6. Reference Voltage DTC (P0641)	not active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					7. Fuel Pump Control Module Driver Over-temperature DTC's (P064A, P1255)	not active		
					8. Control Module Internal Performance DTC (P0606)	not active		
					9. Engine run time	>=5 seconds		
					10. Emissions fuel level (PPEI $3FB) AND	not low		
					Engine Run Time	> 30 sec		
					11. Fuel pump control	enabled		
					12. Fuel pump control state	normal or FRP Rationality control		
					13. Engine fuel flow	> 0.047 g/s		
					14. ECM fuel control system failure (PPEI $1ED)	failure has not occurred		
Fuel Rail Pressure (FRP) Sensor Circuit Low Voltage	P018C	This DTC detects if the fuel pressure sensor circuit is shorted to low	FRP sensor voltage	< 0.14 V			72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip
					Ignition	Run or Crank		
Fuel Rail Pressure (FRP) Sensor Circuit High Voltage	P018D	This DTC detects if the fuel pressure sensor circuit is shorted to high	FRP sensor voltage	> 4.86 V			72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip
					Ignition	Run or Crank		
Fuel Pump Control Circuit Low Voltage	P0231	This DTC detects if the fuel pump control circuit is shorted to low	Fuel Pump Current	> 14.48A			72 test failures in 80 test samples if Fuel Pump Current <100A 3 test failures in 15 test samples if Fuel Pump Current >=100A	DTC Type A 1 trip
					Ignition OR	Run or Crank		
					HS Comm	enabled		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					OR		1 sample/12.5 ms	
					Fuel Pump Control AND Ignition Run/Crank Voltage	enabled 9V < voltage < 32V		
Fuel Pump Control Circuit High Voltage	P0232	This DTC detects if the fuel pump control circuit is shorted to high	Voltage measured at fuel pump circuit	> 3.86 V	Commanded fuel pump output	0% duty cycle (off)	36 test failures in 40 test samples; 1 sample/12.5ms	DTC Type A 1 trip
					Fuel pump control enable	False	Pass/Fail determination made only once per trip	
					Time that above conditions are met	>=4.0 seconds		
Fuel Pump Control Circuit (Open)	P023F	This DTC detects if the fuel pump control circuit is open	Fuel Pump Current	<=0.5A			72 test failures in 80 test samples; 1 sample/12.5ms	DTC Type A 1 trip
					Ignition OR HS Comm OR Fuel Pump Control AND	Run or Crank Enabled Enabled		
			AND Fuel Pump Duty Cycle	> 20%	Ignition Run/Crank voltage	9V <voltage< 32V		
Fuel System Control Module Enable Control Circuit	P025A	This DTC detects if there is a fault in the fuel pump control enable circuit	PPEI (PPEI (Powertrain Platform Electrical Interface) Fuel System Request ($1ED)	≠ Fuel Pump Control Module Enable Control Circuit	Ignition AND PPEI Fuel System Request ($1ED)	Run or Crank Valid	72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory (ROM)	P0601	This DTC will be stored if any software or calibration check sum is incorrect	Calculated Checksum (CRC16)	≠ stored checksum for any of the parts (boot, software, application calibration, system calibration)	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	1 failure if it occurs during the first ROM test of the ignition cycle, otherwise 5 failures Frequency: Runs continuously in the background	DTC Type A 1 trip
Control Module Not Programmed	P0602	Indicates that the FSCM needs to be programmed	This DTC is set via calibration, when KeMEMD_b_NoStartCal	TRUE	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	Runs once at power up	DTC Type A 1 trip
Control Module Long Term Memory Reset	P0603	Non-volatile memory checksum error at controller power-up	Checksum at power-up	≠ checksum at power-down	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	1 failure Frequency: Once at power-up	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Random Access Memory (RAM)	P0604	Indicates that control module is unable to correctly write and read data to and from RAM	Data read	≠ Data written			1 failure if it occurs during the first RAM test of the ignition cycle, otherwise 5 failures	DTC Type A 1 trip
					Ignition OR HS Comm	Run or Crank enabled	Frequency: Runs continuously in the background.	
					OR Fuel Pump Control	enabled		
Control Module Internal Performance 1. Main Processor Configuration Register Test	P0606	This DTC indicates the FSCM has detected an internal processor fault or external watchdog fault (PID 2032 differentiates cause of fault.)	1. For all I/O configuration register faults:				Tests 1 and 2 1 failure Frequency: Continuously (12.5ms)	DTC Type A 1 trip
			•Register contents	Incorrect value.	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled		
2. Processor clock test			2. For Processor Clock Fault: •EE latch flag in EEPROM. OR	0x5A5A	1. For all I/O configuration register faults: •KeMEMD_b_ProcFltCfgReg Enbl	TRUE	Test 3 3 failures out of 15 samples 1 sample/12.5 ms	
			• RAM latch flag.	0x5A	2. For Processor Clock Fault: •KeMEMD_b_ProcFltCLKDia gEnbl	TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
3. External watchdog test			3. For External Watchdog Fault: • Software control of fuel pump driver	Control Lost	3. For External Watchdog Fault: •KeFRPD_b_FPExtWDogDiagEnbl 3. For External Watchdog Fault: •Control Module ROM(P0601) 3. For External Watchdog Fault: •Control Module RAM(P0604)	TRUE not active not active		
Control Module Long Term Memory (EEPROM) Performance	P062F	Indicates that the NVM Error flag has not been cleared	Last EEPROM write	Did not complete	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	1 test failure Once on controller power-up	DTC Type A 1 trip
5Volt Reference Circuit (Short High/Low/Out of Range)	P0641	Detects continuous short or out of range on the #1 5V sensor reference circuit	Reference voltage AND Output OR Reference voltage AND Output OR Reference voltage AND Output	>= 0.5V inactive . >= 5.5V active <= 4.5V active	Ignition	Run or Crank	15 failures out of 20 samples 1 sample/12.5 ms	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			OR Reference voltage	> 102.5% nominal (i.e., 5.125V) OR <97.5% nominal (i.e., 4.875V)				
Fuel Pump Control Module - Driver Over-temperature 1	P064A	This DTC detects if an internal fuel pump driver overtemperature condition exists under normal operating conditions (Tier 1 supplier Continental responsibility)	Module Range of Operation	1. Module is within Acceptable Operation Range (Motorola's responsibility - FSCM is in normal operating range for module voltage versus PWM duty cycle. Linear range from 100% @ 12.5V to 70% @ 18V.)	Ignition OR HS Comm OR Fuel Pump Control AND Ignition Run / Crank	Run or Crank Enabled Enabled 9V<voltage<32V	3 failures out of 15 samples 1 sample/12.5 ms	DTC Type B 2 trips
			AND Fuel pump driver Temp	> 190C	KeFRPD_b_FPOverTempDiagEnbl	TRUE		
Fuel Pump Control Module - Driver Over-temperature 2	P1255	This DTC detects if an internal fuel pump driver overtemperature condition exists under extreme operating conditions (GM's responsibility)	Module Range of Operation	Outside normal range (FSCM is NOT in normal operating range for module voltage versus PWM duty cycle. Linear range from 100% @ 12.5V to 70% @ 18V.)	Ignition OR HS Comm OR Fuel Pump Control AND Ignition Run / Crank	Run or Crank Enabled Enabled 9V<voltage<32V	3 failures out of 15 samples 1 sample/12.5 ms	DTC Type B 2 trips
			AND Fuel pump driver Temp	> 190C	KeFRPD_b_FPOverTempDiagEnbl	TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Ignition 1 Switch Circuit Low Voltage	P2534	This DTC detects if the Ignition1 Switch circuit is shorted to low or open	Ignition 1 voltage	<= 6 V	Engine	Running	180 failures out of 200 samples 1 sample/25.0 ms	DTC Type A 1 trip
Fuel Pump Flow Performance (rationality)	P2635	This DTC detects degradation in the performance of the SIDI electronic return-less fuel system	Filtered fuel rail pressure error	<= Low Threshold (function of desired fuel rail pressure and fuel flow rate. 15% of resultant Target Pressure) OR >= High Threshold (function of desired fuel rail pressure and fuel flow rate. 15% of resultant Target Pressure) (See Supporting Tables tab)	1. FRP Circuit Low DTC (P018C)	not active	Filtered fuel rail pressure error Time Constant = 12.5 seconds Frequency: Continuous 12.5 ms loop	DTC Type B 2 trips
					2. FRP Circuit High DTC (P018D)	not active		
					3. Fuel Pressure Sensor Performance DTC (P018B)	not active		
					4. FuelPump Circuit Low DTC (P0231)	not active		
					5. FuelPump Circuit High DTC (P0232)	not active		
					6. FuelPump Circuit Open DTC (P023F)	not active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					7. Reference Voltage DTC (P0641)	not active		
					8. Fuel Pump Control Module Driver Over-temperature DTC's (P064A, P1255)	not active		
					9. Control Module Internal Performance DTC (P0606)	not active		
					10. An ECM fuel control system failure (PPEI $1ED)	has not occurred		
					11. The Barometric pressure (PPEI $4C1) signal	valid (for absolute fuel pressure sensor)		
					12. Engine run time	>= 30 seconds		
					13. Emissions fuel level (PPEI $3FB) AND Engine Run Time	not low > 30 sec		
					14. Fuel pump control	enabled		
					15. Fuel pump control state	normal		
					16. Battery Voltage	11V<=voltage=<32V		
					17. Fuel flow rate (See Supporting Tables tab)	> 0.047 g/s AND <= Max allowed fuel flow rate as a function of desired rail pressure & Vbatt (Typical values in the range of 11 to 50 g/s)		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					18. Fuel Pressure Control System	Is not responding to an over-pressurization due to pressure build during DFCO or a decreasing desired pressure command.		
Control Module Communication Bus "A" Off	U0073	Detects that a CAN serial data bus shorted condition has occurred to force the CAN device driver to enter a bus-off state	Bus Status	Off	Power mode	Run/Crank	5 failures out of 5 samples (5 seconds)	DTC Type B 2 trips
Lost Communication With ECM/PCM "A"	U0100	Detects that CAN serial data communication has been lost with the ECM	Message $0C9	Undetected	1. Power mode 2. Ignition Run/Crank Voltage 3. U0073	Run/Crank 11V<=voltage=<32V not active	12 failures out of 12 samples (12 seconds)	DTC Type B 2 trips

S5 Support Tables--FSCM

P2635   Fuel Pump Performance Maximum Fuel Flow map (grams / s)

X-axis= Desired Fuel Pressure (kiloPascals)
Y-axis= Battery voltage (volts)

	200	250	300	350	400	450	500	550	600
4.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	19.57031	16.26563	13.01563
6	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	19.57031	16.26563	13.01563
7.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	19.57031	16.26563	13.01563
9	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	19.57031	16.26563	13.01563
10.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	19.57031	16.26563	13.01563
12	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
13.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
15	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
16.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
18	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
19.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
21	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
22.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
24	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
25.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
27	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844
28.5	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844	20.39844

S5 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault Threshold High map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	30	37.5	45	52.5	60	67.5	75	82.5	90
1.5	30	37.5	45	52.5	60	67.5	75	82.5	90
3	30	37.5	45	52.5	60	67.5	75	82.5	90
4.5	30	37.5	45	52.5	60	67.5	75	82.5	90
6	30	37.5	45	52.5	60	67.5	75	82.5	90
7.5	30	37.5	45	52.5	60	67.5	75	82.5	90
9	30	37.5	45	52.5	60	67.5	75	82.5	90
10.5	30	37.5	45	52.5	60	67.5	75	82.5	90
12	30	37.5	45	52.5	60	67.5	75	82.5	90
13.5	30	37.5	45	52.5	60	67.5	75	82.5	90
15	30	37.5	45	52.5	60	67.5	75	82.5	90
16.5	30	37.5	45	52.5	60	67.5	75	82.5	90
18	30	37.5	45	52.5	60	67.5	75	82.5	90
19.5	30	37.5	45	52.5	60	67.5	75	82.5	90
21	30	37.5	45	52.5	60	67.5	75	82.5	90
22.5	30	37.5	45	52.5	60	67.5	75	82.5	90
24	30	37.5	45	52.5	60	67.5	75	82.5	90
25.5	30	37.5	45	52.5	60	67.5	75	82.5	90
27	30	37.5	45	52.5	60	67.5	75	82.5	90
28.5	30	37.5	45	52.5	60	67.5	75	82.5	90
30	30	37.5	45	52.5	60	67.5	75	82.5	90
31.5	30	37.5	45	52.5	60	67.5	75	82.5	90
33	30	37.5	45	52.5	60	67.5	75	82.5	90
34.5	30	37.5	45	52.5	60	67.5	75	82.5	90
36	30	37.5	45	52.5	60	67.5	75	82.5	90
37.5	30	37.5	45	52.5	60	67.5	75	82.5	90
39	30	37.5	45	52.5	60	67.5	75	82.5	90
40.5	30	37.5	45	52.5	60	67.5	75	82.5	90
42	30	37.5	45	52.5	60	67.5	75	82.5	90
43.5	30	37.5	45	52.5	60	67.5	75	82.5	90
45	30	37.5	45	52.5	60	67.5	75	82.5	90
46.5	30	37.5	45	52.5	60	67.5	75	82.5	90
48	30	37.5	45	52.5	60	67.5	75	82.5	90

S5 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold High map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
1.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
3	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
4.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
6	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
7.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
9	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
10.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
12	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
13.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
15	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
16.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
18	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
19.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
21	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
22.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
24	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
25.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
27	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
28.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
30	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
31.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
33	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
34.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
36	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
37.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
39	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
40.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
42	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
43.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
45	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
46.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
48	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5

S5 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault Threshold Low map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
1.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
3	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
4.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
6	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
7.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
9	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
10.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
12	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
13.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
15	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
16.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
18	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
19.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
21	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
22.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
24	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
25.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
27	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
28.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
30	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
31.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
33	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
34.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
36	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
37.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
39	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
40.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
42	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
43.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
45	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
46.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
48	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90

S5 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold Low map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
1.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
3	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
4.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
6	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
7.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
9	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
10.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
12	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
13.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
15	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
16.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
18	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
19.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
21	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
22.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
24	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
25.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
27	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
28.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
30	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
31.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
33	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
34.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
36	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
37.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
39	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
40.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
42	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
43.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
45	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
46.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
48	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Rail Pressure (FRP) Sensor Performance (rationality)	P018B	This DTC detects a fuel pressure sensor response stuck within the normal operating range	Absolute value of change in fuel pressure as sensed during intrusive test.	<= 30 kPa			<u>Frequency:</u> Continuous; 12.5 ms loop. 60 seconds between intrusive tests that pass Intrusive test requested if fuel system is clamped for >= 5 seconds or fuel pressure error variance <= typically (0.3 to 0.6) (calculated over a 2.5sec period); otherwise report pass	DTC Type A 1 trip
					1. FRP Circuit Low DTC (P018C)	not active		
					2. FRP Circuit High DTC (P018	not active		
					3. FuelPump Circuit Low DTC (P0231)		Duration of intrusive test is fueling related (5 to 12 seconds).	
					4. FuelPump Circuit High DTC (P0232)	not active not active		
					5. FuelPump Circuit Open DTC (P023F)	not active	Intrusive test is run when fuel flow is below Max allowed fuel flow rate (Typical values in the range of 11 to 50 g/s)	
					6. Reference Voltage DTC (P0641)	not active		
					7. Fuel Pump Control Module Driver Over-temperature DTC's (P064A, P1255)	not active		
					8. Control Module Internal Performance DTC (P0606)	not active		
					9. Engine run time	>=5 seconds		
					10. Emissions fuel level (PPEI $3FB) AND	not low		
					Engine Run Time	> 30 sec		
					11. Fuel pump control	enabled		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					12. Fuel pump control state 13. Engine fuel flow 14. ECM fuel control system failure (PPEI $1ED)	normal or FRP Rationality control > 0.047 g/s failure has not occurred		
Fuel Rail Pressure (FRP) Sensor Circuit Low Voltage	P018C	This DTC detects if the fuel pressure sensor circuit is shorted to low	FRP sensor voltage	< 0.14 V			72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip
					Ignition	Run or Crank		
Fuel Rail Pressure (FRP) Sensor Circuit High Voltage	P018D	This DTC detects if the fuel pressure sensor circuit is shorted to high	FRP sensor voltage	> 4.86 V			72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip
					Ignition	Run or Crank		
Fuel Pump Control Circuit Low Voltage	P0231	This DTC detects if the fuel pump control circuit is shorted to low	Fuel Pump Current	> 14.48A			72 test failures in 80 test samples if Fuel Pump Current <100A 3 test failures in 15 test samples if Fuel Pump Current >=100A 1 sample/12.5 ms	DTC Type A 1 trip
					Ignition OR HS Comm OR Fuel Pump Control AND Ignition Run/Crank Voltage	Run or Crank enabled enabled 9V < voltage < 32V		
Fuel Pump Control Circuit High Voltage	P0232	This DTC detects if the fuel pump control circuit is shorted to high	Voltage measured at fuel pump circuit	> 3.86 V	Commanded fuel pump output Fuel pump control enable Time that above conditions are met	0% duty cycle (off) False >=4.0 seconds	36 test failures in 40 test samples; 1 sample/12.5ms Pass/Fail determination made only once per trip	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Control Circuit (Open)	P023F	This DTC detects if the fuel pump control circuit is open	Fuel Pump Current AND Fuel Pump Duty Cycle	<=0.5A > 20%	Ignition OR HS Comm OR Fuel Pump Control AND Ignition Run/Crank voltage	Run or Crank Enabled Enabled 9V <voltage< 32V	72 test failures in 80 test samples; 1 sample/12.5ms	DTC Type A 1 trip
Fuel System Control Module Enable Control Circuit	P025A	This DTC detects if there is a fault in the fuel pump control enable circuit	PPEI (PPEI (Powertrain Platform Electrical Interface) Fuel System Request ($1ED)	≠ Fuel Pump Control Module Enable Control Circuit	Ignition AND PPEI Fuel System Request ($1ED)	Run or Crank Valid	72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip
Control Module Read Only Memory (ROM)	P0601	This DTC will be stored if any software or calibration check sum is incorrect	Calculated Checksum (CRC16)	≠ stored checksum for any of the parts (boot, software, application calibration, system calibration)	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	1 failure if it occurs during the first ROM test of the ignition cycle, otherwise 5 failures Frequency: Runs continuously in the background	DTC Type A 1 trip
Control Module Not Programmed	P0602	Indicates that the FSCM needs to be programmed	This DTC is set via calibration, when KeMEMD_b_NoStartCal	TRUE	 Ignition OR HS Comm OR Fuel Pump Control	 Run or Crank enabled enabled	Runs once at power up	DTC Type A 1 trip
Control Module Long Term Memory Reset	P0603	Non-volatile memory checksum error at controller power-up	Checksum at power-up	≠ checksum at power-down	 Ignition OR	Run or Crank	1 failure Frequency: Once at power-up	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					HS Comm OR Fuel Pump Control	enabled enabled		
Control Module Random Access Memory (RAM)	P0604	Indicates that control module is unable to correctly write and read data to and from RAM	Data read	≠ Data written			1 failure if it occurs during the first RAM test of the ignition cycle, otherwise 5 failures	DTC Type A 1 trip
					Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	Frequency: Runs continuously in the background.	
Control Module Internal Performance 1. Main Processor Configuration Register Test	P0606	This DTC indicates the FSCM has detected an internal processor fault or external watchdog fault (PID 2032 differentiates cause of fault.)	1. For all I/O configuration register faults:				Tests 1 and 2 1 failure Frequency: Continuously (12.5ms)	DTC Type A 1 trip
			•Register contents	Incorrect value.	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled		
2. Processor clock test			2. For Processor Clock Fault: •EE latch flag in EEPROM. OR	0x5A5A	1. For all I/O configuration register faults: •KeMEMD_b_ProcFltCfgRegEnbl	TRUE	Test 3 3 failures out of 15 samples 1 sample/12.5 ms	
			• RAM latch flag.	0x5A	2. For Processor Clock Fault: •KeMEMD_b_ProcFltCLKDiagEnbl	TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
3. External watchdog test			3. For External Watchdog Fault: • Software control of fuel pump driver	Control Lost	3. For External Watchdog Fault: •KeFRPD_b_FPExtWDogDiag Enbl 3. For External Watchdog Fault: •Control Module ROM(P0601) 3. For External Watchdog Fault: •Control Module RAM(P0604)	TRUE not active not active		
Control Module Long Term Memory (EEPROM) Performance	P062F	Indicates that the NVM Error flag has not been cleared	Last EEPROM write	Did not complete	Ignition OR HS Comm OR Fuel Pump Control	Run or Crank enabled enabled	1 test failure Once on controller power-up	DTC Type A 1 trip
5Volt Reference Circuit (Short High/Low/Out of Range)	P0641	Detects continuous short or out of range on the #1 5V sensor reference circuit	Reference voltage AND Output OR Reference voltage AND Output OR Reference voltage AND Output	>= 0.5V inactive . >= 5.5V active <= 4.5V active	Ignition	Run or Crank	15 failures out of 20 samples 1 sample/12.5 ms	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			OR Reference voltage	> 102.5% nominal (i.e., 5.125V) OR <97.5% nominal (i.e., 4.875V)				
Fuel Pump Control Module - Driver Over-temperature 1	P064A	This DTC detects if an internal fuel pump driver overtemperature condition exists under normal operating conditions (Tier 1 supplier Continental responsibility)	Module Range of Operation	1. Module is within Acceptable Operation Range (Motorola's responsibility - FSCM is in normal operating range for module voltage versus PWM duty cycle. Linear range from 100% @ 12.5V to 70% @ 18V.)	Ignition OR HS Comm OR Fuel Pump Control AND Ignition Run / Crank	Run or Crank Enabled Enabled 9V<voltage<32V	3 failures out of 15 samples 1 sample/12.5 ms	DTC Type B 2 trips
			AND Fuel pump driver Temp	> 190C	KeFRPD_b_FPOverTempDiag Enbl	TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Control Module - Driver Over-temperature 2	P1255	This DTC detects if an internal fuel pump driver overtemperature condition exists under extreme operating conditions (GM's responsibility)	Module Range of Operation	Outside normal range (FSCM is NOT in normal operating range for module voltage versus PWM duty cycle. Linear range from 100% @ 12.5V to 70% @ 18V.)	Ignition OR HS Comm OR Fuel Pump Control AND Ignition Run / Crank	Run or Crank Enabled Enabled 9V<voltage<32V	3 failures out of 15 samples 1 sample/12.5 ms	DTC Type B 2 trips
			AND Fuel pump driver Temp	> 190C	KeFRPD_b_FPOverTempDiag Enbl	TRUE		
Ignition 1 Switch Circuit Low Voltage	P2534	This DTC detects if the Ignition1 Switch circuit is shorted to low or open	Ignition 1 voltage	<= 6 V	Engine	Running	180 failures out of 200 samples 1 sample/25.0 ms	DTC Type A 1 trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Flow Performance (rationality)	P2635	This DTC detects degradation in the performance of the SIDI electronic return-less fuel system	Filtered fuel rail pressure error	<= Low Threshold (Function of desired fuel rail pressure and fuel flow rate. Margin is 15% of resultant target pressure except at flow <= 1.5g/s and target pressure <= 350kPa where the margin increases continuously at 66.6kPa/g/s as flow decreases) OR >= High Threshold (function of desired fuel rail pressure and fuel flow rate. 15% of resultant Target Pressure) **(See Supporting Tables tab)**	1. FRP Circuit Low DTC (P018C)	not active	Filtered fuel rail pressure error Time Constant = 12.5 seconds Frequency: Continuous 12.5 ms loop	DTC Type B 2 trips
					2. FRP Circuit High DTC (P018D)	not active		
					3. Fuel Pressure Sensor Performance DTC (P018B)	not active		
					4. FuelPump Circuit Low DTC (P0231)	not active		
					5. FuelPump Circuit High DTC (P0232)	not active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					6. FuelPump Circuit Open DTC (P023F)	not active		
					7. Reference Voltage DTC (P0641)	not active		
					8. Fuel Pump Control Module Driver Over-temperature DTC's (P064A, P1255)	not active		
					9. Control Module Internal Performance DTC (P0606)	not active		
					10. An ECM fuel control system failure (PPEI $1ED)	has not occurred		
					11. The Barometric pressure (PPEI $4C1) signal	valid (for absolute fuel pressure sensor)		
					12. Engine run time	>= 30 seconds		
					13. Emissions fuel level (PPEI $3FB) AND Engine Run Time	not low > 30 sec		
					14. Fuel pump control	enabled		
					15. Fuel pump control state	normal		
					16. Battery Voltage	11V<=voltage=<32V		
					17. Fuel flow rate (See Supporting Tables tab)	> 0.047 g/s AND <= Max allowed fuel flow rate as a function of desired rail pressure & Vbatt (Typical values in the range of 11 to 50 g/s)		
					18. Fuel Pressure Control System	Is not responding to an over-pressurization due to pressure build during DFCO or a decreasing desired pressure command.		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communication Bus "A" Off	U0073	Detects that a CAN serial data bus shorted condition has occurred to force the CAN device driver to enter a bus-off state	Bus Status	Off	Power mode	Run/Crank	5 failures out of 5 samples (5 seconds)	DTC Type B 2 trips
Lost Communication With ECM/PCM "A"	U0100	Detects that CAN serial data communication has been lost with the ECM	Message $0C9	Undetected	1. Power mode	Run/Crank	12 failures out of 12 samples (12 seconds)	DTC Type B 2 trips
					2. Ignition Run/Crank Voltage	11V<=voltage=<32V		
					3. U0073	not active		

S6 Support Tables--FSCM

P2635 **Fuel Pump Performance Maximum Fuel Flow map (grams / s)**

X-axis= Desired Fuel Pressure (kiloPascals)
Y-axis= Battery voltage (volts)

	200	250	300	350	400	450	500	550	600
4.5	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
6	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
7.5	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
9	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
10.5	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
12	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
13.5	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
15	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
16.5	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
18	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
19.5	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
21	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
22.5	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
24	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
25.5	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
27	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156
28.5	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156	28.10156

S6 Support Tables--FSCM

P2635   **Fuel Pump Performance Filtered Pressure Error Fault Threshold High map (kiloPascals)**

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	30	37.5	45	52.5	60	67.5	75	82.5	90
1.5	30	37.5	45	52.5	60	67.5	75	82.5	90
3	30	37.5	45	52.5	60	67.5	75	82.5	90
4.5	30	37.5	45	52.5	60	67.5	75	82.5	90
6	30	37.5	45	52.5	60	67.5	75	82.5	90
7.5	30	37.5	45	52.5	60	67.5	75	82.5	90
9	30	37.5	45	52.5	60	67.5	75	82.5	90
10.5	30	37.5	45	52.5	60	67.5	75	82.5	90
12	30	37.5	45	52.5	60	67.5	75	82.5	90
13.5	30	37.5	45	52.5	60	67.5	75	82.5	90
15	30	37.5	45	52.5	60	67.5	75	82.5	90
16.5	30	37.5	45	52.5	60	67.5	75	82.5	90
18	30	37.5	45	52.5	60	67.5	75	82.5	90
19.5	30	37.5	45	52.5	60	67.5	75	82.5	90
21	30	37.5	45	52.5	60	67.5	75	82.5	90
22.5	30	37.5	45	52.5	60	67.5	75	82.5	90
24	30	37.5	45	52.5	60	67.5	75	82.5	90
25.5	30	37.5	45	52.5	60	67.5	75	82.5	90
27	30	37.5	45	52.5	60	67.5	75	82.5	90
28.5	30	37.5	45	52.5	60	67.5	75	82.5	90
30	30	37.5	45	52.5	60	67.5	75	82.5	90
31.5	30	37.5	45	52.5	60	67.5	75	82.5	90
33	30	37.5	45	52.5	60	67.5	75	82.5	90
34.5	30	37.5	45	52.5	60	67.5	75	82.5	90
36	30	37.5	45	52.5	60	67.5	75	82.5	90
37.5	30	37.5	45	52.5	60	67.5	75	82.5	90
39	30	37.5	45	52.5	60	67.5	75	82.5	90
40.5	30	37.5	45	52.5	60	67.5	75	82.5	90
42	30	37.5	45	52.5	60	67.5	75	82.5	90
43.5	30	37.5	45	52.5	60	67.5	75	82.5	90
45	30	37.5	45	52.5	60	67.5	75	82.5	90
46.5	30	37.5	45	52.5	60	67.5	75	82.5	90
48	30	37.5	45	52.5	60	67.5	75	82.5	90

S6 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold High map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
1.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
3	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
4.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
6	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
7.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
9	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
10.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
12	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
13.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
15	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
16.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
18	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
19.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
21	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
22.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
24	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
25.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
27	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
28.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
30	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
31.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
33	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
34.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
36	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
37.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
39	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
40.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
42	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
43.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
45	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
46.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
48	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5

S6 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault Threshold Low map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	-260	-210	-160	-110	-60	-67.5	-75	-82.5	-90
1.5	-145	-125	-102.5	-81.25	-60	-67.5	-75	-82.5	-90
3	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
4.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
6	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
7.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
9	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
10.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
12	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
13.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
15	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
16.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
18	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
19.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
21	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
22.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
24	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
25.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
27	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
28.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
30	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
31.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
33	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
34.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
36	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
37.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
39	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
40.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
42	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
43.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
45	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
46.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
48	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90

S6 Support Tables--FSCM

P2635   Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold Low map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	-221	-178.5	-136	-93.5	-51	-57.375	-63.75	-70.125	-76.5
1.5	-123.25	-106.25	-87.125	-69.0625	-51	-57.375	-63.75	-70.125	-76.5
3	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
4.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
6	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
7.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
9	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
10.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
12	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
13.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
15	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
16.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
18	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
19.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
21	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
22.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
24	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
25.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
27	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
28.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
30	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
31.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
33	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
34.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
36	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
37.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
39	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
40.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
42	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
43.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
45	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
46.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
48	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5