MUT Requests

From EvoEcu
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The following table attempts to collect the requests that are query-able via the MUT-III protocol on *stock* vehicles. Not all entries will apply to all Mitsubishi vehicles. Formulas are expressed in a format compatible with EvoScan.

Please Note:

- "Calculated" formulas (sometimes referred to as "math channels") are intentionally not listed here, nor are common modifications to the MUT table.
- As we understand it, MUTs are only used for logging purposes. Changing a MUT value should have no effect on internal ECU calculations.
- Many of these were dreived from Acamus' list here.

Only request IDs 00 through BF are valid MUT requests. IDs higher than BF are actually MUT Commands, which control actuators for various functions driven by the ECU: solenoids, pumps, etc.

ID1	ID2	Short Name	Description	Units	Formula	Comment
04		TimingAdv	Timing Advance Interpolated	degrees	x-20	
06		TimingAdv	Timing Advance Scaled	degrees	x-20	
06		TimingAdv	Timing Advance	degrees	x-20	
07		CoolantTemp	Coolant Temp	F	x*1.8+32	
0C		LTFTLo	Fuel Trim Low (LTFT)	%	(x-128)/5	
0D		LTFTMid	Fuel Trim Mid (LTFT)	%	(x-128)/5	
0E		LTFTHigh	Fuel Trim High (LTFT)	%	(x-128)/5	
0F		STFT	Oxygen Feedback Trim (STFT)	%	(x-128)/5	
10		CoolantTempScaled	Coolant Temp Scaled	F	1.8*x-40	
11		MAFAirTempScaled	MAF Air Temp Scaled	F	1.8*x-40	
12		EGRTemp	EGR Temperature	F	-2.7*x + 597.7	
13		O2Sensor	Front Oxygen Sensor	V	0.01952*x	
14		Battery	Battery Level	V	0.07333*x	
15		Baro	Barometer	kPa	0.49*x	
16		ISCSteps	ISC Steps	steps	x	
16		ISC_Position%	ISC Position %	%	100*x/120	percentage ISCV is open or closed
17		TPS	Throttle Position	%	x*100/255	
18			Open Loop Bit Array			
19			Startup Check Bits			
1A		AirFlow	Air Flow - (TPS Idle Adder ?)	Hz	6.25*x	
1A			TPS Idle Adder			

1C		Load	ECULoad	load	5*x/8	
1D		AccelEnrich	Acceleration Enrichment - (Manifold_Absolute_Pressure_Mean ?)	airflow/rev	200*x/255	
1F		PrevLoad	ECU Load Previous	load	5*x/8	
20		RPM_Idle_Scaled	Engine RPM Idle Scaled	RPM	31.25*x	
21		RPM	Engine RPM	RPM	31.25*x	
22			Idle Related Value (unknown)			
24		TargetIdleRPM	Target Idle RPM	RPM	7.8*x	
25		ISCV_Value	Idle Stepper Value	count	x	
26		KnockSum	Knock Sum	count	x	
27		OctaneFlag	Octane Level	%	100*x/255	
29	2A	InjPulseWidth	Injector Pulse Width	ms	x/1000	
2C		AirVol	Air Volume		x	
2D			Ignition Battery Trim			
2E			Vehicle speed Frequency	Hz		
2F		Speed	Speed	MPH	1.2427424*x	
30		Knock	Knock Voltage	V	0.0195*x	
31		VE	Volumetric Efficiency	V	0.0195*x	
32		AFRMAP	Air/Fuel Ratio (Map reference)	AFR	(14.7*128)/x	
33		Corr_TimingAdv	Corrected Timing Advance	degrees	x-20	
34			MAP Index			
35			Limp Home Fuel TPS Based			
36			Active Fault Count	Count		
37		Stored Fault Count	Count			
38		MAP	Boost (MDP)	PSI	0.19348*x	
39			Fuel Tank Pressure	PSI		
3A		UnscaledAirTemp	Unscaled Air Temperature	F	x*1.8+32	
3B			Masked Map Index			
3C		O2Sensor2	Rear Oxygen Sensor #1	V	0.01952*x	
3D			Front Oxygen Sensor #2	V	0.01952*x	
3E			Rear Oxygen Sensor #2	V	0.01952*x	
3F			Short Term Fuel Feedback Trim O2 Map Index			
40			Stored Faults Lo			
41			Stored Faults Hi			
42			Stored Faults Lo 1			
43			Stored Faults Hi 1			
44			Stored Faults Lo 2			

45			Stored Faults Hi 2			
47			Active Faults Lo			
48			Active Faults Hi			
49		ACRelaySw	Air Conditioning Relay	On/Off	x bit 4	
4A		PurgeDuty	Purge Solenoid Duty Cycle	%	x*100/255	
4C			Fuel Trim Low Bank 2			
4D			Fuel Trim Mid Bank 2			
4E			Fuel Trim High Bank 2			
4F			Oxygen Feedback Trim Bank 2			
50		LTFTCurrent	Long Fuel Trim Bank 1			
51			Long Fuel Trim Bank 2			
52			Rear Long Fuel Trim Bank 1			
53			Rear Long Fuel Trim Bank 2			
54		AccelEnrichTPS	Acceleration Enrichment (increasing TPS)	%	x*100/255	
55		DecelLeanTPS	Deceleration Enleanment (decreasing TPS)	%	x*100/255	
56		AccelLoadChg	Acceleration Load Change	%	x*100/255	Slope,Gradient,Derivative of load vs time.
57		DecelLoadChg	Deceleration Load Change	%	x*100/255	Slope,Gradient,Derivative of load vs time.
58			AFR Ct Adder			
5B			Rear O2 Voltage			
5C			ADC Rear O2 Voltage			
60			Rear O2 Trim - Low			
61			Rear O2 Trim - Mid			
62			Rear O2 Trim - High			
63			Rear O2 Feedback Trim			
6A		knock_adc	knock adc processed	count	x	
6B		knock_base	knock base	count	x	
6C		knock_var	knock var (AKA Knock Sum Addition)	count	x	
6D		knock_change	knock change	count	x	
6E		knock_dynamics	knock dynamics	count	x	
6F		knock_flag	knock flag (AKA Knock Acceleration)	count	x	
70			Array of Serial Receive Data Register 2 RDR 2 Values			
71			Sensor Error			
72			Knock Present			
73			Throttle Position Delta 1			

74			Throttle Position Delta 2			
76		ISCV % Demand	ISCV % Demand (Columns)	%	100*x/255	
79		InjectorLatency	Injector Latency	ms	x	
7A			Continuous Monitor Completion Status 1			
7B			Continuous Monitor Completion Status 2			
7C			Continuous Monitor Completion Status 3			
7D			Non Continuous Monitor Completion Status OBD			
7E			Continuous Monitor Completion Status Low 4			
7F			Continuous Monitor Completion Status High 4			
80	81		ECU ID Type			
82			ECU ID Version			
83			ADC Channel F			
84		ThermoFanDuty	Thermo Fan Dutycycle	%	???	
85		EgrDuty	EGR Dutycycle	%	x/1.28	
86		WGDC	Wastegate Duty Cycle	%	x/2	
87		FuelTemperature	Fuel Temperature	F	????	
88		FuelLevel	Fuel Level	???	???	
89			ADC Channel 8 2			
8A		LoadError	Load Error - (Throttle Position Corrected ?)	load	0.15625*x-20	
8B		WGDCCorr	WGDC Correction	%	0.5*x-64	
8E			Solenoid Duty	%		
90			Timer Status Register 9 TSR9			
9			Timer Status Register 9 TSR9 Scaled			
9			Timer Status Register 9 TSR9 Scaled Checked			
9			Fadout Timer Value			
96		MAF_ADC	RAW MAF ADC value			
9A		ACClutch	AC clutch	On/Off	x bit 1	
9B			Output Pins			
A2		CrankPulse	Crankshaft sensor pulse	On/Off	x bit 1	
A2		MafPulse	MAF sensor pulse	On/Off	x bit 2	
A2		CamPulse	Camshaft sensor pulse	On/Off	x bit 4	
A8		ATInShaftPulse	Input shaft speed pulse (A/T)	On/Off	x bit 1	

A8		ATOutShaftPulse	Output shaft speed pulse (A/T)	On/Off	x bit 2	
A8		ATGearL	Gear: Low (A/T)	On/Off	x bit 32	
A8		ATGear2	Gear: 2 (A/T)	On/Off	x bit 64	
A8		ATGear3	Gear: 3 (A/T)	On/Off	x bit 128	
A9		O2HeaterFrontLeft	Front O2 heater bank 1 (left)	On/Off	x bit 16	
A9		O2HeaterRearLeft	Rear O2 heater bank 1 (left)	On/Off	x bit 32	
A9		O2HeaterFrontRight	Front O2 heater bank 2 (right)	On/Off	x bit 64	
A9		O2HeaterRearRight	Rear O2 heater bank 2 (right)	On/Off	x bit 128	
AA		Braking	Brakes Pressed	On/Off	x bit 16	
B3		ATGearNeutral	Gear: Neutral (A/T)	On/Off	x bit 1	
B3		ATGearDrive	Gear: Drive (A/T)	On/Off	x bit 2	
B4		ATGearPark	Gear: Park (A/T)	On/Off	x bit 64	
B4		ATGearRev	Gear: Reverse (A/T)	On/Off	x bit 128	
B7		O2HeaterBrokenFrRt	front O2 heater circuit open (broken): bank 2 (right)	Off/On	x bit 8	
B8		O2HeaterBrokenFrLt	front O2 heater circuit open (broken): bank 1 (left)	Off/On	x bit 8	
B8		NewACSwitch	Air Conditioning Switch (Mattjin)	Off/On	x bit 1	
B8		PowerSteering	Power Steering	On/Off	x bit 4	
B9		O2HeaterBrokenRearRt	rear O2 heater circuit open (broken): bank 2 (right)	Off/On	x bit 8	
BA		O2HeaterBrokenRearLt	rear O2 heater circuit open (broken): bank 1 (left)	Off/On	x bit 8	

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