

J - PIN VOLTAGE CHARTS

1998 Mitsubishi Montero

1998 ENGINE PERFORMANCE
Mitsubishi - Pin Voltage Charts

Diamante, Eclipse, Galant, Mirage, Montero, Montero Sport,
3000GT

INTRODUCTION

NOTE: Unless stated otherwise in testing procedures, perform all voltage tests using a Digital Volt-Ohmmeter (DVOM) with a minimum 10-megohm input impedance. Voltage readings may vary slightly due to battery condition or charging rate.

Pin voltage charts are supplied to reduce diagnostic time. Checking pin voltages at the PCM connector determines whether it is receiving and transmitting proper voltage signals. Diagnostic charts may also help determine if PCM harness is shorted or open.

TEST PROCEDURE

CAUTION: Shorting positive DVOM lead between connector terminal and ground could damage vehicle wiring, sensor and PCM.

1) If necessary, remove Powertrain Control Module (PCM) to access harness connector. For PCM location, see PCM LOCATION table. Leave PCM connectors connected.

2) Using DVOM, backprobe terminals. Connect positive DVOM lead to appropriate PCM terminal. Connect negative DVOM lead to PCM ground terminal. For PCM terminal identification, see appropriate chart. See Figs. 1-24.

3) All measurements are applicable to vehicle at normal operating temperature at sea level. Unless otherwise noted, engine is idling when specification requires engine running. Ensure transmission shift selector is in Neutral or Park (as applicable). If DVOM displays measurement that is not within specification, see G - TESTS W/CODES article.

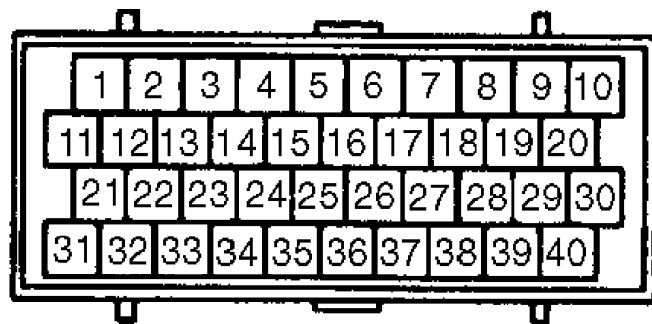
PCM LOCATION TABLE

Application	Location
Eclipse 2.0L Non-Turbo	In Front of Left Front Strut Tower
Mirage & Montero Sport	Behind Right Side Of Instrument Panel (Glove Box)
Montero	Right Front Kick Panel
All Others	Behind Center Console

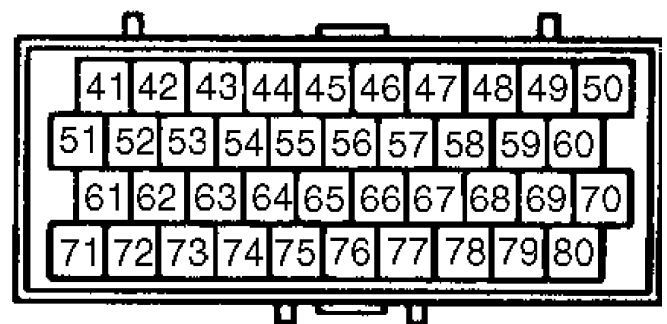
1	2		3	4	JAE				5	6		7	8	71	72	73	74		JAE				75	76	77	41	42		43	44		JAE				45	46	47	
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	78	79	80	81	82	83	84	85	86	87	88	89	48	49	50	51	52	53	54	55	56	57	58	59	60
24	25		26	27	28	29	30	31	32	33		34	35	90	91		92	93	94		95	96		97	98	61	62	63		64	65		66	67	68		69	70	

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Fig. 1: Identifying PCM Terminals (Diamante)
Courtesy of Mitsubishi Motor Sales of America



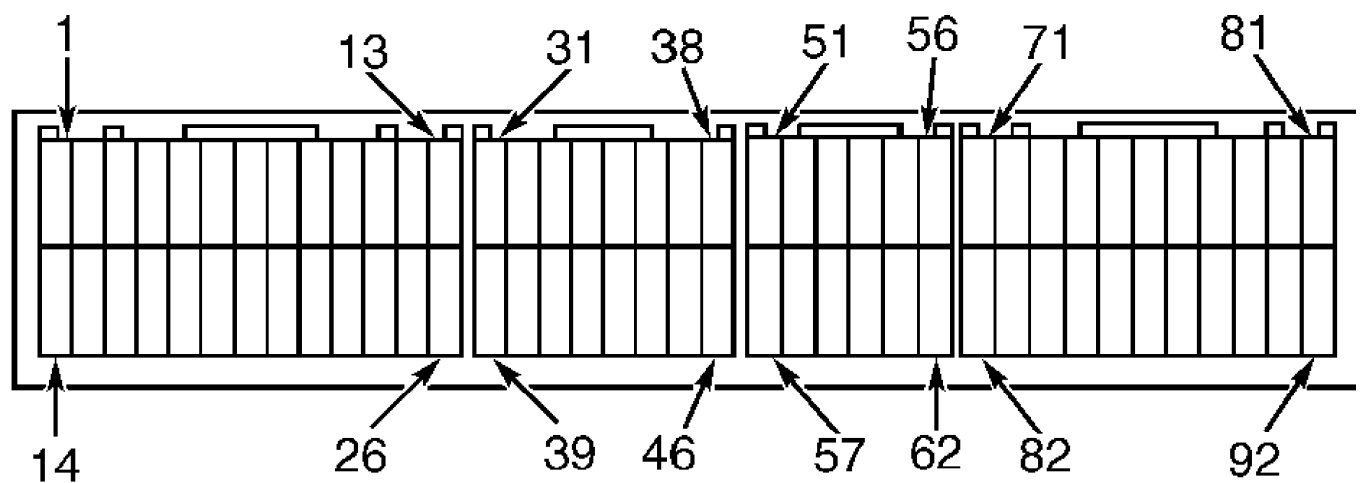
CONNECTOR A-106



CONNECTOR A-107

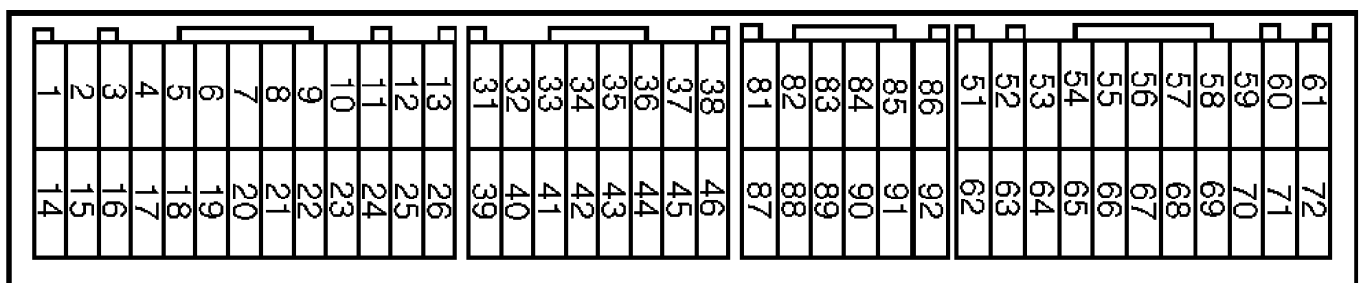
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Fig. 2: Identifying PCM Terminals (Eclipse 2.0L Non-Turbo)
Courtesy of Mitsubishi Motor Sales of America



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Fig. 3: Identifying PCM Terminals (Eclipse 2.0L Turbo & 2.4L & Mirage)
Courtesy of Mitsubishi Motor Sales of America



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Fig. 4: Identifying PCM Terminals (Galant)
Courtesy of Mitsubishi Motor Sales of America

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Gray/Red	54	Data Link Connector	Not Applicable
Brown/White	55	Data Link Connector	Not Applicable
White	61	Knock Sensor	¹
White/Red	62	Manifold Differential Pressure Sensor	0.8-2.4 Volts With KOER ²
White/Red	63	Fuel Tank Pressure Differential Sensor	1.2-3.8 Volts With KOER ²
Black/White	69	Ignition Switch (IG)	B+ With KOEO ³
Green/Black	70	Flash Memory Connector	¹
Green/Yellow	72	Sensor Impressed Voltage	4.5-5.5 Volts With KOEO ³
Green/Yellow	72	Throttle Position Sensor	0.3-1.0 Volt With KOEO ³ , 4.5-5.5 Volts @ WOT
Blue/Red	73	Crankshaft Position Sensor	0.4-4.0 Volts With Engine Cranking 1.05-2.5 Volts With KOER ²
White	75	Check Ignition Connector	¹
Black	76	Ground Circuit	¹
Red	77	Power Supply	B+ With KOEO ³
Black	79	Engine Coolant Temperature Sensor	3.2-3.8 Volts With KOEO ³ (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ³ (Sensor @ 68°F) 1.3-1.9 Volts With KOEO ³ (Sensor @ 104°F) 0.3-0.9 Volt With KOEO ³ (Sensor @ 176°F)
Red/White	80	Camshaft Position Sensor	0.4-3.0 Volts With Engine Cranking 0.5-2.0 Volts With KOER ²
Green/White	81	Barometric Pressure Sensor	3.7-4.3 Volts With KOEO ³ (Sea Level) 3.2-3.8 Volts With KOEO ³ (@ 3937 Ft.)
Yellow	84	Power Steering Pressure Switch	B+ With KOER ² Steering Wheel Stationary 0-3 Volts When Steering Wheel Is Turned
Black/White	87	MFI Relay Supply Voltage	B+ With Ignition Off, 0-3 Volts With KOEO ³
Black	88	Ground Circuit	¹
Red	89	Power Supply	B+ With KOEO ³
Red/Black	90	Back-Up Power Supply	B+ With Ignition Off
White/Black	91	Volume Airflow Sensor Reset Signal	0-1 Volt @ idle, 6-9 volts @ 3000 RPM
Red/Blue	92	Intake Air Temperature Sensor	3.2-3.8 Volts With KOEO ³ (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ³ (Sensor @ 68°F) 1.5-2.1 Volts With KOEO ³ (Sensor @ 104°F) 0.4-1.0 Volt With KOEO ³ (Sensor @ 176°F)
Black/Red	98	Ignition Switch (ST)	8 Volts Or More (Engine Cranking)

¹ - Information is not available from manufacturer.

² - KOER - Key On, Engine Running.

³ - KOEO - Key On, Engine Off.

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Fig. 7: Pin Voltage Chart (Diamante - 2 Of 2)

NOTE: Manufacturer does not provide pin voltage information for 2.0L non-turbo models. For wire color identification at PCM terminals, see WIRING DIAGRAMS article.

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Green	1	Injector No. 1	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Green/Yellow	2	Injector No. 3	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Blue/Red	3	Fuel Pressure Solenoid Valve (Turbo)	B+ With KOEO ² 0-3 Volts/B+ With KOER ¹
Gray	4	Idle Air Control Motor A1	B+ /0-6 Volts With KOER ³ (Load Controlled)
Gray/Blue	5	Idle Air Control Motor B1	B+ /0-6 Volts With KOER ³ (Load Controlled)
Light Green/Red	6	EGR Solenoid	B+ With KOEO ² B+ & Momentary Drop At WOT With KOER ¹
Black/Blue	7	Torque Reduce Request Signal No. 1	4.5-5.5 Volts With KOER ¹ 0-1 Volt During Driving & Speed Changes
White/Red	8	Fuel Pump Relay (Turbo)	B+ With KOEO ² , 0-3 Volts With KOER ¹
White/Red	8	Fuel Pump Relay Module (2.4L)	0-0.5 Volt With KOEO ² 0.7-2.8 Volts With KOER ¹ Or Cranking
Lt. Green/Black	9	EVAP Emission Purge Solenoid	B+ With KOEO ² , 0-3 Volts @ 3000 RPM
Black/Blue	10	Power Transistor "A"	0.3-3.0 Volts @ 3000 RPM
Red/Yellow	11	Waste Gate Solenoid (Turbo)	B+ With KOEO ² , 0-3 Volts With KOER ¹
Red	12	Power Supply	B+ With KOEO ²
Black	13	Camshaft Position Sensor Ground	Not Applicable
Yellow/Black	14	Injector No. 2	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Green/Red	15	Injector No. 4	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Red/Black	16	Boost Meter (Turbo)	4-13 Volts With KOEO ² B+ & Momentary Drop At WOT With KOER ¹
Green/Black	17	Idle Air Control Motor A2	B+ /0-6 Volts With KOER ³ (Load Controlled)
Green/Yellow	18	Idle Air Control Motor B2	B+ /0-6 Volts With KOER ³ (Load Controlled)
Red/White	19	Volume Airflow Sensor Reset Signal	0-1 Volt With KOER ¹ , 6-9 Volts @ 3000 RPM
Green/Orange	20	Fan Motor Relay (High)	B+ At Less Than 194°F (Fan Motor Off) 0-3 Volts @ 221°F Or More (Fan Motor On)
Green/Black	21	Fan Motor Relay (Low)	B+ At Less Than 194° F (Fan Motor Off) 0-3 Volts @ More Than 221°F (Fan Motor On)
Green	22	A/C Compressor Clutch Relay	6 Volts Or More With KOER ¹ 0-3 Volts With Clutch Cycling
Brown/Red	23	Power Transistor "B"	0.3-3.0 Volts @ 3000 RPM

¹ - KOER - Key On, Engine Running.

² - KOEO - Key On, Engine Off.

³ - Check immediately after hot start.

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Fig. 8: Pin Voltage Chart (Eclipse - 1 Of 3)

NOTE: Manufacturer does not provide pin voltage information for 2.0L non-turbo models. For wire color identification at PCM terminals, see WIRING DIAGRAMS article.

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Red	25	Power Supply	B+ With KOEO ¹
Black	26	Ground	Not Applicable
White	33	Generator Terminal "G"	0.2-3.5 Volts KOER ² (Fan & Accessories Off) Voltage Rises As Fan & Accessories Come On
Green/Red	36	Malfunction Indicator Light	0-3 Volts KOEO ¹ (Initially) 9-13 Volts After Several Seconds
Blue/White	37	Power Steering Pressure Switch	B+ With KOER ² Steering Wheel Stationary 0-3 Volts When Steering Wheel Is Turned
Blue/Green	38	MFI Relay Power Supply	B+ (Ignition Off) 0-3 Volts With KOEO ¹
Green	41	Generator Terminal "FR"	0.2-3.5 Volts KOER ² (Fan & Accessories Off) Voltage Drops As Fan & Accessories Come On
³	42	A/C Refrigerant Intermediate Switch (High Side)	B+ With Pressure 199 PSI Or Less 0-3 Volts With Pressure 270 PSI Or More
White/Green	43	Torque Reduce Request Signal No. 2	0-1 Volt With KOER ² 1-5.5 Volts During Driving & Speed Changes
Green/Red	45	A/C Switch	0-3 Volts With KOER ² (A/C Off) B+ With KOER ² (A/C On)
Orange/Black	46	Torque Execute Signal	0-1 Volt With KOER ² (Eng. Temp. 122°F Or Less) 1-4 Volts With KOER ² (Engine Temp. Normal)
Yellow/Black	54	Rear Heated Oxygen Sensor Heater	0-3 Volts With KOER ² , B+ @ 5000 RPM
Blue/Red	55	EVAP Vent Solenoid	B+ KOEO ¹ 0-3 Volts (Initially) During Driving
Yellow	56	Data Link Connector	Not Applicable
White	58	Engine Ignition Signal	0.3-3.0 Volts @ 3000 RPM
Yellow	60	Front Heated Oxygen Sensor Heater	0-3 Volts With KOER ² , B+ @ 5000 RPM
Blue/White	61	Fuel Tank Differential Pressure Sensor	1.2-3.8 Volts KOER ²
Pink	62	Data Link Connector	Not Applicable
Black/Yellow	71	Ignition Switch (ST)	8 Volts Or More Engine Cranking
Red/Blue	72	Intake Air Temperature Sensor	3.2-3.8 Volts With KOEO ¹ (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ¹ (Sensor @ 68°F) 1.5-2.1 Volts With KOEO ¹ (Sensor @ 104°F) 0.4-1.0 Volt With KOEO ¹ (Sensor @ 176°F)
Lt. Green/Black	73	Manifold Differential Pressure Sensor	0.8-2.4 Volts With KOER ²
White	75	Rear Heated Oxygen Sensor	0.6-1.0 Volt @ 3500 RPM Or More
White	76	Front Heated Oxygen Sensor	0-0.8 Volt @ 2000 RPM
White	78	Knock Sensor Ground (Turbo)	Not Applicable
Red/Blue	80	Back-Up Power Supply	B+ (Ignition OFF)
Green/Yellow	81	Sensor Impressed Voltage	4.5-5.5 Volts With KOEO ¹
Black/White	82	Ignition Switch (IG)	B+ With KOEO ¹

¹ - KOEO - Key On, Engine Off.

² - KOER - Key On, Engine Running.

³ - Wire color information is not available from manufacturer.

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Fig. 9: Pin Voltage Chart (Eclipse - 2 Of 3)

NOTE: Manufacturer does not provide pin voltage information for 2.0L non-turbo models. For wire color identification at PCM terminals, see WIRING DIAGRAMS article.

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Black/White	83	Engine Coolant Temperature Sensor	3.2-3.8 Volts With KOEO ¹ (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ¹ (Sensor @ 68°F) 1.3-1.9 Volts With KOEO ¹ (Sensor @ 104°F) 0.3-0.9 Volt With KOEO ¹ (Sensor @ 176°F)
Brown/Red	84	Throttle Position Sensor	0.3-1.0 Volt With KOER ² , 4.5-5.5 Volts @ WOT
Orange	85	Barometric Pressure Sensor	3.7-4.3 Volts With KOEO ¹ (Sea Level) 3.2-3.8 Volts With KOEO ² (@ 3937 Ft.)
Yellow	86	Vehicle Speed Sensor	0-5 Volts (Pulse) KOER ² (Vehicle Moving)
Yellow/Red	87	Closed Throttle Position Switch	0-1 Volt With KOEO ¹ (Throttle Closed) 4 Volts Or More With KOEO ¹ (Throttle Open)
Blue/Red	88	Camshaft Position Sensor	0.4-3.0 Volts (Engine Cranking) 0.5-2.0 Volts With KOER ²
Blue/White	89	Crankshaft Position Sensor	0.4-4.0 Volts (Engine Cranking) 1.5-2.5 Volts With KOER ²
Blue/Yellow	90	Volume Airflow Sensor	2.2-3.2 Volts @ Idle Or 2500 RPM
Black/Red	91	Park/Neutral Position Switch (A/T)	0-3 Volts With KOEO ¹ (In "P" Or "N") 8-14 Volts KOEO ¹ (In "D", "2", "L" Or "R")
Black	91	Ground Circuit (M/T)	Not Applicable
Black	92	Engine Coolant Temperature Sensor Ground	Not Applicable

¹ - KOEO - Key On, Engine Off.

² - KOER - Key On, Engine Running.

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Fig. 10: Pin Voltage Chart (Eclipse - 3 Of 3)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Yellow/Blue →	1	Injector No. 1	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Blue/Green →	2	Injector No. 3	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Blue/Yellow →	4	Idle Air Control Motor (Closed)	More Than 2 Volts (Initially) KOEO ² Then 0-1 Volt With KOEO ²
White →	5	IAC Motor Valve Position Sensor No. 1	1.5-4 Volts (Initially) KOEO ² Then 0-1 or 4.5-5.5 Volts With KOEO ²
Brown →	6	EGR Solenoid (Fed.)	B+ With KOEO ² B+ & Momentary Drop @ WOT With KOER ¹
Green →	7	Torque Reduce Execute Signal	0-1 Volt With KOER ¹ (Eng. Temp. 122°F Or Less) 1-4 Volts With KOER ¹ (Eng. Temp. Normal)
Black/Blue →	8	Fuel Pump Relay Module	0-0.5 Volt With KOEO ² 0.7-2.8 Volts With KOER ¹ Or Cranking
Green/Red →	9	EVAP Emission Purge Solenoid	B+ With KOEO ² , 0-3 Volts @ 3000 RPM
³ →	10	Ignition Power Transistor	0.3-3.0 Volts @ 3000 RPM
Red →	12	Power Supply	B+ With KOEO ²
Black →	13	System Ground	Not Applicable
Yellow/Black →	14	Injector No. 2	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Lt. Green/White →	15	Injector No. 4	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Green/Black →	17	Idle Air Control Motor (Open)	More Than 4 Volts (Initially) KOEO ² Then 0-1 Volt With KOEO ²
Green →	18	IAC Motor Valve Position Sensor No. 2	1.5-4 Volts (Initially) KOEO ² Then 0-1 or 4.5-5.5 Volts With KOEO ²
Blue →	19	Volume Airflow Sensor Reset Signal	0-1 Volt With KOER ¹ , 6-9 Volts @ 3000 RPM
Blue/Red →	20	Radiator Fan Motor Relay (High)	B+ At Less Than 194°F (Fan Motor Off) 0-3 Volts @ 221°F Or More (Fan Motor On)
Green/Yellow →	21	Radiator Fan Motor Relay (Low)	B+ At Less Than 194° F (Fan Motor Off) 0-3 Volts @ More Than 221°F (Fan Motor On)
Green →	22	A/C Compressor Clutch Relay	6 Volts Or More With KOER ¹ 0-3 Volts With Clutch Cycling
Red →	25	Power Supply	B+ With KOEO ²
Black →	26	System Ground	Not Applicable
³ →	31	Engine Ignition Signal	0.3-3 Volts @ 3000 RPM
Brown/Red →	33	Generator Terminal "G"	0.2-3.5 Volts KOER ¹ (Fan & Accessories Off) Voltage Drops As Fan & Accessories Come On
Lt. Green/Red →	36	Malfunction Indicator Light	0-3 Volts KOEO ² (Initially) 9-13 Volts After Several Seconds

¹ - KOER - Key On, Engine Running.

² - KOEO - Key On, Engine Off.

³ - Wire color identification is not available from manufacturer.

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Fig. 11: Pin Voltage Chart (Galant - 1 Of 3)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Yellow	37	Power Steering Pressure Switch	B+ With KOER ¹ Steering Wheel Stationary 0-3 Volts When Steering Wheel Is Turned
Green/Yellow	38	MFI Relay Power Supply	B+ With Ignition Off, 0-3V With KOEO ²
Yellow/White	41	Generator Terminal "FR"	0.2-3.5 Volts KOER ¹ (Fan & Accessories Off) Voltage Drops As Fan & Accessories Come On
³	42	A/C Refrigerant Intermediate Switch (High Side)	B+ With Pressure 199 PSI Or Less 0-3 Volts With Pressure 270 PSI Or More
Green/Yellow	43	Torque Reduce Request Signal No. 2	0-1 Volt With KOER ¹ 1-5.5 Volts During Driving & Speed Changes
Green/White	45	Air Conditioning Switch	0-3 Volts With KOER ¹ (A/C Off) B+ With KOER ¹ (A/C On)
Green/Red	46	Torque Reduce Request Signal No. 1	4.5-5.5 Volts With KOER ¹ 0-1 Volt During Driving & Speed Changes
Black/Yellow ⁴	51	Ignition Switch (ST)	8 Volts Or More (Engine Cranking)
Red/Black	52	Intake Air Temperature Sensor	3.2-3.8 Volts With KOEO ² (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ² (Sensor @ 68°F) 1.5-2.1 Volts With KOEO ² (Sensor @ 104°F) 0.4-1.0 Volt With KOEO ² (Sensor @ 176°F)
Blue/Black	53	Manifold Differential Pressure Sensor (Fed.)	0.8-2.4 Volts KOER ¹
White	55	Rear Heated Oxygen Sensor	0.6-1 Volt In 2nd Gear Or "L" @ WOT
White	56	Front Heated Oxygen Sensor	0-0.8 Volt (Pulse) @ 2500 RPM
Black/Yellow	60	Back-Up Power Supply	B+ With Ignition Off
Green/Blue	61	Sensor Impressed Voltage	4.5-5.5 Volts With KOEO ²
Yellow/Green	63	Engine Coolant Temperature Sensor	3.2-3.8 Volts With KOEO ² (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ² (Sensor @ 68°F) 1.3-1.9 Volts With KOEO ² (Sensor @ 104°F) 0.3-0.9 Volt With KOEO ² (Sensor @ 176°F)
Green/White	64	Throttle Position Sensor	0.3-1.0 Volt With KOER ¹ , 4.5-5.5 Volts @ WOT
Pink	65	Barometric Pressure Sensor	3.7-4.3 Volts With KOEO ² (Sea Level) 3.2-3.8 Volts With KOEO ² (@ 3937 Ft.)
Yellow/White	66	Vehicle Speed Sensor	0-5 Volts (Pulse) KOER ¹ (Vehicle Moving)
Yellow/Red	67	Closed Throttle Position Switch	0-1 Volt With KOEO ² (Throttle Closed) 4 Volts Or More With KOEO ² (Throttle Open)
Brown/Green	68	Camshaft Position Sensor	0.4-3.0 Volts (Engine Cranking) 0.5-2.0 Volts With KOER ¹
Red/Yellow	69	Crankshaft Position Sensor	0.4-4.0 Volts (Engine Cranking) 1.5-2.5 Volts With KOER ¹
White/Black	70	Volume Airflow Sensor	2.2-3.2 Volts @ Idle Or 2500 RPM

¹ - KOER - Key On, Engine Running.

² - KOEO - Key On, Engine Off.

³ - Wire color identification is not available from manufacturer.

⁴ - Wire color is Black/Red on A/T.

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Fig. 12: Pin Voltage Chart (Galant - 2 Of 3)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Black/Red ¹	71	Park/Neutral Position Switch (A/T)	0-3 Volts With KOEO ² (In "P" Or "N") 8-14 Volts KOEO ² (In "D", "2", "L" Or "R")
Black	71	Ground Circuit (M/T)	Not Applicable
Black	72	Engine Coolant Temperature Sensor Ground	Not Applicable
Black	84	Rear Heated Oxygen Sensor Heater	0-3 Volts With KOER ³ , B+ @ 5000 RPM
Yellow/Green	85	EVAP Emission Vent Solenoid (Calif.)	B+ KOEO ² 0-3 Volts (Initially) During Driving
Green/White	86	Data Link Connector	Not Applicable
Yellow/Blue ⁴	90	Front Heated Oxygen Sensor Heater	0-3 Volts With KOER ³ , B+ @ 5000 RPM
Red/White	91	Fuel Tank Differential Pressure Sensor	1.2-3.8 Volts With KOER ³
Yellow	92	Data Link Connector	Not Applicable

¹ - Wire color is Black/Yellow on vehicles without alarm system.

² - KOEO - Key On, Engine Off.

³ - KOER - Key On, Engine Running.

⁴ - Wire color is Black on Federal emission vehicles.

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Fig. 13: Pin Voltage Chart (Galant - 3 Of 3)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Yellow/Blue →	1	Injector No. 1	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Blue/Green →	2	Injector No. 3	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Blue/Yellow →	4	Idle Air Control Motor A1	B+ /0 Volt (Pulse) Soon After Start
White →	5	Idle Air Control Motor B1	B+ /0 Volt (Pulse) Soon After Start
Brown →	6	EGR Solenoid	B+ With KOEO ² B+ & Momentary Drop @ WOT With KOER ¹
Black →	7	Transaxle	³
Black/Blue →	8	Fuel Pump Relay	B+ With KOEO ² , 0-3 Volts With KOER ¹
Yellow/Green →	9	EVAP Emission Purge Solenoid	B+ With KOEO ² , 0-3 Volts With KOER ¹
White ⁴ →	10	Ignition Power Transistor ⁵	0.3-3.0 Volts With Engine @ 3000 RPM
Red/Yellow →	12	Power Supply	B+ With KOEO ²
Black →	13	System Ground	Not Applicable
Yellow/Black →	14	Injector No. 2	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Lt. Green/White →	15	Injector No. 4	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Yellow →	17	Idle Air Control Motor A2	B+ /0 Volt (Pulse) Soon After Start
Green →	18	Idle Air Control Motor B2	B+ /0 Volt (Pulse) Soon After Start
Blue →	19	Volume Airflow Sensor Reset Signal (1.8L)	0-1 Volt With KOER ¹ , 6-9 Volts @ 3000 RPM
Blue →	20	Condenser Fan Motor Relay	B+ At Less Than 194°F (Fan Motor Off) 0-3 Volts @ 221°F Or More (Fan Motor On)
Blue →	21	Radiator Fan Motor Relay	B+ At Less Than 194°F (Fan Motor Off) 0-3 Volts @ 221°F Or More (Fan Motor On)
Green/White →	22	Air Conditioning Relay	6 Volts Or More With KOER ¹ 0-3 Volts With Clutch Cycling
Black/Green →	23	Ignition Power Transistor ⁶ (1.8L)	0.3-3.0 Volts @ 3000 RPM
Red/Yellow →	25	Power Supply	B+ With KOEO ²
Black →	26	System Ground	Not Applicable
White →	31	Engine Ignition Signal (1.5)	0.3-3.0 Volts With Engine @ 3000 RPM
Blue/White →	33	Generator Terminal "G"	0.2-3.5 Volts KOER ¹ (Fan & Accessories Off) Voltage Drops As Fan & Accessories Come On 0.8-1.2 Volts With KOER ¹ (Headlights On)
Lt. Green/Black →	36	Malfunction Indicator Light	0-3 Volts KOEO ² (Initially) 9-13 Volts After Several Seconds
Yellow/Black →	37	Power Steering Pressure Switch	B+ With KOER ¹ Steering Wheel Stationary 0-3 Volts When Steering Wheel Is Turned
Red →	38	MFI Relay Power Supply	B+ With Ignition Off, 0-3V With KOEO ²
White →	41	Generator Terminal "FR"	0.2-3.5 Volts KOER ¹ (Fan & Accessories Off) Voltage Drops As Fan & Accessories Come On
Green/Black →	45	Air Conditioning Switch	0-3 Volts With KOER ¹ (A/C Off) B+ With KOER ¹ (A/C On)

¹ - KOER - Key On, Engine Running.

² - KOEO - Key On, Engine Off.

³ - Information is not available from manufacturer.

⁴ - Wire color is Black/Yellow on 1.8L.

⁵ - This transistor powers ignition coils No. 1 and 4 on 1.8L.

⁶ - This transistor powers coils No. 2 and 3.

Fig. 14: Pin Voltage Chart (Mirage - 1 Of 2)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Red/Green	54	Rear Heated Oxygen Sensor Heater	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Blue/Black	55	EVAP Vent Solenoid	B+ KOEO ¹ 0-3 Volts (Initially) During Driving
Lt. Green	56	Data Link Connector	Not Applicable
White	58	Engine Ignition Signal (1.8L)	0.3-3.0 Volts @ 3000 RPM
White	59	Transaxle	²
Red	60	Front Heated Oxygen Sensor Heater	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Blue/Yellow	61	Fuel Tank Differential Pressure Sensor	1.2-3.8 Volts KOER ¹
Orange	62	Data Link Connector	Not Applicable
Brown/Red	71	Ignition Switch (ST - A/T)	8 Volts Or More Engine Cranking
Black/White	71	Ground Circuit (M/T)	Not Applicable
Red/White ³	72	Intake Air Temperature Sensor	3.2-3.8 Volts With KOEO ⁴ (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ⁴ (Sensor @ 68°F) 1.5-2.1 Volts With KOEO ⁴ (Sensor @ 104°F) 0.4-1.0 Volt With KOEO ⁴ (Sensor @ 176°F)
Gray/Yellow	73	Manifold Differential Pressure Sensor (1.8L)	0.8-2.4 Volts With KOER ¹
White	75	Rear Heated Oxygen Sensor	0.6-1 Volt In 2nd Gear Or "L" @ WOT
White	76	Front Heated Oxygen Sensor	0-0.8 Volt (Pulse) @ 2500 RPM
Green/White	79	Data Link Connector	Not Applicable
Red/Black	80	Back-Up Power Supply	B+ (Ignition OFF)
Green/Blue	81	Sensor Impressed Voltage	4.5-5.5 Volts With KOEO ⁴
Black/White	82	Ignition Switch (IG)	B+ With KOEO ⁴
Yellow/Green	83	Engine Coolant Temperature Sensor	3.2-3.8 Volts With KOEO ¹ (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ¹ (Sensor @ 68°F) 1.3-1.9 Volts With KOEO ¹ (Sensor @ 104°F) 0.3-0.9 Volt With KOEO ¹ (Sensor @ 176°F)
Green/White	84	Throttle Position Sensor	0.3-1.0 Volt With KOER ¹ , 4.5-5.5 Volts @ WOT
Yellow/White	85	Manifold Absolute Pressure Sensor (1.5L)	3.7-4.3 Volts With KOEO ⁴ (Sea Level) 3.2-3.8 Volts With KOEO ⁴ (@ 3937 Ft.) .9-1.5 Volt With KOER ¹ (@ 3937 Ft.) Momentary Increase @ WOT
Yellow/White	85	Barometric Pressure Sensor (1.8L)	3.7-4.3 Volts With KOEO ⁴ (Sea Level) 3.2-3.8 Volts With KOEO ⁴ (@ 3937 Ft.)
Yellow	86	Vehicle Speed Sensor	0-5 Volts (Pulse) KOER ¹ (Vehicle Moving)
Yellow/Red	87	Closed Throttle Position Switch	0-1 Volt With KOEO ⁴ (Throttle Closed) 4 Volts Or More With KOEO ⁴ (Throttle Open)
Brown/Red ⁵	88	Camshaft Position Sensor	0.4-3.0 Volts (Engine Cranking) 0.5-2.0 Volts With KOER ¹
Brown/Green	89	Crankshaft Position Sensor	0.4-4.0 Volts (Engine Cranking) 1.5-2.5 Volts With KOER ¹
White/Red	90	Volume Airflow Sensor (1.8L)	2.2-3.2 Volts @ Idle Or 2500 RPM
Brown/Yellow	91	Park/Neutral Position Switch (A/T)	0-3 Volts With KOEO ⁴ (In "P" Or "N") 8-14 Volts KOEO ⁴ (In "D", "2", "L" Or "R")
Black	91	Ground Circuit (M/T)	Not Applicable

¹ - KOER - Key On, Engine Running.

² - Information is not available from manufacturer.

³ - Wire color is Red/Blue on 1.8L.

⁴ - KOEO - Key On, Engine Off.

⁵ - Wire color is Blue/Red on 1.8L.

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Fig. 15: Pin Voltage Chart (Mirage - 2 Of 2)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Yellow/Blue →	1	Injector No. 1	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Lt. Green/Red →	2	Injector No. 4	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Brown →	3	Front Heated Oxygen Sensor Heater (Fed.)	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Brown →	3	LF Heated Oxygen Sensor Heater (Calif.)	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Brown →	4	RF Heated Oxygen Sensor Heater (Calif.)	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Blue/Red →	6	EGR Solenoid	B+ With KOEO ² B+ & Momentary Drop @ WOT With KOER ¹
Yellow/Black →	9	Injector No. 2	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Yellow/White →	10	Injector No. 5	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
White →	11	Ignition Power Transistor "A"	0.3-3.0 Volts @ 3000 RPM
Black/Green →	12	Ignition Power Transistor "B"	0.3-3.0 Volts @ 3000 RPM
Red/Blue →	13	Ignition Power Transistor "C"	0.3-3.0 Volts @ 3000 RPM
Green/Red →	14	Idle Air Control Motor A1	B+ /0-3 Volts (Pulse) After Hot Start
Gray/Blue →	15	Idle Air Control Motor B1	B+ /0-3 Volts (Pulse) After Hot Start
Black/Red →	16	EVAP Emission Purge Solenoid	B+ With KOEO ² , 0-3 Volts With KOER ¹
Blue/Black →	19	Volume Airflow Sensor Reset Signal	0-1 Volt With KOER ¹ , 6-9 Volts @ 3000 RPM
White/Red →	20	MFI Pump Relay	B+ With KOEO ² , 0-3 Volts With KOER ¹
Green/White →	21	A/C Compressor Clutch Relay	6 Volts Or More With KOER ¹ 0-3 Volts With Clutch Cycling
Black/White →	22	Malfunction Indicator Light	0-3 Volts KOEO ² (Initially) 9-13 Volts After Several Seconds
Blue/Yellow →	24	Injector No. 3	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Yellow/Green →	25	Injector No. 6	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Brown →	26	LR Heated Oxygen Sensor Heater (Calif.)	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Brown →	26	Rear Heated Oxygen Sensor Heater (Fed.)	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Black/White →	27	RR Heated Oxygen Sensor Heater (Calif.)	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Green/Black →	28	Idle Air Control Motor A2	B+ /0-3 Volts (Pulse) After Hot Start
Green/Blue →	29	Idle Air Control Motor B2	B+ /0-3 Volts (Pulse) After Hot Start
Blue/Red →	35	EVAP Emission Vent Solenoid	B+ KOEO ² 0-3 Volts (Initially) During Driving
Green/Yellow →	42	Sensor Impressed Voltage	4.5-5.5 Volts With KOEO ²
Blue/Yellow →	43	Crankshaft Position Sensor	0.2-3.0 Volts With KOER ¹ Or Cranking
Yellow/Green →	44	Engine Coolant Temperature Sensor	0.6-1.0 Volt In 1st Gear Or "L" @ WOT
White →	45	Engine Ignition Signal	0.3-3.0 Volts @ 3000 RPM
Black →	46	Ground	Not Applicable
Black/Red →	47	Power Supply	B+ With KOEO ²

¹ - KOER - Key On, Engine Running.

² - KOEO - Key On, Engine Off.

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Fig. 16: Pin Voltage Chart (Montero - 1 Of 2)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
White	50	Camshaft Position Sensor	0.2-3.0 Volts With KOER ¹ Or Cranking
Pink	51	Barometric Pressure Sensor	3.7-4.3 Volts With KOEO ² (Sea Level) 3.2-3.8 Volts With KOEO ² (@ 3937 Ft.)
Yellow	54	Power Steering Pressure Switch	B+ With KOER ¹ Steering Wheel Stationary 0-3 Volts When Steering Wheel Is Turned
Blue/Green	57	MFI Relay Supply Voltage	B+ With Ignition Off, 0-3V With KOEO ²
Black	58	Ground	Not Applicable
Black/Red	59	Power Supply	B+ With KOEO ²
Black/Green	60	Back-Up Power Supply	B+ With Ignition Off
White/Black	61	Volume Airflow Sensor	2.2-3.2 Volts @ 2500 RPM
Red/Black	62	Intake Air Temperature Sensor	3.2-3.8 Volts With KOEO ² (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ² (Sensor @ 68°F) 1.5-2.1 Volts With KOEO ² (Sensor @ 104°F) 0.4-1.0 Volt With KOEO ² (Sensor @ 176°F)
Blue/Orange	65	4WD Detection Switch	³
Black/Yellow	66	ABS Control Unit	³
Black/Blue	67	Ignition Switch (ST)	8 Volts Or More (Engine Cranking)
Black/Yellow	68	Park/Neutral Position Switch (A/T)	0-3 Volts With KOEO ² (In Park)
White	71	Front Heated Oxygen Sensor (Fed.)	0-0.8 Volt (Pulse) @ 2500 RPM
White	71	LF Heated Oxygen Sensor (Calif.)	0-0.8 Volt (Pulse) With KOER ¹ (2000 RPM)
White	72	RF Heated Oxygen Sensor (Calif.)	0-0.8 Volt (Pulse) @ 2500 RPM
White	73	LR Heated Oxygen Sensor (Calif.)	0.6-1.0 Volt In 1st Gear Or "L" @ WOT
Red	73	Rear Heated Oxygen Sensor (Fed.)	0.6-1.0 Volt In 1st Gear Or "L" @ WOT
White	74	RR Heated Oxygen Sensor (Calif.)	0.6-1.0 Volt In 1st Gear Or "L" @ WOT
Red/Green	78	Throttle Position Sensor	0.3-1.0 Volt With KOEO ² , 4.5-5.5 Volts @ WOT
Yellow/Red	79	Closed Throttle Position Switch	0-1 Volt With KOEO ² (Throttle Closed) 4 Volts Or More With KOEO ² (Throttle Open)
Yellow/White	80	Vehicle Speed Sensor	0-5 Volts (Pulse) With KOER ¹ (Vehicle Moving)
Green/Blue	83	Air Conditioning Switch	0-3 Volts With KOER ¹ (A/C Off) B+ With KOER ¹ (A/C On)
Green/Red	84	Data Link Connector	Not Applicable
Yellow	85	Data Link Connector	Not Applicable
Orange	87	Transaxle	³
Red/White	88	Transaxle	³
Blue/Yellow	92	Manifold Differential Pressure Sensor	0.8-2.4 Volts With KOER ¹
Blue/Yellow	93	Fuel Tank Differential Pressure Sensor	1.2-3.8 Volts With KOER ¹
Black/White	99	Ignition Switch (IG)	B+ With KOEO ²
Black/Yellow	100	Data Link Connector	Not Applicable

¹ - KOER - Key On, Engine Running.

² - KOEO - Key On, Engine Off.

³ - Information is not available from manufacturer.

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Fig. 17: Pin Voltage Chart (Montero - 2 Of 2)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Yellow/Green →	1	Injector No. 1	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Yellow/Green →	2	Injector No. 3 (2.4L)	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Yellow/Red →	2	Injector No. 4 (3.0L)	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Lt. Green/Red →	3	Front Heated Oxygen Sensor Heater (3.0L – Fed.)	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Lt. Green/Red →	3	LF Heated Oxygen Sensor Heater (3.0L – Calif.)	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Blue →	4	Idle Air Control Motor A1 (2.4L)	B+ /0-3 Volts (Pulse) After Hot Start
Yellow/Blue →	4	RF Heated Oxygen Sensor Heater (3.0L – Calif.)	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
White →	5	Idle Air Control Motor B1 (2.4L)	B+ /0-3 Volts (Pulse) After Hot Start
Brown ² →	6	EGR Solenoid (Fed.)	B+ With KOEO ³ B+ & Momentary Drop @ WOT With KOER ¹
White/Red →	8	Fuel Pump Relay (2.4L)	B+ With KOEO ³ , 0-3 Volts With KOER ¹
Black/Yellow →	9	EVAP Emission Purge Solenoid (2.4L)	B+ With KOEO ³ , 0-3 Volts With KOER ¹
Yellow/Black →	9	Injector No. 2 (3.0L)	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
White →	10	Ignition Power Transistor (2.4L)	0.3-3.0 Volts @ 3000 RPM
Yellow/White →	10	Injector No. 5 (3.0L)	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
White →	11	Ignition Power Transistor "A" (3.0L)	0.3-3.0 Volts @ 3000 RPM
Red →	12	Power Supply (2.4L)	B+ With KOEO ³
Black/Yellow →	12	Ignition Power Transistor "B" (3.0L)	0.3-3.0 Volts @ 3000 RPM
Black →	13	Ground Circuit (2.4L)	Not Applicable
Blue →	13	Ignition Power Transistor "C" (3.0L)	0.3-3.0 Volts @ 3000 RPM
Yellow/Black →	14	Injector No. 2 (2.4L)	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Green/Black →	14	Idle Air Control Motor A1 (3.0L)	B+ /0-3 Volts (Pulse) After Hot Start
Yellow/Black →	15	Injector No. 4 (2.4L)	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Green →	15	Idle Air Control Motor B1 (3.0L)	B+ /0-3 Volts (Pulse) After Hot Start
Blue/White →	16	EVAP Emission Purge Solenoid (3.0L)	B+ With KOEO ³ , 0-3 Volts With KOER ¹
Yellow →	17	Idle Air Control Motor A2 (2.4L)	B+ /0-3 Volts (Pulse) After Hot Start
Green →	18	Idle Air Control Motor B2 (2.4L)	B+ /0-3 Volts (Pulse) After Hot Start
Yellow/White ⁴ →	19	Volume Airflow Sensor Reset Signal	0-1 Volt With KOER ¹ , 6-9 Volts @ 3000 RPM
White/Red →	20	Fuel Pump Relay Module (3.0L)	0-0.5 Volt With KOEO ³ 0.7-2.8 Volts With KOER ¹ Or Cranking
Green/Yellow →	21	A/C Compressor Clutch Relay (3.0L)	6 Volts Or More With KOER ¹ 0-3 Volts With Clutch Cycling
Green/Yellow →	22	A/C Compressor Clutch Relay (2.4L)	6 Volts Or More With KOER ¹ 0-3 Volts With Clutch Cycling
Green/White →	22	Malfunction Indicator Light (3.0L)	0-3 Volts KOEO ³ (Initially) 9-13 Volts After Several Seconds

¹ – KOER – Key On, Engine Running.

² – Wire color is Yellow/Red on 3.0L.

³ – KOEO – Key On, Engine Off.

⁴ – Wire color is Green/Blue on 3.0L.

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Fig. 18: Pin Voltage Chart (Montero Sport – 1 Of 4)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
White/Black →	24	Defogger System (2.4L)	¹
Yellow/Blue →	24	Injector No. 3 (3.0L)	B+ With KOER ² B+ & Momentary Drop @ WOT With KOER ²
Red →	25	Power Supply (2.4L)	B+ With KOEO ³
Yellow/White →	25	Injector No. 6 (3.0L)	B+ With KOER ² B+ & Momentary Drop @ WOT With KOER ²
Black →	26	Ground Circuit (2.4L)	Not Applicable
Lt. Green/Black →	26	Rear Heated Oxygen Sensor Heater (3.0L – Fed.)	0-3 Volts With KOER ² , B+ @ 5000 RPM
Yellow/Black →	26	LR Heated Oxygen Sensor Heater (3.0L – Calif.)	0-3 Volts With KOER ² , B+ @ 5000 RPM
Blue/Yellow →	27	RR Heated Oxygen Sensor Heater (3.0L – Calif.)	0-3 Volts With KOER ² , B+ @ 5000 RPM
Blue/White →	31	Spark Check Signal (2.4L)	2-6 Volts @ 3000 RPM
Orange/Black →	35	EVAP Emission Vent Solenoid (3.0L)	B+ With KOEO ³ 0-3 Volts (Initially) During Driving
Green/White →	36	Malfunction Indicator Light (2.4L)	0-3 Volts KOEO ³ (Initially) 9-13 Volts After Several Seconds
Blue/White →	37	Power Steering Pressure Switch (2.4L)	B+ With KOER ² Steering Wheel Stationary 0-3 Volts When Steering Wheel Is Turned
Blue/Green →	38	MFI Relay Supply Voltage (2.4L)	B+ With Ignition Off, 0-3 Volts With KOEO ³
Green/Yellow →	42	Sensor Impressed Voltage (3.0L)	4.5-5.5 Volts With KOEO ³
Blue →	43	Crankshaft Position Sensor	0.4-3.0 Volts (Engine Cranking) 1.5-2.5 With KOEO ³
Green/Black →	44	ABS Signal (2.4L)	B+ With KOER ²
Yellow/Green →	44	Engine Coolant Temperature Sensor (3.0L)	3.2-3.8 Volts With KOEO ³ (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ³ (Sensor @ 68°F) 1.3-1.9 Volts With KOEO ³ (Sensor @ 104°F) 0.3-0.9 Volt With KOEO ³ (Sensor @ 176°F)
Black/White →	45	Air Conditioning Switch (2.4L)	0-3 Volts With KOER ² (A/C Off) B+ With KOER ² (A/C On)
White →	45	Spark Check Signal (3.0L)	0.3-3.0 Volts @ 3000 RPM
Brown/Red →	47	Power Supply (3.0L)	B+ With KOEO ³
Blue/White →	50	Camshaft Position Sensor (3.0L)	0.4-3.0 Volts (Engine Cranking) 0.5-2.0 Volts With KOER ²
Pink →	51	Barometric Pressure Sensor (2.4L)	3.7-4.3 Volts With KOEO ³ (Sea Level) 3.2-3.8 Volts With KOEO ³ (@ 3937 Ft.)
Black →	54	Rear Heated Oxygen Sensor Heater (2.4L)	0-3 Volts With KOER ² , B+ @ 5000 RPM
Blue/White →	54	Power Steering Pressure Switch (3.0L)	B+ With KOER ² Steering Wheel Stationary 0-3 Volts When Steering Wheel Is Turned
Brown/White →	55	EVAP Emission Vent Solenoid (2.4L)	B+ With KOEO ³ , 0-3 Volts With KOER ²
Green/Red →	56	Data Link Connector (2.4L)	Not Applicable
Blue/Green →	57	MFI Relay Power Supply (3.0L)	B+ With Ignition Off, 0-3 Volts With KOEO ³
Black/White →	60	Front Heated Oxygen Sensor Heater (2.4L)	0-3 Volts With KOER ² , B+ @ 5000 RPM
Black/Green →	60	Back-Up Power Supply (3.0L)	B+ With Ignition Off

¹ - Information is not available from manufacturer.

² - KOER - Key On, Engine Running.

³ - KOEO - Key On, Engine Off.

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Fig. 19: Pin Voltage Chart (Montero Sport - 2 Of 4)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Green/Orange →	61	Fuel Tank Differential Pressure Sensor (2.4L)	1.2-3.8 Volts With KOER ¹
White/Black →	61	Volume Airflow Sensor (3.0L)	2.2-3.2 Volts KOER ¹ Or @ 2500 RPM
Yellow →	62	Data Link Connector (2.4L)	Not Applicable
Red/Blue →	62	Intake Air Temperature Sensor (3.0L)	3.2-3.8 Volts With KOEO ² (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ² (Sensor @ 68°F) 1.5-2.1 Volts With KOEO ² (Sensor @ 104°F) 0.4-1.0 Volt With KOEO ² (Sensor @ 176°F)
Green/Black →	66	ABS Signal (M/T - 3.0L)	B+ With KOER ¹
Black/Yellow →	67	Ignition Switch (ST - 3.0L)	8 Volts Or More (Engine Cranking)
Black/Blue →	68	Park/Neutral Position Switch (A/T - 3.0L)	0-3 Volts With KOEO ² (In "P" Or "N") 8-14 Volts KOEO ² (In "D", "2", "L" Or "R")
Black/Yellow →	71	Ignition Switch (ST - 2.4L)	8 Volts Or More (Engine Cranking)
White →	71	Front Heated Oxygen Sensor (3.0L - Fed.)	0-0.8 Volt (Pulse) With KOER ¹ (2000 RPM)
White →	71	LF Heated Oxygen Sensor (3.0L - Calif.)	0-0.8 Volt (Pulse) With KOER ¹ (2000 RPM)
Red/Black →	72	Intake Air Temperature Sensor (2.4L)	3.2-3.8 Volts With KOEO ² (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ² (Sensor @ 68°F) 1.5-2.1 Volts With KOEO ² (Sensor @ 104°F) 0.4-1.0 Volt With KOEO ² (Sensor @ 176°F)
Black/Red →	73	Manifold Differential Pressure Sensor (2.4L - Fed.)	0.8-2.4 Volts With KOER ¹
White →	73	LR Heated Oxygen Sensor (3.0L - Calif.)	0.6-1.0 Volt In 2nd Gear Or "L" @ WOT
White →	73	Rear Heated Oxygen Sensor (3.0L - Fed.)	0.6-1.0 Volt In 2nd Gear Or "L" @ WOT
White →	74	RR Heated Oxygen Sensor (3.0L - Calif.)	0.6-1.0 Volt In 2nd Gear Or "L" @ WOT
White →	76	Front Heated Oxygen Sensor (2.4L)	0-0.8 Volt (Pulse) With KOER ¹ (2000 RPM)
Green/Blue →	78	Throttle Position Sensor (3.0L)	0.3-1.0 Volt With KOEO ² , 4.5-5.5 Volts @ WOT
Yellow/Red →	79	Closed Throttle Position Switch (3.0L)	0-1 Volt With KOEO ² (Throttle Closed) 4 Volts Or More With KOEO ² (Throttle Open)
Black/Green →	80	Back-Up Power Supply (2.4L)	B+ With Ignition Off
Yellow/White →	80	Vehicle Speed Sensor (3.0L)	0-5 Volts (Pulse) With KOER ² (Vehicle Moving)
Green/Yellow →	81	Sensor Impressed Voltage (2.4L)	4.5-5.5 Volts With KOEO ²
Black/White →	82	Ignition Switch (IG - 2.4L)	B+ With KOEO ²
Yellow/Green →	83	Engine Coolant Temperature Sensor (2.4L)	3.2-3.8 Volts With KOEO ² (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ² (Sensor @ 68°F) 1.3-1.9 Volts With KOEO ² (Sensor @ 104°F) 0.3-0.9 Volt With KOEO ² (Sensor @ 176°F)
Black/White →	83	Air Conditioning Switch (3.0L)	0-3 Volts With KOER ¹ (A/C Off) B+ With KOER ¹ (A/C On)
Green/White →	84	Throttle Position Sensor (2.4L)	0.3-1.0 Volt With KOEO ² , 4.5-5.5 Volts @ WOT
Pink →	85	Barometric Pressure Sensor (2.4L)	3.7-4.3 Volts With KOEO ² (Sea Level) 3.2-3.8 Volts With KOEO ² (@ 3937 Ft.)

¹ - KOER - Key On, Engine Running.

² - KOEO - Key On, Engine Off.

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Fig. 20: Pin Voltage Chart (Montero Sport - 3 Of 4)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Yellow/White →	86	Vehicle Speed Sensor (2.4L)	0-5 Volts (Pulse) With KOER ¹ (Vehicle Moving)
Yellow/Red →	87	Closed Throttle Position Switch (2.4L)	0-1 Volt With KOEO ² (Throttle Closed) 4 Volts Or More With KOEO ² (Throttle Open)
Red →	88	Camshaft Position Sensor (2.4L)	0.4-3.0 Volts (Engine Cranking) 0.5-2.0 Volts With KOER ¹
Black/Yellow →	89	Crankshaft Position Sensor (2.4L)	0.4-4.0 Volts (Engine Cranking) 1.5-2.5 Volts With KOER ¹
White/Black →	90	Volume Airflow Sensor (2.4L)	2.2-3.2 Volts KOER ¹ Or @ 2500 RPM
Black →	91	Ground Circuit (M/T – 2.4L)	Not applicable
Yellow →	92	Manifold Differential Pressure Sensor (3.0L – Fed.)	0.8-2.4 Volts With KOER ¹
Green/Orange →	93	Fuel Tank Differential Pressure Sensor (3.0L)	1.2-3.8 Volts With KOER ¹
Black/White →	99	Ignition Switch (IG – 3.0L)	B+ With KOEO ²

¹ – KOER – Key On, Engine Running.

² – KOEO – Key On, Engine Off.

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Fig. 21: Pin Voltage Chart (Montero Sport – 4 Of 4)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Green →	1	Injector No. 1	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Green/Red →	2	Injector No. 4	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Black →	3	LF Heated Oxygen Sensor Heater	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Blue/Red ² →	4	RF Heated Oxygen Sensor Heater	0-3 Volts With KOER ¹ , B+ @ 5000 RPM
Light Green/Red →	6	EGR Solenoid	B+ With KOEO ³ B+ & Momentary Drop @ WOT With KOER ¹
Yellow/Black →	9	Injector No. 2	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Green/Black →	10	Injector No. 5	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Black/Blue →	11	Ignition Power Transistor "A" (DOHC)	0.3-3.0 Volts @ 3000 RPM
White →	11	Ignition Power Transistor (SOHC)	0.3-3.0 Volts @ 3000 RPM
Black/White →	12	Ignition Power Transistor "B" (DOHC)	0.3-3.0 Volts @ 3000 RPM
Brown/Red →	13	Ignition Power Transistor "C" (DOHC)	0.3-3.0 Volts @ 3000 RPM
Green/Red ⁴ →	14	Idle Air Control Motor A1	B+ /0-3 Volts ⁵ (Load Controlled)
Gray/Blue →	15	Idle Air Control Motor B1	B+ /0-3 Volts ⁵ (Load Controlled)
Brown/Blue ⁶ →	16	EVAP Emission Purge Solenoid	⁷
Blue/Red →	17	Radiator Fan Motor Relay (High)	B+ With KOEO ³ (Fan Off) 0-3 Volts KOEO ³ (Fan On)
Green/Yellow →	18	Radiator Fan Motor Relay (Low)	B+ With KOEO ³ (Fan Off) 0-3 Volts KOEO ³ (Fan On)
Red/White →	19	Volume Airflow Sensor Reset Signal	2.2-3.2 Volts With KOER ¹
Black →	20	Fuel Pump Relay	B+ With Ignition Off, 0-3 Volts With KOEO ³
Green →	21	A/C Compressor Clutch Relay	6 Volts Or More KOER ¹ 0-3 Volts With Clutch Cycling
Green/Red →	22	Malfunction Indicator Light	0-3 Volts With KOEO ³ (Initially) 9-13 Volts After Several Seconds
Black/Green →	23	Ignition Timing Adjustment Terminal	0-1 Volt KOEO ³ (GND Connected) 4.0-5.5 Volts With KOEO ³ (GND Disconnected)
Green/Yellow →	24	Injector No. 3	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Green/White →	25	Injector No. 6	B+ With KOER ¹ B+ & Momentary Drop @ WOT With KOER ¹
Black/White ⁸ →	26	LR Heated Oxygen Sensor Heater	0-3 Volts With KOER ¹
Black →	27	RR Heated Oxygen Sensor Heater	0-3 Volts With KOER ¹
Green/Black →	28	Idle Air Control Motor A2	B+ /0-3 Volts ⁵ (Load Controlled)
Green/Yellow →	29	Idle Air Control Motor B2	B+ /0-3 Volts ⁵ (Load Controlled)
Green/White →	32	VIC Valve - Open (DOHC - Non-Turbo)	0-1 Volt With KOER ¹ , 4 Volts Or More ⁹
Green/Black →	33	VIC Valve - Closed (DOHC - Non-Turbo)	0-1 Volt With KOER ¹ , 4 Volts Or More ¹⁰

¹ - KOER - Key On, Engine Running.

² - Wire color is Yellow/Black on DOHC.

³ - KOEO - Key On, Engine Off.

⁴ - Wire color is Gray on DOHC.

⁶ - Check immediately after hot start.

⁸ - Wire color is Light Green/Black on turbo.

⁷ - Information is not available from manufacturer.

⁸ - Wire color is Green/White on turbo.

⁹ - Slowly decelerated from 5000 RPM to idle.

¹⁰ - Slowly accelerated from idle to 5000 RPM.

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Fig. 22: Pin Voltage Chart (3000GT - 1 Of 3)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Green/Red	35	EVAP Emission Vent Solenoid	¹
Red/Yellow	41	Wastegate Solenoid (Turbo)	B+ With KOEO ² , 0-3 Volts With KOER ³
Green/Yellow	42	Sensor Impressed Voltage	4.5-5.5 Volts With KOEO ²
Blue/Yellow ⁴	43	Crankshaft Position Sensor	0.2-3.0 Volts With KOER ³ Or Cranking
Black/White	44	Engine Coolant Temperature Sensor	3.2-3.8 Volts With KOEO ² (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ² (Sensor @ 68°F) 1.3-1.9 Volts With KOEO ² (Sensor @ 104°F) 0.3-0.9 Volt With KOEO ² (Sensor @ 176°F)
White/Black ⁵	45	Engine Ignition Signal	0-3 Volts @ 3000 RPM
Black	46	Ground	Not Applicable
Black/Red	47	Power Supply	B+ With KOEO ²
Blue/Red	48	Fuel Pressure Solenoid (Turbo)	B+ With KOEO ² 0-3 Volts/B+ With KOER ³
Red/Yellow ⁶	50	Camshaft Position Sensor	0.2-3.0 Volts With KOER ³ Or Cranking
Orange	51	Barometric Pressure Sensor	3.7-4.3 Volts With KOEO ² (Sea Level) 3.2-3.8 Volts With KOEO ² (@ 3937 Ft.)
Red/Green	52	Electric Load Switch (DOHC)	0-3 Volts With KOER ³ (Accessories Off) B+ With KOER ³ (Accessories On)
Red/White	53	VIC Position Sensor No. 1 (DOHC - Non-Turbo)	0-1 Or 4.0-5.5 Volts With KOEO ² 1.5-4 Volts (Momentarily) ⁷
Blue/White	54	Power Steering Pressure Switch	B+ With KOER ³ Steering Wheel Stationary 0-3 Volts When Steering Wheel Is Turned
Black/Red	55	Fuel Pump Relay No. 2 (Turbo)	0-3 Volts @ 3000 RPM
Blue/Green	57	MFI Relay	B+ With Ignition Off, 0-3V With KOEO ²
Black	58	Ground	Not Applicable
Black/Red	59	Power Supply	B+ With KOEO ²
Red/Black	60	Back-Up Power Supply	B+ With Ignition Off
Blue/Yellow	61	Volume Airflow Sensor	2.2-3.2 Volts @ 2000 RPM
Red/Blue	62	Intake Air Temperature Sensor	3.2-3.8 Volts With KOEO ² (Sensor @ 32°F) 2.3-2.9 Volts With KOEO ² (Sensor @ 68°F) 1.5-2.1 Volts With KOEO ² (Sensor @ 104°F) 0.4-1.0 Volt With KOEO ² (Sensor @ 176°F)
Black/Blue	63	VIC Position Sensor No. 2 (DOHC - Non-Turbo)	0-1 Or 4.0-5.5 Volts With KOEO ² 1.5-4 Volts (Momentarily) ⁷
Blue/Orange	65	A/C Switch No. 2	0-3 Volts With KOER ³ (A/C Off) B+ KOER ³ (A/C On)
Black/Yellow	67	Park/Neutral Position Switch (A/T)	0-3 Volts With KOEO ² (In "P" Or "N") 8-14 Volts KOEO ² (In "D", "2", "L" Or "R")
Black	67	Ground (M/T)	Not Applicable
Black/Yellow	68	Ignition Switch (ST - M/T)	8 Volts Or More (Engine Cranking)
White	71	LF Heated Oxygen Sensor	0-0.8 Volt (Pulse) With KOER ³ (2000 RPM)
White	72	RF Heated Oxygen Sensor	0-0.8 Volt (Pulse) With KOER ³ (2000 RPM)

¹ - Information is not available from manufacturer.

² - KOEO - Key On, Engine Off.

³ - KOER - Key On, Engine Running.

⁴ - Wire color is Blue/White on turbo.

⁵ - Wire color is White on DOHC.

⁶ - Wire color is Blue/Red on turbo.

⁷ - Slowly accelerated from idle to 5000RPM.

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Fig. 23: Pin Voltage Chart (3000GT - 2 Of 3)

	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
White	73	LR Heated Oxygen Sensor	0.6-1.0 Volt In 2nd Gear Or "L" @ WOT
White	74	RR Heated Oxygen Sensor (Except SOHC - Fed.)	0.6-1.0 Volt In 2nd Gear Or "L" @ WOT
1	75	Muffler Mode Switch (Turbo)	0-3 Volt (Switch Set To TOUR) With KOEO ² B+ Volts (Switch Set To SPORT) With KOEO ²
Red/Black	77	Turbo Meter (Turbo)	4-13 Volts With KOEO ² B+ & Momentary Drop At WOT With KOER ³
Brown/Red	78	Throttle Position Sensor	0.3-1.0 Volt With KOEO ² , 4.5-5.5 Volts @ WOT
Yellow/Red	79	Closed Throttle Position Switch	0-1 Volt With KOEO ² (Throttle Closed) 4 Volts Or More With KOEO ² (Throttle Open)
Yellow/White	80	Vehicle Speed Sensor	0-5 Volts (Pulse) With KOER ³ (Vehicle Moving)
Blue/Orange	83	A/C Switch No. 2 (Turbo)	0-3 Volts With KOER ³ (A/C Off) B+ KOER ³ (A/C On)
Pink	84	Data Link Connector	Not Applicable
Yellow	87	Data Link Connector	Not Applicable
White/Blue	86	Torque Reduce Request Signal No. 1 (A/T)	4.5-5.5 Volts With KOER ³ 0-1 Volts During Driving & Speed Changes
Blue/White	87	Torque Reduce Execute Signal (A/T)	0-1 Volt With KOER ³ (Eng. Temp. 122°F Or Less) 1-4 Volts With KOER ³ (Eng. Temp. Normal)
White/Red	88	Torque Reduce Request Signal No. 2 (A/T)	0-1 Volt With KOER ³ 1-5.5 Volts During Driving & Speed Changes
White	91	Knock Sensor (DOHC)	⁴
White/Red	92	Manifold Differential Pressure Sensor (A/T)	0.8-2.4 Volts With KOER ³ (A/T)
Green/Red	93	Fuel Tank Differential Pressure Sensor	1.2-3.8 Volts With KOER ³
Black/White	99	Ignition Switch (IG)	B+ With KOEO ²
Green	100	Data Link Connector	Not Applicable

¹ - Wire color is not available from manufacturer.

² - KOEO - Key On, Engine Off.

³ - KOER - Key On, Engine Running.

⁴ - Information is not available from manufacturer.

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Fig. 24: Pin Voltage Chart (3000GT - 3 Of 3)