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SYSTEM CONNECTORS

The V-MAC® III system utilizes many different connector styles and sizes. The Vehicle Electronic Control Unit (VECU), Engine Electronic Control Unit (EECU), and the Serial Communications Port connectors are the largest connectors in the system, and are where the majority of the V-MAC® III system testing is performed. This section illustrates the VECU, EECU, and Serial Communications Port connectors and includes charts with connector terminal identification and functions. The charts should not be used as a replacement for the detailed tests that appear in this manual. The charts are intended as an identification reference for use when repairing a connector or terminal.

6-Pin Serial Communication Port

The Serial Communications Port is a six (6) pin connector used for system diagnostics and reprogramming. It is located under the dashboard to the left of the steering column. This port is used for connecting a diagnostic computer to the vehicle. See the illustration for the pin locations. A listing of the signal on each pin follows the illustration.

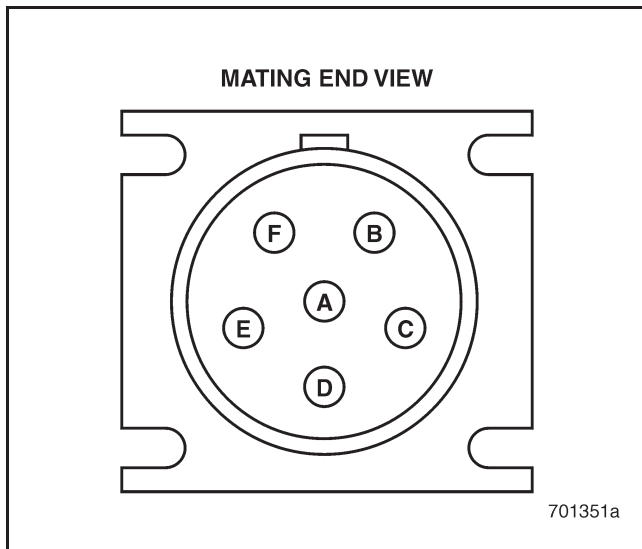


Figure 858 — 6-Pin Serial Communication Port

PIN Letter	Designation
A	Serial data link PLUS (+) line
B	Serial data link MINUS (-) line
C	PLUS (+) 12 volts
D	Accessory relay
E	Chassis ground
F	Not used

9-Pin Serial Communication Port

The Serial Communications Port is a nine (9) pin connector used for system diagnostics and reprogramming. It is located under the dashboard to the left of the steering column. This port is used for connecting a diagnostic computer to the vehicle. See the illustration for the pin locations. A listing of the signal on each pin follows the illustration.

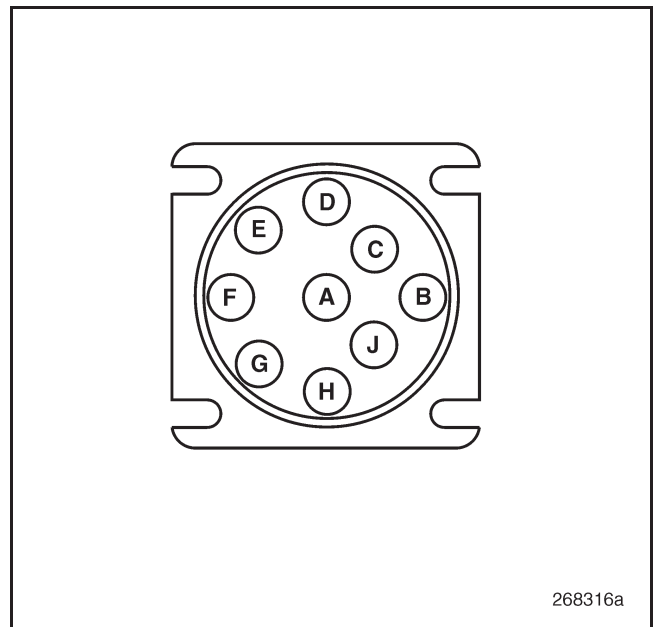


Figure 859 — 9-Pin Serial Communication Port

PIN Letter	Designation
A	Chassis ground
B	PLUS (+) 12 volts
C	J1939 Serial data link PLUS (+) line
D	J1939 Serial data link MINUS (-) line
E	J1939 Serial data link shield line
F	J1587 Serial data link PLUS (+) line
G	J1587 Serial data link MINUS (-) line
H	Not used
J	Not used



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Vehicle Electronic Control Unit (VECU) Connectors

The Vehicle Electronic Control Unit (VECU) has three 18 pin connectors. Each pin is marked on the inside of the connector. To disconnect a connector from the VECU, press down on the tang of the harness connector and gently pull the connector from the VECU. Be sure that the connector is aligned as shown below to avoid confusion when checking pin numbers. The connector number and color are shown as a reference for reconnecting the VECU to the cab harness.

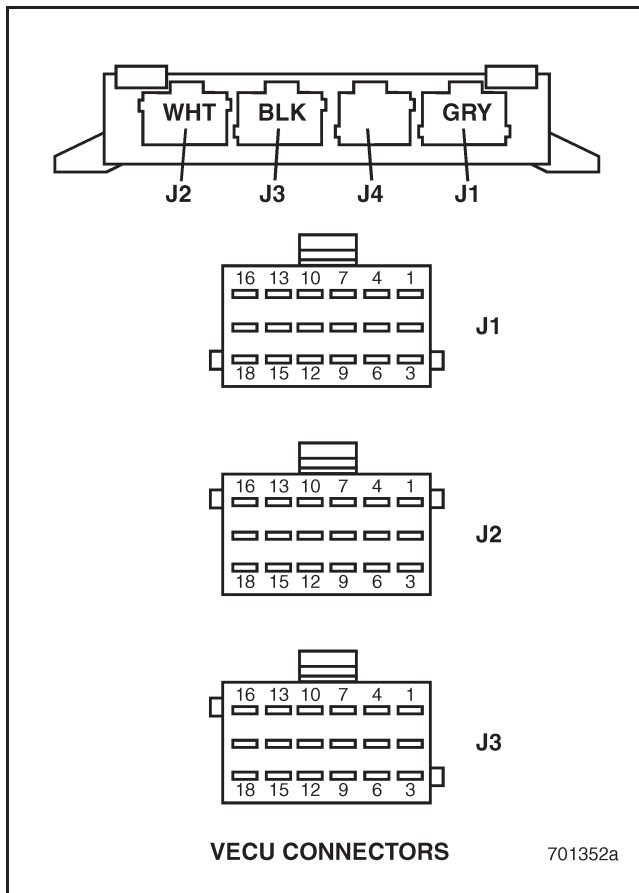


Figure 860 — VECU Connectors

VEHICLE ELECTRONIC CONTROL UNIT (VECU) CONNECTOR PIN DESIGNATIONS

VECU Connector J1	
PIN Number	Description
1	Ignition key switch
2	Starter signal
3	Buffered vehicle speed output (Speedometer Signal)
4	Buffered RPM output (Tachometer Signal)
5	Shutdown override signal
6	Speed control ON/OFF switch signal
7	Speed control SET/DECEL signal
8	Speed control RESUME/ACCEL signal
9	Clutch engaged signal
10	Parking brake signal (#1)
11	Service brake signal
12	Engine brake switch — low
13	Engine brake switch — high
14	Not used
15	Fan clutch override
16	Not used
17	Not used
18	Fuel level sensor signal



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VECU Connector J2	
PIN Number	Description
1	VECU Reference ground
2	Transmission oil temperature signal
3	Front drive axle temperature signal
4	Rear drive axle temperature signal
5	Not used (spare relay)
6	Not used
7	Exhaust temperature sensor signal
8	Exhaust temperature sensor return
9	PTO 1 selected
10	PTO 2 (when selected)
11	Vehicle speed sensor PLUS (+)
12	Vehicle speed sensor MINUS (-)
13	Parking brake signal (#2)
14	Not used
15	Not used
16	Not used
17	CAN-T1
18	CAN-T2

VECU Connector J3	
PIN Number	Description
1	J1939 data link high
2	J1939 data link low
3	Not used
4	Throttle position sensor voltage reference
5	Throttle position sensor signal
6	Throttle position sensor return
7	Spare relay #3
8	Shutdown lamp (mechanical gauge panel)
9	Electronic Malfunction Lamp (EML) signal (mechanical gauge panel)
10	Spare relay #2
11	Not used (spare driver alarm)
12	Spare relay #1
13	Accessory relay control
14	J1587 serial data link A PLUS (+)
15	J1587 serial data link B MINUS (-)
16	PLUS (+) 12 volts from battery
17	PLUS (+) 12 volts from accessory relay
18	Chassis ground

Engine Electronic Control Unit (EECU) Connectors (ASET™ IEGR Engine)

The Engine Electronic Control Unit (EECU) has two 43 pin connectors. To disconnect a connector from the EECU, pull back on the connector lock and gently pull the connector back on its heel and away from the EECU. For easy reference, the following illustration shows each pin number as it appears on the connector. Be sure that the connector is aligned as shown below to avoid confusion when checking pin numbers. The connector number and EECU orientation are shown as a reference for reconnecting the EECU to the engine harness.

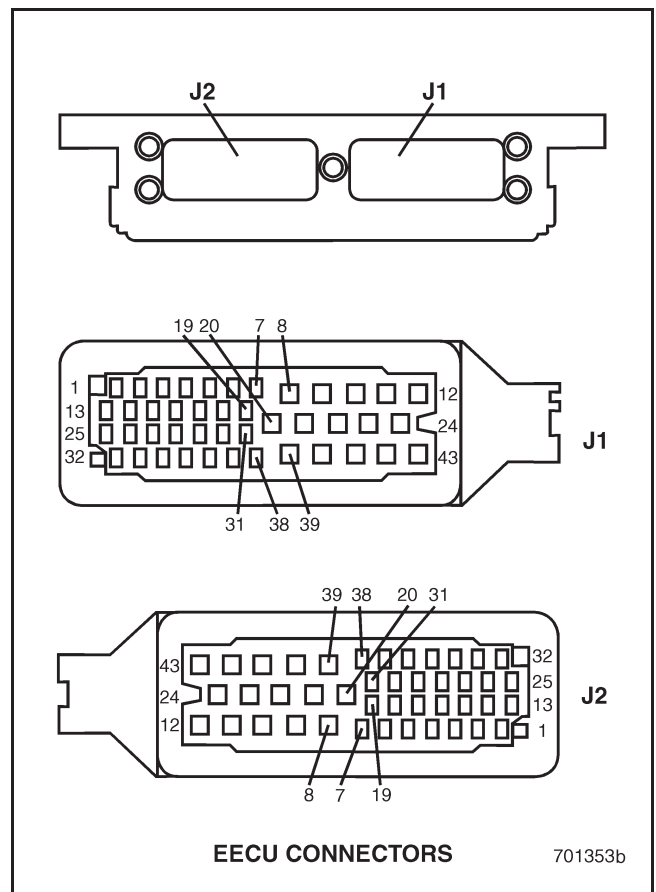


Figure 861 — EECU Connectors (ASET™ IEGR Engine)



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ENGINE ELECTRONIC CONTROL UNIT (EECU) CONNECTOR PIN DESIGNATIONS (ASET™ IEGR ENGINE)

EECU Connector J1	
PIN Number	Description
1	Not used (Engine oil level sensor)
2	Not used
3	Not used
4	Not used
5	Engine oil temperature sensor signal
6	Not used
7	Air conditioning pressure switch
8	Wastegate solenoid control/Parallel fan circuit
9	Fan clutch solenoid control
10	Electronic unit pump injector #1
11	Electronic unit pump injector #5
12	Electronic unit pump injector #6
13	Not used (Engine oil level sensor)
14	Not used
15	Boost air pressure sensor signal
16	Not used
17	Coolant temperature sensor signal
18	Engine position sensor return
19	Engine position sensor signal
20	Engine brake #2 control
21	Engine brake #1 control

EECU Connector J1	
PIN Number	Description
22	Electronic unit pump injector #2
23	Electronic unit pump injector #3
24	Electronic unit pump injector #4
25	Oil pressure sensor return
26	Temperature sensor common return
27	Intake air temperature sensor signal
28	Fuel temperature sensor signal
29	Not used
30	RPM/TDC sensor signal
31	RPM/TDC sensor return
32	Oil pressure sensor voltage reference
33	Not used
34	Engine oil pressure sensor signal
35	Boost air pressure sensor return
36	Boost air pressure sensor voltage reference
37	Not used
38	Not used
39	Not used
40	Not used
41	Rear bank electronic unit pump injector solenoid voltage supply
42	Front bank electronic unit pump injector solenoid voltage supply
43	Not used



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EECU Connector J2	
PIN Number	Description
1	Not used
2	Not used
3	Engine coolant level sensor signal
4	Not used
5	Not used
6	Not used
7	Not used
8	J1939 data link high
9	Not used
10	12 volts from power relay
11	Not used
12	Chassis ground
13	Not used
14	Not used
15	Not used
16	Not used
17	Not used
18	Not used
19	Not used
20	Not used
21	Not used
22	12 volts from power relay

EECU Connector J2	
PIN Number	Description
23	Not used
24	Chassis ground
25	Not used
26	Engine coolant level sensor return
27	Ambient air temperature sensor return
28	Not used
29	Ambient air temperature sensor signal
30	Not used
31	J1587 serial data link (+)
32	Not used
33	Not used
34	Not used
35	Not used
36	Not used
37	Not used
38	J1587 serial data link (-)
39	J1939 data link low
40	Not used
41	12 volts from power relay
42	Not used
43	Chassis ground



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Engine Electronic Control Unit (EECU) Connectors (ASET™ CEGR Engine)

The Engine Electronic Control Unit (EECU) has three connectors, J1 is a 36 pin connector, J2 is an 89 pin connector, and J3 is a 16 pin connector. To disconnect a connector from the EECU, pull back on the connector lock and gently pull the connector back on its heel and away from the EECU. For easy reference, the following illustration shows each pin number as it appears on the connector. Be sure that the connector is aligned as shown below to avoid confusion when checking pin numbers. The connector number and EECU orientation are shown as a reference for reconnecting the EECU to the engine harness.

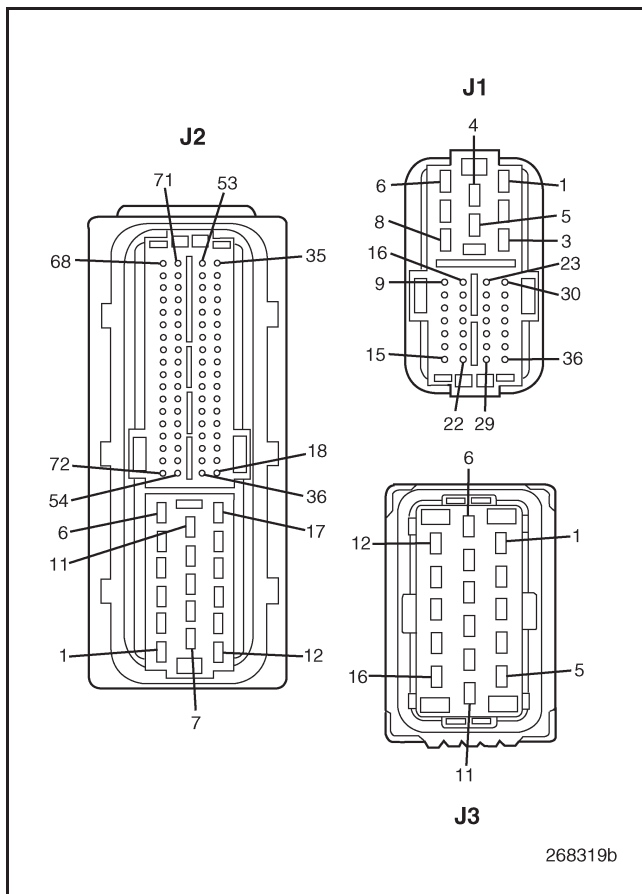


Figure 862 — EECU Connectors (ASET™ CEGR Engine)

ENGINE ELECTRONIC CONTROL UNIT (EECU) CONNECTOR PIN DESIGNATIONS (ASET™ CEGR ENGINE)

EECU Connector J1	
PIN Number	Description
1	Not used
2	12 volts (Battery power)
3	12 volts (Battery power)
4	Chassis ground
5	12 volts (Battery power)
6	Not used
7	Chassis ground
8	Chassis ground
9	Not used
10	ISO K-line
11	Coolant level sensor return
12	Coolant level sensor signal
13	Not used (coolant level warning signal)
14	Fan speed sensor signal return
15	Fan speed sensor supply voltage
16	Not used
17	J1587 serial data link (+)
18	J1587 serial data link (-)
19	Not used
20	Fan speed sensor signal
21	Not used
22	High side bank 1
23	CAN2 J1939 data link high
24	CAN2 J1939 data link low
25	Not used
26	Not used
27	Not used
28	Fan clutch output
29	Not used
30	CAN1 J1939 data link low
31	CAN1 J1939 data link high
32	Not used
33	Not used
34	Not used
35	Air conditioning high pressure switch
36	Not used



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EECU Connector J2	
PIN Number	Description
1	Not used
2	Not used
3	Not used
4	Not used
5	Not used (spare control output)
6	Variable geometry turbo output
7	High side bank 1
8	Not used
9	Not used (spare control)
10	Aux. cooling low
11	Not used
12	High side bank 2 (aux cooler low)
13	Not used
14	Not used
15	Not used
16	Variable EGR control signal (hi)
17	Variable EGR control signal (low)
18	Not used (ground pass thorough)
19	Not used
20	Not used
21	Not used (oil level sensor signal)
22	Not used (oil level sensor ground)
23	Not used
24	Not used
25	Oil pressure sensor supply voltage
26	Variable geometry turbo position sensor supply voltage
27	Not used
28	Oil pressure sensor ground
29	EGR pressure sensor ground
30	Air humidity sensor +5 volt reference voltage
31	Not used
32	Not used
33	Not used
34	Wake-up input

EECU Connector J2	
PIN Number	Description
35	Boost air pressure sensor supply voltage
36	Not used
37	Not used
38	Not used
39	Not used
40	Not used
41	Not used
42	Not used
43	Not used
44	Not used
45	Oil pressure sensor signal
46	Not used
47	Humidity sensor signal
48	Not used
49	Boost air pressure sensor ground
50	Boost air pressure sensor signal
51	Variable geometry turbo position sensor signal
52	Not used
53	Not used
54	Turbo wheel speed sensor signal (+)
55	Engine speed sensor (-)
56	Engine speed sensor (+)
57	Not used
58	Not used
59	Not used
60	Not used
61	Inlet manifold air temperature sensor ground
62	Not used
63	Not used
64	Oil temperature sensor signal
65	Combustion air temperature sensor signal
66	
67	Compressor temperature sensor and Aftercooler outlet temperature sensor grounds



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EECU Connector J2	
PIN Number	Description
68	Ambient air temperature sensor signal
69	Variable geometry turbo position sensor ground
70	Not used
71	Not used
72	Turbo wheel speed sensor signal (-)
73	Turbo wheel speed sensor shield
74	Not used
75	Engine position sensor signal (+)
76	Engine position sensor signal (-)
77	Not used
78	Not used
79	Not used
80	Inlet manifold temperature sensor signal
81	Fuel temperature sensor signal
82	Oil and fuel temperature sensor grounds
83	Humidity sensor ground
84	Aftercooler outlet temperature sensor ground
85	Compressor discharge temperature sensor signal
86	Coolant temperature sensor signal
87	Coolant temperature sensor and ambient air temperature sensor grounds
88	Not used
89	Not used

EECU Connector J3	
PIN Number	Description
1	Not used
2	Not used
3	Electronic unit pump injector #6 solenoid voltage supply
4	Electronic unit pump injector #5 solenoid voltage supply
5	Electronic unit pump injector #3 solenoid voltage supply
6	Electronic unit pump injector #3 solenoid control
7	Engine brake #1 control
8	Engine brake #2 control
9	Electronic unit pump injector #1 solenoid voltage supply
10	Electronic unit pump injector #2 solenoid voltage supply
11	Electronic unit pump injector #4 solenoid voltage supply
12	Electronic unit pump injector #5 solenoid control
13	Electronic unit pump injector #1 solenoid control
14	Electronic unit pump injector #4 solenoid control
15	Electronic unit pump injector #2 solenoid control
16	Electronic unit pump injector #6 solenoid control