

SAE <i>International</i> [™]	SURFACE VEHICLE RECOMMENDED PRACTICE	SAE J1587 JAN2013
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Electronic Data Interchange Between Microcomputer Systems in Heavy-Duty Vehicle Applications		

RATIONALE

Document has not been revised in 5 years and there are no current plans by any major OEMs to request modifications in the future.

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1. SCOPE

This SAE Recommended Practice defines a document for the format of messages and data that is of general value to modules on the data communications link. Included are field descriptions, size, scale, internal data representation, and position within a message. This document also describes guidelines for the frequency of and circumstances in which messages are transmitted.

In order to promote compatibility among all aspects of electronic data used in heavy-duty applications, it is the intention of the SAE Truck and Bus Low Speed Communications Network Subcommittee (formerly Data Format Subcommittee) (in conjunction with other industry groups) to develop recommended message formats for:

- a. Vehicle and Component Information—This includes all information that pertains to the operation of the vehicle and its components (such as performance, maintenance, and diagnostic data).
- b. Routing and Scheduling Information—Information related to the planned or actual route of the vehicle. It includes current vehicle location (for example, geographical coordinates) and estimated time of arrival.
- c. Driver Information—Information related to driver activity. Includes driver identification, logs, (for example, DOT), driver expenses, performance, status, and payroll data.
- d. Freight Information—Provides data associated with cargo being shipped, picked up, or delivered. Includes freight status, overage, shortage and damage reporting, billing and invoice information as well as customer and consignee data.

This document represents the recommended formats for basic vehicle and component identification and performance data. This document is intended as guide toward standard practice and is subject to change to keep pace with experience and technical advances.

1.1 Purpose

The purpose of this document is to define the format of the messages and data being communicated between microprocessors used in heavy-duty vehicle applications. It is meant to serve as a guide toward a standard practice to promote software compatibility among microcomputer based modules. This document is to be used with SAE J1708. SAE J1708 defines the requirements for the hardware and basic protocol that is needed to implement this document.

The primary use of the communications link and message format is expected to be the sharing of data among stand-alone modules. It is anticipated that this document (when used in conjunction with SAE J1708) will reduce the cost and complexity associated with developing and maintaining software for heavy-duty vehicle microprocessor applications.

2. REFERENCES

2.1 Applicable Publications

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J1455 Recommended Environmental Practices for Electrical Equipment Design in Heavy-Duty Vehicle Applications

SAE J1708 Serial Data Communications Between Microcomputer Systems in Heavy-Duty Vehicle Applications

2.1.2 ANSI/IEEE Publication

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ANSI/IEEE Standard 754-1985 IEEE Standard for Binary Floating-Point Arithmetic
<http://webstore.ansi.org/ansidocstore/product.asp?sku=754%2D1985>

2.1.3 EIA Publication

Available from Electronic Industries Alliance, 2500 Wilson Blvd., Arlington, VA 22201, Tel: 703-907-7500, www.eia.org.
EIA specs are available from IHS Standards Store, <http://global.ihs.com/>.

EIA RS-485 Standard for Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems, April 1983 (Superseded by TIA-485 in March 2003)

TIA-485 Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems, March 2003

2.1.4 RTCM Publication

Available from RTCM, 1800 N. Kent St., Suite 1060, Arlington, VA 22209, Tel: 703-527-2000, www.rtcn.org.

RTCM-104, Version 2.0 Radio Technical Commission for Maritime Services, January 1990
<https://ssl29.pair.com/dmarkle/puborder.php?show=3>

3. ELECTRONIC DATA INTERCHANGE

All data transmitted on the communication link, defined by SAE J1708, using message identification (MID) in the range 128 to 255, shall follow this document. Designers need to be aware that messages starting with MIDs 0 to 127 are allowed to coexist with current SAE J1587 messages. The content of the messages broadcast by MIDs 0 to 127 may or may not conform to SAE J1587 format.

3.1 Message Format

The message shall consist of the following:

Message ID
One or More Parameters
Checksum

The number of parameters in a message is limited by the total message length defined in SAE J1708. MIDs are assigned to transmitter categories as identified in Table 1.

3.2 MID Assignment List Additions

No two transmitters in the system shall have the same MID. System manufacturers may request additions be made to the MID list. The SAE Truck and Bus Low Speed Communications Network Subcommittee will review the value of any additional MIDs for general interest and/or purpose and may or may not add it to the list.

3.2.1 Available MID Space

The MID space allocated for assignment and use by SAE J1587 is almost full. In order to allow for the limited additional assignment of new MIDs, the SAE Truck and Bus Low Speed Communication Network Subcommittee has taken the following action to partition the SAE J1587 MID data space by industry segment and reclaim unused MIDs.

3.2.1.1 Transportation Industry Partitioning of MIDs (Multiple Assignment of MIDs)

Table 1 has been partitioned to identify the intended transportation segments for each MID. Although SAE J1587 is primarily utilized within Heavy-Duty vehicle applications, it has also been adopted in other transportation segments such as transit bus and marine. In some cases MIDs have been defined differently per transportation segment. Sections a and b describe how to determine the transportation segment of an ECU:

- a. PID 342, Transportation Segment Identifier has been established for tools that are used in more than one transportation segment. This PID is used by diagnostic tools to determine the transportation segment of the MID of the responding ECU.
- b. Legacy devices (prior to June, 2004) may not respond to this message.

3.2.1.2 Dual Naming

MIDs are sometimes assigned two names using the following rationale.

- a. The need for a new MID assignment is very similar to an existing MID.
- b. The two named devices could not be used simultaneously on the same vehicle network.

3.2.1.3 Reclaiming of Unused MIDs

Certain MIDs (134, 135, 148, etc...) were assigned in anticipation of their eventual use. These MIDs were never used since no method for dynamically addressing SAE J1587 MIDs on multiple trailers was specified. Reclaimed MIDs are marked in table 1 as "Reclaimed". In the next publication of this document, these MIDs will be shown as "Reserved for future assignment by SAE," if they have not been assigned new names or the reclaiming has been negated by use in the field of these MIDs. Any concerns of the reclaiming of MID assignments should be brought to the attention of SAE Truck and Bus Low Speed Communication Network Subcommittee.

- 3.2.1.4 The Feb2002 version of Table 1 has been preserved for reference in Appendix G.

TABLE 1 - MESSAGE ID ASSIGNMENT LIST

MID #	Basic Heavy Duty	Mass Transit Specific	Marine Specific
0-127	Defined by SAE J1708	Defined by SAE J1708	Defined by SAE J1708
128	Engine #1	Engine #1	Engine #1
129	Turbocharger	Turbocharger	Turbocharger
130	Transmission	Transmission	Transmission
131	Power Takeoff	-	-
132	Axle, Power Unit	Axle, Power Unit	-
133	Axle, Trailer	Axle, Trailer	-
134	(Reclaimed)	-	-
135	(Reclaimed)	-	-
136	Brakes, Power Unit	Brakes, Power Unit	-
137	Brakes, Trailer #1	Brakes, Trailer #1	-
138	Brakes, Trailer #2	-	-
139	Brakes, Trailer #3	-	-
140	Instrument Cluster	Instrument Cluster	Instrument Cluster
141	Trip Recorder	Trip Recorder	Trip Recorder
142	Vehicle Management System	Vehicle Management System	Vehicle Management System
143	Fuel System	Fuel System	Fuel System
144	Cruise Control	Cruise Control	-
145	Road Speed Indicator	Road Speed Indicator	-
146	Cab Climate Control	Cab Climate Control	Cab Climate Control
147	Cargo Refrigeration / Heating, Trailer		-
148	(Reclaimed)	-	-
149	(Reclaimed)	-	-
150	Suspension, Power Unit	Suspension, Power Unit	-
151	Suspension, Trailer	Suspension, Trailer #1	-
152	(Reclaimed)	-	-
153	(Reclaimed)	-	-
154	Diagnostic Systems, Power Unit	Diagnostic Systems, Power Unit	-
155	Diagnostic Systems, Trailer	Diagnostic Systems, Trailer #1	-
156	(Reclaimed)	-	-
157	(Reclaimed) Park Brake Controller	Park Brake Controller	-
158	Electrical Charging System	Electrical Charging System	Electrical Charging System
159	Proximity Detector, Front	Proximity Detector, Front	Proximity Detector, Front
160	Proximity Detector, Rear	Proximity Detector, Rear	Proximity Detector, Rear
161	Aerodynamic Control Unit	Aerodynamic Control Unit	Aerodynamic Control Unit
162	Vehicle Navigation Unit	Vehicle Navigation Unit	Vehicle Navigation Unit
163	Vehicle Security	Vehicle Security	Vehicle Security
164	Multiplex	Multiplex	Multiplex
165	Communication Unit-Ground	Communication Unit-Ground	Communication Unit-Ground
166	Tires, Power Unit	Tires, Power Unit	-
167	Tires, Trailer	Tires, Trailer	-
168	Tires, Trailer #2	-	-
169	Tires, Trailer #3	-	-
170	Electrical	Electrical	Electrical
171	Driver Information Center #1	Driver Information Center #1	Driver Information Center #1
172	Off-board Diagnostics #1	Off-board Diagnostics #1	Off-board Diagnostics #1
173	Engine Retarder	Engine Retarder	-



TABLE 1 - MESSAGE ID ASSIGNMENT LIST (CONTINUED)

MID #	Basic Heavy Duty	Mass Transit Specific	Marine Specific
174	Cranking/Starting System	Cranking/Starting System	-
175	Engine #2	Engine #2	Engine #2
176	Transmission, Additional / Hybrid Control Module	Transmission, Additional / Hybrid Control Module	-
177	Particulate Trap System	Particulate Trap System	-
178	Vehicle Sensors to Data Converter	Vehicle Sensors to Data Converter	-
179	Data Logging Computer	Data Logging Computer	-
180	Off-board Diagnostics #2	Off-board Diagnostics #2	-
181	Communication Unit-Satellite	Communication Unit-Satellite	-
182	Off-board Programming Station	Off-board Programming Station	-
183	Engine #3	Engine #3	Engine #3
184	Rear Axle Steering Controller	Rear Axle Steering Controller	Engine #4
185	Pneumatic System Controller	Pneumatic System Controller	Engine #5
186	Tires Control Unit	Tires Control Unit	Engine #6
187	Vehicle Management System #2	Vehicle Control Head Unit	-
188	Vehicle Management System #3	Vehicle Logic Control Unit	-
189	-	Vehicle Head Signs	-
190	Refrigerant Management Protection and Diagnostics	Refrigerant Management Protection and Diagnostics	Refrigerant Management Protection and Diagnostics
191	Vehicle Location Unit-Differential Correction	Vehicle Location Unit-Differential Correction	Vehicle Location Unit-Differential Correction
192	-	Front Door (Door #1) Status Unit	-
193	-	Middle Door (Door #2) Status Unit	-
194	-	Rear Door (Door #3) Status Unit	-
195	Annunciator Unit	Annunciator Unit	Annunciator Unit
196	-	Fare Collection Unit	-
197	-	Passenger Counter Unit #1	-
198	-	Schedule Adherence Unit	-
199	-	Route Adherence Unit	-
200	Environment Monitor Unit / Auxiliary Cab Climate Control	Environment Monitor Unit / Auxiliary Cab Climate Control	Environment Monitor Unit / Auxiliary Cab Climate Control
201	Vehicle Status Points Monitor Unit	Vehicle Status Points Monitor Unit	Vehicle Status Points Monitor Unit
202	High Speed Communications Unit	High Speed Communications Unit	High Speed Communications Unit
203	Mobile Data Terminal Unit	Mobile Data Terminal Unit	Mobile Data Terminal Unit
204	Vehicle Proximity, Right Side	Vehicle Proximity, Right Side	Vehicle Proximity, Right Side
205	Vehicle Proximity, Left Side	Vehicle Proximity, Left Side	Vehicle Proximity, Left Side
206	Base Unit (Radio Gateway to Fixed End)	Base Unit (Radio Gateway to Fixed End)	Base Unit (Radio Gateway to Fixed End)
207	Bridge from SAE J1708 Drivetrain Link	Bridge from SAE J1708 Drivetrain Link	Bridge from SAE J1708 Drivetrain Link
208	Maintenance Printer	Maintenance Printer	Maintenance Printer
209	Fifth Wheel Hitch Monitoring Device	Vehicle Turntable	-
210	-	Bus Chassis Identification Unit	-
211	Smart Card Terminal	Smart Card Terminal	Smart Card Terminal
212	Mobile Data Terminal	Mobile Data Terminal	Mobile Data Terminal
213	Vehicle Control Head Touch Screen	Vehicle Control Head Touch Screen	Vehicle Control Head Touch Screen
214	Silent Alarm Unit	Silent Alarm Unit	Silent Alarm Unit
215	-	Surveillance Microphone	-
216	Lighting Control Administrator Unit	Lighting Control Administrator Unit	Lighting Control Administrator Unit
217	Tractor/Trailer Gateway, Tractor Mounted	-	-
218	Tractor/Trailer Gateway, Trailer Mounted	-	-

TABLE 1 - MESSAGE ID ASSIGNMENT LIST (CONTINUED)

MID #	Basic Heavy Duty	Mass Transit Specific	Marine Specific
219	Collision Avoidance Systems	Collision Avoidance Systems	Collision Avoidance Systems
220	Tachograph	Tachograph	Tachograph
221	Driver Information Center #2	Driver Information Center #2	Driver Information Center #2
222	Driveline Retarder	Driveline Retarder	-
223	Transmission Shift Console-Primary	Transmission Shift Console-Primary	Transmission Shift Console-Primary
224	Parking Heater	Parking Heater	-
225	Weighing System, Axle Group #1 / Vehicle	Weighing System, Axle Group #1 / Vehicle	-
226	Weighing System, Axle Group #2	Weighing System, Axle Group #2	-
227	Weighing System, Axle Group #3	Weighing System, Axle Group #3	-
228	Weighing System, Axle Group #4	Weighing System, Axle Group #4	-
229	Weighing System, Axle Group #5	Weighing System, Axle Group #5	-
230	Weighing System, Axle Group #6	Weighing System, Axle Group #6	-
231	Communication Unit-Cellular	Communication Unit-Cellular	Communication Unit-Cellular
232	Safety Restraint System #1	Safety Restraint System #1	Safety Restraint System #1
233	Intersection Preemption Emitter	Intersection Preemption Emitter	-
234	Instrument Cluster #2	Instrument Cluster #2	Instrument Cluster #2
235	Engine Oil Control System	Engine Oil Control System	Engine Oil Control System
236	-	Entry Assist Control #1	-
237	-	Entry Assist Control #2	-
238	Idle Adjust System	Idle Adjust System	Idle Adjust System
239	-	Passenger Counter Unit #2	-
240	-	Passenger Counter Unit #3	-
241	Fuel Tank Monitor	Fuel Tank Monitor	Fuel Tank Monitor
242	(Reclaimed)	Door # 4 Status Unit	-
243	(Reclaimed)	Door # 5 Status Unit	-
244	(Reclaimed)	Door # 6 Status Unit	-
245	Weighing System Display	Door # 7 Status Unit	-
246	Brakes, Trailer #4	Door # 8 Status Unit	-
247	Brakes, Trailer #5	-	-
248	Forward Road Image Processor	Forward Road Image Processor	-
249	Body Controller	Body Controller	Body Controller
250	Steering Column Unit	Steering Column Unit	Steering Column Unit
251	(Reclaimed)	-	-
252	(Reclaimed)	-	-
253	Brake Stroke Alert Monitor, Tractor	Brake Stroke Alert Monitor, Tractor	-
254	Safety Restraint System #2	Safety Restraint System #2	Safety Restraint System #2
255	Reserved-to be assigned	Reserved-to be assigned	Reserved-to be assigned

NOTE: Designers need to be aware that messages starting with MIDs 0 to 127 are allowed to coexist with current SAE J1587 messages. The content of the messages broadcast by MIDs 0 to 127 may or may not conform to SAE J1587 format.

3.3 Parameter Identification Assignments

The first character of every parameter shall be the parameter identification character (PID). The permitted range of PIDs shall include numbers 0 to 255. Assignment of a PID to a parameter shall be done according to the number of data characters required by the parameter.

PIDs 256 to 511 represent a second page of PIDs (page 2) for use with the extension PID 255. These PIDs are transmitted modulo 256, such that PID 256 is transmitted as 0, PID 257 is transmitted as 1, etc.

PIDs 512 to 767 represent a third page of PIDs (page 3) for use with the extension PID 511. These PIDs are transmitted modulo 512, such that PID 512 is transmitted as 0, PID 513 is transmitted as 1, etc.

PIDs 768 to 1023 represent a fourth page of PIDs (page 4) for use with the extension PID 767. These PIDs are transmitted modulo 768, such that PID 768 is transmitted as 0, PID 769 is transmitted as 1, etc.

PIDs (0 to 127), (256 to 383), (512 to 639) and (768 to 895) shall be allocated to parameters using a single data character to represent its value. The single data character follows the PID.

PIDs (128 to 191), (384 to 447), (640 to 703) and (896 to 959) shall be allocated to double data character parameters. The two data characters follow the PID.

Parameters requiring more than two data characters and parameters requiring varying numbers of data characters shall be allocated PIDs (192 to 253), (448 to 509), (704 to 765), (960 to 1021). The number of data characters used is contained in the first character after the PID. This character count is followed by the specified number of data characters. The minimum character count value is 0. The maximum character count is limited by the total message character count permitted by SAE J1708.

PID 254 and 510 are data link escape PIDs. All characters excluding the message checksum following an escape PID are defined as escape data. The first data byte contains the Message ID of the desired receiving device. The remaining escape data is to be defined by the manufacturer of the transmitting device and may be disclosed in an applications document (reference SAE J1708). These are used to transmit special commands, data, and other proprietary information to a specified component.

PIDs 255, 511, and 767 are extension PIDs. All characters in this message following an extension PID (excluding the message checksum) are to be interpreted using their applicable extended definitions. When receiving data following PID 255, 511 or 767, a value of 256, 512 or 768 should be added accordingly, to each PID received to determine the correct page PID identification.

The format of a message incorporating PID 255 is as follows:

MID, PID=255, PID/Data, [PID/Data, PID/Data, ...], Checksum

where the PIDs in this message are interpreted as PID 256 to 511.

Similarly, the format of a message incorporating PID 767 is as follows:

MID, PID=255, PID=255, PID=255, PID/Data, [PID/Data, PID/Data, ...], Checksum

where the PIDs in this message are interpreted as PID 768 to 1023.

Page extension indicators are only valid immediately following the MID.

The PID assignment list is shown in Table 2.

The procedure for assigning new PIDs is contained in section 3.10.

TABLE 2 - PARAMETER IDENTIFICATION ASSIGNMENT LIST

PID	Parameter
Single Data Character Length Parameters	
0	Request Parameter
1 ⁽¹⁾⁽²⁾	Reserved – To be assigned
2 ⁽¹⁾⁽²⁾	Reserved – To be assigned
3 ⁽¹⁾⁽²⁾	Reserved – To be assigned
4	Dynamic MID Claim for SAE J2497 Gateway Devices
5 ⁽¹⁾⁽²⁾	Reserved – To be assigned
6 ⁽¹⁾⁽²⁾	Reserved – To be assigned
7	Axle #2 Lift Air Pressure
8	Brake System Air Pressure Low Warning Switch Status
9	Axle Lift Status
10	Axle Slider Status
11	Cargo Securement
12	Brake Stroke Status
13	Entry Assist Position/Deployment
14	Entry Assist Motor Current
15	Fuel Supply Pump Inlet Pressure
16	Suction Side Fuel Filter Differential Pressure
17	Engine Oil Level Remote Reservoir
18	Extended Range Fuel Pressure
19	Extended Range Engine Oil Pressure
20	Extended Range Engine Coolant Pressure
21	Engine ECU Temperature
22	Extended Engine Crankcase Blow-by Pressure
23	Generator Oil Pressure
24	Generator Coolant Temperature
25	Air Conditioner System Status #2
26	Estimated Percent Fan Speed
27	Percent Exhaust Gas Recirculation Valve #1 Position
28	Percent Accelerator Position #3
29	Percent Accelerator Position #2
30	Crankcase Blow-by Pressure
31	Transmission Range Position
32	Transmission Splitter Position
33	Clutch Cylinder Position
34	Clutch Cylinder Actuator Status
35	Shift Finger Actuator Status #2
36	Clutch Plates Wear Condition
37	Transmission Tank Air Pressure
38	Second Fuel Level (Right Side)
39	Tire Pressure Check Interval
40	Engine Retarder Switches Status
41	Cruise Control Switches Status
42	Pressure Switch Status
43	Ignition Switch Status

TABLE 2 - PARAMETER IDENTIFICATION ASSIGNMENT LIST (CONTINUED)

PID	Parameter
44	Attention/Warning Indicator Lamps Status
45	Inlet Air Heater Status
46	Vehicle Wet Tank Pressure
47	Retarder Status
48	Extended Range Barometric Pressure
49	ABS Control Status
50	Air Conditioner System Clutch Status/Command #1
51	Throttle Position
52	Engine Intercooler Temperature
53	Transmission Synchronizer Clutch Value
54	Transmission Synchronizer Brake Value
55	Shift Finger Positional Status
56	Transmission Range Switch Status
57	Transmission Actuator Status #2
58	Shift Finger Actuator Status
59	Shift Finger Gear Position
60	Shift Finger Rail Position
61	Parking Brake Actuator Status
62	Retarder Inhibit Status
63	Transmission Actuator Status #1
64	Direction Switch Status
65	Service Brake Switch Status
66	Vehicle Enabling Component Status
67	Shift Request Switch Status
68	Torque Limiting Factor
69	Two Speed Axle Switch Status
70	Parking Brake Switch Status
71	Idle Shutdown Timer Status
72	Blower Bypass Value Position
73	Auxiliary Water Pump Pressure
74	Maximum Road Speed Limit
75	Steering Axle Temperature
76	Axle #1 Lift Air Pressure
77	Forward Rear Drive Axle Temperature
78	Rear Rear-Drive Axle Temperature
79	Road Surface Temperature
80	Washer Fluid Level
81	Particulate Trap Inlet Pressure
82	Air Start Pressure
83	Road Speed Limit Status
84	Road Speed
85	Cruise Control Status
86	Cruise Control Set Speed
87	Cruise Control High-Set Limit Speed
88	Cruise Control Low-Set Limit Speed
89	Power Takeoff Status
90	PTO Oil Temperature
91	Percent Accelerator Pedal Position



TABLE 2 - PARAMETER IDENTIFICATION ASSIGNMENT LIST (CONTINUED)

PID	Parameter
92	Percent Engine Load
93	Output Torque
94	Fuel Delivery Pressure
95	Fuel Filter Differential Pressure
96	Fuel Level
97	Water in Fuel Indicator
98	Engine Oil Level
99	Engine Oil Filter Differential Pressure
100	Engine Oil Pressure
101	Crankcase Pressure
102	Boost Pressure
103	Turbocharger #1 Speed
104	Turbo Oil Pressure
105	Intake Manifold Temperature
106	Air Inlet Pressure
107	Air Filter Differential Pressure
108	Barometric Pressure
109	Coolant Pressure
110	Engine Coolant Temperature
111	Coolant Level
112	Coolant Filter Differential Pressure
113	Governor Droop
114	Net Battery Current
115	Alternator Current
116	Brake Application Pressure
117	Brake Primary Pressure
118	Brake Secondary Pressure
119	Hydraulic Retarder Pressure
120	Hydraulic Retarder Oil Temperature
121	Engine Retarder Status
122	Engine Retarder Percent
123	Clutch Pressure
124	Transmission Oil Level
125	Transmission Oil Level High/Low
126	Transmission Filter Differential Pressure
127	Transmission Oil Pressure
Double Data Character Length Parameters	
128	Component-specific request
129	Injector Metering Rail #2 Pressure
130	Power Specific Fuel Economy
131	Exhaust Back Pressure
132	Mass Air Flow
133	Average Fuel Rate
134	Wheel Speed Sensor Status

TABLE 2 - PARAMETER IDENTIFICATION ASSIGNMENT LIST (CONTINUED)

PID	Parameter
135	Extended Range Fuel Delivery Pressure (Absolute)
136	Auxiliary Vacuum Pressure Reading
137	Auxiliary Gage Pressure Reading #1
138	Auxiliary Absolute Pressure Reading
139	Tire Pressure Control System Channel Functional Mode
140	Tire Pressure Control System Solenoid Status
141	Trailer #1, Tag #1, or Push Channel #1 Tire Pressure Target
142	Drive Channel Tire Pressure Target
143	Steer Channel Tire Pressure Target
144	Trailer #1, Tag #1, or Push Channel #1 Tire Pressure
145	Drive Channel Tire Pressure
146	Steer Channel Tire Pressure
147	Average Fuel Economy (Natural Gas)
148	Instantaneous Fuel Economy (Natural Gas)
149	Fuel Mass Flow Rate (Natural Gas)
150	PTO Engagement Control Status
151	ATC Control Status
152	Number of ECU Resets
153	Crankcase Pressure
154	Auxiliary Input and Output Status #2
155	Auxiliary Input and Output Status #1
156	Injector Timing Rail Pressure
157	Injector Metering Rail Pressure
158	Battery Potential (Voltage)—Switched
159	Gas Supply Pressure
160	Main Shaft Speed
161	Input Shaft Speed
162	Transmission Range Selected
163	Transmission Range Attained
164	Injection Control Pressure
165	Compass Bearing
166	Rated Engine Power
167	Alternator Potential (Voltage)
168	Battery Potential (Voltage)
169	Cargo Ambient Temperature
170	Cab Interior Temperature
171	Ambient Air Temperature
172	Air Inlet Temperature
173	Exhaust Gas Temperature
174	Fuel Temperature
175	Engine Oil Temperature
176	Turbo Oil Temperature
177	Transmission #1 Oil Temperature
178	Front Axle Weight
179	Rear Axle Weight
180	Trailer Weight
181	Cargo Weight

TABLE 2 - PARAMETER IDENTIFICATION ASSIGNMENT LIST (CONTINUED)

PID	Parameter
182	Trip Fuel
183	Fuel Rate (Instantaneous)
184	Instantaneous Fuel Economy
185	Average Fuel Economy
186	Power Takeoff Speed
187	Power Takeoff Set Speed
188	Idle Engine Speed
189	Rated Engine Speed
190	Engine Speed
191	Transmission Output Shaft Speed
Variable and Long Data Character Length Parameters	
192	Multisection Parameter
193 ⁽¹⁾	Transmitter System Diagnostic Table
194	Transmitter System Diagnostic Code and Occurrence Count Table
195	Diagnostic Data Request/Clear Count
196	Diagnostic Data/Count Clear Response
197	Connection Management
198	Connection Mode Data Transfer
199	Traction Control Disable State
200-202	Reserved – to be assigned
203	Particulate Trap Gas Outlet Temperature
204	Data Transfer Marker, SAE J1587 / SAE J2497 (page 1)
205	Time Point Encounter
206	Agency Identification
207	Cashbox Information
208	Total Refrigerant Compressor Hours
209	ABS Control Status, Trailer
210	Tire Temperature (By Sequence Number)
211	Tire Pressure (By Sequence Number)
212	Tire Pressure Target (By Sequence Number)
213	Wheel End Assembly Vibration Level
214	Vehicle Wheel Speeds
215	Brake Temperature
216	Wheel Bearing Temperature
217	Fuel Tank/Nozzle Identification
218	State Line Crossing
219	Current State and Country
220	Engine Torque History
221	Anti-theft Request
222	Anti-theft Status
223	Auxiliary A/D Counts
224	Immobilizer Security Code
225	Text Message Acknowledged

TABLE 2 - PARAMETER IDENTIFICATION ASSIGNMENT LIST (CONTINUED)

PID	Parameter
226	Text Message to Display
227	Text Message Display Type
228	Speed Sensor Calibration
229	Total Fuel Used (Natural Gas)
230	Total Idle Fuel Used (Natural Gas)
231	Trip Fuel (Natural Gas)
232	DGPS Differential Correction
233	Unit Number (Power Unit)
234	Software Identification
235	Total Idle Hours
236	Total Idle Fuel Used
237	Vehicle Identification Number
238	Velocity Vector
239	Vehicle Position
240	Change Reference Number
241	Tire Pressure by Position
242	Tire Temperature by Position
243	Component Identification
244	Trip Distance
245	Total Vehicle Distance
246	Total Vehicle Hours
247	Total Engine Hours
248	Total PTO Hours
249	Total Engine Revolutions
250	Total Fuel Used
251	Clock
252	Date
253	Elapsed Time
Special Parameters	
254	Data Link Escape
255	Extension
Single Data Character Length Parameters (modulo 256 value identified in parentheses)	
256 (0)	Request Parameter
257 (1)	Cold Restart of Specific Component
258 (2)	Warm Restart of Specific Component
259 (3)	Component Restart Response
260-340	Reserved (page 2) to be assigned
341	Engine Shutdown Override Switch
342 (86)	Transportation Segment Identifier
343 (87)	Engine Coolant Pump Differential Pressure
344 (88)	Driver Logon Status
345 (89)	Suspension Control Status #1
346 (90)	Suspension Control Status #2

TABLE 2 - PARAMETER IDENTIFICATION ASSIGNMENT LIST (CONTINUED)

PID	Parameter
347 (91)	Farebox Probe Type
348 (92)	Cargo Refrigeration System Operating Mode, Zone #1
349 (93)	Cargo Refrigeration System Operating Mode, Zone #2
350 (94)	Cargo Refrigeration System Operating Mode, Zone #3
351 (95)	Turbocharger Compressor Inlet Temperature
352 (96)	Turbocharger #2 Speed
353 (97)	Fuel Leakage Status
354 (98)	Relative Humidity
355 (99)	Engine Oil Life
356 (100)	Fifth Wheel Coupling Status
357 (101)	Ride Adjustment Pressure
358 (102)	Air Suspension #2 Pressure
359 (103)	Air Suspension #1 Pressure
360 (104)	Axle #4 Lift Air Pressure
361 (105)	Axle #3 Lift Air Pressure
362 (106)	Percent Exhaust Gas Recirculation Valve #2 Position
363 (107)	Hydraulic Retarder Control Air Pressure
364 (108)	HVAC Unit Discharge Temperature
365 (109)	Weighing System Status Command
366 (110)	Engine Oil Level High/Low
367 (111)	Lane Tracking System Status
368 (112)	Lane Departure Indication
369 (113)	Distance to Rear Object (Reverse)
370 (114)	Trailer Pneumatic Brake Control Line Pressure
371 (115)	Trailer Pneumatic Supply Line Pressure
372 (116)	Remote Accelerator
373 (117)	Center Rear Drive Axle Temperature
374 (118)	Alternator AC Voltage
375 (119)	Fuel Return Pressure
376 (120)	Fuel Pump Inlet Vacuum
377 (121)	Compression Unbalance
378 (122)	Fare Collection Unit Status
379 (123)	Door Status
380 (124)	Articulation Angle
381 (125)	Vehicle Use Status
382 (126)	Transit Silent Alarm Status
383 (127)	Vehicle Acceleration
Double Data Character Length Parameters	
384 (128)	Component-specific request
385 (129)	Intake Valve Actuation System Oil Pressure
386 (130)	Evaporator Coil Temperature, Zone #1
387 (131)	Evaporator Coil Temperature, Zone #2
388 (132)	Evaporator Coil Temperature, Zone #3
389 (133)	Cargo Temperature Setpoint, Zone #1
390 (134)	Cargo Temperature Setpoint, Zone #2

TABLE 2 - PARAMETER IDENTIFICATION ASSIGNMENT LIST (CONTINUED)

PID	Parameter
391 (135)	Cargo Temperature Setpoint, Zone #3
392 (136)	Evaporator Supply (Discharge) Air Temperature #2, Zone #1
393 (137)	Evaporator Supply (Discharge) Air Temperature #2, Zone #2
394 (138)	Evaporator Supply (Discharge) Air Temperature #2, Zone #3
395 (139)	Evaporator Supply (Discharge) Air Temperature #1, Zone #1
396 (140)	Evaporator Supply (Discharge) Air Temperature #1, Zone #2
397 (141)	Evaporator Supply (Discharge) Air Temperature #1, Zone #3
398 (142)	Evaporator Return Air Temperature #2, Zone #1
399 (143)	Evaporator Return Air Temperature #2, Zone #2
400 (144)	Evaporator Return Air Temperature #2, Zone #3
401 (145)	Evaporator Return Air Temperature #1, Zone #1
402 (146)	Evaporator Return Air Temperature #1, Zone #2
403 (147)	Evaporator Return Air Temperature #1, Zone #3
404 (148)	Turbocharger Compressor Outlet Temperature
405 (149)	Safety Restraint System Trigger Status
406 (150)	HVAC Blower Motor Speed
407 (151)	Axle Group Full Weight Calibration
408 (152)	Axle Group Empty Weight Calibration
409 (153)	Axle Group Weight
410 (154)	Extended Range Road Surface Temperature
411 (155)	Recirculated Engine Exhaust Gas Differential Pressure
412 (156)	Recirculated Engine Exhaust Gas Temperature
413 (157)	Net Vehicle Weight Change
414 (158)	Air Conditioner Refrigerant Low Side Pressure
415 (159)	Air Conditioner Refrigerant High Side Pressure
416 (160)	Evaporator Temperature
417 (161)	Gross Vehicle Weight
418 (162)	Transmission # 2 Oil Temperature
419 (163)	Starter Circuit Resistance
420 (164)	Starter Current (Average)
421 (165)	Alternator/Generator Negative Cable Voltage
422 (166)	Auxiliary Current
423 (167)	Extended Range Net Battery Current
424 (168)	DC Voltage
425 (169)	Auxiliary Frequency
426 (170)	Alternator/Generator Field Voltage
427 (171)	Battery Resistance Change
428 (172)	Battery Internal Resistance
429 (173)	Starter Current Peak
430 (174)	Starter Solenoid Voltage
431 (175)	Starter Negative Cable Voltage
432 (176)	Starter Motor Voltage
433 (177)	Fuel Shutoff Solenoid Voltage
434 (178)	AC Voltage
435 (179)	Cargo Ambient Temperature (By location)
436 (180)	Trip Sudden Decelerations
437 (181)	Trailer #2, Tag #2, or Push Channel #2 Tire Pressure Target

TABLE 2 - PARAMETER IDENTIFICATION ASSIGNMENT LIST (CONTINUED)

PID	Parameter
438 (182)	Trailer #2, Tag #2, or Push Channel #2 Tire Pressure
439 (183)	Extended Range Boost Pressure #1
440 (184)	Extended Range Boost Pressure #2
441 (185)	Auxiliary Temperature #1
442 (186)	Auxiliary Temperature #2
443 (187)	Auxiliary Gage Pressure Reading #2
444 (188)	Battery #2 Potential (Voltage)
445 (189)	Cylinder Head Temperature Bank B (right bank)
446 (190)	Cylinder Head Temperature Bank A (left bank)
447 (191)	Passenger Counter
Variable and Long Data Character Length Parameters	
448 (192)	Page 2 Multisection Parameter
449 (193)	Reporting Interval Request
450 (194)	Bridge Filter Control
451–497	Reserved (page 2)—to be assigned
498 (242)	Send Keypress Command
499 (243)	Driver Interface Unit (DIU) Object/Form Command
500 (244)	Intersection Preemption Status and Configuration
501 (245)	Signage Message
502 (246)	Fare Collection Unit—Point of Sale
503 (247)	Fare Collection Unit—Service Detail
504 (248)	Annunciator Voice Message
505 (249)	Vehicle Control Head Keyboard Message
506 (250)	Vehicle Control Head Display Message
507 (251)	Driver Identification
508 (252)	Transit Route Identification
509 (253)	Mile Post Identification
Special Parameters	
510 (254)	Page 2 Data Link Escape
511 (255)	Page 2 Extension
Single Data Character Length Parameters (modulo 512 value identified in parentheses)	
512-639	Reserved (page 3) to be assigned
Double Data Character Length Parameters	
640-703	Reserved (page 3) to be assigned
Variable and Long Data Character Length Parameters	
704-765	Reserved (page 3) to be assigned

TABLE 2 - PARAMETER IDENTIFICATION ASSIGNMENT LIST (CONTINUED)

PID	Parameter
Special Parameters	
767	Page 3 Extension
Single Data Character Length Parameters (modulo 768 value identified in parentheses)	
768-895	Reserved (page 4) to be assigned
Double Data Character Length Parameters	
896-959	Reserved (page 4) to be assigned
Variable and Long Data Character Length Parameters	
960-1021	Reserved (page 4) to be assigned

1. These PIDs are superseded by PIDs 194, 195, and 196.
2. PIDs 1-3 and 5-6 were reclaimed as of the 2007 standard.

3.4 Parameter Data Types

Parameter data shall use one or more of the following data types as in Table 3:

TABLE 3 - PARAMETER DATA TYPES

Data-Type	Characters
Binary Bit-Mapped (B/BM)	1
Unsigned Short Integer (Uns/SI)	1
Signed Short Integer (S/SI)	1
Unsigned Integer (Uns/I)	2
Signed Integer (S/I)	2
Unsigned Long Integer (Uns/LI)	4
Signed Long Integer (S/LI)	4
Alphanumeric (ALPHA)	1
Single-Precision Floating-Point (SP/FP)	4
Double-Precision Floating-Point (DP/FP)	8

Alphanumeric data will be transmitted with the most significant character first. All other data will be transmitted least significant character first.

Signed integer values will use two's complement notation.

Unless otherwise specified, alphanumeric characters will conform to the ISO Latin 1 ASCII character set as shown in 3.4.2.

Floating-Point values will conform to the IEEE Floating-Point Standard.

3.4.1 Temperature Scaling

All parameters which identify temperatures are transmitted in degree Fahrenheit. Conversion to degree Celsius is the responsibility of the receiver of the data.

3.4.2 ISO Latin 1 Character Set

Horizontal boldface characters are the single hexadecimal digit representing the lower nibble of the single byte code for the character. Vertical boldface characters are the single hexadecimal digit representing the upper nibble of the single byte code for the character. See Figure 1.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	should not be displayed															
1	should not be displayed															
2	space	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{		}	~	nil
8	should not be displayed															
9	should not be displayed															
A	nil	¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	­	®	¯
B	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
E	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

FIGURE 1 - ISO LATIN 1 CHARACTER SET

3.5 Parameter Transmission Update Period and Message Priority

The update period and message priority at which a parameter is transmitted on the data link is primarily the responsibility of the transmitting electronic device. Because overloading the data link and providing compatible update rates are major concerns, a recommended transmission update period and message priority for each parameter is included in Appendix A. Variations from the listed update periods shall be included in the application document (reference SAE J1708).

If multiple parameters are grouped into one message, the message assignment would be based on the highest message priority associated with the group parameters. All requested parameters were assigned the lowest message priority, priority 8, so that the messages would not disrupt the regularly broadcast data.

3.6 Parameter Definitions

See Appendix A for parameter definitions.

3.7 Transport Protocol Definitions

The SAE J1587 transport protocol provides a mechanism for transmitting free-form data that extends beyond 21 bytes. The protocol consists of PID 197, Connection Management and PID 198, Connection Mode Data Transfer. The Connection Management Control Command list is shown in Table 4 and the Standardized Free-format Data Assignments list is shown in Table 5. See Appendix B for a discussion on the use of these PIDs and their related tables.

TABLE 4 - CONNECTION MANAGEMENT CONTROL COMMANDS⁽¹⁾

0	Reserved
1	Request to Send (RTS)
2	Clear to Send (CTS)
3	End of Message Acknowledgment (EOM)
4	Request for Standardized Data
5–254	Reserved for future assignment by the SAE Subcommittee
255	Reset

1. See Appendix B.

TABLE 5 - STANDARDIZED FREE-FORMAT DATA ASSIGNMENTS⁽¹⁾

0	Reserved
1	Trip Recorder Data
2	Driver Log
3	Programmable Parameters
4	Executable Code
5	Calibration Parameters
6–65535	Reserved for future assignment by the SAE Subcommittee

1. See Appendix B.

3.8 Subsystem Identification Assignments

Subsystem Identification Numbers (SIDs) are numbers assigned by the SAE staff or the SAE Truck and Bus Low Speed Communications Network Subcommittee. There are 511 SIDs definable for each controller or MID. SIDs are numbers that can be used to identify a section of a control system without a related PID. SIDs should only be assigned to field-repairable or replaceable subsystems for which failures can be detected and isolated by the controller (MID). SIDs 1 to 150 are assigned by SAE staff using the procedure in 3.10. SIDs 156 to 511 are assigned by the SAE Truck and Bus Low Speed Communications Network Subcommittee using the procedure in 3.10. MID related SIDs start with number 1 and sequentially increase. Common SIDs start at 254 and sequentially decrease.

SIDs 151 through 155 are defined as “System Diagnostic Codes” and are used to identify failures that cannot be tied to a specific field replaceable component. Specific subsystem fault isolation is the goal of any diagnostic system, but for various reasons this cannot always be accomplished. These SIDs allow the manufacturer some flexibility to communicate non-”specific component” diagnostic information. PID 194 SID/FMI format of SIDs 151–155 permit the use of standard diagnostic tools, electronic dashboards, satellite systems and other advanced devices that scan for PID 194. Because manufacturer defined codes are not desirable in terms of standardization, the use of these codes should only be used when diagnostic information cannot be communicated as a specific component and failure mode.

Possible reasons for using a System Diagnostic Code include:

- Cost of specific component fault isolation is not justified, or
- New concepts in Total Vehicle Diagnostics are being developed, or
- New diagnostic strategies that are not component specific are being developed.

Due to the fact that SIDs 151–155 are manufacturer defined and are not component specific, FMIs 0–13 have little meaning. Therefore, FMI 14, “Special Instructions,” will usually be used. The goal is to refer the service personnel to the manufacturer's troubleshooting manual for more information on the particular diagnostic code.

SIDs 257 to 511 represent a second page of SIDs (page 2) for use with the page 2 extension. Bit 6 of the Diagnostic Code Character is used to denote second page SIDs as follows:

For both PIDs 194 and 196 under (b) Diagnostic code character:

- b— Diagnostic code character.
Bit 6: Type of diagnostic code
1=standard diagnostic code
0=expansion diagnostic code (PID or SID from page 2)

These SIDs are transmitted modulo 256, such that SID 256 is transmitted as 0, SID 257 is transmitted as 1, etc. Page 2 SIDs are assigned in ascending order. SIDs 0, 255, and 256 are reserved.

The SID assignment list is shown in Table 7.

3.9 Failure Mode Identifier Assignments

The Failure Mode Identifier, FMI, describes the type of failure detected in the subsystem identified by the PID or SID. The FMI, and either the PID or SID combine to form a given diagnostic code (see PID 194 for added clarification). The remaining failure mode identifiers would be assigned by the SAE Truck and Bus Low Speed Communications Network Subcommittee if additional common failure modes become detectable.

The failure mode identifier assignment list is shown in Table 6.

TABLE 6 - FAILURE MODE IDENTIFIERS (FMI)

0	Data valid but above normal operational range (that is, engine overheating)
1	Data valid but below normal operational range (that is, engine oil pressure too low)
2	Data erratic, intermittent, or incorrect
3	Voltage above normal or shorted high
4	Voltage below normal or shorted low
5	Current below normal or open circuit
6	Current above normal or grounded circuit
7	Mechanical system not responding properly
8	Abnormal frequency, pulse width, or period
9	Abnormal update rate
10	Abnormal rate of change
11	Failure mode not identifiable
12	Bad intelligent device or component
13	Out of Calibration
14	Special Instructions
15	Reserved for future assignment by the SAE Subcommittee

3.10 SAE Procedure for MID, PID, and SID Assignment

- a. **Purpose**—To outline the procedure for the assignment of MID, PID, and SID elements within the documents established in the SAE Truck and Bus Low Speed Communications Network Subcommittee.
- b. **General**—MIDs, PIDs, and SIDs will be requested using the request form (Figure 2). All requests for MIDs, PIDs, common SIDs and MID related SIDs will be forwarded to the chairperson of the SAE Subcommittee for action at the next scheduled committee meeting. A confirmation for MID, PID, common SID and MID related SID requests will be sent to the requestor stating the date the request will be reviewed to ensure the requestor has the opportunity to be present at that meeting.
- c. **Verification of Request**—The request form will be reviewed to ensure all required fields are provided by the requestor. If information is missing, the request form shall be returned to the requestor asking for the additional information. If the information is complete, either the MID/PID/Common SID process or the MID related SID process shall be followed depending on the type of request.

MID/PID/Common SID Process—The chairperson of the SAE Truck and Bus Low Speed Communications Network Subcommittee will complete the request form by filling in the date and time of the next SAE Truck and Bus Low Speed Communications Network Subcommittee meeting. The chairperson will make a copy of the request form. The copy will be sent to an SAE staff member to be placed in a maintained file of requests. Send the original copy to the SAE Truck and Bus Low Speed Communications Network Subcommittee for review and approval. Send the second copy of the request back to the requestor.

The chairperson of the SAE Subcommittee will present to the committee all MID, PID, and common SID requests since the last meeting. An approval or disapproval vote is required during the committee meeting. The chairperson of the SAE Subcommittee will document the approval or disapproval by completing the review section of the request form. These completed request forms for all MIDs, PIDs, and common SIDs will be sent to the SAE staff.

The SAE staff will verify that all requests were handled and notify the requestor by sending a copy of the completed form to the requestor. The original form should be filed in a completed request file. The copy of the request form that is in the request file should be removed.

- d. **MID Related SID Process**—The chairperson of the SAE Truck and Bus Low Speed Communications Network Subcommittee will keep records of SIDs allocated to each MID. This will be accomplished by maintaining a control log for each MID. If the requestor is asking for a new SID that is similar to an existing SID, the SAE staff will document the current SID on the request form and return it to the requestor. If the request is for a new MID related SID which is not currently assigned, the chairperson of the SAE Truck and Bus Low Speed Communications Network Subcommittee will present the request to the Subcommittee and if approved will assign the next sequential number. This will be documented on the request form (Figure 2). The chairperson of the SAE Truck and Bus Low Speed Communications Network Subcommittee will make a copy of the request form. The original will be returned to the requestor. The first copy will be filed in the assigned SID file by MID. The new SID number will be logged on the MID/SID control log for that MID.

NOTE: Parameters considered to be of a data link command or control nature should be added to the parameter list at the lowest PID value available within the appropriate data size grouping. All other parameters should be added at the highest PID value available within the appropriate data grouping.

**J1587 SAE Control and Communications Subcommittee
MID/PID/SID Request Form**

Requester Name: _____ Meeting Date: _____
Company Name: _____
Requester _____ Phone # _____
Address: _____ Email _____
Request Type: MID _____ PID _____
SID _____ Requested for MID # _____

Description of MID/PID/SID: _____

For PIDs Only (See SAE J1587 for Description)

Parameter Data Length	_____
Data Type	_____
Bit Resolution	_____
Maximum Range	_____
Transmission Update Period	_____
Message Priority	_____
Format	_____

For USE by SAE Only

Approved _____	Disapproved _____	Signature _____
New MID Number _____	New PID Number _____	New SID Number _____
Current MID _____	Current PID _____	Current SID _____

Date of next SAE Data Format Committee meeting: _____
Location: _____ Time: _____

Incomplete
Information: _____ (Please complete items marked)

Please e-mail the completed form to the SAE Truck and Bus - Low Speed Communication Network Subcommittee chairperson.

-or-

Mail the completed form to:
SAE Truck and Bus Low Speed Communications Network Subcommittee
400 Commonwealth Drive
Warrendale, PA 15096

FIGURE 2 - SAE SUBCOMMITTEE MID, PID, SID REQUEST FORM

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST

SIDs 1 to 150 are not common with other systems and are assigned by SAE. SIDs 151 to 255 are common among other systems and are assigned by the Subcommittee.

151	System Diagnostic Code #1
152	System Diagnostic Code #2
153	System Diagnostic Code #3
154	System Diagnostic Code #4
155	System Diagnostic Code #5

Common SIDs

156-202	Reserved for future assignment by SAE
203	Door Switch
204	Diagnostics Data Available Through Alternate Reporting Method (Not PID 194, 195, 196 faults from page 1 or 2)
205	J1939 Network #3
206	J1939 Network #2
207	Battery #1 Temperature
208	Battery #2 Temperature
209	Start Enable Device #2
210	Oil Temperature Sensor
211	Sensor Supply Voltage #2 (+5V DC)
212	Sensor Supply Voltage #1 (+5V DC)
213	PLC Data Link
214	ECU Backup Battery
215	Cab Interior Temperature Thermostat
216	Other ECUs Have Reported Fault Codes Affecting Operation
217	Anti-theft Start Inhibit (Password Valid Indicator)
218	ECM Main Relay
219	Start Signal Indicator
220	Electronic Tractor/Trailer Interface (ISO 11992)
221	Internal Sensor Voltage Supply
222	Protect Lamp
223	Ambient Light Sensor
224	Audible Alarm
225	Green Lamp
226	Transmission Neutral Switch
227	Auxiliary Analog Input #1
228	High Side Refrigerant Pressure Switch
229	Kickdown Switch
230	Idle Validation Switch
231	SAE J1939 Data Link
232	5 Volts DC Supply
233	Controller #2
234	Parking Brake On Actuator
235	Parking Brake Off Actuator
236	Power Connect Device
237	Start Enable Device
238	Diagnostic Lamp—Red
239	Diagnostic Light—Amber

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

240	Program Memory
241 ⁽¹⁾	Set aside for Systems Diagnostics
242	Cruise Control Resume Switch
243	Cruise Control Set Switch
244	Cruise Control Enable Switch
245	Clutch Pedal Switch #1
246	Brake Pedal Switch #1
247	Brake Pedal Switch #2
248	Proprietary Data Link
249	SAE J1922 Data Link
250	SAE J1708 (SAE J1587) Data Link
251	Power Supply
252	Calibration Module
253	Calibration Memory
254	Controller #1
255	Reserved

Engine SIDs (MID = 128, 175, 183, 184, 185, 186)

(modulo 256 value identified in parentheses)

0	Reserved
1	Injector Cylinder #1
2	Injector Cylinder #2
3	Injector Cylinder #3
4	Injector Cylinder #4
5	Injector Cylinder #5
6	Injector Cylinder #6
7	Injector Cylinder #7
8	Injector Cylinder #8
9	Injector Cylinder #9
10	Injector Cylinder #10
11	Injector Cylinder #11
12	Injector Cylinder #12
13	Injector Cylinder #13
14	Injector Cylinder #14
15	Injector Cylinder #15
16	Injector Cylinder #16
17	Fuel Shutoff Valve #1
18	Fuel Control Valve
19	Throttle Bypass Valve
20	Timing Actuator
21	Engine Position Sensor
22	Timing Sensor
23	Rack Actuator
24	Rack Position Sensor
25	External Engine Protection Input #1
26	Auxiliary Output Device Driver #1
27	Variable Geometry Turbocharger Actuator #1
28	Variable Geometry Turbocharger Actuator #2

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

29	External Fuel Command Input
30	External Speed Command Input
31	Tachometer Signal Output
32	Turbocharger #1 Wastegate Drive
33	Fan Clutch Output Device Driver
34	Exhaust Back Pressure Sensor
35	Exhaust Back Pressure Regulator Solenoid
36	Glow Plug Lamp
37	Electronic Drive Unit Power Relay
38	Glow Plug Relay
39	Engine Starter Motor Relay
40	Auxiliary Output Device Driver #2
41	ECM 8 Volts DC Supply
42	Injection Control Pressure Regulator
43	Autoshift High Gear Actuator
44	Autoshift Low Gear Actuator
45	Autoshift Neutral Actuator
46	Autoshift Common Low Side (Return)
47	Injector Cylinder #17
48	Injector Cylinder #18
49	Injector Cylinder #19
50	Injector Cylinder #20
51	Auxiliary Output Device Driver #3
52	Auxiliary Output Device Driver #4
53	Auxiliary Output Device Driver #5
54	Auxiliary Output Device Driver #6
55	Auxiliary Output Device Driver #7
56	Auxiliary Output Device Driver #8
57	Auxiliary PWM Driver #1
58	Auxiliary PWM Driver #2
59	Auxiliary PWM Driver #3
60	Auxiliary PWM Driver #4
61	Variable Swirl System Valve
62	Prestroke Sensor
63	Prestroke Actuator
64	Engine Speed Sensor #2
65	Heated Oxygen Sensor
66	Ignition Control Mode Signal
67	Ignition Control Timing Signal
68	Secondary Turbo Inlet Pressure
69	After Cooler-Oil Cooler Coolant Temperature
70	Inlet Air Heater Driver #1
71	Inlet Air Heater Driver #2
72	Injector Cylinder #21
73	Injector Cylinder #22
74	Injector Cylinder #23
75	Injector Cylinder #24
76	Knock Sensor
77	Gas Metering Valve

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

78	Fuel Supply Pump Actuator
79	Engine (Compression) Brake Output #1
80	Engine (Compression) Brake Output #2
81	Engine (Exhaust) Brake Output
82	Engine (Compression) Brake Output #3
83	Fuel Control Valve #2
84	Timing Actuator #2
85	Engine Oil Burn Valve
86	Engine Oil Replacement Valve
87	Idle Shutdown Vehicle Accessories Relay Driver
88	Turbocharger #2 Wastegate Drive
89	Air Compressor Actuator Circuit
90	Engine Cylinder #1 Knock Sensor
91	Engine Cylinder #2 Knock Sensor
92	Engine Cylinder #3 Knock Sensor
93	Engine Cylinder #4 Knock Sensor
94	Engine Cylinder #5 Knock Sensor
95	Engine Cylinder #6 Knock Sensor
96	Engine Cylinder #7 Knock Sensor
97	Engine Cylinder #8 Knock Sensor
98	Engine Cylinder #9 Knock Sensor
99	Engine Cylinder #10 Knock Sensor
100	Engine Cylinder #11 Knock Sensor
101	Engine Cylinder #12 Knock Sensor
102	Engine Cylinder #13 Knock Sensor
103	Engine Cylinder #14 Knock Sensor
104	Engine Cylinder #15 Knock Sensor
105	Engine Cylinder #16 Knock Sensor
106	Engine Cylinder #17 Knock Sensor
107	Engine Cylinder #18 Knock Sensor
108	Engine Cylinder #19 Knock Sensor
109	Engine Cylinder #20 Knock Sensor
110	Engine Cylinder #21 Knock Sensor
111	Engine Cylinder #22 Knock Sensor
112	Engine Cylinder #23 Knock Sensor
113	Engine Cylinder #24 Knock Sensor
114	Multiple Unit Synchronization Switch
115	Engine Oil Change Interval
116	Engine was Shut Down Hot
117	Engine has been Shut Down from Data Link Information
118	Injector Needle Lift Sensor #1
119	Injector Needle Lift Sensor #2
120	Coolant System Thermostat
121	Engine Automatic Start Alarm
122	Engine Automatic Start Lamp
123	Engine Automatic Start Safety Interlock Circuit
124	Engine Automatic Start Failed (Engine)
125	Fuel Heater Driver Signal
126	Fuel Pump Pressurizing Assembly #1



TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

127	Fuel Pump Pressurizing Assembly #2
128	Starter Solenoid Lockout Relay Driver Circuit
129	Cylinder #1 Exhaust Gas Port Temperature
130	Cylinder #2 Exhaust Gas Port Temperature
131	Cylinder #3 Exhaust Gas Port Temperature
132	Cylinder #4 Exhaust Gas Port Temperature
133	Cylinder #5 Exhaust Gas Port Temperature
134	Cylinder #6 Exhaust Gas Port Temperature
135	Cylinder #7 Exhaust Gas Port Temperature
136	Cylinder #8 Exhaust Gas Port Temperature
137	Cylinder #9 Exhaust Gas Port Temperature
138	Cylinder #10 Exhaust Gas Port Temperature
139	Cylinder #11 Exhaust Gas Port Temperature
140	Cylinder #12 Exhaust Gas Port Temperature
141	Cylinder #13 Exhaust Gas Port Temperature
142	Cylinder #14 Exhaust Gas Port Temperature
143	Cylinder #15 Exhaust Gas Port Temperature
144	Cylinder #16 Exhaust Gas Port Temperature
145	Adaptive Cruise Control Mode
146	Exhaust Gas Recirculation (EGR) Valve #1 Mechanism
147	Variable Nozzle Turbocharger (VNT) Mechanism
148	Engine (Compression) Brake Output #4
149	Engine (Compression) Brake Output #5
150	Engine (Compression) Brake Output #6
256 (0)	Reserved
257 (1)	Auxiliary output device driver # 9
258 (2)	Auxiliary output device driver # 10
259 (3)	Auxiliary output device driver # 11
260 (4)	Auxiliary output device driver # 12
261 (5)	Auxiliary output device driver # 13
262 (6)	Auxiliary output device driver # 14
263 (7)	Auxiliary output device driver # 15
264 (8)	Auxiliary output device driver # 16
265 (9)	Auxiliary output device driver # 17
266 (10)	Exhaust Gas Recirculation (EGR) Valve #2 Mechanism
267 (11)	Auxiliary PWM Driver #5
268 (12)	Auxiliary PWM Driver #6
269 (13)	Turbocharger Nozzle Position Sensor
270 (14)	Turbocharger Compressor Discharge Temperature Sensor
271 (15)	Charge Air Cooler Bypass Control
272 (16)	Charge Air Cooler Air Outlet Temperature Sensor
273 (17)	Charge Air Cooler Air Outlet Pressure Sensor
274 (18)	Combustion Air Humidity Sensor
275 (19)	Auxiliary Engine Cooling System Control Output
276 (20)	Inlet Air Pre-Cleaner Control Output
277 (21)	Exhaust Gas Recirculation (EGR) Mass Flow Sensor
278 (22)	Fuel Shutoff Valve #2
279 (23)	Fuel Leakage Sensor #1
280 (24)	Fuel Leakage Sensor #2



TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

281 (25)	Exhaust Gas Recirculation (EGR) Check Valve(s)
282 (26)	Exhaust Gas Recirculation (EGR) Cooler
283 (27)	Intake Valve Actuation System Oil Pressure Control Valve
284 (28)	Engine Coolant Diverter Valve
285 (29)	Intake Valve Actuator #1
286 (30)	Intake Valve Actuator #2
287 (31)	Intake Valve Actuator #3
288 (32)	Intake Valve Actuator #4
289 (33)	Intake Valve Actuator #5
290 (34)	Intake Valve Actuator #6
291 (35)	Intake Valve Actuator #7
292 (36)	Intake Valve Actuator #8
293 (37)	Intake Valve Actuator #9
294 (38)	Intake Valve Actuator #10
295 (39)	Intake Valve Actuator #11
296 (40)	Intake Valve Actuator #12
297 (41)	Intake Valve Actuator #13
298 (42)	Intake Valve Actuator #14
299 (43)	Intake Valve Actuator #15
300 (44)	Intake Valve Actuator #16
301 (45)	Intake Valve Actuator #17
302 (46)	Intake Valve Actuator #18
303 (47)	Intake Valve Actuator #19
304 (48)	Intake Valve Actuator #20
305 (49)	Gas Control Valve # 1 Outlet Pressure (Natural Gas)
306 (50)	Engine Coolant # 2 Pressure #1
307 (51)	Mixer Inlet Relative Humidity
308 (52)	Fuel Rack Position # 2
309 (53)	Turbocharger Compressor Outlet # 1 Pressure
310 (54)	Waste Engine Oil Reservoir Level
311 (55)	Engine Oil Level # 2 Remote Reservoir
312 (56)	Coolant Level # 2
313 (57)	Injector Cylinder, Multiple
314 (58)	Turbocharger #1 Compressor Inlet Pressure (absolute)
315 (59)	External Engine Protection Input #2
316 (60)	Service Indication Lamp
317 (61)	Injector Supply Voltage
318 (62)	Particulate Trap Intake Gas Temperature Bank 1
319 (63)	Particulate Trap Intake Gas Temperature Bank 2
320 (64)	Particulate Trap Outlet Gas Temperature Bank 1
321 (65)	Particulate Trap Outlet Gas Temperature Bank 2
322 (66)	Particulate Trap Intermediate Gas Temperature Bank 1
323 (67)	Particulate Trap Intermediate Gas Temperature Bank 2
324 (68)	Particulate Trap Differential Pressure Bank 1
325 (69)	Particulate Trap Differential Pressure Bank 2
326 (70)	Exhaust Gas Temperature 1
327 (71)	Exhaust Gas Temperature 2
328 (72)	Exhaust Gas Temperature 3
329 (73)	Exhaust Gas Temperature 1 Bank 2



TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

330 (74)	Exhaust Gas Temperature 2 Bank 2
331 (75)	Exhaust Gas Temperature 3 Bank 2
332 (76)	Aftertreatment #1 Fuel Pressure
333 (77)	Aftertreatment #1 Fuel Pressure Control Actuator
334 (78)	Aftertreatment #1 Fuel Enable Actuator
335 (79)	Aftertreatment #1 Ignition
336 (80)	Aftertreatment #2 Fuel Pressure
337 (81)	Aftertreatment #2 Fuel Pressure Control Actuator
338 (82)	Aftertreatment #2 Fuel Enable Actuator
339 (83)	Aftertreatment #2 Ignition
340 (84)	Aftertreatment #1 Air Enable Actuator
341 (85)	Aftertreatment #1 Purge Air Actuator
342 (86)	Aftertreatment #1 Atomization Air Actuator
343 (87)	Aftertreatment #1 Air System Relay
344 (88)	Aftertreatment #2 Air Enable Actuator
345 (89)	Aftertreatment #2 Purge Air Actuator
346 (90)	Aftertreatment #2 Atomization Air Actuator
347 (91)	Aftertreatment #2 Air System Relay
348 (92)	Aftertreatment #1 Supply Air Pressure
349 (93)	Aftertreatment #1 Purge Air Pressure
350 (94)	Aftertreatment #1 Air Pressure Control Actuator
351 (95)	Aftertreatment #1 Air Pressure Actuator Position
352 (96)	Aftertreatment #2 Supply Air Pressure
353 (97)	Aftertreatment #2 Purge Air Pressure
354 (98)	Aftertreatment #2 Air Pressure Control Actuator
355 (99)	Aftertreatment #2 Air Pressure Actuator Position
356 (100)	Aftertreatment #1 Failed to Ignite
357 (101)	Aftertreatment #1 Loss of Ignition
358 (102)	Aftertreatment #2 Failed to Ignite
359 (103)	Aftertreatment #2 Loss of Ignition
360 (104)	Aftertreatment #1 Regeneration Manually Disabled
361 (105)	Aftertreatment #2 Regeneration Manually Disabled
362 (106)	Injector Cylinder #1, Actuator #2
363 (107)	Injector Cylinder #2, Actuator #2
364 (108)	Injector Cylinder #3, Actuator #2
365 (109)	Injector Cylinder #4, Actuator #2
366 (110)	Injector Cylinder #5, Actuator #2
367 (111)	Injector Cylinder #6, Actuator #2
368 (112)	Injector Cylinder #7, Actuator #2
369 (113)	Injector Cylinder #8, Actuator #2
370 (114)	Aftertreatment #1 Particulate Trap Intake Pressure
371 (115)	Aftertreatment #1 Particulate Trap Outlet Pressure
372 (116)	Ambient Air Density
373 (117)	Aftertreatment #1 Secondary Air Differential Pressure
374 (118)	Aftertreatment #2 Secondary Air Differential Pressure
375 (119)	Aftertreatment #1 Secondary Air Temperature
376 (120)	Aftertreatment #2 Secondary Air Temperature
377 (121)	Aftertreatment #1 Secondary Air Pressure
378 (122)	Aftertreatment #2 Secondary Air Pressure



TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

379 (123)	Oil Scavenge Pump
380 (124)	Catalyst 1 System Monitor
381 (125)	Aftertreatment 1 Fuel Drain Actuator
382 (126)	Aftertreatment 1 Fuel Injector 1
383 (127)	Particulate Matter Trap Monitor
384 (128)	Engine Turbocharger 1 Turbine Inlet Temperature
385 (129)	Accelerator Pedal #1 Channel 2
386 (130)	Aftertreatment #1 Purge Air Pressure
387 (131)	Aftertreatment #1 Secondary Air Mass Flow
388 (132)	Particulate Trap Active Regeneration Inhibited Due to Permanent System Lockout
389 (133)	Aftertreatment 1 Fuel Rate
390 (134)	Particulate Trap Active Regeneration Inhibited Status
391 (135)	Engine Exhaust Gas Recirculation (EGR) System Monitor
392 (136)	Engine Injector Bank 1
393 (137)	Particulate Trap Active Regeneration Inhibited Due to Inhibit Switch
394 (138)	Particulate Trap Active Regeneration Inhibited Due to Temporary System Lockout
395 (139)	Engine Air Shutoff Command Status
396 (140)	Aftertreatment 1 Ignition Transformer Secondary Output
397-511	Reserved for future assignment by SAE

Transmission SIDs (MID = 130, 176, 223)

0	Reserved
1	C1 Solenoid Valve
2	C2 Solenoid Valve
3	C3 Solenoid Valve
4	C4 Solenoid Valve
5	C5 Solenoid Valve
6	C6 Solenoid Valve
7	Lockup Solenoid Valve
8	Forward Solenoid Valve
9	Low Signal Solenoid Valve
10	Retarder Enable Solenoid Valve
11	Retarder Modulation Solenoid Valve
12	Retarder Response Solenoid Valve
13	Differential Lock Solenoid Valve
14	Engine/Transmission Match
15	Retarder Modulation Request Sensor
16	Neutral Start Output
17	Turbine Speed Sensor
18	Primary Shift Selector
19	Secondary Shift Selector
20	Special Function Inputs
21	C1 Clutch Pressure Indicator
22	C2 Clutch Pressure Indicator
23	C3 Clutch Pressure Indicator
24	C4 Clutch Pressure Indicator
25	C5 Clutch Pressure Indicator

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

26	C6 Clutch Pressure Indicator
27	Lockup Clutch Pressure Indicator
28	Forward Range Pressure Indicator
29	Neutral Range Pressure Indicator
30	Reverse Range Pressure Indicator
31	Retarder Response System Pressure Indicator
32	Differential Lock Clutch Pressure Indicator
33	Multiple Pressure Indicators
34	Reverse Switch
35	Range High Actuator
36	Range Low Actuator
37	Splitter Direct Actuator
38	Splitter Indirect Actuator
39	Shift Finger Rail Actuator 1
40	Shift Finger Gear Actuator 1
41	Upshift Request Switch
42	Downshift Request Switch
43	Torque Converter Interrupt Actuator
44	Torque Converter Lockup Actuator
45	Range High Indicator
46	Range Low Indicator
47	Shift Finger Neutral Indicator
48	Shift Finger Engagement Indicator
49	Shift Finger Center Rail Indicator
50	Shift Finger Rail Actuator 2
51	Shift Finger Gear Actuator 2
52	Hydraulic System
53	Defuel Actuator
54	Inertia Brake Actuator
55	Clutch Actuator
56	Auxiliary Range Mechanical System
57	Shift Console Data Link
58	Main Box Shift Engagement System
59	Main Box Rail Selection System
60	Main Box Shift Neutralization System
61	Auxiliary Splitter Mechanical System
62	Transmission Controller Power Relay
63	Output Shaft Speed Sensor
64	Throttle Position Device
65–150	Reserved for future assignment by SAE

Brake SIDs (MIDs = 136, 137, 138, 139, 246, 247)

0	Reserved
1	Wheel Sensor ABS Axle 1 Left
2	Wheel Sensor ABS Axle 1 Right
3	Wheel Sensor ABS Axle 2 Left
4	Wheel Sensor ABS Axle 2 Right
5	Wheel Sensor ABS Axle 3 Left
6	Wheel Sensor ABS Axle 3 Right

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

7	Pressure Modulation Valve ABS Axle 1 Left
8	Pressure Modulation Valve ABS Axle 1 Right
9	Pressure Modulation Valve ABS Axle 2 Left
10	Pressure Modulation Valve ABS Axle 2 Right
11	Pressure Modulation Valve ABS Axle 3 Left
12	Pressure Modulation Valve ABS Axle 3 Right
13	Retarder Control Relay
14	Relay Diagonal 1
15	Relay Diagonal 2
16	Mode Switch ABS
17	Mode Switch ASR
18	DIF 1—ASR Valve
19	DIF 2—ASR Valve
20	Pneumatic Engine Control
21	Electronic Engine Control (Servomotor)
22	Speed Signal Input
23	Tractor ABS Warning Light Bulb
24	ASR Light Bulb
25	Wheel Sensor, ABS Axle 1 Average
26	Wheel Sensor, ABS Axle 2 Average
27	Wheel Sensor, ABS Axle 3 Average
28	Pressure Modulator, Drive Axle Relay Valve
29	Pressure Transducer, Drive Axle Relay Valve
30	Master Control Relay
31	Trailer Brake Slack Out of Adjustment Forward Axle Left
32	Trailer Brake Slack Out of Adjustment Forward axle Right
33	Trailer Brake Slack Out of Adjustment Rear Axle Left
34	Trailer Brake Slack Out of Adjustment Rear Axle Right
35	Tractor Brake Slack Out of Adjustment Axle 1 Left
36	Tractor Brake Slack Out of Adjustment Axle 1 Right
37	Tractor Brake Slack Out of Adjustment Axle 2 Left
38	Tractor Brake Slack Out of Adjustment Axle 2 Right
39	Tractor Brake Slack Out of Adjustment Axle 3 Left
40	Tractor Brake Slack Out of Adjustment Axle 3 Right
41	Ride Height Relay
42	Hold Modulator Valve Solenoid Axle 1 Left
43	Hold Modulator Valve Solenoid Axle 1 Right
44	Hold Modulator Valve Solenoid Axle 2 Left
45	Hold Modulator Valve Solenoid Axle 2 Right
46	Hold Modulator Valve Solenoid Axle 3 Left
47	Hold Modulator Valve Solenoid Axle 3 Right
48	Dump Modulator Valve Solenoid Axle 1 Left
49	Dump Modulator Valve Solenoid Axle 1 Right
50	Dump Modulator Valve Solenoid Axle 2 Left
51	Dump Modulator Valve Solenoid Axle 2 Right
52	Dump Modulator Valve Solenoid Axle 3 Left
53	Dump Modulator Valve Solenoid Axle 3 Right
54	Hydraulic Pump Motor
55	Brake Light Switch 1

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

56	Brake Light Switch 2
57	Electronic Pressure Control, Axle 1
58	Pneumatic Back-up Pressure Control, Axle 1
59	Brake Pressure Sensing, Axle 1
60	Electronic Pressure Control, Axle 2
61	Pneumatic Back-up Pressure Control, Axle 2
62	Brake Pressure Sensing, Axle 2
63	Electronic Pressure Control, Axle 3
64	Pneumatic Back-up Pressure Control, Axle 3
65	Brake Pressure Sensing, Axle 3
66	Electronic Pressure Control, Trailer Control
67	Pneumatic Back-up Pressure Control, Trailer Control
68	Brake Pressure Sensing, Trailer Control
69	Axle Load Sensor
70	Lining Wear Sensor, Axle 1 Left
71	Lining Wear Sensor, Axle 1 Right
72	Lining Wear Sensor, Axle 2 Left
73	Lining Wear Sensor, Axle 2 Right
74	Lining Wear Sensor, Axle 3 Left
75	Lining Wear Sensor, Axle 3 Right
76	Brake Signal Transmitter
77	Brake Signal Sensor 1
78	Brake Signal Sensor 2
79	Tire Dimension Supervision
80	Vehicle Deceleration Control
81	Trailer ABS Warning Light Bulb
82	Brake Torque Output Axle 1 Left
83	Brake Torque Output Axle 1 Right
84	Brake Torque Output Axle 2 Left
85	Brake Torque Output Axle 2 Right
86	Brake Torque Output Axle 3 Left
87	Brake Torque Output Axle 3 Right
88	Vehicle Dynamic Stability Control System (VDC)
89	Steering Angle Sensor
90	Voltage Supply for Stability Control System
91	Brake Lining Display
92	Pressure Limitation Valve
93	Auxiliary Valve
94	Hill holder System
95	Voltage Supply, Lining Wear Sensors, Axle 1
96	Voltage Supply, Lining Wear Sensors, Axle 2
97	Voltage Supply, Lining Wear Sensors, Axle 3
98	Reference Ground Connection
99	Lateral Accelerometer
100	Brake Light Relay
101	Brake Warning Light Bulb
102	Differential Lock control output (transfer case)
103	Yaw Rate Sensor
104	Service Odometer



TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

105–150	Reserved for future assignment by SAE
Instrument Panel SIDs (MID = 140, 234)	
0	Reserved
1	Left Fuel Level Sensor
2	Right Fuel Level Sensor
3	Fuel Feed Rate Sensor
4	Fuel Return Rate Sensor
5	Tachometer Gauge Coil
6	Speedometer Gauge Coil
7	Turbocharger Air Pressure Gauge Coil
8	Fuel Pressure Gauge Coil
9	Fuel Level Gauge Coil
10	Second Fuel Level Gauge Coil
11	Engine Oil Pressure Gauge Coil
12	Engine Oil Temperature Gauge Coil
13	Engine Coolant Temperature Gauge Coil
14	Pyrometer Gauge Coil
16	Transmission Oil Pressure Gauge Coil
15	Transmission Oil Temperature Gauge Coil
17	Forward Rear Axle Temperature Gauge Coil
18	Rear Rear Axle Temperature Gauge Coil
19	Voltmeter Gauge Coil
20	Primary Air Pressure Gauge Coil
21	Secondary Air Pressure Gauge Coil
22	Ammeter Gauge Coil
23	Air Application Gauge Coil
24	Air Restriction Gauge Coil
25–150	Reserved for future assignment by SAE
Vehicle Management SIDs (MID = 142, 187, 188)	
0	Reserved
1	Timing Sensor
2	Timing Actuator
3	Fuel Rack Position Sensor
4	Fuel Rack Actuator
5	Oil Level Indicator Output
6	Tachometer Drive Output
7	Speedometer Drive Output
8	PWM Input (ABS/ASR)
9	PWM Output
10	Auxiliary Output #1
11	Auxiliary Output #2
12	Auxiliary Output #3
13	Auxiliary Output #4
14	Auxiliary Output #5
15	Power Relay Control Output
16	“Neutral” Power Relay Control Output
17	Starter Relay Control Output



TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

18	Transmission Shift Control Valve #1 Output
19	Transmission Shift Control Valve #2 Output
20	Differential Lock Control Valve #1 Output
21	Differential Lock Control Valve #2 Output
22	Windshield Wiper ON Relay Control Output
23	Windshield Wiper Speed Select Output
24	Mirror Heat Control Output
25	Driver Door "Lock" Output
26	Driver Door "Unlock" Output
27	Switch Diagnostic Output
28	Horn Control Output
29	"Wake Up" Output
30	Interior Lamps Output
31	Fan Override Indicator Lamp Output
32	Low Air Pressure Indicator Relay Output
33	Maintenance Lamp Output
34	Battery Monitor Load #1 Control Output
35	Battery Monitor Load #2 Control Output
36	Headlamp Low Beam Left #1 Output
37	Headlamp Low Beam Left #2 Output
38	Headlamp Low Beam Right #1 Output
39	Headlamp Low Beam Right #2 Output
40–150	Reserved for future assignment by SAE

Fuel System SIDs (MID = 143)

0	Reserved
1	Injector Cylinder #1
2	Injector Cylinder #2
3	Injector Cylinder #3
4	Injector Cylinder #4
5	Injector Cylinder #5
6	Injector Cylinder #6
7	Injector Cylinder #7
8	Injector Cylinder #8
9	Injector Cylinder #9
10	Injector Cylinder #10
11	Injector Cylinder #11
12	Injector Cylinder #12
13	Injector Cylinder #13
14	Injector Cylinder #14
15	Injector Cylinder #15
16	Injector Cylinder #16
17	Fuel Shutoff Valve
18	Fuel Control Valve
19	Throttle Bypass Valve
20	Timing Actuator
21	Engine Position Sensor
22	Timing Sensor
23	Rack Actuator

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

24	Rack Position Sensor
25	External Engine Protection Input
26	Auxiliary Output Device Driver
27	Cooling Fan Drive Output
28	Engine (Compression) Brake Output #1
29	Engine (Compression) Brake Output #2
30	Engine (Exhaust) Brake Output
31	Pressure Control Valve #1
32	Pressure Control Valve #2
33-150	Reserved for future assignment by SAE

Cab Climate Control SIDs (MID = 146, 200)

1	HVAC Unit Discharge Temperature Sensor
2	Evaporator Temperature Sensor
3	Solar Load Sensor #1
4	Solar Load Sensor #2
5	Fresh/Recirculation Air Intake Door Actuator
6	Mode Door #1 Actuator
7	Mode Door #2 Actuator
8	Mode Door #3 Actuator
9	Blend Door Actuator
10	Blower Motor
11	A/C Clutch Relay
12	Water Valve
13	Heater Exchanger Temperature Sensor
14	In Cabin Temperature Sensor Blower
15	Blower Clutch
16	Stepper Motor Phase 1
17	Stepper Motor Phase 2
18	Stepper Motor Phase 3
19	Stepper Motor Phase 4
20	Refrigerant Evaporator Inlet Temperature Sensor
21	Refrigerant Evaporator Outlet Temperature Sensor
22	Refrigerant Evaporator Inlet Pressure Sensor
23	Refrigerant Evaporator Outlet Pressure Sensor
24	Refrigerant Compressor Inlet Temperature Sensor
25	Refrigerant Compressor Outlet Temperature Sensor
26	Refrigerant Compressor Inlet Pressure Sensor
27	Refrigerant Compressor Outlet Pressure Sensor
28	Refrigerant Condenser Outlet Temperature Sensor
29	Refrigerant Condenser Outlet Pressure Sensor
30	Climate Control Air Filter Differential Pressure Sensor
31-150	Reserved for future assignment by SAE

Suspension SIDs (MID = 150, 151)

0	Reserved
1	Solenoid Valve Axle 1 Right
2	Solenoid Valve Axle 1 Left
3	Solenoid Valve Axle 2 Right

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

4	Solenoid Valve Axle 2 Left
5	Solenoid Valve Axle 3 Right
6	Solenoid Valve Axle 3 Left
7	Solenoid Valve Central (Lowering/Lifting Control)
8	Solenoid Valve for Lifting the Lifting/Trailing Axle
9	Solenoid Valve for Lowering the Lifting/Trailing Axle
10	Solenoid Valve for Control of the Lift Bellow
11	Solenoid Valve for Starting Lock
12	Solenoid Valve for Door Release
13	Solenoid Valve for Mainflow Throttle
14	Solenoid Valve for Transverse Lock/Throttle
15	Solenoid Valve for Automatic Load-Dependent Brake-Power Balance
16	Height Sensor Axle 1 Right
17	Height Sensor Axle 1 Left
18	Height Sensor Axle 2 Right
19	Height Sensor Axle 2 Left
20	Height Sensor Axle 3 Right
21	Height Sensor Axle 3 Left
22	Pressure Sensor Axle 1 Right
23	Pressure Sensor Axle 1 Left
24	Pressure Sensor Axle 2 Right
25	Pressure Sensor Axle 2 Left
26	Pressure Sensor Axle 3 Right
27	Pressure Sensor Axle 3 Left
28	Pressure Sensor Lift Bellow
29	Sidewalk Detector Sensor
30	Switch for Maximum Permanent Permissible Pressure
31	Switch for Maximum Temporary Permissible Pressure
32	Speed Signal Input
33	Remote Control Unit #1
34	Central Valve Relay
35	Auxiliary Tank Control
36	Exterior Kneel (warning lamp and audible alarm)
37	Wheel Chair Lift Inhibit
38	Checksum ECU Specific Data
39	Checksum Parameter Data
40	Checksum Calibration Data Level Sensors
41	Checksum Calibration Data Pressure Sensors
42	Checksum Maximum Axle Load Data
43	Central 3/2 Solenoid Valve Axle 3
44	Central 3/2 Solenoid Valve Front Axle
45	Pressure Sensor Brake Pressure
46	Power Supply for Pressure Sensors
47	Power Supply for Remote Controls
48	Remote Control #1 Data Line
49	Remote Control #1 Clock Line
50	Remote Control #2 Data Line
51	Remote Control #2 Clock Line
52	Remote Control Unit #2



TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

53	Power Supply for Solenoid Valves
54	Proportional Valve Front Axle Left
55	Proportional Valve Front Axle Right
56	Proportional Valve Drive Axle Left
57	Proportional Valve Drive Axle Right
58	Proportional Valve Axle 3 Left
59	Proportional Valve Axle 3 Right
60–150	Reserved for future assignment by SAE

Park Brake Controller SIDs (MID = 157)

0	Reserved
1	Pressure Sender #1
2	Pressure Sender #2
3	Solenoid Control #1
4	Solenoid Control #2
5	Solenoid Control #3
6	Solenoid Control #4
7	Operator Control Switch #1 (input)
8	Operator Control Switch #2 (input)
9	Operator Station
10	Passenger Station
11	Interior Station
12	Exterior Station
13	Light Sequence Control
14	Warning light #1
15	Warning light #2
16	Speed Sense Comparator
17	Series Latch Monitor
18	Expansion ECU Station
19	Aux Switch Input #1
20	Aux Switch Input #2
21	Diagnostic Input
22	Aux Data Link (I2C)
23	Solenoid Supply #1
24	Solenoid Supply #2
25	Solenoid Supply #3
26	Solenoid Supply #4
27	Operator Control Switch #1 (output)
28	Operator Control Switch #2 (output)
29	Operator Control Switch Aux
30	Aux Output #1
31	Aux Output # 2
32	Aux Output # 3
33	Aux Output # 4
34	Aux Output # 5
35	Aux Output # 6
36	Aux Output # 7
37	Diagnostic Output
38	Pressure Control Modulator

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

39	Series Latch Control
40	Brownout Voltage Sequence Control
41-150	Reserved for future assignment by SAE

Vehicle Navigation SIDs (MID = 162, 191)

0	Reserved
1	Dead Reckoning Unit
2	Loran Receiver
3	Global Positioning System (GPS)
4	Integrated Navigation Unit
5-150	Reserved for future assignment by SAE

Vehicle Security SIDs (MID = 163)

0	Reserved
1	Transceiver Antenna
2	Security Transponder
3-150	Reserved for future assignment by SAE

Tire SIDs (MID = 166, 167, 168, 169, 186)

0	Reserved
1	Operator Control Panel (OCP)
2	Pneumatic Control Unit (PCU)
3	PCU Steer Solenoid
4	PCU Drive Solenoid
5	PCU Solenoid Trailer #1, Tag #1, or Push #1
6	PCU Supply Solenoid
7	PCU Control Solenoid
8	PCU Deflate Solenoid
9	Pneumatic—Steer Channel
10	Pneumatic—Drive Channel
11	Pneumatic—Trailer #1, Tag #1, or Push #1 Channel
12	Drive Axle Manifold Deflation Solenoid
13	Steer Axle Manifold Deflation Solenoid
14	PCU Solenoid Trailer #2, Tag #2, or Push #2
15	Brake Priority Pressure Switch
16	Pneumatic-Trailer #2, Tag #2, or Push #2 Channel
17	Wiring Harness
18	Tire Pressure Sensor - # 1
19	Tire Pressure Sensor - # 2
20	Tire Pressure Sensor - # 3
21	Tire Pressure Sensor - # 4
22	Tire Pressure Sensor - # 5
23	Tire Pressure Sensor - # 6
24	Tire Pressure Sensor - # 7
25	Tire Pressure Sensor - # 8
26	Tire Pressure Sensor - # 9
27	Tire Pressure Sensor - # 10
28	Tire Pressure Sensor - # 11
29	Tire Pressure Sensor - # 12



TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

30	Tire Pressure Sensor - # 13
31	Tire Pressure Sensor - # 14
32	Tire Pressure Sensor - # 15
33	Tire Pressure Sensor - # 16
34	Tire Temperature Sensor - # 1
35	Tire Temperature Sensor - # 2
36	Tire Temperature Sensor - # 3
37	Tire Temperature Sensor - # 4
38	Tire Temperature Sensor - # 5
39	Tire Temperature Sensor - # 6
40	Tire Temperature Sensor - # 7
41	Tire Temperature Sensor - # 8
42	Tire Temperature Sensor - # 9
43	Tire Temperature Sensor - # 10
44	Tire Temperature Sensor - # 11
45	Tire Temperature Sensor - # 12
46	Tire Temperature Sensor - # 13
47	Tire Temperature Sensor - # 14
48	Tire Temperature Sensor - # 15
49	Tire Temperature Sensor - # 16
50	Tire Sensor Voltage - # 1
51	Tire Sensor Voltage - # 2
52	Tire Sensor Voltage - # 3
53	Tire Sensor Voltage - # 4
54	Tire Sensor Voltage - # 5
55	Tire Sensor Voltage - # 6
56	Tire Sensor Voltage - # 7
57	Tire Sensor Voltage - # 8
58	Tire Sensor Voltage - # 9
59	Tire Sensor Voltage - # 10
60	Tire Sensor Voltage - # 11
61	Tire Sensor Voltage - # 12
62	Tire Sensor Voltage - # 13
63	Tire Sensor Voltage - # 14
64	Tire Sensor Voltage - # 15
65	Tire Sensor Voltage - # 16
66–150	Reserved for future assignment by SAE

Particulate Trap SIDs related to (MID = 177)

0	Reserved
1	Particulate Trap Intake Gas Temperature Bank 1
2	Particulate Trap Intake Gas Temperature Bank 2
3	Particulate Trap Outlet Gas Temperature Bank 1
4	Particulate Trap Outlet Gas Temperature Bank 2
5	Particulate Trap Intermediate Gas Temperature Bank 1
6	Particulate Trap Intermediate Gas Temperature Bank 2
7	Particulate Trap Differential Pressure Bank 1
8	Particulate Trap Differential Pressure Bank 2
9	Exhaust Gas Temperature 1

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

10	Exhaust Gas Temperature 2
11	Exhaust Gas Temperature 3
12	Exhaust Gas Temperature 1 Bank 2
13	Exhaust Gas Temperature 2 Bank 2
14	Exhaust Gas Temperature 3 Bank 2
15	Aftertreatment #1 Fuel Pressure
16	Aftertreatment #1 Fuel Pressure Control Actuator
17	Aftertreatment #1 Fuel Enable Actuator
18	Aftertreatment #1 Ignition
19	Aftertreatment #2 Fuel Pressure
20	Aftertreatment #2 Fuel Pressure Control Actuator
21	Aftertreatment #2 Fuel Enable Actuator
22	Aftertreatment #2 Ignition
23	Aftertreatment #1 Air Enable Actuator
24	Aftertreatment #1 Purge Air Actuator
25	Aftertreatment #1 Atomization Air Actuator
26	Aftertreatment #1 Air System Relay
27	Aftertreatment #2 Air Enable Actuator
28	Aftertreatment #2 Purge Air Actuator
29	Aftertreatment #2 Atomization Air Actuator
30	Aftertreatment #2 Air System Relay
31	Aftertreatment #1 Supply Air Pressure
32	Aftertreatment #1 Purge Air Pressure
33	Aftertreatment #1 Air Pressure Control Actuator
34	Aftertreatment #1 Air Pressure Actuator Position
35	Aftertreatment #2 Supply Air Pressure
36	Aftertreatment #2 Purge Air Pressure
37	Aftertreatment #2 Air Pressure Control Actuator
38	Aftertreatment #2 Air Pressure Actuator Position
39	Aftertreatment #1 Failed to Ignite
40	Aftertreatment #1 Loss of Ignition
41	Aftertreatment #2 Failed to Ignite
42	Aftertreatment #2 Loss of Ignition
43	Aftertreatment #1 Regeneration Manually Disabled
44	Aftertreatment #2 Regeneration Manually Disabled
45	Aftertreatment #1 Particulate Trap Intake Pressure
46	Aftertreatment #1 Particulate Trap Outlet Pressure
47	Oil Scavenge Pump
48	Catalyst 1 System Monitor
49	Aftertreatment 1 Fuel Drain Actuator
50	Aftertreatment 1 Fuel Injector 1
51	Particulate Matter Trap Monitor
52	Aftertreatment #1 Purge Air Pressure
53	Aftertreatment #1 Secondary Air Mass Flow
54	Particulate Trap Active Regeneration Inhibited Due to Permanent System Lockout
55	Aftertreatment 1 Fuel Rate
56	Particulate Trap Active Regeneration Inhibited Status
57	Particulate Trap Active Regeneration Inhibited Due to Inhibit Switch



TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

58	Particulate Trap Active Regeneration Inhibited Due to Temporary System Lockout
59-150	Reserved for future assignment by SAE

Vehicle Sensors to Data Converter SIDs (MID = 178)

0	Reserved
1	Battery Positive Input
2	Battery Negative Input
3	Current Shunt (-) Input
4	Current Shunt (+) Input
5	Starter Negative Input
6	Alternator Negative Input
7	Transducer +5V Excitation
8	Starter Positive Input
9	Starter Solenoid Input
10	Alternator Positive Input
11	Alternator Field Input
12	Fuel Solenoid Positive Input
13	User Probe Input
14	Fuel Supply Sender Input
15	Air Cleaner Delta P Sender Input
16	Fuel Filter Delta P Sender Input
17	Oil Filter Inlet Sender Input
18	Fuel Return Sender Input
19	Oil Filter Outlet Sender Input
20	Fuel Vacuum Sender Input
21	Battery Negative Input Circuit
22	Battery Positive Input Circuit
23	Starter Positive Input Circuit
24	Starter Negative Input Circuit
25	Starter Solenoid Input Circuit
26	Alternator Field Input Circuit
27	Alternator Positive Input Circuit
28	Alternator Negative Input Circuit
29	Current Sensor Discharge Circuit
30	Current Sensor Charge Circuit
31-150	Reserved for future assignment by SAE

Refrigerant Management Systems SIDs (MID = 190)

0	Reserved
1	Refrigerant Charge
2	Refrigerant Moisture Level
3	Non-condensable Gas in Refrigerant
4	Refrigerant Flow Control Solenoid
5	Low Side Refrigerant Pressure Switch
6	Compressor Clutch Circuit
7	Evaporator Thermostat Circuit
8	Refrigerant Flow
9	Climate Control Air Filter Differential Pressure Sensor
10-150	Reserved for future assignment by SAE



TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

Tractor/Trailer Bridge SIDs (MID = 217, 218)

0	Reserved
1	Auxiliary input #1
2	Auxiliary input #2
3	Auxiliary input #3
4	Auxiliary input #4
5	Auxiliary input #5
6	Auxiliary input #6
7	Auxiliary input #7
8	Auxiliary input #8
9	Clearance, side marker, identification lamp circuit (Black)
10	Left turn lamp circuit (Yellow)
11	Stop lamp circuit (Red)
12	Right turn lamp circuit (Green)
13	Tail lamp/license plate lamp circuit (Brown)
14	Auxiliary lamp circuit (Blue)
15	Tractor mounted rear axle slider control unit
16	Trailer mounted rear axle slider control unit
17–150	Reserved for future assignment by SAE

Collision Avoidance Systems SIDs (MID = 219)

0	Reserved
1	Forward Antenna
2	Antenna Electronics
3	Brake Input Monitor
4	Speaker Monitor
5	Steering Sensor Monitor
6	Speedometer Monitor
7	Right Turn Signal Monitor
8	Left Turn Signal Monitor
9	Control Display Unit
10	Right Side Sensor
11	Left Side Sensor
12	Rear Sensor
13–150	Reserved for future assignment by SAE

Driveline Retarder SIDs (MID = 222)

0	Reserved
1	Retarder Enable Solenoid Valve
2	Retarder Modulation Solenoid Valve
3	Retarder Response Solenoid Valve
4	Retarder Modulation Request Sensor
5	Retarder Response System Pressure Indicator
6–150	Reserved for future assignment by SAE

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

Safety Restraint System SIDs (MID = 232, 254)

0	Reserved
1	Driver Air Bag Ignitor Loop
2	Passenger Air Bag Ignitor Loop
3	Left Belt Tensioner Ignitor Loop
4	Right Belt Tensioner Ignitor Loop
5	Safety Restraint System (SRS) Lamp—directly controlled by the ECU
6	Automotive Seat Occupancy Sensor (AOS)—Passenger Side
7	Side Collision Detector (SDC)—Left
8	Side Bag Ignitor Loop 1—Left
9	Side Bag Ignitor Loop 2—Left
10	Side Collision Detector—Right
11	Side Bag Ignitor Loop 1—Right
12	Side Bag Ignitor Loop 2—Right
13	Rollover Sensor
14	Driver Air Bag Stage 2 Igniter Loop
15	Passenger Air Bag Stage 2 Igniter Loop
16–150	Reserved for future assignment by SAE

Forward Road Image Processor SIDs (MID = 248)

0	Reserved
1	Forward View Imager System
2-150	Reserved for future assignment by SAE

Brake Stroke Alert Monitor, Tractor SIDs (MID = 253)

0	Reserved
1	Tractor Brake Stroke Axle 1 Left
2	Tractor Brake Stroke, Axle 1 Right
3	Tractor Brake Stroke, Axle 2 Left
4	Tractor Brake Stroke, Axle 2 Right
5	Tractor Brake Stroke, Axle 3 Left
6	Tractor Brake Stroke, Axle 3 Right
7	Tractor Brake Stroke, Axle 4 Left
8	Tractor Brake Stroke, Axle 4 Right
9	Tractor Brake Stroke Alert Monitor
10	Trailer #1 Brake Stroke, Axle 1 Left
11	Trailer #1 Brake Stroke, Axle 1 Right
12	Trailer #1 Brake Stroke, Axle 2 Left
13	Trailer #1 Brake Stroke, Axle 2 Right
14	Trailer #1 Brake Stroke, Axle 3 Left
15	Trailer #1 Brake Stroke, Axle 3 Right
16	Trailer #1 Brake Stroke, Axle 4 Left
17	Trailer #1 Brake Stroke, Axle 4 Right
18	Trailer #1 Brake Stroke, Alert Monitor
19	Trailer #2 Brake Stroke, Axle 1 Left
20	Trailer #2 Brake Stroke, Axle 1 Right
21	Trailer #2 Brake Stroke, Axle 2 Left
22	Trailer #2 Brake Stroke, Axle 2 Right
23	Trailer #2 Brake Stroke, Axle 3 Left

TABLE 7 - SUBSYSTEM IDENTIFICATION (SID) ASSIGNMENT LIST (CONTINUED)

24	Trailer #2 Brake Stroke, Axle 3 Right
25	Trailer #2 Brake Stroke, Axle 4 Left
26	Trailer #2 Brake Stroke Axle 4 Right
27	Trailer #2 Brake Stroke Alert Monitor
28	Trailer #3 Brake Stroke, Axle 1 Left
29	Trailer #3 Brake Stroke, Axle 1 Right
30	Trailer #3 Brake Stroke, Axle 2 Left
31	Trailer #3 Brake Stroke, Axle 2 Right
32	Trailer #3 Brake Stroke, Axle 3 Left
33	Trailer #3 Brake Stroke, Axle 3 Right
34	Trailer #3 Brake Stroke, Axle 4 Left
35	Trailer #3 Brake Stroke Axle 4 Right
36	Trailer #3 Brake Stroke Alert Monitor
37	Trailer Brake Stroke, Axle 1 Left
38	Trailer Brake Stroke, Axle 1 Right
39	Trailer Brake Stroke, Axle 2 Left
40	Trailer Brake Stroke, Axle 2 Right
41	Trailer Brake Stroke, Axle 3 Left
42	Trailer Brake Stroke, Axle 3 Right
43	Trailer Brake Stroke, Axle 4 Left
44	Trailer Brake Stroke, Axle 4 Right
45	Trailer Brake Stroke Alert Monitor
46-150	Reserved for future assignment by SAE

1. Superseded by SIDs 151–155

4. NOTES

4.1 Marginal Indicia

The change bar (l) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

PREPARED BY THE SAE TRUCK AND BUS LOW SPEED COMMUNICATIONS SUBCOMMITTEE
OF THE SAE TRUCK AND BUS ELECTRICAL/ELECTRONIC COMMITTEE

APPENDIX A - PARAMETER DEFINITIONS

A.0 REQUEST PARAMETER

Used to request parameter data transmission from other components on the data link.

Parameter Data Length: 1 Character

Data Type: Unsigned Short Integer

Resolution: Binary

Maximum Range: 0 to 255

Transmission Update Period: As needed

Message Priority: 8

Format:

PID	Data
0	a
a—	Parameter ID of the Requested parameter

Any and all components measuring or calculating the specified parameter should transmit it if possible.

A.1 RESERVED

To be assigned. This PID was reclaimed as of August 2007.

A.2 RESERVED

To be assigned. This PID was reclaimed as of August 2007.

A.3 RESERVED

To be assigned. This PID was reclaimed as of August 2007.

A.4 DYNAMIC MID CLAIM FOR SAE J2497 GATEWAY DEVICES

Used to claim a MID for use on SAE J2497 networks. Devices using this message will become potential gateway devices on the SAE J2497 bus, and the MID claimed here will identify which trailer subnet sent or is intended to receive messages being transferred using the SAE J2497 network.

Parameter Data Length: 1 Character

Data Type: Unsigned Short Integer

Resolution: Binary

Maximum Range: 0 to 255

Transmission Update Period: As needed (see below for special random period requirements)

Message Priority: 8

Format:

PID	Data
4	a
a—	Status code. Set to 255 (all binary ones.)

This message is used to claim a MID to be used to identify a trailer on a vehicle. There may be multiple trailers on the same vehicle, so a method of assigning unique MIDs for broadcasting on the SAE J2497 Data Link is needed.

J2497 Dynamic MID Claim Process Description

Each SAE J2497 device will, on power up, calculate a "random" transmit delay period (perhaps using internal clock or other unique data) between 500 and 1000 milliseconds long. Once initialization is complete, the device will listen to messages on the SAE J2497 Data Link for that period and record the MID of each device that transmits PID4 messages on the SAE J2497 bus. At the completion of the initial delay period, the device will choose an unused MID from the set 88 - 110 and transmit a message onto the SAE J2497 Data Link containing only PID 4 and its data byte. It will then have "claimed" that MID on the SAE J2497 Data Link unless or until another device transmits a message using that MID. In that case, the device will choose another MID from that same set and begin the claim process again.

The first MID claimed by any individual device should be the MID that it last used successfully, which will allow a complete vehicle to continue to operate with the same set of MIDs up until the next time another or a different trailer is added to it. Note that the process will normally allow the first claimant to use its preferred MID, however, when a trailer is added to a vehicle, then the new trailer will always get its first MID choice and the trailer already attached to the vehicle that was using the MID claimed by the new trailer must claim a new MID. There is no claim priority given to how long a particular device has been connected to the vehicle other than that the newly added device should not attempt to use a MID that is in use during its listening phase. Thus the newest device should always claim successfully the first time. A device whose MID is claimed by a recently added device should begin the claim process again, avoiding all MIDs that it has heard since power up.

A.5 RESERVED

To be assigned. This PID was reclaimed as of August 2007.

A.6 RESERVED

To be assigned. This PID was reclaimed as of August 2007.

A.7 AXLE #2 LIFT AIR PRESSURE

Gauge Pressure of air in system that utilizes compressed air to provide force between a lift axle and frame for purposes of lifting or lowering the axle.

Parameter Data Length: 1 Character

Data Type: Unsigned Short Integer

Bit Resolution: 4.14 kPa (0.6 lbf/in²)

Maximum Range: 0.0 to 1055 kPa (0.0 to 153.0 lbf/in²)

Transmission Update Period: 1.0 s

Message Priority: 5

Format:

PID	Data
7	a
a—	Axle #2 lift air pressure