

Abbreviations and Acronyms

A or amp – Ampere
AAT – Ambient Air Temperature
ABDC – After Bottom Dead Center
ABS – Antilock Brake System
AC – Alternating Current
A/C – Air Conditioner
ACC – Air Conditioner Control
ACCEL – Accelerator
ACD – Air Conditioner Demand
ACT PWR GND – Actuator Power Ground
ACV – Air Control Valve
A/F – Air to Fuel ratio
AFD – Aftertreatment Fuel Drain
AFI – Aftertreatment Fuel Injector
AFP – Aftertreatment Fuel Pressure
AFS – Aftertreatment Fuel Supply
AFT – Aftertreatment
AFTFD – Aftertreatment Fuel Doser
AFTFD-H – Aftertreatment Fuel Doser High
AFTFD-L – Aftertreatment Fuel Doser Low
AFTFIT – Aftertreatment Fuel Intake Temperature
AFTFIS – Aftertreatment Fuel Intake Sensor
AFTFP – Aftertreatment Fuel Pressure
AFTFP1 – Aftertreatment Fuel Pressure 1
AFTFP2 – Aftertreatment Fuel Pressure 2
AFTFS-H – Aftertreatment Fuel Shutoff High
AFTFS-L – Aftertreatment Fuel Shutoff Low
AFTFSV – Aftertreatment Fuel Shutoff Valve
AIT – Air Intake Temperature
Amb – Ambient
amp or A – Ampere
AMS – Air Management System
API – American Petroleum Institute
APP – Accelerator Pedal Position
APP1 – Accelerator Pedal Position 1
APP2 – Accelerator Pedal Position 2
APS – Accelerator Position Sensor
APS/IVS – Accelerator Position Sensor / Idle Validation Switch
ASTM – American Society for Testing and Materials
ATA – American Trucking Association
ATA-H – American Trucking Association Link High
ATA-L – American Trucking Association Link Low

ATDC – After Top Dead Center
AWG – American Wire Gauge
AWL – Amber Warning Lamp
B+ or VBAT – Battery Voltage
BAP or BARO – Barometric Absolute Pressure
BARO or BAP – Barometric Absolute Pressure
BBDC – Before Bottom Dead Center
BC – Body Controller
BCP – Brake Control Pressure
BCS – Boost Control Solenoid
BDC – Bottom Dead Center
bhp – Brake Horsepower
BNO – Brake Normally Open
BOO – Brake On / Off
BPP – Brake Pedal Position
BPS – Brake Pressure Switch
BSV – Brake Shut-off Valve
BTDC – Before Top Dead Center
BTU – British Thermal Unit
C – Celsius
CAC – Charge Air Cooler
CACOT – Charge Air Cooler Outlet Temperature
CAN – Controller Area Network
CAN-H – Controller Area Network High
CAN-L – Controller Area Network Low
CAP – Cold Ambient Protection
CARB – California Air Resources Board
cc – Cubic centimeter
CCA – Cold Cranking Ampere
CCV – Coolant Control Valve
CCOSS – Crankcase Oil Separator Speed
CCPS – Crankcase Pressure Sensor
CCS – Cruise Control Switches
CDR – Crankcase Depression Regulator
cfm – Cubic feet per minute
cfs – Cubic feet per second
CFV – Coolant Flow Valve
CID – Cubic Inch Displacement
CKP – Crankshaft Position
CKP-H – Crankshaft Position High
CKP-L – Crankshaft Position Low
CKPO – Crankshaft Position Out
cm – Centimeter
CMP – Camshaft Position
CMP-H – Camshaft Position High

CMP-L – Camshaft Position Low
CMPO – Camshaft Position Out
CMV – Coolant Mixer Valve
CO – Carbon Monoxide
COO – Cruise On / Off switch
CPU – Central Processing Unit
CSFI – Cold Start Fuel Igniter
CSFS – Cold Start Fuel Solenoid
CSR – Cold Start Relay
CSS – Cold Start Solenoid
CTC – Coolant Temperature Compensation
Cyl – Cylinder
DB – Decibel
DC – Direct Current
DCA – Diesel Coolant Additive
DCU – Doser Control Unit
DDI – Digital Direct Fuel Injection
DDS – Driveline Disengagement Switch
DLC – Data Link Connector
DME – Dimethyl Ether
DMM – Digital Multimeter
DOC – Diesel Oxidation Catalyst
DOCIT – Diesel Oxidation Catalyst Intake Temperature
DOCOT – Diesel Oxidation Catalyst Outlet Temperature
DPF – Diesel Particulate Filter
DPFDP – Diesel Particulate Filter Differential Pressure
DPFIT – Diesel Particulate Filter Intake Temperature
DPFOT – Diesel Particulate Filter Outlet Temperature
DSI – Down Stream Injection
DT – Diesel Turbocharged
DTC – Diagnostic Trouble Code
DTCs – Diagnostic Trouble Codes
DTRM – Diesel Thermo Recirculation Module
EBC – Exhaust Brake Controller
EBP – Exhaust Back Pressure
EBPD – Exhaust Back Pressure Desired
EBPV – Exhaust Back Pressure Valve
ECB – Engine Compression Brake
ECB1 – Engine Compression Brake 1
ECB2 – Engine Compression Brake 2
ECB3 – Engine Compression Brake 3
ECBP – Engine Compression Brake Pressure
ECI – Engine Crank Inhibit
ECL – Engine Coolant Level
ECM – Engine Control Module

ECM GND – Engine Control Module Ground
ECM PWR – Engine Control Module Power
ECS – Engine Coolant System
ECSR – Engine Controlled Shutdown Request
ECT – Engine Coolant Temperature
ECT1 – Engine Coolant Temperature 1
ECT2 – Engine Coolant Temperature 2
EFAN – Engine Fan
EFANS – Engine Fan Speed
EFC – Engine Fan Control
EFP – Engine Fuel Pressure
EFRC – Engine Family Rating Code
EFS – Engine Fan Speed
EFT – Engine Fuel Temperature
EG – Ethylene Glycol
EGC – Electronic Gauge Cluster
EGBP – Exhaust Gas Back Pressure
EGDP – Exhaust Gas Differential Pressure
EGR – Exhaust Gas Recirculation
EGRC – Exhaust Gas Recirculation Control
EGRH – Exhaust Gas Recirculation High control
EGRL – Exhaust Gas Recirculation Low control
EGROT – Exhaust Gas Recirculation Outlet Temperature
EGRP – Exhaust Gas Recirculation Position
EGRT – Exhaust Gas Recirculation Temperature
EGT – Exhaust Gas Temperature
EGT1 – Exhaust Gas Temperature 1
EGT2 – Exhaust Gas Temperature 2
EGT3 – Exhaust Gas Temperature 3
EIM – Engine Interface Module
ELS – Exhaust Lambda Sensor
EMI – Electromagnetic Interference
EMP – Exhaust Manifold Pressure
EMT – Exhaust Manifold Temperature
EOL – Engine Oil Level
EOP – Engine Oil Pressure
EOT – Engine Oil Temperature
EPA – Environmental Protection Agency
EPR – Engine Pressure Regulator
ESC – Electronic System Controller
ESN – Engine Serial Number
EST – Electronic Service Tool
ETC – Engine Throttle Control
ETC-H – Engine Throttle Control High
ETC-L – Engine Throttle Control Low

ETP – Engine Throttle Position
ETV – Engine Throttle Valve
ETV-H – Engine Throttle Valve High
ETV-L – Engine Throttle Valve Low
EVB – Exhaust Valve Brake
EWPS – Engine Warning Protection System
F – Fahrenheit
FCV – Fuel Coolant Valve
FDP – Fuel Delivery Pressure
FEL – Family Emissions Limit
fhp – Friction horsepower
FMI – Failure Mode Indicator
FPC – Fuel Pump Control
FPCV – Fuel Pressure Control Valve
fpm – Feet per minute
FPM – Fuel Pump Monitor
fps – Feet per second
FRP – Fuel Rail Pressure
ft – Feet
FVCV – Fuel Volume Control Valve
GND – Ground (electrical)
gal – Gallon
gal/h – U.S. Gallons per hour
gal/min – U.S. Gallons per minute
GCW – Gross Combined Weight
GCWR – Gross Combined Weight Rating
GPC – Glow Plug Control
GPD – Glow Plug Diagnostic
GPR – Glow Plug Relay
GVW – Gross Vehicle Weight
H₂O – Water
HC – Hydrocarbons
HCI – Hydrocarbon Injection
HEST – High Exhaust System Temperature
HFCM – Horizontal Fuel Conditioning Module
Hg – Mercury
hp – Horsepower
HPCAC – High-Pressure Charge Air Cooler
HPCR – High-Pressure Common Rail
HPFP – High-Pressure Fuel Pump
hr – Hour
HS – Humidity Sensor
Hyd – Hydraulic
IAH – Intake Air Heater
IAHC – Intake Air Heater Control

IAHD – Intake Air Heater Diagnostic
IAHR – Intake Air Heater Relay
IAT – Intake Air Temperature
IC – Integrated Circuit
ICP – Injection Control Pressure
ICPR – Injection Control Pressure Regulator
ICG1 – Injector Control Group 1
ICG2 – Injector Control Group 2
ID – Inside Diameter
IDM – Injector Driver Module
IGN – Ignition
ILO – Injector Leak Off
IMP – Intake Manifold Pressure
IMT – Intake Manifold Temperature
in – Inch
inHg – Inch of mercury
inH₂O – Inch of water
INJs – Injectors
IPR – Injection Pressure Regulator
IPR PWR – Injection Pressure Regulator Power
ISC – Interstage Cooler
ISIS® – International® Service Information Solutions
IST – Idle Shutdown Timer
ITP – Internal Transfer Pump
ITV – Intake Throttle Valve
ITV-H – Intake Throttle Valve High control
ITV-L – Intake Throttle Valve Low control
ITVP – Intake Throttle Valve Position
IVS – Idle Validation Switch
J1939-H – J1939 Data Link High
J1939-L – J1939 Data Link Low
JCT – Junction (electrical)
kg – Kilogram
km – Kilometer
km/h – Kilometers per hour
km/l – Kilometers per liter
KOEO – Key-On Engine-Off
KOER – Key-On Engine-Running
kPa – Kilopascal
L – Liter
L/h – Liters per hour
L/m – Liters per minute
L/s – Liters per second
lb – Pound
lb – Pounds of force

lb/s – Pounds per second
lb ft – Pounds of force per foot
lb in – Pounds of force per inch
lbm – Pounds of mass
LPCAC – Low-pressure Charge Air Cooler
LSD – Low Sulfur Diesel
m – Meter
m/s – Meters per second
MAF – Mass Air Flow
MAF GND – Mass Air Flow Ground
MAG – Magnetic
MAP – Manifold Absolute Pressure
MAP / IAT – Manifold Absolute Pressure / Intake Air Temperature
MAT – Manifold Air Temperature
mep – Mean effective pressure
mi – Mile
MIL – Malfunction Indicator Lamp
mm – Millimeter
mpg – Miles per gallon
mph – Miles per hour
MPR – Main Power Relay
MSDS – Material Safety Data Sheet
MSG – Micro Strain Gauge
MSM – Multiplex System Module
MY – Model Year
NC – Normally Closed (electrical)
NETS – Navistar Electronics Technical Support
N·m – Newton meter
NO – Normally Open (electrical)
NOX – Nitrogen Oxides
O2S – Oxygen Sensor
O2SH – Oxygen Sensor Heater
OAT – Organic Acid Technology
OCC – Output Circuit Check
OCP – Overcrank Protection
OD – Outside Diameter
OL – Over Limit
ORH – Out-of-Range High
ORL – Out-of-Range Low
OSHA – Occupational Safety and Health Administration
OWL – Oil / Water Lamp
PID – Parameter Identifier
P/N – Part Number
PDOC – Pre-Diesel Oxidation Catalyst
ppm – Parts per million

PROM – Programmable Read Only Memory
psi – Pounds per square inch
psia – Pounds per square inch absolute
psig – Pounds per square inch gauge
pt – Pint
PTO – Power Takeoff
PWM – Pulse Width Modulate
PWR – Power (voltage)
qt – Quart
RAM – Random Access Memory
RAPP – Remote Accelerator Pedal Position
RAS – Resume / Accelerate Switch (speed control)
REPTO – Rear Engine Power Takeoff
RFI – Radio Frequency Interference
rev – Revolution
rpm – Revolutions per minute
RPRE – Remote Preset
RSE – Radiator Shutter Enable
RVAR – Remote Variable
SAE – Society of Automotive Engineers
SCA – Supplemental Cooling Additive
SCCS – Speed Control Command Switches
SCS – Speed Control Switch
SHD – Shield (electrical)
SID – Subsystem Identifier
SIG GND – Signal Ground
SIG GNDB – Signal Ground Body
SIG GNDC – Signal Ground Chassis
SIG GNDE – Signal Ground Engine
S/N – Serial Number
SPEEDO – Speedometer
SPN – Suspect Parameter Number
SW – Switch (electrical)
SWBAT – Switch Battery
SYNC – Synchronization
TACH – Tachometer output signal
TBD – To Be Determined
TC2CIS – Turbocharger 2 Compressor Intake Sensor
TC2CIT – Turbocharger 2 Compressor Intake Temperature
TC1TOP – Turbocharger 1 Turbine Outlet Pressure
TC2TOP – Turbocharger 2 Turbine Outlet Pressure
TC2WG – Turbocharger 2 Wastegate
TC2WC – Turbocharger 2 Wastegate Control
TCAPE – Truck Computer Analysis of Performance and Economy
TCM – Transmission Control Module

TCWC – Turbocharger Wastegate Control
TDC – Top Dead Center
TDE – Transmission Driving Engaged
TOP – Transmission Oil Pressure
TOSS – Transmission Output Shaft Speed
TOT – Transmission Oil Temperature
TTS – Transmission Tailshaft Speed
ULSD – Ultra-Low Sulfur Diesel
UVC – Under Valve Cover
V – Volt
VBAT or B+ – Battery Voltage
VC – Volume Control
VEPS – Vehicle Electronics Programming System
VGT – Variable Geometry Turbo
VIGN – Ignition Voltage
VIN – Vehicle Identification Number
VOP – Valve Opening Pressure
VRE – Vehicle Retarder Enable
VREF – Reference Voltage
VREF1 – Reference Voltage Engine
VREF2 – Reference Voltage Chassis
VREF3 – Reference Voltage Chassis
VREF4 – Reference Voltage Aftertreatment
VSO – Vehicle Speed Output
VSO or VSS_CAL – Vehicle Speed Output
VSS – Vehicle Speed Sensor
VSS_CAL or VSO – Vehicle Speed Output
VSS-H – Vehicle Speed Sensor High
VSS-L – Vehicle Speed Sensor Low
WTSL – Wait to Start Lamp
WEL – Warn Engine Lamp
WIF – Water In Fuel
WIFL – Water In Fuel Lamp
WTEC – World Transmission Electronically Controlled automatic transmissions
(Allison)
XCS – Transference
XMSN – Transmission

OBD-1 - The regulatory intent of OBD-I was to encourage auto manufacturers to design reliable emission control systems that remain effective for the vehicle's "useful life". The Diagnostic Trouble Codes (DTCs) of OBD-I vehicles can usually be found without an expensive 'scan tool'. Each manufacturer used their own Diagnostic Link Connector (DLC), DLC location, DTC definitions, and procedure to read the DTC's from the vehicle. DTC's from OBD-I cars are often read through the blinking patterns of the 'Check Engine Light' (CEL) or 'Service Engine Soon' (SES) light. By connecting certain pins of the diagnostic connector, the 'Check Engine' light will blink out a two-digit number that corresponds to a specific error

condition. The DTC's of some OBD-I cars are interpreted in different ways, however. OBD-I vehicles have fewer DTCs available than for OBD-II equipped vehicles.

OBD-II - OBD-II is an improvement over OBD-I in both capability and standardization. The OBD-II standard specifies the type of diagnostic connector and its pinout, the electrical signalling protocols available, and the messaging format. It also provides a candidate list of vehicle parameters to monitor along with how to encode the data for each. There is a pin in the connector that provides power for the scan tool from the vehicle battery, which eliminates the need to connect a scan tool to a power source separately. However, some technicians might still connect the scan tool to an auxiliary power source to protect data in the unusual event that a vehicle experiences a loss of electrical power due to a malfunction. Finally, the OBD-II standard provides an extensible list of DTCs. As a result of this standardization, a single device can query the on-board computer(s) in any vehicle. This OBD-II came in two models OBD-IIA and OBD-IIB. OBD-II standardization was prompted by emissions requirements, and though only emission-related codes and data are required to be transmitted through it, most manufacturers have made the OBD-II Data Link Connector the only one in the vehicle through which all systems are diagnosed and programmed. OBD-II Diagnostic Trouble Codes are 4-digit, preceded by a letter: P for engine and transmission (powertrain), B for body, C for chassis, and U for network.