Speed Controlled Spark (SCS) – This device allows either ignition advance or retard depending on vehicle speed. Generally, this system reduces advance during low speed operation but allows full advance at higher vehicle speeds. On some vehicles this system operates on the vacuum advance and/or retard unit, while on other vehicles the system may select the retard or advance points of a dual point distributor.

Thermal Override (TO) – Many different forms of thermal override are provided for in various emission control systems. The most common one either restores full vacuum advance or provides additional vacuum advance in the event of an engine overheating condition. Other thermal overrides either allow an emission control system to function or not to function if ambient or engine temperature is below a certain level.

Thermal Reactor – This system is a modification of the basic air injection system. This system uses an air pump to inject fresh air into the exhaust ports, just as with an air injection system, however, the exhaust manifold is a device which allows the exhaust gases to maintain a very high temperature. This promotes even greater combustion to occur than in a conventional exhaust manifold and reduces exhaust emissions greatly.

Thermostatic Air Cleaner (TAC) – This device regulates the temperature of the air entering the carburetor. The air cleaner draws air from a shroud around the exhaust manifold and from the engine compartment. Depending on air temperature, the air cleaner then allows either heated air, cooler air, or a blend of the two to enter the carburetor. Due to leaner mixtures used to achieve emission control, this heated air is necessary to permit good cold engine operation on the models so equipped. Some thermostatic air cleaners are vacuum operated to permit cool air to enter the carburetor during full throttle operation for maximum performance.

Throttle Poppet Valve (TPV) – This device is a simple spring loaded valve located in the throttle plate of the carburetors so equipped. During periods of high intake manifold vacuum, such as deceleration, this valve opens allowing additional air into the engine. This leans the overly rich mixture and promotes more complete combustion to reduce exhaust emissions.

Throttle Positioner (TP) – This device holds the throttle slightly open during deceleration to provide a combustable mixture to the engine and thus reduce emissions. An additional control device is generally provided to allow throttle to close to normal idle position after a certain length of time or when vehicle speed decreases to a certain point. These devices are either operated electrically or by vacuum.

Transmission Controlled Spark (TCS) – This system allows either ignition advance or retard depending on transmission gear position. Generally, this system provides for retarded timing in the lower gear positions but allows full advance in high gear. On some models this system operates on the vacuum advance and/or retard unit, while on other models system may select either retard or advance points of a dual diaphragm distributor.

Vacuum Retard (VR) – Some models use a vacuum retard diaphragm in place of a vacuum advance unit. This device may be connected to manifold vacuum to provide retarded timing during deceleration or it may be part of another system such as a TCS or SCS system.

1968 EMISSION CONTROL SYSTEMS

Mfg. & Model	PCV	A.I.R.	TAC	Engine Modifications ①
Austin America	X	X	---	-----
Austin-Healey Sprite	X	X	---	-----
BMW	X	X	---	-----
Citroen	X	X	---	-----
Cortina	X	X	---	-----
Datsun				
All Exc. Pickup	X	X	---	-----
Pickup	X	---	---	FCO
Fiat				
850 ②	X	---	---	-----
124	X	---	---	TP
Jaguar	X	---	---	DMS
Lotus	X	---	---	DMS
Mercedes-Benz				
220 Models	X	---	---	TP, VR, TO
Fuel Inj. Models	X	---	---	MFI
All Others Models	X	X	---	-----
MG	X	X	---	-----
Opel	X	X	---	-----
Peugeot	X	---	---	TP
Porsche	X	X	---	TP

Emission Control Application

1968 EMISSION CONTROL SYSTEMS (CONT.)				
Mfg. & Model	PCV	A.I.R.	TAC	Engine Modifications ①
Renault	X	---	---	TP
Rolls-Royce & Bentley	X	X	---	DP
Rover				
Land Rover	X	---	---	FCO, TPV
2000 Sedan	X	---	---	TPV, DP ③
Saab V4	X	---	---	④
Simca	X	---	---	TP
Toyota	X	X	---	-----
Triumph				
TR-4A & Spitfire	X	---	---	TPV
GT-6 & TR-250	X	---	---	DDD
Volkswagen				
Type 1 & 2	X	---	X	TP
Type 3	X	---	---	EFI
Volvo	X	---	X	VR, DMS

① — **CRV** - Coasting Richer Valve, **DD** - Dual Distributors, **DDD** - Dual Diaphragm Distributor, **DDV** - Distributor Deceleration Valve, **DMS** - Dual Manifold System, **DP** - Dashpot, **DPD** - Dual Point Distributor, **DV** - Decel Valve, **EAC** - Electric Assist Choke, **EFI** - Electronic Fuel Injection, **FCO** - Fuel Cut Off, **ISS** - Idle Stop Solenoid, **MCV** - Mixture Control Valve, **MFI** - Mechanical Fuel Injection, **SCS** - Speed Controlled Spark, **TCS** Transmission Controlled Spark, **TO** - Thermal Override, **TPV** - Throttle Poppet Valve, **TP** - Throttle Positioner, **VR** - Vaccum Retard.
② — Engine under 50 cubic inches, no exhaust emission control required.
③ — Dashpot is used only on dual carburetor models with manual transmission.
④ — Exhaust emission control accomplished by internal engine modifications.

1969 EMISSION CONTROL SYSTEMS				
Mfg. & Model	PCV	A.I.R.	TAC	Engine Modifications ①
Alfa Romeo	X	---	---	MFI
Austin America	X	X	---	-----
Austin-Healey Sprite	X	X	---	-----
BMW	X	X	---	-----
Citroen	X	X	---	-----
Cortina	X	X	---	-----
Datsun				
Pickup	X	---	---	FCO
Patrol	X	---	---	DDV
All Other Models	X	X	---	-----
Fiat				
850 ②	X	---	---	-----
124	X	---	---	TP
Jaguar	X	---	---	DMS
Lotus	X	---	---	DMS
Mercedes-Benz				
220 Models	X	---	---	TP, VR, TO
Fuel Inj. Models	X	---	---	MFI
All Other Models	X	X	---	-----
MG	X	X	---	-----
Opel	X	X	---	-----
Peugeot	X	---	---	TP
Porsche				
912 Models	X	---	---	TP, VR
911 T Models	X	---	---	TP
900 E & S Models	X	---	---	MFI