

The following is provided to assist customers with specification writing for high engine idlers, lift interlocks, reverse assistance systems, transmission controllers, and other vehicle control devices.

### Anti-Idle Systems

- 1) The anti-idle (stop / start) system shall automatically turn off the engine when specific safety conditions are met (i.e. vehicle in Park, VSS = 0 mph, vehicle has idled for more than "x" seconds, etc...) and automatically restart the engine when the service brake is depressed or another condition has been reached (i.e. low battery voltage, A/C commanded "On", etc...).

The system shall be an InterMotive Eco-Star system (e.g. ECO501-A)

- 2) The anti-idle system shall automatically shut off the engine based on a programmable timer when all safety conditions are met.

The system shall be an InterMotive Idle Timer Controller (e.g. ITC520-A1)

### Engine High Idle

The fast idle shall activate automatically when the vehicle is in Park, the vehicle is not moving, and any of the following events occurs – A/C is turned on, battery voltage drops below 12V, a ground input is provided, or the Engine Coolant Temperature and Air Intake Temperature are below threshold values for diesel applications. The system shall not require Park Brake to be set to activate high idle.

Features shall include a solid state microprocessor that is a "Plug & Play" connection to the chassis. The system may have an LED sub-system display panel with a manual activation button, capable of self-diagnosis.

The system shall be an InterMotive Gateway<sup>AI</sup> or AFIS III system (e.g. GTWY505, AFIS420VSX-B).

### Interlock (wheelchair lift)

The system must be capable of locking the OEM shift lock in Park when either the Park Brake is set or the wheelchair lift door is open (both conditions must be met to allow lift operation) and be "plug & play" to the chassis. A sub-system LED panel must be provided. The interlock must meet FMVSS 403/404 and ADA requirements.

The system shall be a Gateway, HighLock or ILIS system fast idle system (e.g. GTWY505, HL510-B, or ILIS510-A).

### Interlock (safety, non-wheelchair lift)

When either the Park Brake or some other activation switch is engaged, the vehicle's shift lock is engaged so that the vehicle cannot be shifted out of Park unless the Park Brake or a switch is released. The connections shall be "plug & play" to the chassis.

The system shall be an InterMotive Work Truck Shift Interlock (e.g. WTSI501-A).

### Multiplex System

The multiplex system shall consist of a common control network that utilizes twisted-pair wires, provides diagnostic capabilities and real-time chassis data when used with an InterMotive GatewayAI system. It must be able to communicate with the chassis and use that data as a condition set for load activation.

The system shall be an InterMotive Merlin Multiplex System.

### Powertrain Monitor System

The powertrain monitor will automatically turn off the engine, once the vehicle is placed in Park and certain safety conditions are exceeded, in order to reduce/prevent damage to the Powertrain and/or to support a fire suppression system. An audible alarm will be provided to warn the driver that the vehicle needs to be brought to a stop.

The conditions to be monitored via CAN include cylinder head temperature, oil pressure, and transmission fluid temperature. The system shall be capable of providing a trigger to initiate a fire suppression system and shall not turn off power steering or power brakes.

The system shall be an InterMotive Engine Monitor & Shutdown System (e.g. EMS501-A).

### Reverse Assistance System

The reverse assistance system shall be an ultra-sonic warning device that automatically activates when the vehicle is shifted into reverse. The system shall consist of at least 4 (four) in-bumper mounted sensors and an LED panel in the vehicle's cab that provide both an audible (beep tones) and visual (LED read-out) warning that defines the distance and location of an object behind the vehicle when the vehicle is being operated in reverse. System connectors must be "Plug & Play".

The system shall be an InterMotive HawkEye *Plus* Reverse Assistance System (e.g. HRASP) for steel or plastic bumpers or HELP GARD® (for the Romeo RIM HELP® bumper).

### Seat Belt Monitor

The system must register when a seat is occupied and the seat belt is fastened (in that order). If the seat is occupied and the seat belt is not fastened, then the system must provide a warning to the driver via an LED display panel. The system may also include a data recorder and should provide for high visibility seat belts when required. The system should meet NFPA specification if required.

The system shall be an InterMotive Seat Belt Monitor (e.g. NFPA501-A).

### Road Speed Limiter

The road speed limiter shall be a field programmable, micro-processor controlled system that limits maximum vehicle speed but not engine output below the requested vehicle speed setting. The system should also utilize a dynamic load response function to adjust for varying road terrains (i.e. grades).

The system shall be an InterMotive Speed Sentinel II (e.g. SS501).

### Transmission Controller

The transmission controller shall be a fully automatic unit that disengages the overdrive gear or engages "Tow Haul" mode of an automatic transmission for a Ford or GM chassis. For the OD cancel version (DuraTrans) the system must allow for programming of engagement and disengagement for overdrive feature based on vehicle speed. The system shall have "Plug & Play" connections to the chassis.

The system shall be an InterMotive Gateway with BrakeMax (e.g. GTWY505-B) or Gateway with DuraTrans (e.g. GTWY505-T).

### Park Crank Only Module

The controller must prevent the engine from starting when the transmission is in any gear other than Park. The controller shall be a fully automatic unit. The system shall be an InterMotive PCOM501.

Please contact InterMotive, Inc. if more information is needed on any of these products.