



BOSCH

April 22, 2019

Clerk of the Board
California Air Resources Board
1001 I St.
Sacramento, CA
95814

Robert Bosch LLC
2030 Alameda Padre Serra
Santa Barbara, CA 93103
Telephone +1 805 880-9154
Fax +1 805 899-9059
Bernie.Carr@us.bosch.com
www.bosch.us

Subject: Notice of Public Hearing To Consider Proposed Amendments to the Red Sticker Program for Off-Highway Recreational Vehicles

Reference:

1. California ARB document: STAFF REPORT: INITIAL STATEMENT OF REASONS, dated March 5, 2019,
 - a. Section C, OVERVIEW OF PROPOSED AMENDMENTS, Table I-3, pages 10 and
 - b. Sub-Section 1. Exhaust Emissions Controls in California Emissions Compliant OHMCs, page 50
2. California ARB document: Appendix A, Proposed Regulation Order, Off-Highway Recreational Vehicles: Exhaust Emission Control, Title 13, California Code of Regulations, Section § 2412. Emission Standards and Test Procedures – New Off-Highway Recreational Vehicles and Engines, page 6

Dear Air Resources Board Members,

As proposed in California ARB documents cited in Reference above, it is shown that accomplishing the task to meet proposed tailpipe emission standards for OHRV (OHMC, ATV, UTV, etc.) may require use of electronic control unit(s) (ECU) with sensors and actuators.

As a means to meet ARB proposed tailpipe emission requirements for spark ignited engines, it could be the case that industry will have to employ use of such an ECU control system, which likely will include some level of On-Board Diagnostic (OBD) function. Further, for a ZEV design basis which may include an electric motor plus sensors and actuators, the use of ECU control system is considered an equally important component for a vehicle in the OHRV category.

A main point here is that to return an OHRV with an emission problem to healthy status where its function is back to certification level, some level of system diagnosis may be required.



Multiple questions come to the surface which are presented for staff review and consideration:

1. What is the strategy for in-vehicle OBD test and certification?
2. What is the strategy for in-vehicle diagnostic functionality?
3. For use by external test equipment, will a standardized data link connector (DLC) be included?
4. For use by external test equipment, will a standardized serial communication link (e.g. CAN bus) be included?
5. For use by external test equipment, will standardized diagnostic trouble code (DTC) definitions (reported by the in-vehicle ECU, DTCs provide insight to a system failure) be included?
6. For use by external test equipment, will standardized diagnostic data parameters (that describe machine informative details (e.g. VIN) or operation (e.g. engine speed) be included?
7. For use by external test equipment, will standardized output control functions (that enable technician diagnosis of key output actuators such as evaporative vent solenoid, fuel injector) be included?
8. What is the fiscal impact to industry for adding ECU control system hardware and software to its product line?

Yours sincerely,

Bernie Carr
Senior Product Development Manager
Bosch Automotive Service Solutions