

Transitioning I/M Workgroup

Recommended Guidance for Remote OBD

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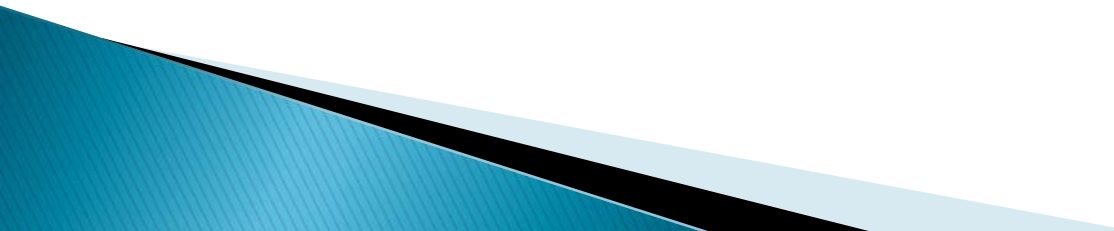
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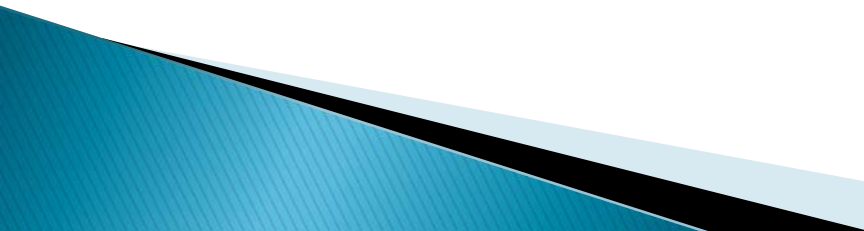
Remote OBD I/M

- ▶ OBD allows for quick and easy I/M testing
- ▶ Use of telematics makes it even easier and less expensive
 - Telematics device wirelessly transmits status of OBD system on a “continuous” basis
 - Can be done in lieu of periodic testing
 - Greater emission reductions can be derived by continuously monitoring and repairing vehicles when they break instead of once every year or two
 - Substantial savings in convenience costs and test costs
- ▶ Several states are piloting Remote OBD programs
 - Thus, a standard was needed to help states and industry specify the design and deployment of Remote OBD

Connected Vehicle Technologies

- ▶ Remote OBD Pilot Studies
 - ▶ ITS – IntelliDrive (DOT – FHWA)
 - ▶ Pay As You Drive (PAYD)
 - ▶ Pay How You Drive (PHYD)
 - ▶ Virtual Tollways
 - ▶ Asset Management
 - ▶ Heavy-Duty Vehicle Interface (J-BUS)
 - ▶ Consumer Applications
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What The Guidance Covers

- ▶ General Design Requirements
 - ▶ Repair / Retest Considerations
 - ▶ Record Structure and Format
 - ▶ Security and Tamper Protection
 - ▶ Data Capture
 - ▶ Compliance Monitoring and Auditing
 - ▶ Communication Protocols
 - ▶ Acceptance Criteria
 - ▶ Administrative Reporting
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General Design Requirements

- ▶ Minimum standard for network design
 - 80% of vehicles in the Remote OBD program communicate at least once every 2 weeks
 - 20% communicate at least once per month
- ▶ Enrollment Requirements
 - Envisioned as primarily voluntary
 - Sign up and agree to:
 - Be seen in the operating area
 - Get repairs when the light comes on
 - Abide by the terms of the program (e.g., no tampering with the device)

Data Capture

- ▶ Key events that must be logged with date and time
 - Change of MIL status
 - Change of status of any monitor
 - Change of fingerprint data
 - Remote OBD link disconnected
 - Other anomalous conditions
- ▶ Such events generally require some action

Repair and Retest Considerations

- ▶ System must be able to:
 - Identify when the MIL is commanded on
 - Notify participants that repairs are required
 - Continue checking for vehicles that have been flagged as needing repair to determine if MIL is off and all supported monitors are ready
 - Identify when Diagnostic Trouble Codes have been resolved
 - Identify when a vehicle has one or more monitors persistently not ready
 - May indicate a problem with the OBD system and should prompt notification and repair
 - Eliminates the need to allow vehicles to be tested with unready monitors

Compliance Monitoring and Auditing

- ▶ Ensuring owners take appropriate action when certain events occur
- ▶ Preventing fraud
- ▶ Verifying adequate network coverage
- ▶ Verifying program effectiveness
- ▶ Quantifying benefits of the program
- ▶ Taking corrective action for shortcomings and inappropriate activities

Conditions Requiring Motorist Notification

Condition	Requirements for Correction	Initial Notification		Second Notification		Final Notification	
		Action	Timing	Action	Timing	Action	Timing
Presence of anomalous data	Physical inspection of vehicle	Owner notified of need for inspection or vehicle will be dropped if not inspected in 14 days.	Immediate	Owner notified of need for inspection or vehicle will be dropped if not inspected in 7 days.	7 days from initial notification	Owner notified they are dropped from the program and report for inspection	14 days from initial notification
MIL On	MIL Off Monitor readiness achieved (all supported monitors reporting ready)	Notice sent to motorist stating that diagnosis and repair of fault is needed	Whenever MIL is commanded on	Notice sent to motorist indicating continued need for action or if fingerprint changed, need for inspection	30 days from initial notification or immediately on fingerprint change	Notice sent to motorist indicating vehicle is dropped from program and to report for inspection within 15 days	15 days from second notification
Lack of Vehicle Reporting	Valid record needs to be received from vehicle	Notice sent to motorist. Include instructions on how to get reporting to occur and how to contact program administrator if vehicle is not in use or out of the area.	After 14 consecutive days without received record	Notice sent to motorist indicating continued lack of reporting data without valid explanation	30 days from initial	Notice sent to motorist indicating that registration will not be renewed until vehicle is physically inspected.	60 days from second notification
Failure to achieve readiness	Monitor readiness achieved (all supported monitors reporting ready)	Notice sent to motorist. Information on how to increase chances of monitor operation included	Adequate readiness not seen over last 10 days	Notice sent to motorist suggesting that vehicle should be examined by technician	20 days from initial	Notice sent to motorist indicating that vehicle will be dropped from program if no readiness in 21 days	30 days from second notification

Technical Specifications

- ▶ Record Structure and Format
 - Specifies structure and format of data to be captured and transmitted by the Remote OBD link
 - XML Schema provided
- ▶ Security and Tamper Protection
 - Code Clearing
 - Clean Scanning
 - Detect Reprogramming in the on-board computer
 - Detect Defeat Devices
 - Tamperproof Devices
- ▶ Communication Protocols
 - Between the Remote OBD link and the Transceiver
 - Between Base Stations and the DMS
- ▶ Acceptance Criteria
- ▶ Administrative Reporting

Questions?