P2BAE - NOx Exceedance - NOx Control Monitoring System.

Following DTC are the Probable cause for **P2BAE.**

DTC	Device
U116F - Lost Communication with Reductant Control Module on Engine Subnet	CAN 2
U0080 - Vehicle Communication Engine Subnet	
U1146 - Lost Communication With ECM on Engine Subnet	
U029D - Lost Communication With NOx Sensor A""	
U0010 - CAN Communication Backbone 1 Net	CAN 1
U0001 - CAN Communication Backbone 2 Net	CAN 3
P2200 - NOx Sensor Bank 1 Sensor 1	Nox Sensor
P2203 - NOx Sensor Circuit High Bank 1 Sensor 1	
P220A - NOx Sensor Supply Voltage Circuit (Bank 1 Sensor 1)	
P220E - NOx Sensor Heater Control Circuit Range/Performance (Bank 1 Sensor 1)	
P225D - NOx Sensor Performance - Signal Stuck Low Bank 1 Sensor 1	
P22FB - NOx Sensor Performance - Sensing Element Bank 1 Sensor 1	
P009A - Engine Air Intake Temperature Correlation	Boost Pressure Sensor
P2226 - Barometric Pressure Circuit	EMS
P2227 - Barometric Pressure Sensor A" Circuit Range/Performance"	
P2229 - Barometric Pressure Circuit High	

1. Please refer respective DTC diagnostic sheet for trouble shooting.
2. After rectifying root cause DTC **update the EMS** and then follow the **Dynamic Healing procedure**.

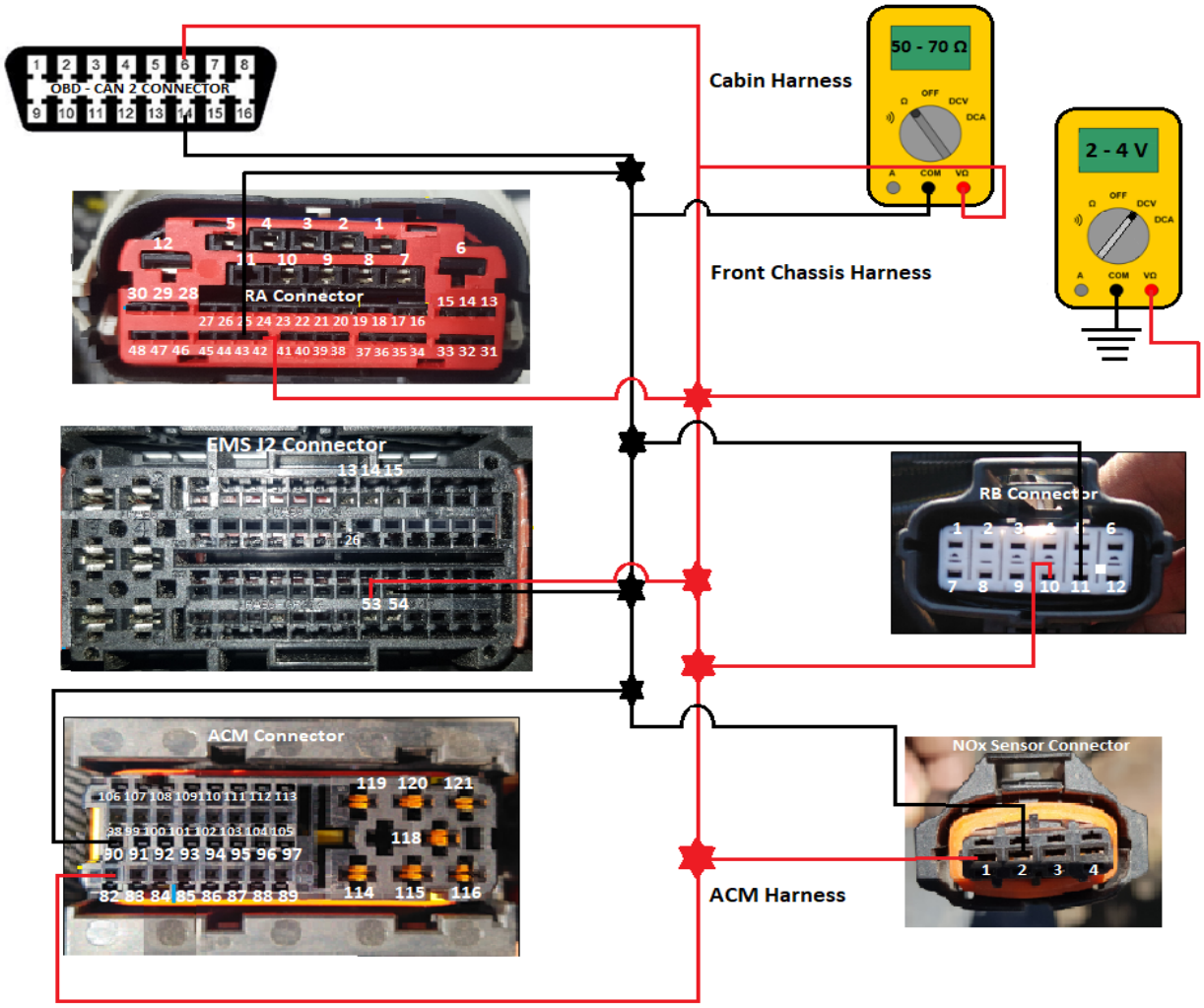
Driving Cycle (Healing) for BSIV vehicle

- Start the engine and increase the coolant temperature more than **70 °C**
- Maintain vehicle the ambient temperature below **25°C**.
- Run the vehicle with the RPM between **1600-1900** constantly in **3rd** & **4th** Gear
- The urea dosing will take place once the exhaust temperature is above **270°C**.
- The amount of urea dosed should be **50-70** grams per Cycle.
- Maintain the torque **350 nm** and above
- MIL lamp will continue to glow and for clearing the MIL lamp we need to continue the same cycle **consecutively 3** times.
- Turn off the vehicle for **30 second**s between the cycles.

Note: - If the driving cycle is not consecutive, MIL will not be deactivated.

3. Even after Consecutive Driving cycle if P2BAE is active and vehicle is out of torque limitation mode replace the EMS.

U0080 – Vehicle Communication Engine Subnet
U116F – Lost Communication with Reductant Control Module on Engine Subnet
U1146 – Lost Communication with ECM on Engine Subnet
U029D – Lost Communication with NOx Sensor A""

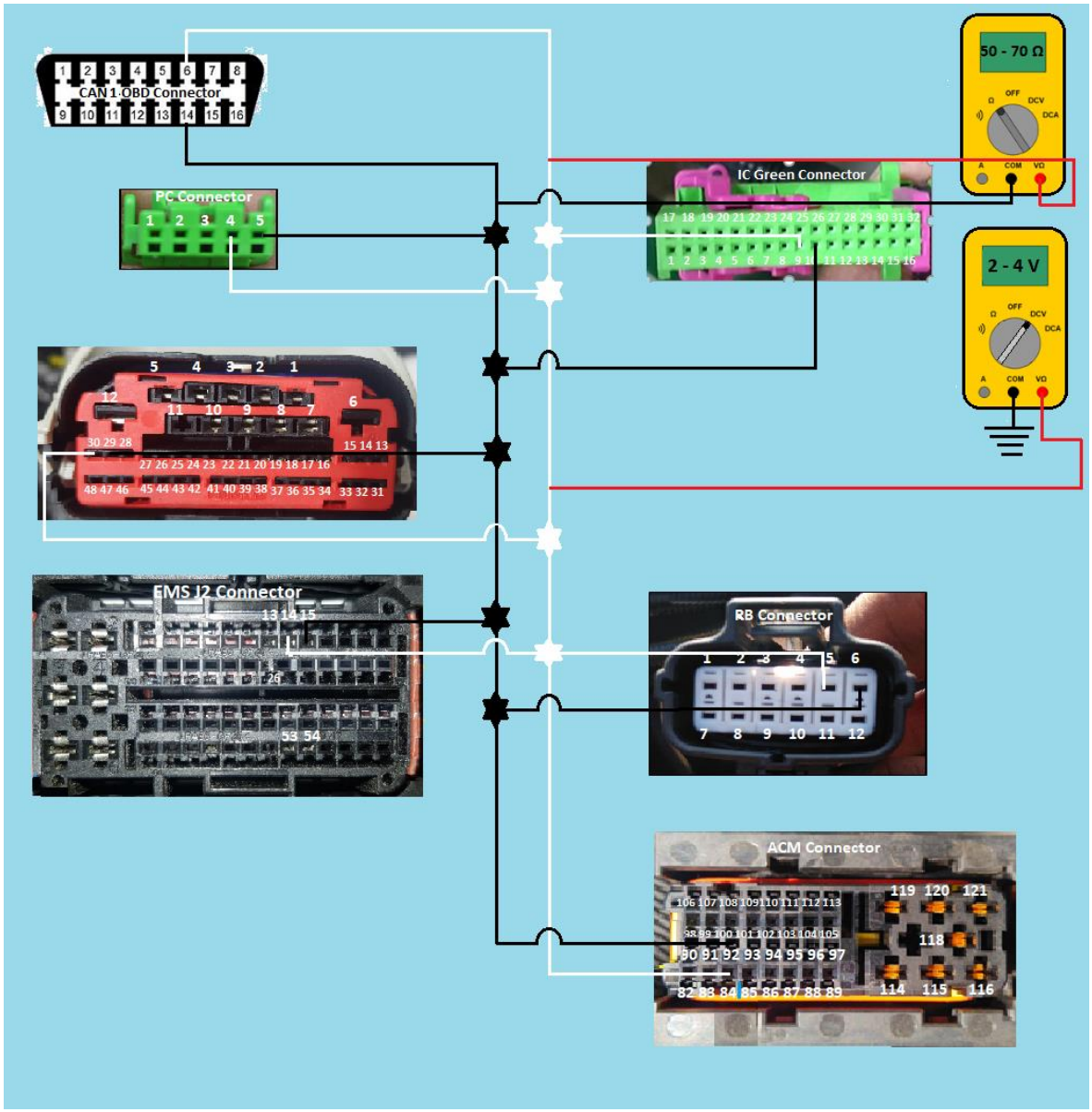


Harness	Cabin	Cabin/Front Chassis	Front Chassis		SCR		
CAN Link	OBD Connector	RA Connector	EMS J2 Connector	RB Connector	ACM Main Connector (A172)	Nox Sensor Connector	Value
CAN 2 H	6	42	53	10	82	1	•))
CAN 2 L	14	43	54	11	90	2	
CAN 2 H	6	42	53	10	82	1	2 - 4 V
CAN 2 L	14	43	54	11	90	2	1- 3 V

OBD Connector	OBD Connector	Value
6	14	50 - 70 Ω

1. Check for resistance in the **CAN 2 OBD** Connector 6th & 14th pin. (**50 – 70 Ohms**)
2. Check continuity between **OBD -6 to RA- 42 |EMS J2- 53|RB – 10 |ACM – 82 |NOx -1**
3. Check continuity between **OBD -14 to RA- 43 |EMS J2- 54|RB – 11 |ACM – 90 |NOx -2**
4. Check voltage between **Gnd** to **RA- 42 |EMS J2- 53|RB – 10 |ACM – 82 | NOx -1 (2 – 4 V)**
5. Check voltage between **Gnd** to **RA- 43 |EMS J2- 54|RB – 11 |ACM – 90 | NOx -2 (1 -3 V)**
6. If continuity and voltage is ok replace the ACM .

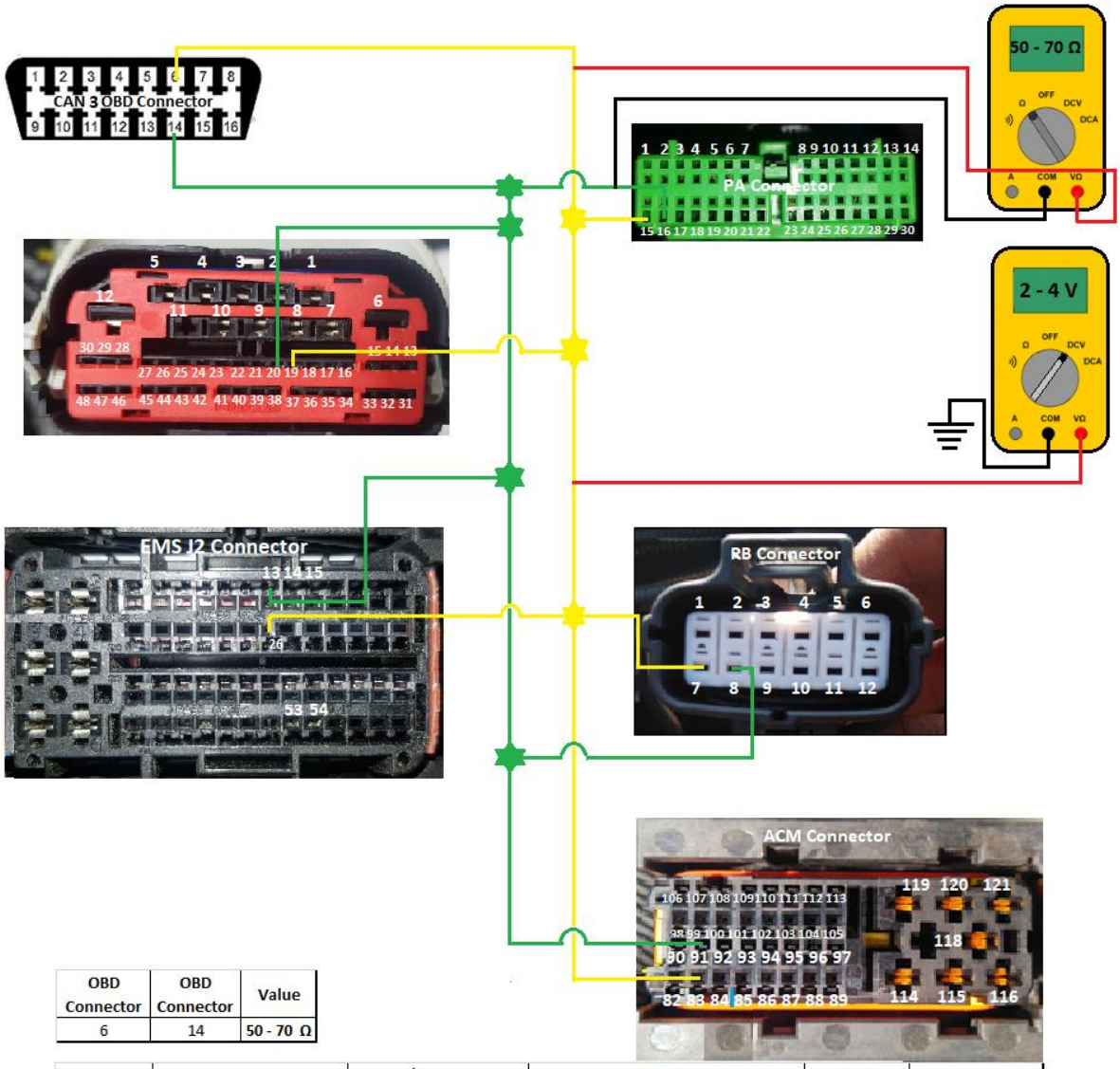
U0010 - CAN Communication Backbone 1 Net



Harness	Cabin			Cabin/Front Chassis	Front Chassis		SCR	
CAN Link	OBD Connector	IECU / PC connector	IC Green connector	RA Connector	EMS J2 Connector	RB Connector	ACM Main Connector (A172)	Value
CAN 1 H	6	4	9	30	14	5	84	
CAN 1 L	14	5	10	29	15	6	92	
CAN 1 H	6	4	9	30	14	5	84	2 - 4 V
CAN 1 L	14	5	10	29	15	6	92	1- 3 V

1. Check for resistance in the **CAN 1 OBD** Connector 6th & 14th pin. (**50 – 70 Ohms**)
2. Check continuity between **OBD -6 to PC- 4 |IC- 9|RA – 30|EMS J2- 14|RB – 5 |ACM – 84.**
3. Check continuity between **OBD -14 to PC- 5 |IC- 10|RA – 29|EMS J2- 15|RB – 6 |ACM –92.**
4. Check voltage between **Gnd** to **PC- 4 |IC- 9|RA – 30|EMS J2- 14|RB – 5 |ACM – 84 (2 – 4 V)**
5. Check voltage between **Gnd** to **PC- 5 |IC- 10|RA – 29|EMS J2- 15|RB – 6 |ACM –92 (1 -3 V)**
6. If continuity and voltage is ok replace the **EMS**.

U0001 - CAN Communication Backbone 2 Net



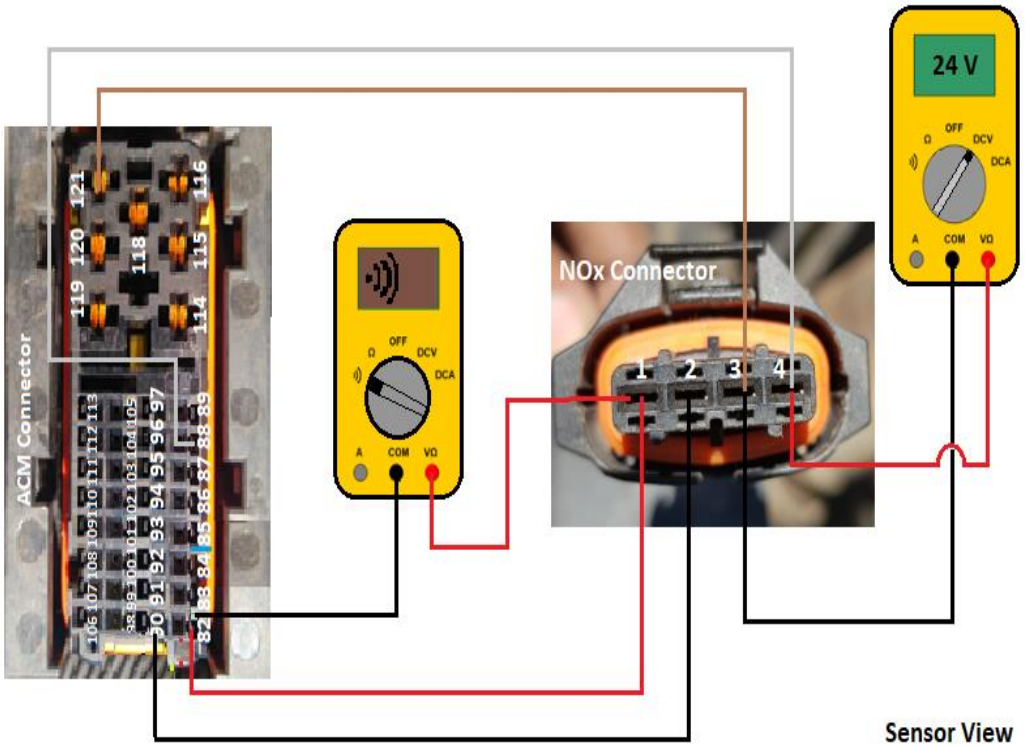
OBD Connector	OBD Connector	Value
6	14	50 - 70 Ω

Harness	Cabin		Cabin/Front Chassis	Front Chassis		SCR	Value
CAN Link	OBD Connector	IECU / PA connector	RA Connector	EMS J2 Connector	RB Connector	ACM Main Connector (A172)	
CAN 3 H	6	15	19	26	7	83	
CAN 3 L	14	16	20	13	8	91	
CAN 3 H	6	15	19	26	7	83	2 - 4 V
CAN 3 L	14	16	20	13	8	91	1- 3 V

1. Check for resistance in the **CAN 3 OBD** Connector 6th & 14th pin. (**50 – 70 Ohms**)
2. Check continuity between **OBD -6 to PA- 15 |RA – 19|EMS J2- 26|RB – 7 |ACM – 83.**
3. Check continuity between **OBD -14 to PA- 16|RA – 20|EMS J2- 13|RB – 8 |ACM –91.**
4. Check voltage between **Gnd** to **PA- 15 |RA – 19|EMS J2- 26|RB – 7 |ACM – 83 (2 – 4 V)**
5. Check voltage between **Gnd 14 to PA- 16|RA – 20|EMS J2- 13|RB – 8 |ACM –91 (1 -3 V)**
6. If continuity and voltage is ok replace the **EMS|IECU**

P2200 - NOx Sensor Bank 1 Sensor 1
P2203 - NOx Sensor Circuit High Bank 1 Sensor 1
P220A - NOx Sensor Supply Voltage Circuit (Bank 1 Sensor 1)
P220E - NOx Sensor Heater Control Circuit Range /Performance (Bank 1 Sensor 1)
P225D - NOx Sensor Performance - Signal Stuck Low Bank 1 Sensor 1
P22FB - NOx Sensor Performance - Sensing Element Bank 1 Sensor 1

1. Check loose connection of sensor connector.
2. Check the continuity between **ACM to NOx** sensor.
3. Check resistance between NOx Sensor Pin 1 & Pin 2 (**50 – 70 Ω**)
4. Check voltage between Gnd and NOx Sensor connector



ACM Connector (A172)	NOx Sensor Connector	Value
82	1	•))
90	2	
121	3	
88	4	

NOx Sensor Connector	NOx Sensor Connector	Value
3	1	2 - 4 V
3	2	1 - 3 V
3	4	24 V

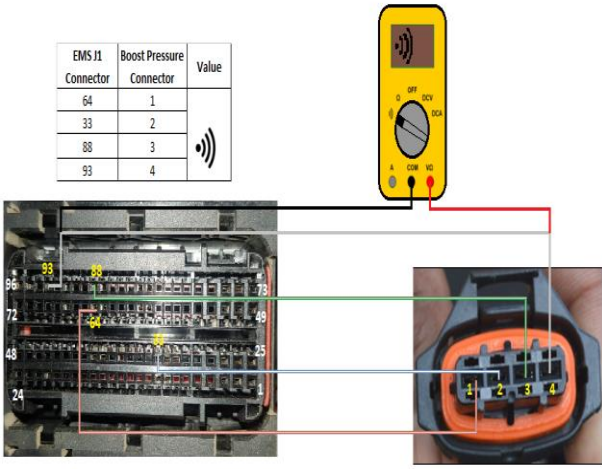
Sensor View

5. If Continuity not there replace Harness.
6. If resistance & Voltage are not in range replace Nox Sensor **.**

P009A - Engine Air Intake Temperature – Correlation

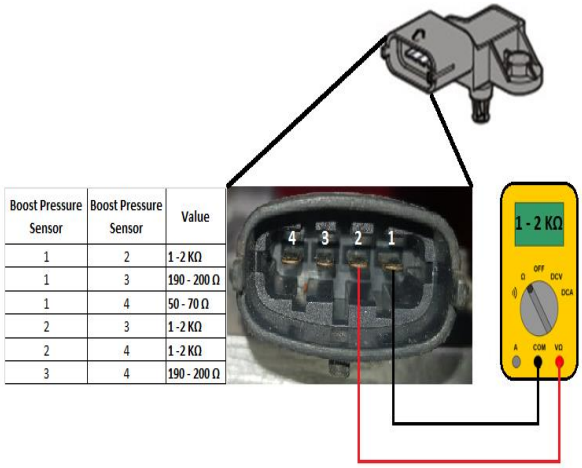
1. Check that the connectors are properly connected and locked into position.
2. Disconnect and check the component connector.
3. Inspect pins and terminals for **oxidations or corrosion**.
4. Check for ideal Boost pressure in Tech Tool (**~ 94 – 102 kpa**)
5. Check for Continuity between **EMS J2 Connector & Boost Pressure Sensor Connector.**

EMS J1 Connector	Boost Pressure Connector	Value
64	1	
33	2	
88	3	
93	4	



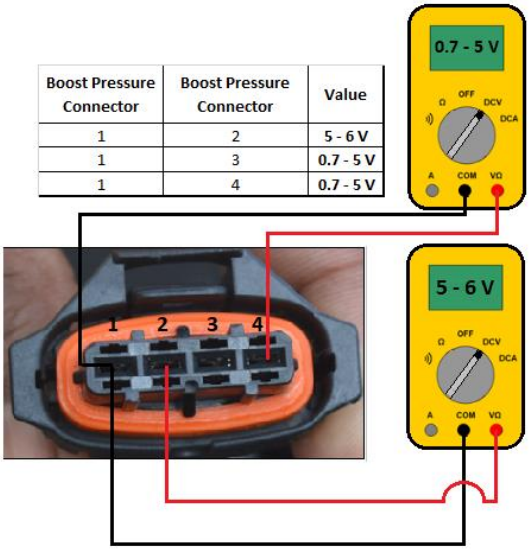
6. Check resistance at Boost Pressure sensor pin

Boost Pressure Sensor	Boost Pressure Sensor	Value
1	2	1 - 2 KΩ
1	3	190 - 200 Ω
1	4	50 - 70 Ω
2	3	1 - 2 KΩ
2	4	1 - 2 KΩ
3	4	190 - 200 Ω



7. If values are not in range replace **Boost Pressure Sensor**.
8. Check for voltage at Boost pressure connector

Boost Pressure Connector	Boost Pressure Connector	Value
1	2	5 - 6 V
1	3	0.7 - 5 V
1	4	0.7 - 5 V



9. If voltage value is not in range go for **EMS replacement**.

P2226 - Barometric Pressure Circuit
P2227 - Barometric Pressure Sensor A" Circuit Range/Performance"
P2229 - Barometric Pressure Circuit High

1. Check that the EMS connectors are properly connected and locked into position.
2. Disconnect and check the EMS component connector.
3. Barometric Sensor in –built in EMS.
4. If it ok, **Replace EMS**.