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Safety Precautions

To avoid body hurt and damage to the device or your car, please read this manual carefully before using U600.

The general testing process described in this manual is got by technologist of experience. Safety precaution is required in most of the process to avoid body hurt and damage to the device or your car. Prior to your using this device, please read vehicle maintenance code and follow the safety precautions. Keep mention to the following general safety precautions.

- It generates CO and other poisonous air when engine run. To avoid this kind of hurt, please repair the car in a well-air-ventilated location.
- To protect your eyes from the damage of the exposed objects, hot and harmful liquid, please wear good eye-protection tools.
- When an engine is running, many parts (such as the coolant fan, pulleys, fan belt etc.) turn at high speed. To avoid serious injury, always be aware of moving parts. Keep a safe distance from these parts as well as other potentially moving objects.
- Engine parts become very hot when the engine is running. To prevent severe burns, avoid contact with hot engine parts.
- Before starting an engine for testing or trouble-shooting, make sure the parking brake is engaged. Put the transmission in park (for automatic transmission) or neutral (for manual transmission). Block the drive wheels with suitable blocks.
- Connecting or disconnecting test equipment when the ignition is ON can damage test equipment and the vehicle's electronic components. Turn the ignition OFF before connecting the U600 to or disconnecting the U600 from the vehicle's Data Link Connector (DLC).
- To prevent damage to the on-board computer when taking vehicle electronic measurements, please always use a digital multimeter with at least 10meg Ohms of impedance.
- Fuel and battery vapors are highly flammable. To prevent an explosion, keep all sparks, heated items and open flames away from the battery and fuel / fuel vapors. DO NOT SMOKE NEAR THE VEHICLE DURING TESTING.
- Don't wear loose clothing or jewelry when working on an engine. Loose clothing can become caught in the fan, pulleys, belts, etc.

Jewelry is highly conductive, and can cause a severe burn if it makes contact between a power source and ground.

About U600

1. Function

U600 has powerful function, mainly included the following two.

1．**VW/AUDI/SKODA/SEAT**.

   Support all VW,AUDI, SKODA,and SEAT. It matches all the functions of VAG1551/1552.

2. **CAN OBDII**.

   It Works on all 1996 and newer cars & light trucks that are OBD II compliant (including the VPW, PWM, ISO, KWP 2000 and CAN protocols)

   - Reads and clears generic and manufacturer specific Diagnostic Trouble Codes (DTCs)
   - Reading Freeze Frame Data
   - Testing I/M Reading Status
   - Reading vehicle info
   - Oxygen sensor test
   - Model 6 test

2. Main features

   - **Display-**Backlit LCD,128*64 pixel display.
   - **Operating Temperature**- 0 to 50℃ (﹣32 to 122℉)
   - **External Power:** 10.0 to 15.5 vols provided via vehicle battery
   - **Dimensions:**

195mm Length(7.76")   81mm Width(3.16")   32mm Height(1.27")
OBDII connector , 1500mm(59.99")

3. Appearance and Key Descriptions

The appearance of a U600 is as shown in the above figure.
1. LCD screen: 128*64
2. Enter key: confirm selection and enter
3. Esc key: go back to the previous screens
4. up/down arrows: moves the selection pointer and scrolls up or down
5. LEFT/RIGHT arrows: move cursor.
6. Power button
7. Diagnostic extension cable: OBDII -16PIN

Operation Instructions

1. Preparation for Testing

U600 aids in monitoring electronic and emissions-related faults in your vehicle and retrieving fault codes related to malfunctions in these systems. Mechanical problems such as low oil level or damaged hoses, wiring or electrical connectors can cause poor engine performance and may also cause a "false" fault code. Fix any known mechanical problems before performing any test. See your vehicle's service manual or a mechanic for more information.

Check the following areas before starting any test:
- Check the engine oil, power steering fluid, transmission fluid (if applicable), engine coolant and other fluids for proper levels. Top off low fluid levels if needed.
- Make sure the air filter is clean and in good condition. Make sure all air filter ducts are properly connected. Check the air filter ducts for holes, rips or cracks.
- Make sure all engine belts are in good condition. Check for cracked, torn, brittle, loose or missing belts.
- Make sure mechanical linkages to engine sensors (throttle, gearshift position, transmission, etc.) are secure and properly connected. See your vehicle's service manual for locations.
- Check all rubber hoses (radiator) and steel hoses (vacuum/fuel) for leaks, cracks, blockage or other damage. Make sure all hoses are routed and connected properly.
- Make sure all spark plugs are clean and in good condition. Check for damaged, loose, disconnected or missing spark plug wires.
- Make sure the battery terminals are clean and tight. Check for corrosion or broken connections. Check for proper battery and charging system voltages.
- Check all electrical wiring and harnesses for proper connection. Make sure wire insulation is in good condition, and there are no bare wires.
- Make sure the engine is mechanically sound. If needed, perform a compression check, engine vacuum check, timing check (if applicable), etc.

2. Connect the U600

2.1 Turn the ignition on.

2.2 Locate the vehicle's 16-pin Data Link Connector (DLC).

2.3 Connect the U600 cable connector to the vehicle's DLC. Turn on the ignition, Press [power button], The U600 will auto start, the following screen will be displayed.

```
MEMOSCAN
VAG & CAN OBDII
HW: V1.1   SW: 1.0
  UIFTECH   U600
```

```
          U600
> Diagnose
  Contrast
  Lcd Test
  Keypad Test
  About
```

- **[Diagnose]**: diagnose
- **[Contrast]**: Contrast adaptation
- **[Lcd Test]**: Lcd test
- **[Keypad Test]**:Keypad test
- **[About]**:show device version

3. Diagnose

Select [Diagnose] and then press [enter] key. The screen will display the system selection menu as follow:

```
      Select System
> VW/AUDI/SKODA/SEAT
  CAN OBDII
```
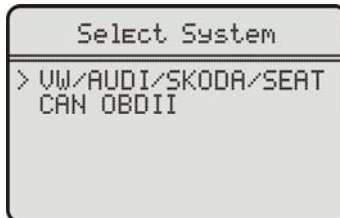
There are two powerful functions. VW/AUDI/SKODA/SEAT and CAN OBDII. About how to operate, see the following.

3-1 VW/AUDI/SKODA/SEAT

Choose VW/AUDI/SKODA/SEAT and it displays as the follow.

```
VW/AUDI/SKODA/SEAT⩔

> Common
  Drivetrain
  Chassis
  Comfort/Conv.
  Electronics 1
  Electronics 2
```
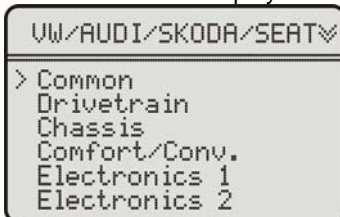
Here system of U600 has been classified into 7 sections, each system of which separates from each other. Take running [**Common**] for example. Click [**Common**] then press [Enter] button. The screen will show the systems that most of the cars share. It displays as the follow.

```
     Common        ⩔

> 01-Engine
  02-Auto Trans
  03-ABS Brakes
  08-Auto HVAC
  09-Cent. Elect.
  15-AirBags
```
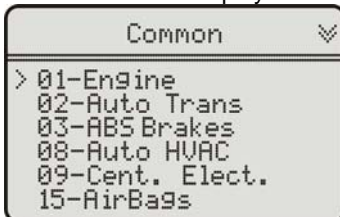
Now we can choose any one system. For example, to choose [01-Engine], then press Enter] key. The screen will display the follow.

```
     01-Engine


     Connecting...

[▮▮▮▮▮▮▮          ]
```
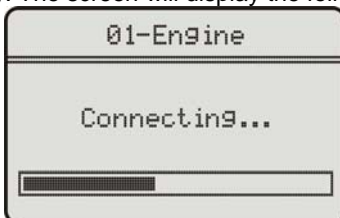
Later on, it will display if succeed.

```
   01-Controller info⩔

>VAG Number:
  03G906021LD
 Component:
  R4 2.0L EDC G000AG
 8514
 Shop0#Imp:790
```
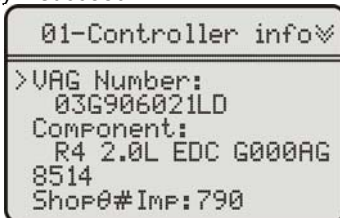
Press [Enter] button or press Esc] button

```
┌──────────────────────────┐
│      Functions        ⩔  │
├──────────────────────────┤
│ > 01-Controller Info     │
│   02-Fault Codes         │
│   05-Clear Codes         │
│   08-Measure BlocKs      │
│   03-Output Tests        │
│   04-Basic Settings      │
└──────────────────────────┘
```
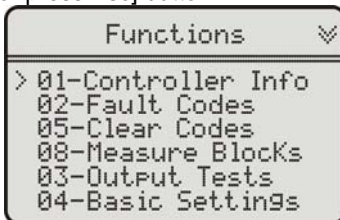
If it fails it displays as the follow.

```
┌──────────────────────────┐
│       01-Engine          │
├──────────────────────────┤
│                          │
│    Failed to connect!    │
│                          │
└──────────────────────────┘
```
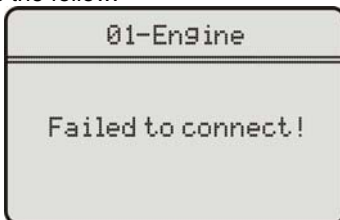
3-1.1 Read ECU version details

Choose [01-Controller Infor] and then press [Enter] button.The screen will show you the version of the tool as the follow.

```
┌──────────────────────────┐
│      Functions        ⩔  │
├──────────────────────────┤
│ > 01-Controller Info     │
│   02-Fault Codes         │
│   05-Clear Codes         │
│   08-Measure BlocKs      │
│   03-Output Tests        │
│   04-Basic Settings      │
└──────────────────────────┘
```
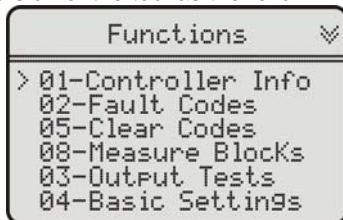
3-1.2 Read fault codes.

Choose [02-Fault Codes] and then press [Enter] button. The screen will show fault codes. Move up or down key to check each fault code as the follow.

```
┌──────────────────────────┐
│    02-Fault Codes     ⩔  │
├──────────────────────────┤
│ >00121          [1/8]    │
│  000 ----                │
│  EGR Valve (N18): Op-    │
│  en Circuit              │
│                          │
└──────────────────────────┘
```
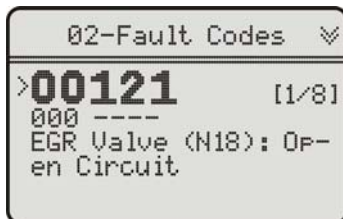
3-1.3 Clear fault code

Choose [05-Clear Codes] then press [Enter] button as the follow.

```
05-Clear Codes

Do you want to erase
all the Fault code(s)?
```
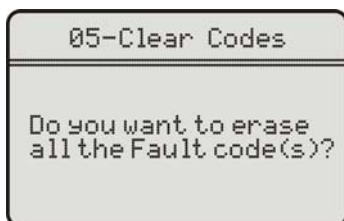
You need to press [Enter] again to clear the fault codes. Meantime you can also press [Esc] button to give up clearing fault codes. It shows as the follow if succeeding in clearing the fault codes.

```
05-Clear Codes

Erasing Fault code(s)
...
```

```
05-Clear Codes

Erase Fault code(s)
successfully!
```
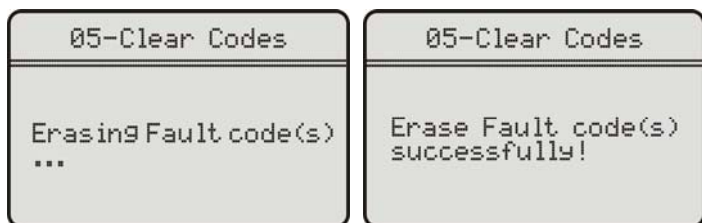
3-1.4 Read testing data value
Choose [08-Measure Blocks] and the press [Enter] button. See the picture.

```
08-Measure Blocks

Input group(0-255)


200
```
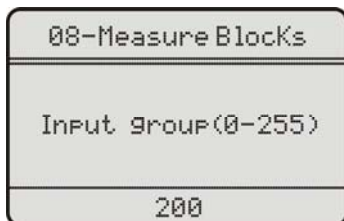
Press left or right key to select the number of place; while press up or down key to input number. Press Enter] to confirm. See the picture.

```
┌─────────────────────────┐
│       Group: 200        │
│ ═══════════════════════ │
│                         │
│      0.00    mg/h       │
│                         │
└─────────────────────────┘
```
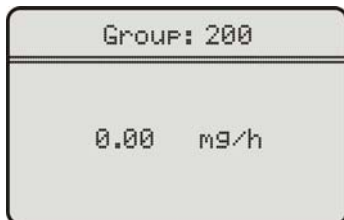
3-1.5 Output testing
Select [03-Output Test] and then press [Enter] key. If this fails, it will show the result as the following picture.

```
┌─────────────────────────┐
│     03-Output Tests     │
│ ═══════════════════════ │
│                         │
│  Function not suppor-   │
│  ted By this ECU!       │
│                         │
└─────────────────────────┘
```
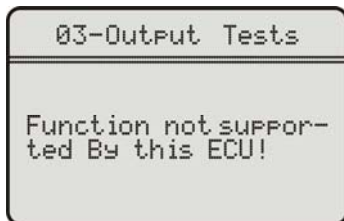
If successful, it will show as the follow.

```
┌─────────────────────────┐
│     03-Output Tests     │
│ ═══════════════════════ │
│                         │
│       Test end!         │
│                         │
└─────────────────────────┘
```
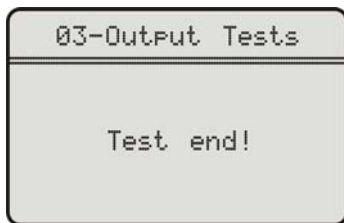
3-1.6 Basic adaptation
Choose [04-Basic Settings] and then press [Enter] button.The operations are similar to these of "3.4 Read Data Value"

3-1.7 Route adaptation
Choose [10-Adaptation] and then press Enter] button.The operations are similar to these of "3.4 Read Data Value"

3-1.8 Coding
Choose [07-Coding] and then press [Enter] button.It shows as the follow.

```
              07-Coding

   Input Software codi-
   ng:

              00000000
```
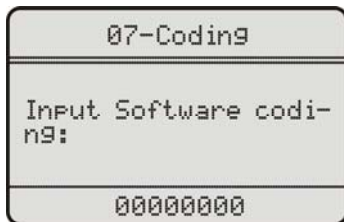
Press left or right key to enter the number of places and press up or down key to input the number. Press [Enter] to confirm.

```
              07-Coding

   Input Equipment Num-
   Ber:

              00000000
```
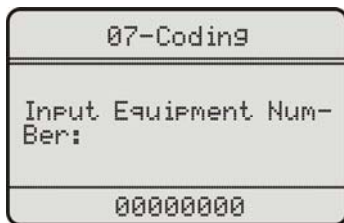
When all finished, press [Enter].If succeeds, it will show as the following.

```
              07-Coding


   Successfully write-
   coding !

```
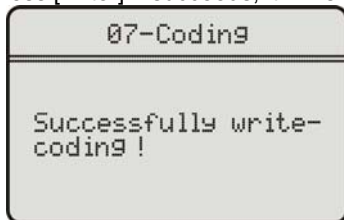
If it fails, it will show as the follow.

```
           03-Output Tests


   Function not suppor-
   ted By this ECU!


```
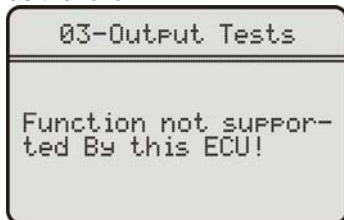
3-1.9 Login the system

Choose [16-Security Access] and then press [Enter] button. It shows the following.

```
16-Security Access


    Input password:


         00000
```

Press left or right button to choose the number of places while press up or down key to input the pass code. After this, press [Enter] button to login. If it succeeds, it will show as the follow.

```
16-Security Access



  Seccessfully login!

```

If it fails, it shows the follow.

```
16-Security Access


  Failed to communica-
  te!

```

3-1.10 Advanced ID

Choose [1A-Advanced ID] and then press [Enter] key. It shows as the follow.

```
1A-Advanced ID  ⌄

>Serial  number:
   SKZ7Z0F3682486
 Identification:
   BPG-810
 Date: 17.05.06
 Revision:--H02---
```

Press [Esc] to login out.

3-1.11 System ready

Choose [15-Readiness] then press [Enter] button. If succeeds, it will shows as the follow.
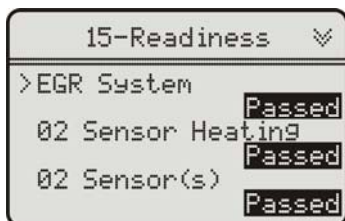
Press [Esc] to login out.

3-1.12 Functions for expert

Return to the main memu, choose [Diagnose] and then press [Enter]. Press right arrow to go to the next page. Choose [Special Function]. Press [Enter]. It will show the following.
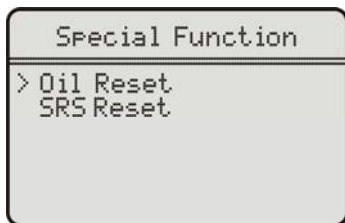
3-1.12-1 Choose [Oil Reset] and then press **[Enter]** key. If failed connecting, it will show as the follow.

If connects successfully, it will show the follow.

```
┌─────────────────────────┐   ┌─────────────────────────┐
│       Oil Reset         │   │       Oil Reset         │
├─────────────────────────┤   ├─────────────────────────┤
│                         │   │                         │
│     Connecting...       │   │  Reading system infor-  │
│                         │   │  rmation...             │
│                         │   │                         │
└─────────────────────────┘   └─────────────────────────┘
```

```
┌─────────────────────────┐
│       Oil Reset         │
├─────────────────────────┤
│                         │
│        Finish           │
│                         │
│                         │
└─────────────────────────┘
```

Press 0[Esc] to login out

3.1-12.2 Press **[Srs Reset]** and then press **[Enter]** key. If it fails connecting, it shows as the follow.

```
┌─────────────────────────┐
│       SRS Reset         │
├─────────────────────────┤
│                         │
│   Failed to connect!    │
│                         │
│                         │
└─────────────────────────┘
```

If it connects successfully, it will read code as ordered before it returns back. If fault codes found, it will show as the follow.

```
┌─────────────────────────┐
│       SRS Reset         │
├─────────────────────────┤
│  Clear DTC first! Do-   │
│  you want to result-    │
│  forcible?              │
│                         │
└─────────────────────────┘
```
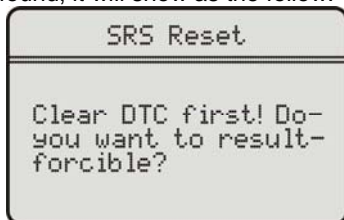
Here press **[Enter]** key. It will force the implement of reset command and

shows the follow when it succeeds.

```
          SRS Reset

          Finish
```

If you don't want to force the implementation of reset command, please press [Esc] to draw out. After finishing code erasing, you can reset airbag.

3-2 Choose CAN OBDII, it shows as the follow

```
          CAN OBDII

          PWM...
      [▮▮▮▮▮▮▮▮        ]
```

It shows as the follow after you login the system successfully.

```
          CAN OBDII
   > 1) Trouble codes
     2) Erase codes
     3) Live Data
     4) Freeze Frame
     5) I/M Status
     6) Vehicle Infor.
```
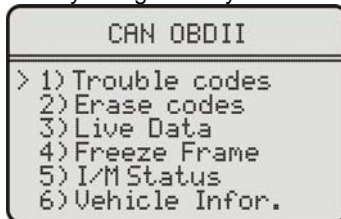
3-2.1 Read codes:

1. the trouble codes function read DTCs from the vehicle's computer modules there tow types of codes, Malfunction Indicator Lamp(MIL) Codes and pending codes

   MIL Codes: These codes cause the computer to illuminate the MIL when an emission related or drive ability fault occurs. The MIL is also known as the "service Engine Soon" or "Check Engine Lamp". MIL codes remain in the vehicle's memory until the fault is repaired.

2. Pending Codes: These codes are also referred as "continuous

monitor" and "maturing codes". An intermittent fault will cause the computer to store a code in memory. If the fault does not occur within 40 warm-up cycles, the code will be cleared from memory. If the fault occurs a   specific number of times, the code will mature into a DTC and the MIL will turn on.

3. Select Trouble codes and press ENTER, The U600 retrives the DTCs stored in the vehicle's computer modules.

```
        CAN OBDII
> 1) Trouble codes
  2) Erase codes
  3) Live Data
  4) Freeze Frame
  5) I/M Status
  6) Vehicle Infor.
```
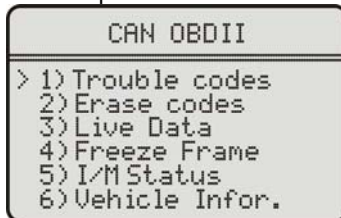
▲ if there are no trouble codes, it will display "No codes in the vehicle!"
▲ If there are any trouble codes, all information will be reported on the display

```
  1) Trouble Codes  ⩖
> 00121        [1/2]

  2-3 Shift Solenoid -
  Circuit High Voltage
```
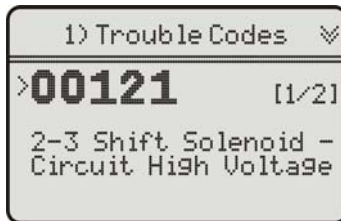
If there are over two fault codes, you can press up or down keys or choose and read one.

```
  1) Trouble Codes  ⩓
> 00121        [2/2]
  Pend
  2-3 Shift Solenoid -
  Circuit High Voltage
```
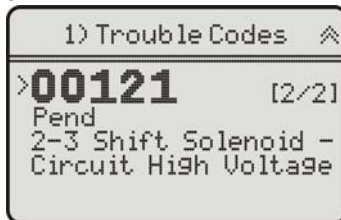
If there is factory original fault codes, you can choose the corresponding

car model as to get the details of the fault code.

```
┌──────────────────────────────┐
│  1) Trouble Codes      ⩘      │
├──────────────────────────────┤
│ >1) GM                       │
│  2) Ford                     │
│  3) Chrysler                 │
│  4) Honda                    │
│  5) Toyota                   │
│  6) Nissan                   │
└──────────────────────────────┘
```
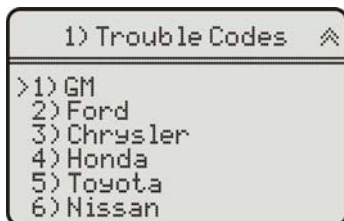
Take the "1)GM" for an example.

```
┌──────────────────────────────┐
│      1) GM             ⩗      │
├──────────────────────────────┤
│ >00121          [1/2]        │
│                              │
│  2-3 Shift Solenoid -        │
│  Circuit High Voltage        │
└──────────────────────────────┘
```
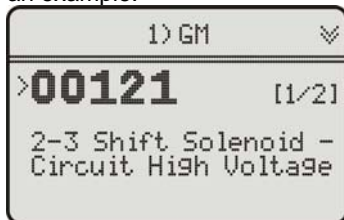
3-2.2 Erase codes

Select Erase Codes and press the ENTER key.

```
┌──────────────────────────────┐
│  Vehicle Diagnosis: ⩗        │
├──────────────────────────────┤
│  1) Trouble codes            │
│ > 2) Erase codes             │
│  3) Live Data                │
│  4) Freeze Frame             │
│  5) I/M Status               │
│  6) Vehicle Infor.           │
└──────────────────────────────┘
```
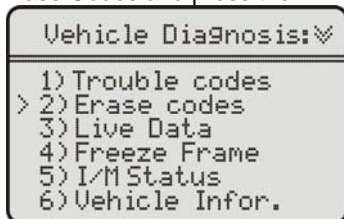
a message appears asking if you are want to erase all the fault codes.

```
┌──────────────────────────────┐
│     2) Erase Codes           │
├──────────────────────────────┤
│                              │
│  Do you want to erase        │
│  all the Fault code(s)?      │
│                              │
└──────────────────────────────┘
```

If you Press ENTER

```
┌──────────────────────────┐   ┌──────────────────────────┐
│    2) Erase Codes        │   │    2) Erase Codes        │
├──────────────────────────┤   ├──────────────────────────┤
│                          │   │                          │
│   Erasing Fault code(s)  │   │   Erase Fault code(s)    │
│   ...                    │   │   successfully!          │
│                          │   │                          │
└──────────────────────────┘   └──────────────────────────┘
```
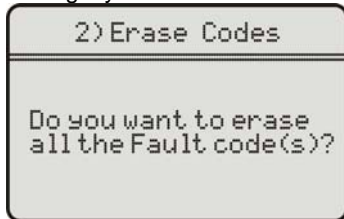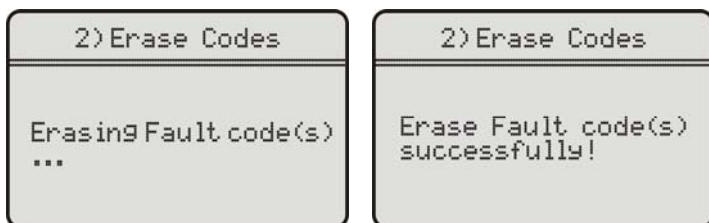
3-2.3 Live data

1. Display the live data,

```
┌──────────────────────────┐
│   Vehicle Diagnosis:⌄     │
├──────────────────────────┤
│   1) Trouble codes       │
│   2) Erase codes         │
│ > 3) Live Data           │
│   4) Freeze Frame        │
│   5) I/M Status          │
│   6) Vehicle Infor.      │
└──────────────────────────┘
```
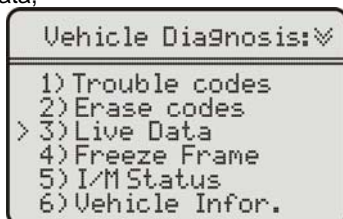
2. All live data are reported on the display

```
┌──────────────────────────┐   ┌──────────────────────────┐
│   3) Live Data      ⌄     │   │   3) Live Data      ⌃⌄   │
├──────────────────────────┤   ├──────────────────────────┤
│ >Fuel Sys1, Fuel Sys2    │   │   VEH SPEED              │
│  OL,drive conditions     │   │                 0 Km/h   │
│  CALC LOAD               │   │   IGN ADV     10.0 (DEG)  │
│                    0%    │   │ > IAT          -40 (DEG)  │
│  COOLANT           -37   │   │   MAF            0 (g/s)  │
└──────────────────────────┘   └──────────────────────────┘
```

```
┌──────────────────────────┐   ┌──────────────────────────┐
│   3) Live Data      ⌃⌄   │   │   3) Live Data      ⌃    │
├──────────────────────────┤   ├──────────────────────────┤
│   SECOND AIR             │   │ > MI Dist. Traveled      │
│         Atmosphere       │   │                     0    │
│   O2S12       0.435 v    │   │   O2S W.R.       B1,S1   │
│ > O2S12        N/A %     │   │                 1.00: 1  │
│   OBD2 STAT              │   │   O2S W.R.       B1,S1   │
│              EOBD        │   │           351.352 mA     │
└──────────────────────────┘   └──────────────────────────┘
```
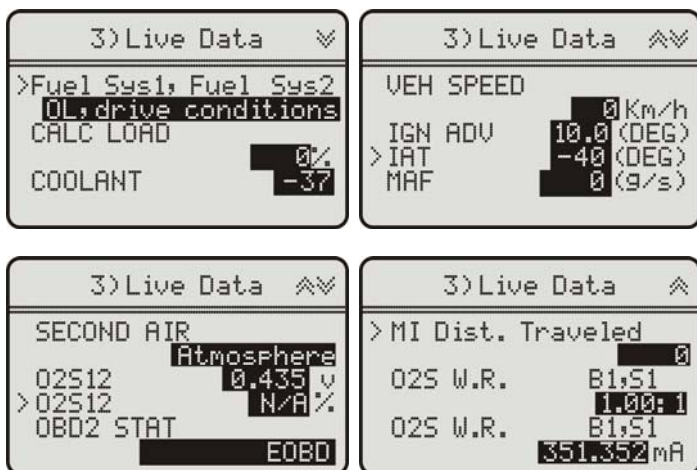
Abbreviated Name for live data specified in Appendix A

3-2.4 Freeze Frame

1. When an emission-related fault occurs, certain vehicle conditions are recorded by the on-board computer. this information is referred to as a freeze.

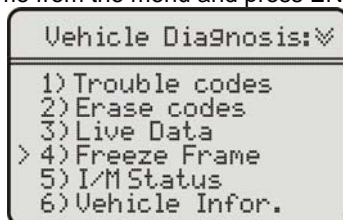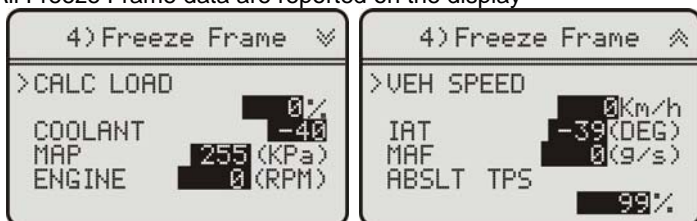Frame data. this data can be overwritten by faults with a higher priority.
2. If codes were erased, the freeze frame data may not be stored in
   vehicle memory.
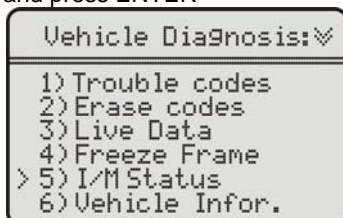   Select Freeze Frame from the menu and press ENTER

```
┌─────────────────────────────┐
│   Vehicle Diagnosis:⌄        │
├─────────────────────────────┤
│   1) Trouble codes          │
│   2) Erase codes            │
│   3) Live Data              │
│ > 4) Freeze Frame           │
│   5) I/M Status             │
│   6) Vehicle Infor.         │
└─────────────────────────────┘
```

3. All Freeze Frame data are reported on the display

```
┌─────────────────────────────┐    ┌─────────────────────────────┐
│   4) Freeze Frame   ⌄       │    │   4) Freeze Frame   ⌃       │
├─────────────────────────────┤    ├─────────────────────────────┤
│ >CALC LOAD                  │    │ >VEH SPEED                  │
│                     0%      │    │                    0Km/h    │
│   COOLANT          -40      │    │   IAT           -39(DEG)    │
│   MAP           255(KPa)    │    │   MAF             0(g/s)    │
│   ENGINE          0(RPM)    │    │   ABSLT TPS                 │
│                             │    │                    99%      │
└─────────────────────────────┘    └─────────────────────────────┘
```
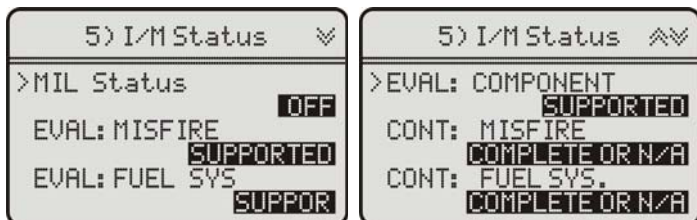
Abbreviated Name for Freeze Frame specified in Appendix A

3-2.5 IM Status
1. Select I/M Status and press ENTER

```
┌─────────────────────────────┐
│   Vehicle Diagnosis:⌄       │
├─────────────────────────────┤
│   1) Trouble codes          │
│   2) Erase codes            │
│   3) Live Data              │
│   4) Freeze Frame           │
│ > 5) I/M Status             │
│   6) Vehicle Infor.         │
└─────────────────────────────┘
```

2. Using the UP/DOWN arrows to view status of the following monitors.

```
┌─────────────────────────────┐    ┌─────────────────────────────┐
│   5) I/M Status     ⌄       │    │   5) I/M Status    ⌃⌄       │
├─────────────────────────────┤    ├─────────────────────────────┤
│ >MIL Status                 │    │ >EVAL: COMPONENT            │
│                   OFF       │    │              SUPPORTED      │
│   EVAL: MISFIRE             │    │   CONT: MISFIRE             │
│           SUPPORTED         │    │        COMPLETE OR N/A      │
│   EVAL: FUEL SYS            │    │   CONT: FUEL SYS.           │
│              SUPPOR         │    │        COMPLETE OR N/A      │
└─────────────────────────────┘    └─────────────────────────────┘
```

```
┌─────────────────────────┐   ┌─────────────────────────┐
│   5) I/M Status   ≋≋    │   │   5) I/M Status   ≋≋    │
├─────────────────────────┤   ├─────────────────────────┤
│ >CONT: COMPNENT         │   │ >SUPP: EVAP.SYS.        │
│      COMPLETE OR N/A    │   │            SUPPORTED    │
│  SUPP: CAT              │   │  SUPP: SEC AIR SYS      │
│      COMPLETE OR N/A    │   │            SUPPORTED    │
│  SUPP: HEATED CAT       │   │  SUPP: A/C REFRIG       │
│      NOT SUPPORTED      │   │         NOT SUPPORTED   │
└─────────────────────────┘   └─────────────────────────┘
```

Abbreviated Name	Expanded Name
-Misfire Monitor	Misfire monitor
-FUEL System Mon	Fuel System Monitor
-Com Component	Comprehensive Components Monitor
-Catalyst Mon	Catalyst Monitor
-Htd Catalyst	Heated Catalyst Monitor
-Evap System Mon	Evaporative System Monitor
-Sec Air System	Secondary Air System Monitor
-A/C Refrig Mon	Air Conditioning Refrigerant Monitor
-OXYGEN Sens Mon	Oxygen Sensor Monitor
Oxygen Sens HTR	Oxygen Heater Sensor Monitor
-EGR System Mon	Exhaust Gas Recirculation System Monitor

3-2.6 Vehicle info
1. Select "Vehicle info" from the main menu, press the "ENTER" button.

```
┌─────────────────────────┐
│   Vehicle Diagnosis:≋   │
├─────────────────────────┤
│  1) Trouble codes       │
│  2) Erase codes         │
│  3) Live Data           │
│  4) Freeze Frame        │
│  5) I/M Status          │
│ > 6) Vehicle Infor.     │
└─────────────────────────┘
```
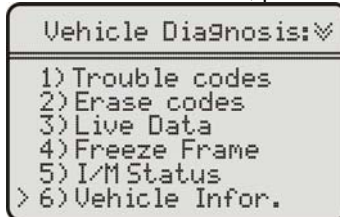
2. Use the SCROLL button to view additional digits of the 17-digit string.
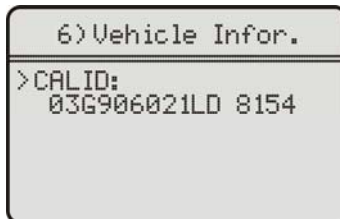
```
┌─────────────────────────┐
│   6) Vehicle Infor.     │
├─────────────────────────┤
│ >CALID:                 │
│   03G906021LD 8154      │
│                         │
│                         │
│                         │
└─────────────────────────┘
```

3. If the vehicle does not support this mode, a message will show " Not supported!"

```
┌─────────────────────────────┐
│     6)Vehicle Infor.         │
│─────────────────────────────│
│                             │
│       Not Support!          │
│                             │
└─────────────────────────────┘
```

3-2.7 Oxygen Sensor
1. Select Oxygen Sensor and press ENTER

```
┌─────────────────────────────┐
│     Vehicle Diagnosis:⌃      │
│─────────────────────────────│
│  > 7)Oxygen Sensor          │
│    8)Model 6 Test           │
│                             │
└─────────────────────────────┘
```
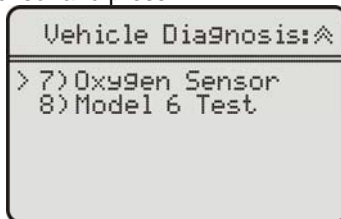
2. If the vehicle support this mode, data reported on the display. You can select **[Oxygen sensor location]**

```
┌─────────────────────────────┐
│     Oxygen Sensor test       │
│─────────────────────────────│
│  > Bank1 Sensor1            │
│    Bank1 Sensor2            │
│                             │
└─────────────────────────────┘
```

If the vehicle does not support this mode, a message will show " Not supported!"

```
┌─────────────────────────────┐
│     7)Oxygen Sensor          │
│─────────────────────────────│
│   Function is not sup-      │
│   ported.                   │
│                             │
└─────────────────────────────┘
```
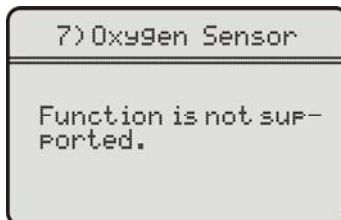
3. Select **[Oxygen sensor test id]**

```
      Bank1 Sensor1

> MinSeVoForTeCy (Cal)

   MaxSeVoForTeCy (Cal)
```
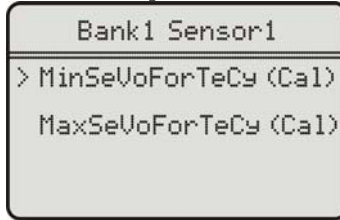
Abbreviated Name	Expanded Name
RichToLeSeThV(Con)	Rich to lean sensor threshold voltage (constant)
LeanToRiSeThV(Con)	Lean to rich sensor threshold voltage (constant)
LowSeVFoSwTiCA(Con)	Low sensor voltage for switch time calculation (constant)
HighSeVoFoSwTiCa(Con)	High sensor voltage for switch time calculation (constant)
RichToLeSwTi(Cal)	Rich to lean sensor switch time (calculated)
LeanToRiSeSwTi(Cal)	Lean to rich sensor switch time (calculated)
MinSeVoForTeCy(Cal)	Minimum sensor voltage for test cycle (calculated)
MaxSeVoForTeCy(Cal)	Maximum sensor voltage for test cycle (calculated)
TimeBeSeTr(Cal)	Time between sensor transitions (calculated)
Sensor period(Cal)	Sensor period (calculated)

4. Display test result.

```
MinSeVoForTeCy (Cal)

Test VAL: 0.3v
Min Limit: 0.0v
Max Limit: 0.0v
```
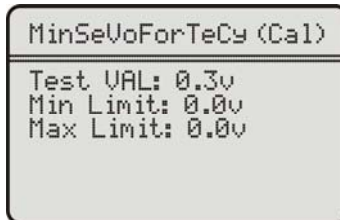
3-2.8 Model 6 Test

The purpose of this service is to allow access to the results for on-board diagnostic monitoring tests of specific components / systems that are continuously monitored (e.g., mis-firemonitoring) and non-continuously monitored (e.g., catalyst system).
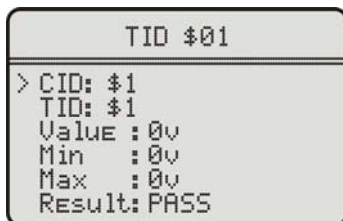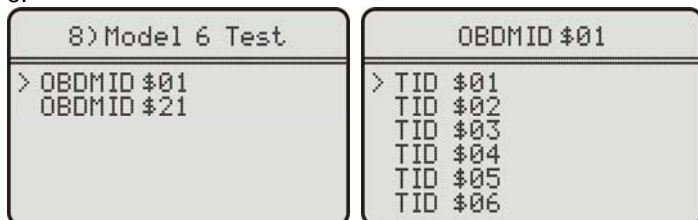
1. Select Model 6 Test and press ENTER

```
Vehicle Diagnosis:⌃

  7)Oxygen Sensor
> 8)Model 6 Test
```
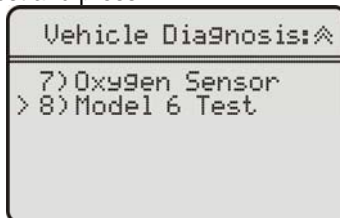
2. If your vehicle applies to ISO 9141-2, SAE J1850, and ISO 14230-4, information will be reported on the display

3.
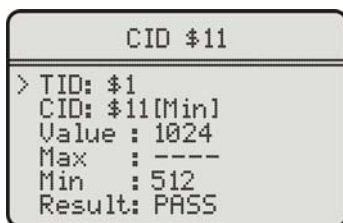
TID specified in Appendix B

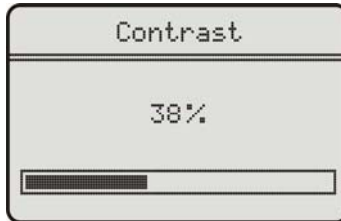4. If your vehicle applies to ISO 15765-4, information will be reported on the display

5.

OBDMID and CID specified in Appendix C.

4. Contrast Adaptation

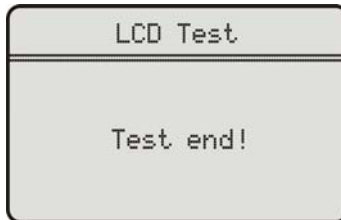Choose [Contrast] at the main memu. Then press [Enter]. The screen will display as the following.

Simply press up/down arrow to set and then press [Enter] to confirm.

5. Lcd test

Choose[Lcd Test] at the main memu, Press Enter],The screen will display the following dynamic image.

When after testing, it will show "Test end!" as what the following shows.

6. Key testing

Choose [Keypad Test] at the main memu. Press [Enter]. The screen will display the following interface.

Press any key then the screen will flash due to corresponding to your cooperation. Double [Esc], you can withdraw from the testing.

7.About

Choose [About] and then press [Enter]. Then screen will display the version of this tool.

8.Location of Data Linking Connection.

Refer to the picture of OBD-II 16pin as the following. For VW GOLF, it locates in the right side of steering column; for Jetta, it locates in the left side of the bottom of the dashboard which is at the driver's ca; for Santana, it locates the dust-proof gearbox which is in the front. For more details, please refer to the vehicle repairing manual.

APPENDIX A
Abbreviated NAME FOR SERVICE $01 AND $02 SCALING AND DEFINITION

Abbreviated Name	Expanded Name
Fuel Sys1, Fuel Sys2	Fuel system 1 status, Fuel system 1 status:
CALC LOAD	Calculated LOAD Value
COOLANT	Engine Coolant Temperature
ST FTRM1	Short Term Fuel Trim - Bank 1
LT FTRM1	Long Term Fuel Trim - Bank 1

ST FTRM2	Short Term Fuel Trim - Bank 2	
LT FTRM2	Long Term Fuel Trim – Bank 2	
FUEL PRES	Fuel Rail Pressure (gauge)	
MAP	Intake Manifold Absolute Pressure	
ENGINE	Engine RPM	
VEH SPEED	Vehicle Speed Sensor	
IGN ADV	Ignition Timing Advance for #1 Cylinder	
IAT	Intake Air Temperature	
MAF	Air Flow Rate from Mass Air Flow Sensor	
ABSLT TPS	Absolute Throttle Position	
SECOND AIR	Commanded Secondary Air Status	
O2S Location	Location of Oxygen Sensors	
O2S11	Bank 1 – Sensor 1	
O2S12	Bank 1 – Sensor 2	
O2S13	Bank 1 – Sensor 3	
O2S14	Bank 1 – Sensor 4	
O2S21	Bank 2 – Sensor 1	
O2S22	Bank 2 – Sensor 2	
O2S23	Bank 2 – Sensor 3	
O2S24	Bank 2 – Sensor 4	
SHRTFT11	Short Term Fuel Trim (Bank 1 – Sensor 1)	
SHRTFT12	Short Term Fuel Trim (Bank 1 – Sensor 2)	
SHRTFT13	Short Term Fuel Trim (Bank 1 – Sensor 3)	
SHRTFT14	Short Term Fuel Trim (Bank 1 – Sensor 4)	
SHRTFT11	Short Term Fuel Trim (Bank 2 – Sensor 1)	
SHRTFT12	Short Term Fuel Trim (Bank 2 – Sensor 2)	
SHRTFT13	Short Term Fuel Trim (Bank 2 – Sensor 3)	
SHRTFT14	Short Term Fuel Trim (Bank 2 – Sensor 4)	
OBD2 STAT	OBD requirements to which vehicle is designed	
PTO STATUS	Power Take Off (PTO) Status	
MI Dist. Traveled	Distance Travelled While MIL is Activated	
O2S W.R.	EQ_RAT11	Bank 1 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S1	Bank 1 – Sensor 1 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT12	Bank 1 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S2	Bank 1 – Sensor 2 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT13	Bank 1 – Sensor 3 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S3	Bank 1 – Sensor 3 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT14	Bank 1 – Sensor 4 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S4	Bank 1 – Sensor 4 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT21	Bank 2 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S1	Bank 2 – Sensor 1 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT22	Bank 2 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S2	Bank 2 – Sensor 2 (wide range O2S) Oxygen Sensor Voltage

O2S W.R.	EQ_RAT23	Bank 2 – Sensor 3 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S3	Bank 2 – Sensor 3 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT24	Bank 2 – Sensor 4 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S4	Bank 2 – Sensor 4 (wide range O2S) Oxygen Sensor Voltage //24-2b 0x1d
O2S W.R.	EQ_RAT11	Bank 1 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S1	Bank 1 – Sensor 1 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT12	Bank 1 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S2	Bank 1 – Sensor 2 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT13	Bank 2 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S3	Bank 2 – Sensor 1 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT14	Bank 2 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S4	Bank 2 – Sensor 2 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT21	Bank 3 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S1	Bank 3 – Sensor 1 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT22	Bank 3 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S2	Bank 3 – Sensor 2 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT23	Bank 4 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S3	Bank 4 – Sensor 1 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT24	Bank 4 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S4	Bank 4 – Sensor 2 (wide range O2S) Oxygen Sensor Voltage
O2S W.R.	EQ_RAT11	Bank 1 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S1	Bank 1 – Sensor 1 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT12	Bank 1 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S2	Bank 1 – Sensor 2 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT13	Bank 1 – Sensor 3 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S3	Bank 1 – Sensor 3 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT14	Bank 1 – Sensor 4 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S4	Bank 1 – Sensor 4 (wide range O2S) Oxygen Sensor Current
O2S W.R	EQ_RAT21	Bank 2 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R	B2,S1	Bank 2 – Sensor 1 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT22	Bank 2 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S2	Bank 2 – Sensor 2 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT23	Bank 2 – Sensor 3 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S3	Bank 2 – Sensor 3 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT24	Bank 2 – Sensor 4 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S4	Bank 2 – Sensor 4 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT11	Bank 1 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S1	Bank 1 – Sensor 1 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT12	Bank 1 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B1,S2	Bank 1 – Sensor 2 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT21	Bank 2 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S1	Bank 2 – Sensor 1 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT22	Bank 2 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B2,S2	Bank 2 – Sensor 2 (wide range O2S) Oxygen Sensor Current

O2S W.R	EQ_RAT31	Bank 3 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R	B3,S1	Bank 3 – Sensor 1 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT32	Bank 3 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B3,S2	Bank 3 – Sensor 2 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT41	Bank 4 – Sensor 1 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B4,S1	Bank 4 – Sensor 1 (wide range O2S) Oxygen Sensor Current
O2S W.R.	EQ_RAT42	Bank 4 – Sensor 2 (wide range O2S) Equivalence Ratio (lambda)
O2S W.R.	B4,S2	Bank 4 – Sensor 2 (wide range O2S) Oxygen Sensor Current

APPENDIX B
This applies to ISO 9141-2, SAE J1850, and ISO 14230-4 definition for service $06.

TID(TEST ID SCALING DESCRIPTION)
$01 Rich to lean sensor threshold voltage (constant)
$02 Lean to rich sensor threshold voltage (constant)
$03 Low sensor voltage for switch time calculation (constant)
$04 High sensor voltage for switch time calculation (constant)
$05 Rich to lean sensor switch time (calculated)
$06 Lean to rich sensor switch time (calculated)
$07 Minimum sensor voltage for test cycle (calculated)
$08 Maximum sensor voltage for test cycle (calculated)
$09 Time between sensor transitions (calculated)
$0A Sensor period (calculated)
$0B-$1F reserved - to be specified by SAE and/or ISO
$21-$2F manufacturer Test ID description
$30-$3F manufacturer Test ID description
$41-$4F manufacturer Test ID description
$50-$5F manufacturer Test ID description
$61-$6F manufacturer Test ID description
$70-$7F manufacturer Test ID description
$81-$9F manufacturer Test ID description
$A1-$BF manufacturer Test ID description
$C1-$DF   manufacturer Test ID description
$E1-$FF manufacturer Test ID description

APPENDIX C
This only applies to ISO 15765-4 definition for service $06
OBDMID (ON-BOARD DIAGNOSTIC MONITOR ID) DEFINITION FOR SERVICE $06

OBDMID (Hex) On-Board Diagnostic Monitor ID name
00 OBD Monitor IDs supported ($01 - $20)
01 Oxygen Sensor Monitor Bank 1 - Sensor 1
02 Oxygen Sensor Monitor Bank 1 - Sensor 2
03 Oxygen Sensor Monitor Bank 1 - Sensor 3
04 Oxygen Sensor Monitor Bank 1 - Sensor 4

05 Oxygen Sensor Monitor Bank 2 - Sensor 1
06 Oxygen Sensor Monitor Bank 2 - Sensor 2
07 Oxygen Sensor Monitor Bank 2 - Sensor 3
08 Oxygen Sensor Monitor Bank 2 - Sensor 4
09 Oxygen Sensor Monitor Bank 3 - Sensor 1
0A Oxygen Sensor Monitor Bank 3 - Sensor 2
0B Oxygen Sensor Monitor Bank 3 - Sensor 3
0C Oxygen Sensor Monitor Bank 3 - Sensor 4
0D Oxygen Sensor Monitor Bank 4 - Sensor 1
0E Oxygen Sensor Monitor Bank 4 - Sensor 2
0F Oxygen Sensor Monitor Bank 4 - Sensor 3
10 Oxygen Sensor Monitor Bank 4 - Sensor 4
11 - 1F Reserved by document for future standardization
20 OBD Monitor IDs supported ($21 - $40)
21 Catalyst Monitor Bank 1
22 Catalyst Monitor Bank 2
23 Catalyst Monitor Bank 3
24 Catalyst Monitor Bank 4
25 – 30 Reserved by document for future standardization
31 EGR Monitor Bank 1
32 EGR Monitor Bank 2
33 EGR Monitor Bank 3
34 EGR Monitor Bank 4
35 - 38 Reserved by document for future standardization
39 EVAP Monitor (Cap Off)
3A EVAP Monitor (0.090")
3B EVAP Monitor (0.040")
3C EVAP Monitor (0.020")
3D Purge Flow Monitor
3E - 3F Reserved by document for future standardization
40 OBD Monitor IDs supported ($41 - $60)
41 Oxygen Sensor Heater Monitor Bank 1 - Sensor 1
42 Oxygen Sensor Heater Monitor Bank 1 - Sensor 2
43 Oxygen Sensor Heater Monitor Bank 1 - Sensor 3
44 Oxygen Sensor Heater Monitor Bank 1 - Sensor 4
45 Oxygen Sensor Heater Monitor Bank 2 - Sensor 1
46 Oxygen Sensor Heater Monitor Bank 2 - Sensor 2
47 Oxygen Sensor Heater Monitor Bank 2 - Sensor 3
48 Oxygen Sensor Heater Monitor Bank 2 - Sensor 4
49 Oxygen Sensor Heater Monitor Bank 3 - Sensor 1
4A Oxygen Sensor Heater Monitor Bank 3 - Sensor 2
4B Oxygen Sensor Heater Monitor Bank 3 - Sensor 3
4C Oxygen Sensor Heater Monitor Bank 3 - Sensor 4
4D Oxygen Sensor Heater Monitor Bank 4 - Sensor 1

4E Oxygen Sensor Heater Monitor Bank 4 - Sensor 2
4F Oxygen Sensor Heater Monitor Bank 4 - Sensor 3
50 Oxygen Sensor Heater Monitor Bank 4 - Sensor 4
51 - 5F Reserved by document for future standardization
60 OBD Monitor IDs supported ($61 - $80)
61 Heated Catalyst Monitor Bank 1
62 Heated Catalyst Monitor Bank 2
63 Heated Catalyst Monitor Bank 3
64 Heated Catalyst Monitor Bank 4
65 - 70 Reserved by document for future standardization
71 Secondary Air Monitor 1
72 Secondary Air Monitor 2
73 Secondary Air Monitor 3
74 Secondary Air Monitor 4
75 - 7F Reserved by document for future standardization
80 OBD Monitor IDs supported ($81 - $A0)
81 Fuel System Monitor Bank 1
82 Fuel System Monitor Bank 2
83 Fuel System Monitor Bank 3
84 Fuel System Monitor Bank 4
85 - 9F Reserved by document for future standardization
A0 OBD Monitor IDs supported ($A1 - $C0)
A1 Mis-Fire Monitor General Data
A2 Mis-Fire Cylinder 1 Data
A3 Mis-Fire Cylinder 2 Data
A4 Mis-Fire Cylinder 3 Data
A5 Mis-Fire Cylinder 4 Data
A6 Mis-Fire Cylinder 5 Data
A7 Mis-Fire Cylinder 6 Data
A8 Mis-Fire Cylinder 7 Data
A9 Mis-Fire Cylinder 8 Data
AA Mis-Fire Cylinder 9 Data
AB Mis-Fire Cylinder 10 Data
AC Mis-Fire Cylinder 11 Data
AD Mis-Fire Cylinder 12 Data
AE - BF Reserved by document for future standardisation
C0 OBD Monitor IDs supported ($C1 - $E0)
C1 - DF Reserved by document for future standardisation
E0 OBD Monitor IDs supported ($E1 - $FF)
E1 - FF Vehicle Manufacturer defined OBDM IDs
TID(STANDARDIZED TEST ID DESCRIPTION)
Range (Hex) Description
00 Reserved by document
01 Rich to lean sensor threshold voltage (constant)

02 Lean to rich sensor threshold voltage (constant)
03 Low sensor voltage for switch time calculation (constant)
04 High sensor voltage for switch time calculation (constant)
05 Rich to lean sensor switch time (calculated)
06 Lean to rich sensor switch time (calculated)
07 Minimum sensor voltage for test cycle (calculated)
08 Maximum sensor voltage for test cycle (calculated)
09 Time between sensor transitions (calculated)
0A Sensor period (calculated)
0B EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles (calculated)
Calculation: 0.1 * (current counts) + 0.9 * (previous average)
Initial value for (previous average) = 0
0C Misfire counts for last/current driving cycles (calculated)
0D - 7F Reserved for future standardisation