AIRSON

5 GAS ANALYSER

OM – 2100

OPERATING MANUAL

AIRSON ELECTRONICS

2ND Floor, Krishna Plaza, Mohibullapur, Sitapur Road, lucknow – 226021

Ph:- +91-9044051961, email:- airsonindia@yahoo.com

www.airsonindia.com

-: CONTENTS :-

-: IMPORTANT NOTICES :-

Notice

This manual contains important Warning and Safety instructions to be observed by the user. This product is only intended for one certain area of application which is prescribed in the instructions. Furthermore the most important necessary prerequisites for application and operation as well as the safety measures are explained to ensure smooth operation. No warranty or liability will be granted if the product is applied in areas other than those described or if the necessary prerequisites and safety measures are not been taken.

This product is to be operated and used only by qualified and trained personnel capable of observing the required safety measures.

Only accessories and supplies either delivered by AIRSON or approved by AIRSON are to be used with the product.

Adjustment and maintenance of instrument are only to be carried out by a professional technician who is being aware of the dangers involved.

Only the manufacturer authorized service personnel can carry out the repairs of the product.

For

AIRSON ELECTRONICS

-: Introduction :-

- **AIRSON OM - 2100**

The AIRSON OM - 2100 is an 5 gas analyzer designed, using the latest infra-red microprocessor based technology to measure accurate values of carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), hydrocarbons (HC) and NOx coming from exhaust emission of vehicles.

This fully digital analyser is specifically designed to meet or exceed nationwide performance specifications for automotive emissions measurement.

The compact design and low weight of OM - 2100 permit greater flexibility in the diagnostics of exhaust gases. The extensive illuminated display provides easy and clear readings. It can be used as a mobile unit connected to the 12 V car batteries or as a stationary unit in the workshop connected to the mains.

AIRSON OM – 2100 FIVE GAS ANALYSER

- **Operating Principle**

The AIRSON OM - 2100 based on a single–beam NDIR (Non-dispersive Infrared) measurement technology. It uses an internal proprietary optical bench using a NDIR technique for gas analysis. The infrared light source filters and detectors are thermally stabilized under micro-processor control.

The internal microprocessor is responsible for the overall management of the instrument. The major functions performed by microprocessor are:

- **Auto-zeroing.**
- **Gas related parameters computation.**
- **Smoothing Interpolation of gas curves.**
- **Man machine interface.**

- **Features of AIRSON OM - 2100**
  - **Gas measurements**
    - **Carbon Mono Oxide (CO)**
    - **Hydro Carbon (HC) for PETROL engines**
    - **Hydro Carbon (HC) for CNG engines**
    - **Hydro Carbon (HC) for LPG engines**
    - **Carbon Dioxide (CO_2)**
    - **Oxygen (O_2)**
    - **Nitrogen Oxides (NOx) (Optional)**
  - **Lambda(λ) Value**
  - **A.F.R.**
  - **Oil temperature**
  - **RPM**
  - **Computer compatibility**
  - **Microprocessor controlled gas calibration procedure for higher performance.**
  - **Calculates and outputs gas concentration directly as digital data via an USB serial interface**
  - **Automatically requests zero calibration to ensure maximum gas measurement accuracy**
  - **LCD display**
  - **Compact design**
  - **Portable and highly mobile.**
  - **Car Battery (12 V D.C.).**
  - **Inbuilt printer (Optional)**
  - **Standard date & time display**
  - **Leak test**
  - **Flow absence detection (Low flow check)**

-: SPECIFICATIONS :-

- **General Specifications of AIRSON OM - 2100**

1.	***CO, CO_2 & HC Measurement*: The analyzer uses single Beam NDIR (non-dispersive infrared) measurement technology to provide fully corrected HC, CO, and CO_2 gas concentrations.**
2.	***O_2 Measurement:* O_2 concentration measurement is supported via external O_2 sensors.**
3.	***NOx Measurement:* NOx concentration measurement is supported via external NOx sensors.**
4.	***Lambda Measurement*: Lambda value is calculated with the gas measurement to find out the efficiency of the fuel burn.**
5.	***A.F.R. Measurement:* A.F.R. value is calculated with the gas measurement to find out the efficiency of the fuel burn**
6.	***RPM Measurement*: RPM is measured by using the RPM inductive cord/Battery cord (Optional).**
7.	***Oil Temperature Measurement*: Oil temperature is measured by using a separate temperature transducer provided inside the Temperature Probe.**
8.	***LCD Displays*: Four line twenty character LCD Display.**
9.	***Filtering Devices*: Centered Bronze Filters are provided externally on the rear panel of analyser, to filter the gas and to avoid water vapors, oil etc. coming by the exhaust.**
10.	***Leakage detection*: Leakage is achieved by means of an internal differential pressure transducer. When this occurs LCD displays "LEAK" for leakage.**
11.	***Low Flow detection:* Low flow is measured by means of an internal differential pressure transducer. When this occurs LCD displays "LOW FLOW" for low flow.**
12.	***Auto-Zeroing feature:* auto zeroing required, press '<' KEY.**

13.	***USB standard Interface Module:*** **The USB is used to connect the computer with the instrument.**

14. ***Printer :*** **Inbuilt Printer (Optional).**

15.	***Battery Operation:*** **Portable and highly mobile-can be connected to a car battery (12 V D.C.).**

- **Technical Specifications**

Measuring Parameters:

S.No.	*Measuring Quantity*	*Measurement Range*	*Resolution*	*Accuracy*
1.	**CO**	**0-9.999% by Vol. 10.00 - 12.00%**	**0.001% by Vol. 0.01% by Vol.**	**0.03% abs / ±3%rel.**
2.	**HC**	**0-9999 ppm (n-hexane) by Vol. 10000-30000 ppm (n-hexane) by Vol.**	**1 ppm by Vol. 10 ppm by Vol.**	**10 ppm abs / ±5%rel.**
3.	**CO_2**	**0-20% by Vol.**	**0.01% by Vol.**	**0.4%abs / ±4%rel.**
4.	**O_2**	**0-21.7% by Vol.**	**0.01 by Vol.**	**0.1abs / ±3%rel.**
5.	**NOx***	**0-5000 ppm**	**1 ppm**	
6.	**RPM**	**0-9999 rpm 10000-40000 rpm**	**10 rpm**	**±10 rpm**
7.	**Oil temp.**	**0-150 °C**	**0.1 °C**	**±1°C**
8.	**Lambda (λ)**	**0-9.999**	**0.001**	**±0.3%**
9.	**A.F.R.**	**0-99.99**	**0.01**	

Measurement Principle (CO, HC & CO_2)	**Infrared Measurement**
Measurement Principle (O_2 & NOX)	**Electro Chemical.**

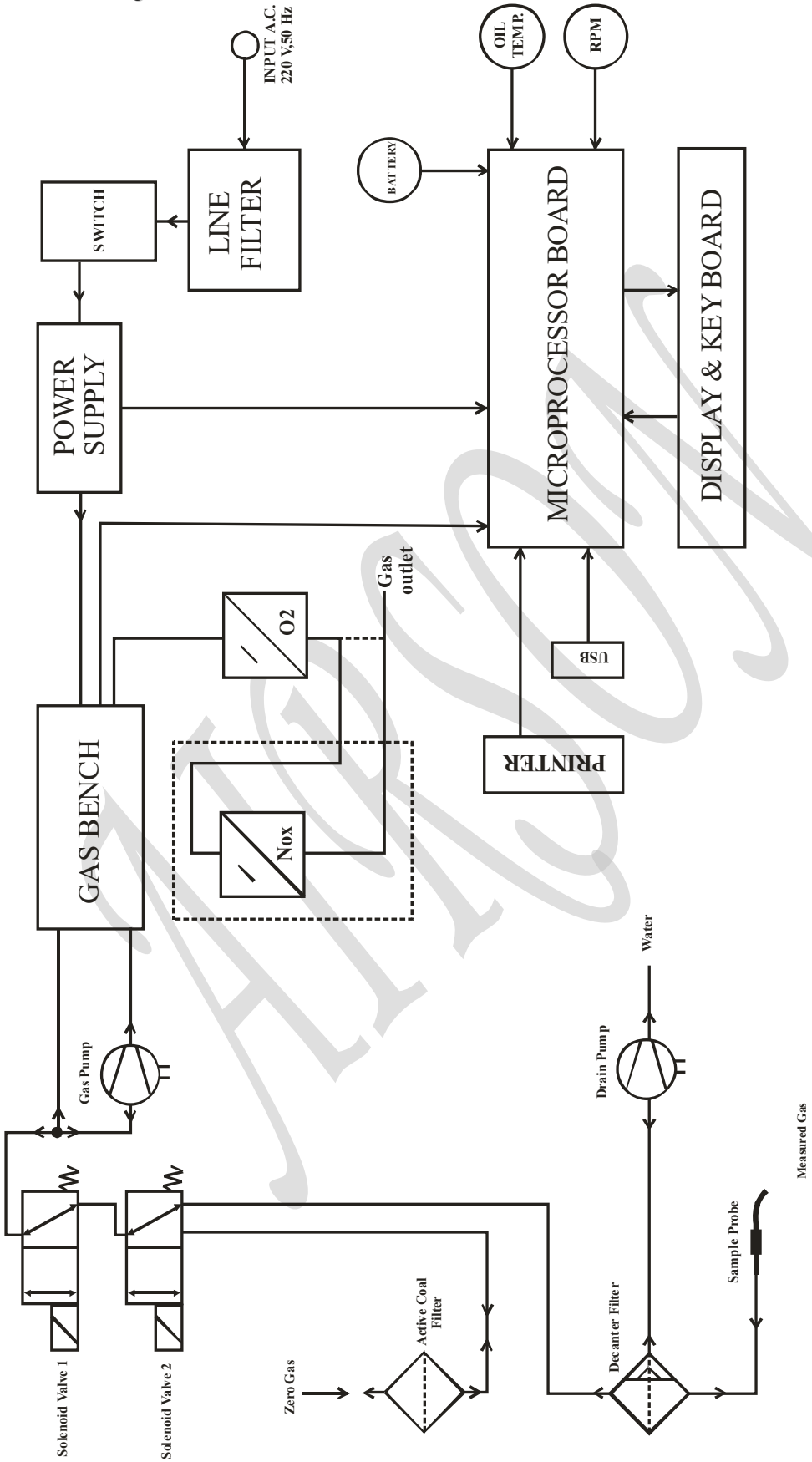
Interface	**USB**

Display	**LCD display 20X4**

Power supply AC	**230V A.C. 50 Hz ±15%**
Power supply DC	**12 Volt DC ±10%**
Power Consumption	**Approx. 40 W**
Operating temperature	**5°C -45 °C**
Operating Atmospheric Pressure	**860 hPa to 1060 hPa**
Operating Relative Humidity	**up to 90 %**
Response Time	**< 10 sec.**
Warm-up Time	**<10 min. approx.**
Storage temperature	**-10 °C to + 60 °C**
Filters	**Bronze filters (< 5 micron) to avoid water vapors, oil, etc. coming with exhaust.**
Dimensions (w*h*l)	**29*12*29.8 cm.**
Weight	**Approx. 3.4 kg.**

-: DESCRIPTION :-

- Block Diagram



BLOCK DIAGRAM OF AIRSON OM - 2100

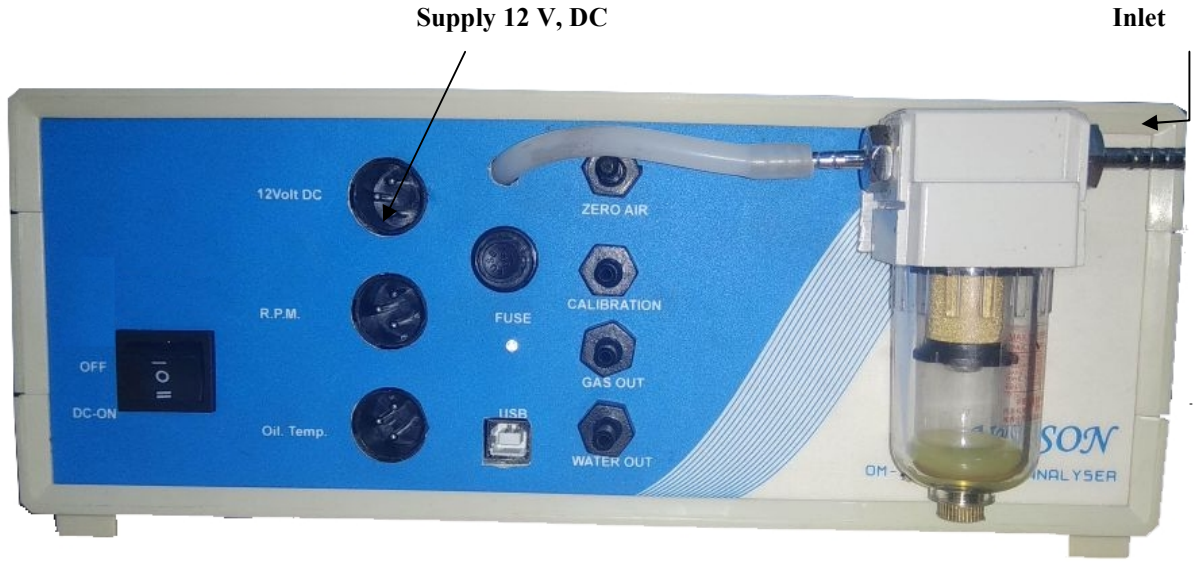
- FRONT PANEL

DISPLAY PANEL		
CO	**Display Carbon-mono-oxide (CO) gas value directly in %.**	
HC	**Display Hydro-carbon (HC) gas value directly in ppm.**	
CO2	**Display Carbon-di-oxide (CO_2) gas value directly in %.**	
O2	**Display Oxygen (O_2) gas value directly in %**	
LAM	**Display lambda value directly.**	
A.F.R.	**Display A.F.R. value directly.**	
NOX	**Display Nitrogen- oxide (NOX) gas value directly in ppm.**	
RPM	**Display rotation per minute (rpm) value directly in r/min.**	**Display the others value like pef, rpm, oil.temp., cell pressure, low flow, status check**
Oil. Temp.	**Display oil. temp value directly in deg.C .**	**Abbreviation like pef, rpm, oil.temp., cell pressure, low flow, status check**

- KEY BOARD

KEY CONTROLS		
1 TO 9 (A to Z)	**To enter number and alphabet.**	
Esc.	**To exit from any function.**	
Ent.	**To enter in any function.**	
0	**To select calibration mode.**	
^	**To move up. And for more data in testing mode**	
v	**To move down. And for more data in testing mode**	**To perform leak test in standby mode.**
<	**To move left.**	**To perform auto zero**
>	**To move right.**	**To R.P.M. stabilizing**

- REAR PANEL

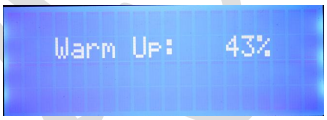
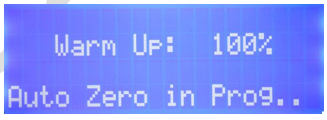
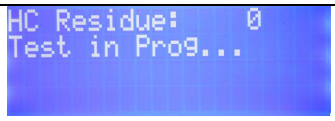
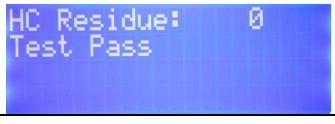
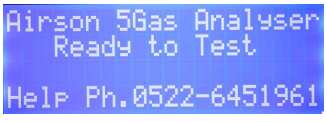


REAR PANEL	
ON-OFF Switch	**To Switch ON and Off the power of instrument in DC.**
12V DC Socket	**To connect the 12V dc power supply or Car battery (12V).**
USB	**Standard USB port for the computer compatibility.**
R.P.M Socket	**To connect the inductive pick up or battery sensor cord.**
Oil Temp. Socket	**To connect the oil temp. Sensor cord.**
FUSE	**To insert fuse of 7A for dc supply.**
ZERO AIR	**Fresh air inlet.**
CALIBRATION	**Connect the calibration gas cylinder.**
GAS OUTLET	**Exhaust or calibration gas outlet.**
WATER OUTLET	**Condensed water outlet**
EXHAUST INLET	**To connect the silicon pipe for exhaust gas measurement.**
FILTER UNIT	**Used to remove the particulate matter from the exhaust gas sample.**

-: SAFETY INSTRUCTIONS :-

◈	The measurement gas outlet, inlet and water outlet at the rear of the unit should be checked before using the instrument that they should not be closed.
◈	Make sure that the instrument did not draw exhaust gases for an unnecessarily long time.
◈	Probe should insert into the exhaust pipe only when it is necessary for the measurement.
◈	Never let the probe lie on the floor or let liquids or any other impurity be drawn into the instrument through the probe.
◈	Never bent the exhaust gas probe.
◈	The instrument should never be placed in hot sun, rain, snow, corrosive atmospheres, or atmospheres contaminated with petrol fumes.
◈	Make sure that within the radius of about 5 mt. of the instrument no equipment is used that caused serious electromagnetic interference (such as radio, telephone, electronic welding equipment, large electric motors etc.).
◈	Standard AIRSON exhaust probe should be used.
◈	Regular maintenance of the filters is essential to ensure long service life and correct functioning of the measuring instrument.
◈	The measuring instrument unit should be purged with clean ambient air with the pump running for at least 10 min. before switching OFF the instrument.
◈	The instrument must be calibrated with reference test gas every 6 months.

-: WARM –UP PROCEDURE OF INSTRUMENT :-

1	**After switching ON the equipment , LCD display**	 	
2	**After few sec. lcd display date and time.**		**To set date press '1' and for time press '2'**
3	**After date and time, the LCD display leak test and pump will ON**		**At this time close the probe by its cap.**
4	**After few sec. pump will OFF and LCD display leak test pass**		**Now remove cap from prob.**
5	**After leak test LCD display low flow test and pump will ON.**		**Now the probe will be open.**
6	**After few sec. pump will OFF and LCD display low flow test pass**		
7	**After low flow test instrument being warm up.**		**In process of warm up , pump will turn off.**
8	**When warm up will be 100% instrument perform auto zero .**		**In this process pump will turn on.**
9	**After auto zero instrument perform HC Residue.**	 	**Pump will be on**
10	**After HC Residue instrument will ready to perform vehicle test.**		**For perform test press 'Ent' Key. For Calibration Press '0' Key**

-: Vehicle Measurement :-

1	**After HC Residue instrument will ready to perform vehicle test.**	Airson 5Gas Analyser Ready to Test Help Ph.0522-6451961	**For perform test press 'Ent.' Key. For Calibration Press '0' Key**
2	**After pressing Ent. Key lcd display to select fuel mode.**	Fuel Mode : Petrol Change Press < > Key	**To change fuel mode use < or > key. and press Ecs.**
3	**After fuel mode LCD display to enter vehicle no.**	Vehicle Number [_]	**enter vehicle no. use numeric key. And press Esc.**
4	**After vehicle no LCD display RPM mode.**	RPM Mode: Inductive Cyl.: 4 Stroke: 4 RPM Mode: Battary Cyl.: 4	To select cylinder and stroke use numeric key.
5	**After RPM selection instrument stabilized RPM**	RPM STABILIZING	
6	**After RPM stabilizing instrument display reading of CO, CO2 ,HC etc.**	CO:0.000% CO2: 0.00% HC: 0P PEF: 0.524 O2:20.77% NOx: 0 LAM:0.000 RPM: 0	**Now insert prob. in vehicle silencer.** **To change fule mode in testing process use 0 key** **And press Ent. To print**
7	**For purge press 'Esc." key**	PURGE Remove Probe from Vehicle Exhaust	**Now instrument came in stand by mode**

-: LEAK TEST :-

- **During Leak test, Instrument checks the leakage in sample handling system.**
- **Make sure during leak test, *cap of the probe* fitted tightly.**
- **After 10 sec., the pump gets set OFF .**
- **During this period the cap of the probe must be closed.**
- **After this the instrument will show is there any leakage in the system or not.**
- **If displays PASS, it means there is no leakage in the system.**
- **If displays FAIL, it means there is some leakage in the system, and to rectify the leakage see Maintenance heading.**
- **When leakage is removed then Ent. pump key to again check the Leak test.**
- **If Leak test fails then Instrument will not do any function till you rectify leakage in the system.**
- **After leak test pass remove the probe cap.**

-: LOW FLOW TEST :-

- **During Low Flow test, Instrument checks the flow rate of sampling tube.**
- **Low Flow test performs on start-up and during the measurement.**
- **Make sure during low flow test, *cap of the probe* must be open.**
- **The test takes approx. 10 sec and after that the instrument will show that low flow is present in the system or not.**
- **If displays PASS, means the system flow rate is fine.**
- **If displays FAIL, means the flow rate of the system is not uniform. To rectify it see Maintenance heading.**
- **When Low Flow is removed then press Ent. key to again check the Low Flow test.**
- **If Low Flow test fails then Instrument will not function till you rectify Low Flow in the system.**

-: DATE AND TIME SETTING :-

- **To set Date and Time, press 1 for date and 2 for time.**
- **By using number keys we set the date and time. To move cursor press < for left and > for right.**
- **And when set pres Ecs.**

-: OIL TEMPERATURE AND RPM MEASUREMENT :-

▪Oil Temperature Measurement

- **For measuring oil temperatures put the oil temperature sensor into the oil chamber of the vehicle and attach the other end of it to the Instrument.**

?	**Always adjust the length of the oil temperature sensor to the length of the original dip stick so that the temperature can be measured correctly.**

▪ RPM Measurement

Use the RPM inductive cord to measure the RPM.

- **Attach the clamp to any ignition cable and the other end of the RPM inductive cord to the RPM on the rear panel of the Instrument.**

-: GAS CALIBRATION :-

Calibration **is "the process of standardizing (as a measuring instrument) by determining the deviation from a standard so as to ascertain the proper correction factors."**

- **Calibration Gases:**

The unit can only be calibrated with gas mixtures of HC, CO, and CO_2 in N_2.

Recommended gas mixture: (standard mixed gas for gas analysers)

CO : 2.0% carbon monoxide CO

HC : 1500-ppm propane

CO_2 : 13% carbon dioxide CO_2

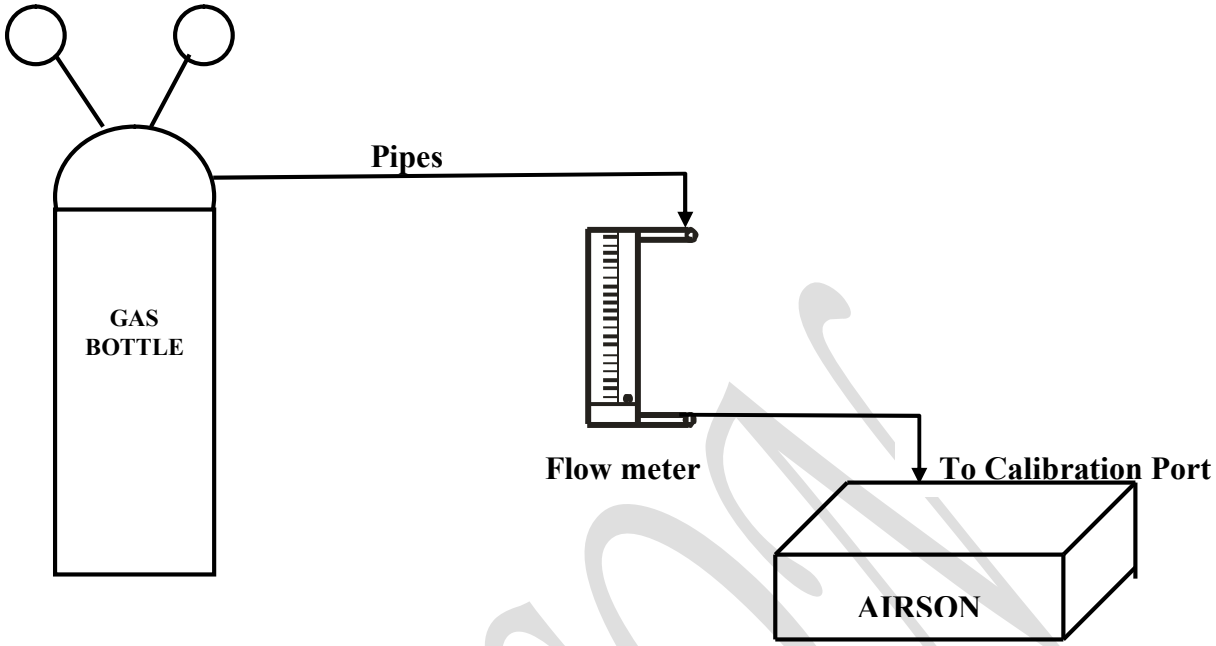
N_2 : the rest Nitrogen

CO_2 should be present in the calibration gas to minimize the CO/CO_2

Quench effect by molecular collision processes.

Composition accuracy of the gas: approx. 5 to 10% of the recommended concentration Analysis accuracy of the gas: 1 to 2% of the true value in the gas mixture, preferably 1%.

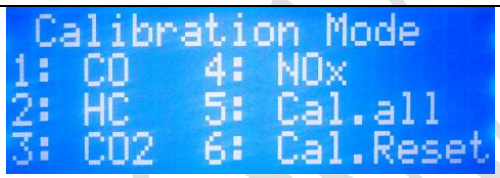
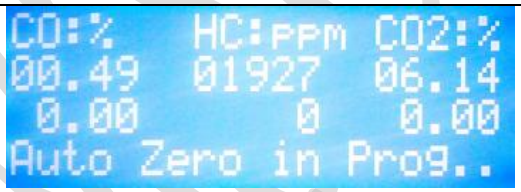
■ **PREPARATION FOR CALIBRATION**



- **The instrument should have warm-up to operating temperature before the calibration and be stable.**
- **Ambient temperature for the calibration: in the range from 20 to 25˚C, (min 15˚C, and max. 30˚C).**
- **Hoses must be attached to the gas outlet of the meter to carry away the calibration gases, which should, where possible, be removed by extractor fan. The hoses must be as short as possible and their inside diameter should be such that there is no backpressure effect on the analyser.**
- **During the calibration, calibration gas must be fed slightly pressurized into the analyser. A flow meter is required for the measurement and adjustment of the necessary gas flow into the measuring cell of approx. 2.5 to 3 l/m (preferably in a ball type flow meter calibrated flow range of up to 5 l/m of a working ball type flow meter).**
- **The gas flow is adjusted by means of a needle valve.**

The calibration gas that flows out of the meter is highly toxic (CO: 2.0% = 20000 ppm) and must be properly disposed off.

■ METHOD OF CALIBRATION:

1	**After HC Residue instrument will ready to perform vehicle test.**		**For Calibration Press '0' Key**
2	**After pressing '0' key LCD display-**		**To change cal. Port use < and > key and then press 'Ent.' Key.**
3	**After pressing 'Ent.' Key LCD display.**		**Now select the gas to calibrate by using numeric key.**
4	**After selection of gas to celibrate LCD display**		**Now enter gas value using numeric key and to move cursor use< or > key.**
5	**After entering gas value press 'Ent.' Key.**		**Now it perform auto zero. After auto zero insert gas in instrument.**
6	**Now LCD display the reading of gas and press '^' key to calibrate.**		**Now the instrument is calibrated to take print press 'Ent.' Key. For exit press 'Ecs.' Key.**

-: PRINTER :-

AIRSON OM - 2100 **has a parallel printer port (Max. two printouts).**

- **LX-800 (Recommended Printer)**
- **Printout of vehicle measurement contains the following data:**

TEST REPORT BY
AIRSON OM - 2100
5GAS ANALYSER

DATE: 08/11/04 TIME : 10:52
VEHICLE NO. :
FUEL : PETROL
****
CO: 02.00 %
HC : 0695 ppm PEF. : 0.499
CO2 : 12.93 %
O2 : 00.53 %
NOx : 0000 ppm
RPM : 2560
LAM : 1.422
AFR : 00.00
Oil Temp. : -023.0 deg.C
****
Checked by :
MACHINE NO. :
CENTER CODE :
CENTER NAME :

- **Calibration printout contains the following data:**

CALIBRATION
TEST REPORT BY
AIRSON OM - 2100
5GAS ANALYSER

DATE: 08/11/04 TIME : 10:52
****
CO : 00.00 % cyl
CO : 00.00%
****

Checked by :
MACHINE NO. :
CENTER CODE :
CENTER NAME :

CALIBRATION
TEST REPORT BY
AIRSON OM - 2100
5GAS ANALYSER

DATE: 08/11/04 TIME : 10:52
****
HC : 1000 propane cyl
HC : 0515 ppm P.E.F. 0.503
****
Checked by :
MACHINE NO. :
CENTER CODE :
CENTER NAME :

CALIBRATION
TEST REPORT BY
AIRSON OM - 2100
5GAS ANALYSER

DATE: 08/11/04 TIME : 10:52
****
CO_2 : 00.03 % cyl
CO_2 : 00.03 %
****
Checked by :
MACHINE NO. :
CENTER CODE :
CENTER NAME :

CALIBRATION
TEST REPORT BY
AIRSON OM - 2100
5GAS ANALYSER

DATE: 08/11/04 TIME : 10:52
****
NOx : 0000 ppm
NOx : 0000 ppm
****
Checked by :
MACHINE NO. :
CENTER CODE :
CENTER NAME :

-: CONSUMABLE ITEMS :-

S.No.	ITEM	DESCRIPTION
1.	Probe	30-cm. Long exhaust probe that is inserted into the exhaust tail pipe of a vehicle to take gas samples.
2.	Silicon Pipe	5-mts. long gas sampling pipe.
3.	Oil temperature cord	10-mts. long oil temp. Sensor cord.
4.	R.P.M. cord	10-mts. long RPM inductive cord for RPM measurement.
5.	Filter unit	Used to remove the particulate matter from the exhaust gas sample.
6.	Oxygen Sensor	Electro chemical sensor decay with time and uses.
7.	NOX Sensor	Electro chemical sensor decay with time and uses.
8.	Supply Cord	3 Pin Main Lead to connect the analyser.

Note: - Consumable items are not covered under warranty.

-: WARNING AND ERRORS :-

AIORSON **OM - 2100 has been manufactured with the latest NDIR technology combining with practical needs of the users. The technology has been developed to make the instrument users friendly with minimum maintenance and trouble free service to the customers.**

However for efficient working of the instrument following measures are essential:

1. **Keep your instrument in a properly ventilated area and it should be placed horizontally at least 2 feet above of the ground level.**
2. **Maintain 230V A.C., 50 Hz mains supply (if there is fluctuation it recommended use C.V.T.-200VA).**
3. **Earthing of the mains supply is essential to avoid shocks and damages.**
4. **Filter unit, Pipes and Exhaust Probe must be cleaned regularly.**
5. **To clean filter units use only liquid soap. For cleaning any chemical, petrol, kerosene oil etc. are strictly prohibited.**
6. **Exhaust probe must not be left on the ground otherwise dust particles or water etc. can enter the filter unit.**
7. **Keep the instrument at cool and dry place. Avoid direct sunlight.**

-: MAINTENANCE :-

- **Gas Calibration**

  A Gas calibration must be carried out by a service engineer after every 6 months.

- **Input Filter Cartridge Replacement**
  - **Remove the filter cups from bracket by unscrewing anti-clock wise.**
  - **Unscrew the filter core.**
  - **Dip the filter core as well as poly carbonate cups into the liquid soap and rinse with water with the help of baby tooth brush.**
  - **Dry the filter core and cups until they are dry.**
  - **Mount them back in their respective positions and make sure cups are evenly fitted and tightened.**
  - **Cleaning of the filter unit should be done regularly after checking approx. 100 vehicles.**

- **Cleaning the Probe**
  - **Disconnect the probe and hose from the INSTRUMENT.**
  - **Loosen any residues in the probe by tapping it gently.**
  - **Clean the probe and the hose with compressed air.**

Reassemble the hose and the probe and connect to the INSTRUMENT..

> **Note: Disconnect the probe from the INSTRUMENT be-fore using compressed air to avoid any possible damage to the INSTRUMENT. Do not bend the probe!**

- **Oxygen Transducer Replacement**
  - **Switch OFF the INSTRUMENT and remove the connector and the pipe connected with the transducer.**
  - **Now unscrew the transducer from the rear side of the instrument.**
  - **Mount the new transducer back in the respective position of the previous one and make sure screws are fully tightened and put the connector and pipe into its previous position.**

- **NOx Transducer Replacement**
  - **Switch OFF the INSTRUMENT and remove the connector and the pipe connected with the transducer.**
  - **Now unscrew the transducer from inside the instrument.**
  - **Mount the new transducer back in the respective position of the previous one and make sure screws are fully tightened and put the connector and pipe into its previous position.**

-: SAFETY PRECAUTIONS AND TROUBLESHOOTING :-

- **Safety Precautions:**

1. **The calibration gas that flows out of the meter is highly toxic (CO: 2.0% = 20000 ppm) and must be properly disposed of.**
2. **The local safety regulations relating to the calibration gases, disposal of the gases and handling of calibration gas bottles must always be observed.**
3. **Measuring instruments to monitor the CO content of the ambient air is required for the safety of the calibration personnel. The instruments must measure the gas in relation to the statutory limit values and output alarm signals should they be exceeded.**
4. **Safety data sheets for the calibration gases must be available at the working place if this is required by national or other legislation.**

- **Trouble Shooting:**

1. **If display shows nothing after switch ON the instrument, check the mains supply, supply cord and fuse.**
2. **If the instrument is not giving proper reading on CO-HC-CO_2-O_2 display then check exhaust probe, pipes and filter unit.**
3. **If leak test fail check the probe and pipe, tightly fitted to the Analyser.**
4. **If low flow test fail check there is any blockage in the probe ,pipe and filter.**

-: ACCESSORIES :-

- **Standard Accessories:**

1	**Equipment**	**: Airson 5-Gas Analyser model OM - 2100.**
2	**Gas Sampling Pipe**	**: 5-mts. long gas sampling pipe.**
3	**Supply Cord**	**: One fully tested and standard power cord.**
4	**Exhaust Probe**	**: 30-cm. Long exhaust probe that is inserted into the exhaust tail pipe of a vehicle to take gas samples.**
5	**User Manual**	**: One manual, which contains all the necessary instruction about the instrument.**

- **Optional Accessories:**

A) Printer : Thermal Printer

B) Software CD : Software CD for Computer Compatibility.

C) USB Cable : 1 mts. USB cable to connect analyser to computer

D) RPM Cord : 10-mts. long RPM cord for RPM measurement.

E) Oil Temperature Sensor : 10-mts. long oil temp. Sensor cord.

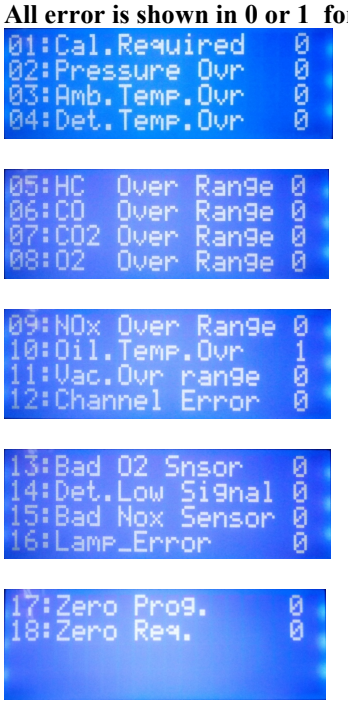
F) Extension Pipe : Suitable Extension Pipes, covering all Vehicle types, to be provided where insertion of 300 mm probe length in the exhaust is not possible.

G) Battery Lead : To connect the analyser with battery.

-: STATUS CHECK TABLE :-

During the measurement status can be checked by pressing 1 key. To move up and down press ^ or ˇ key. Exit from this mode press Ecs key.

All error is shown in 0 or 1 format. 1 for error and 0 for none



AIRSON ELECTRONICS
2nd floor, Krishna Complex, Opp. Standard
Fuel centre, Madiyaon, Sitapur Road Lucknow.

WARRANTY CARD

Customer Copy

NAME:

ADDRESS:

PHONE:

MODEL NO.: O M - 2 1 0 0 **MACHINE NO.:** **INVOICE NO.:**

DATE OF INSTALLATION:

(I accept the terms & conditions of warranty) **For AIRSON ELECTRONICS**

Customer's Signature & Date **Authorised Signatory**

WARRANTY TERMS AND CONDITIONS

1. **This is to certify that AIRSON OM - 2100 stands under warranty for any manufacturing defect for a period of 12 months from the date of installation/commissioning.**
2. **This warranty does not cover any damages due to accidents, transportation, misuse, negligence, natural disaster, voltage fluctuations or any operation procedure not covered as mentioned in the operating / instruction manual.**
3. **This warranty extends only to the original using purchaser and is not assignable to transferable either voluntarily or by operation of law.**
4. **This warranty shall not apply to consumable items including filters, calibration gas, probe, pipe, O_2 Sensor, NOX Sensor and printer etc.**
5. **Warranty will avoid if instrument tempered by unauthorised person**

AIRSON reserves the right to make changes in design and/or improvements to its product without any obligation to include these changes in previously manufactured product. Correction of defects by repair or replacement shall constitute fulfillment of all warranty obligations on the part of AIRSON.

- : The warranty does not cover : -

- **Defects arising from accidents, alteration, misuse, neglect, substitution of original components with unauthorized components, fire, flood or other acts of God.**
- **Normal wear and tear of parts.**
- **Liability for consequential loss or damage is neither accepted nor implied.**
- **The cost of transporting the machine to the manufacturer or his authorised service centre and back shall be borne by purchaser.**
- **Parts repaired or replaced under this warranty are warranted for the remainder of the original warranty period.**
- **For any outdoor service under this warranty beyond 40 kms. from the nearest company authorized service centre, there will be a charge for the cost of transportation and traveling expenses for the excess distance.**

AIRSON ELECTRONICS
2nd floor, Krishna Complex, Opp. Standard
Fuel centre, Madiyaon, Sitapur Road Lucknow.

WARRANTY CARD

Office Copy

NAME:

ADDRESS:

PHONE:

MODEL NO.: O M - 2 1 0 0

MACHINE NO.:

INVOICE NO.:

DATE OF INSTALLATION:

(I accept the terms & conditions of warranty) **For AIRSON ELECTRONICS**

Customer's Signature & Date **Authorised Signatory**

WARRANTY TERMS AND CONDITIONS

6. **This is to certify that AIRSON OM - 2100 stands under warranty for any manufacturing defect for a period of 12 months from the date of installation/commissioning.**
7. **This warranty does not cover any damages due to accidents, transportation, misuse, negligence, natural disaster, voltage fluctuations or any operation procedure not covered as mentioned in the operating / instruction manual.**
8. **This warranty extends only to the original using purchaser and is not assignable to transferable either voluntarily or by operation of law.**
9. **This warranty shall not apply to consumable items including filters, calibration gas, probe, pipe, O_2 Sensor, NOX Sensor and printer etc.**
10. **Warranty will avoid if instrument tempered by unauthorised person**

AIRSON reserves the right to make changes in design and/or improvements to its product without any obligation to include these changes in previously manufactured product. Correction of defects by repair or replacement shall constitute fulfillment of all warranty obligations on the part of AIRSON.

- : The warranty does not cover : -

- **Defects arising from accidents, alteration, misuse, neglect, substitution of original components with unauthorized components, fire, flood or other acts of God.**
- **Normal wear and tear of parts.**
- **Liability for consequential loss or damage is neither accepted nor implied.**
- **The cost of transporting the machine to the manufacturer or his authorised service centre and back shall be borne by purchaser.**
- **Parts repaired or replaced under this warranty are warranted for the remainder of the original warranty period.**
- **For any outdoor service under this warranty beyond 40 kms. from the nearest company authorized service centre, there will be a charge for the cost of transportation and traveling expenses for the excess distance.**