

# MSA Solaris® Multigas Detector Operations Manual Supplement for Units Equipped with an NO<sub>2</sub> Sensor Only

## This addendum:

- supplements the existing Solaris Multigas Detector Operating Manual (P/N 10046201)
- provides additional information on units equipped with an NO<sub>2</sub> sensor.

Refer to the above manual first for full Solaris operation. Some Solaris models are equipped with an NO<sub>2</sub> sensor in place of an H<sub>2</sub>S sensor, depending on the model ordered.

## Units are identified:

- at turn-ON by displaying 'TOX2 NO2'
- during continuous operation, by scrolling 'Solaris NO2' across the display.

The following operations remain the same for the H<sub>2</sub>S, CO, and NO<sub>2</sub> sensors:

- sensor missing alarm
- sensor setup
- calibration
- TWA
- STEL.
  - See Solaris Manual for details.

## ⚠ CAUTION

NO<sub>2</sub>, H<sub>2</sub>S or any toxic sensor cannot be interchanged to a different location within the instrument; otherwise, improper operation will result.

## The NO<sub>2</sub> Sensor:

- must be placed in the black sensor holder
- gasket is also black.

## ⚠ WARNING

THIS MANUAL MUST BE CAREFULLY READ BY ALL INDIVIDUALS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR USING OR SERVICING THE PRODUCT. Like any piece of complex equipment, this instrument will perform as designed only if it is used and serviced in accordance with the manufacturer's instructions. OTHERWISE, IT COULD FAIL TO PERFORM AS DESIGNED AND PERSONS WHO RELY ON THIS PRODUCT FOR THEIR SAFETY COULD SUSTAIN SEVERE PERSONAL INJURY OR DEATH.

The warranties made by Mine Safety Appliances Company with respect to the product are voided if the product is not used and serviced in accordance with the instructions in his manual. Please protect yourself and others by following them. We encourage our customers to write or call regarding this equipment prior to use or for any additional information relative to use or repairs.

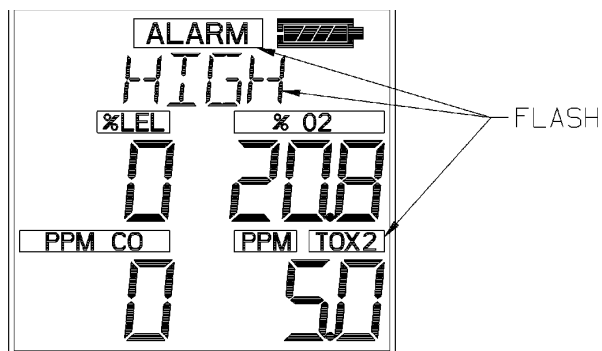


Figure 2-4.  
Instrument in NO<sub>2</sub> Gas Alarm (NO<sub>2</sub> Versions Only)

Table 4-1. Autocalibration and Required Calibration Cylinders (NO<sub>2</sub> Versions Only)

SENSORS	EXPECTED GAS* CONCENTRATION	FOUR-GAS CYLINDER (P/N 10058171)
Combustible	2.5% CH <sub>4</sub>	•
Oxygen	15%	•
Carbon Monoxide	60 ppm	•
Nitrogen Dioxide	10 ppm	•
• Factory Default Methane Mode		

SENSORS	EXPECTED GAS* CONCENTRATION	FOUR-GAS CYLINDER (P/N 10058034)
Combustible	58% LEL	•
Oxygen	15%	•
Carbon Monoxide	60 ppm	•
Nitrogen Dioxide	10 ppm	•
• Factory Default LEL Mode		

NOTE: If calibration gas with concentrations other than those listed above will be used to calibrate the instrument, refer to Solaris Manual, Chapter 3, "Setting up the Multigas Detector" for instructions on changing the autocalibration expected gas concentrations.

## ⚠ WARNING

The expected gas concentrations must match the gas concentrations listed on the calibration cylinder(s). Failure to follow this warning will cause incorrect calibration, which can result in serious personal injury or death.

**Table 6-2. Factory Alarm Setpoints  
(NO<sub>2</sub> Versions Only)**

GAS	LOW ALARM	HIGH ALARM	STEL	TWA
NO <sub>2</sub>	2.5 ppm	5.0 ppm	5.0	2.5

NOTE:  
See Solaris Manual for the remaining gas factory alarm defaults.  
These alarm defaults are also displayed at instrument turn-ON.

**Table 6-10. Nitrogen (Appropriate Models Only) Dioxide  
Typical Performance Specifications**

<b>RANGE</b>	50.0 ppm
<b>RESOLUTION</b>	0.1 ppm H <sub>2</sub> S, for 0.5 to 50.0 ppm NO <sub>2</sub>
<b>REPRODUCIBILITY</b>	±0.5 ppm NO <sub>2</sub> or 10% of reading, whichever is greater (normal temperature range*)
	±0.5 ppm NO <sub>2</sub> or 20% of reading, whichever is greater (extended temperature range*)
<b>RESPONSE TIME</b>	90% of final reading in 60 seconds (normal temperature range*)

\*See Solaris Manual, TABLE 6-2 NOTE.

**Table 6-11. Nitrogen Dioxide (Appropriate Models Only)  
Cross Reference Factors for Solaris Calibration**

NOTE: Data is presented as the indicated output in ppm, which would result from the application of 10 ppm of the test gas

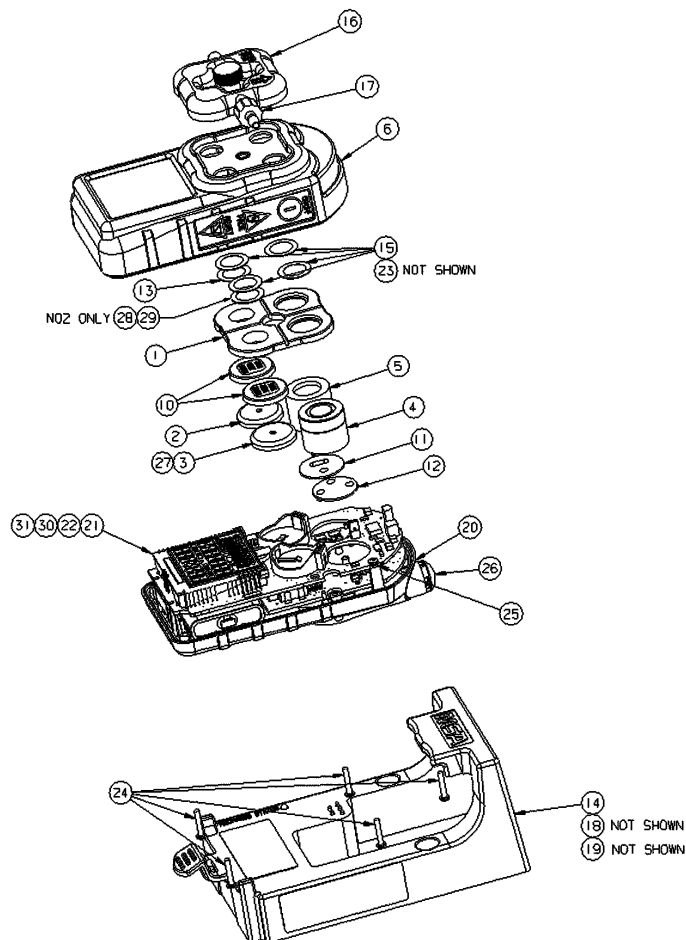
TEST GAS (10 PPM)	EQUIVALENT PPM
Hydrogen Sulfide (H <sub>2</sub> S)	-12.7 ±1.2
Sulfur Dioxide (SO <sub>2</sub> )	-.6 ±.1
Carbon Monoxide (CO)	0 ±0
Nitric Oxide (NO)	0 ±0
Ammonia (NH <sub>3</sub> )	0 ±0
Methane (CH <sub>4</sub> )	0 ±0

**Table 7-1. Replacement Parts List (NO<sub>2</sub> Versions Only)**

ITEM NO.	PART	PART NO.
27	NO <sub>2</sub> Button Cell Sensor	10059040
28	Filter, Nafion, NO <sub>2</sub> only	711505
29	Ring, Adhesive, NO <sub>2</sub> only	10011287
30	Main PC Board, NO <sub>2</sub> , Non-I.R.D.A.	10059028
31	Main PC Board, NO <sub>2</sub> , I.R.D.A.	10059027

**Table 7-2. Accessory Parts List (NO<sub>2</sub> Versions Only)**

PART	PART NO.
Four Gas Econocal (2.50% CH <sub>4</sub> , 15.0% O <sub>2</sub> , 60 ppm CO, 10 ppm NO <sub>2</sub> )	10058172
Four Gas Econocal (1.45% CH <sub>4</sub> , 15.0% O <sub>2</sub> , 60 ppm CO, 10 ppm NO <sub>2</sub> )	10058036
Four Gas RP (2.50% CH <sub>4</sub> , 15.0% O <sub>2</sub> , 60 ppm CO, 10 ppm NO <sub>2</sub> )	10058171
Four Gas RP (1.45% CH <sub>4</sub> , 15.0% O <sub>2</sub> , 60 ppm CO, 10 ppm NO <sub>2</sub> )	10058034



**Figure 7-1. Replacement Parts  
(See Tables 7-1 and 7-2 in this Supplement)**