Endura AZ20
Oxygen monitor

1 Introduction

This publication details the installation and maintenance of an Endura AZ20 5μm/oil coalescing filter regulator.

2 For more information

Further information is available from: www.abb.com/analytical

or by scanning these codes:

Sales  Service
3 Identification

The filter regulator can simultaneously supply up to 6 ABB zirconia-based in situ oxygen sensors with reference air at 0.3 to 0.5 l/min (0.64 to 1.06 scfh) and test gas air at 2.2 l/min (4.662 scfh).

Two models are available – see Table 3.1:

<table>
<thead>
<tr>
<th>Description</th>
<th>ABB Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5µm/oil coalescing filter regulator – 1/4 NPT (1/4 in. OD compression fitting, female thread)</td>
<td>AZ200 731</td>
</tr>
<tr>
<td>5µm/oil coalescing filter regulator – 1/4 BSP (6 mm OD compression fitting, female thread)</td>
<td>AZ200 732</td>
</tr>
</tbody>
</table>

Table. 3.1 5µm/Oil Coalescing Filter Regulator Models

Each unit contains 2 replaceable filter cartridges – see Table 3.2:

<table>
<thead>
<tr>
<th>Description</th>
<th>ABB Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5µm Filter cartridge</td>
<td>AZ200 740</td>
</tr>
<tr>
<td>Oil coalescing filter cartridge</td>
<td>AZ200 741</td>
</tr>
</tbody>
</table>

Table. 3.2 Replacement Filters

Notes.
- The filters on the regulator unit provide a safeguard against water and oil passing through to the oxygen sensor under fault conditions of the customer air supply only.
- Under normal operating conditions, it is important that the customer’s inlet air supply is free from oil, water and oil vapor.
4 Installation and Routine Checks

4.1 Preparation
To prepare the filter regulator for use:

1. Fit the air connectors to the filter regulator, using sealing tape on the threads to ensure an air-tight seal.
2. Mount the filter regulator vertically on a firm, clean, dry surface using the cradle and brackets supplied.

Warning. Refer to Section 3 before pressurizing the system.

Caution. Before making connections to the probe:
- Refer to the relevant probe manual for flow requirements.
- Flowmeters must be used on probes that do not have restrictors fitted to regulate both reference air and test gas flow to the probe – failure to set the correct flows will result in read errors and possible damage to the sensor.

4.2 Routine Checks

4.2.1 Filters
Inspect the 2 filters regularly and renew at 12-monthly periods (or sooner) depending on operating conditions.

4.2.2 3-Way Ball Valve Shut-off / Vent Operation
Before using the filter regulator, familiarize yourself with operation of the 3-way ball valve shut-off / vent by referring to Fig. 4.1.

4.2.3 Manual Drain Valves
Open the manual drain valves on the bottom of the filter cartridges regularly to drain any contaminants and check air quality. The frequency of this routine depends on conditions of operation.

4.3 Filter Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Air in connector (NPT or BSP specified when ordering)</td>
</tr>
<tr>
<td>2</td>
<td>3-Way ball valve shut-off / vent</td>
</tr>
<tr>
<td>3</td>
<td>Regulator (adjustment)</td>
</tr>
<tr>
<td>4</td>
<td>Air out connector (NPT or BSP specified when ordering)</td>
</tr>
<tr>
<td>5</td>
<td>Oil coalescing filter cartridge</td>
</tr>
<tr>
<td>6</td>
<td>Manual drain valve</td>
</tr>
<tr>
<td>7</td>
<td>Manual drain valve</td>
</tr>
<tr>
<td>8</td>
<td>5µm filter cartridge</td>
</tr>
<tr>
<td>9</td>
<td>Pressure gauge (outlet)</td>
</tr>
</tbody>
</table>

*3.5 bar (50 psi) min. 10 bar (145 psi) max.*

Fig. 4.1 3-Way Ball Valve Shut-off / Vent Operation
5 Pressurizing the System

Referring to Fig. 3.1:

1. Ensure isolating valve A is in the closed position.

   **Warning.** The supply line pressure to the probe is vented via the 3-way ball valve shut-off / vent. Keep clear of the vent when the valve is closed and if necessary, connect a pipe to the vent and route to a safe area.

2. Lift the regulator cap B to unlock it.
3. Set the regulator (adjustment) C to its lowest pressure setting by turning it fully anti-clockwise.
4. Ensure both manual drain valves D and E are closed by turning them fully clockwise.
5. Make connections to the air inlet F and air outlet G.
6. Apply oil- and water-free instrument air at a pressure of 3.5 to 10 bar (50 to 145 psi) to air inlet connection F.
7. Open isolating valve H to pressurize the system.
8. Set outlet pressure to 1 bar (15 psi) as follows:

   **Caution.** Never exceed a pressure of 2 bar (30 psi) to the probe. Pressures above this limit can cause serious damage to the probe.

   a. partially open one of the manual drain valves D or E to give a small, continuous flow of air
   b. slowly adjust regulator C clockwise until a constant pressure of 1 bar (15 psi) is achieved on the output pressure gauge I
   c. when reading of 1 bar (15 psi) is displayed on the output pressure gauge I, press the regulator cap J down to lock the regulator in position
   d. close the open manual drain valve D or E

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**Fig. 5.1 Pressurizing the System**
6 Replacing the Filter Cartridges

6.1 Removing the Existing Filters
Referring to Fig. 6.1:

1. Close isolating valve A.

**Warning.** The supply line pressure to the probe is vented via the 3-way ball valve shut-off / vent. Keep clear of the vent when the valve is closed and if necessary, connect a pipe to the vent and route to a safe area.

2. Release air from the 1 bar (15 psi) low pressure delivery side B by opening the manual drain valves C and D.

3. Remove the oil coalescing filter cartridge E by rotating the base 1/4 turn anti-clockwise and withdrawing the complete cartridge.

4. Repeat step 3 to remove the 5µm filter cartridge F.


![Fig. 6.1 Removing the Existing Filters](image-url)
6.2 Fitting New Filters

Referring to Fig. 6.2:

1. Free the oil coalescing filter (A) from the filter cartridge (B) by pressing the retaining tab (C) in and tilting the filter (A) to free it from one tab.
2. Lift the oil coalescing filter (A) away from the cartridge body.
3. Check that the O-ring (D) is seated correctly in the recess on the cartridge.
4. Fit a new oil coalescing filter (E) to the exiting cartridge body by sliding it over the 2 retaining tabs (F).
5. Repeat steps 1 to 4 to fit a new 5µm filter to the cartridge 5µm filter cartridge.
6. Position the oil coalescing filter cartridge (G) in the filter cartridge container (H) and secure it by rotating the base ¼ turn clockwise (Q).
7. Position the 5µm filter cartridge (I) in the filter cartridge container (J) and secure it by rotating the base ¼ turn clockwise (Q).

**Important.** To re-pressurize the system, follow the procedure detailed in Section 5, page 4.

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**Fig. 6.2 Fitting New Filters**