



# HGM300 Optical Bench Replacement Kit 3015-3847

Instruction 3015-3848

Rev. 0 – October 2005

These instructions describe how to replace the IR Optical Bench in the HGM300 Refrigerant Gas Monitor.

It is assumed that the user is familiar with the operation of the HGM300 / RDM800 Refrigerant Gas Monitoring System. If necessary, refer to Instruction 3015-4148 for detailed operation and maintenance information.

## Items Required:

- Replacement IR Optical Bench Kit 3015-3847:
  - IR Bench Assembly 3015-3412
  - Wire Ties (Qty. 2) 3015-2835
  - Instruction Sheet 3015-3848
- Medium Phillips Head Screwdriver
- Small Flat Blade Screwdriver
- Wire Cutter (for removing wire ties)

## Removing the IR Optical Bench

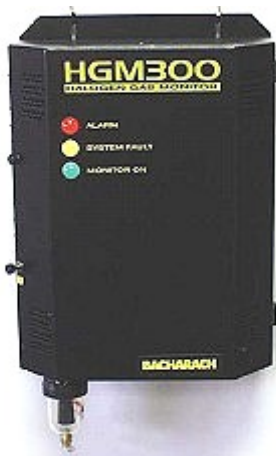


Figure 1. HGM300  
Refrigerant Gas Monitor

1. Find the HGM300 Refrigerant Gas Monitor and switch OFF its AC circuit breaker. Observe that the monitor's green MONITOR ON indicator light on the front panel should be OFF.
2. Use a Phillips screwdriver to loosen the monitor's two door latches, and then open the door.
3. Take a few minutes to familiarize yourself with the internal components of the HGM300 shown in Figure 2.

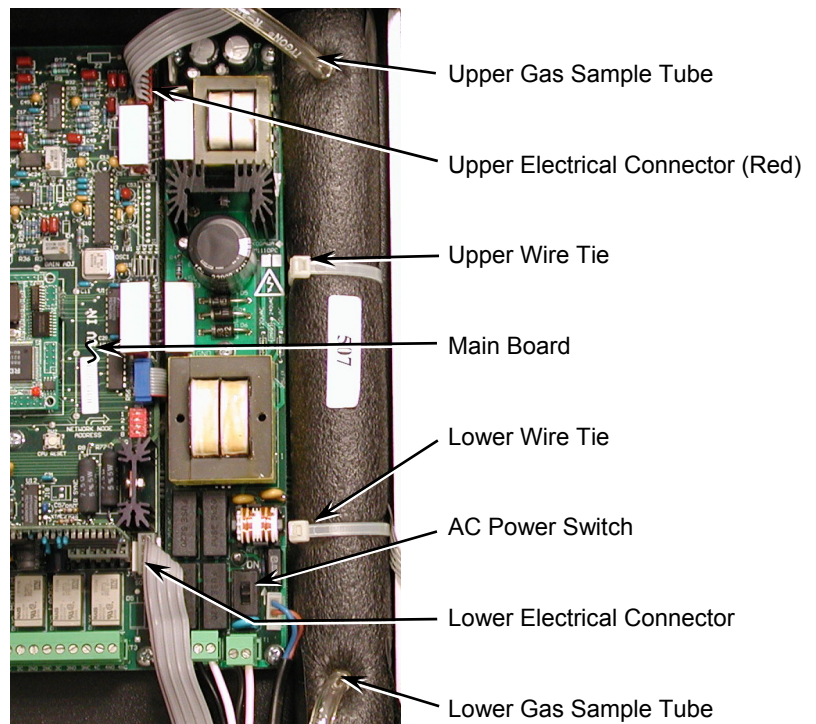


Figure 2. HGM300 Components



Figure 3. AC Power ON/OFF Switch

4. **IMPORTANT!** For added safety, turn OFF the HGM300 by pushing the internal AC Power Switch to its DOWN position! This step is in addition to setting the monitor's AC circuit breaker to OFF. Recheck the front panel MONITOR ON indicator light to ensure that it is OFF. With AC power removed, it is now safe to work inside the enclosure.
5. Refer to Figure 2 and perform the following:
  - a. Pull the upper and lower electrical connectors from their sockets on the Main board. Please note that the upper ribbon cable is the shorter of the two cables and has a red connector.
  - b. Pull the upper and lower gas sample tubes from their fittings on the IR Optical Bench.
  - c. Using wire cutters, cut the upper and lower wire ties that hold the IR Optical Bench in place, and then remove the bench.
  - d. Please provide the serial number of the HGM300 and return the old IR Optical Bench to:
 

Bacharach Inc.  
621 Hunt Valley Circle  
New Kensington, PA 15068  
Attn: Repair Department

## Installing the New IR Optical Bench

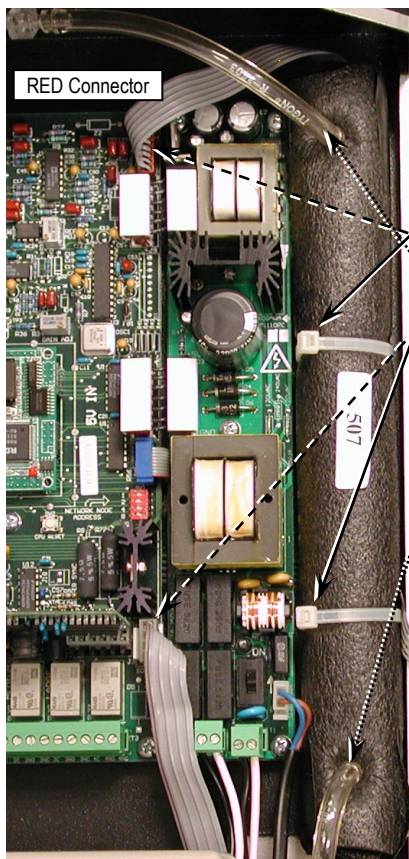


Figure 4. IR Optical Bench Installation

6. Perform the following:
  - a. Position the new IR Optical Bench inside the HGM300 enclosure so that the end with the shorter ribbon cable and red connector is located at the top, and the gas fittings are facing forward.
  - b. Using the wire ties supplied in the kit, secure the bench to the tie-down fixtures on the back panel of the enclosure.
  - c. Plug the ribbon cables from the new bench into their associated sockets on the Main board. Note location of red connector
  - d. Connect the gas sample tubes to their associated fittings on the new bench.
7. Check to ensure that the new IR Optical Bench is properly secured, and that all tubing and electrical connectors are tight.
8. Turn ON the HGM300's AC circuit breaker, and push the monitor's internal AC Power Switch to its UP (or ON) position.
 

**WARNING!** Shock hazard. The monitor is now powered ON.
9. Before proceeding, allow the HGM300 to warm-up until its green MONITOR ON indicator light stops flashing.

## Adjusting the IR Optical Bench Detector Voltage



Figure 5. Push button of monitor being serviced to display its SETUP Screen

10. Check, and possibly adjust, the IR Optical Bench detector voltage by first going to the RDM800 and pushing the button on the System Screen that corresponds to the HGM300 monitor being serviced. This action will display that monitor's SETUP Screen.



Figure 6. Push DIAG button to display DIAGNOSTIC Screen

11. From the SETUP Screen, press the DIAG button to display the DIAGNOSTIC Screen of the monitor being serviced.



Figure 7. Detector voltage should be between 4.2 and 4.3 VDC

12. Look at the second line labeled DET. This is the IR Optical Bench detector voltage. The voltage should be between **4.2 and 4.3 VDC**.

If the voltage is out of range, then go to Step 13.

If the voltage is within range, then skip to Step 14.

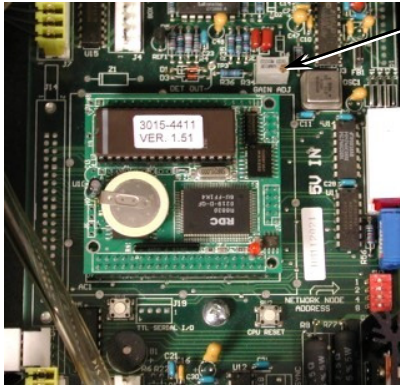


Figure 8. Detector GAIN  
ADJ Potentiometer R34

13. Go back to the HGM300 and find GAIN ADJ potentiometer R34 on the Main board. Using a small flat-blade screwdriver, turn R34 clockwise to increase or counterclockwise to decrease the detector voltage to between 4.2 and 4.3 VDC. **MAKE VERY SMALL ADJUSTMENTS!**
14. Secure the HGM300's enclosure door and place the monitor back into service.



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