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# Medical Gas Rail

## Installation Instruction

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### **CONTACT INFORMATION:**

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270 Scientific Dr, Ste 14  
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## **INTRODUCTION**

This is a general outline and photo guide for installing the Lifespan Medical Gas Rail headwall system. [MGR = Medical Gas Rail]



Fig 1 -1 Completely Installed MGR with lighting option

## **REGULATORY COMPLIANCE NOTICE**

**This Medical Gas Rail system has been designed and manufactured in accordance with exacting specifications, including the requirements of UL STD 60601-1, CAN/CSA STD C22.2, No.601.1, and the applicable portions of NFPA 99. It is the installer/customer/s responsibility to see that it is installed according to these instructions and in compliance with all applicable local, state, and/or national codes.**

### **1. BEFORE STARTING**

For each product configuration, a pre-cut wall backer plate is shipped to the job site in advance. This plate serves as rough-in template as well as wall support mounting plate.

#### **List of tools required:**

- Level (4 ft min) or laser level
- Power drill (corded or cordless with assortment of bits and driver tips)
- Extension Device (6 inch) for driver tips
- An assortment of Allen (hex) keys
- A pair of small locking pliers (vise grip)

**VERIFY** that all dimensions and final connections conform to APPROVED SUBMITTAL DOCUMENTS prior to installation.

2. **LIGHTING OPTIONS** Optional lights shall be wired in conformance with the Approved Submittal Documents. Light control devices (on/off switches; dimmers where applicable) can be specified as part of Power Raceway and/or as an independent wall device (e.g. near a door) to be installed by others. Optional lighting is installed last.

3. **ROUGH IN - BACKER PLATE INSTALLATION**

**REFERENCE APPROVED SUBMITTAL DOCUMENTS TO MATCH THE ROUGH-IN LENGTH AND GAS FEED LOCATION BY ROOM NUMBER.**

**NOTE: BACKER PLATES ARE REVERSIBLE AND MAY BE FLIPPED LEFT-TO-RIGHT TO ACCOMMODATE GAS FEED LOCATION**

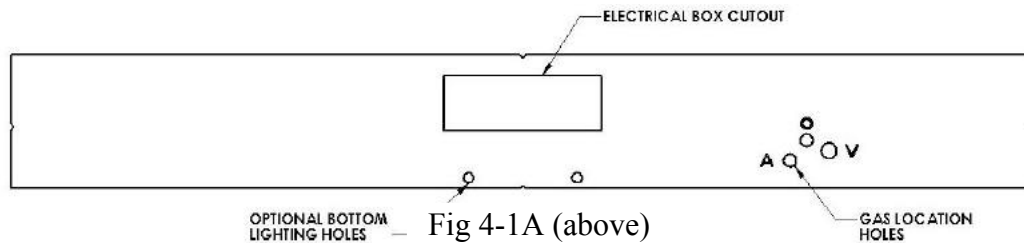


Fig 4-1B (below)



- 4.1 **Locate** centerline of Backer Plate to position as shown on corresponding Submittal Document by room number.
- 4.2 **Center** Backer Plate as shown in Figs 4-1A and 4-1B making sure the “V” notch in top center of Backer Plate (Fig 4-2) corresponds with centerline position of the MGR as specified in the submittal documents.

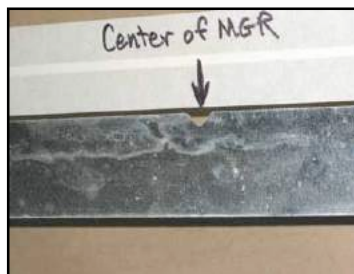


FIG 4-2

- 4.3 Level Secure** Backer Plate using screws (not provided) that attach directly into the wall studs. (see below). Screws must attach both the upper and lower edges of the plate to EVERY STUD that it crosses. The screws should be placed 1 inch from each edge.

**NOTE** Due to varying conditions at installation sites, the installing contractor is **solely responsible** to insure that the backer plate is properly secured to the structure and capable of supporting the loads that are anticipated. For typical installations Self-Drilling Pancake Head Sheet Metal Screws (10-16 x 1") work well. A known source is McMaster Carr (item # 94090A100) in Norcross; GA. McMaster-Carr can be reached by phone at (404) 346-7000 or via the internet at McMasterCarr.com. If a substitute or equivalent is used, the large diameter head (just under ½ inch) is extremely important.



FIG 4-3



FIG 4-4



FIG 4-5

- 4.4 Remove** any sections of studs that interfere with routing of gasses or installation of electrical boxes (Figs 4-3, 4-4, & 4-5). Re-frame as needed to accommodate gas drops, stub-outs and electrical boxes in accordance with applicable building codes.
- 4. VERIFY** that all dimensions, particularly centerline and height of installation, insuring that they comply with APPROVED SUBMITTAL DOCUMENTS. **ROUGH IN - ELECTRICAL BOXES**

- 5.1 Attach** pre-assembled electrical boxes (provided by Lifespan) so they project into template opening of backer plate. Boxes must extend beyond Backer Plate by thickness of finished wall to be installed. Make sure boxes **do not** protrude beyond finish wall surface (Fig 5-1).
- 5.2 Terminate** conduits into junction boxes in accordance with all applicable codes.
- 5.3 Pull** wires in accordance with Electrical Section of Submittal documents and all applicable codes, noting wire color, power type, and circuit designation (Fig 5-1).



FIG 5-1

## 6. ROUGH IN - MEDICAL GAS CONNECTION

**NOTE:** Keep supply pipes loose enough so that there is still some flexibility to move stub-outs vertically, horizontally as well as in and out. This movement will make the brazing process easier.

6.1 Route gas drops providing stub-outs for oxygen, air, and vacuum.

6.2 Feed each stub-out pipe through its designated opening: Backer Plate is marked with “O”, “V”, and “A” for “Oxygen” (1/2”), “Vacuum” (3/4”), and “Air” (1/2”) (Fig. 6-1).

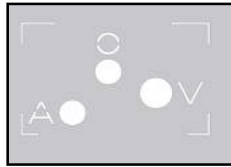


FIG 6-1

6.3 **Trim and Cap** all stub-outs so protrusion from finished wall is minimum of 4 inches (Fig 6-2).



FIG 6-2

7. **CONSTRUCTION – Finish** wall per governing documents.

## 8. FINISH ASSEMBLY - UNPACKING & PREPING TO INSTALL

8.1 Each Medical Gas Rail (MGR) Assembly comes complete in one box (except for mounting hardware, 36 screws). Prior to installation, the MGR must be unpacked and partially disassembled. **FOLLOW THESE INSTRUCTIONS TO PREVENT DAMAGE TO THE ASSEMBLY AND TO MAKE THE INSTALLATION SAFE AND SUCCESSFUL.**

8.2 **DO NOT MIX PARTS FROM ONE ASSEMBLY WITH ANOTHER; SOME COMPONENTS ARE CUSTOM MANUFACTURED AND ANY SWITCHING MAY RESULT IN DIMINISHED APPEARANCE AND/OR FUNCTION.**

8.3 **DO NOT REMOVE THE MGR FROM ITS BOX OR BEGIN TO DISASSEMBLE IT UNTIL YOU ARE READY TO INSTALL IT. THIS WILL PREVENT DAMAGE TO THE MGR AS WELL AS PREVENTS ITS COMPONENTS FROM BEING LOST OR MISPLACED.**

8.4 Locate and have available 1 package of 36 Self Drilling Screws for each MGR. The number of screws sent depends on the length of the MGR.

8.5 Insure that the MGR being unpacked is to be installed in the room being used to unpack it.

8.6 After removing the box lid, lift the MGR straight up and out of its box. Leaving the 2 center styrofoam bands in place around the center of the MGR. Carefully place it on a flat surface with the gas and electrical devices downward supported by the center Styrofoam bands (Fig 8-1).



Fig 8-1

8.7 Using a box knife or similar tool, carefully cut away the upper portion of the styrofoam bands and remove them. The idea is to form two flat blocks to support the MGR while the next few operations are being performed (Fig 8-2).



Fig 8- 2

8.8 Remove the lens and lens holders from the top and bottom of the MGR.

- A. DO NOT SCRATCH, DAMAGE, OR REMOVE THE PROTECTIVE COVERING FROM THE LENS!!!
- B. Using both hands, press the Lens Clip (narrow aluminum strip) away from you and downward. This movement will allow the Lens Clip to unlatch and free the lens it secures (Figs 8-3 & 8-4).

Fig 8-3



Fig 8-4



- C. There are two (2) pieces of Lens Clips on the top and four (4) on the bottom of the 8-foot MGR's. The quantity of clips may vary depending on the length of the MGR.



- D. Set the Lens and Lens Clips aside for now. **PROTECT THEM FROM LOSS AND/OR DAMAGE!!** Be sure you keep them with the unit that they were removed from so that parts are not mixed from unit to unit.

8.8. Flip the MGR over so that the Electrical and Gas Outlets are visible and pointing upward while still sitting on the styrofoam blocks (above). Remove the End Plates that are on opposite ends of the assembly. These are removed by backing out the three (3) hex head screws using a 1/8" Hex Key. Set the End Plates and screws aside for later use (Fig 8-5).

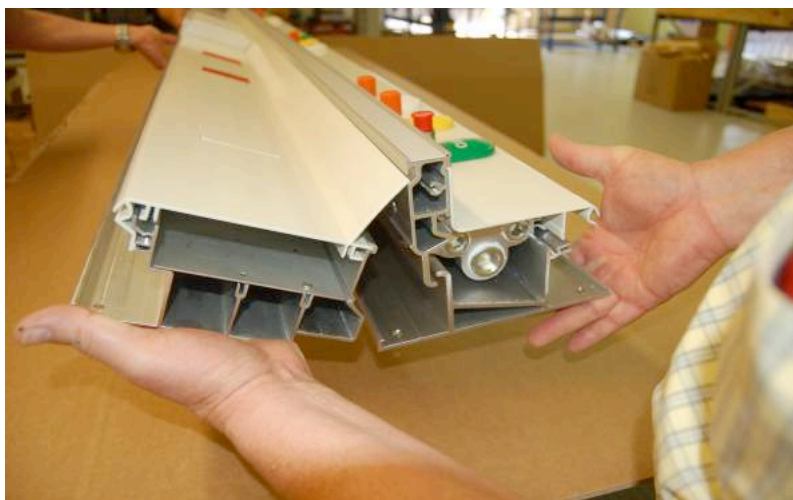


Fig 8-5

8.9 Separate the two MGR sub-assemblies (Gas Module and Electrical Module). There is a flange that runs the length of Electrical Module, which slides into a corresponding groove in the Gas Module. By lifting the long exposed edge of the Electrical Module and allowing the Gas Module to remain stationary, the Electrical Module flange can rotate out and away from the Gas Module. Take care not to bend or distort this flange in any way. Set the Electrical Module aside for later use (see Fig 8-6).

Fig 8-6

Electrical Module on Left; Gas Module on Right





8.10 Remove the 13" Fascia from the Gas Feed area of the Gas Module (the end with copper pipes protruding). This panel is to be removed by extracting the two (2) 6-32 x 3/8 screws and rocking the panel away and out of the channel in the Gas Module. Set the Fascia and screws aside for later use (Fig 8-7).



Fig 8-7

## 9. FINISH ASSEMBLY – GAS MODULE INSTALLATION

9.1 Establish a point exactly 1-3/4 inches above the bottom of the electrical box cutout in the Backer Plate (previously installed).

9.2 Strike a horizontal line on the finish wall through the point just established in 9.1 in preparation for the installation of the Gas Module. This line must be level since the MGR will ultimately be installed parallel to this line (Fig 9-1).

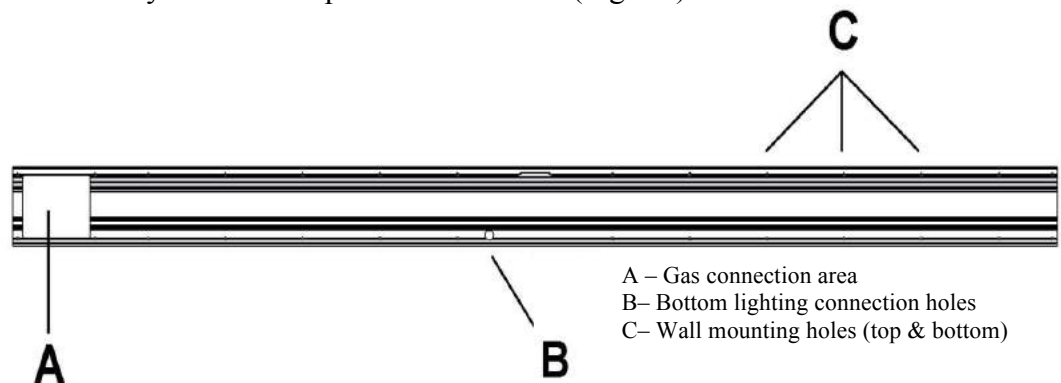


Fig 9-1

9.3 Attach Gas Module to finished wall so that the very top of the bracket is even with the line drawn in the previous step. Use the #14 x 2 self-drilling sheet metal screws (provided, one screw every 8 inches). Insert screws through all exposed pre-drilled Gas Mounting Bracket holes (Fig 9-2; Gas Manifold omitted for clarity).



**Note:** Screws MUST be used in all upper and lower mounting holes. Be sure that the screws go squarely into the holes and penetrate the Backer Plate previously installed behind the finish wall. If needed, use 6-inch driver extension to insure that the bit can fit squarely into the screw head.

FIG 9-2

#### 9.4 Make Medical Gas Connections

Note: The Gas Module is delivered as a pre-assembled unit. All gas couplers and gas feeder pipes have been factory installed. The entire Gas Module has been cleaned and pressure tested in conformance with NFPA 99, and is ready for brazing. Do not remove the caps on the copper pipes until the following steps are ready to be performed by a qualified brazer.

- A. Temporarily place the appropriate size elbow (two 1/2" and one 3/4" supplied by others) on the ends of the gas feeder pipes on the Gas rail and mark the stub-outs to the proper length and cut off the stub-outs so the correct spacing is maintained and so the stub-outs meet the elbows as shown in Fig. 9-3.

**IMPORTANT:** As the previous step is being accomplished, all feeder pipes and other required fittings (provided by others) must be properly positioned and inserted for subsequent brazing. If any adjustments are needed to the stub-outs, these must be accomplished now.



FIG 9-3

- B. Prepare for brazing by placing heat shields and/or wet rags around or on the copper pipes that are threaded into the Gas Manifold. Be especially careful not to over heat these threaded connections, as this will void the warranty.

**CAUTION: Protect extrusions and threaded joints against excessive heat**

- C. Braze stub-out connections in conformance with requirements of NFPA 99. (Fig 9-4)

- D. Perform all final tests in conformance with recommendations of NFPA 99.

- E. Install 13" Gas Fascia Panel using 6-32 x 3/8 screws at each end (panel and screws removed previously) over gas connection area. **DO NOT OVER TORQUE SCREWS; SNUG THEM ONLY!!**

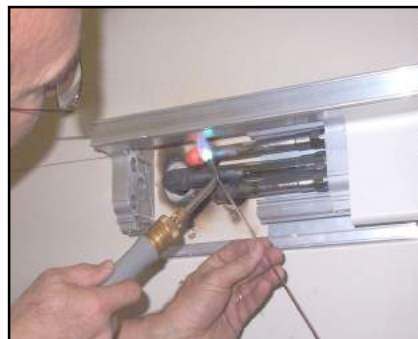


FIG 9-4

## 10 FINISH ASSEMBLY – ELECTRICAL MODULE

The Electrical Module is delivered as a pre-assembled and pre-wired unit with provision for installation by others of Nurse Call and all other low-voltage devices. The entire assembly has been tested in factory and is listed under UL Standard 60601-1.

**Note:** Electrical contractor is responsible for adhering to all national, state and local codes.

1. Pull wires out of each of the three electrical boxes and straighten into individual bundles (Emergency, Normal, and Low Voltage; include Pull Strings if appropriate).

2. Remove the center (Nurse Call) fascia from the Electrical Module by removing the 6-32 screws that hold it in place; also remove the electrical raceway cover located behind the Nurse Call fascia (this cover is flat aluminum with large electrical shock hazard label attached to it). Set these removed items aside and save for later use.
3. Position the Electrical Module on top of the previously installed Gas Module. Note how the leading edge of the Power Fascia panel is inserted in the front groove on top of Gas Module. (Fig 10-1)



FIG 10-1

4. Feed each wire bundle including pull strings (where applicable) through appropriate grommet holes in back channel of center section per Submittal Document designation.
5. Pivot Electrical Module toward wall while pulling wire bundles out in front until back surface of Power Raceway sits flat against finished wall.
6. Attach Power Module to wall and into Backer Plate along upper flange with #14 x 2" self-drilling screws (provided); place one screw into every pre-drilled hole (10 to 12 typically).
7. Connect individual wires from wall boxes to correspondingly labeled circuits in wiring channels of the Electrical Module.
8. Push spliced wires down into respective wire trough so nothing projects.

9. Connect Nurse Call and other low voltage devices installed in center section.

Note: Nurse Call and other low voltage devices supplied by others.

10. Re-Install the wiring covers and the Nurse Call Fascia in the reverse order in which they were removed.

## 11 FINISH ASSEMBLY - END PLATE INSTALLATION

Attach end plates previously removed using the 1/4-20 cap screws (provided) and an 1/8" Allen wrench. The small Electrical Hazard labels should be visible to the user when the end plates are installed.

## 12 FINISH ASSEMBLY – TOP AND BOTTOM LENS & LENS CLIP

**NOTE: The white protective covering on the Lenses must be removed before reinstalling the lens on the MGR. Installed after end plates are attached**

**Installing a lens section (see Fig 12.a, 12b, 12c, & 12.d (below))**



Fig 12A

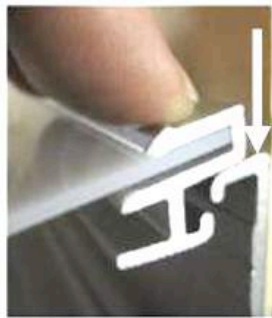


Fig 12b

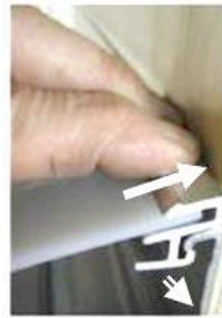


Fig 12c



Fig 12d

1. Place lens section into forward groove in the respective extrusion. Push lens into groove as far as it will go. Place Lens Clip over outer edge of lens until seated all the way in, as shown.
2. Holding lens trim, bow lens panel while keeping lens clip pulled tightly against it.
3. Bow lens until lens clip has bottomed out against underlying structure (mounting bracket lip).
4. Push lens clip firmly toward the wall while keeping it in firm contact with underlying structure.
5. When lens clip is in contact with wall along entire length, release pressure; lens will spring back slightly to engage internal lip along length of trim section. Repeat this process for all Lens Clips on top and all Lens Clips on.

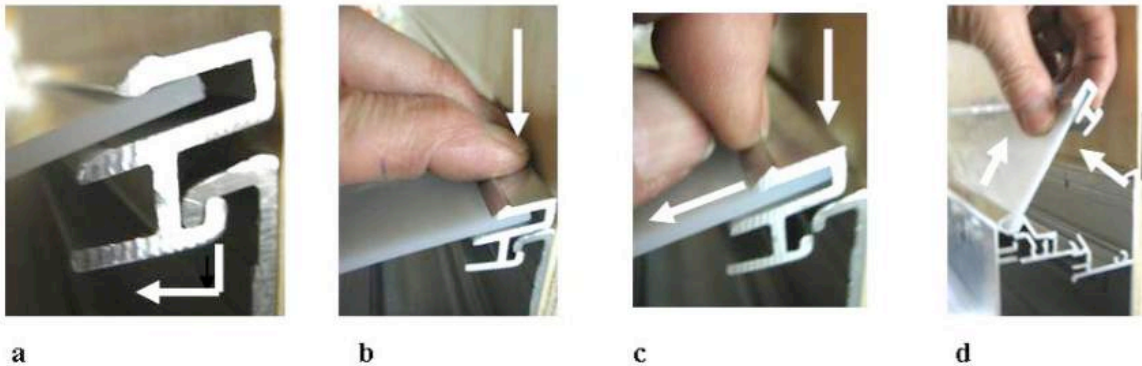
## 13 REMOVING LENSES

13.1 Lens trim internally hooks to tab extruded into mounting bracket along entire length to retain diffuser lens. Manipulate lens trim as shown (b, c, d) to disengage and separate hook to release diffuser lens.

13.2 Where lens trim of diffuser lens meets wall surface, push lens trim extrusion down against supporting inner structure until it bottoms out. (Upper panel is shown; upside-down action required on bottom panel)

13.3 Pull lens trim extrusion away from wall while maintaining firm contact with underlying structure.

13.4 When lens trim is pulled away from wall completely, inner hook configuration will release, allowing diffuser lens to spring out so it can be removed.



## 14 Final Caulking

When installation is fully tested, it may be desirable to place a fine bead of caulking along entire perimeter of product as needed.

**NOTE:** Preferably, no caulk is applied to joint between lens trim and wall. If joint is caulked, remember that this caulk bead will have to be removed to gain access to light compartment or to replace defective covers.

## 15. Installation of Optional Lighting

**Note:** Due to numerous instances of lights getting lost on the job site, the lights will be shipped upon request



Each product configuration has four lighting options

1. Up light and down light
2. Up light only
3. Down light only
4. No lighting

### **15.1 INSTALL UP-LIGHTS**

15.1.1 Up-lights generally feature lighting elements that extend full width end to end.

15.1.2 Remove light module from package.

15.1.3. Make wiring connection.

15.1.4 Place light module into lighting channel while assuring that wiring is tucked underneath.

15.1.5. Attach light module to extruded screw boss along flange.

15.1.6 **FINAL TESTING OF LIGHTS:** Check that appropriate switch or dimmer can control each light.

### **15.2 INSTALL DOWN-LIGHTS**

15.2.1. Down-lights generally only have one lighting element at each end. Wires for lower lights must have been pulled into mounting bracket during installation of bracket.

15.2.2. Follow same install procedure as for up lights, except upside-down **Note:** Down-lights require wires to be pulled from appropriate electrical box into mounting bracket at time of installing bracket.

15.2.3. Install all fluorescent tubes or lamps as required.

## **16. MEDICAL GAS RAIL TESTING, CERTIFICATION, AND USAGE**

16.1 This instruction has not specified all the tests, verifications and certifications that are necessary before placing Medical Gas Rails into usage. It is assumed that the Owner and Installing Contractor know of and comply with all such regulations and requirements

16.2 Should there be any question regarding this system (installation, certification, testing, performance parameters, or any such matter), please contact the Manufacturer via the information noted below:

**Nexspan Healthcare, LLC**  
**270 Scientific Drive; Ste 14**  
**Norcross, GA 30092**  
**678 578-7800 (p)**  
**678 578-7840 (f)**