The medical gas trainer is a fully operational model. It was designed and built for the UA by UA member workers. This trainer gives the instructor two separate views of the medical air system; the mechanical “equipment room” and the user end “emergency room” applications.

The system requires a 120 volt ground faulted circuit, drawing approximately 13.5 amps of current. A standard 15 amp toggle switch activates the entire system. When turned to the on position, the green light indicates power has been applied to the system.

Located above the medical air compressor and vacuum pumps are the lag compressor alarm panels. The stop/start switch will activate compressor and vacuum station—the alarm will continue to sound until the lag compressor has reached its operating pressure.

Power is also applied to the user end medical area and due point monitors. Each alarm panel will continue sound until the required pressures and conditions have been achieved. A reset button on each panel will silence alarm during start-up.

The master alarm has sixteen system monitoring points listed on the panel. Located inside the panel is an on/off control switch and a fuse for protection. Alarms activated on the panel will be triggered by pressure activated control switches located on outlet side of the header valves. Local alarms, compressor and vacuum pump lag in use will also activate the master alarm system.

The area alarm is used at point of service. This system incorporates a visual source of pressure reading. It has six points of monitoring: oxygen, medical air, nitrous, nitrogen, mechanical vacuum and wag gas. Each pressure is displayed with corresponding LED lights to indicate low, normal and high pressure status. Transducers located inside the panel sense line pressure and alarm when abnormal conditions exist. Their perimeters have been pre-programmed at the factory and can be re-programmed to fit your program. A test procedure can be performed on both the master and air alarms by pressing the test button located on the front panel.

There are three pressure relief valves in the medical air system, one for each compressor, one located on the reservoir tank and one adjustable relief located on the down stream side of the regulator. Two pressure controls cycle the medical air compressors. First stage compressor is off at 115 PSIG. Lag compressor is off at 100 PSIG on at 85 PSIG. They have adjustable range settings and can be changed if so desired.

There are two medical vacuum pumps. Controls are set to cut out at 20 inches for the lead pump, 15 inches for the lag pump.

The dew point/co analysis system is a continuous medical air monitoring instrument. It has two measuring features. Carbon monoxide and due point reading will be displayed on the front panel. Visual and audio alarms indicate unsafe conditions. These alarms will also be displayed
on the master alarm panel.

A fault system is incorporated in the Medical Air 2200 system consisting of electrical and mechanical failures. Abnormal conditions trigger the master, area and local alarm systems.

Located above the Medical Master Alarm panel are four toggle switches, left to right 1-4. These switches will trigger a fault in the system when placed in off position and will be displayed on the appropriate alarm panel followed by an auto alarm signal. All alarms will be reported to the Master Alarm system. Three areas that are monitored are local, area and master. Local located in the equipment area, area point of server, master constantly monitoring all alarm locations. Returning these switches to the on position and balancing the panel will return the system to normal operation.

Switch #1 - Nitrogen line pressure is high. Master alarm panel indicates line pressure is high in the system. The area alarm is normal and the line pressure in the system is also normal. **Solution:** The normally closed contacts for the nitrogen pressure sensor are open in the area alarm.

Switch #2 - Due point fault. Medical Air 2200 has faulted on due point. Alarm is local. Medical Air 2200 indicates a due point fault, no other alarms are activated. **Solution:** Due point transducer is defective.

Switch #3 - Medical air dryer power failure. Placing the switch to off position will trigger the master alarm indicating a power failure has disrupted the operation of the air dryer. Placing the switch to the on position returns the system to normal.

Switch #4 - Area alarm has a medical air alarm--panel indicates an error has occurred. Error will be flashing on the appropriate screen and alarm will be sounded at the area alarm panel. **Solution:** Medical air transducer has failed or an open connection has occurred.

The oxygen manifold has been reconfigured to operate at lower pressures. Isolating the right bank cylinder and bleeding the pressure will cause the oxygen manifold to switch to the left bank. This will trigger an oxygen secondary supply in use alarm to occur at the master alarm panel. Reopening the valve returns the system to normal operation.

**Note:** Due to the pressure changes during system operation, the manifold is prone to switching banks prematurely. The manifold requires 110-120 PSIG to operate properly. Lowering the pressure below 115 PSIG will indicate the bank is empty and will switch to the secondary supply.

The Med Air 2200 and the air dryer require air flow to work properly. Needle valves are located to restrict the supply and exhaust air flow. This is to reduce compressor operation. The valves are equipped with locking rings and are preset at the factory. Some adjustment may be necessary. Loosening the ring will allow required adjustment.
The Medical Gas Trainer built by members of Local 50 for the UA Plumbing and Pipefitting Training Program is designed to enhance your medical gas program. Both views of the system provide hands-on training, master, area and local alarms, monitor gas and vacuum systems, desiccant air dryer provides dew point control with CO and dew point analysis. Designed to work closely with the NFPA 99C standards, this trainer is a must for your pro-