User Manual for
Amron International, Inc.

**Model 8330 and 8300-HP**
**3-Diver Air Control Systems**

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EVERYTHING UNDER PRESSURE™

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# 1 INTRODUCTION AND SPECIFICATIONS

## 1.1 INTRODUCTION

The AMRON Model 8330 & 8300-HP are portable self-contained, three-diver, high and low pressure air control and depth monitoring (pneumo) systems, for surface supplied diving operations. These systems are designed to provide a central control point for the supply of breathing air to the divers and to monitor the divers' depth. The units are housed in a durable, pressure-fused fiberglass case which provides a convenient, compact, rugged and professional system.

### 1.1.1 AIR CONTROL

The Air Control Section consists of high/low (HP/LP) pressure inputs and three-diver air connections.

The high-pressure inputs are #6 JIC (3/8) with shut-off valves and 0-6000 PSI gauges. The input pressure range is 500 to 5000 PSI.

High-pressure air is reduced to desired low pressure via a Tescom adjustable regulator. The input to the regulator is protected against contamination by a 50-micron filter. Regulator output pressure is adjustable over the range of 0 to 300 psi; a 2 1/2" 0-600 PSI gauge monitors the output pressure. The unit has an over pressurization relief valve, factory set to 285 psi.

Check valves provide protection against back flow of air.

The low-pressure input is #8 JIC (1/2), and has a check valve to permit simple switch over from low-pressure air to high-pressure air.

Diver's air line connection is O2-type fitting; control is via two 1/4 turn-ball valves permitting unrestricted flow.

### 1.1.2 DEPTH MONITORING

The diver's pneumo connection is an O2 type fitting; pneumo valves are regulating type. Pneumo gauges are 6" high, precision 0.25% of full-scale accuracy, dual scale 0-250 FSW/0-76 MSW with one foot increments.

### 1.1.3 LOW-PRESSURE ALARM MODULE

Low-Pressure Alarm Module supplies a loud audio signal to alert the operator when a Diver's air pressure falls below a preset limit of 100 PSIG.

## 1.2 SPECIFICATIONS AIR CONTROL

### 1.2.1 HIGH PRESSURE INPUT

| | |
|---|---|
| Inlet Connection | #6 JIC |
| Input Pressure Range | 500-5000 PSI |
| Inlet Valve | Source Select Needle |
| Gauge – 0-6000 PSI | Accuracy +/- 1.5% |
| Input Filter, In-line Pre-regulator | 50 micron |

### 1.2.2 HIGH PRESSURE REGULATOR - TESCOM

| | |
|---|---|
| Outlet Pressure Range | 0-300 PSI |
| High Flow | Cv = 0.8 |
| Max Pressure | 5000 PSI |

### 1.2.3 LOW PRESSURE INPUT, WITH CHECK VALVE

| | |
|---|---|
| Max Pressure | 285PSI |
| Inlet Connection (#6 JIC) | 1 |
| Diver Outlet Connection, (O2 Fitting) | 1 |
| Diver Outlet Valve (Ball) | 1 |
| Air Pressure Gauge, 0-600 PSI | Accuracy +/- 1.5% |
| Over Pressure Relief Valve Set Pressure | 285 PSI |

### 1.2.4 PANEL

| | |
|---|---|
| Material | Stainless Steel |
| Powder Coating | Black Textured Semi-Gloss Polyester |
| Silkscreen Graphics | White |

## 1.3 SPECIFICATIONS DEPTH MONITORING (PNEUMO)

### 1.3.1 PNEUMO GAUGE, 3-D PRECISION

| | |
|---|---|
| Mirrored Scale, 6 Inch | 3 |
| Range | Dual Scale 0-250 FSW/0-76 MSW |
| Divisions | 1 Foot |
| Accuracy | 0.25% of Full Scale |

### 1.3.2 PNEUMO VALVE

| | |
|---|---|
| Regulating Valve, KEL-F Seat | 3 |

### 1.3.3 OUTLET CONNECTION

| | |
|---|---|
| O2 Fitting Chrome Plated Brass | 3 |

### 1.3.4 LOW PRESSURE ALARM

Audio Range, 22.5-125 ..... Factory set at 100 PSI

### 1.3.5 PANEL MATERIAL

Material ..... Aluminum
Powder Coating ..... Black Textured Semi-Gloss Polyester
Silkscreen Graphics ..... Yellow

## 1.4 SPECIFICATIONS ENCLOSURE

### 1.4.1 CASE MATERIAL

Pressure molded fiberglass, with aluminum and or stainless steel hardware. Includes carrying handle, latches, and stay hinge to lock unit in open position (upper section is locked upright in respect to lower section).

### 1.4.2 CASE

Lid closed..... 25”W x 20”D x 20”H
Lid open ..... 25”W x 20”D x 29”H
Weight: .....Approximately 95 lbs.
Color: ..... International yellow


**MODEL 8330**

# 2 SAFETY AND REGULATIONS

Safe diving does not happen by accident. There are few occupations in the world which require such a broad range of knowledge and training as diving. There are many diverse factors which can affect diving safety, i.e. planning, weather, equipment, location, water conditions, as well as the type of work being done. The single most important factor in eliminating accidents is planning and attention to detail. Diving knowledge, training and experience are fundamental elements needed to execute a safe dive.

The following reference materials are recommended as sources of information for running a safe diving operation:

1. U.S. Department of Labor, OSHA Regulations 1910.401 Sub-part T–Commercial Diving Operations.
2. U.S. Navy Diving Manual.
3. Divers Handbook of Underwater Calculations.

## 2.1 DIVING SAFETY AND REGULATIONS

### 2.1.1 DIVING REGULATIONS

Several codes and regulations cover diving operations and procedures. In the United States most commercial diving operations are covered by the OSHA (Occupational Safety and Health Administration) regulations, or individual state regulations, which are adopted from the federal regulations, and made a part of the civil code.

While government agencies are exempt from OSHA regulations, they generally fall under other regulations, which are similar or stricter than OSHA. If they are completely exempt, they must still abide by the procedures for operating a safe dive.

While no agency (within the U.S., for commercial diving operations) tests or approves equipment for use, they do establish minimum standards which should be followed. The suitability of a given piece of equipment for a particular task is left to the supervisor of the dive. The following information is extracted from the OSHA regulations for commercial diving operations.

**NOTE:** The information is not presented as a direct or complete quotation, but rather as our interpretation of the regulations. Each diving supervisor should obtain a copy of these regulations for their own use.

**WARNING: DO NOT USE MODELS 8330 or 8300-HP FOR THE FOLLOWING:**

- Mixed gas diving operations with an oxygen level greater than 25%.
- Oxygen or oxygen enriched breathing mixtures above 25%.

**MODELS 8330 or 8300-HP are not designed or intended for these applications.**

## 2.2 PERSONNEL REQUIREMENTS

1. Each dive team member shall have the experience or training necessary to perform assigned tasks in a safe and healthful manner. The person operating

the Model 8330 & 8300-HP must be trained in the proper operating procedures and emergency operating procedures.

2. It is the responsibility of the designated person in charge of the diving operation to be on site at all times. He is responsible for all aspects of the diving operation affecting the health and safety of dive team members.

3. The dive shall be terminated when:

   - A diver requests termination.
   - A diver fails to respond to instructions.
   - Diver communications are lost and cannot be re-established quickly.
   - A diver begins to use diver carried back-up breathing air or location reserve breathing air.
   - Operational conditions deteriorate to a point where safe diving cannot be guaranteed.

## 2.3 AIR SUPPLY REQUIREMENTS

**WARNING**

Regardless of the type of air supply being used for surface supplied diving; the diver must always have a back-up supply of air. Generally this is in the form of a bailout bottle. The back-up air supply must be adequate to return the diver to the surface; if the dive requires in-water decompression, this must be accounted for also.

1. The diver's air supply may originate from a low-pressure air compressor, high-pressure air cylinders, or a combination of both. Regardless of the source, the air must meet certain established standards of purity and must be supplied in an adequate volume for breathing.

2. The air supply requirements depend upon the specific factors of each dive such as depth, duration, level of exertion, and type of diving system (helmet/hat) being used. It is the dive supervisor's responsibility to ensure that an adequate supply of air is available and on site for the planned dive. This includes sufficient back up air to safely return the diver to the surface in the event the primary supply of air is lost.

3. Low-pressure compressors used for breathing air should be specifically designed for diving. Compressors used to supply air to the divers shall be equipped with a volume tank which has a check valve on the inlet side, a pressure gauge, relief valve, drain valve, and a proper filtration system. The output of the air compressor system shall be tested for air purity every 6 months by means of an air sample.

4. Air compressor intakes shall be located away from and up wind of areas containing exhaust or other contaminants.

5. **NOTE: OSHA regulations require** a decompression chamber capable of recompressing the diver at the surface to a minimum of 165 FSW (6 ATA) shall be available at the dive location for a surface supplied air diving to depths deeper than 100 FSW.

## 2.4 CALIBRATION, SERVICE AND INSPECTION

6. Each depth gauge shall be dead weight tested or calibrated against a master reference gauge every 6 months or if there is a discrepancy greater than two percent (2%) between any two equivalent gauges.

7. Each equipment modification, repair, test, calibration, or maintenance service shall be recorded by means of a tagging or logging system, and include the date and nature of work performed, and the name of the person performing the work. For your convenience a repair service log is provided at the end of this manual.

8. Equipment Inspection; Prior to each dive, the equipment shall be inspected and checked to ensure that it is in proper working order.

# 3 CONTROLS & CONNECTIONS

Before using Model 8330 or 8300-HP, familiarize yourself with its operating controls and connections. For simplicity, the controls and connections are divided into three categories. The categories are Air Control, Pneumo, and Communications.

## 3.1 AIR CONTROL

The Air Control section consists of a high-pressure section and a low-pressure section. The system is designed to supply breathing air to a diver through an umbilical. This is known as surface supplied diving. The air the divers are breathing is supplied from the surface.

### 3.1.1 HIGH-PRESSURE

Accepts breathing air from SCUBA bottles or any other suitable source, i.e. high-pressure flasks. The pressure is reduced to a level suitable to the needs of the diver via a pressure-reducing regulator. The pressure required by the diver is determined by the type of helmet/hat being used and the depth the diver is working at. The general rule of thumb is bottom pressure plus over-bottom pressure required for a given type of diving helmet / hat. Consult your diving helmet / hat manufacture / manual for the requirement of the helmet / hat you are using.

Each High Pressure Section has one input connection, gauge, shut-off valve, filter, and pressure-reducing regulator.

1. Input connection is #6 JIC (3/8”) type fitting.
2. Inlet gauge reads actual input pressure of air source. Gauge pressure range is 0-6000 PSI; accuracy is 1-1/2% of full scale.
3. Source select inlet valve handles are color coded. This helps the operator identify which valve controls which inlet source. For maximum airflow, turn handle counter clockwise four (4) full turns. To shut valve off, turn handle clockwise until it stops.
4. A pre-regulator filter prevents debris from contaminating the regulator. Filter element is 50 micron.
5. High-pressure TESCOM regulator reduces pressure of incoming air from high-pressure bottles to level required by diver’s hat/helmet. To increase diver’s air pressure, turn knob clockwise to desired setting. To decrease diver’s air pressure, turn knob counter clockwise.

**NOTE:** Regulator is a venting type, reducing the set pressure will cause the regulator to vent gas to the atmosphere until outlet pressure equals set pressure.

**CAUTION:** If regulator shows signs of continuous venting or regulator creep, discontinue use of regulator immediately and switch over to a secondary air source. Please refer to the troubleshooting.

### 3.1.2 LOW-PRESSURE

The Low Pressure Section consists of an LP input, low-pressure output of regulator, LP gauge, and diver connection. A small portion of the LP air is also used when diver depth measurements are made

Accepts breathing air from a low-pressure source i.e., a low pressure diving air compressor. **NOTE:** The low-pressure section does not regulate the air pressure to the diver. The compressor must be set to provide the proper pressure to the diver.

Breathing air from the low-pressure side of the regulator or the low-pressure input is routed to the diver's breathing air connections. A portion of the low-pressure air is used by the pneumo section for diver depth measurements.

1. Low pressure input, #8 JIC (1/2") type fitting.
2. Low-pressure check valves prevent the back flow of air from the HP regulator output into the LP air source. This also permits simple switch over from LP to HP air.
3. Three 1/4 turn ball-valves control flow of air to diver. Ball-valve permits unrestricted flow.
4. Diver's air supply gauge reads air pressure to divers, 0-600 PSI.
5. Diver's air supply outlet connection, O2 (oxygen) type fitting. (37° JIC optional).
6. Pressure relief valve, factory set for 285 PSI, vents excess pressure to atmosphere. A vent is located between diver output connections

### 3.1.3 DEPTH MONITORING

The Pneumo Fathometer section is used to measure the diver's depth. Pneumo readings are made by pressurizing the diver's pneumo hose. Air is forced through the pneumo hose until all water is displaced. The air is then shut off and the pressure is read on a high accuracy gauge calibrated in FSW (feet of seawater). The system components are:

1. Diver pneumo valve (yellow handle) controls the air supply to the Pneumo Fathometer system, one for each diver.
2. Pneumo gauge, dual scale 0-250 FSW/0-76 MSW, mirrored scale, 6 inch, high precision, 0.25% of full scale accuracy, one for each diver.
3. Diver pneumo outlet connections are O2 (oxygen) type fittings. (37° JIC fitting optional).

### 3.1.4 LOW-PRESSURE ALARM

The Low-Pressure Alarm monitors the diver's air pressure. Alarm is factory set to 100 PSI, when pressure drops below the set point the audio alarm is turned on.

1. ON/OFF switch turns alarm on or off as desired.
2. Audio transducer emits audio tone at 2900 Hz at a level of 90 dB.
3. Pressure switch, (internal) adjustable 22.5 to 125 PSI set point. Factory set to 100 PSI.

# 4 PRE-DIVE PROCEDURES

## 4.1 PRE-DIVE SET-UP

1. Place Model 8330 or 8300-HP on a flat surface that can support the unit. Select a working area, which is secure, stable, convenient and suitable for use during the period of the dive.

2. Open unit and conduct a visual inspection to insure no damage has occurred during transportation to the job site or since the last time the unit was used.

3. Attach each HP input to high pressure air source using suitable hose whip. (Note: do not turn the cylinder's air on at this time).

4. If available, a low-pressure compressor should be used as the primary air supply and high-pressure cylinders used as a back-up air source. Note: Low-pressure compressors used for breathing air should be specifically designed for diving.

5. All hose whips should be clear of debris and have their open ends taped, capped or plugged when not in use.

6. Flush out low-pressure hose whip before connecting to the Model 8330 or 8300-HP to prevent debris from entering system.

7. Attach hose whip to each LP supply inlet fitting. Note: when tightening, USE TWO WRENCHES, place one wrench on inlet fitting and hold. Turn hose fitting with a second wrench making sure not to over tighten.Pre-Dive Check Out.

## 4.2 PRE-DIVE CHECK-OUT

1. Be sure both the high-pressure, pneumo, and air supply valves are in the off (closed) position.

2. Regulators should be set to a low pressure, turn knob counter clockwise until the knob stops.

3. Turn the diver output valves and pneumo valves to off position.

4. Turn on high-pressure air at breathing air cylinders. **NOTE:** Always open high-pressure valves slowly and allow system to fill slowly before opening valves for maximum flow. Check the pressure level of both HP supplies.

5. On Model 8330 only, turn on 1 HP supply valve by turning counter clockwise four (4) full turns. **NOTE:** 2 HP supply valve should be in the off position and used as a backup.

**CAUTION:** If both HP valves are opened at the same time, both air supplies will be used simultaneously. This will result in both bottles being empty at the same time. The purpose of having two supplies is to alternate between the two bottles. Use one of the bottles until it reaches 500 PSI, and then switch to the second bottle. With a full bottle on line, you can then replace the first bottle with a full unit.

6. Note the cylinder's air pressure by reading the HP supply gauges.

7. Adjust regulator to desired setting by turning knob while monitoring the diver air supply gauge. Clockwise increases the set pressure.

**NOTE:** Regulator setting is determined by: required over-bottom pressure for manufacturer's helmet or mask plus the bottom pressure relating to the diver's depth.

## 4.3 PRE-DIVE PNEUMO TEST

The Model 8330 & 8300-HP pneumo section has gauge protectors to protect the pneumo gauges from over pressurization. However, it is good operating practice to use a procedure which will not damage the gauges when operating a system without gauge protectors. Using a standard procedure will permit the operator to use a different system without gauge protectors and operate the system correctly.

A pneumo gauge with a range of 250 FSW/76 MSW has an equivalent full-scale pressure rating of 111.25 PSI. If you exceed this pressure by a significant amount you will cause a permanent change in the calibration of the gauge. If you exceed 111 PSI by 100% you will destroy the gauge.

Procedure for checking the Pneumo gauges.

1. Pressurize the LP section of the Model 8330 or 8300-HP; reduce the output pressure of the regulator to a pressure less than 100 PSI.

2. Open the diver output valve momentarily to reduce the pressure and check the action of the regulator. Check to see that the output of the regulator stays at less than 100 PSI.

3. Open pneumo valve slowly, while watching the depth gauge, check that the gauge needle is slowly rising and that air is exhausting through the diver's pneumo connection (or diver's pneumo hose if connected).

4. Close valve; check depth gauge to see that it reads zero. The gauge should be within +/- 10 feet of zero. Zero will be affected by changes in atmospheric pressure and/or changes in altitude. If zero is off by more than 10 feet and there has not been a significant change in either atmospheric pressure or altitude, suspect that the gauge has been subjected to over-pressurization and may have suffered damage. Crosscheck the gauge or have the gauge calibrated before using.

5. Seal the output of the pneumo section. This can be done by capping off the pneumo output or preferable sealing the end of the pneumo hose. Pressurize the pneumo to 200 FSW and close the blow-down valve. This reading should hold, without a decrease in reading. If the reading decreases you have a leak in the system; correct before proceeding.

6. Crosschecking the pneumo gauges. The Model 8330 & 8300-HP pneumo panel has the ability to cross check the pneumo gauges designed into the pneumo panel. To cross check the gauges, close the master inlet valve, close all three-diver pneumo outlet valves and open all diver blow down valves. Slowly open pneumo panel master valve, all three pneumo gauges should display the same reading.

7. If the gauges differ by more than 1/2%, have the defective gauge calibrated. Gauge calibration should be compared at several points over the range of the gauge, with both increasing and decreasing pressure. As a minimum check the gauges over the range which the gauge will be used. After confirming the gauges are within operating specifications, close the master valve, close the diver blow down valves and open the diver pneumo outlet valves. Then open the master blow down valve.

8. Each diver's pneumo hose should be leak tested prior to each dive. Attach the diver's pneumo hose to the panel, seal the diver's end of the hose, use either a fitting or fold the hose over and pinch the hose shut. Pressurize the pneumo hose using the blow down valve, pressure the pneumo system to maximum pressure and secure the diver blow down valve.

This pressure should hold for a period of two to five minutes without a drop in reading. Any decrease in the reading indicates a leak within the hose. **NOTE**: A leak in the Pneumo hose will cause the pneumo readings to be incorrect. Repair hose leaks before diving.

## 4.4 CONNECTING DIVER UMBILICAL

1. Remove protective caps and attach diver air supply and diver pneumo hose fittings to corresponding outlets. **NOTE:** When tightening, place one wrench on outlet fitting and one wrench on hose fitting. Tighten hose fitting, making sure not to over tighten.

2. Blow out diver's air supply hose to insure no debris is in the line before connecting to a helmet or mask.

3. Test the operation of the system.

# 5 OPERATING PROCEDURES

## 5.1 LOW PRESSURE BREATHING AIR (PRIMARY SUPPLY)

Low Pressure Compressor (Primary supply), High Pressure (Backup). In this mode of operation the divers breathing air is being supplied by an LP compressor, the HP Supply is use as a back-up supply. Having the HP supply as a backup does not eliminate the requirement for a bailout source of air.

In the event the LP air source fails, it is a simple matter to switch over to HP Air. Turn “ON” the HP source by opening the HP valve. Check the diver’s air supply pressure.

## 5.2 HIGH PRESSURE BREATHING AIR (PRIMARY SUPPLY)

**CAUTION!**

In this mode of operation the divers breathing air is being supplied by via high pressure breathing air source. This could include high pressure storage cylinders, or a bank of high-pressure storage cylinders.

**MODEL 8330 ONLY**

High Pressure breathing system on model the 8330 is designed to allow the rotation of cylinders as they are consumed. Operate the system using a single cylinder until the cylinder pressure has dropped to approximately 500 PSI, then switch to the next cylinder. Repeat this procedure alternating between HP-1 and HP-2, changing cylinders as they are used. The HP input system has check valves, which prevent back-flow between the cylinders. This facilitates switching between cylinders.

**EXAMPLE:**

If you have two cylinders connected to the system and you are using cylinder HP-1, cylinder HP-2 is “OFF”, when HP-1 reaches 500 PSI, you may switch to HP-2 by opening the valve for HP-2. The system will draw air from the higher of the two sources, HP-2. You can then turn HP-1 “OFF”, and change the cylinder connected to source HP-1. This procedure ensures an uninterrupted supply of air to the diver.

After turning HP-1 off, turn the cylinder valve off and bleed the pressure. Replace the empty cylinder with a full cylinder, and turn valve on and verify the cylinder is full.

Another method of changing cylinders is to leave both valves on the system in the “ON” position. Use the cylinder valves as the ON/OFF control for selecting which cylinder is in use. This reduces the number of valves, which must be open and closed for each change of cylinders. If you use this procedure, you should momentarily open the new cylinder and check the gauge to ensure the cylinder is full, then close cylinder to prevent the system from using air from both cylinders at the same time.

1. When planning your dive you must take into consideration the amount of time a given bottle will last and the number of bottles, which will be necessary during the dive. There are two options that can be used to accommodate dives that will have a high consumption of air.

2. Use twin tanks instead of singles. Use a high volume cylinder (250 - 300 cubic feet) of breathing air; these can generally be rented from a welding gas supplier, or supplier of industrial gases. Make sure you specify breathing air, and request certification. These cylinders can be also be manifolded quite easily. Generally the charge for rental is very competitive in cost and usually includes delivery to the job site.

**NOTE:** When using high-pressure cylinders, care must be exercised in the handling, transport and storage of it. Make sure all personnel involved are instructed in the proper procedures. If you have any questions regarding the proper procedures contact your supplier.

## 5.3 PRE-OPERATION CHECKLIST

1. Diver dressed and ready except helmet / hat
2. Diver's umbilical organized
3. LP Compressor running and at pressure
4. LP alarm in "ON" position
5. HP source connected and ready, HP-1, & HP-2 valves "OFF"
6. Zero Pneumo Gauges
7. Diver air ON, purge diver helmet / hat
8. Diver dons helmet /hat
9. Diver air check
10. Diver enters water
11. Record the starting time of the dive

During the dive, the tender shall maintain voice communication with the diver at all times. Tender shall monitor diver's air pressure and breathing rate

## 5.4 PNEUMO READINGS

During the dive, the tender shall monitor the diver's depth, recording the depth and time at depth. The procedure for measuring depth is as follows.

1. Advise the diver that a pneumo reading is to be taken.
2. The diver will place the end of the pneumo hose at the point at which the measurement shall be taken. Diver will advise the tender he is ready for the pneumo reading.
3. Slowly open the pneumo valve corresponding to the diver whose depth is being measured. The pneumo gauge reading will increase and stabilize at a value greater than the depth of the diver. The value will depend upon the flow rate, and pressure drop over the length of the pneumo hose. The diver will advise the tender of bubbles coming from the end of the hose.
4. Close the pneumo valve, the reading will begin to decrease to the value of the diver's depth. Once the reading has stabilized, this is the depth at the end of the pneumo hose.

**NOTE:** Pneumo readings can be used for several purposes i.e., measuring the diver's depth, depth to a particular point under water, vertical distance from one underwater object to another. The accuracy of the measurement is plus or minus 0.625 feet of seawater, (+/- 7.5 inches). This represents an overall accuracy of +/- 1/4 of 1% of the full-scale value of the depth gauge. To maintain this accuracy the gauges must be calibrated every 6 months.

When using the pneumo system to measure the diver's depth for use in determining decompression requirements, please note the following:

### 5.4.1 DEFINITIONS OF TERMS, PAR 7.1

**DEPTH** - When used to indicate the depth of a dive, it means the maximum depth attained by any part of the diver during the dive, measured in feet of seawater.

### 5.4.2 SELECTION OF DECOMPRESSION SCHEDULE, PAR 7.2.3

(A) Always select the schedule depth to be equal to or the next depth greater than the actual depth to which the dive was conducted, and

(B) Always select the schedule bottom time to be equal to or the next longer bottom time than the actual bottom time of the dive.

### 5.4.3 RULES DURING ASCENT, PAR 7.4.1

Decompression Stop Depth - The diver's chest should be located as close as possible to the stop depth.

The above information is quoted from the U.S. NAVY DIVING MANUAL, Chapter 7, Air Decompression.

# 6 MAINTENANCE

## 6.1 REVIEW OF SCHEDULED MAINTENANCE

The inherent quality of your 8330 and 8300-HP will provide years of continuous failure-free service if properly used and maintained.

1. Before and after each dive: do functional test, clean and inspect for damage.
2. Every 6 months: calibrate, functional test, clean and inspect for damage.
3. Every 12 months: in addition to the normal 6-month maintenance, service filter, leak test and check adjustments, and replace low-pressure alarm battery.
4. Every 36 months: in addition to the normal annual service replace all seals, gaskets, and soft goods.

In addition to the above scheduled maintenance, there are three important areas of user care that will determine the length of service you can expect from your equipment.

5. Take care of your equipment, protect it, and handle it with care during transportation to the job site. Ensure the equipment is protected. Select a work area where the equipment will be out of everyone's way, so that it doesn't get knocked over.
6. Clean your equipment. After the work is done at the job site, clean up the equipment. If you are on an extended work program, have the equipment operators clean the equipment during slow work periods. Cleaning involves wiping off the dirt with hot soapy water and a soft cloth. Soft Scrub, paint thinner, mineral spirits & turpentine can be used, if necessary, to clean only the case.

## 6.2 AIR CONTROL SCHEDULED MAINTENANCE

### 6.2.1 BEFORE AND AFTER EACH DIVE:

Inspect for any damaged parts, broken gauges, condition of high-pressure hose whip (inspect for cuts, abrasion, or general deterioration). Functional test of unit prior to dive, after dive record operator comments regarding maintenance required.

### 6.2.2 EVERY 6 MONTHS:

Complete the "Before and after each dive" inspection. Each diver pneumo gauge must be calibrated. Calibrate against dead weight tester or reference gauge. Pressure test PNEUMO section and repair any and all leaks. Record the results of inspection and gauge calibration.

### 6.2.3 EVERY 12 MONTHS: COMPLETE THE ABOVE TESTS PLUS THE FOLLOWING:

1. Remove high-pressure valve stems, inspect, clean, lubricate (use Christolube grease, Amron part No. MCG-111-20Z) and install. Check valve seat, threads, packing material for signs of wear or deterioration, replace if necessary.

2. Remove filter element and inspect. If filter element is dirty, make a determination as to where the contamination is coming from. Check the air source being used to determine where the contamination is coming from and correct. If filter is contaminated, remove high pressure section and clean all valves, inspect for signs of wear and deterioration, replace those parts which show signs of deterioration, clean and reassemble.
3. Check regulator action, check regulator maximum pressure which should be greater than 300 PSI.
4. Check relief valve actuation and shut off. Should vent at 285 PSI, close at 280 PSI sealing bubble tight.
5. Check action of pneumo gauge protectors, should shut off at 122 PSI +/- 5 lbs., on slow rising pressure.
6. Check operation of LOW-PRESSURE alarm adjust if necessary. Should turn on at 100 PSI +/- 5 lbs., turn off at 110 PSI +/- 5 lbs.
7. Check all valves for bubble tight shut off. Replace seats as needed.
8. Leak test all fittings, pressure test PNEUMO section.
9. Check accuracy of all gauges.
10. Record the results of the above tests.

6.2.4 **EVERY THREE YEARS, IN ADDITION TO THE ABOVE TEST:**

1. Replace all soft goods, seals, gaskets and batteries.
2. Record the results of the above tests.

# 7 TROUBLESHOOTING

## 7.1 GENERAL INFORMATION

Normal shop tools and procedures apply for all repairs.

During this section when you are instructed to remove a part or make an adjustment, you are first to remove all pressure from the system, or as a minimum from the section you are working on

### 7.1.1 TUBING AND TUBE FITTINGS

Repair, assembly, and inspection procedures. The common cause of leaks on tube fittings are debris, cracks, and deformed tube flares. Tube fittings, on initial make up tighten 1-1/4 turns from finger tight. To remake tube fittings, tighten finger tight plus 1/8 turn. Care must be used when disassembling tube fittings to ensure the fitting is held while the tube nut is turned.

### 7.1.2 PIPE FITTINGS

An over tightened pipe fitting is the most common cause of leaks. Before installing pipe fittings, remove all old Teflon tape, use stiff bristle brush. Replace Teflon tape by wrapping 1-1/2 turns of 1/2 inch tape, counter-clockwise on the threaded portion of the fitting. Use care when installing Teflon tape, leave one full turn of thread exposed and uncovered. This insures that a piece of tape does not get cut off and enter the system during the installation of the fitting.

### 7.1.3 TO REMOVE THE LOWER PANEL

To remove the lower panel from the case: first disconnect the pneumo hose from the lower panel using two wrenches. Remove the screws from around the perimeter of the panel. The lower panel can now be removed from the cases. When the lower panel is removed, the cases will want to tip over backwards because of the unbalanced weight, support the upper panel or remove the stay hinge and lay the upper panel down.

### 7.1.4 TO REMOVE THE UPPER PANEL

Removing the upper panel is the same procedure as the lower. To install the panel back in the case, install all screws before tightening any of the screws. This allows the panel to be shifted to facilitate the alignment of the screw holes in the panel.

## 7.2 AIR CONTROL

### 7.2.1 HP GAUGES

Inspect for leaks. Any leak other than the input fitting is cause to replace the gauge. Internal leaks may cause the gauge face to bulge, if this occurs replace gauge. Inspect gauge blow-out plug for damage. Check accuracy of gauge against reference gauge. Gauges are not repairable, nor can they be adjusted. Discard and replace if problems are encountered.

### 7.2.2 HP VALVES

These are repairable. Remove stem by removing handle and stem packing nut, unscrew stem. Inspect stem, stem screw threads, valve body screw threads, brass packing washer, Viton O-ring, and stem seat (KEL-F). Repair kits are available and include a complete stem assembly. Lubricate stem screw threads and Viton O-ring with Chris-o-lube grease, install stem assembly, and permanently tighten packing nut.

## 7.3 REGULATOR PROBLEMS AND POSSIBLE SOLUTIONS

**CAUTION:** If regulator shows signs of continuous venting or regulator creep, discontinue use of regulator immediately and switch over to a secondary air source.

Continuous leakage through the bonnet with outlet pressure on the regulator. Unit is venting, this is identified as air escaping from control knob area. This can be caused by an improperly adjusted Vent valve, to adjust do the following:

1. Set the outlet pressure of the regulator to 50 - 75 PSI.
2. Remove the chrome plug located on top of the control knob (Item 210). Use a small screwdriver or knife to pry cap off.
3. Using a small screwdriver, turn the adjusting screw (item 212) counterclockwise until the venting just stops - then turn the screw an additional 1/8 turn.
4. To check the action of the vent valve, adjust the regulator up and down in pressure, vent valve should vent on decreasing pressure. Note: Check to ensure the vent valve will vent to zero when the control knob is backed out to zero pressure.

If the adjustment does not cure the improper venting, there are two areas that need investigation. The vent valve may need to be serviced or the regulator main valve may be leaking, causing the vent valve to compensate and vent gas. This problem can also be caused by foreign material which has gotten into the system, disassemble and inspect.

1. Sensor seals (items 109 & 110) need lubrication or replacement - follow the steps outlined in the disassembly/assembly instructions.
2. Dirt and contamination are causing the main valve (item 152) to "stick"; dissemble, clean, lubricate and assemble according to the instructions.

## 7.4 DISASSEMBLY AND ASSEMBLY OF THE REGULATOR

### 7.4.1 SEAT PLACEMENT

1. Remove valve cap (item 151).
2. Remove valve spring (item 163) and main valve assembly (items 153, 158, & 152).
3. Inspect seat, (item 158). If dirty, chipped or cracked, replace.
4. Place flats of valve stem (item152) in vise and with a screwdriver, remove valve cap (item153). Remove item 158.
5. Replace seat (item 158) and reassemble main valve assembly.
6. Inspect seals (items 159 & 160) on cap (item 151). Replace if worn or excessively dirty. O-ring (item 159) and back-up washer are accessible by removing snap ring (item 155) and retainer (item 154).
7. Assemble by reversing the appropriate disassembly procedure.

### 7.4.2 SENSOR AND ORIFICE SEALS

1. Remove cap plug (item 210) with screwdriver or knife.
2. Using external snap ring pliers, remove the retaining ring (item 211) and hand knob (item 205).
3. Use 1-5/8" open-end wrench, remove bonnet (item 201) by turning counterclockwise. NOTE: The spring (item 207 and rod (item 215) are free and may fall, take care when removing bonnet.
4. Remove the sensor assembly (items 101 thru 111).
5. Inspect the seals (items 109 & 110), replacing if damaged or worn.
6. Remove seat retainer (item 103) and vent valve seat (item 106) by snapping valve (item 107) against seat. Remove nut (item 105). Inspect seat (item 106) and O-ring (item 111). Replace if worn or damaged.
7. Using a 3/4" deep well socket remove orifice (item 104).
8. Inspect gasket (item 164), replace if damaged.
9. To assemble reverse the procedure.

### 7.4.3 BONNET, ADJUSTING SCREW, BEARING AND SPRING CAP

1. Remove the limit screw (item 203) using a small screwdriver.
2. Slide the adjusting screw assembly out of the bonnet (item 201).
3. Spring cap (item 206), bearing (item 202), and thrust washers (items 209 & 216) may be removed for service or replacement as required.

### 7.4.4 ASSEMBLY OF THE REGULATOR

The assembly is the reverse of the disassembly with the following notes and precautions:

1. Clean all parts to insure freedom from dirt. Contact the factory with questions pertaining to the proper cleaning agent and/or procedures.
2. Install vent valve seat (item 106) with the chamfered side toward valve (item 107).
3. Lubricate (use DuPont Krytox 240AC lubricant or equivalent) threaded portions of items 201, 203, 104, 153, 156, 151; O-ring items 109, 110, 159 & 160; bearing (item 202) and washers (items 209 & 216).
4. When tightening parts apply the following torque values

| ITEM # | VALUES |
|---|---|
| 103 | 30-40 in-lbs. |
| 105 | 50-55 in-lbs. |
| 151 | 30 ft.-lbs. |
| 153 | 55-60 in-lbs. |
| 156 | 30 ft-lbs |
| 201 | 40-50 ft.-lbs. |
| 203 | 20-25 in-lbs. |

### 7.4.5 RELIEF VALVE

Check the operation of the vent valve by pressurizing the system until the vent begins to relieve the pressure. Decrease the pressure to stop the venting action, valve should stop bubble tight. If the relief valve does not operate correctly remove and disassemble, inspect. Replace any defective parts or clean, lubricate and reassemble.

To disassemble the relief valve, remove valve from system. In the output side of the valve there is a set screw, remove it. There is a second set screw under the first screw. The second set screw is the actual adjustment for the set point. The first screw is a locking screw that locks the adjusting screw at the set point.

There is another set screw at the other end of the valve, removing this allows the valve to be completely disassembled. When taking the valve apart be sure to lay the parts out in the order in which they were removed to facilitate assembly. Reverse the order to assemble. Pressurize the valve to check the setting of the valve. Remove the pressure and adjust as necessary to set the pressure. Turning the screw clockwise increases the pressure at which the valve will relieve.

### 7.4.6 LP INPUT CHECK VALVE

These are repairable. The Maintenance Kit is available from Amron and contains Viton seat and spring. When checking for leaks, be sure to check valve body to end of fitting. During test, insure that the valve is not leaking by pressurizing the HP section and check the LP input for air leaking out of the input.

### 7.4.7 DIVER'S PRESSURE GAUGE

Same as HP pressure gauges.

### 7.4.8 DIVER'S OUTPUT VALVES

1/4 turn ball valves, to test, pressurize the input and turn the valves off, check that no air is leaking past the valve. The valves are repairable. They use Teflon seats which can be replaced. A maintenance kit is available from Amron. To replace, remove valve from system. Remove end pieces from valve, remove valve stem packing nut and remove stem. Teflon ball seal and stem packing can now be removed and replaced. To assemble, reverse the process.

## 7.5 DEPTH MONITORING

### 7.5.1 PNEUMO VALVES

Pneumo Valves are repairable. Remove stem by removing handle and step packing nut. Unscrew stem. Inspect stem, stem screw threads, valve body screw threads, brass and Teflon packing washer, and stem seat (KEL-F). Repair kits are available and include a complete stem assembly. Lubricate stem screw threads with Christo lube grease, install stem assembly and permanently tighten packing nut.

### 7.5.2 PNEUMO GAUGES

Pneumo gauges are not field repairable nor are there any adjustments which can be made in the field. Check to make sure the blow-out plugs are in place. Calibrate every 6 months. Check the zero position of the gauge; a displaced zero is evidence of a gauge that has been subjected to over-pressurization.

**NOTE:** Check the gauge before using. If there is any question about the gauges integrity, have the gauge calibrated. Normal variations in zero are caused by variations in barometric pressure or changes in altitude. These variations normally will not exceed 10 feet.

### 7.5.3 PNEUMO GAUGE PROTECTOR VALVES

Pneumo Gauge Protector valves are not field repairable. The procedure for setting the valves is to pressurize the pneumo system slowly using the HP regulator. The gauge protector should shut off pressure to the pneumo gauge at about the zero set point screw (110% of full scale). Do not exceed a pressure equal to zero on the pneumo gauge. If the gauge protector has not shut off the pressure by this time, either the protector is defective or not adjusted properly. To adjust loosen the lock nut on the side of the gauge protector valve and adjust the slotted screw on the valve. Turning the screw in (clockwise) increase the pressure at which the valve locks the pressure out. Set the lockout to occur at about the zero adjusting screw, tighten lock nut and retest.

### 7.5.4 LOW PRESSURE ALARM

To adjust the set point of the low-pressure alarm, rotate the body of the switch clockwise to increase the set pressure. The set point of the switch is very sensitive to adjustment. Recheck set point. Variation between increasing pressure and decreasing pressure trip point is about 15 PSI. Check the set point in the decreasing direction.

# 8 REFERENCE MATERIAL

## 8.1 DIVING LOG, U.S. NAVY (CHART)

DIVING CHART - AIR

| Date | | | |
|---|---|---|---|
| NAME OF DIVER 1 | DIVING APPARATUS | TYPE DRESS | EGS (PSIG) |
| NAME OF DIVER 2 | DIVING APPARATUS | TYPE DRESS | EGS (PSIG) |

| TENDERS (DIVER 1) AND | | TENDERS (DIVER 2) AND | |
|---|---|---|---|
| LEFT SURFACE (LS) | DEPTH (fsw) | REACHED BOTTOM (RB) | DESCENT TIME |
| LEFT BOTTOM (LB) | TOTAL BOTTOM TIME (TBT) | TABLE & SCHEDULE USED | TIME TO FIRST STOP |
| REACHED SURFACE (RS) | TOTAL DECOMPRESSION TIME (TDT) | TOTAL TIME OF DIVE (TTD) | REPETITIVE GROUP |

| DESCENT | ASCENT | DEPTH OF STOPS | DECOMPRESSION TIME WATER | DECOMPRESSION TIME CHAMBER | TIME WATER | TIME CHAMBER |
|---|---|---|---|---|---|---|
| |  | 10 | | | L | |
| | | | | | R | |
| | | 20 | | | L | |
| | | | | | R | |
| | | 30 | | | L | |
| | | | | | R | |
| | | 40 | | | L | |
| | | | | | R | |
| | | 50 | | | L | |
| | | | | | R | |
| | | 60 | | | L | |
| | | | | | R | |
| | | 70 | | | L | |
| | | | | | R | |
| | | 80 | | | L | |
| | | | | | R | |
| | | 90 | | | L | |
| | | | | | R | |
| | | 100 | | | L | |
| | | | | | R | |
| | | 110 | | | L | |
| | | | | | R | |
| | | 120 | | | L | |
| | | | | | R | |
| | | 130 | | | L | |
| | | | | | R | |

| PURPOSE OF DIVE | REMARKS |
|---|---|
| DIVER'S CONDITION | DIVING SUPERVISOR |

## 8.2 REPETITIVE DIVE WORKSHEET

### REPETITIVE DIVE WORKSHEET

**I. PREVIOUS DIVE:**

_____ minutes ☐ Standard Air Table

_____ feet ☐ No-Decompression Table

_____ repetitive group designation

**II. SURFACE INTERVAL:**

_____ hours _____ minutes on surface.

Repetitive group from I _____

New repetitive group from surface

Residual Nitrogen Timetable _____

**III. RESIDUAL NITROGEN TIME:**

_____ feet (depth of repetitive dive)

New repetitive group from II. _____

Residual nitrogen time from

Residual Nitrogen Timetable _____

**IV. EQUIVALENT SINGLE DIVE TIME:**

_____ minutes, residual nitrogen time from III.

+_____ minutes, actual bottom time of repetitive dive.

=_____ minutes, equivalent single dive time.

**V. DECOMPRESSION FOR REPETITIVE DIVE:**

_____ minutes, equivalent single dive time from IV.

_____ feet, depth of repetitive dive

Decompression from (check one):
☐ Standard Air Table ☐ No-Decompression Table
☐ Surface Table Using Oxygen ☐ Surface Table Using Air
☐ No decompression required

Decompression Stops: _____ feet _____ minutes

_____ feet _____ minutes

_____ feet _____ minutes

_____ feet _____ minutes

_____ feet _____ minutes

Scheduled used _____

Repetitive group _____

## 8.3 NO DECOMPRESSION LIMITS

**(Non-repetitive Dives Only) U.S. Navy Diving Manual (Air Decompression)**

| Depth FSW | Bottom Time |
|---|---|
| 40 | 200 |
| 50 | 100 |
| 60 | 60 |
| 70 | 50 |
| 80 | 40 |
| 90 | 30 |
| 100 | 25 |
| 110 | 20 |
| 120 | 15 |
| 130 | 10 |
| 140 | 10 |
| 150 | 5 |
| 160 | 5 |
| 170 | 5 |
| 180 | 5 |
| 190 | 5 |

**NOTE: OSHA Regulations Require:** A decompression chamber capable of recompressing the diver at the surface to a minimum of 165 FSW (6 ATA) and shall be available at the dive location for: A) surface supplied air-diving to depths deeper than 100 FSW.

## 8.4 GAUGE PRESSURE FOR DEPTH OF SEAWATER & FRESH WATER

**Gauge Pressure in PSI**

| Depth In | Feet of Fresh Water | Seawater |
|---|---|---|
| 10 | 4.33 | 4.45 |
| 20 | 8.66 | 8.90 |
| 30 | 12.99 | 13.35 |
| 40 | 17.32 | 17.80 |
| 50 | 21.65 | 22.25 |
| 60 | 25.98 | 26.70 |
| 70 | 30.31 | 31.10 |
| 80 | 34.64 | 35.60 |
| 90 | 38.97 | 40.05 |
| 100 | 43.30 | 44.50 |
| 110 | 47.63 | 48.95 |
| 120 | 51.96 | 53.40 |
| 130 | 56.29 | 57.85 |
| 140 | 60.62 | 62.30 |
| 150 | 64.95 | 66.75 |
| 160 | 69.28 | 71.20 |
| 170 | 73.61 | 75.65 |
| 180 | 77.94 | 80.10 |
| 190 | 82.27 | 84.55 |
| 200 | 86.60 | 89.00 |

### 8.5 EQUIVALENT DEPTHS OF SEAWATER & FRESHWATER

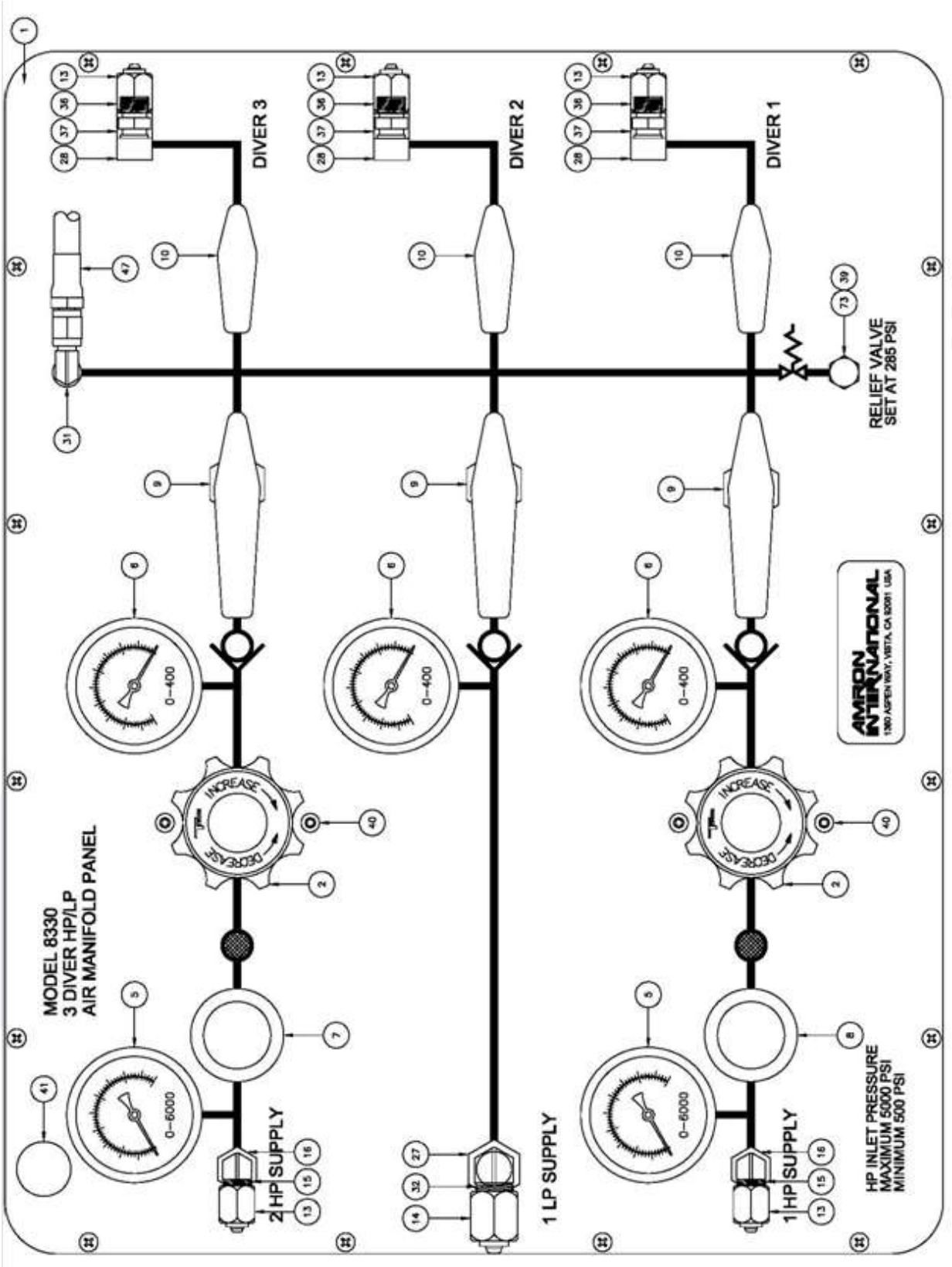
| Depth | Equivalent Depth |
|---|---|
| **Feet of Seawater** | **Feet of Fresh Water** |
| 10 | 10.30 |
| 20 | 20.30 |
| 30 | 30.90 |
| 40 | 41.20 |
| 50 | 51.50 |
| 60 | 61.80 |
| 70 | 72.10 |
| 80 | 82.40 |
| 90 | 92.70 |
| 100 | 103.00 |
| 110 | 113.30 |
| 120 | 123.60 |
| 130 | 133.90 |
| 140 | 144.20 |
| 150 | 154.50 |
| 160 | 164.80 |
| 170 | 175.10 |
| 180 | 185.40 |
| 190 | 195.70 |
| 200 | 206.00 |

## 9 DRAWINGS

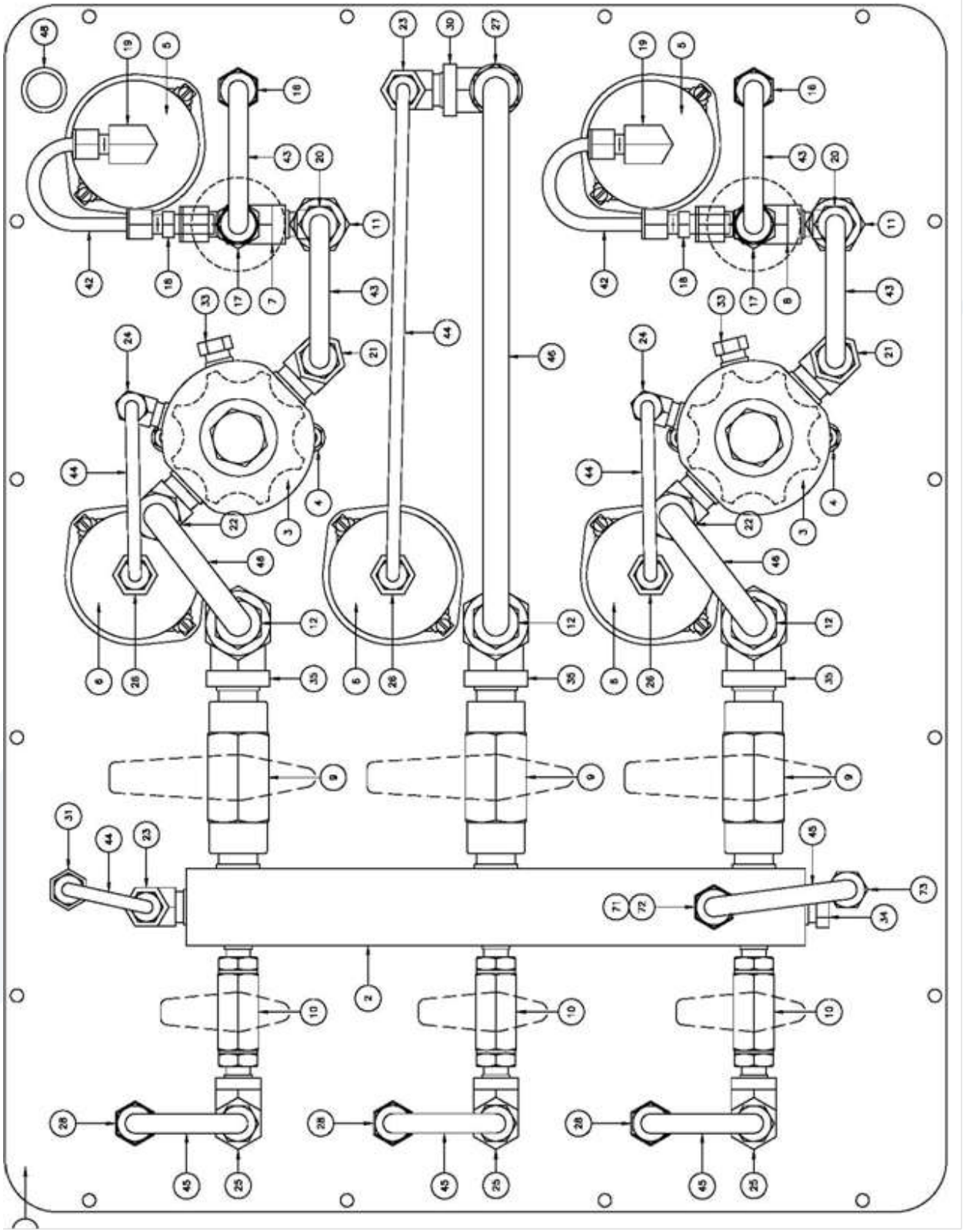
General

The following drawings illustrate the electrical and mechanical details of the diver communication unit. The corresponding parts lists for each drawing are detailed in the parts lists section.

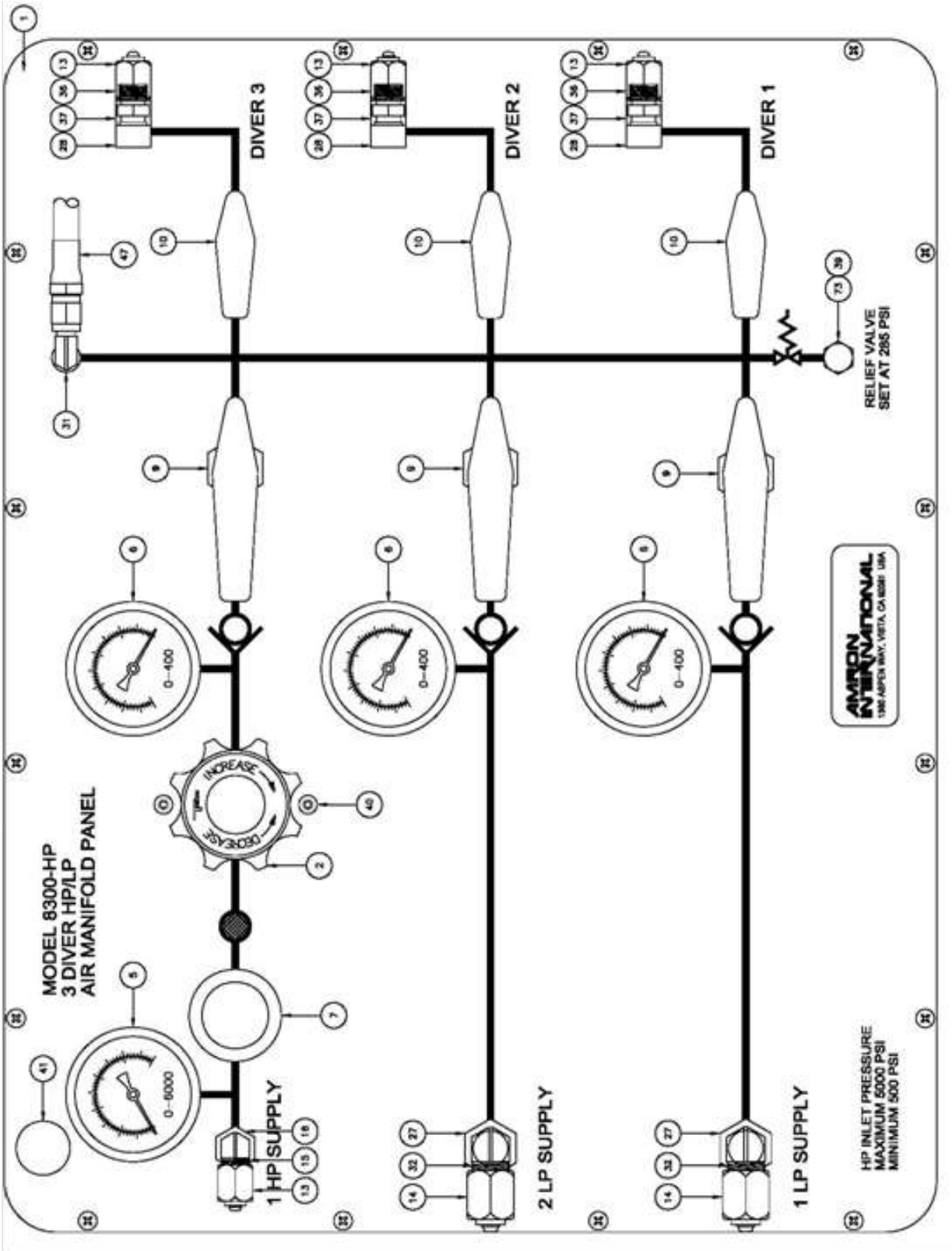
## 9.1 PARTS LOCATOR, MODEL 8330-400 (FRONT VIEW)



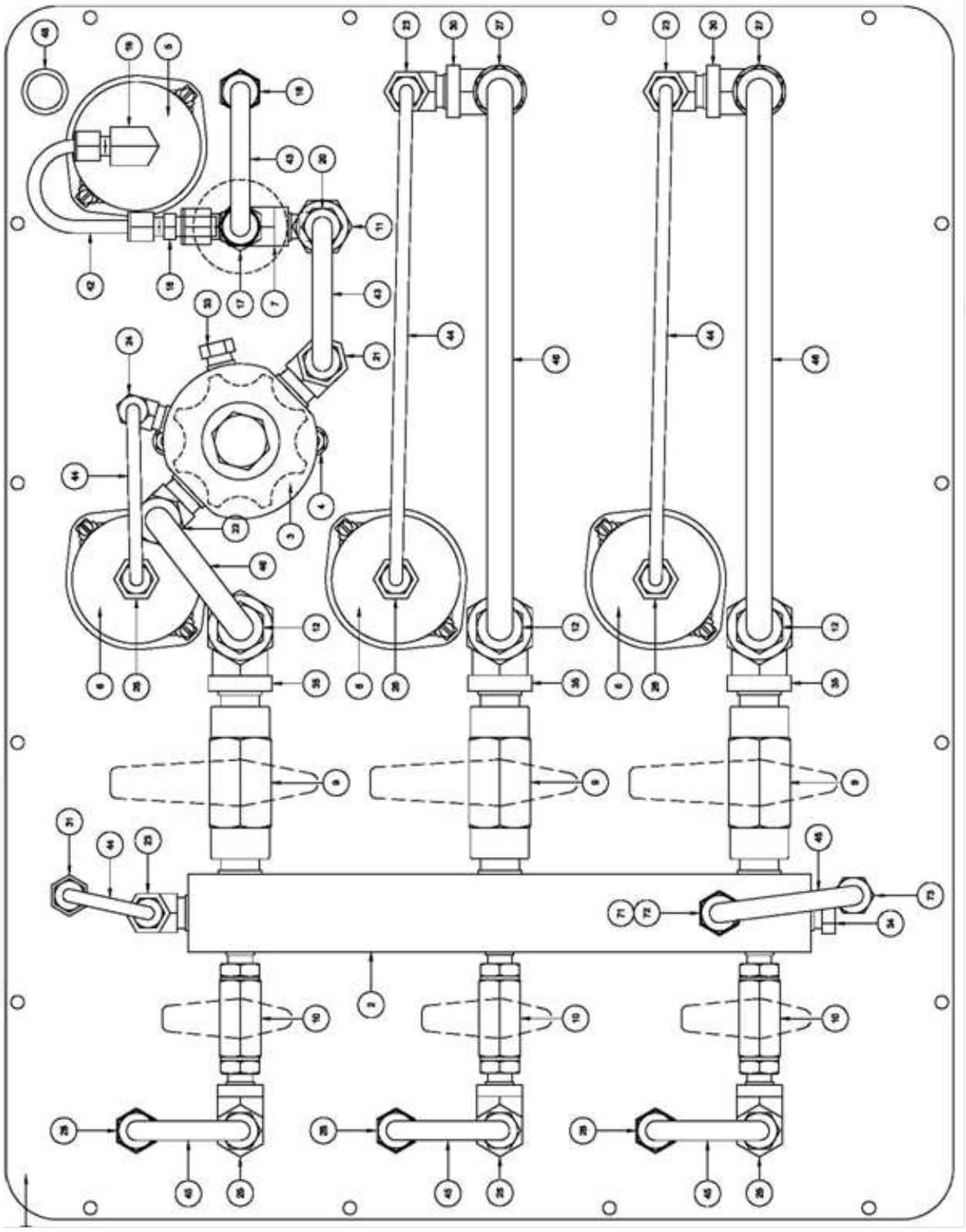
## 9.2 PARTS LOCATOR, MODEL 8330-400 (REAR VIEW)



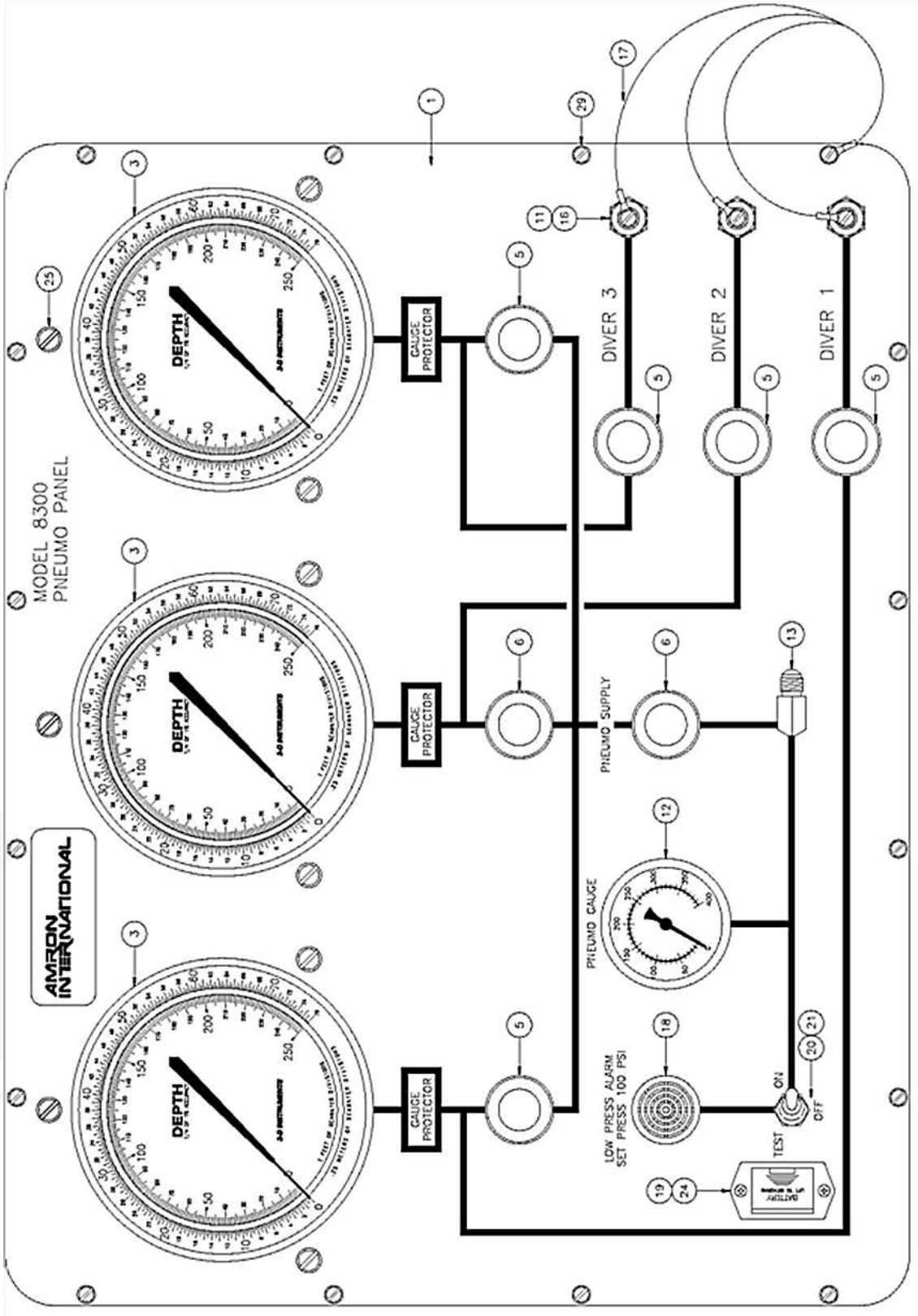
## 9.3 PARTS LOCATOR, MODEL 8300-400A (FRONT VIEW)



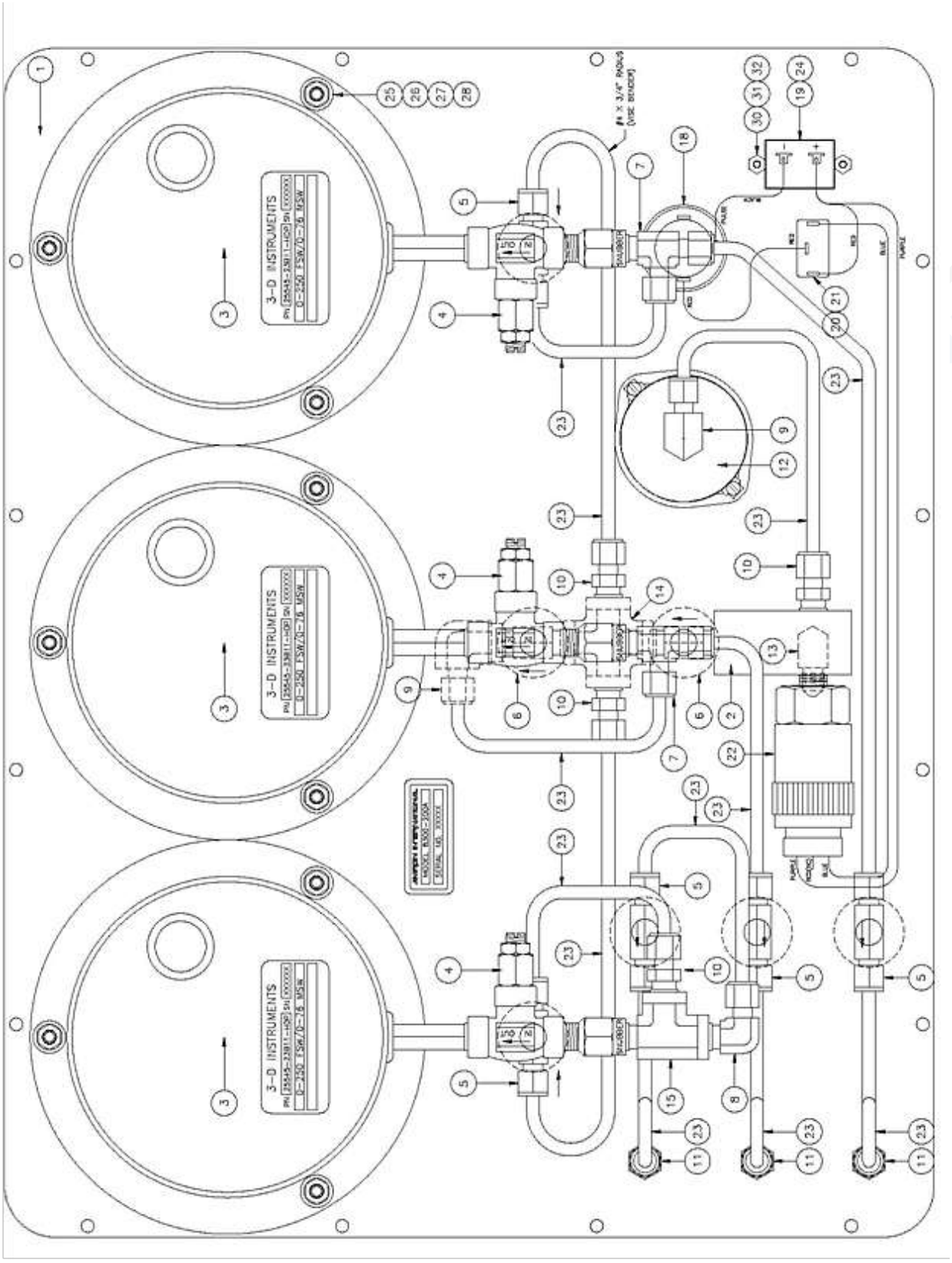
## 9.4 PARTS LOCATOR, MODEL 8300-400A (REAR VIEW)



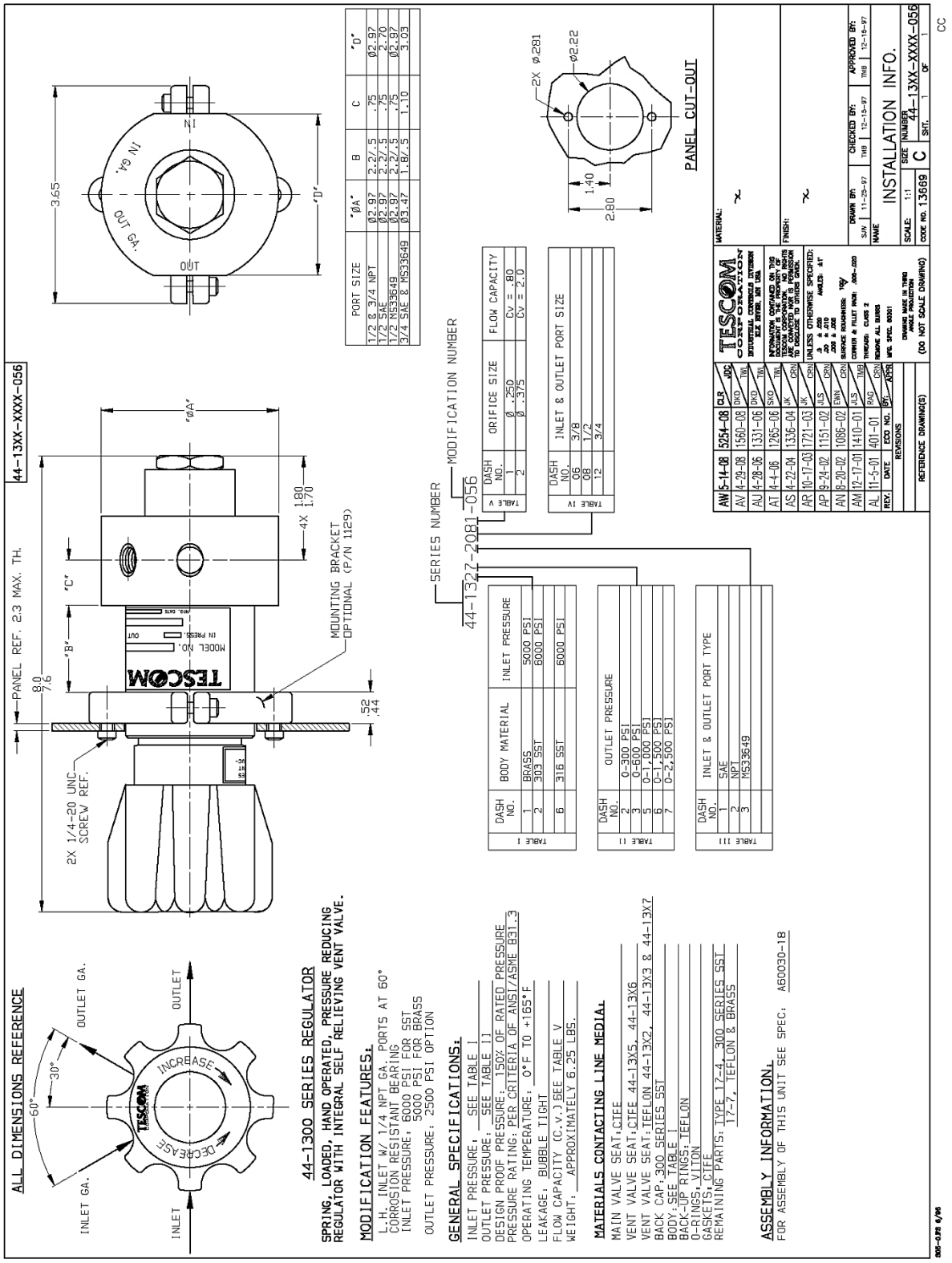
## 9.5 PARTS LOCATOR, MODEL 8300-200A (FRONT VIEW)



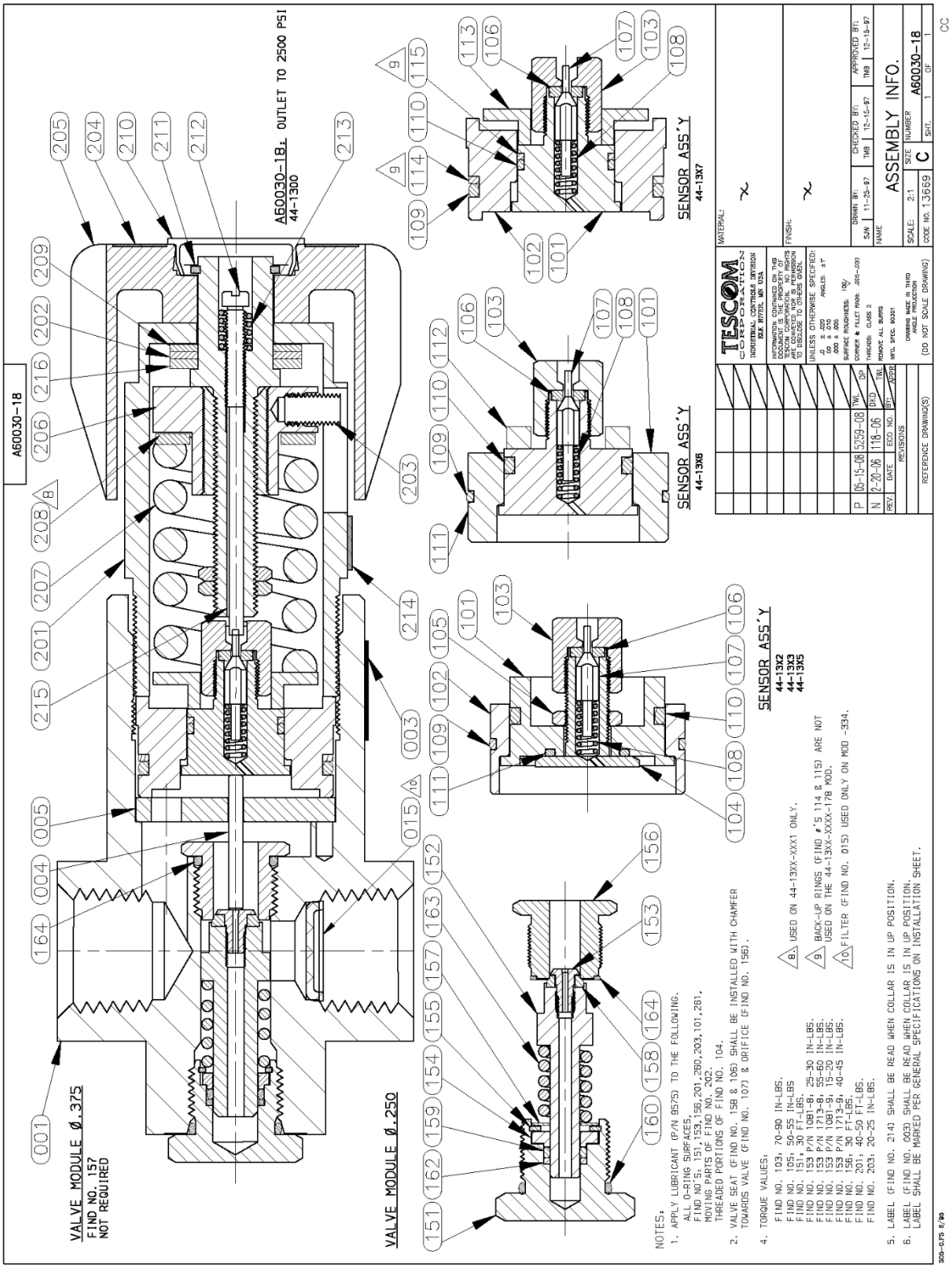
## 9.6 PARTS LOCATOR, MODEL 8300-200A (FRONT VIEW)



## 9.7 PARTS LOCATOR, TESCOM REGULATOR, MODEL 44-1312-2081-056 (INSTALLATION INFO)



## 9.8 PARTS LOCATOR, TESCOM REGULATOR, MODEL 44-1312-2081-056 (ASSEMBLY INFO)



# 10 PARTS LISTS

The parts lists include both mechanical and electrical parts. The following information will be useful in interpreting data which is not self-explanatory.

**REVISIONS**

The parts lists in this manual are for the current model of diver communicator as of the printing date.

To Order Replacement Parts Contact:

Amron International, Inc.
1380 Aspen Way, Vista, California, 92081 U.S.A.
Telephone: (760) 208-6500 Fax: (760) 599-3857
Email: sales@amronintl.com
Web: www.amronintl.com

When ordering replacement parts, you should give as much information as possible to enable us to supply the correct part. This information should include the part number, description, reference designator, value, radio model number, and serial number. Failure to provide sufficient information may hinder our ability to fill your parts orders promptly and correctly.

## 10.1 AIR CONTROL SYSTEM, MODEL 8330

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| N/S | 8300-200A | PNEUMO PANEL ASSEMBLY |
| N/S | 8300-300 | CASE ASSEMBLY |
| N/S | 8300-400 | A/C PANEL ASSEMBLY |
| N/S | 540-0031-01 | LP HOSE WHIP |

## 10.2 AIR CONTROL SYSTEM, MODEL 8300-HP

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| N/S | 8300-200A | PNEUMO PANEL ASSEMBLY |
| N/S | 8300-300 | CASE ASSEMBLY |
| N/S | 8300-400A | A/C PANEL ASSEMBLY |
| N/S | 540-0031-01 | LP HOSE WHIP |

## 10.3 AIR CONTROL SYSTEM WITH HEAT WRAP, MODEL 8330-H

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| N/S | 8300-200A | PNEUMO PANEL ASSEMBLY |
| N/S | 8300-300 | CASE ASSEMBLY |
| N/S | 8330-400 | A/C PANEL ASSEMBLY |
| N/S | 540-0031-01 | LP HOSE WHIP |
| N/S | 8330-UM | INSTRUCTION MANUAL |

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| N/S | 4E531 | HEATING CABLE, 24 FT. 120W |
| N/S | 1080-14-2S | GFCI CORD SET, IN-LINE |

## 10.4 PNEUMO PANEL ASSEMBLY, MODEL 8300-200A

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| 3 | 520-0013-01<br>(MFG PN: 200FTM88A21) | 6 IN. SEAWATER PNEUMO GAUGE, |
| 4 | ALV-BL-10-150 | AMRON PRESSURE LIMITING VALVE |
| 5 | NV2H-4T-S-BRAS | VALVE NEEDLE 1/4IN BRASS |
| 6 | NV2M-4N-S-BRAS | VALVE NEEDLE 1/4 MNPT BRASS |
| 7 | CRTM4-4N-BRAS | MALE RUN TEE 1/4 |
| 8 | CLMA4-4N-BRAS | ELBOW MALE 1/4 X 1/4 |
| 9 | CLF4-4N-BRAS | ELBOW FEMALE 1/4INBRASS |
| 10 | CMC4-4N-BRAS | CONNECTOR MALE 1/4 X 1/4 NPT |
| 11 | CBFC4-4N-BRAS | CONNECTOR FEMALE BULKHEAD |
| 12 | 71172520600<br>(MFG PN: PB254B-600) | PRESSURE GAUGE 2.5 IN 1/4 NPT 0-600 PSI/BAR |
| 13 | CMC4-4N-BRAS | CONNECTOR MALE 1/4 X 1/4 NPT |
| 14 | KMMOO-B-1/4 | FEMALE CROSS, 1/4" BRASS |
| 15 | MRO-B-1/4 | STREET TEE 1/4", BRASS |
| 16 | 340-0087-01 | ADAPTER, O2 X 1/4” MNPT |
| 17 | 8200-016 | DUST CAP WITH RETAINER #6 |
| 18 | 273-068 | SONALERT, 12 VDC 2900 HZ |
| 19 | B23 | BATTERY HOLDER |
| 20 | 9000-5067 | SWITCH, SPDT, ON-OFF-ON |
| 21 | 5168 | BOOT, SWITCH SEAL |
| 22 | 96211-BB4 | PRESSURE SWITCH, 100 PSI ADJUSTABLE |
| 33 | CTX-B-4-4 | MALE ELBOW 1/4 X1/4 |

## 10.5 AIR CONTROL HP/LP MANIFOLD, 8300-400A

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| 3 | 44-1312-2081-056 | TESCOM REGULATOR, 5000 PSI, CTFE SEAT |
| 4 | 1129 | MOUNTING BRACKET |
| 5 | 711725206000<br>(MFG PN: PB254B-K06) | PRESSURE GAUGE 2.5 IN 0-6000 PSI/BAR1/4 NPT |
| 6 | 71172520600<br>(MFG PN: PB254B-600) | PRESSURE GAUGE 2.5 IN 1/4 NPT 0-600 PSI/BAR |
| 7 | NV3FA-4N-S-OS-S316 | VALVE ANGLE 1/4 FNPT S/S KEL-F |
| 9 | HB3M-8N-BRAS | VALVE BALL BRASS 1/2 IN. MNPT |
| 10 | HB2M-4N-BRAS | VALVE BALL 3/8IN BRASS 1/4MNPT |
| 11 | FTH-6T-50-S316 | FILTER INLINE 50 MICRON S/S |
| 12 | CV3-HM-8T8N-1-BRAS | CHECK VALVE 1 PSI CRACKING |
| 13 | 8200-016 | DUST CAP WITH RETAINER #6 |
| 14 | 8200-018 | DUST CAP WITH RETAINER #8 |
| 15 | FLMB6T-02N-S316 | SS MALE 45 DEGREE ELBOW |
| 16 | CBFC6-4N-S316 | CONNECTOR FEMALE BULKHEAD |

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| 17 | CRTM6-4N-S316 | MALE RUN TEE S/S 3/8CPIx1/4NPT |
| 18 | CR4-6-S316 | REDUCER S/S 3/8X1/4 |
| 19 | CLF4-4N-S316 | FEMALE ELBOW - S/S 1/4X1/4 |
| 20 | CLMA6-4N-S316 | ELBOW MALE S/S NO 6X 1/4 MNPT |
| 21 | CLMA6-8N-S316 | MALE ELBOW S/S 3/8 X 1/2 |
| 22 | CLMA8-8N-BRAS | MALE ELBOW BRASS1/2 X 1/2 |
| 23 | CLMA4-6N-BRAS | MALE ELBOW BRASS 1/4NPT X 6NPT |
| 24 | CLMA4-4N-BRAS | ELBOW MALE 1/4 X 1/4 |
| 25 | CLF6-4N-BRAS | ELBOW BRASS NO 6 TUBEX 1/4FNPT |
| 26 | CFC4-4N-BRAS | FEMALE CONNECTOR 1/4 IN BRASS |
| 27 | CBFC8-6N-BRAS | CONNECTOR FEMALE BULKHEAD |
| 28 | CBFC6-4N-S316 | CONNECTOR FEMALE BULKHEAD |
| 29 | CMC4-4N-BRAS | CONNECTOR MALE 1/4 X 1/4 NPT |
| 30 | CBTF8-6N-BRAS | FEMALE BRANCH TEENO 8X3/8FNPT |
| 31 | AFBL-4T-BRAS | BULKHEAD UNION ELBOW |
| 32 | FLMB8T-03N-BRAS | BRASS MALE 45 DEGREE ELBOW |
| 33 | HP-SS-1/4 | HEX PLUG, 1/4” MNPT, BRASS |
| 34 | HP-B-3/8 | HEX PLUG, 3/8” MNPT, BRASS |
| 35 | DD-B-1/2 | FEMALE ELBOW, 1/2" FNPT, BRASS |
| 36 | 340-0087-01 | ADAPTER, O2 X 1/4” MNPT, CHROME BRASS |
| 37 | MPF-222 | STREET ELBOW 45, 1/4 NPT, CHROME BRASS |
| 39 | 8600-014 | DIFFUSER, VENT CAP |
| 71 | B-8CPA2-150 | VALVE, RELIEF 150 PSI |
| 72 | CFC6-8N-BRAS | FEMALE CONNECTOR 3/8 X 1/2 |
| 73 | CMC6-4N-S316 | MALE CONNECTOR STAINLESS |

### 10.6 AIR CONTROL HP/LP MANIFOLD, 8300-400

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| 3 | 44-1312-2081-056 | TESCOM REGULATOR, 5000 PSI, CTFE SEAT |
| 4 | 1129 | MOUNTING BRACKET |
| 5 | 711725206000<br>(MFG PN: PB254B-K06) | PRESSURE GAUGE 2.5 IN 0-6000 PSI/BAR1/4 NPT |
| 6 | 71172520600<br>(MFG PN: PB254B-600) | PRESSURE GAUGE 2.5 IN 1/4 NPT 0-600 PSI/BAR |
| 7 | NV3FA-4N-S-OS-S316 | VALVE ANGLE 1/4 FNPT S/S KEL-F |
| 9 | HB3M-8N-BRAS | VALVE BALL BRASS 1/2 IN. MNPT |
| 10 | HB2M-4N-BRAS | VALVE BALL 3/8IN BRASS 1/4MNPT |
| 11 | FTH-6T-50-S316 | FILTER INLINE 50 MICRON S/S |
| 12 | CV3-HM-8T8N-1-BRAS | VALVE CHECK 1 PSI CRACKING |
| 13 | 8200 016 | DUST CAP WITH RETAINER #6 |
| 14 | 8200 018 | DUST CAP WITH RETAINER #8 |
| 15 | FLMB6T-02N-S316 | SS MALE 45 DEGREE ELBOW |
| 16 | CBFC6-4N-S316 | FEMALE CONNECTOR BULKHEAD |
| 17 | CRTM6-4N-S316 | MALE RUN TEE S/S 3/8CPIx1/4NPT |
| 18 | CR4-6-S316 | REDUCER S/S 3/8X1/4 |
| 19 | CLF4-4N-S316 | FEMALE ELBOW - S/S 1/4X1/4 |

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| 20 | CLMA6-4N-S316 | MALE ELBOW S/S NO 6X 1/4 MNPT |
| 21 | CLMA6-8N-S316 | MALE ELBOW S/S 3/8 X 1/2 |
| 22 | CLMA8-8N-BRAS | MALE ELBOW BRASS1/2 X 1/2 |
| 23 | CLMA4-6N-BRAS | MALE ELBOW BRASS 1/4NPT X 6NPT |
| 24 | CLMA4-4N-BRAS | MALE ELBOW 1/4 X 1/4 |
| 25 | CLF6-4N-BRAS | ELBOW BRASS NO 6 TUBEX 1/4FNPT |
| 26 | CFC4-4N-BRAS | FEMALE CONNECTOR 1/4 IN BRASS |
| 27 | CBFC8-6N-BRAS | FEMALE CONNECTOR BULKHEAD |
| 28 | CBFC6-4N-S316 | FEMALE CONNECTOR BULKHEAD |
| 29 | CMC4-4N-S316 | MALE CONNECTOR S/S 1/4IN |
| 30 | CBTF8-6N-BRAS | FEMALE BRANCH TEE NO 8X3/8FNPT |
| 31 | AFBL-4T-BRAS | BULKHEAD UNION ELBOW |
| 32 | FLMB8T-03N-BRAS | BRASS MALE 45 DEGREE ELBOW |
| 33 | HP-SS-1/4 | HEX PLUG, 1/4” MNPT, BRASS |
| 34 | HP-B-3/8 | HEX PLUG, 3/8” MNPT, BRASS |
| 35 | DD-B-1/2 | FEMALE ELBOW, 1/2" FNPT, BRASS |
| 36 | 340-0087-01 | ADAPTER, O2 X 1/4” MNPT, CHROME BRASS |
| 37 | MPF-222 | STREET ELBOW 45, 1/4 NPT, CHROME BRASS |
| 39 | 8600-014 | DIFFUSER, VENT CAP |
| 71 | B-8CPA2-150 | RELIEF VALVE 150 PSI |
| 72 | CFC6-8N-BRAS | FEMALE CONNECTOR 3/8 X 1/2 |
| 73 | CMC6-4N-S316 | MALE CONNECTOR STAINLESS |

### 10.7 NON-METALLIC KIT, PART NO. 389-8083

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| 106 | 1036-3 | SEAT, TEFLON 15% GRAPHITE |
| 164 | 1082 | GASKET, 0.578, 0.483, 0.029, CTFE |
| 109 | 5200-020297 | O-RING, VITON |
| 110 | 5200-021227 | O-RING, VITON |
| 111 | 5200-020157 | O-RING, VITON |
| 158 | JT1199 | SEAT, VALVE, CTFE |
| 159 | 5200-020107 | O-RING, VITON |
| 160 | 5200-029089 | O-RING, VITON |
| 162 | 5476-10100 | BACK-UP RING, TEFLON |

### 10.8 REPAIR KIT, PART NO. 389-7350

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| 106 | 1036-4 | SEAT, TEFLON 15% GRAPHITE |
| 107 | 1023-6 | VALVE, VENT |
| 108 | 1022 | SPRING, 0.19, 0.72, 4.70, 316 SST |
| 109 | 5200-020297 | O-RING, VITON |
| 110 | 5200-021227 | O-RING, VITON |
| 111 | 5200-020157 | O-RING, VITON |
| 153 | 1081 | CAP, VALVE, 1/4 |

| | | |
|---|---|---|
| 158 | JT1199 | SEAT, VALVE, CTFE |
| 159 | 5200-020107 | O-RING, VITON |
| 160 | 5200-029089 | O-RING, VITON |
| 162 | 5476-10100 | BACK-UP RING, TEFLON |
| 163 | 1094 | SPRING, 0.47, 0.80, 360, ELGIL |
| 164 | 1032 | GASKET, 0.570, 0.483, 0.029, CTFE |

## 10.9 RECOMMENDED SPARE PARTS (8300-HP, 8330, & 8330-H)

| REF | PART NO. | DESCRIPTION |
|---|---|---|
| 2 | 389-7350 | REPAIR KIT FOR TESCOM REGULATOR |
| 2 | KIT-FT-50-SPARE-S316 | MAINTENANCE KIT FOR HP FILTER |
| 3 | KIT-CV3-1-RE-BRAS | MAINTENANCE KIT FOR LP CHECK VALVE |
| 7 | KIT-NV2S-SET-BRAS | MAINTENANCE KIT FOR PNEUMO VALVE |
| 1 | 711725206000<br>(MFG PN: PB254B-K06) | GAUGE, 6000 PSI FOR HP SECTION |
| 1 | 71172520600<br>(MFG PN: PB254B-600) | GAUGE, 600 PSI FOR LP SECTION |

# 11 REPAIR & CALIBRATION LOGS

## 11.1 REPAIR AND MAINTENANCE LOG FOR MODEL 8330 & 8300-HP

**Serial Number:** _____

**Date unit was placed in service:** _____

| Date of Service | Description of Service | Serviced By |
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## 11.2 GAUGE CALIBRATION LOG MODEL 520-0013-01

**Serial Number:** _____

**Date unit was place in service:** _____

| Calibration Date | Serial Number Comments | Calibrated By |
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## 12 LIMITED WARRANTY AND SERVICE POLICY

# Amron International, Inc.

## LIMITED WARRANTY & SERVICE POLICY

### LIMITED WARRANTY

AMRON INTERNATIONAL, INC., (Amron) warrants that its manufactured products are free from defects in material and workmanship under normal use and service for a period of one year from date of shipment as described in Amron's literature covering this product. Oxygen Treatment Hoods and accessories are excluded and limited to 90 days. Amron's obligation under this warranty is limited to the repair of or replacement, at Amron's option, of defective material. This warranty shall not cover defects which are the result of misuse, negligence, accident, repair or alterations.

### SERVICE POLICY

For technical assistance or to request a repair, please complete one of the following:

- *Amron Communicator Repair*: https://www.amronintl.com/communicator-repair-form
- *Repair Request* (all other products): https://www.amronintl.com/repair-form
- Call (760) 208-6500, Monday – Friday, 8 a.m. to 5 p.m. PST.

Both MODEL NO. and SERIAL NO. are required fields to be entered on the *Amron Communicator Repair Request* form and can be found on the products identification label as shown below.

"Sample" Product Identification Label


*Do not* return any product without obtaining a RMR (Return Materials Request). Detailed return instructions will be provided at the time of request.

1380 Aspen Way, Vista California 92081-8349 U.S.A
Phone: (760) 208-6500 Fax (760) 599-3857
Email: sales@amronintl.com Web: www.amronintl.com