

OPERATION/SERVICE MANUAL

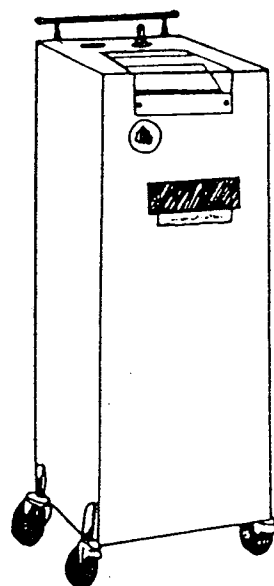
ARIDYNE 3500

MEDICAL AIR COMPRESSOR

FOR 120 VOLT, 60 HZ MODELS

**Allied Healthcare
Products, Inc.**

TIMETER INSTRUMENT CORPORATION



**READ ALL INSTRUCTIONS BEFORE OPERATING
OR SERVICING THE ARIDYNE 3500**

INTRODUCTION

Allied Healthcare's ARIDYNE™ Air Compressors are designed to withstand a heavy workload. Their construction includes both a special quieting material and drying system. The special quieting material in the ARIDYNE™ eliminates annoying pump and fan noise. The drying system reduces condensation in air lines and provides cool, clean air. Casters make the air compressor easy to move from room to room.

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WARRANTY

Because the ARIDYNE™ 3500 Air Compressor is quality designed, Allied Healthcare Products, Inc. promises to repair or replace any defective parts at no cost, including labor, for one full year from date of purchase. This is the extent of AHP responsibility. All consequential damages are specifically excluded.

PRECAUTIONS

- DO NOT use the compressor in the presence of flammable anesthetics.
- **CAUTION:** To prevent electrical shock hazard refer all servicing to qualified service persons.
- Electrical components inside the compressor system are isolated from ground.
- The air compressor system is grounded. DO NOT plug it into ungrounded outlets or adaptors.
- The compressor is of the oil-less type and **MUST NOT** be lubricated.
- Never put oxygen into the compressor. The electrical components are not approved for oxygen use.

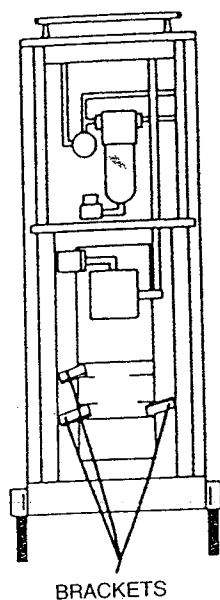
SPECIFICATIONS

Output	42 lpm at 50 ± 5 psig at 5°F dew point depression
Power	120 Volt, 60 Hz 1 Phase, 8.5 Amp
Power Cord	#16-3 x 9'4" (2.8m) (with hospital grade plug)
DIMENSIONS:	
Width	11 1/2" (29 cm)
Depth	15 3/4" (40cm)
Height	33 1/2" (87 cm)
Weight	90 lbs. (41 kg)
Outlets	Two Grounded DISS Male Air Outlets W/Internal Check Valves
Includes	10 Amp Internal Circuit Breaker

Precautions Continued

- It is recommended that you install a transparent water trap at the inlet of your blenders, respirators, etc. to protect them from moisture in case the drying system of your compressed air source (portable compressor or piped) fails. The water trap should be checked and emptied during each patient visit. If your equipment did not come equipped with a trap, contact your local dealer for information on AHP's F-100 Condensation Trap.
- Saline solutions can cause the valve plates inside the air pump to corrode. This lowers the compressor's operating pressure and performance. Whenever applicable, isolate the air compressor from environments in which saline solutions are used.
- Do not substitute parts without permission from the Allied Healthcare Products, Inc. Service Manager. Such substitutions can cause premature product failure and may void warranty.

FIG. 1



IMPORTANT UNPACKING INSTRUCTIONS

1. Unthread the six Phillips screws on the side panel and remove the panel.
2. Loosen and remove three nuts and bolts attached to pump bracket, on the bottom of the pump.
3. Loosen, but do not remove the three 5/16-18 hex nuts securing the tie down straps to the angle on the side of the cabinet.
4. Swing the tie down straps (either up or down) toward the cabinet.
5. Reattach the three nuts and bolts removed in instruction #1 to the tie down straps.

NOTE: Reverse these instructions when preparing the unit for shipping.

6. Tighten all hex nuts.
7. Check to see that the drainage hose is positioned in the foam in the water tray.
8. Examine the compressor for shipping damage and replace the side panel.

CONTROLS AND FEATURES

Power Switch: turns the compressor on and off.

Elapsed Time Indicator: measures how many hours the Aridyne 3500 has been used.

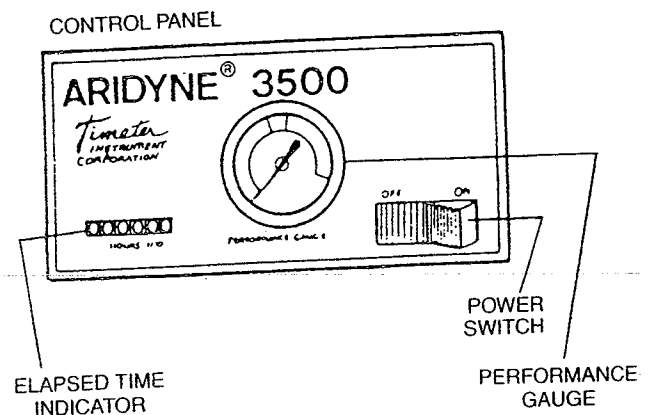
Performance Gauge: indicates how well the compressor is operating.

Green: Safety — indicates 50 psig outlet pressure and 5°F or greater dew point depression. Unit may run continuously. Hook-up may be remote.

Yellow: Warning — indicates 45-50 psig and low dew point depression. Hook-up should be very close. The needle should only enter the yellow area occasionally and should not stay in the yellow for long or the drainage system will be impaired.

Red: Danger — indicates limited drying, less than 50 psig outlet pressure and flow capacity exceeded. Unit should NEVER be operated in the red.

FIG. 2



OPERATION

1. Position the compressor so there is plenty of air space in front and behind it. Good air circulation can prevent overheating.
2. Insert the plug into a proper hospital grade outlet. DO NOT use ungrounded outlets or adaptor plugs.
3. Turn the power switch "ON." (Check valves in the outlets allow you to attach equipment when the compressor is on.)

DO NOT use wrenches or excessive force in attaching equipment to the outlets. This could damage internal tubing.

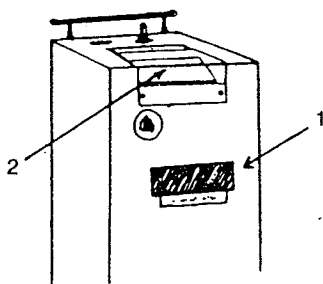
4. DO NOT operate the compressor for extended periods of time if the performance gauge is in the yellow. NEVER operate the unit if the gauge is in the red.
5. The compressor can be started with pressure in the system.

ROUTINE MAINTENANCE

A. DAILY

1. Locate the cabinet inlet filter (Fig. 3, Item 1).
2. Clean the dust and lint from this filter daily. At least once a week remove it and wash it in warm soapy water.

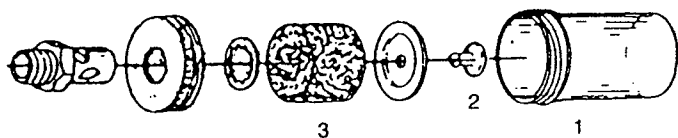
FIG. 3



B. QUARTERLY: Clean the pump inlet filter elements.

1. Turn the power switch off and unplug the power cord.
2. Remove the rear panel of the air compressor.
3. Disconnect the high pressure hose (Fig.7, Item 7) at the swivel fitting and pull it up through the shelf.
4. Disconnect the tubing from the bottom of the water trap jar. Loosen the clamp and unthread the jar.
5. Loosen the clamp on the drainage tubing (Fig.7, Item 21) and pull it up through the shelf.
6. Carefully slide the motor/fan shelf out enough to expose both pump inlet filter assemblies (Fig.4). Do this slowly to avoid putting excess stress on wires.
7. Clean or replace the pump inlet filter elements (Fig.4).
 - a. Unthread the jars (1) from their lids.
 - b. Pull out the center studs (2).
 - c. Wash the elements (3) with clean water and air dry, or install new filters.
 - d. Reassemble.

FIG. 4



C. YEARLY: Install the Preventive Maintenance Kit. (See REPLACEMENT PARTS for part numbers.) It includes the following:

- 2 Pump Inlet Filter Elements
- 1 Water Trap Filter Element
- 1 Water Jar O-Ring
- 6 Cabinet Inlet Filters
- 1 Relief Valve Diaphragm
- 1 Regulator Diaphragm

1. To install the pump inlet filter elements, refer to QUARTERLY.
2. To replace the water jar filter and O-ring (Fig. 5):
 - a. Remove the rear panel.
 - b. Disconnect the tubing from the bottom of the water jar (1). Loosen the clamp (Fig. 7, Item A) and unthread the jar.
 - c. Unthread the retainer cap (2) and remove the filter (3).
 - d. Clean the water jar with warm soapy water.
 - e. Install the new water jar filter and reassemble.
 - f. When reassembling, carefully place the new O-ring (4) on the top of the water jar and rethread the jar.

FIG. 5

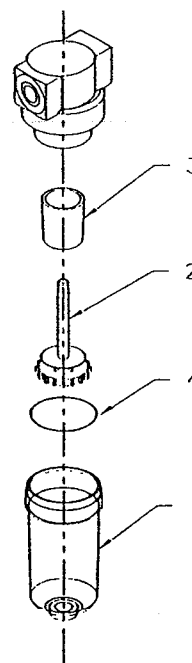
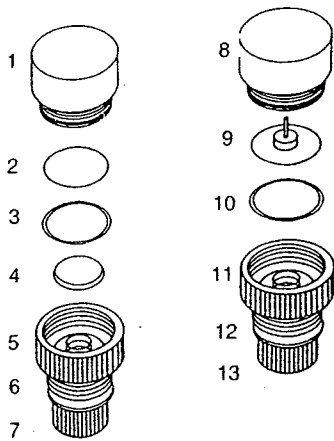


FIG. 6



3. To install the relief valve and regulator diaphragms (Fig. 6):

- a. Pull out the relief valve locking ring (6) and unthread the adjustment knob (7) as far as it will go.
- b. Remove the relief valve bonnet (5) and replace the diaphragm (2).
- c. Pull out the regulator locking ring (12) and unthread the adjustment knob (13) as far as it will go.
- d. Remove the regulator bonnet (11) and replace the regulator diaphragm (9).
- e. Reassemble the relief valve and regulator.
- f. **RESYNCHRONIZE THE REGULATOR AND RELIEF VALVE. DO NOT ATTEMPT TO OPERATE THE ARIDYNE 3500 UNTIL IT HAS BEEN RESYNCHRONIZED. See Service.**

AFTER 6,000 HOURS/ PUMP OVERHAUL KIT

After 6,000 hours of use, install the pump overhaul kit, even if the Aridyne 3500 is operating properly. The overhaul kit prolongs pump life without major rebuilding. See the replacement parts list for the part number.

Service life of Aridyne 3500 will be shortened if it is operated in a hot environment (90°F/32°C or above). If this is the case, install the kit more often than every 6,000 hours.

Instructions are included with each kit. Before using the kit, follow these instructions to remove the shelf/pump assembly:

1. Unplug the power cord.
2. Remove the rear panel.
3. Disconnect the copper tubing at the compression fitting (Fig. 7, Item B) above the shelf.

4. Disconnect the tubing from the bottom of the water jar (Fig. 7, Item 3), loosen the clamp (Fig. 7, Item A) and unthread the jar.
5. Disconnect the tubing from the relief valve (Fig. 7, Item 2) and pull it down through the shelf (Fig. 7, Item D).
6. Slide the shelf entirely out of the cabinet.

CAUTION: Be extremely careful not to bend the fan blades. This can severely affect the cooling and performance of the Aridyne 3500.

7. Remove the pump wires from the terminal block (Fig. 7, Item C).
8. Lay the shelf down on its side and spread the springs (Fig. 7, Item 10) open at the four pump eyebolts. Unhook the springs from the pump to free the pump from the shelf.
9. Proceed with the pump overhaul, using instructions included with the kit.

- NOTES:**
- When installing rings in the air pump, be sure the piston is exactly flush with the cylinder when the piston is at top dead center. Readjust the cylinder as necessary.
 - If you have questions, please contact Allied Healthcare Products, Inc.
 - If there is excessive damage to the pump, such as broken pistons, scored cylinders, etc., contact Allied Healthcare Products, Inc. to make proper arrangements for factory repair.

SERVICE

RESYNCHRONIZATION

1. With the rear panel off, plug the power cord in and turn the power switch on.
2. Pull the regulator locking ring (Fig. 6, Item 12) and turn the regulator adjustment knob (Fig. 6, Item 13) clockwise until it is completely closed.
3. If the performance gauge does not read at the "P" of PSI in the **GREEN** area at a no-flow condition, pull out the relief valve locking ring (Fig. 6, Item 13) and turn the adjustment knob until it does.

CAUTION: DO NOT adjust the needle past the "P" in the green area or pump damage will result!!!

4. Once the relief valve knob is adjusted properly, push the locking ring in to lock the setting.
5. Attach a pressure gauge to either of the Aridyne 3500 outlets.
6. Adjust the regulator until the outlet pressure is approximately 55 psig at a no-flow condition. After each adjustment, allow a few seconds for the system to stabilize.
7. Push the regulator locking ring in to lock the setting.

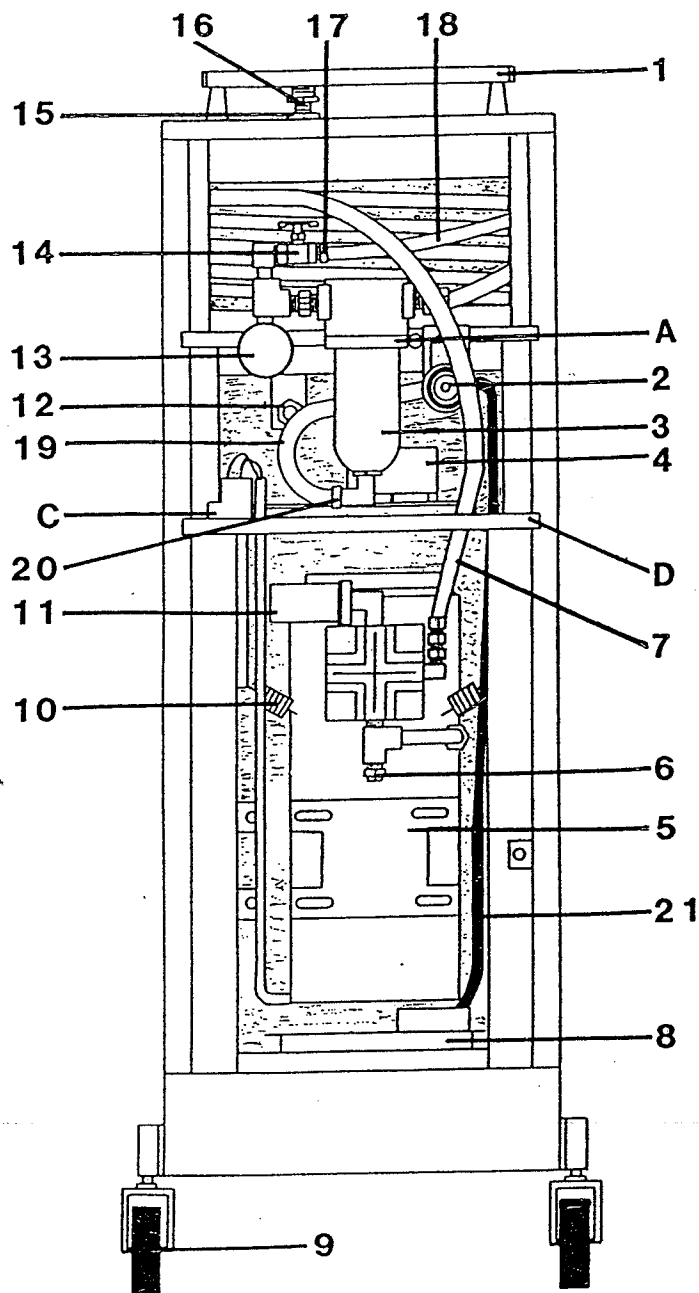


FIG. 7 INTERNAL VIEW OF THE ARIDYNE 3500

ITEM	PART #	PART DESCRIPTION
1	081-102	Handle w/hardware
2	903-401	Relief valve
3	13532	Water jar w/exit bushing & nut
4	082-110	Fan assembly w/hardware
5	029-119	Pump w/suspension
6	990-434	Pop-off valve
7	918-401	High pressure hose w/fittings
8	11256	Water tray w/foam block
9	12154	Caster back
	12300	Caster, locking front
10	611-307	Suspension spring
11	12152	Complete pump inlet filter
12	327-204	Circuit breaker
13	903-402	Regulator
14	973-401	Needle valve

15	080-109	Bulkhead w/nut & lock washer
16	Z75	Outlet, check DISS air \times $\frac{1}{8}$ " NPT
17	974-401	Sealing sleeve $\frac{3}{8}$ " O.D.
18	911-007	Nylon tubing $\frac{3}{8}$ " O.D.
19	911-004	Plastic tubing $\frac{1}{4}$ " O.D.
20	974-402	Sealing sleeve $\frac{1}{4}$ " O.D.
21	911-003	Clear drain tube

Also Illustrated

- A Water jar clamp
- C Terminal block
- D Shelf

REPLACEMENT PARTS

PART # PART DESCRIPTION

(Fig. 2)

8134 * Elapsed time indicator
8508 Performance gauge
510-504 Power switch

(Fig. 3)

901-409 Cabinet inlet filter
025-115 Splash shield

(Fig. 4)

901-405 Pump inlet filter element

(Fig. 5)

924-401 Water jar filter
13530 Water jar O-ring

(Fig. 6)

991-407 Regulator bonnet (Item 1 I)
923-401 VO6 Relief valve diaphragm (Item 2)
923-402 RO6 Regulator diaphragm (Item 9)

PART # PART DESCRIPTION

(Not Illustrated)

Z103 Preventive maintenance kit
Includes:
901-405 Pump inlet filter elements (2)
924-401 Water jar filter
13530 Water jar O-ring
901-409 Cabinet inlet filters (6)
923-401 Relief valve diaphragm
923-402 Regulator diaphragm
12002 Pump overhaul kit
613-006 Shipping carton
648-301 Air deflector chute

COMPRESSOR PUMP PARTS

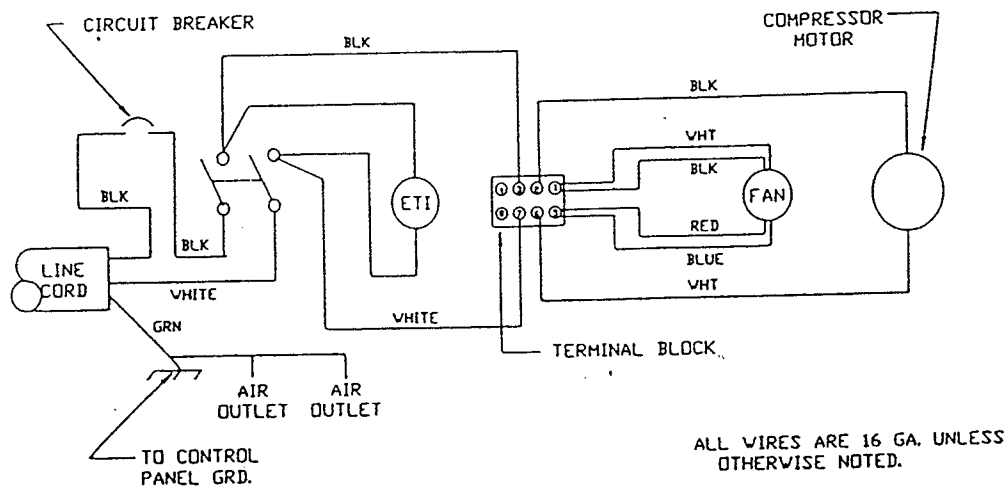
990-408 AD35-AF506 Piston only
990-410 AD35-AF508 Cylinder head
990-412 AD35-AF510 Cylinder
990-470 AD35-515E Eccentric
990-415 AD35-AF523 Wrist pin
990-467 AD35-AF524 Flat key
990-416 AD35-AF529 Valve plate
990-418 AD35-AF533 Fan blade
990-421 AD35-AF535 Fan shroud
990-423 AD35-AF536B Manifold
990-430 AD35-AF560 Piston & rod assy
990-462 SCE69FK Wrist pin bearings

* Call Allied Healthcare Service Department to see if adaptor plate #11181 is needed to install the elapsed time indicator.

TROUBLESHOOTING

Trouble	Cause	Solution
PERFORMANCE GAUGE: needle sticks, is slow to respond, or vibrates rapidly.	Needle valve maladjusted	Turn needle valve clockwise to stop vibration; Counterclockwise to prevent sticking and slow response.
Proper needle valve setting is necessary to prevent performance gauge damage and ensure accuracy.		
OVERHEATING	Cabinet filter blocked by curtains, bedding, a wall, etc. Cabinet filter clogged Air Compressor running in hot, unventilated area Fan not operating	Move obstruction. Clean or replace. Reposition Check electrical connections/ Replace fan.
HIGH PRESSURE:	Regulator set too high Regulator and relief valve diaphragms need to be cleaned/replaced	Resynchronize (See SERVICE). See "YEARLY".
LOW PRESSURE: Pump not running:	Power cord unplugged Circuit breaker popped	Plug it in. To reset, press button until red ring no longer shows. If pops again, call dealer or the Allied Healthcare Service Dept. at (314) 771-2400, or toll-free (800) 444-3954.
	Hospital fuse has blown Thermal overload protector in pump has activated.	Check and reset. Automatic reset within 20-30 minutes. Leave power switch on so the fan can cool the pump faster. Check the following: a. Any of the causes listed in OVERHEATING above. b. A motor defect is causing it to draw too much power. This will quickly overheat the motor. Current usage should not exceed 8.5 amps during normal compressor usage.
LOW PRESSURE: Pump still running:	Outlet(s) leaking Water trap improperly sealed Water jar O-ring ill-fitted or missing Internal brass fitting leaking Pop-off valve defective Regulator set too low Contact with saline solution has corroded valve plated Pump worn	Tighten or reseal. See ROUTINE MAINTENANCE YEARLY, step 2, Fig. 5. See ROUTINE MAINTENANCE YEARLY, step 2, Fig. 5. Tighten or reseal. Call Allied Healthcare Service. Resynchronize, See "SERVICE". Look for and remove corrosion. In advanced cases install pump service kit. Install pump service kit.
WATER PROBLEMS: Water coming from outlet(s):	Flow capacity of pump being exceeded Performance gauge needle in red Pump overheated Regulator out of synchronization Pump in shipping position Damaged pump spring(s) Pump worn Fan brackets bent; blade striking shelf or brackets	Reduce flow requirements. Reduce flow requirements. See OVERHEATING above. See SERVICE. See IMPORTANT UNPACKING INSTRUCTIONS. Replace spring(s). Install pump service kit. Straighten.

WIRING SCHEMATIC



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