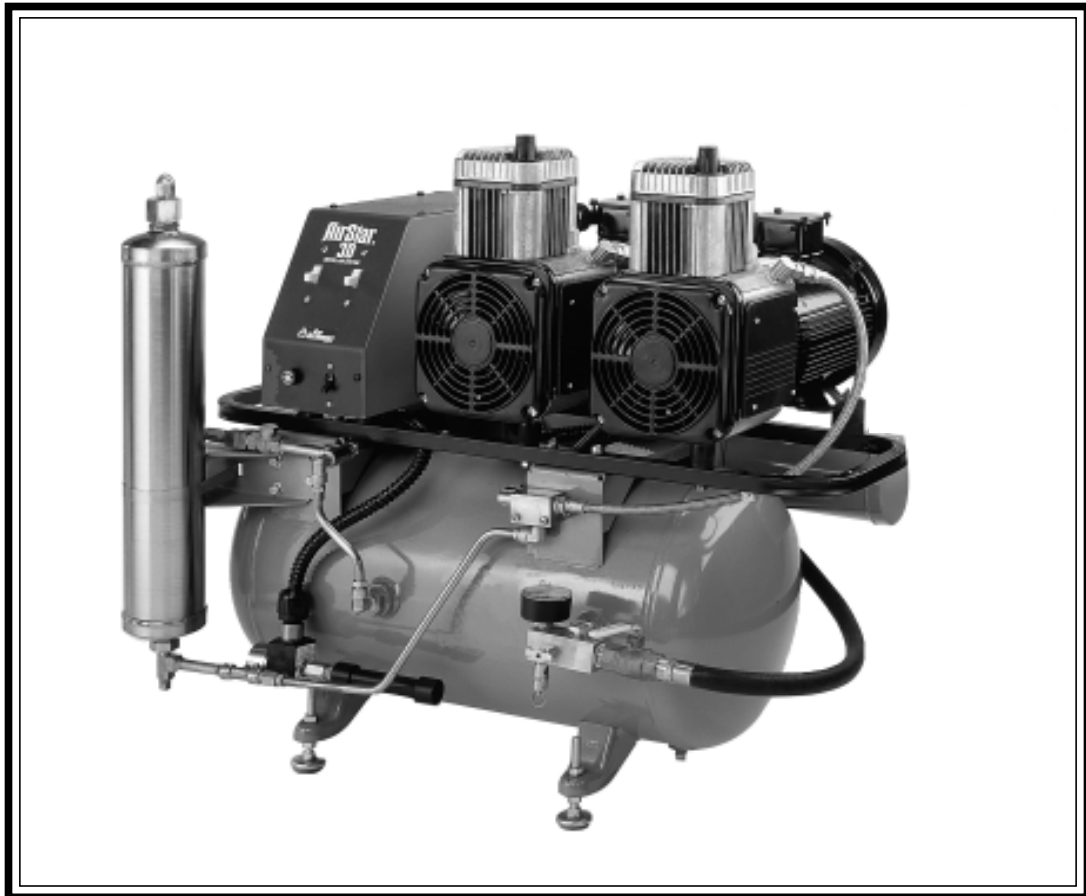


AirStar[®]

Dental Air System



OPERATOR'S MANUAL



CONGRATULATIONS ON YOUR PURCHASE OF THE AIRSTAR DENTAL AIR SYSTEM.

Your AirStar generates 100% oil-less, ultra-dry dental air which protects valuable handpieces from premature failure due to the effects of moist air and the build-up of oil residue. Because no oil is used for mechanical lubrication, there is no chance of introducing an oily film to a prepared surface which could compromise resin retention and restorations, wasting chair time. Most important, your patients's health is protected with ultra-dry air that provides an environment that is not conducive to bacterial growth.

The AirStar utilizes a long stroke, small bore piston to compress the air. This piston is bonded with an anti-friction polymer to eliminate the need for oil. This air is forced through a stainless-steel drying chamber containing a silica gel dessicant that removes moisture and air impurities. This dry air is reserved in the main storage tank for use by the operatory air system. To insure that the operatory receives only 100% ultra-dry air, AirStars are designed with a patented Automatic Regenerating Hygostat System, which monitors the dryness of the air in the storage tank and regenerates the desiccant, when needed, under extremely "wet" or "moist" conditions.

Since 1971, when Air Techniques pioneered the manufacture of oil-less air for dentistry, thousands of dentists have depended on their AirStar. Now that your practice has an AirStar, you, too, can depend on the delivery of 100% oil-less, ultra-dry air and efficient, trouble-free operation.

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Choosing the correct size AirStar for your practice depends on the number of air users and the anticipated air demand. To assure optimum compressor operation, the air demands should not exceed the number of air handpiece users shown in the chart below:

MODEL	RECOMMENDED NUMBER OF USERS	NUMBER OF HEADS
AIRSTAR 10	1 - 2	1
AIRSTAR 21	2 - 3	1
AIRSTAR 22	2 - 3	1
AIRSTAR 30	3 - 4	2
AIRSTAR 50	5 - 7	2
AIRSTAR 70	7 - 10	3

MAINTENANCE

- Change the Intake Filters, PN 89831 once a year, or more often in dusty environments. See Fig. 1.
- To comply with NFPA 99C, a Five Micron Filter Kit (PN 85617) is available for all AirStar models.
- Periodically inspect the Moisture Monitor. A “blue” Moisture Monitor indicates that the air in the storage tank is dry. A “pink” Moisture Monitor indicates a high level of humidity in the storage tank. To correct this situation, see TROUBLE SHOOTING page 10. See Fig. 2.

Fig. 1

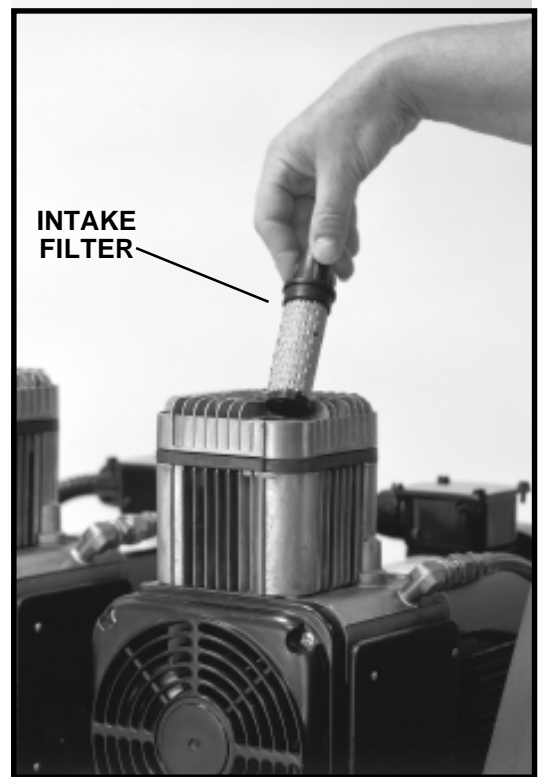
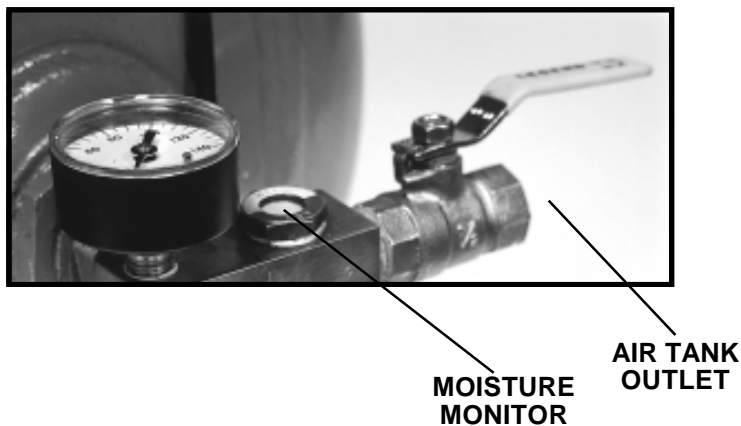


Fig. 2



OPERATING INFORMATION

■ **AirStar 10, 21, 22**

- If a remote Control Panel is being used, the switch on the face of the compressor Control box must be in the ON position.
- The 24 volt circuit breaker must also be in the ON position. Make sure the reset button is flush with the face of the circuit breaker. If it isn't, push it in to reset.
- If a Remote Control Panel is not being used, be sure that the yellow and the orange wires are connected to one another. These wires are located on the pressure switch. See Fig. 4a. The power switch located on the face of the compressor Control Box is the power control for the motor.

■ **AirStar 30, 50, 70**

- If a Remote Control Panel is being used, BOTH switches on the face of the compressor Control Box (or all 3 on the AirStar 70) must be in the ON position.
- If a Remote Control Panel is not being used, be sure that the yellow and the orange wires are connected to one another. These wires are located on the pressure switch. See Fig. 4a. The power switches located on the face of the compressor Control Box are the power control for each motor.

Note: Compressor motors are designed to run together. Do not run one head at a time unless one head has failed and you are waiting for service.

- The motor circuit breaker must be kept in the ON position and should not be used as a switch.

■ **Automatic Regenerating Hygrostat System**

If the compressor cycles when there is no air demand from the operator(ies), it may indicate that the Automatic Regenerating Hygrostat System is functioning. This system is responsible for keeping the drying system in proper condition. It only operates in high demand air situations or if the air demand exceeds the rating of the AirStar model chosen.

Note: The compressor may also cycle if there are air leaks in the compressor or plumbing installation - see TROUBLE SHOOTING.

KEY PARTS IDENTIFICATION

Fig. 3 - Front View

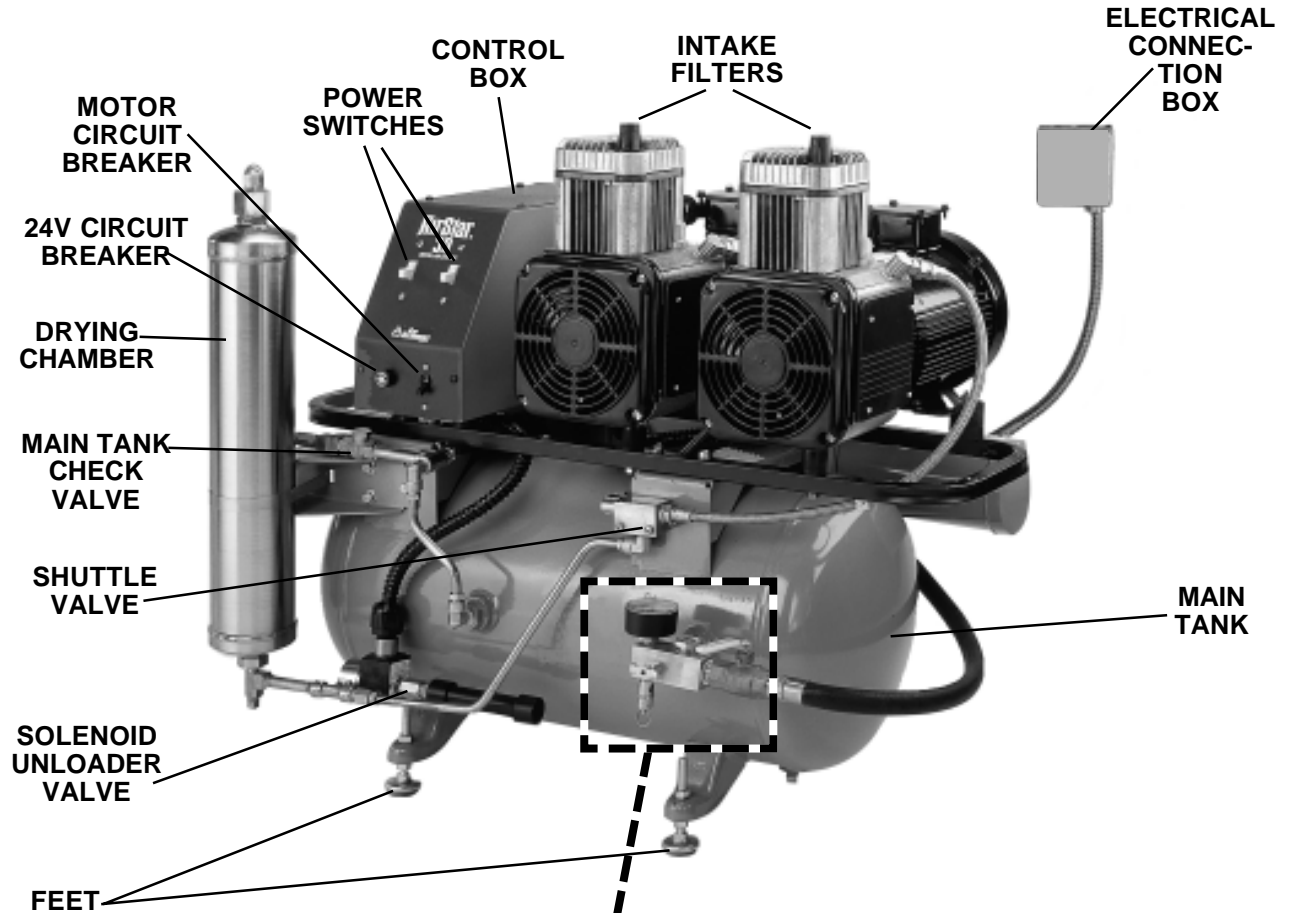
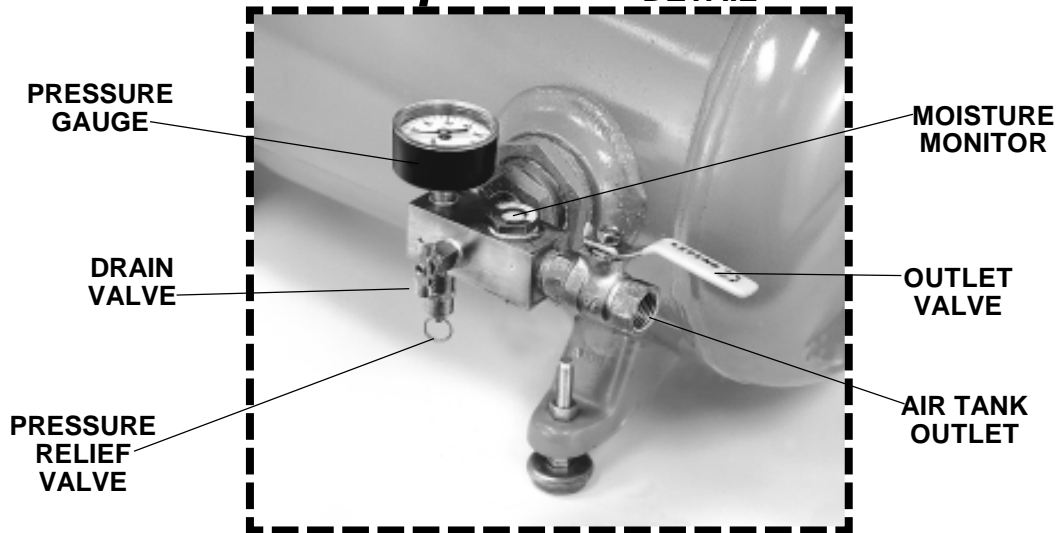


Fig. 3a.

TANK OUTLET ASSEMBLY
DETAIL



KEY PARTS IDENTIFICATION

Fig. 4 - Rear View

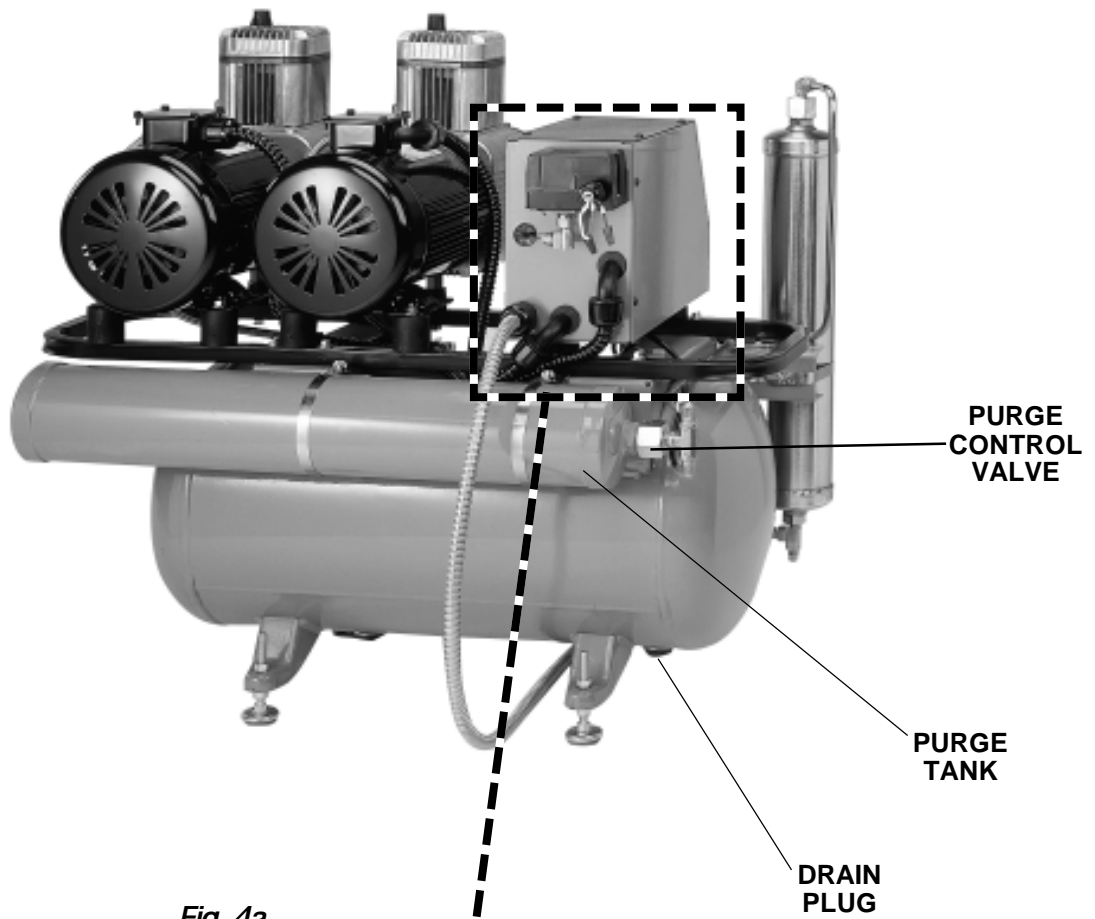
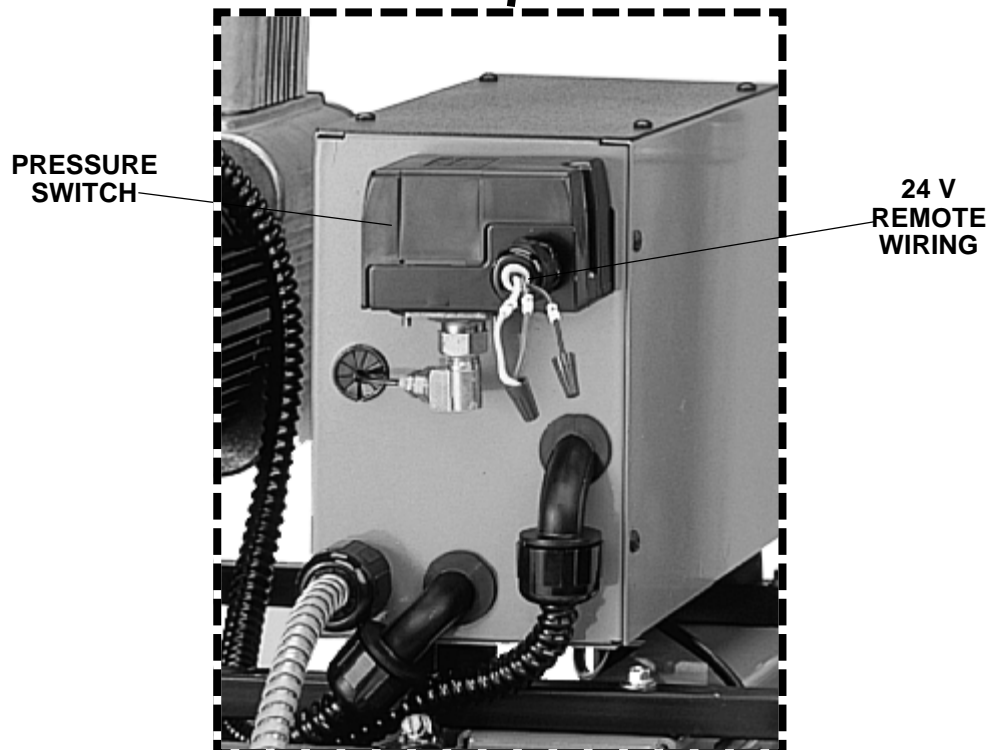


Fig. 4a.



INSTALLATION INFORMATION

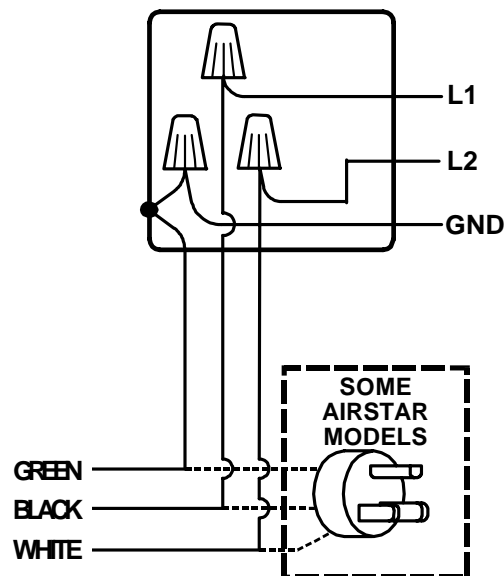
AirStars are installed by authorized Air Techniques dealer service technicians. Please review these installation guidelines to make sure that your AirStar will work to capacity for your office. (See Site Requirements)

- Your AirStar should be installed in a well ventilated area, with at least 12 inch clearance on each side for service access and to prevent overheating during high demand periods. If other equipment is located in the vicinity, the ambient temperature of the area must not exceed 105°F.
- The installation site should be clean and dry to prevent the air intake filters from clogging. If there is a concern about the quality of air where the AirStar is placed, we recommend an optional Remote Air Intake (See Optional Accessories) which allows the compressor to intake clean air from a remote location.
- Air distribution piping for all models should be 1/2", type "L" or type "K" copper.
- The minimum voltage for an AirStar 10 or 21 is 105 Volts. The minimum voltage required for an AirStar 22, 30, 50 or 70 is 200 Volts. Install a boost transformer if the service is below these ratings. (See Optional Accessories for the correct boost transformer.)

Note: If voltage is higher than 125V/250V, install a bucking transformer.

- **AIR SYSTEM PLUMBING CONNECTION:** The Tank Outlet Assembly (See Fig. 3a), (the storage tank outlet for the dry air) is connected to the operatory air system via a 1/2" F.N.P.T. shut-off valve and 4 foot length of pressure hose (supplied).
- **ELECTRICAL CONNECTION:**
 - If your AirStar comes with a line cord, plug it into a grounded electrical outlet.
 - If your AirStar comes with an electrical connections box, it must be wired directly in accordance with local electrical codes. (See Fig. 5 below)

Fig. 5 - Electrical Connections Box



INSTALLATION INFORMATION

POST INSTALLATION CHECK

Make Sure Everything Is Running Properly

After your AirStar has been installed and before it is put into operation, be sure to follow the check-out procedure detailed below:

- Check that Intake Filter(s) are fully seated into the compressor head(s) and that the Tank Outlet Valve is closed.
- Turn on the electricity. Check the incoming line voltage. It should be at least 105 Volts for the AirStar 10 and 21; and 200 Volts for the AirStar 22, 30, 50 and 70. This voltage should remain at or above these levels while the AirStar is running. If not, install the appropriate boost transformer and check that the correct main circuit breaker and wire size are being used.
- Check pump-up and recovery times as detailed below and compare to the times in the table.
 - Turn on the AirStar's power and determine the pump-up time from 0-100 PSI. See the table below.
 - Drain the storage tank to 80 PSI and determine the recovery time from 80 to 100 PSI. See the table below.

MODEL	NO. OF HEADS	PUMP-UP TIME (Seconds) ±5% 0-100 PSI	RECOVERY TIME (Seconds) ±5% 80-100 PSI	PURGE TIME (Seconds) 100-0 PSI
AIRSTAR 10	1	165	48	45-55
AIRSTAR 21	1	145	45	90-100
AIRSTAR 22	1	145	45	90-100
AIRSTAR 30	2	150	46	90-100
AIRSTAR 50	2	135	43	100-120
AIRSTAR 70	3	120	37	110-135

If the recovery or purge times differ from those listed in this table, call your authorized Air Techniques dealer for service.

TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Motor does not start.	<ul style="list-style-type: none"> a. No electric power. b. Power not connected.. c. Defective power switch. 	<ul style="list-style-type: none"> a. Check circuit breaker at main power panel. b. Check 24 Volt remote connections. c. Power switch needs to be replaced. Call your authorized Air Techniques dealer for service.
2. Motor tries to start, circuit breaker trips off. (* see bottom of page 10)	<ul style="list-style-type: none"> a. Voltage too low. If each compressor head runs separately, but will not run together, the voltage is too low. b. Unloader valve does not open when compression cycle ends. c. Power supply cable too small. d. Loose electrical connection. 	<ul style="list-style-type: none"> c. AirStar 10 and 20 require a minimum of 105 Volts. Airstar 22, 30, 50 and 70 require a minimum of 200 Volts. If the voltage is below the required minimum, a boost transformer must be installed. Call your authorized Air Techniques dealer. b. Check the unloader valve. If it does not open at the end of the cycle, call your authorized Air Techniques dealer. c. See SITE REQUIREMENTS Table. d. Call your authorized Air Techniques dealer for service.
3. Unusual noise.	<ul style="list-style-type: none"> a. Intake filter(s) not seated correctly. b. Intake filter(s) clogged or dirty. c. Motor noise. d. Air leaks e. Check cooling fans 	<ul style="list-style-type: none"> a. Remove filter(s). Replace if clogged or dirty. When installing, make sure filter chamber is clean and rubber flange on top of filter is pushed all the way down into the metal cylinder. b. Replace filter(s). (PN 89831) c. Call your authorized Air Techniques dealer for service. d. See 4c. e. If fan is loose or broken, call your authorized Air Techniques dealer for service.
4 Compressor cycles but does not build up pressure to 100 psi.	<ul style="list-style-type: none"> a. Unloader valve does not close when compressor runs. b. Clogged or dirty intake filters. c. Leak in compressor. d. Pressure switch needs to be adjusted. 	<ul style="list-style-type: none"> a. Check the unloader valve. Call your authorized Air Techniques dealer for service. b. Replace intake filters. (PN 89831) c. Close the storage tank outlet valve. Check all fittings for leaks. If a leak is found, call your authorized Air Techniques dealer for service. d. Disconnect the main power supply. Drain the storage tank slowly until a “click” is heard. Storage tank pressure should read 80 PSI on the pressure gauge. Close the tank outlet valve, turn on the power switch and verify the pump-up time for your model AirStar. Call your authorized Air Techniques dealer if the pump-up time is incorrect. (See Post Installation Check for pump-up times.)

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTIONS
5. Compressor cycles but shuts off before 100 psi in tank is reached.	a. Pressure switch may need to be adjusted or replaced.	a. Call your authorized Air Techniques dealer for service.
6. Compressor cycles when there is no air demand from the operator/ operatories.	a. Automatic Regenerating Hygrostat System is running. b. Leak in the compressor. c. Leak in the office air system.	a. This is not a malfunction, See OPERATING INFORMATION. b. See 4c. c. Look at the moisture monitor (see KEY PARTS to locate). <i>If it is blue...</i> With the AirStar's power switch ON, drain the storage tank to 80 PSI to start the compression cycle. When the cycle shuts off at 100 PSI, close the storage tank outlet valve. Wait 5 minutes. Open the storage tank outlet valve. If the pressure drops, the air leak is in the office air system or delivery units and not in the AirStar. Call your dealer or plumber for service. <i>If it is pink see #7</i>
7. Moisture monitor is not blue (pink or white).	a. Leak in the office air system. b. Compressor keeps cycling. c. The Unloading System requires attention. d. The Automatic Regenerating Hygrostat System is not working.	a. If the moisture monitor is pink, there is too much moisture in the system. Call your authorized Air Techniques dealer for service. b. Check the SIZING GUIDE. There may be excessive air demands placed on the AirStar. A larger capacity model may be required. c. It is normal to hear air escaping from the un-loader valve when the compressor shuts off. If air does not escape, the valve could be clogged or sticking. Call your authorized Air Techniques dealer for service. d. Call your authorized Air Techniques dealer for service.

***DIAGNOSTIC PROCEDURE FOR DEFECTIVE COMPRESSOR HEAD(S)**

1. Put power switches in the OFF position.
2. Reset the circuit breaker if it was previously tripped.
3. Test heads by turning ONE on at a time. If the motor fails to start, or the circuit breaker trips, the problem may be in that compressor head. Leave the power switch for the defective head in the OFF position. Call your Authorized Air Techniques dealer for service.

NOTE: One head (two heads in the case of the AirStar 70) may be run TEMPORARILY while waiting for service.

4. If all heads run independently, but will not run together, check the line voltage. If the voltage is within the min./max. voltage required in PRODUCT SPECIFICATIONS, call your Authorized Air Techniques dealer for service.

PRODUCT SPECIFICATIONS

ELECTRICAL	AIRSTAR 10	AIRSTAR 21	AIRSTAR 22	AIRSTAR 30	AIRSTAR 50	AIRSTAR 70
HP	.75	1.5	1.5	1.5	3.0	4.5
Voltage Rating	115	115	208/230	208/230	208/230	208/230
Voltage Min./Max.	105/125	105/125	200/250	200/250	200/250	200/250
CFM (Cubic Ft./Min) @ RATED CAPACITY Peak / Continuous	2.4/1.2	4.6/2.6	4.6/2.6	4.8/2.7	9.2/5.2	13.8/7.5
PUMP-UP TIME 0-100 PSI (seconds) ±5%	165	145	145	150	135	120
RECOVERY TIME 80-100 PSI (seconds) ±5%	48	45	45	46	43	37
PURGE TIME 100-0 PSI (seconds)	45-55	90-100	90-100	90-100	100-120	130-145
TANK SIZE (cu. ft.) (US Gal.)	.8 6	1.6 12	1.6 12	1.6 12	2.7 20	4.0 30
SHIPPING WEIGHT (lbs) (Approx)	160 (AS10C-200)	210 (AS21C-250)	210 (AS22C-250)	255 (AS30C-300)	320 (AS50C-380)	430
DIMENSIONS in. (HxWxD)	27 x 23 x 18	28 x 33 x 21	28 x 33 x 21	29 x 33 x 21	31 x 38 x 24	33 x 45 x 26
HEIGHT W. SOUND REDUCING COVER (in.)	31	32	32	32	33	NA

SITE REQUIREMENTS

ELECTRICAL	AIRSTAR 10	AIRSTAR 21	AIRSTAR 22	AIRSTAR 30	AIRSTAR 50	AIRSTAR 70
Voltage Min./Max.	105/125	105/125	200/250	200/250	200/250	200/250
Full Load Amps	8.0	15.0	8.0	8.0	16.0	24.0
Min. Circuit Breaker Rating (Amps)	20	30	20	20	30	40
Min. Wire Size (AWG)	12	10	12	12	10	8

* Install a boost transformer if service is below these ratings

Service Clearance - Allow 12" on all sides for all models.

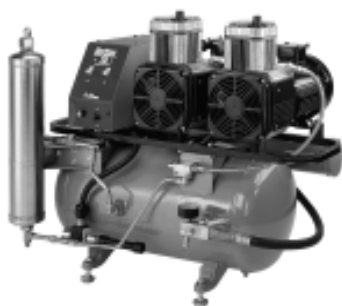
Ambient Temperature - Must not exceed 105°F

Air System Plumbing Connection - 1/2" F.N.P.T. Shut-off valve and a 4 ft. pressure hose (supplied)

- Air distribution piping for all models - 1/2", type "L" or type "K" copper
- If pipe volume is too great, more than 235 in³ or more than 100 ft. of 1/2" diameter pipe, a pressure regulator should be installed between the main tank and the distribution piping and pressure set at 80 PSI.

OPTIONAL ACCESSORIES

DESCRIPTION	MODEL	PART NUMBER
REMOTE AIR INTAKE KIT	AirStar 10 AirStar 21, 22, 30 AirStar 50 AirStar 70	85491 85492 85493 85494
REMOTE CONTROL PANEL w/24 V switches Air, Water, Vac 1, Vac 2 Air, Vac 1, Vac 2 Air, Vac, Water Air, Vac	For all AirStars	53133 53149 53250 53251
BOOST TRANSFORMERS	AirStar 10, 21 AirStar 22, 30 AirStar 50, 70	67500 67002 67000-1
SOUND REDUCING COVER	AirStar 10 AirStar 21 AirStar 22 AirStar 30 AirStar 50	85961 85962-1 85962-2 85963 85965
TURBO TOWER STACK RACK	Turbo 2000 on top of AirStar 21, 22, 30	57770



REPLACEMENT PARTS

DESCRIPTION	PART #
INTAKE FILTER (factory installed 10 micron)	89831
5 MICRON FILTER KIT	85617

Air Techniques is a leading manufacturer of dental support products from air compressors and vacuum systems to x-ray film processors and intraoral video cameras, air abrasion systems, evacuation units and automatic rapid curing and bleaching systems. We have been manufacturing quality products for the dental professional since 1962.

PERI-PRO®
A/T 2000® XR

VISTACAM OMNI™
AIRSTAR®

TURBO 2000™
VACSTAR™
VACUSELTZER™

AIRDENT II™
ARC LIGHT™
DENTO-VAC™



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PN 85095 Rev. F

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