

California Air tools Air Dryer Service Manual - 640003



Changing the Way the World Works!

WARNING:

Read, understand and follow safety precautions and instructions in this manual and in the labels attached to the dryer system. Failure to do so could result in serious injury, death and property damage.

SPECIFICATIONS

- Unit Dimensions: See Fig. 1
- Weight: 17.5 lbs.
- Connections: 1/2" NPT
- Air flow: Max 15 CFM
- Air Pressure: Max 130 Psi
- Drying medium: 2 lbs. desiccant
 - (spin-on cartridge)
- Drying medium regeneration: Internal Purge volume

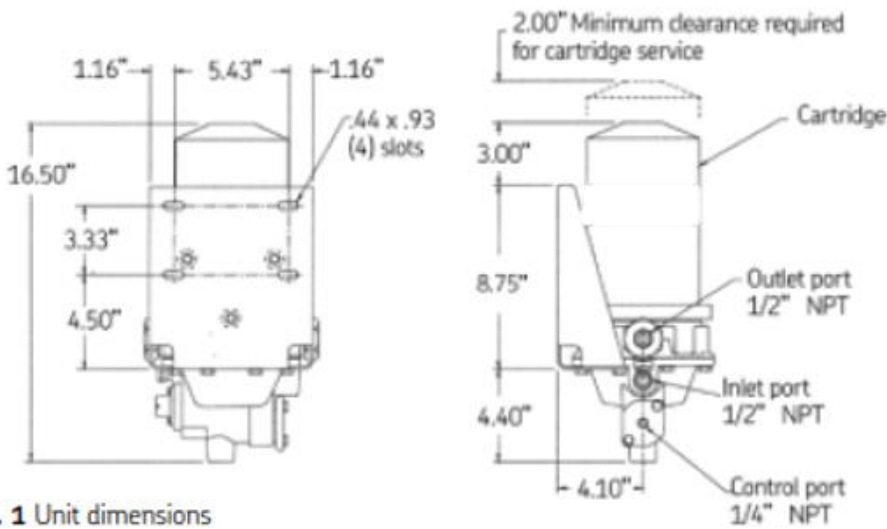


Fig. 1 Unit dimensions



Control Types:

Solenoid operated Air control valve: Normally open-air control valve directs the airflow to and from the tank and provide signal to the air dryer exhaust valve to expel the moist contaminated air from the air dryer.

SAFETY MESSAGES IN MANUAL AND IN WARNING LABELS

Safety messages appearing in the manual and on warning labels utilize signal words that translate to a level of risk. Below are the definitions of the words used:

WARNING: Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION: Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

REMINDER: Indicates suggestions for proper use.

Warning labels are attached to the air dryer. Be sure that these labels are visible and in place. If they become damaged or illegible, contact Mattei for replacement labels.

SAFETY PRECAUTIONS:

- **Read and understand entire instruction manual before installing or servicing dryer.**
- **All wiring activities need to be conducted by a certified electrician.**
- **Know and follow all local laws and ordinances applicable to wiring codes.**
- Dryer systems are not designed for use other than removal of moisture from compressed air.
- Never connect or disconnect a pipe/line containing air pressure or remove a component, fitting or pipe plug unless you are certain all air pressure has been shut off and relieved.
- Always wear proper eye protection and never look directly into ports of dryer.
- Sound decibels without silencer @ 120 db / with silencer @ 50db.
- Never exceed recommended working air pressure of 130 psi/13.1 bar.
- A by-pass system is recommended making servicing of dryer units easier and safer.
- Use only proper tools and observe all precautions pertaining to the use of those tools.
- Slowly pressurize the dryer when starting up for the first time.

GENERAL MOUNTING INSTRUCTIONS:

- Allow 2” min above cartridges for cartridge removal.
- Airline routing and connections may be modified to accommodate space and application.
- All airline connections require thread sealant.
- Aluminum threads require an anti-seize compound (included with service kits).
- Optional thermostatically - controlled heaters available

- Dryers must be mounted with the exhaust ports positioned downward and desiccant cartridges in upright position.
- Mount dryer using 3/8" grade 5 bolts, washers, lock washers and nuts (not included).
- Plug electrical connection to dedicated and accessible wall receptacle.

Normally -Open Air control valve

BASIC OPERATION

Normally open-air valve controls the regeneration cycle by energizing and de-energizing the air control valve using the solenoid from the compressor. When the compressor is pumping the valve is energized to keep the unloader valve closed, after reaching the cut-out pressure the solenoid dis-engage the air control valve which allows to open the unloader to expel the moisture through. At the bottom of the dryer.



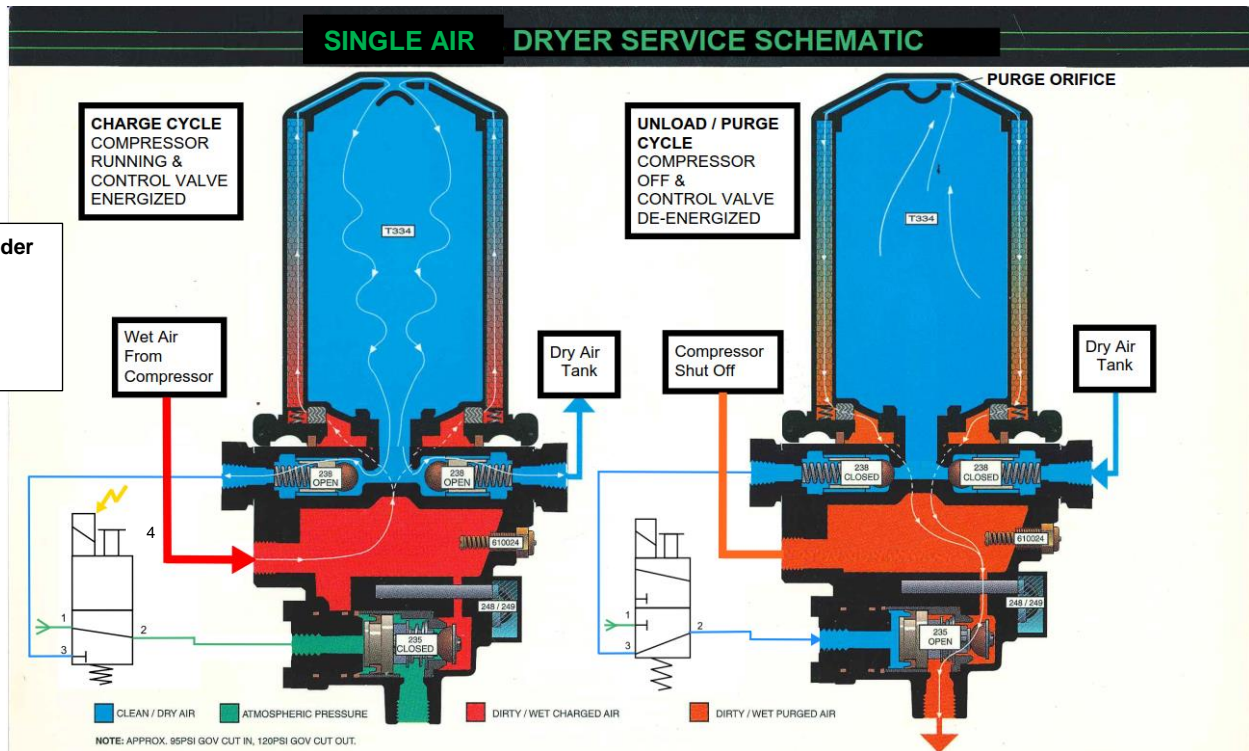
Air control valve - Manual Override screw should always position to "0".

Operational Check:

1. Check electrical power to Solenoid valve
2. Check all air connections for leaks or damaged signal lines.
3. If dryer fails to cycle, unplug solenoid, and manually cycle dryer turning small brass screw from 12 o'clock position to 2 o'clock position (approximately 1/4 turn) located on spool valve. If dryer cycles manually, return brass screw back to original vertical ("0") position and notice something must be wrong with solenoid valve not the air control valve.

AIR FLOW DIAGRAMS

MLT (15 CFM internal purge)



BASIC OPERATION

As air flows from the after coolers into the air dryer, it flows past 3 micron filters and desiccant bed stripping moisture and contaminants from air and exist the dryer to the compressor tank. The line from unloader port to the outlet of the dryer is always pressurized.

When the compressor reaches cut-out (typically 120-125 psi), the solenoid is dis-engaged which send the signal through the pilot line to the unloader(235) to open and closing the both check valves (238). At the same time the regeneration air contained in the cartridge passes through the desiccant bed taking away the moisture and expelled out bottom of air dryer.

When the pressure drops to cut-ins)typically 90-95 psi) the air in the pilot line evacuates through the muffler (4) of the air control valve and closing the unloader valve to once again flows from the after coolers in to the air dryer.



INSTALLATION

Mounting

1. **CAUTION:** Read and follow all safety precautions and general mounting instructions listed previously.
2. Mark bracket hole locations and attach dryer with 3/8” grade 5 bolts, lock washers and nuts (not furnished).
3. Connect airlines to inlet and outlet ports of dryer using appropriate thread sealant on fittings to prevent leaks.
4. Apply anti-seize to muffler threads and install into each exhaust port.

START-UP

1. Ensure all airlines are tight and properly connected.
2. **CAUTION:** Slowly pressurize system.
3. Check for leaks and repair as necessary.

Perform operational check:

1. Verify that dryer cycles properly thru the start-up, normal operation and shut down mode.
2. Make sure the dryer is exhausting when the compressor reached cut out pressure and drying when it reaches cut-in pressure.
3. A quick burst of air occurs followed by a light flow of air from the side that is regenerating. There should be no air flow from the side receiving wet air.

SERVICE PROCEDURES

Installation precautions:

- **WARNING:** Read entire instruction sheet before beginning installation or servicing air dryer.
- Never connect or disconnect a pipe/line containing air pressure or remove a component, fitting or pipe plug unless you are certain all air pressure has been relieved.
- Always wear proper eye protection when installing or servicing air dryer. Never look directly into ports of the air dryer.
- Never exceed recommended working air pressure of 190 psi/13.1 bar.
- Never attempt to install or service the air dryer until you read and understand all recommended procedures.
- A 3-way valve by-pass system is always recommended for easier servicing of dryer.
- Use only proper tools and observe all precautions pertaining to the use of those tools.

Service items

#619003 Desiccant Cartridge Internal Purge kit includes

- One (1) - 2lb White cartridges w/3-micron filters

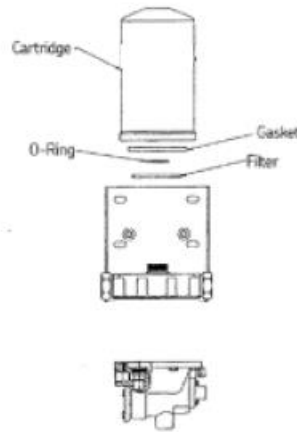
#619022 (235) Unloader valve kit

- One (1) - Unloader valve kit

#619025 (238) Check valve kit

- One (1) - Outlet check valve kit – Need (2) for the dryer.

#619003 Desiccant Cartridge- Internal Purge



Caution: do not over tighten cartridges. Hand- tighten until gasket contacts adaptor plate and turn additional ½ turn only!

SYMPTOM

1. Regular service interval (4000-6000 hrs.)
2. Water or contamination in tanks

Operational Check

Desiccant cartridge requires regular servicing at intervals determined by compressor duty cycle or type of drying conditions.

Check dry tank on regular basis and opening drain valves. If moisture exists, replace cartridge #619703.

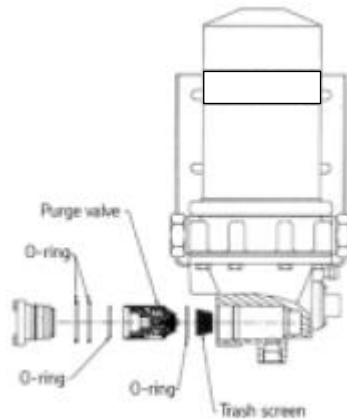
REMOVAL

1. **WARNING:** Follow all safety precautions listed at beginning of service instructions.
2. Relieve all system air pressure.
3. Using a strap wrench, remove cartridge (turn counter-clockwise).
4. Remove O-ring and filter element (if present) from threaded adaptor stud.
5. Clean top surface of adaptor plate and threaded stud.

INSTALLATION

1. Using the grease supplied, apply a light coating to O-ring and install onto stud.
2. Using the grease supplied, apply a generous coat of the grease on the new black gasket surface under each cartridge.
3. Install (white doughnut-shaped) 3-micron filter element over the threaded stud.
4. Thread new cartridge onto stud turning clockwise. When gasket contacts adaptor plate, tighten cartridge ¼ to ½ turn. **DO NOT OVER-TIGHTEN!** Over tightening will make it extremely difficult to remove cartridge at next service interval.

#619025(235) Unloader valve kit



SYMPTOM

1. Dryer Won't exhaust
2. Air leak at exhaust port during
 - a. Charge mode
 - b. Stand-by mode
3. Pressure slow or no-build
4. Compressor cycles rapidly.

Operational Check

Symptom #1: Run compressor and build to cutout pressure. If dryer does not exhaust proceed as follows.

1. Check for air pressure in line connecting to air control valve to control port of the dryer. If no pressure present in line, service replace air control valve.
2. Check for blockage of at exhaust port of air dryer.
3. Make sure unloader valve hole is aligned with the dryer exhaust port.
4. If items 1,2&3 are OK, replace unloader valve #235.

REMOVAL

1. **WARNING:** Follow all safety precautions listed at beginning of service instructions
2. Remove two bolts that attach the purge valve retainer and remove from housing (back port directly above exhaust/ mufflers).
3. Remove the purge valve assembly and O-ring from the purge cavity, trash screen and discard.
4. Clean the cavity thoroughly.
5. Remove the three (3) O-rings from retainer and discard.

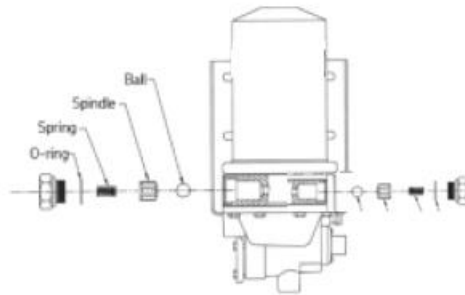
INSTALLATION

1. Using lubricant supplied, lightly grease all three new O-rings.
2. Install the two (2) larger O-rings on the retainer. Then install the third (smaller) O-ring.
3. Apply a light coating of grease around the O-ring seat on valve assembly and install the thin O-ring on the purge valve seat.
4. Install new trash screen (open end facing outward) into valve housing.



5. Install valve assembly into cavity and insure that hole in valve sleeve aligns over housing exhaust port (muffler). Use care not to dislodge the thin O-ring from its seat.
REMINDER: If the purge valve port does not align with housing exhaust port, the dryer will not exhaust!
6. Install retainer to housing.
7. Apply a light coating of grease on the threads of the two retainer bolts.
8. Install two retainer bolts and tighten to 15 ft. lb.

#619022(238) Check valve kit



SYMPTOM

1. Dryer frequently exhaust
2. Air continually flows from exhaust port
When compressor in stand-by mode.
3. Tank pressure drops rapidly.

REMOVAL

WARNING: Follow all safety precautions listed at beginning of service instructions

1. Drain air system.
2. Disconnect airlines from outlet port & pilot port.
3. Remove check valve nuts on both sides of adaptors.
4. Remove and discard the O-ring, spring, spindle & ball.

INSTALLATION

5. Clean the cavities thoroughly.
6. Install new ball in the cavity. Next, position spindle with spring pocket facing out & install spring.
7. Apply a light coating of grease around the O-ring seat on valve assembly and install the thin O-ring on nut.
8. Install new trash screen (open end facing outward) into valve housing.
9. Apply a light coating of grease on the threads of the nut, apply 60 ft. lbs. to tighten the nut.
10. Repeat steps 1-5 for the other side of the adaptor plate.
11. Re-connect the airline to the dryer outlet port and pilot port.