

AIR-DRYER TROUBLESHOOTING, PARTS & THEORY OF OPERATION

AT 250 HOURS OR SOONER, DEPENDING ON ATMOSPHERIC CONDITIONS AND THE MECHANICAL CONDITION OF THE COMPRESSOR, THE CYCLO-GARD AIR DRYER SHOULD BE CHECKED FOR PROPER OPERATION. THE DRYER SHOULD ALSO BE DISASSEMBLED AND CLEANED AT THIS TIME.

CAUTION: Air system must be drained before disassembling the air dryer.

The only moving parts in the air dryer are the check valve and the unloader valve (See TS-29665). No maintenance is required as long as the unloader valve discharges when the compressor is running in the unload cycle.

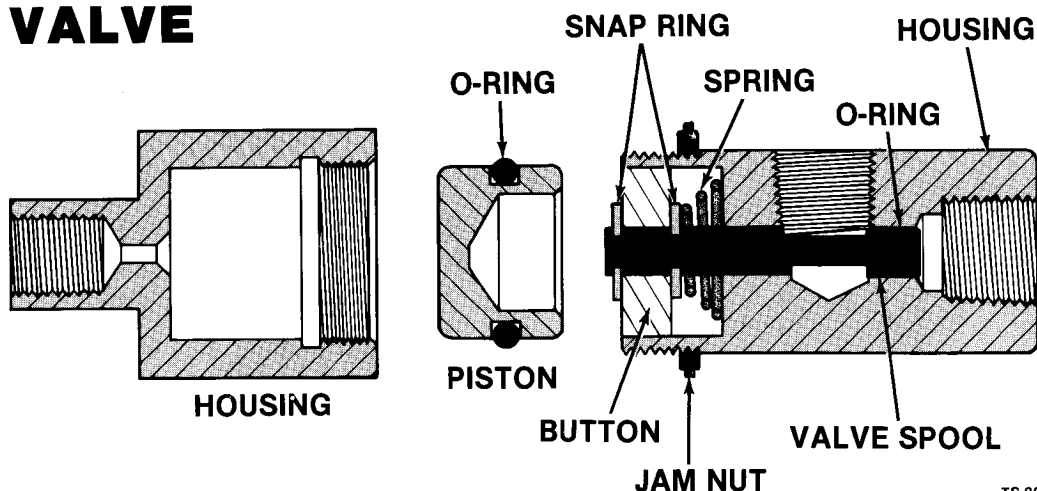
TROUBLESHOOTING:

1. The unloading cycle should last for only a few seconds. If the compressor is cycling at all times and the cycles are 30-50 seconds apart, the problem is the check valve in the discharge port of the air dryer.
2. If the air system cannot be brought up to operating pressure, and air is escaping through the unloader valve:
 - A. Put machine in the service position. Drain all air out of the air reservoirs.
 - B. Disconnect the governor line at the unloader valve, and start the engine.
 1. If air is escaping out the governor line, the governor is faulty.
 2. If air is escaping out the unloader, the unloader valve is stuck in the open position, or it is leaking, replace it. *NOTE: The unloader valve can also be rebuilt. See Service Gram 758B for the service kit number and the parts it includes.*
 - a. If ambient temperature is below freezing, check the heater element.
 1. Wiring may be faulty
 2. Heater element may be carbonized from excessive oil in the compressed air.
 - b. If the unloader is defective, a plug can be installed in the valve outlet until the unloader valve can be replaced or repaired. The plug is located in the side of the air dryer (See TS-29665). Remove the adapter in the unloader valve. Remove the plug from the side of the air dryer. Insert the plug in place of the adapter. *NOTE: The outlet must not be plugged for more than 2 operating hours. The plug must then be removed and the air dryer allowed to drain. Completely drain air from main reservoir before removing plug.*

CLARK

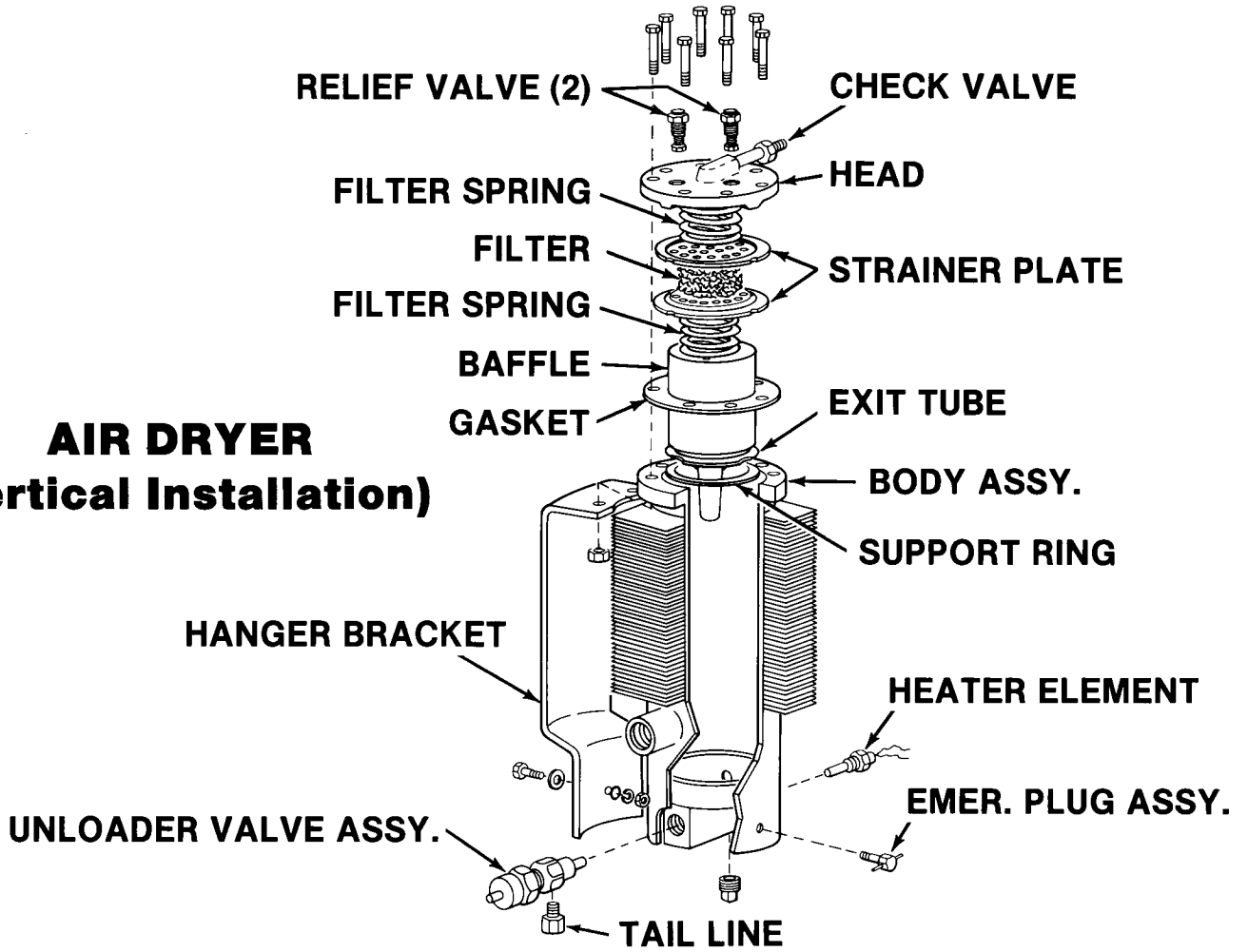
3. If there is no blowdown when the compressor is in the unload cycle:
 - A. The unloader valve should be replaced or rebuilt, as soon as possible. (See *NOTE* in Step 2, Section B).
 - B. Continued operation can allow the water level to build up in the sump of the unit. If the water level becomes higher than the inlet port, the air pressure can lift the water with enough force to damage the baffle, which will not allow the unit to cool the air and will cause moisture in the reservoirs.
4. The air dryer is designed to remove heat from compressed air. If freezing is occurring before or in the dryer:
 - A. High humidity combined with low temperature could cause the air dryer to freeze up.
 - B. It may be necessary to insulate the tubing if freezing is occurring before or in the air dryer.
5. When the air dryer is checked, the air tanks should also be checked and drained. Too much moisture in the tank shows that either the air dryer or the air system is not working properly. Both systems should be checked.
6. If the air dryer does not have double springs, change it at the time of servicing by ordering 1-963120 Air Dryer Service Kit which includes:
 - 1 — Exit Tube (TS-29665)
 - 2 — Springs (TS-29665)
 - 1 — Gasket (TS-29665)
 - 2 — Strainer Plates (TS-29665)
7. Parts nomenclature for unloader valve.

UNLOADER VALVE



TS-20377
AUG 82

**AIR DRYER
(Vertical Installation)**



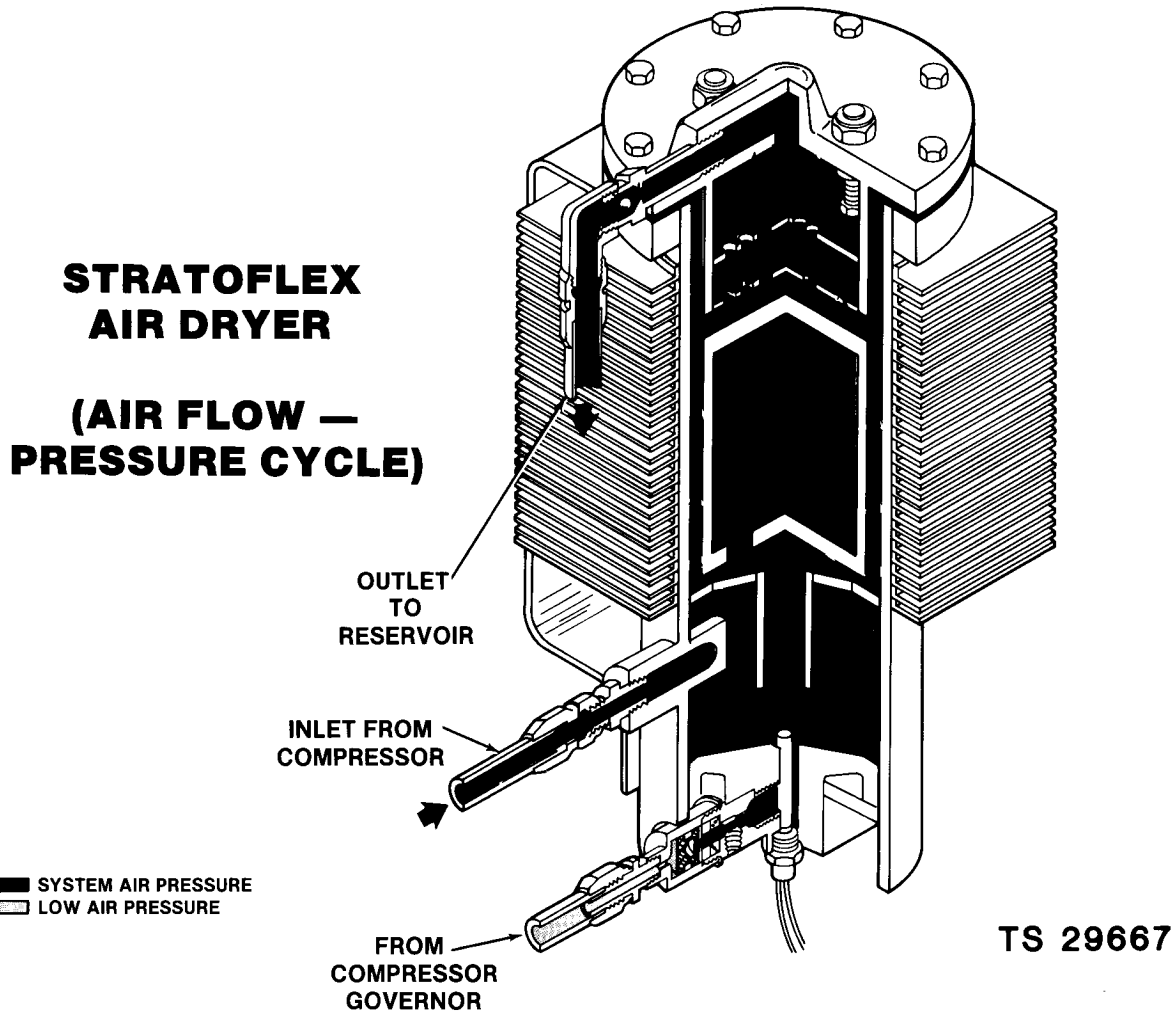
TS-29665

CLARK

AIR DRYER

The air dryer can be put into the air system to remove moisture and contaminants from the compressed air.

LOAD CYCLE (COMPRESSOR CHARGING THE AIR SYSTEM)



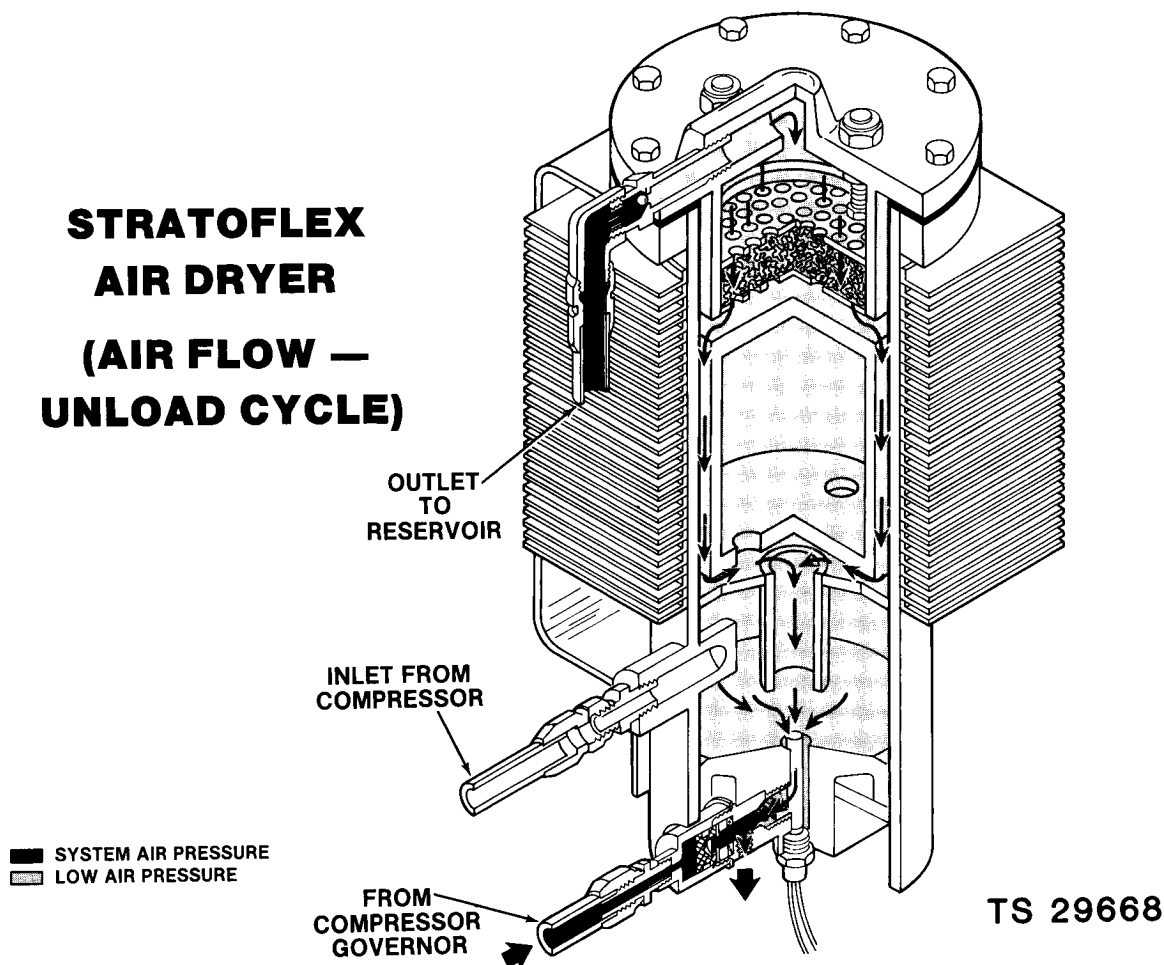
As the air is compressed in the compressor, it becomes hot. As this hot air flows into the inlet of the air dryer, it takes moisture and contaminants with it. The air is turned in the inlet so that it flows around inside of the air dryer. This action removes oil and solid contaminants from the air. The air then flows through the exit tube and between the baffle and the housing. As the air flows along the housing, both heat and moisture leave the hot air and go to the housing which is cooler. The heat flows through the housing and the fins and is taken away by the outside air. The moisture flows down the inside of the housing to the unloader valve where it is stopped. The air then flows through the filter which removes the remainder of the moisture droplets and solid contaminants. The air then flows out of the air dryer through the one-way check valve.

If the pressure in the air dryer becomes too high, the relief valves open and let air flow out of the air dryer.

The port from compressor governor on the unloader valve is open to exhaust through the governor. The unloader valve is closed. There is no flow of air out the exhaust port of the unloader valve.

UNLOAD CYCLE (COMPRESSOR IN UNLOADED CYCLE)

**STRATOFLEX
AIR DRYER
(AIR FLOW —
UNLOAD CYCLE)**



When the system air pressure increases to the setting of the governor, the governor sends system air pressure out the unloader port. This air pressure activates the unloader on the compressor so that no air flows through the inlet from the compressor. This same air pressure flows to the unloader valve on the air dryer and opens it. The air pressure inside the air dryer flows through the filter backwards and takes moisture and contaminants from the filter with it. This same air flows between the baffle and housing, through the exit tube and to the bottom of the housing. This air pushes the moisture and contaminants out through the unloader valve. The unloader valve remains open until the system air pressure decreases to the setting of the governor. At this pressure the governor lets the system air pressure, from the unloader valve, flow out to exhaust and the valve closes.

The one-way check valve in the outlet line prevents air from the reservoir from flowing out through the air dryer while the unloader valve is open. Only the air inside the air dryer flows out the exhaust port of the unloader valve.

CLARK

NOTES

Handwritten notes on lined paper. The lines are horizontal and span the width of the page. There are approximately 25 lines in total. The handwriting is not clearly legible.