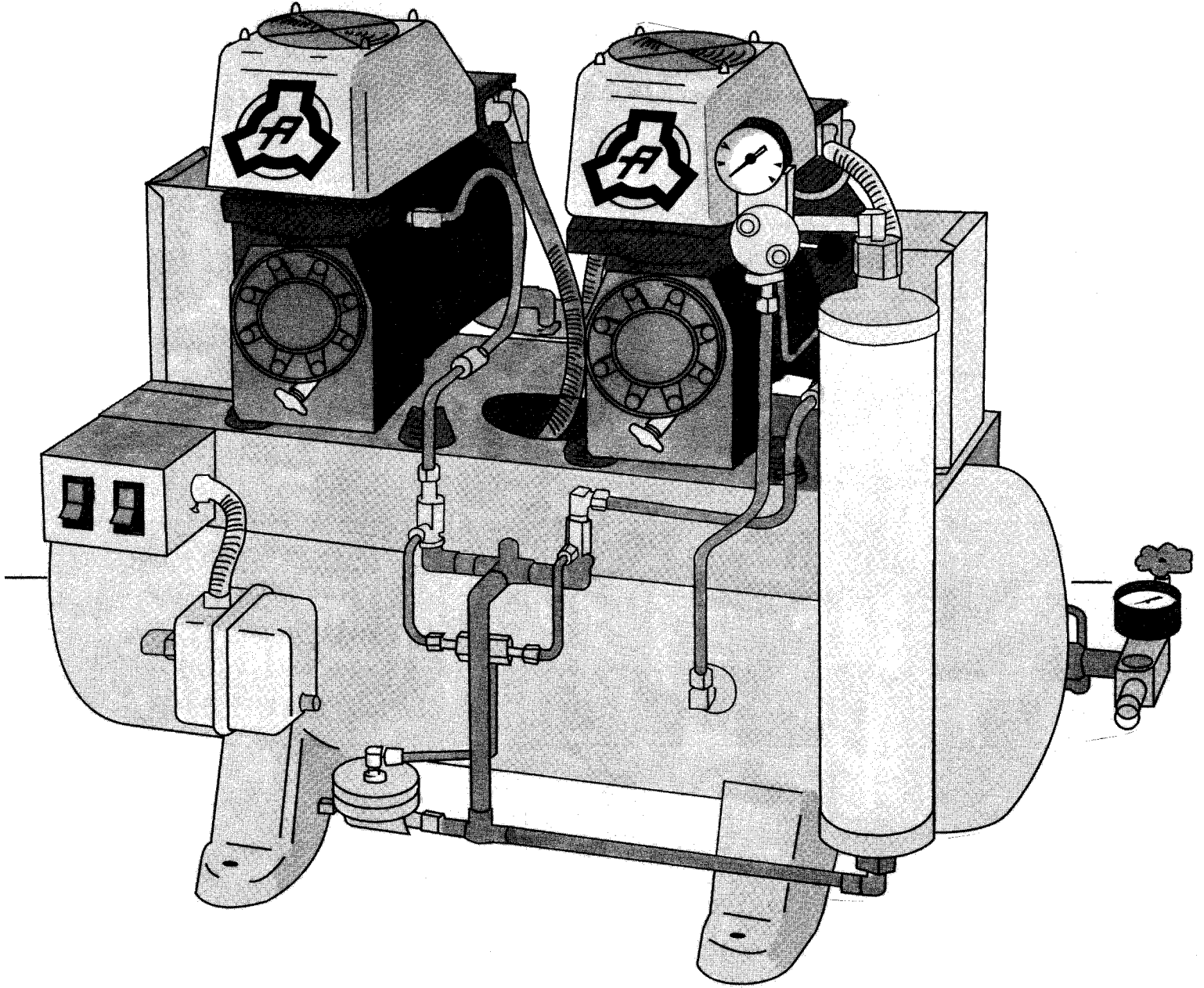


L - S E R I E S

COMPRESSO-DRI™



M A N U A L

 **AIR
TECHNIQUES**
INC.

INTRODUCTION

The COMPRESSO-DRI™ is a unitized air system consisting of an air compressor, a drying system and a storage tank. Some of the features unique to the COMPRESSO-DRI are:

- After air leaves the compressor head, it passes through the drying system – **BEFORE IT GOES INTO THE STORAGE TANK;**
- The drying system is self-cleaning. Every time the compressor stops pumping, the **DRYING SYSTEM AUTOMATICALLY PURGES ITSELF.**
- The storage tank always contains dry air and **DOES NOT HAVE TO BE DRAINED.**

THE COMPRESSOR. The air compressor and motor are integral. The compressor is a splash lubricated reciprocating type with check valves on the inlet and outlet. Other major components of the COMPRESSO-DRI are the storage tank, pressure switch, tank check valve and unloader valve.

THE DRYING SYSTEM. The drying system consists of a drying chamber which contains an adsorbent desiccant, purge control and purge tank.

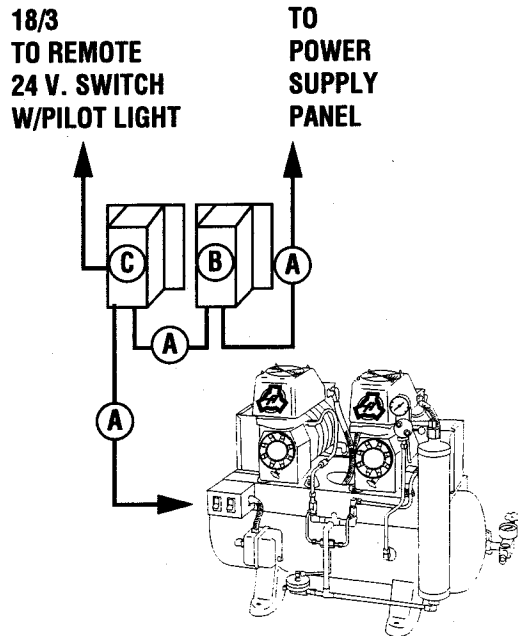
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INSTALLATION SPECIFICATIONS

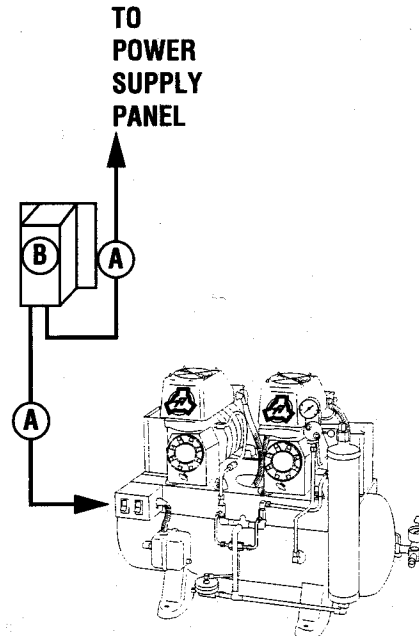
ELECTRICAL with Remote Switch

Follow this layout
L-Series WITH Remote Switch



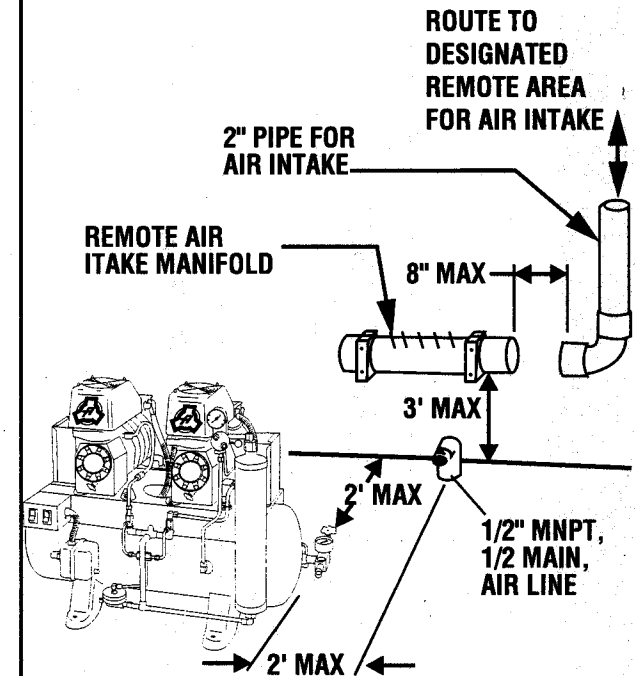
ELECTRICAL without Remote Switch

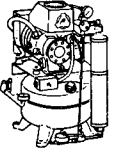
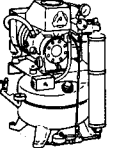
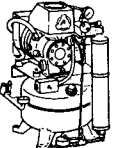
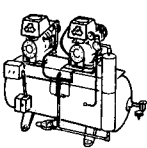
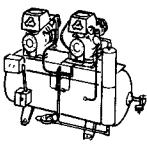
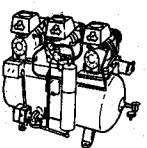
Follow this layout
L-Series WITHOUT Remote Switch



PLUMBING

Follow this layout
L-Series Plumbing



SPECIFICATIONS	 L-60	 L-61	 L-62	 L-64	 L-66	 L-68
HP	0.75	1.0	1.0	1.5	2.0	3.0
MAX. AIR USERS	1	2	2	3	4	6
VOLTS	115	115	208/230	208/230	208/230	208/230
TANK SIZE GAL.	6	6	6	15	15	30
AMPS	10.2	13.8	7.2	10.4	14.4	21.6
CIRCUIT BREAKER	20A	20A	20A	20A	20A	30A
MIN. WIRE SIZE (A)	#12 AWG	#12 AWG	#12 AWG	#12 AWG	#12 AWG	#10 AWG
MIN/MAX VOLTAGE	105/125	105/125	200/240	200/240	200/240	200/240
BOOST TRANSFORMER (B)	#67500	#67500	#67000 #67002	#67000 #67002	#67000 #67002	#67000-1
CONTACTOR (C)	#53080	#53080	#53081	#53081	#53081	#53082
D" x L" x H"	21 x 18 1/2 x 28	21 x 18 1/2 x 28	21 x 18 1/2 x 28	22 x 41 x 30 1/2	22 x 41 x 30 1/2	24 x 44 x 35
DELIVERY CFM 80 PSI 100 PSI	3.2 2.8	4.7 4.2	4.7 4.2	6.4 5.6	9.4 8.4	14.1 12.6
RECOVERY TIME SEC. 80-100#	43	30	30	44	30	35
PUMP UP TIME SEC. 0-100#	140	95	95	140	95	115
PURGE TIME BETWEEN 100-0#	40-45 sec.	40-45 sec.	40-45 sec.	60-65-sec.	60-65 sec.	95-105 sec.
SHIPPING WEIGHT	200	200	200	320	320	500

INSTALLATION

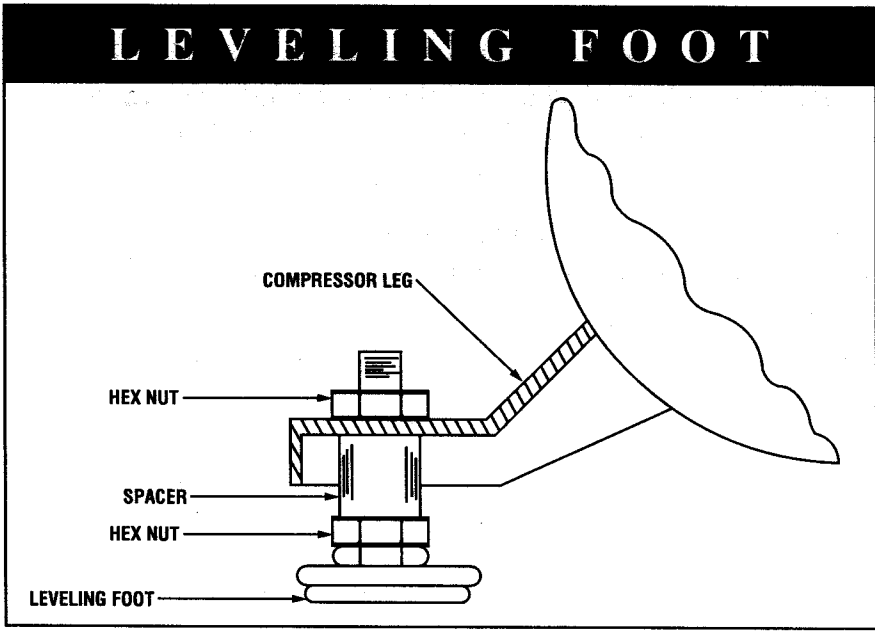
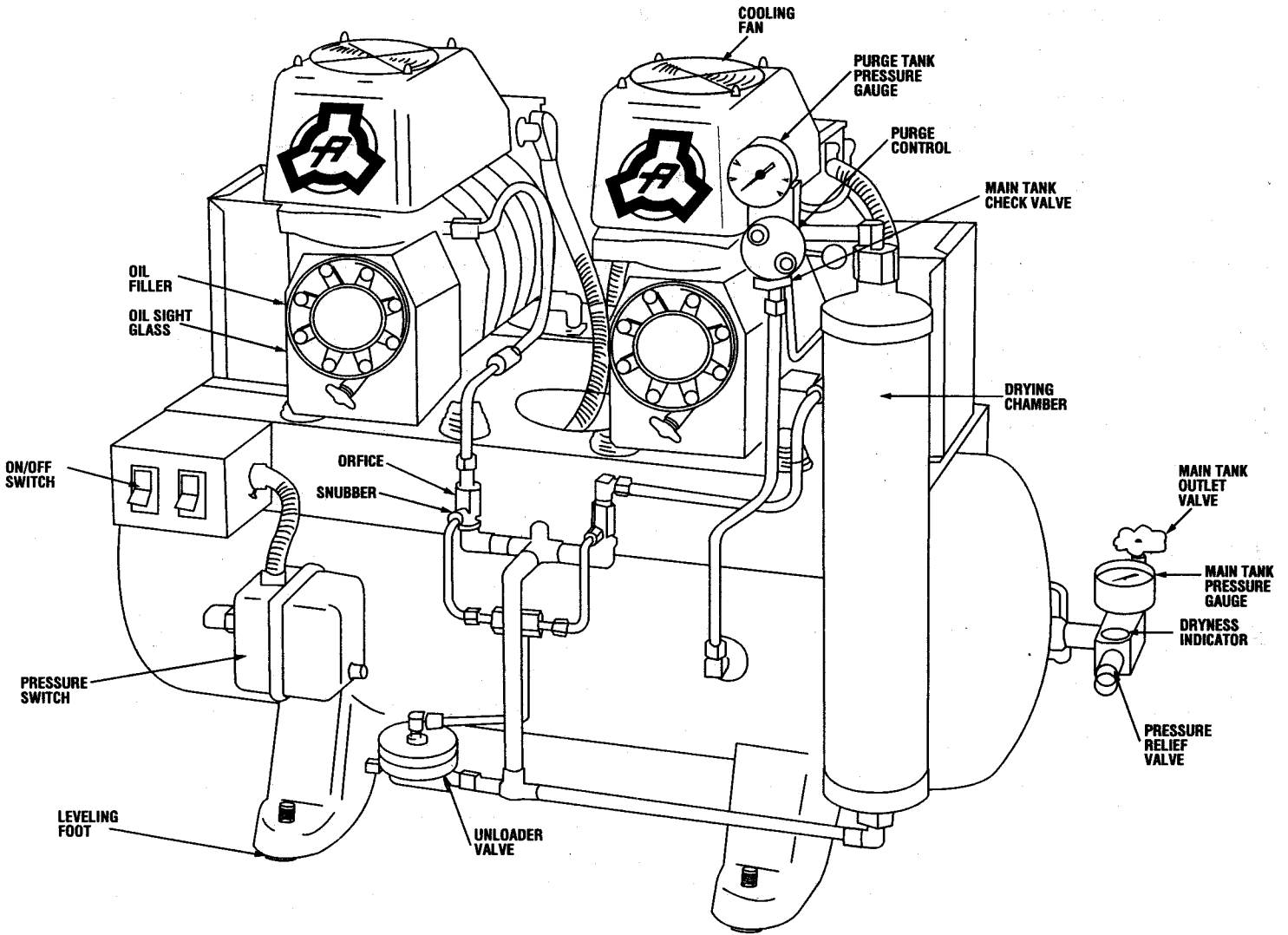
- Install the COMPRESSO-DRI in a cool, clean, dry and level area. The COMPRESSO-DRI is equipped with a bubble level and leveling feet to insure proper leveling. Do not install in areas exposed to temperatures below 40° F or over 100°F.
- The four flanged nuts that secure the compressor head to the tank should be loosened to permit free movement of the head(s). Also remove and discard each wooden block from under the head(s).
- Connect the 1/2" F.P.T. valved outlet coming from the tank to the air system.
- Oil must be added – it was drained prior to shipment.

CAUTION: Use only AIR TECHNIQUES OIL #60051. Other types of oil may void warranty.

- A pint squeeze bottle of #60051 is enclosed for each head. About 3/4 pint will be needed for each compressor at the start. Save the remainder for future use.
- Unscrew the plastic filler cap from the side of the crankcase. Remove and discard the red insert in the neck of the filler pipe. Snip the cap off the squeeze bottle and fill to the top of the oil indicator. Do not over-oil. Shake the compressor to facilitate reading the oil level. Replace plastic filler cap on the crankcase.
- Check nameplate for proper voltage of COMPRESSO-DRI. Be sure that rated voltage is supplied. If voltage is less than 105V for 115V units, or less than 200V for 208/230V units, a boost transformer should be used. Connect power to compressor at switch box. Connection for model L-68 is made at the pressure switch. Use line cord provided if local code permits.
- Tandem operation: When two or more compressors are to be operated on a common air line, magnetic contactors must be used to ensure correct operation. Consult factory for correct contactor part numbers.
- Close outlet valve to air system. Start compressor and pump-up to 100 PSI. Unit should stop and begin to purge. Check purge time. Bleed main tank down to 80 PSI and check 80 PSI to 100 PSI recovery time. (See INSTALLATION SPECIFICATIONS for correct recovery time for each model.) Be sure main tank is holding pressure at 100 PSI.
- Open outlet valve to air system and check for air leaks. If main tank air pressure is stable, installation is complete.

IDENTIFICATION OF KEY PARTS

Figure A



OPERATION

- When the compressor is running, the oil level may drop below the fill line. This is normal. To check the level, stop the compressor and allow 30 minutes for the oil to re-accumulate in the crankcase. Then check the indicator.
- We recommend that the oil be changed in the crankcase every 2 years. (Change more frequently under severe conditions) Check the oil level weekly.
- It is normal for a small amount of oil and water to accumulate under the unloader muffler under certain conditions. This is not a malfunction.
- If your unit is a Twin-head COMPRESSO-DRI, run both heads simultaneously. The alternating of heads is not recommended. One head can be run alone *only in an emergency*.
- The foam insert in the air filter should be changed every 2 years or more often under severe conditions. (Replacement Foam Insert PN 60043-1).
- Dry air is assured by the dryness indicator. As long as it is blue the COMPRESSO-DRI is supplying ultra dry air.

Cycles

- **PUMP-UP CYCLE** – All units perform the pump-up cycle in the same manner. The compressor comes on when the tank pressure drops to 80 PSI. Compressed air flows from the head(s) past the unloader valve into the drying chamber. In the drying chamber the water vapor is extracted and the air is filtered.

At the top of the drying chamber the air enters a purge control manifold. Part of the air goes into the purge tank, but most enters the main storage tank. When 100 PSI (in the main storage tank) is sensed by the pressure switch the compressor motor will stop, the unloader valve will open and the purge cycle begins. See INSTALLATION SPECIFICATIONS for purge times.

- **PURGE CYCLE** – The purge cycle is essential for proper operation of the drying system. During the purge cycle the compressed air in the purge tank is bled through a small orifice in the purge control. This air is expanded as it passes back through the drying chamber to the unloader valve. As it passes through the drying chamber, the moisture is removed from the desiccant. When the purge cycle is complete the compressor is ready for another pump-up cycle.

Occasionally the drying system may be overtaxed because of a major air leak or some other malfunction. To restore dry air to the system and a blue color to the dryness indicator, a total regeneration should be performed. (See page 7).

DRYNESS INDICATOR

All COMPRESSO-DRI's are equipped with a Dryness Indicator on the main tank outlet. When the air is being dried properly the disc is blue.

If the dryness indicator is not blue, the cause must be identified and corrected (See Trouble Shooting).

Total Regeneration

To restore a blue color to the dryness indicator:

- Open the tank drain valve located under bottom of tank and drain any water from the tank.
- Close the drain valve.
- Shut off the main tank outlet valve.
- Locate the total regeneration control. In the evening turn this control to "ON" and leave the power on for the compressor overnight. Depending on the model, the compressor will cycle approximately every 8-30 minutes and purge itself dry. (Single-head: 6-16 min.; multiple heads: 15-30 min.)
- In the morning turn the total regeneration control to "OFF" and re-open the main tank outlet valve.
- Follow this procedure for 5 to 7 nights, or for a full 2 days. At the end of this time, if the dryness indicator has not returned to a blue color, it should be replaced.

PLUMBING DIAGRAM

Figure B

Single-Head

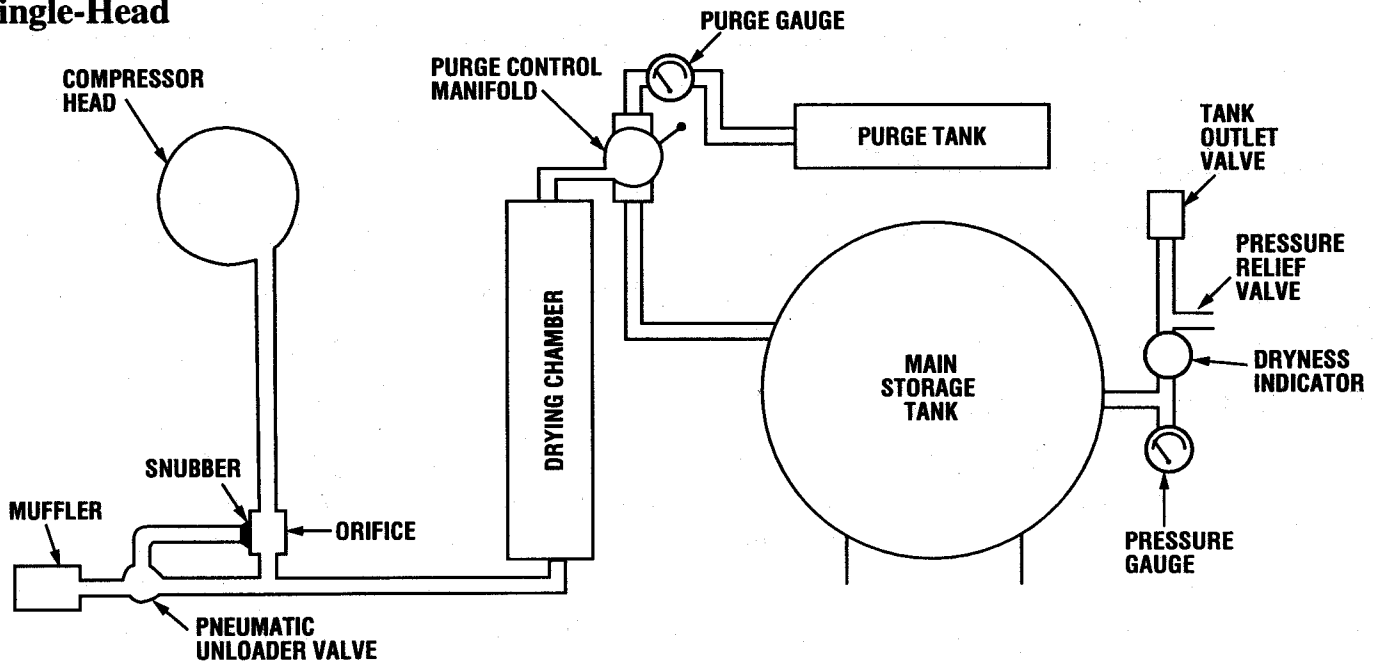
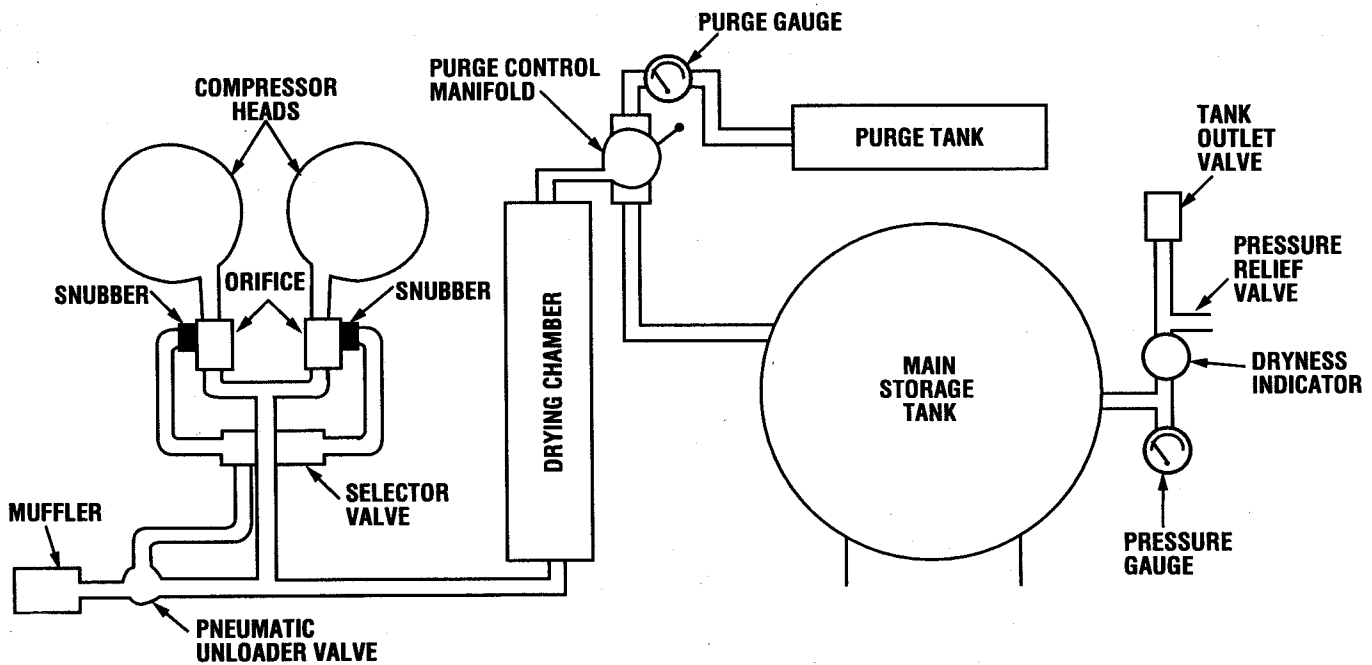


Figure C

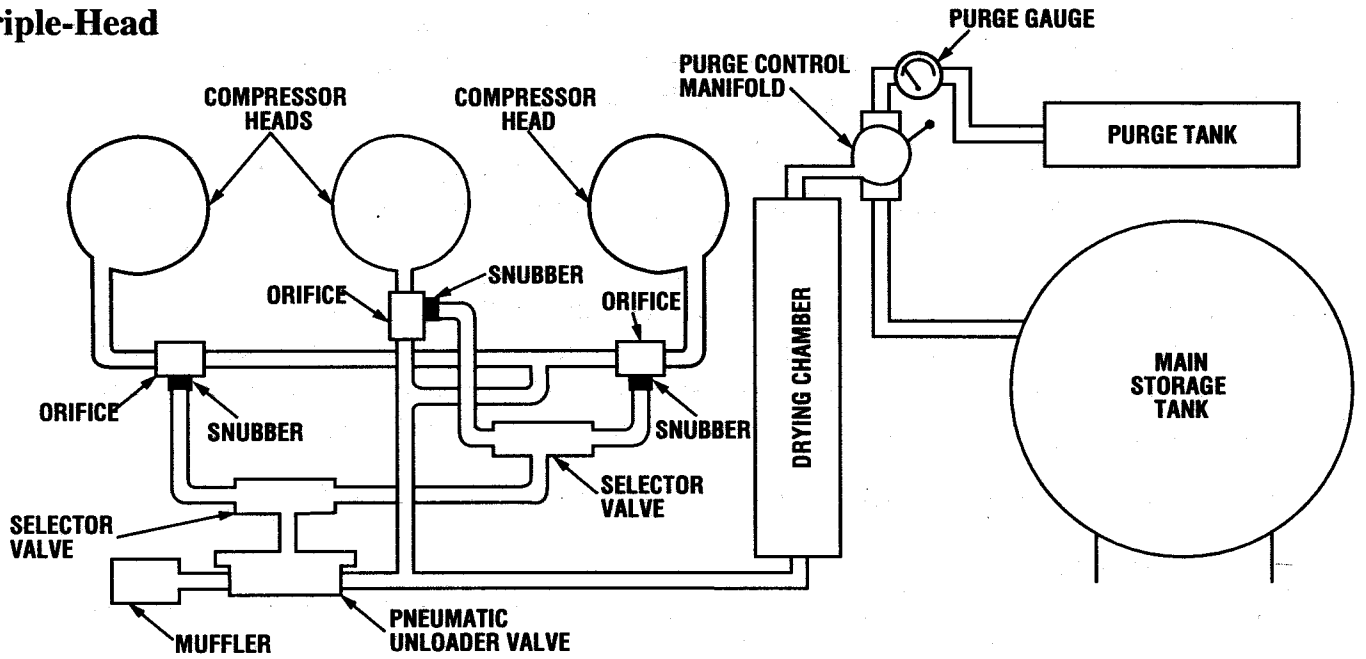
Twin-Head



PLUMBING DIAGRAM

Figure D

Triple-Head



PNEUMATIC UNLOADING SYSTEM

Proper operation of the unloading system is essential to ensure dry air. The unloader valve must close completely whenever the compressor runs to keep air from leaking to the outside. The unloader valve must open immediately when the compressor stops to keep the drying chamber from becoming saturated. Also, since pressure would remain on the compressor head, if the unloader did not open, the motor might have difficulty starting.

The unloader valve is a diaphragm type valve. It closes when pressure is applied to its top connection and opens when this pressure is relieved. When the compressor is running pressure is applied to the top of the unloader from the orifice.

If the pulsating pressure from a piston compressor were applied directly to the top of the unloader valve, it would open and close rapidly. To prevent this, a snubber, which is a fine filter, is placed between the pulsating pressure and the unloader valve. The snubber smooths out these pulsations. Without the snubber the pneumatic unloader valve will sound like a "machine gun".

If the unloader valve does not open and close properly possible causes could be:

- A dirty or defective unloader valve.
- A clogged snubber. This can cause an unloader valve to either fail to close or fail to open.

See TROUBLE SHOOTING GUIDE if unloader valve or snubber is not working properly:
COMPRESSOR MOTOR TURNS, BUT WILL NOT BUILD UP PRESSURE TO 100 PSI;
WET AIR/DRYNESS INDICATOR IS NOT BLUE.

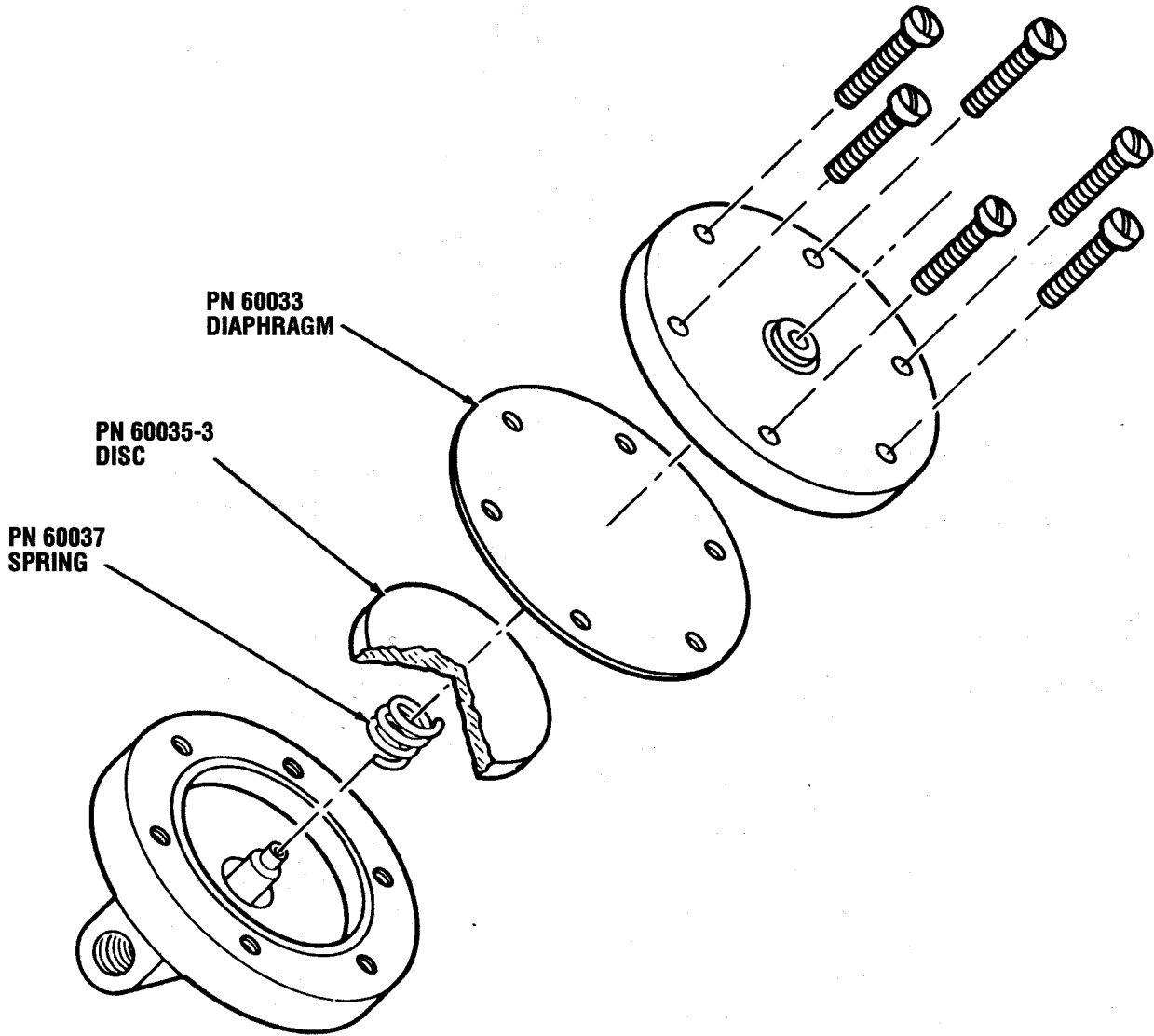
The unloader valve can be disassembled for cleaning. Check that all the parts are in good condition before reassembling. If the snubber is clogged, replace with new snubber (PN 60021). The unloading system for a multiple head compressor works much the same way a Single-head system works. In addition, on multiple head units, pressure from each head is directed to the unloader valve through the selector valve. The selector valve is a ball type shuttle valve that is necessary if one head on a Single-head or Twin-head compressor is to operate alone. On a Triple-head compressor, selector valves are required if one or two heads are not in operation. The selector valve directs pressure from the operating head to the unloader valve. Any head operating alone should close the unloader valve.

There is an orifice associated with each compressor head (See Plumbing Diagram for location). The orifice presents a small restriction to the compressed air coming from the head and causes about a 10 pound drop in pressure. This drop in pressure closes the unloader valve whenever the head is pumping.

PNEUMATIC UNLOADING SYSTEM

Figure E

Pneumatic unloader valve assembly PN 60030



PNEUMATIC UNLOADING SYSTEM

Figure F

Single-head compressor

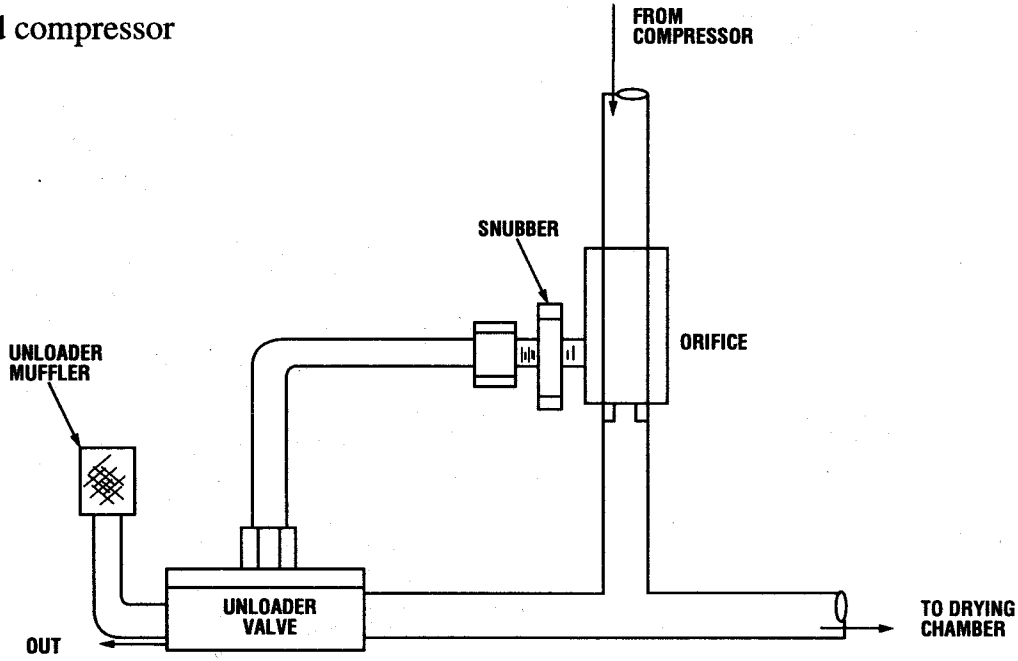
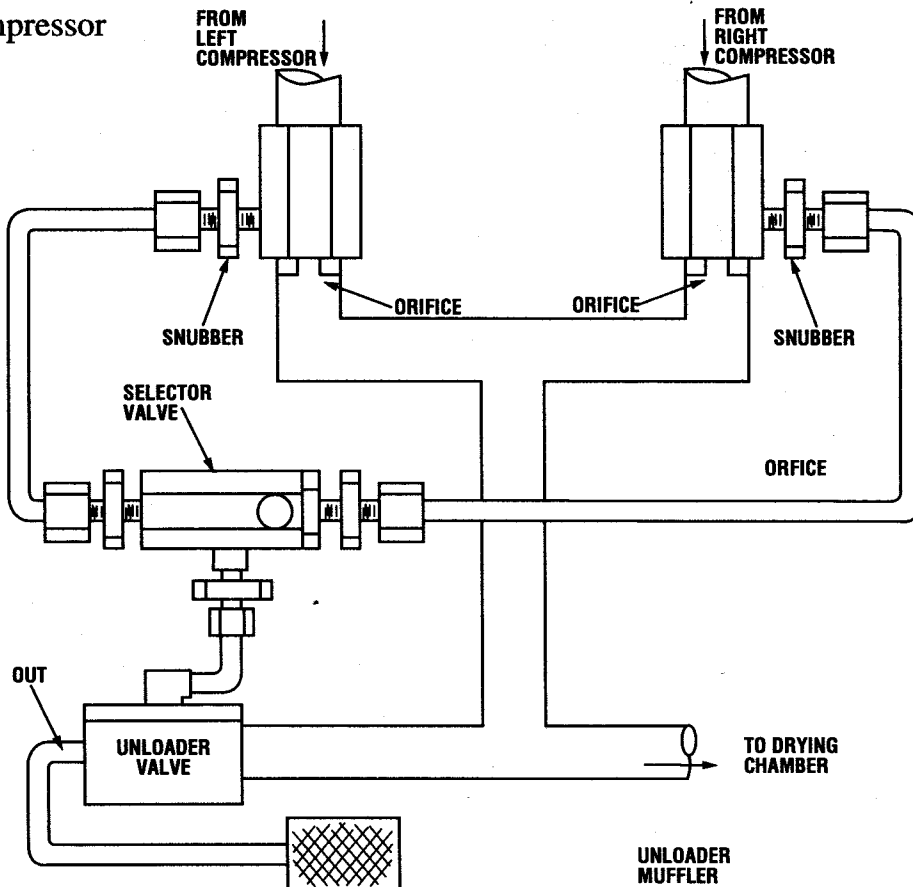


Figure G

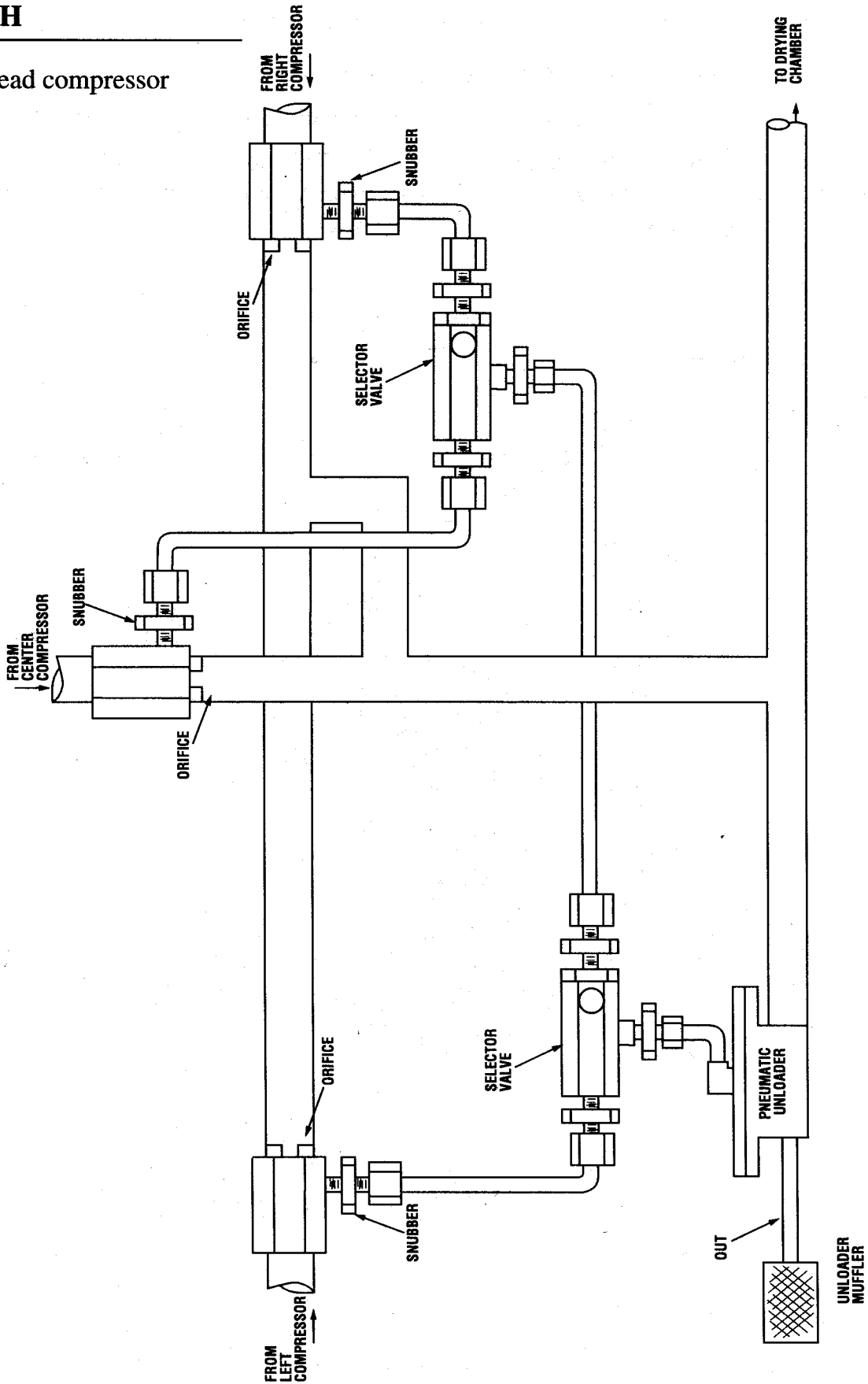
Twin-head compressor



PNEUMATIC UNLOADING SYSTEM

Figure H

Triple-head compressor



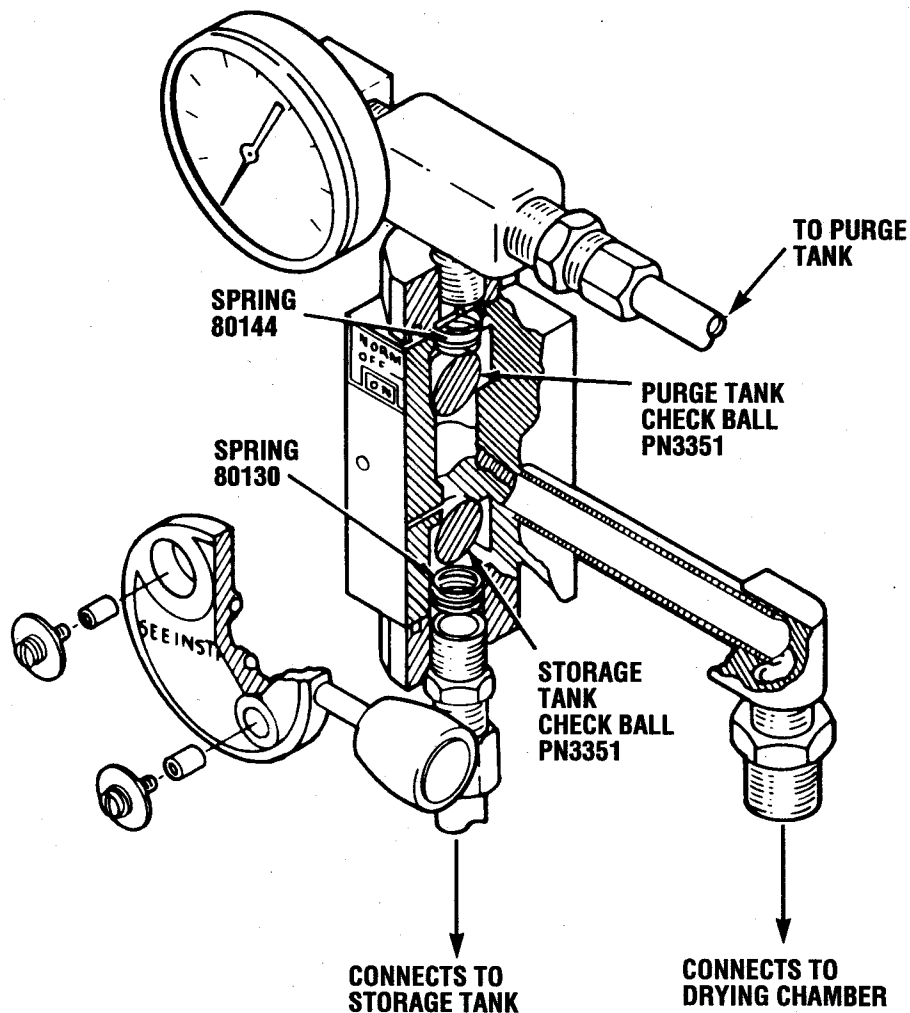
PURGE CONTROL

Several functions are performed by the purge control manifold assembly:

- The ball and spring in the bottom are the main tank check valve.
- The ball and orifices in the top control the rate of flow in and out of the purge tank.
- When the total regeneration control on the front is in the "ON" position, air from the main storage tank bypasses the main tank check valve and passes through the dryer. In the "OFF" position, this path is sealed off.

Figure I

Purge control manifold assembly



TROUBLE SHOOTING

1. COMPRESSOR MOTOR WILL NOT START

A. No power at motor terminals.

- Check for voltage at outlet. If proper voltage is measured there and not at motor terminals, check for:
 - Broken or loose wire.
 - Pressure switch defective or out of adjustment (contacts should be closed if tank pressure is below 80 PSI).
 - Defective on/off switch.

B. Defective start relay (motor may hum but not start).

- Tap relay box lightly. If unit starts the relay is sticking and should be replaced. This could be an evasive problem.
- Relay coil open. Relay should be replaced (located inside capacitor starting assembly base).

C. Defective Capacitor (motor may hum but not start).

- Test and replace if necessary.

D. Defective Thermal Overload.

- Test by jumping protector. Replace if necessary.

F. Frozen motor/compressor.

- If with proper voltage to motor terminals, R&2 and relay and capacitor changed, compressor still will not run, it is frozen and should be replaced. Remove fan and capacitor assembly before returning head to factory.

F. Unloader valve not opening

- If compressor motor fails to start occasionally, check unloader section.

2. MOTOR RUNS FOR ONLY A FEW SECONDS OR “CHUGS

A. Low Voltage

- Check line voltage. Voltage should be at least 105V for 115V units, and 200V for 208/230V units when compressor is running. Install a boost transformer if necessary. (See INSTALLATION SPECIFICATIONS for correct part number.)

B. Cold operating temperature

- Compressor should not be subjected to temperatures below 40°F or hard starting may result.

C. Sticking relay

- Feel start capacitor. If it is very warm, the start relay is not releasing and should be replaced. (First check that there is proper voltage.)

D. Defective capacitor.

- Test and replace if necessary.

E. Blockage in discharge.

- Remove discharge air line from head and test run. If unit runs correctly, check for obstruction in air line to storage tank (most likely at the orifice). See Pneumatic Unloading System diagrams.

TROUBLE SHOOTING

3. COMPRESSOR MOTOR TURNS, BUT WILL NOT BUILD UP PRESSURE TO 100 PSI.

A. Unloader valve not closing when compressor runs.

- Clogged snubber(s) - replace.
- Defective unloader valve(s) - replace.
- On multiple head units, selector valve(s) may be sticking. Clean valve and replace check ball or replace entire valve.
- Worn orifice - replace.
- Leaking connections in unloader assembly.

B. Clogged intake filters.

- Replace foam insert in filter can.
- Check coarse filter inside head at inlet flange.

C. Blockage in air line.

- Inspect orifice.

D. Leak in compressor plumbing.

- Close the main tank shut-off valve. With compressor running, check discharge tubing, relief valve, tank drain cock and all fittings for leaks.

E. Insufficient discharge.

- Replace valves in head or replace complete compressor head(s) if necessary.

4. COMPRESSOR CYCLES WITH NO AIR BEING USED

A. Total regeneration valve is in "on" position.

- Turn valve to normal "off" position.

B. Leak in office air system.

- Close the main tank shut-off valve. Allow main tank to recover to 100 PSI. If pressure is maintained at 100 PSI for 15-20 minutes, leak is in air system, not in compressor.

C. Leak in compressor.

- Main tank check valve may be dirty or defective – clean or repair.
- Check for leaks at main tank shut-off valve, packing gland, relief valve, tank drain cock, and all fittings.

5. WET AIR/DRYNESS INDICATOR IS NOT BLUE

A. Unloading system not functioning properly.

- Check to see that the unloader valve closes when the compressor is pumping. It may be necessary to remove the unloaded muffler to determine this.
- Insure that the unloader valve opens as soon as the compressor stops. The purge gauge should drop from 100 PSI to zero within 40 to 105 seconds after shut-off. See INSTALLATION SPECIFICATIONS for purge rate for each model.
- If unloader is suspected of malfunctioning check for:
 - Clogged snubber(s) – replace if clogged
 - Leaking or gummed-up unloader valve – clean or replace.
 - On multi head-units, the selector valve(s) may be sticking. Clean valve, replace ball or valve.

TROUBLE SHOOTING

B. Compressor running too frequently.

- Compressor undersized for installation - check installation specs.
- Leaks in air system – If system pressure drops from 100 to 80 psi in less than 20 minutes the system leak rate is too great. Locate leaks and repair.

6. EXCESSIVE OIL USAGE

A. Compressor running too frequently.

- Determine if office has air leaks or compressor is undersized.

B. Compressor running hot.

- Compressor should be in a well ventilated area with room air temperature under 100°F.

C. Head not level.

- Compressor must be level to insure proper lubrication.

D. Defective head.

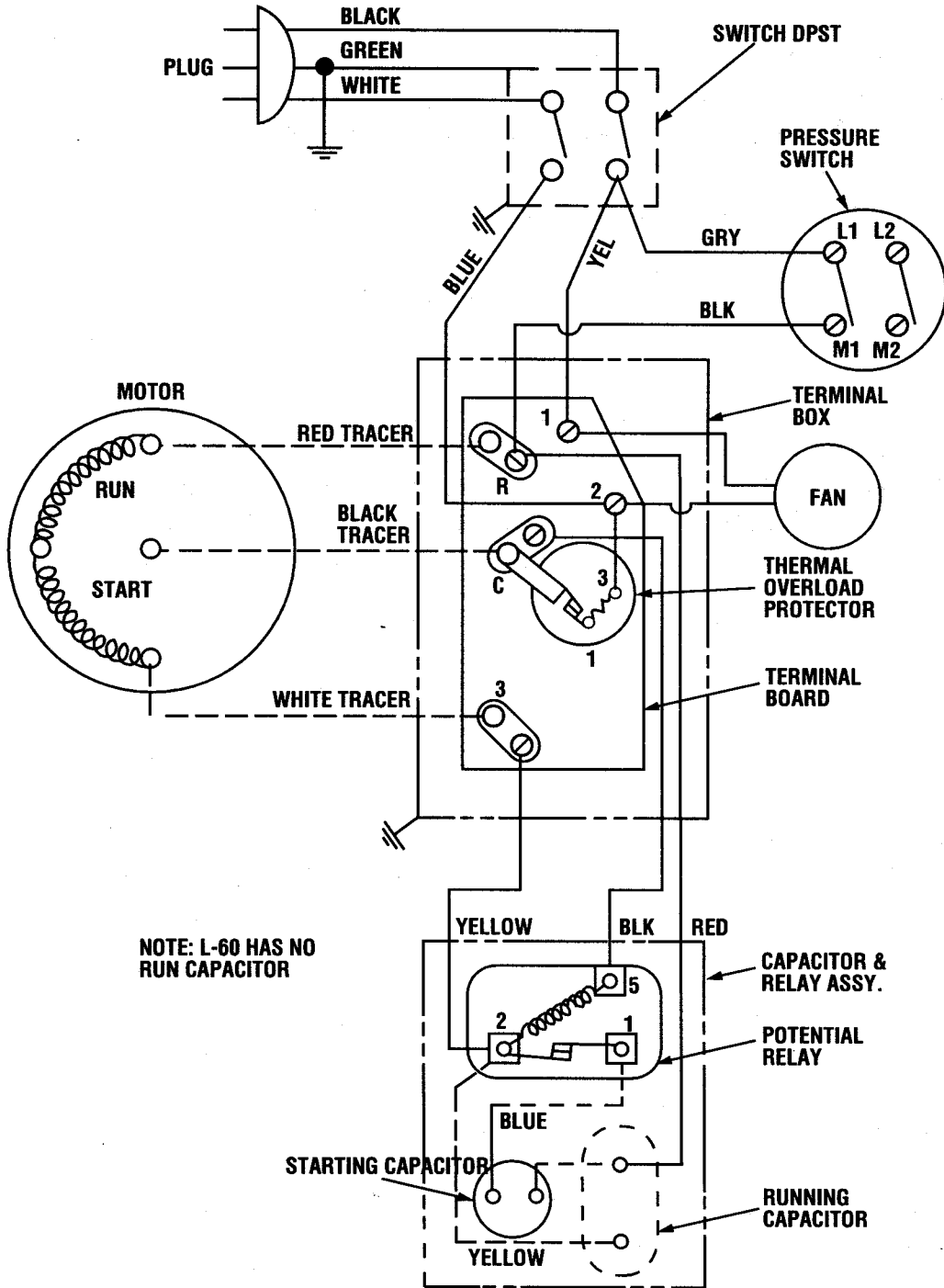
- Replace.

Note: Under normal operating conditions, a small amount of moisture with some oil may appear under the unloader discharge. This is not a malfunction. It is evidence of what the filters on the COMPRESSO-DRI captured and did not permit to enter the operatory air supply.

WIRING DIAGRAM

Figure J

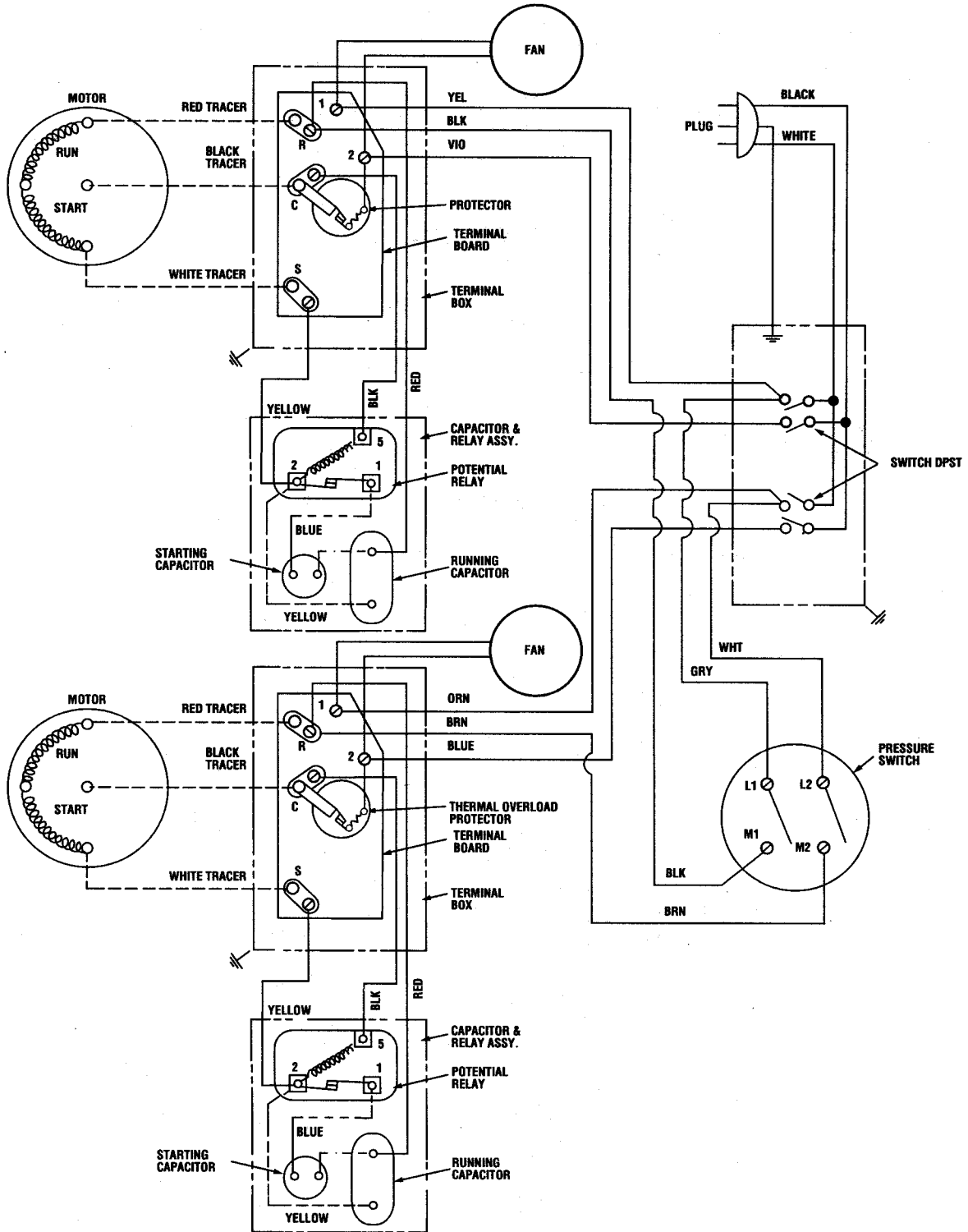
Single-head compressor



WIRING DIAGRAM

Figure K

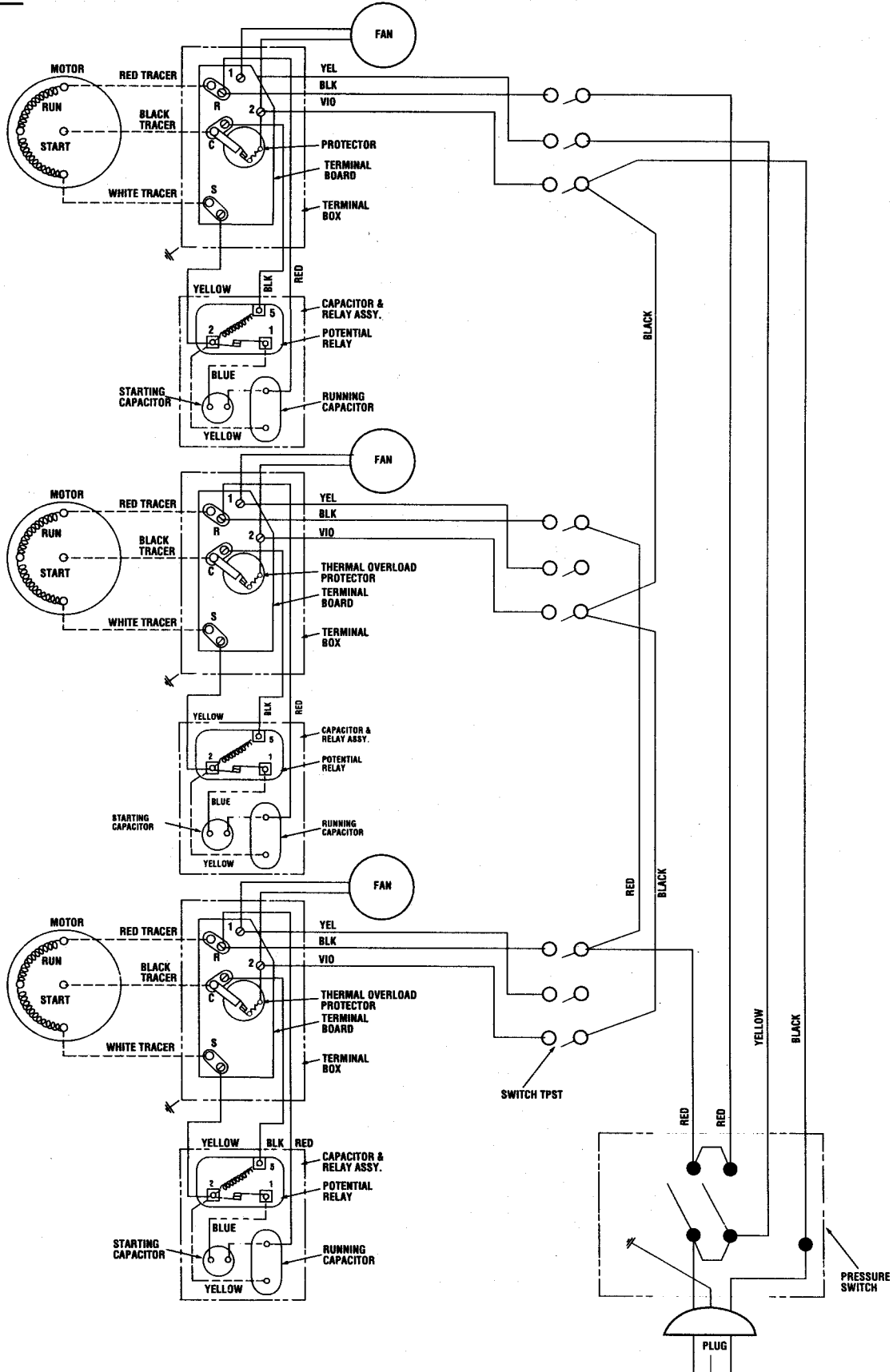
Twin-head compressor



WIRING DIAGRAM

Figure L

Triple-head compressor



PARTS LIST

DESCRIPTION	MODEL L-60 3/4HP 115V	MODELL-61 1HP 115V	MODEL L-62 208/230V	MODELL-64 208/230V	MODEL L-66 208/230V	MODEL L-68 208/230V
COMPRESSOR/MOTOR SET	60001	62001	66015	64015	66015	66015
START ASSY (COMPLETE)	60500	62500	66515	64515	66515	66515
START RELAY	60501	62501	66501	64501	66501	66501
START CAPACITOR	60502	62502	64502	64502	66502	66502
RUNNING CAPACITOR	NONE	62503	66516	66503	66516	66516
COOLING FAN	80515	80515	80516	80516	80516	80516
FAN ASSMEBLY COMPLETE	60148-1	60148-1	60148-2	60148-2	60148-2	60148-2
GASKET SET	60153	60154	60154	60153	60154	60154
INTAKE SILENCER	60040	60040	60040	60040	60040	60040
FOAM INSERT	60043-1	60043-1	60043-1	60043-1	60043-1	60043-1
FLEX TUBING	60131	60131	60131	60131	60031	60031
ORFICE	80083	80084	80084	80083	80084	80084
SNUBBER	60021	60021	60021	60021	60021	60021
SELECTOR VALVE	N/A	N/A	N/A	64009	64009	64009
SELECTOR VALVE BALL	N/A	N/A	N/A	64009-1	64009-1	64009-1
UNLOADER VALVE	60030	60030	60030	60030	60030	60030
UNLOADER VAVLE MUFFLER	80055	80055	80055	80055	80055	80055
DRYING CHAMBER (COMP.)	60007	60007	60007	60007	60077	60077
DRYING CHAMBER FILTER	60097	60097	60097	60097	60097	60097
DESICCANT	60010	60010	60010	60010	60010	60010
PURGE CONTROL MANIFOLD	64008	64008	64008	64008	64008	64008
PURGE TANK	60003	60003	60003	64003	64003	68012
PRESSURE SWITCH	60016	60016	60016	60016	60016	60016
RELIEF VALVE	60017	60017	60017	60017	60017	60017
OUTLET SHUT-OFF VALVE	60019	60019	60019	60019	60019	60019
MOISTURE MONITOR	60013	60013	60013	60013	60013	60013

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- **PERI-PRO®**
- **FORMULA 2000**
- **SPRAY 2000**



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