

# ULTRA CLEAN LUBRICATED COMPRESSOR



## INSTALLATION AND SERVICE MANUAL

Revised 4-16

 **TECH WEST INC.**  
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# **ULTRA CLEAN LUBRICATED COMPRESSOR**

## **INSTALLATION AND SERVICE MANUAL**

This manual is for the installation and service of Tech West's Ultra Clean Lubricated Compressors.

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### Maintenance & Service / Notes

This image shows a full page of blank, lined paper. It features approximately 28 evenly spaced horizontal black lines running across the width of the page, typical of notebook or legal stationery. The margins are consistent on all sides, and there is no handwriting or other markings present.

# ULTRA CLEAN LUBRICATED COMPRESSOR INSTALLATION

## 1. ULTRA CLEAN LUBRICATED COMPRESSOR LOCATION REQUIREMENTS

The Ultra Clean Lubricated Compressor location should be level, accessible and well ventilated.

If the Ultra Clean Lubricated Compressor will be located in a confined space, provide adequate ventilation.

### Electrical

- (1) Line voltage must be within the limits of Figure 1 below. (Install a “buck-boost transformer” if line voltage is not between these values.) Circuit breaker switches must be 20 - 30 amp depending on model and voltage necessary.
- (2) Local code may require you to provide one quick disconnect (safety switch) for the compressor.
- (3) See Figure 1 below for breaker size and line voltage.

**CAUTION - Voltage must be 110/128 v or motor damage may occur.**

**CAUTION - Voltage must be 208/240 v or motor damage may occur.**

**Figure 1: Recommended Wire and Breaker Size**

Model	Voltage	Amperage	Wire Size (Gauge)	Recommended Breaker Size
<b>Single Head Compressors</b>				
ACL2S2	230	7.2	12	20
ACL2S1	115	13.6	12	20
<b>Dual Head Compressors</b>				
ACL4D2	230	14.4	12	20
<b>Triple Head Compressors</b>				
ACL6T2	230	21.6	10	30

# ULTRA CLEAN LUBRICATED COMPRESSOR INSTALLATION

## 2. **INSTALLATION STEPS**

This dental Compressor should only be installed by qualified personnel. Should any questions arise during the installation, call Tech West Technical Support between the hours of 7:00 a.m. to 4:00 p.m. (Pacific Standard Time).

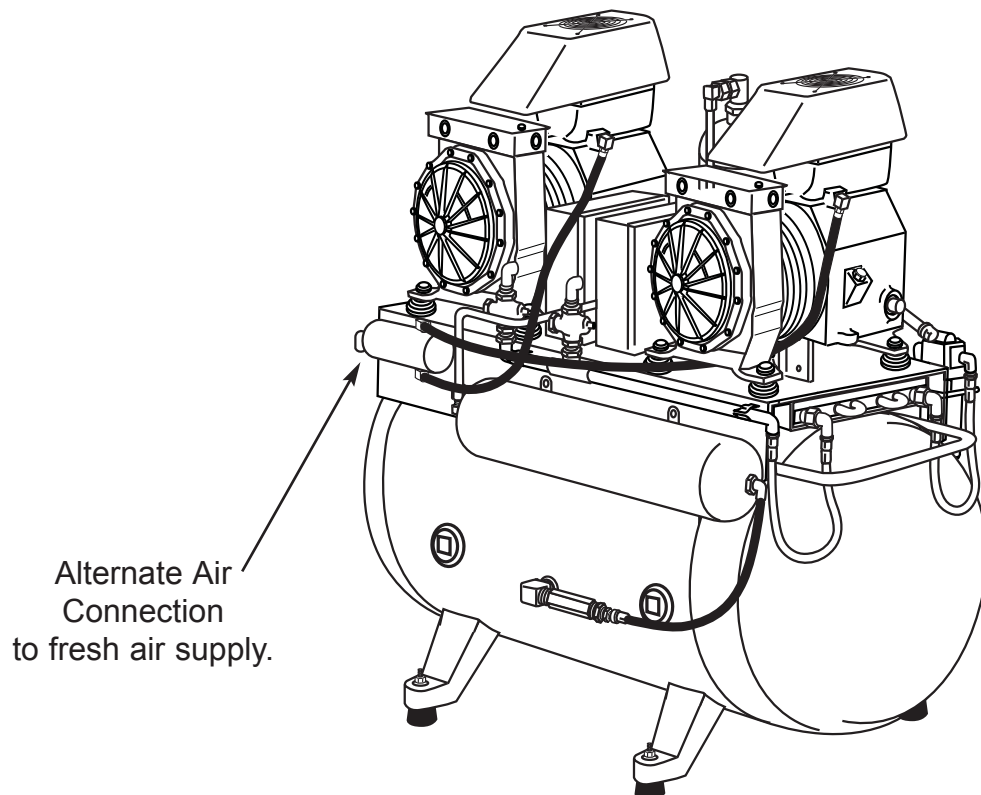
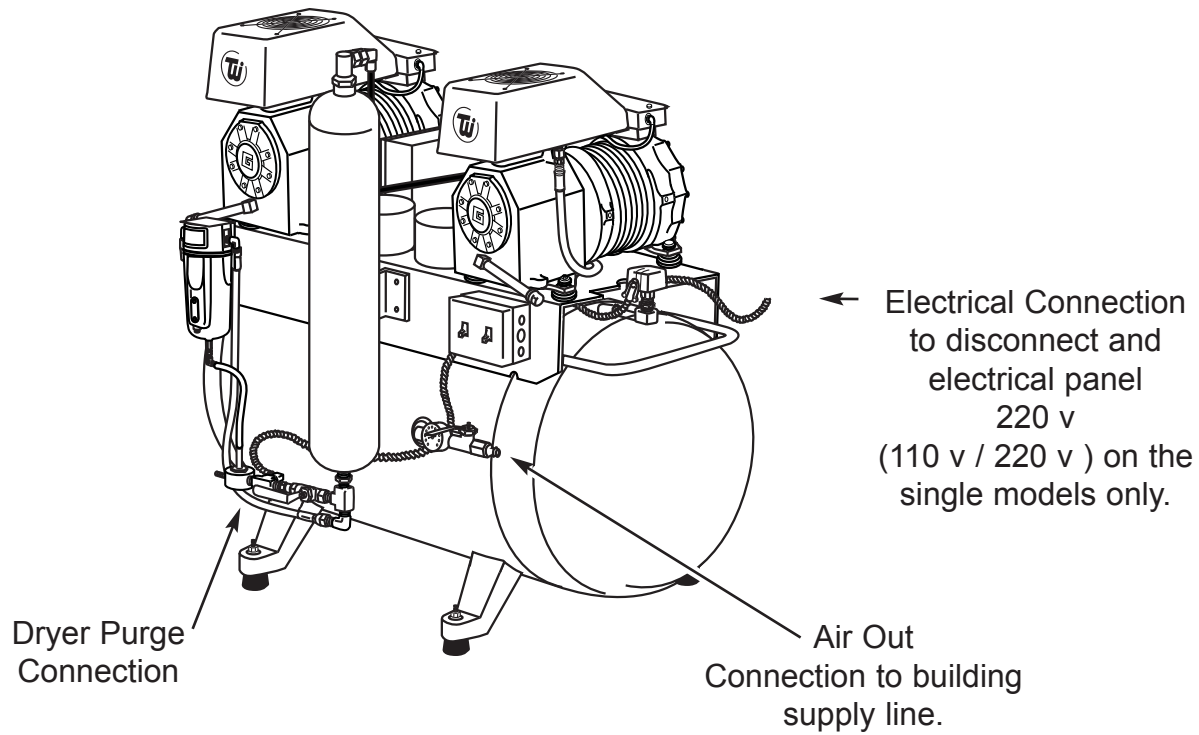
Place the compressor in a clean, dry, well ventilated area, on a solid, level surface. Consider sound level and insulate as needed. Be sure that adequate ventilation is available as the compressor is air cooled. Ambient temperature in the equipment room should be within the temperature range of 40 degrees Fahrenheit minimum to 100 degrees Fahrenheit maximum.

- (a) Check the shipping carton for damage. This could detect damage to the unit which might otherwise be overlooked. Remove cardboard shipping carton.
- (b) Remove the Lubricated Compressor from its shipping skid. Inspect the unit for damage. Lubricated Compressors are shipped bolted to a pallet. This pallet is intended for shipping only and should be discarded.
- (c) Remove installation kit attached to pallet. It should contain the following:
  - (4) Isolation Feet
  - (1) Alternate Air Hookup Hose
  - (1) Bottle of Tech West Compressor Oil per Motor
  - (1) 5' Flexible Air Hose
- (d) Install isolation feet on tank legs.
- (e) Remove shipping tape from spring-hinged oil filler cap(s).
- (f) Install flexible hose to outlet on the compressor shut-off valve.
- (g) Move compressor into place and level the motor platform.
- (h) Install flexible hose to office air supply line.
- (i) Install flexible hose to alternate fresh air supply.
- (j) Wiring instructions:
  - 1 Have all electrical connections made by qualified personnel only. All connections should be in accordance with local codes.
  - 2 Use the chart on page 1 to help determine the proper line and breaker size for the unit that is being installed.

# ULTRA CLEAN LUBRICATED COMPRESSOR INSTALLATION

## 3. CONNECTIONS

Figure 2



# ULTRA CLEAN LUBRICATED COMPRESSOR INSTALLATION

## 4. START-UP STEPS

- (a) Make sure the shut-off valve from the compressor tank is closed.
- (b) Turn the breaker from the panel to the “ON” position.
- (c) Turn power “ON” from the toggle switch on the compressor. Compressor should run quietly and vibration free. The storage tank should start to build pressure.
- (d) The compressor will run until the pressure gauge reads 100 psi. The compressor then will automatically shut off and the dryer will purge with a quick blast of air.
- (e) Using soapy water, check the compressor plumbing hook ups for leaks. Repair leaks if needed.
- (f) Pressure test the entire plumbing system for leaks. Use the storage tank pressure gauge to monitor a pressure drop. After the plumbing system has been pressurized for 30 minutes, re-check the gauge for pressure drop. If there is a drop in pressure, find and repair all leaks in the office plumbing.

### AIR LEAKS ARE THE MAIN CAUSE OF COMPRESSOR FAILURES.

- (g) Complete and mail in the warranty card for the compressor within ten days of installation.

## 5. PERIODIC SERVICING

### WEEKLY SERVICING

- (a) Check the oil level. Refer to figure 2. Use only Tech West oil specially formulated for Tech West Compressors.  
**DO NOT OVERFILL.** Add oil only when the oil level remains below the center line of the oil-level sight glass after the compressor has been idle for at least 5 minutes.
- (b) Empty condensate drain bucket under the dryer.

### MONTHLY SERVICING

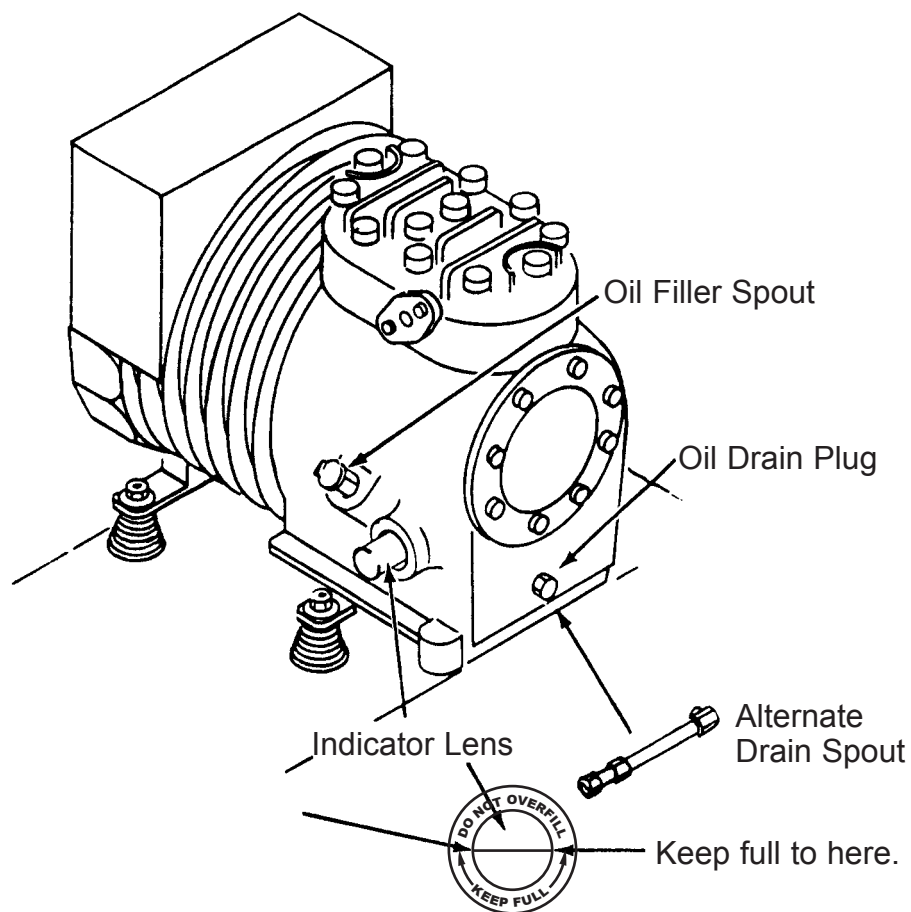
- (a) Crack the drain petcock on the bottom of the storage tank to check for water and drain if needed.
- (b) Check pump-up times.
- (c) Check the moisture indicator to see that it is still “blue”. If it is pink it is time to service the air dryer.

### YEARLY SERVICING

- (a) Repeat all of the monthly servicing.
- (b) Change oil (part # CO-100).
- (c) Replace the dessicant air dryer (part # RDC-100).
- (d) Replace the ultra clean coalescing filter. (part # CFEO-375). This keeps drying system efficient.
- (e) Replace alternate air filter (part # TIF-100). Reduces oil consumption and lengthens compressor life and efficiency.
- (f) Replace the moisture indicator on the compressor (part # MI-100).



**Figure 3: Checking and Changing the Oil**



### Instructions

Add oil to compressor through oil filler spout. Do not overfill. Keep filled to level as shown below. Oil should be changed annually or when oil becomes discolored.

Check oil level with compressor off and compressor sitting level.

**Figure 4: Replace Oil Indicator Lens**

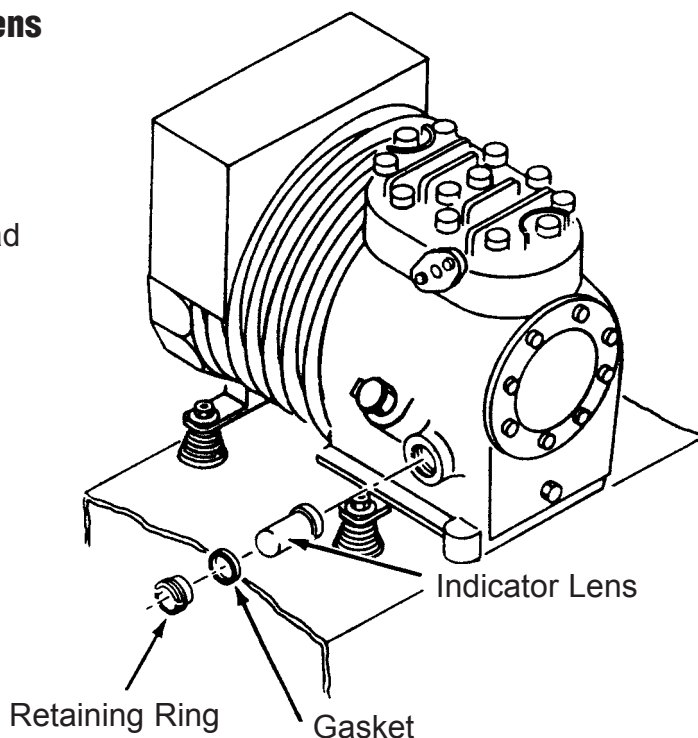
part #OSG-100

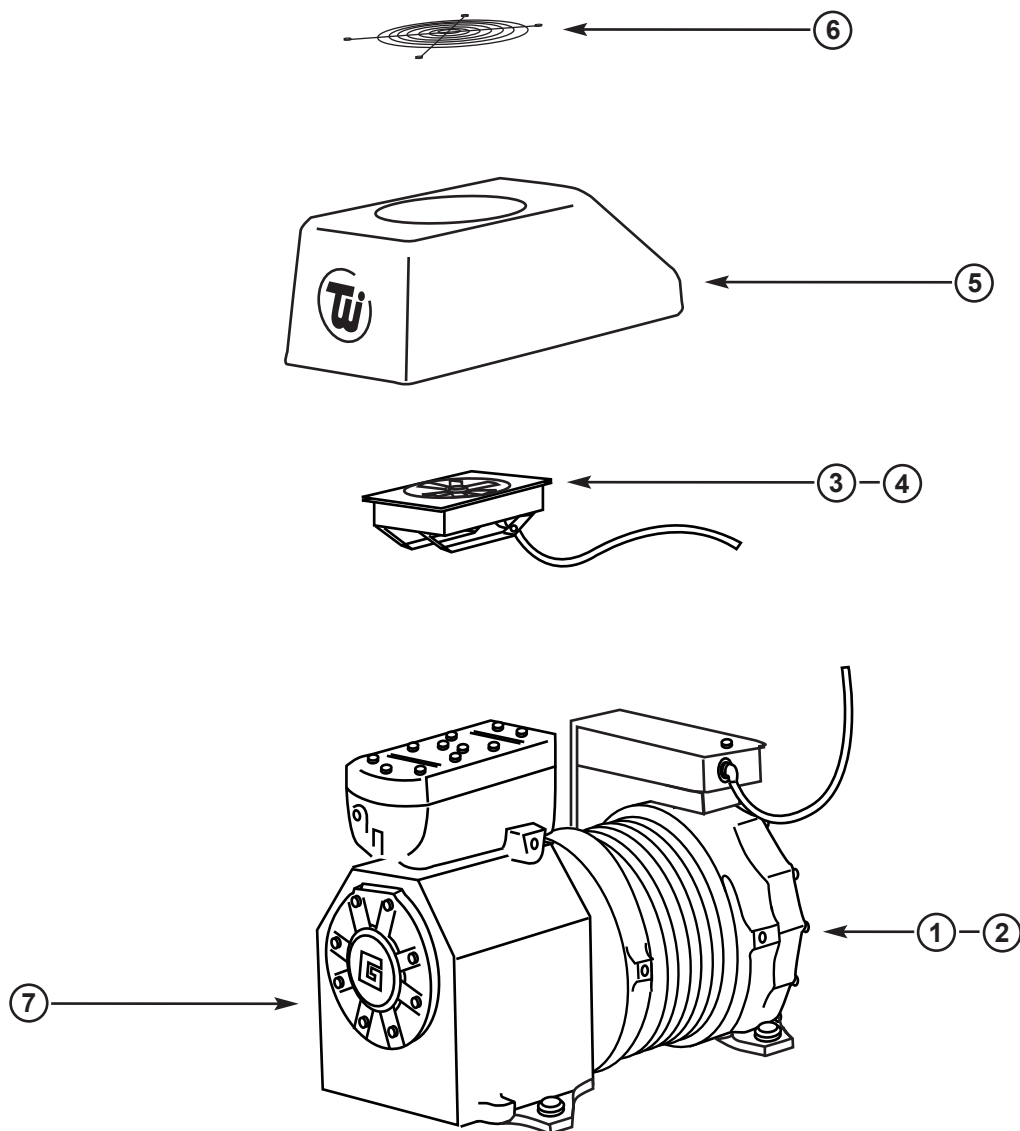
### Important!

Drain oil from compressor head before removing lens.

### Note:

Replace only if damaged or discolored.

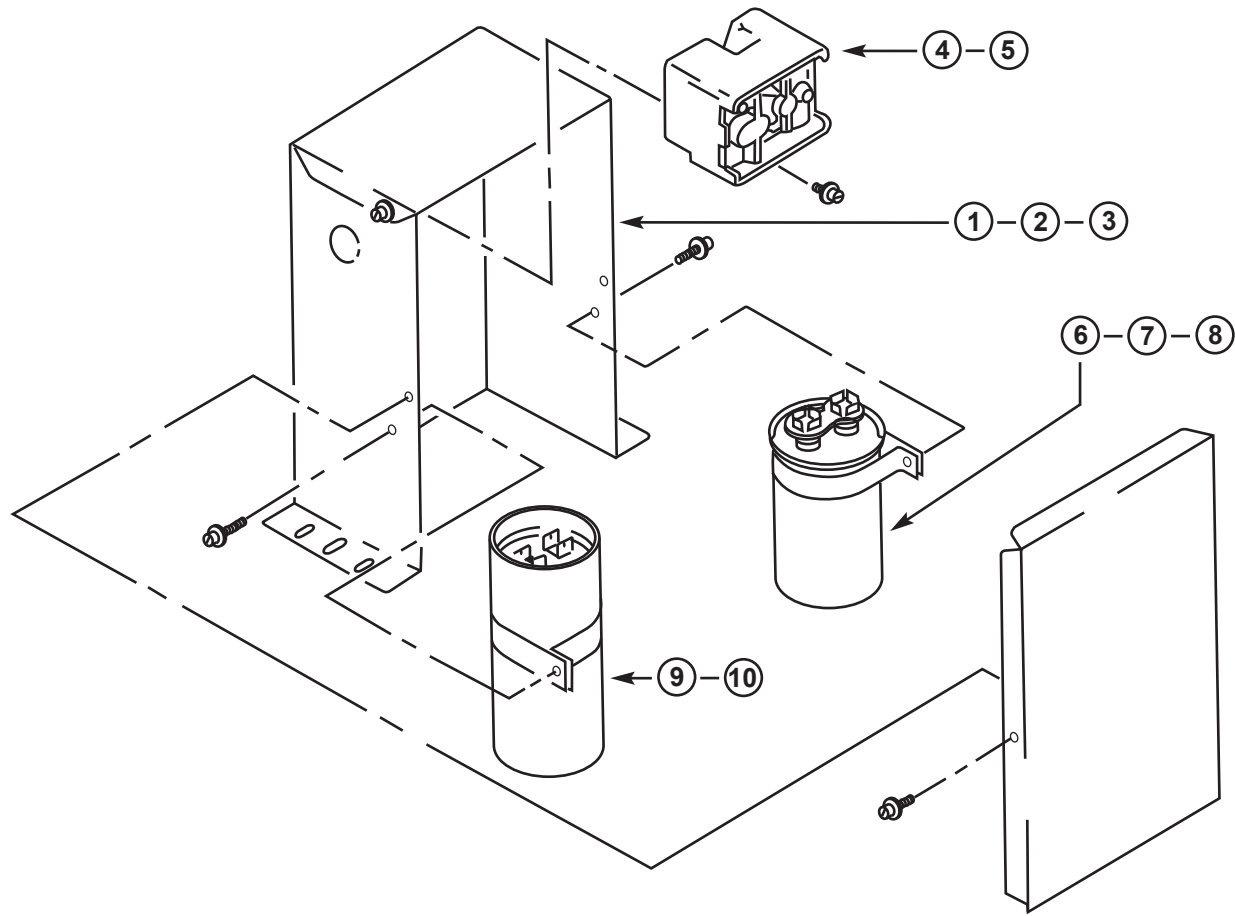




## HEAD COVER AND FAN ASSEMBLY

KEY	PART NO.	DESCRIPTION	UNIT
1	CCH-115	115 V COPELAND COMPRESSOR HEAD 1HP	1
2	CCH-230	230 V COPELAND COMPRESSOR HEAD 1 HP	1
3	CF-115	115 V COOLING FAN	1
4	CF-230	230 V COOLING FAN	1
5	CFS-100	COMPRESSOR FAN SHROUD	1
6	CFG-100	FINGER GUARD	1
7	OSG-100	OIL SIGHT GLASS	1

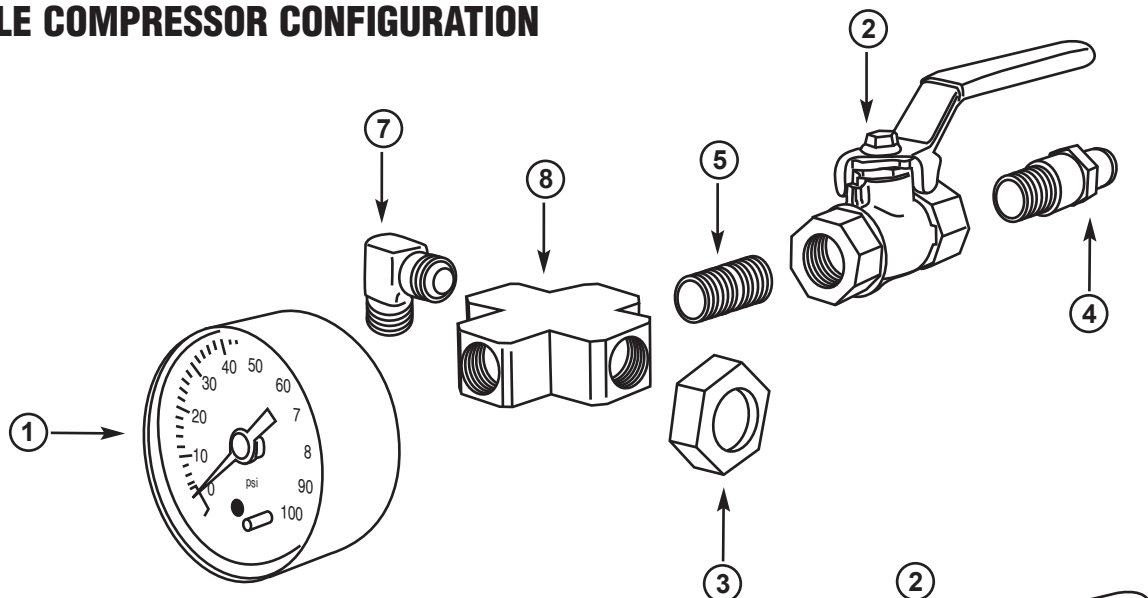
**Figure 4: AIR COMPRESSOR STARTER ASSEMBLY**



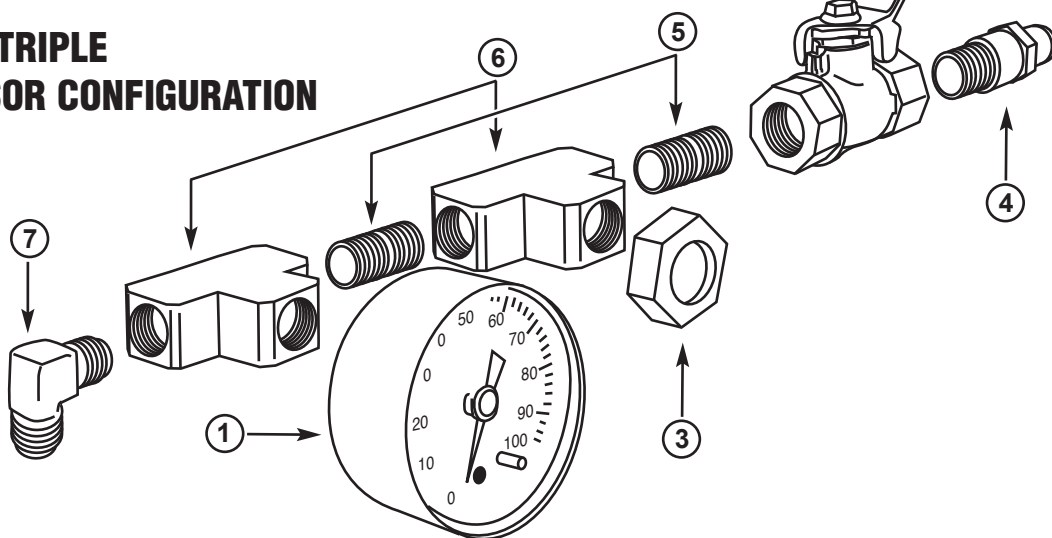
**ULTRA CLEAN AIR COMPRESSOR STARTER ASSEMBLY**

KEY	PART NO.	DESCRIPTION	UNIT
1	CRA-115	115 V CAP AND RELAY ASSEMBLY, COMPLETE	1
2	CRA-208	208-230 V CAP AND RELAY ASSEMBLY, COMPLETE	1
3	CRA-230	230 V ONLY CAP AND RELAY ASSEMBLY, COMPLETE	1
4	PR-115	115 V POTENTIAL RELAY	1
5	PR-208	208-230 V ONLY POTENTIAL RELAY	1
6	RCC-115	115 V RUN CAPACITOR	1
7	RCC-208	208-230 V RUN CAPACITOR	1
8	RCC-230	230 V ONLY RUN CAPACITOR	1
9	SCC-115	115 V START CAPACITOR	1
10	SCC-230	208-230 V / 230 V ONLY START CAPACITOR	1

## SINGLE COMPRESSOR CONFIGURATION

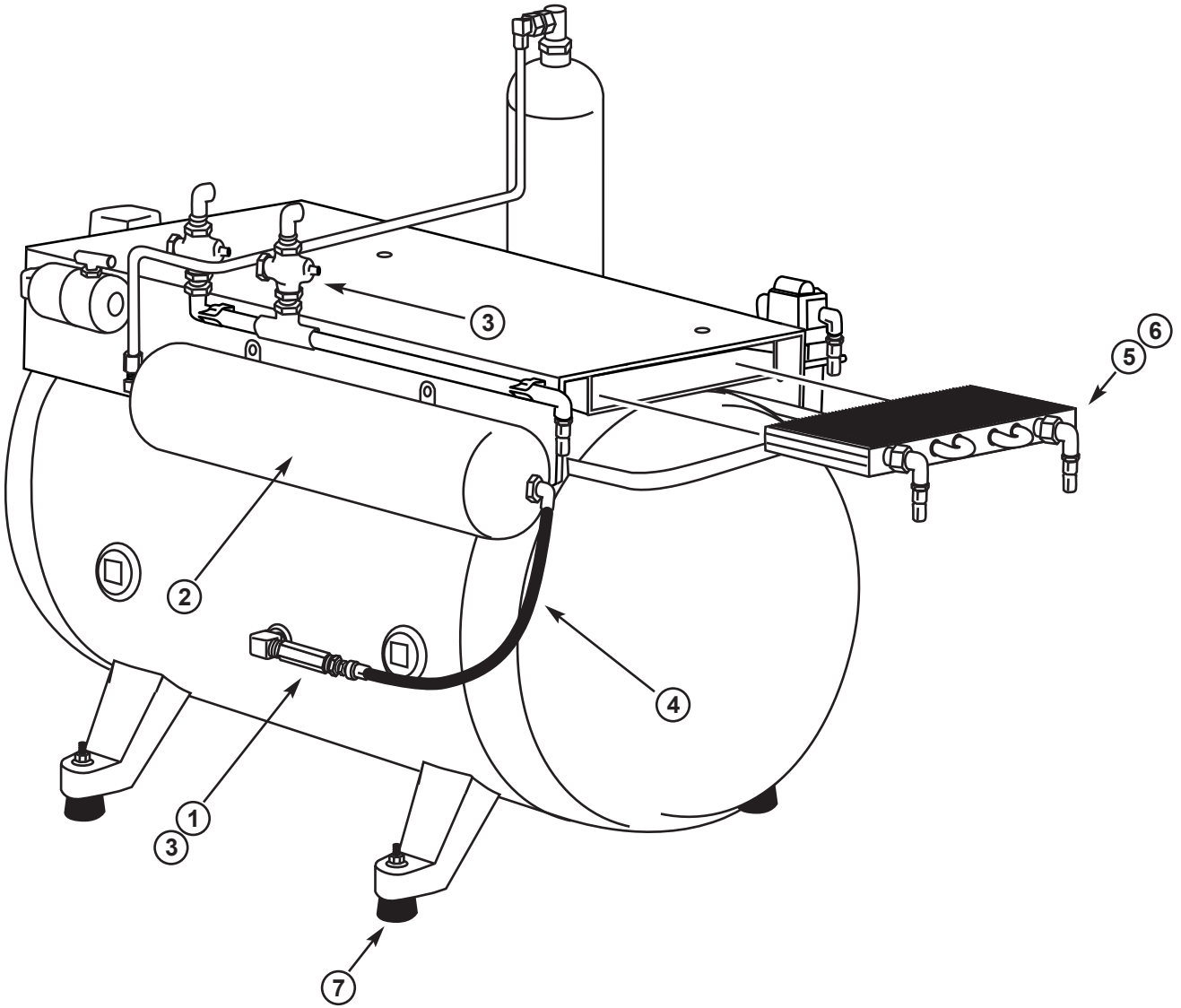


## DUAL AND TRIPLE COMPRESSOR CONFIGURATION



## GAUGE AND CUT-OFF ASSEMBLY

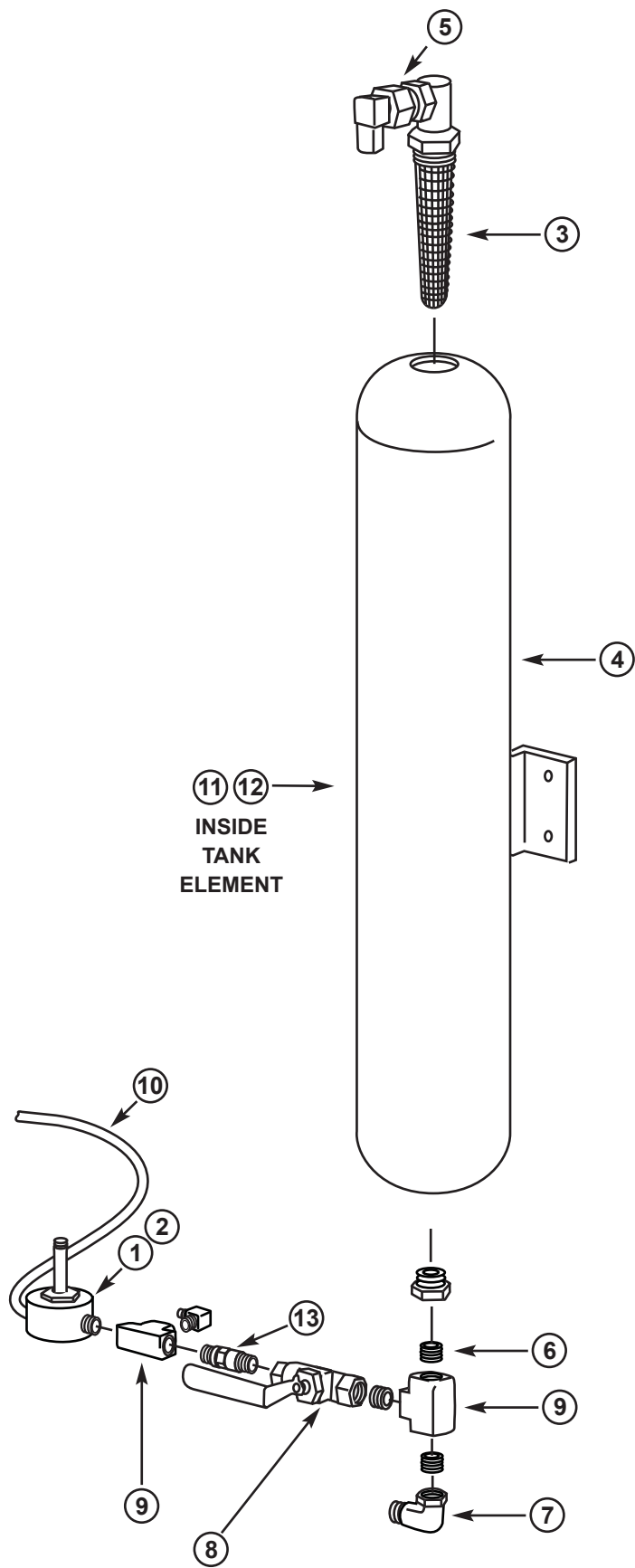
KEY	PART NO.	DESCRIPTION	UNIT
1	CPG-250	COMPRESSOR GAUGE	1
2	BV-250	1/4" BALL VALVE	1
3	MI-100	MOISTURE INDICATOR	1
4	FA-4-4	1/4" FLARE HOSE FITTING	1
5	BN-250-CL	1/4" BRASS CLOSE NIPPLE	1
6	BT-250	1/4" BRASS TEE	1
7	BSE-250	1/4" BRASS ELBOW	1
8	BPC-4	1/4" BRASS CROSS	1



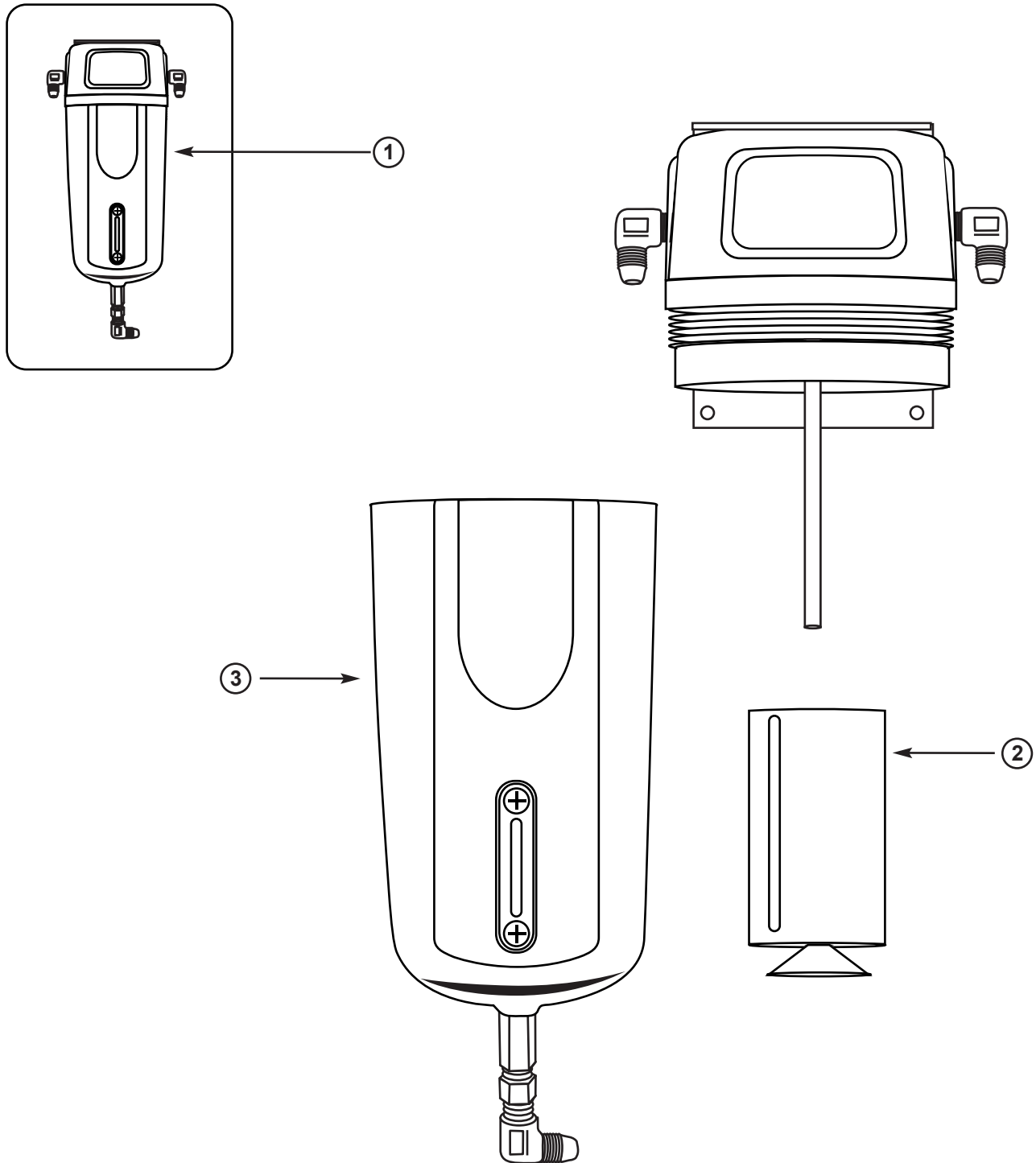
## REAR VIEW ASSEMBLY AND PARTS LIST

KEY	PART NO.	DESCRIPTION	UNIT
1	CV-500D-100	1/2 CHECK VALVE	1
2	CPT-100	COMPRESSOR PURGE TANK	1
3	CV-375D-100	3/8 CHECK VALVE	1-3
4	HA-12-250	1/4 HOSE ASSEMBLY - 12" LONG	1
5	DPC-1	DRYER PRE COOLER SINGLE COMPRESSOR	1
6	DPC-2	DRYER PRE COOLER DUAL & TRIPLE COMPRESSOR	1
7	RFV-100	RUBBER MOUNTING FEET	4

NEW DESICCANT AIR DRYER ASSEMBLY



KEY	PART NO.	DESCRIPTION	UNIT
1	DSV-115	115V PURGE SOLENOID VALVE	1
2	DSV-230	230V PURGE SOLENOID VALVE	1
3	AS-500	1/2 FILTER ASSY	1
4	RDC-100	REPLACEMENT DESSICANT TANK	1
5	MV-250	METERING VALVE	1
6	SN-250-CL	STAINLESS STEEL NIPPLE 1/4	3
7	FE-4-6	FLAIR FITTING 1/4 X 3/8	1
8	BV-250	BALL VALVE 1/4	1
9	BT-250	BRASS TEE 1/4	2
10	PFH-375	CLEAR DRAIN HOSE	PER FOOT
11	MSD-100	MOLECULAR-SIEVE 1 LB	2LBS
12	MSD-200	ACTIVATED ALUMINA 1 LB	2LBS
13	CV-250D	1/4 CHECK VALVE	1

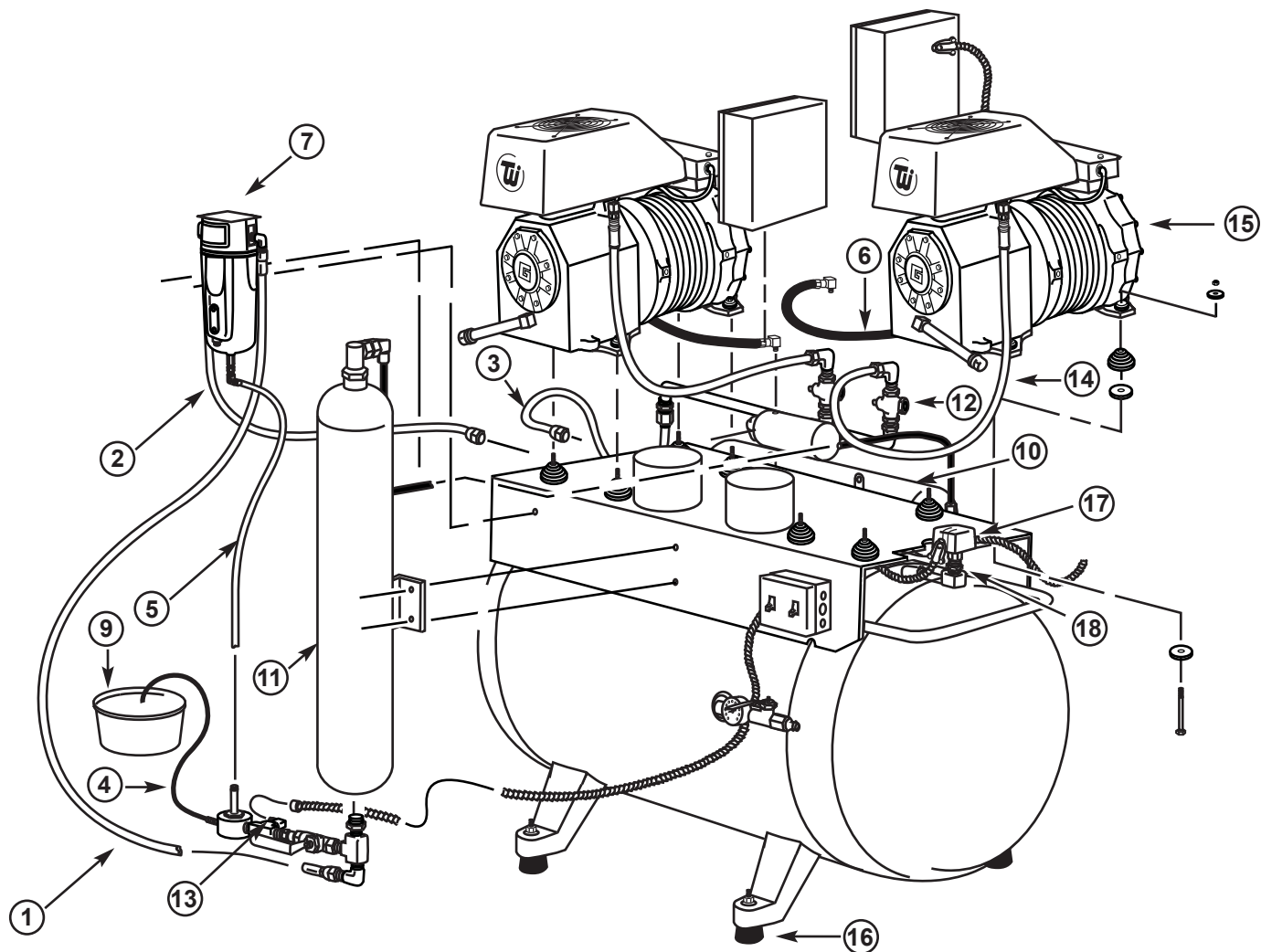


## FILTER ASSEMBLY

KEY	PART NO.	DESCRIPTION	UNIT
1	CFAO-375	COALESCING FILTER ASSEMBLY 3/8	1
2	CFO-375	COALESCING FILTER ELEMENT 3/8	1
3	CFBP-375	COALESCING FILTER BOWL	1

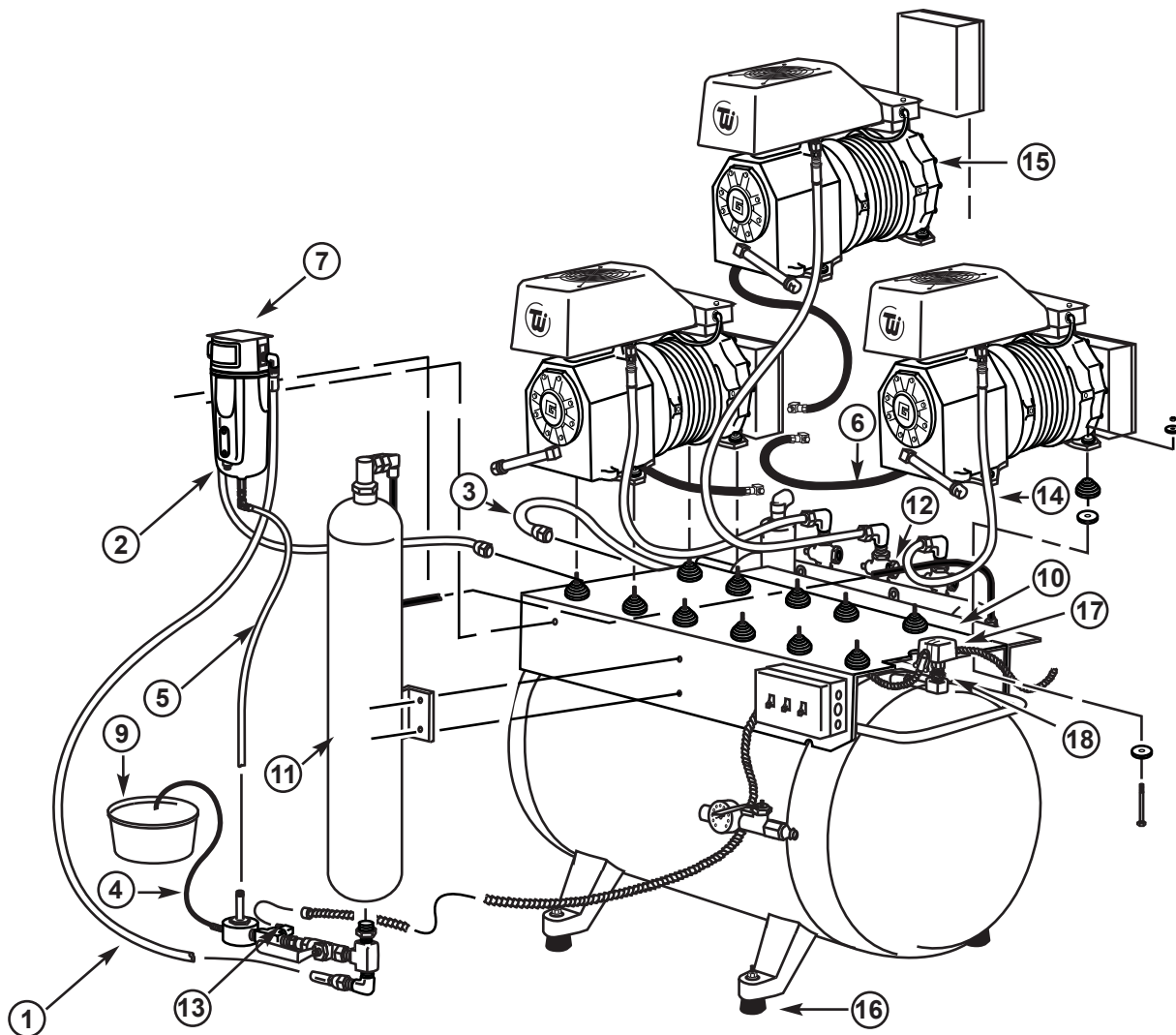






## DUAL ULTRA CLEAN LUBRICATED COMPRESSOR

KEY	PART NO.	DESCRIPTION	UNIT
1	SBHA-21-375	STEEL BRAID HOSE ASSEMBLY	1
2	SBHA-10-375E	STEEL BRAID HOSE ASSEMBLY	1
3	SBHA-9-375E	STEEL BRAID HOSE ASSEMBLY	1
4	FPH-375	PURGE FLEX HOSE CLEAR	PER FT
5	ZZACS61	1/4 HOSE ASSEMBLY	1
6	PFT-500	POLY FLO TUBE 1/2	PER FT
7	CFAO-375	COALESCING FILTER 3/8	1
9	DPB-100	DRYER PURGE BUCKET	1
10	CPT-100	COMPRESSOR PURGE TANK	1
11	RDC-100	REPLACEMENT DESICCANT CARTRIDGE	1
12	CV-375D-100	3/8 CHECK VALVE	2
13	DSV-230	PURGE VALVE SOLENOID VALVE 230V	1
14	SBHA-18-375	STEEL BRAID HOSE ASSEMBLY	2
15	CCH-230	LUBRICATED COMPRESSOR HEAD 230V	2
16	RFV-100	RUBBER MOUNTING FEET	4
17	PSC-3	PRESSURE SWITCH	1
18	POVA-100	SAFETY POP OFF VALVE	1



## TRIPLE ULTRA CLEAN LUBRICATED COMPRESSOR

KEY	PART NO.	DESCRIPTION	UNIT
1	SBHA-21-375	STEEL BRAID HOSE ASSEMBLY	1
2	SBHA-10-375E	STEEL BRAID HOSE ASSEMBLY	1
3	SBHA-9-375E	STEEL BRAID HOSE ASSEMBLY	1
4	FPH-375	PURGE FLEX HOSE CLEAR	PER FT
5	ZZACS61	POLY FLO TUBE 1/4	1
6	PFT-500	POLY FLO TUBE 1/2	PER FT
7	CFAO-375	COALESCING FILTER 3/8	1
9	DPB-100	DRYER PURGE BUCKET	1
10	CPT-100	COMPRESSOR PURGE TANK	1
11	RDC-100	REPLACEMENT DESICCANT CARTRIDGE	1
12	CV-375D-100	3/8 CHECK VALVE	3
13	DSV-230	PURGE VALVE SOLENOID VALVE 230V	1
14	SBHA-18-375	STEEL BRAID HOSE ASSEMBLY	3
15	CCH-230	LUBRICATED COMPRESSOR HEAD 230V	3
16	RFV-100	RUBBER MOUNTING FEET	4
17	PSC-3	PRESSURE SWITCH	1
18	POVA-100	SAFETY POP OFF VALVE	1

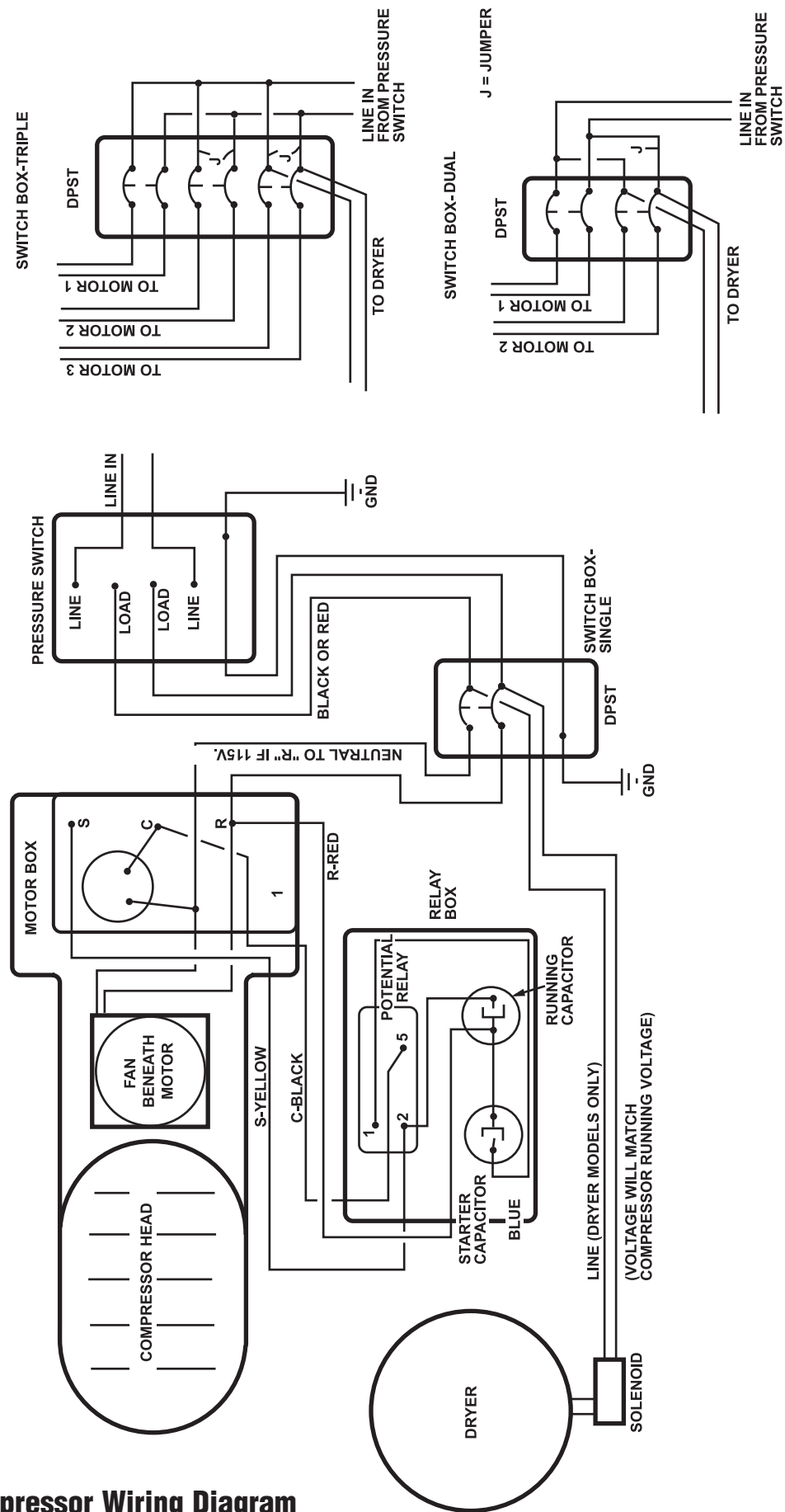
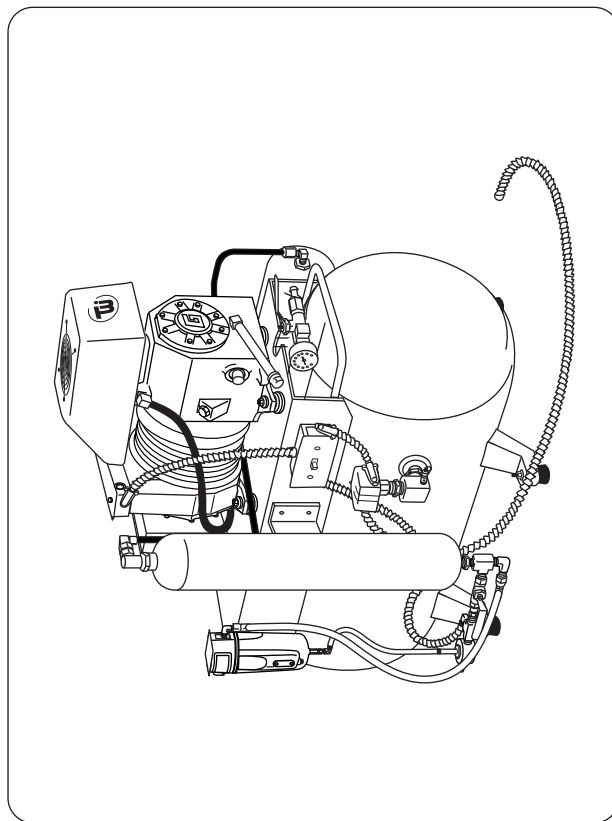
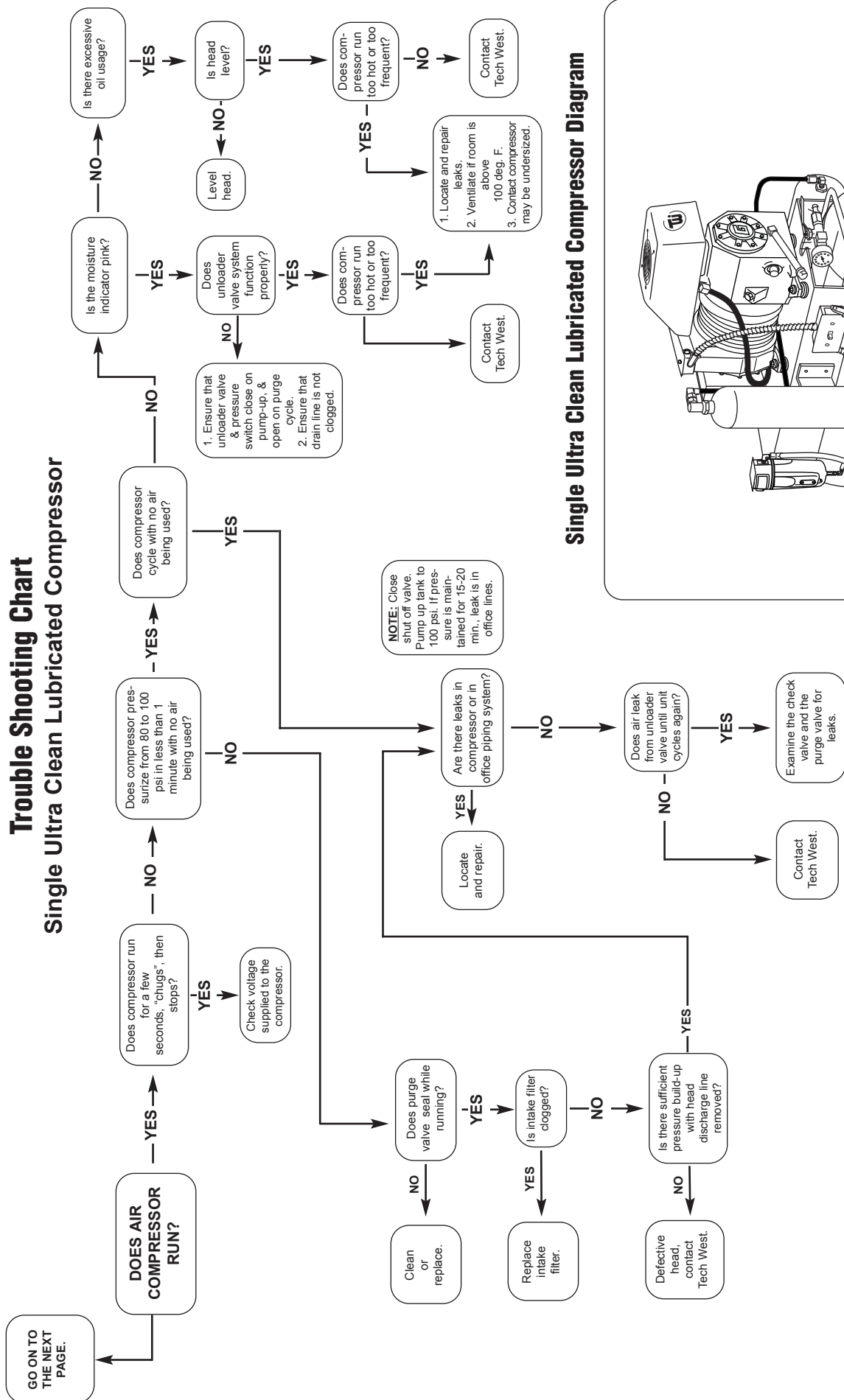


Figure 5: Compressor Wiring Diagram

## Trouble Shooting Chart



## Single Ultra Clean Lubricated Compressor Diagram

# Wiring Diagram

## Single Ultra Clean Lubricated Compressor

GO ON TO  
THE NEXT  
PAGE

**COMPRESSOR  
DOES NOT RUN  
OR RUNS FOR  
ONLY A FEW  
SECONDS.**

YES

Increase  
room temp.

NO

Blockage in  
air line.  
Locate &  
repair.

YES

NO

Install  
Tech West  
transformer.

NO

YES

**NOTE:** Voltage  
should be + or -  
10% of rating.

**CHECK FOR:**  
1. Broken or loose  
wire.  
2. Defective pressure  
switch.  
3. Defective ON/OFF  
switch.  
4. Excessive voltage  
drop across power  
lines.

Is there sufficient volt-  
age at motor terminals  
when motor tries to  
start?

YES

Replace  
defective  
potential  
relay

NO

**NOTE:**  
1. Tape relay box.  
If starts, relay is bad.  
2. Check for continuity  
across 2 & 5.  
Replace if none.

Does motor run  
after tapping  
capacitor/relay box  
or does start  
capacitor feel hot?

YES

Is there continuity  
across terminal 2 & 5  
or potential relay?

YES

**NOTE:**  
Short capacitor leads.  
Check resistance  
rise. If no resistance  
rise, replace.

Is there resistance  
rise across the  
capacitors?

YES

Is there continuity  
across the thermal  
protector?

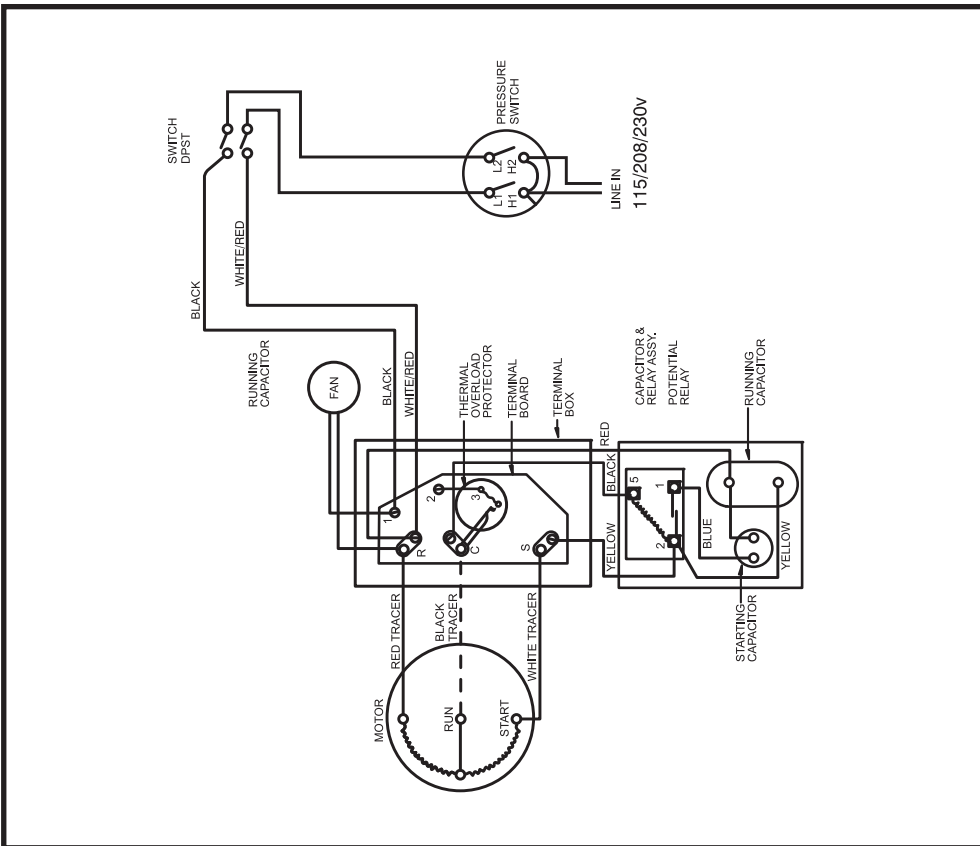
YES

Contact Tech West.  
Head may be frozen.

NO

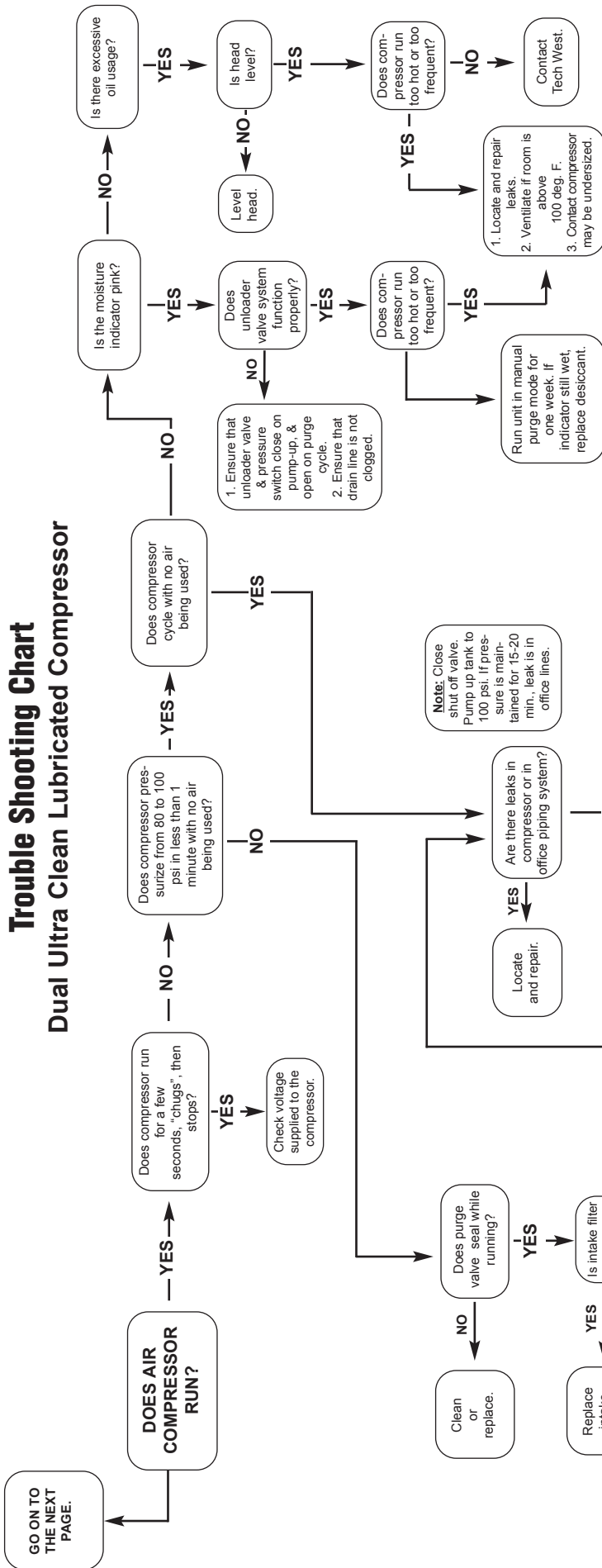
Replace  
defective  
thermal  
protector.

Replace  
defective  
capacitors.

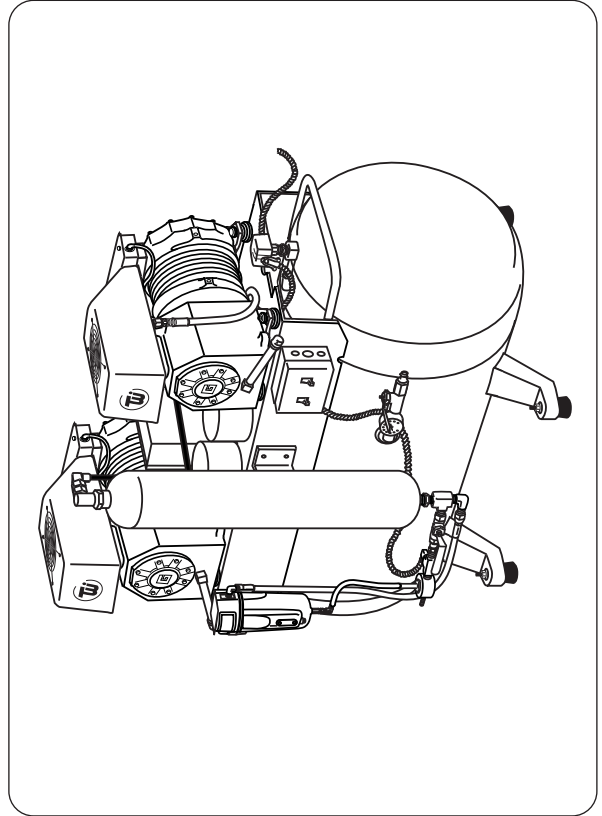


# Trouble Shooting Chart

## Dual Ultra Clean Lubricated Compressor



**Dual Ultra Clean Lubricated Compressor Diagram**



# Wiring Diagram

## Dual Ultra Clean Lubricated Compressor

GO ON TO  
THE NEXT  
PAGE

**COMPRESSOR  
DOES NOT RUN  
OR RUNS FOR  
ONLY A FEW  
SECONDS**

YES

Increase  
room temp.

NO

Blockage in  
air line.  
Locate &  
repair

Is room  
temperature  
above 40°  
fahr.?

YES

Install  
Tech West  
transformer

Is there  
sufficient  
voltage at  
disconnect  
box?

NO

**NOTE:** Voltage  
should be + or -  
10% of rating.

YES

Is there sufficient  
voltage at motor  
terminals when  
motor tries to start?

YES

Does motor run  
after tapping  
capacitor/relay box  
or does start  
capacitor feel hot?

YES

**NOTE:**  
1. Tape relay box.  
If starts, relay is bad.  
2. Check for continuity  
across 2 & 5.  
Replace if none.

NO

Is there continuity  
across terminal 2 & 5  
or potential relay?

YES

**NOTE:**  
Short capacitor leads.  
Check resistance  
rise. If no resistance  
rise, replace.

Is there resistance  
rise across the  
capacitors?

YES

Is there continuity  
across the thermal  
protector?

YES

Contact Tech West.  
Head may be frozen.

Replace  
defective  
thermal  
protector

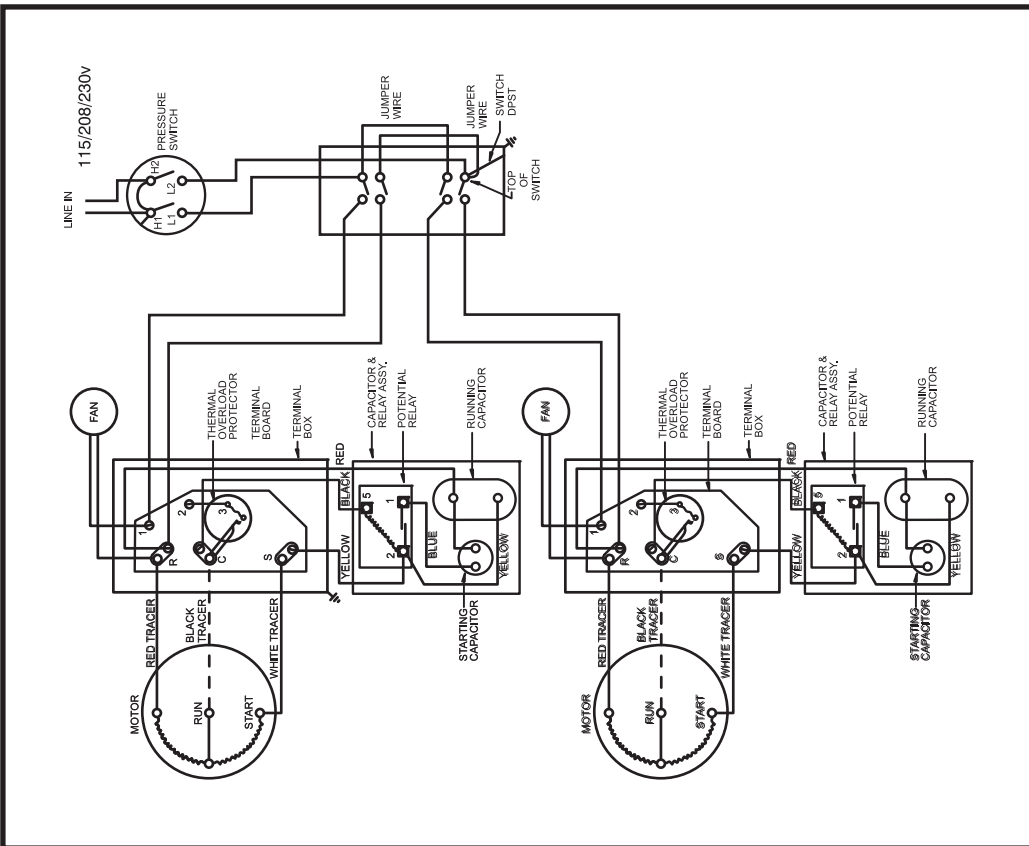
NO

Replace  
defective  
capacitors

NO

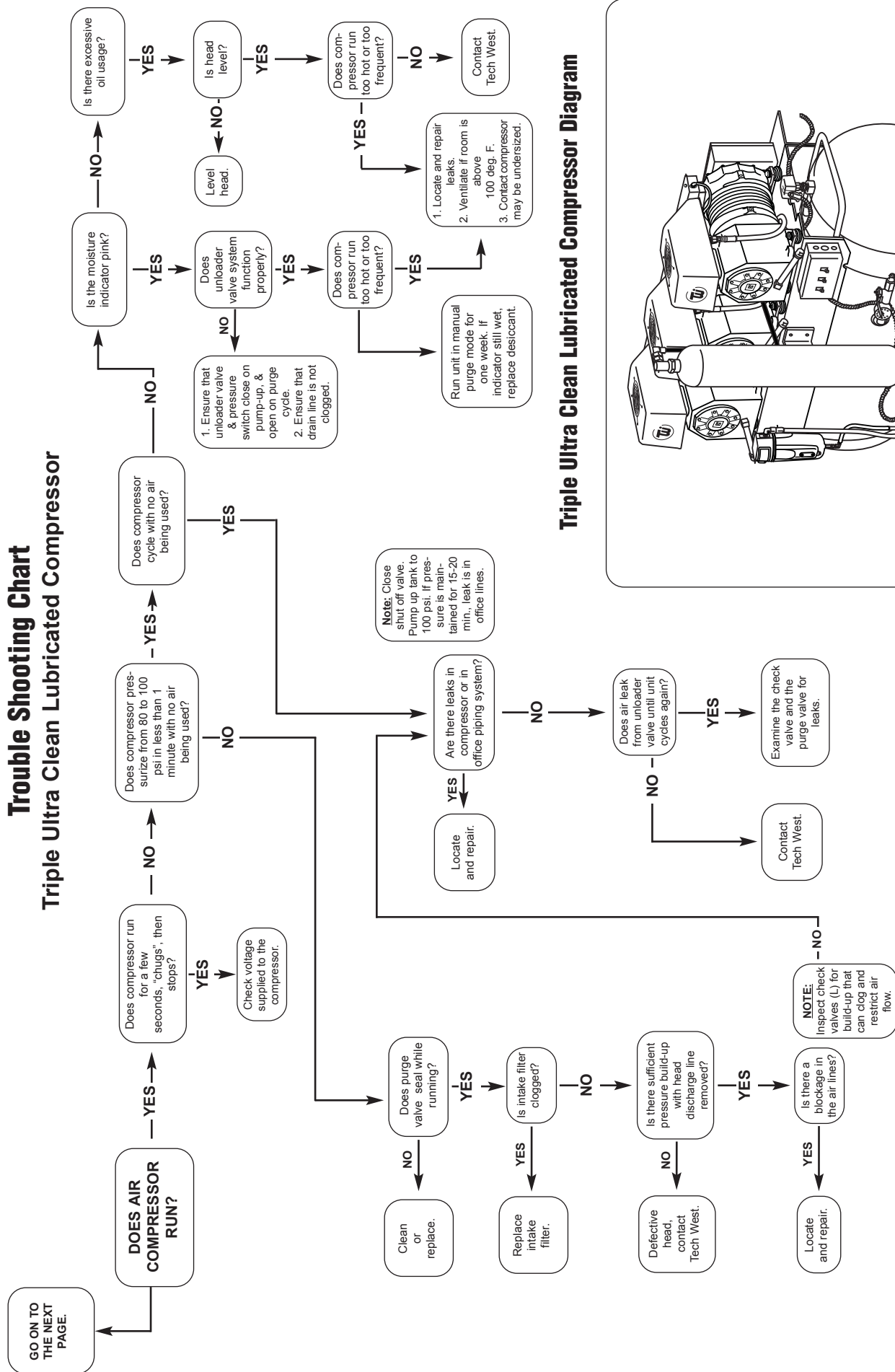
**CHECK FOR:**  
1. Broken or loose  
wire.  
2. Defective pressure  
switch.  
3. Defective ON/OFF  
switch.  
4. Excessive voltage  
drop across power  
lines.

NO

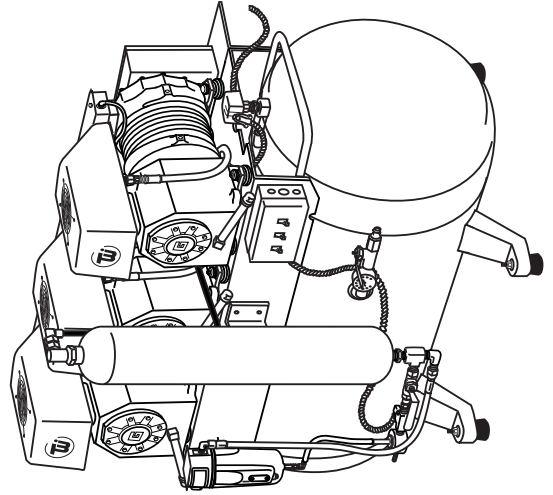


# Trouble Shooting Chart

## Triple Ultra Clean Lubricated Compressor

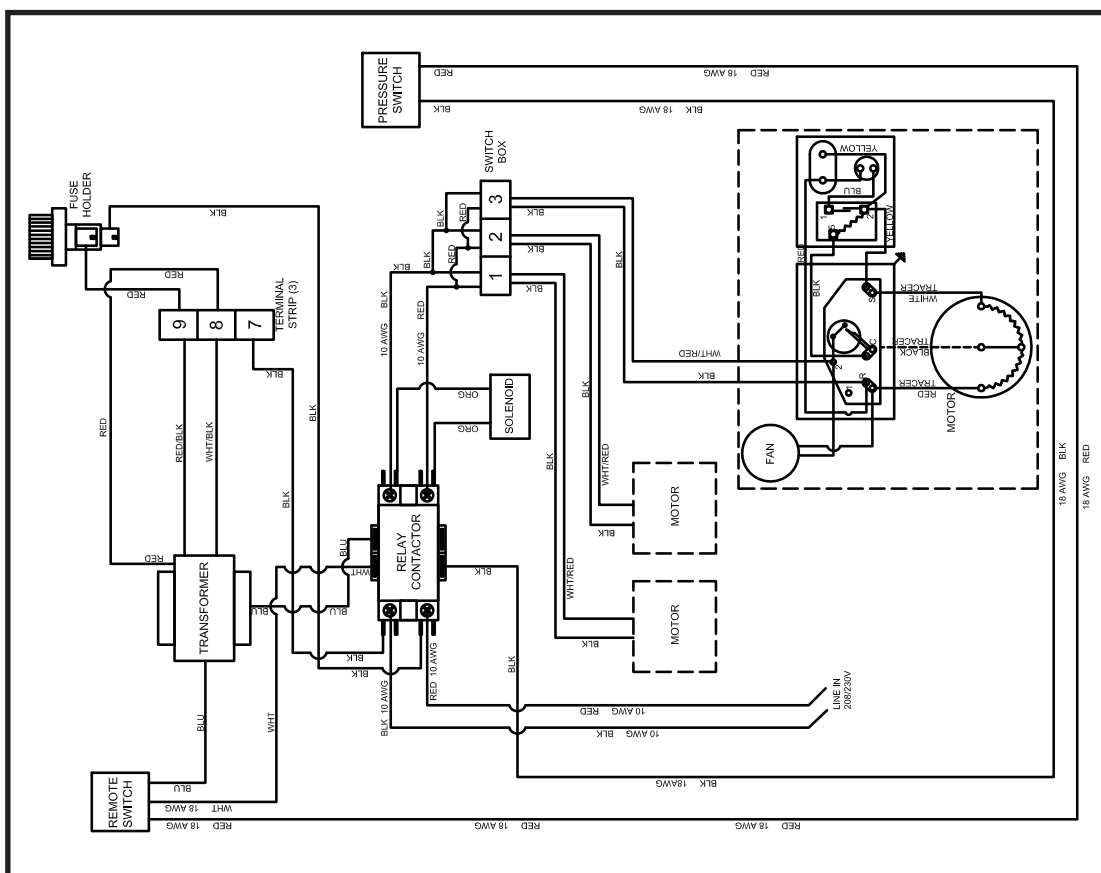


**Triple Ultra Clean Lubricated Compressor Diagram**





# Wiring Diagram



VACUUM AND AIR LINE SIZING CHART			
NUMBER OF OPERATORIES SEE NOTE	VACUUM LINE PIPE DIAMETER		AIR LINE PIPE DIAMETER
	PVC sch 40	COPPER TYPE "M"	COPPER TYPE "M"
1	3/4"	3/4"	1/2"
2	1"	1"	1/2"
3	1"	1"	1/2"
4	1 1/4"	1 1/4"	1/2"
5	1 1/4"	1 1/2"	1/2"
6	1 1/4"	1 1/2"	1/2"
7	1 1/2"	1 1/2"	3/4"
8	1 1/2"	1 1/2"	3/4"
9	1 1/2"	2"	3/4"
10	2"	2"	3/4"
11	2"	2"	1"
12	2"	2"	1"

## Maintenance & Service / Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

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***TW*** **TECH WEST INC.**  
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