

Sealed System & Air Movement Trouble-Shooting Procedures

TENNESSEE VALLEY TECHNICAL PROGRAMS

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1

LOW PRESSURES

Pressures are lower than normal.

Normal pressures correspond to the ambient temperatures.

With temperatures of 85deg. outside and 70 to 75deg inside, we need pressures of:

65psig to 70psig. With R-22 units.

If either ambient temperature is higher than normal, the pressures should be higher.

When either ambient temperature is lower than normal, the pressures should be lower.

2

LOW PRESSURES

SUCTION LINE
ICE COLD
OR FROSTING

DETERMINING PROBLEM WITH LOW PRESSURES 3

LOW PRESSURES

SUCTION LINE
WARMER
THAN NORMAL

Normal Suction line temperature is 55 to 60 deg. When inside and outside temperatures are normal.

DETERMINING PROBLEM WITH LOW PRESSURES 4

LOW PRESSURES

CHECK THE FOLLOWING:

- .LEAK/LOW CHARGE
- .RESTRICTION in Strainer
- .INSIDE AIR MOVEMENT
- .COLD OUTSIDE TEMPS
- .INSIDE BUILDING COLD

2B

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1B

LOW PRESSURES

SUCTION LINE WARMER THAN NORMAL

ADD REFRIGERANT

HIGHSIDE AND LOWSIDE
PRESSURES CLIMB
TO NORMAL.

UNIT HAS A LEAK

IF UNIT IS RESTRICTED
REPLACE THE STRAINER.

LOWSIDE CLIMBS
& APPROACHES
NORMAL, BUT THE
HIGHSIDE GOES TOO
HIGH. STRAINER
RESTRICTED OR AIR
MOVEMENT
PROBLEM

4B

LOW PRESSURES

SUCTION LINE ICE COLD OR FROSTING

COLD DAY

COLD BUILDING

INSIDE AIR FLOW
BLOCKED

CHECK RETURN AIR GRILLS
CHECK FILTER
CHECK BLOWER WHEEL
CHECK EVAPORATOR COIL FOR BLOCKAGE
TOO MANY SUPPLIES CLOSED OFF

3B

HIGH PRESSURES

Pressures are higher than normal.

Normal pressures correspond to the ambient temperatures.

85deg. outside and 70 to 75deg inside, we need pressures of 65psig to 70psig. With R-22 units.

If either ambient temperature is higher than normal, the pressures should be higher.

When either ambient temperature is lower than normal, the pressures should be lower.

5

Extreme Heat from Condenser Air ?

Or is the

HEAT FROM CONDENSER AIR
NORMAL OR COOLER THAN
NORMAL?

Normal air temperature is a warm comfortable feeling. 6

Low Side High

High Side Low

7

Capillary Tubes Flow Check Piston Heat Pumps

DETERMINING PROBLEM WITH LOW SIDE HIGH
AND HIGH SIDE LOW

8

DETERMINING PROBLEM WITH HIGH PRESSURES

EXTREME HEAT FROM CONDENSER AIR

**DIRTY CONDENSER COIL, OR BLOCKED
CONDENSER AIR**

HOT HOUSE ABOVE 75 DEG. F.

HOT DAYTIME TEMPERATURES

**HEAT FROM CONDENSER AIR IS NORMAL OR
COOLER THAN NORMAL**

- **AIR IN SYSTEM**
- **OVER CHARGE**

6B

HIGH PRESSURES

CHECK THE FOLLOWING:

- **OVER CHARGE**
- **AIR OR NON-CONDENSABLES**
- **OUTSIDE AIR MOVEMENT**
- **EXTREME HOT OUTSIDE TEMPS**
- **BUILDING HOT, ABOVE 75 DEG F**

5B

- **CHECK FOR CLOGGED CONDENSER**
- **DIRTY CONDENSER WILL OPEN
RELIEF VALVE INSIDE COMPRESSOR**

HOWEVER, IF CONDENSER IS CLEAN:

- **COMPRESSOR IS NOT PUMPING
CHANGE COMPRESSOR**

**DETERMINING PROBLEM WITH LOW SIDE
HIGH AND HIGH SIDE LOW**

8B

LOWSIDE TOO HIGH

HIGHSIDE IS TOO LOW

- **LOW CAPACITY COMPRESSOR**
- **FLOWCHECK PISTON NOT SEATING**
- **HEATPUMP REVERSING VALVE
BLEEDING THROUGH**
- **INTERNAL RELIEF VALVE OPEN ON
HIGH PRESSURES**

7B

Flow Check Piston

NOT A HEATPUMP

DETERMINING PROBLEM WITH LOW SIDE HIGH
AND HIGH SIDE LOW

9

Heat Pumps

DETERMINING PROBLEM WITH LOW SIDE HIGH
AND HIGH SIDE LOW

10

LOW SIDE NORMAL
HIGH SIDE TOO HIGH

11

DETERMINING PROBLEM WITH LOW SIDE
NORMAL AND HIGH SIDE TOO HIGH

First Check:

Check inside air movement with
overcharge

Second Check:

Strainer stopped up with overcharge

12

DETERMINING PROBLEM WITH LOW SIDE HIGH AND HIGH SIDE LOW

HEAT PUMP SYSTEM

TEST THE REVERSING VALVE.

TWO OF THE THREE CONNECTIONS OF THE LOWSIDE SHOULD BE WITHIN 7 DEG. OF EACH OTHER. IF GREATER THAT 7 DEGREES, CHANGE THE REVERSING VALVE. IF VALVE CHECKS OKAY, COMPRESSOR IS LOW CAPACITY, CHANGE THE COMPRESSOR.

10B

DETERMINING PROBLEM WITH LOW SIDE HIGH AND HIGH SIDE LOW

FLOW CHECK PISTON SYSTEM

NOT A HEATPUMP

REMOVE REFRIGERANT AND REMOVE THE FLOW CHECK PISTON. VERIFY PISTON IS FREE TO MOVE AND THE GASKET IS IN PLACE. IF PISTON IS OKAY, COMPRESSOR IS NOT PUMPING PROPERLY. CHANGE THE COMPRESSOR.

9B

DETERMINING PROBLEM WITH LOW SIDE NORMAL AND HIGH SIDE TOO HIGH

CHECK INSIDE AIR MOVEMENT IF CLOGGED, CLEAR OBSTRUCTION AND ADJUST CHARGE. IF INSIDE AIR OKAY....

UNIT HAS A RESTRICTION AT THE STRAINER. REMOVE REFRIGERANT AND REPLACE THE STRAINER, EVACUATE AND RE-CHARGE.

12B

LOW SIDE NORMAL
HIGH SIDE TOO HIGH

- . OVERCHARGE WITH INSIDE AIR MOVEMENT PROBLEM.
- . OVERCHARGE WITH STRAINER RESTRICTED.

11B