Keep this Manual with the RS-503/13-C3 unit at all times

REDI CONTROLS, INC.

Operation & Maintenance Manual

Literature File No. 1121-01

Model RS-503/13-C3

ARI Certified

Patent 5,722,247

RECOVERY SYSTEM

for

Very High Pressure Refrigerants

R-13, R-23, R-503, & SUVA-95

Revised Technically as of January 31, 2006
This Copy was Printed as of June 6, 2007

GENERAL INFORMATION

YOU MUST READ THIS MANUAL COMPLETELY BEFORE OPERATING THIS UNIT

Upon Receiving Your Unit

Inspect the unit for possible damage caused during shipping. **Contact Equipment Servicing before attempting to use a damaged unit.**

Warnings and Cautions

NOTE: **Warnings** *and* **Cautions** *appear in highlighted boxes as illustrated below at appropriate points throughout this manual. Give special attention to these items.*

Warnings: Provided to alert you to potential hazards that could result in serious personal injury and damage to your equipment. Warnings may appear in this manual or on the equipment. Heed all Warnings.

Cautions: Designed to alert you to situations that may result in damage to your equipment.

Personal safety and the proper operation of your equipment require strict observance of these precautions.

THIS EQUIPMENT SHOULD BE OPERATED ONLY BY QUALIFIED PERSONNEL

Warning: Certain servicing procedures may expose you to harmful materials and dangerous conditions. To minimize the possibility of injury, follow safety procedures and instructions described in this manual, on product labels and in material safety data sheets provided.

NOTE: *The manufacturer has a continuous equipment improvement policy and reserves the right to change specifications and design of its products without notice.*

T A B L E O F C O N T E N T S

OPERATIONS

General Overview

The **REDI CONTROLS** Model RS-503/13-C3 **Recovery** System is designed for the recovery of refrigerants from machines using R-503, R-13, R-23, and SUVA-95 refrigerants. Federal laws prohibit the intentional venting of refrigerants to the atmosphere. Therefore refrigerants must be removed from a refrigerant circuit before opening any part of the unit for maintenance or repairs.

Safety Summary

WARNING: Operation and servicing of refrigerant support equipment can be hazardous because of system pressures and the presence of dangerous voltages. Only qualified service personnel should operate, repair, or service such equipment.

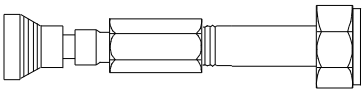
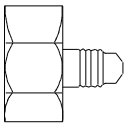
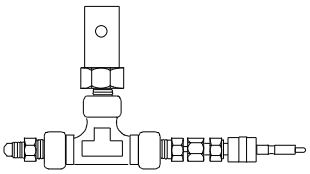
- When using or servicing your unit, observe all precautions in the literature, as well as those on tags and labels attached to the equipment. Follow all safety codes.
- Wear glasses and work gloves when handling refrigerants.
- Before performing service or maintenance operations on your unit, turn off unit and disconnect power cord. Electrical shock could cause fatal injury.
- **WHEN RECOVERING REFRIGERANT**, **use only the interconnecting flexible stainless steel hose (2000 PSIG working pressure) supplied with your unit for connecting recovery unit to recovery cylinder**. Use of unspecified hose could result in operator injury and/or release of refrigerant to the atmosphere.
- If possible, avoid using an extension cord because it may overheat. If it is necessary to use an extension, the cord must be #10 AWG minimum.
- Do not use your equipment near containers of flammable products. The unit should only be used in a location with ventilation that provides at least four (4) air changes per hour.

Caution: The Model RS-503/13-C3 Recovery System must always be operated, transported and stored in its upright position. (Once the plug is removed from the Breather/Vent Port [when unit is initially placed into service] laying unit on its side will allow Hydraulic System oil to leak out.)

Specifications

Electrical Power Requirements:	120 VAC, 60 Hz., 1-Phase, 15 Amp
Dimensions:	21¾" height x 21" length x 12½" depth
Weight:	110 pounds
Recovery Rate:	.3 lbs/minute (*average*)

Contents of Accessory Hose & Fitting Kit

QTY	Description
1	Braided Stainless Steel Recovery Hose (2000 psi W.P.)
1	Refrigerant Cylinder Valve adapter with "Quick -Connect" fitting
	
1	1/4" Flare refrigerant Cylinder valve adapter
	
1	"Quick-Connect"/Relief Valve adapter
	
2	Spare "fiber" adapter gaskets
2	Spare Teflon™ adapter gaskets

Field-Provided Items

To be furnished by user:

Weight Scale
Standard Refrigeration Hoses
Refrigeration Manifold Gauge Set
DOT-3AA Refrigerant Cylinders (Minimum of 2)

Operational Overview

The Model RS-503/13-C3 microprocessor controlled high pressure refrigerant recovery unit is designed to recover a series of very high pressure refrigerants used in cascade refrigeration systems and environmental test chambers.

The RS-503/13-C3 recovery unit is a two-stage system. The first stage comprises a special oil-less piston refrigerant recovery compressor which draws refrigerant vapor (VAPOR ONLY) from the system under recovery and compresses it to a much higher pressure. The second stage utilizes a unique hydraulically powered "FREE PISTON" compression chamber which receives the high pressure vapor from the first stage and compresses it to a very high pressure into the recovery cylinder.

This arrangement allows the RS-503/13-C3 recovery unit to fill any standard DOT-3AA high pressure refrigerant cylinder to 80% of its specified storage capacity without the aid of additional equipment, such as large air compressor, auxiliary refrigerant chamber, dry ice bath etc.

Special Precautions

Caution: The Model RS-503/13-C3 Recovery System must always be operated, transported and stored in its upright position. (Once the plug is removed from the Breather/Vent Port [when unit is initially placed into service] laying unit on its side will allow Hydraulic System oil to leak out.)

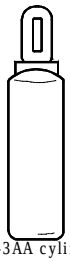
Caution: THE RS-503/13-C3 SHOULD ONLY BE OPERATED BY QUALIFIED PERSONNEL. An operator of this unit must be familiar with the use of very high pressure refrigerants and the dangers of pressurized components.

WARNING: DO NOT overfill storage cylinder. Overfilling storage cylinder may cause a violent explosion resulting in injury or even death. Never fill a refrigerant storage cylinder more than 80% of it's rated capacity.

Special Precautions (continued)

Your safety requires that Very High Pressure refrigerants only be recovered into authorized **DOT-3AA high pressure heavy steel storage cylinders**. Do not transfer refrigerants into non-refillable storage containers. Federal regulations require that very high pressure refrigerants only be transported in containers meeting DOT specifications.

Do Not use this type!



Use DOT-3AA cylinder only!

The RS-503/13-C3 should only be used for recovering High Pressure refrigerants R-503, R-13, R-23, and SUVA-95 refrigerants. The unit is not designed for any other purpose.

Caution: NEVER operate the RS-503/13-C3 Recovery Unit while side panels are off. All panels MUST be in place and both ventilator fans must be operating at all times when unit is operating.

WARNING: HOSES MAY CONTAIN REFRIGERANT UNDER PRESSURE. Contact with refrigerant may cause injury. Wear proper protective equipment, including safety goggles. Disconnect hoses with extreme caution.

In providing power to the RS-503/13-C3, do not use an extension cord less than 10 AWG. To prevent overheating of the cord, keep it as short as possible.

NOTE: *Do not mix types of refrigerant.*

THE CONTROL PANEL

LCD Display

The control panel LCD display is back lighted to facilitate viewing in low light ambient conditions. The back light is activated when any keypad switch is pressed. If after 30 minutes of no further keypad activity, the back light will automatically go off. To reactivate back light, press “Display Status” key.

Keypad Switches

All settings, calibrations and functions are controlled via the multi-function 16 switch keypad and LCD display located on top of the recovery unit (see Figure 1).

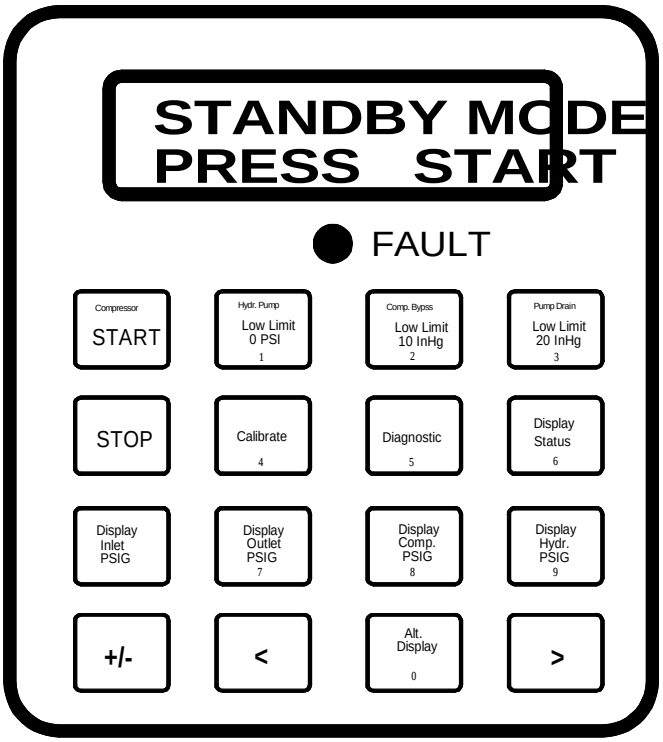


FIGURE 1
Control Panel and Liquid Crystal Display

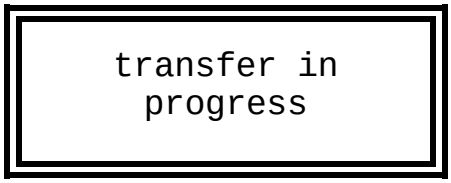
On the following pages are explanations of the various keypad switches. <u>DO NOT press</u> any <u>keypad switch until</u> the RS-503/13-C3 recovery unit has been <u>properly connected to system</u> under service and is ready to begin operation.

NOTE: *Some keypad switches have multiple functions, the same switch may serve a different purpose depending upon the mode you are in.*

NOTE: *Display illustrations throughout the manual are examples. It should be noted that while some of the illustrations show “PSIG” as the example, the display might read “InHg” in actual operation.*

Starting the System

The START keypad switch is used to start unit. When depressed, the display will change to read:



Low Limit

The “Low Limit” keypad switches are used to select desired “Low Limit” recovery level. The “Low Limit” level may be changed at any time during the recovery process.

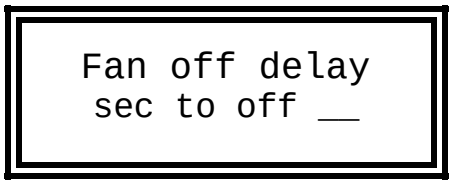
NOTE*: “Hydr. Pump”, “Comp. Bypass” and “Pump Drain” are for factory assisted diagnostic purposes only.*

NOTE: *If no “Low Limit” selection is entered, the recovery process will automatically terminate at 0 PSIG.*

Stopping Unit

Depress STOP keypad switch to terminate operation of the recovery unit at any time. The display will change to read:

Alternating with...



NOTE: *Anytime unit is stopped, the two ventilator fans will continue to run for one minute to cool down recovery compressor. The display will indicate number of seconds remaining until fans go OFF.*

Calibration

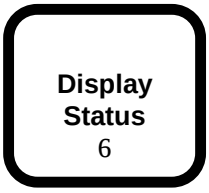
The RS-503/13-C3 recovery system utilizes four (4) pressure transducers which require periodic calibration. The "Calibrate" keypad switch is used to enter the calibration mode (see Maintenance Section on page 27 for Calibration Instructions).

Diagnostics

This keypad switch is for **Factory** assisted diagnostic purposes only and requires special code number to access.

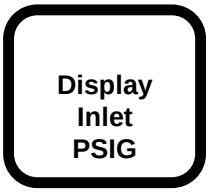
NOTE: *Pressing the "Diagnostic" keypad switch while unit is in operation will cause unit to shut off. Press "START" to resume operation.*

Display Status

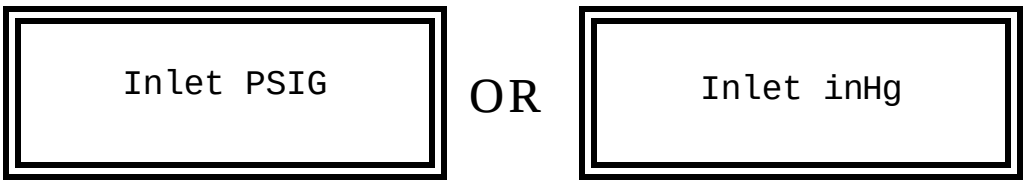


Depress "Display Status" keypad switch to view current operating status.

Display Inlet PSIG



Depress "Display Inlet PSIG" keypad switch to view current Inlet pressure.

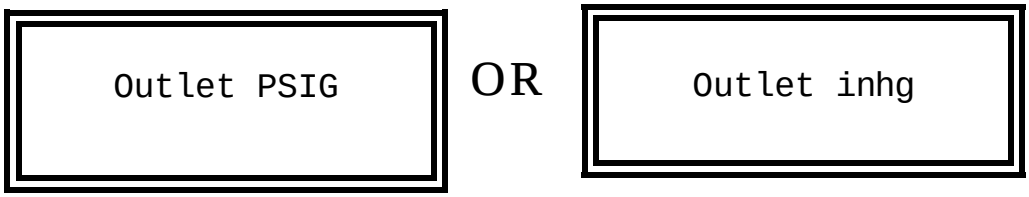


NOTE: *When operating the RS-503/13-C3 unit in the* RECOVERY MODE*, "Inlet PSIG" is the current pressure within the system under recovery. When operating in* the CHARGING MODE*, "Inlet PSIG" is the current pressure within the refrigerant recovery cylinder.*

Display Outlet PSIG

Display Outlet PSIG
7

Depress “Display Outlet PSIG” keypad switch to view current outlet pressure.

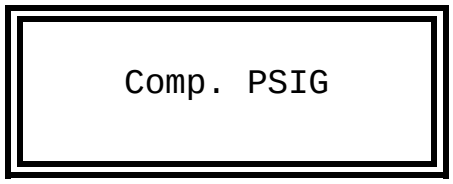


NOTE: *When operating the RS-503/13-C3 unit in the* RECOVERY MODE*, “Outlet PSIG” is the current pressure within the refrigerant recovery cylinder. When operating in* the CHARGING MODE*, “Outlet PSIG” is the current pressure within the system being charged.*

Display Compressor PSIG

Display Comp. PSIG
8

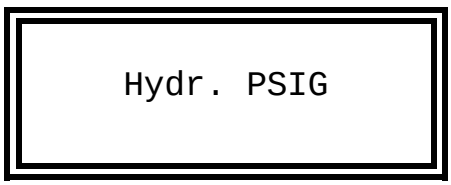
Depress “Display Comp. PSIG” keypad switch to view recovery compressor discharge pressure.



Display Hydraulic PSIG

Display Hydr. PSIG
9

Depress “Display Hydr. PSIG” keypad switch to view hydraulic pump output pressure.

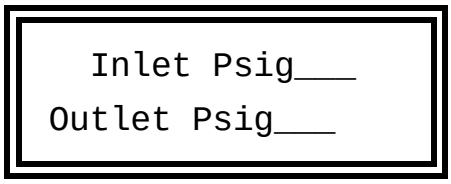


Alternate Display

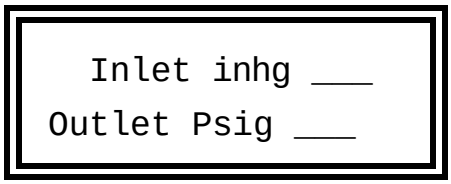
Alt. Display
0

Depress “Alt. Display” keypad switch to scroll thru and view the following pressure display sequences:

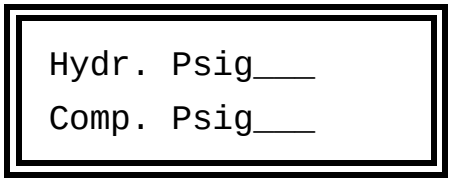
1.



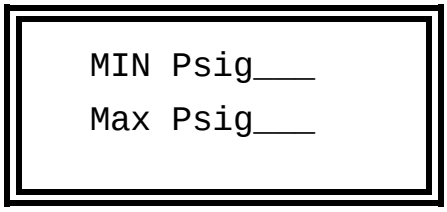
OR



2.



3.



NOTE: *Min. PSIG _ _ _ is the current selected “Low Level” recovery level. Max PSIG _ _ _ is the factory preset maximum permissible outlet (recovery cylinder) pressure. This pressure is not field adjustable.*

+/-

Not Used

< **>**

These keypad switches are used to calibrate the pressure transducers in the Calibration Mode.

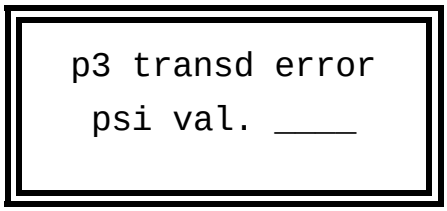
Fault Status

There are three (3) conditions which can cause the RS-503/13-C3 unit to shut down on **FAULT**:

1. Pressure Transducer Malfunction

If any one or more of the four pressure transducers malfunction, the system will shut down on **FAULT**. The Red LED on the keypad will energize and the display will indicate which transducer is at fault, for example:

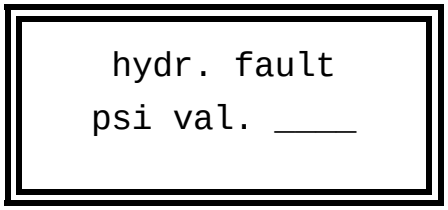
The recovery unit will not operate until the transducer problem has been corrected.



2. Hydraulic System Malfunction

If a malfunction is detected in the hydraulic system, the unit will shut down on **FAULT**, the Red LED will energize and the display will indicate:

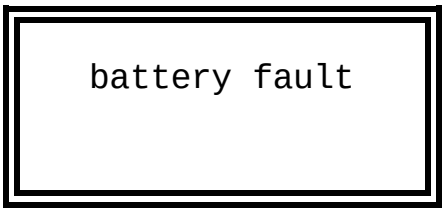
The recovery unit will not operate until the hydraulic system malfunction has been corrected.



3. Battery Failure

The microprocessor controller incorporates a permanent self-charging battery back-up that allows the RS-503/13-C3 unit to be unplugged and transported without loosing calibration. Should the battery back-up malfunction, the system will shut down on **FAULT**. The Red LED on the keypad will energize and the display will indicate:

This condition should only occur after long periods of storage. If a BATTERY FAULT occurs, plug the recovery unit into a 120 volt receptacle and let stand thirty (30) minutes.



Caution: Always re-calibrate all transducers following a BATTERY FAULT condition.

RECOVERING REFRIGERANT

Caution: DO NOT MIX REFRIGERANT TYPES! The RS-503/13-C3 **recovery unit will not separate different refrigerant types. Be sure that you know the refrigerant type in the system being serviced and in the recovery cylinder that you will be using.**

1. Connect refrigeration manifold gauge set to the refrigeration system under recovery and the RS-503/13-C3 refrigeration recovery unit as illustrated in figure 2. **DO NOT OPEN** the refrigeration system service access valve at this time.

NOTE: *Optional filter-drier may be included in Hook-up if desired.*

2. Connect a DOT-3AA high pressure refrigerant cylinder to the recovery unit "TANK PORT" as illustrated in figure 2. **DO NOT OPEN** recovery cylinder valve at this time.

WARNING: Pressure in the braided hose can exceed 1200 PSIG <u>during the recovery process. NEVER use any hose other than the braided stainless steel hose</u> (rated at 2000 PSIG working pressure) furnished with the RS-503/13-C3 **recovery unit. Use of improper hose can result in operator injury and/or release of refrigerant to the atmosphere.**

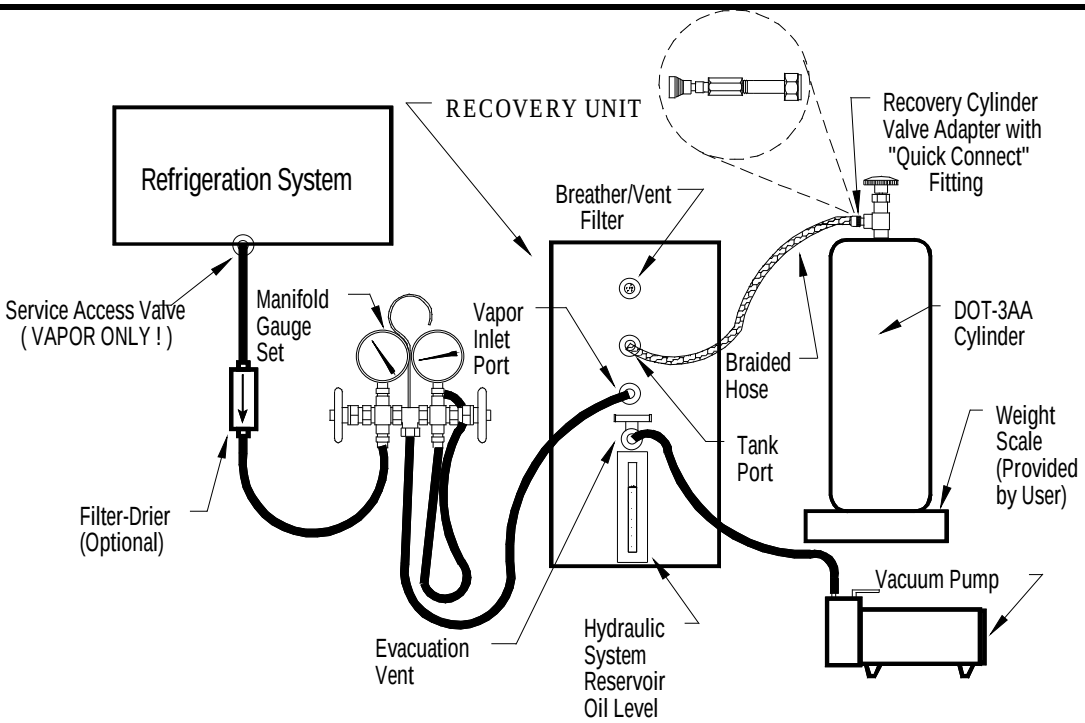


FIGURE 2. ***Recovery Mode Hook-Up***

Caution: NEVER attempt to bleed or purge hose by pushing on the "Quick-Connect" stem or valve body. Doing so will damage parts causing malfunction.

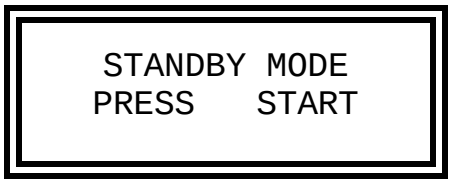
3. Open the “EVACUATION VALVE” on the recovery unit and bleed-off, into empty refrigerant cylinder, any residual pressure that may be present. Leave Valve Open.
4. Connect vacuum pump to the recovery unit “EVACUATION VALVE” as illustrated in Figure 2. **DO NOT START** vacuum pump at this time.

NOTE: *The Following evacuation procedure allows the complete recovery circuit including the recovery cylinder to be evacuated.*

5. Verify that the refrigeration system service access valve or valves are closed.
6. Verify “EVACUATION VALVE” is open.
7. If recovery cylinder requires evacuation, open cylinder valve now. However, if evacuation is not necessary, **or if the cylinder is under pressure**, **DO NOT OPEN** valve!
8. Open low side valve on gauge manifold.
9. Start vacuum pump.
10. Monitor the evacuation process. When complete evacuation has been achieved, **close** the “EVACUATION VALVE” and remove vacuum pump. The recovery unit is now ready to begin recovery.
11. Place the recovery cylinder on an appropriate weight scale *(provided by user)* adjacent to the recovery unit. Position the scale approximately six (6) inches from side of recovery unit so that when the recovery cylinder is placed on the scale platform, it will be in the direct air stream of one of the recovery unit’s ventilator fans. While this is not necessary for the recovery unit to function, it does facilitate recovery, especially when operating in high ambient temperature conditions.

NOTE: *The weight scale may not be necessary when recovering small amounts of refrigerant if it is known that the recovered refrigerant when added to any refrigerant already in the cylinder will not exceed 80% of the recovery cylinder’s storage capacity.*

12. Plug recovery unit power cord into 120VAC outlet. On initial power-up, the recovery unit display will read:



DO NOT press START at this time!

13. Be sure the recovery cylinder is centered on weight scale platform.
14. **OPEN** Recovery Cylinder valve.
15. **OPEN** refrigeration system service access valve.
16. TO BEGIN RECOVERY---depress the START Key on the recovery unit Keypad. The display will change to read:

transfer IN PROGRESS

17. Select desired "Low Limit" recovery level by depressing either the 0 PSIG, 10 InHg or 20 InHg Key.

NOTE: *If no "Low Limit" selection is entered, the recovery process will automatically terminate at 0 PSIG. Also, the "Low Limit" may be changed anytime during the recovery process.*

18. Carefully monitor the weight scale to be absolutely sure **NOT TO FILL** the refrigerant cylinder to **more than 80%** of its storage capacity. You **MUST** know the weight capacity of the recovery cylinder you are using!

Warning: Overfilling recovery cylinder can result in release of refrigerant to the atmosphere and/or possible operator injury!

19. Also, periodically observe hydraulic system reservoir oil level. Be sure oil level does not drop below RED "Low Level" mark on oil level gauge. Refer to Maintenance Section on page 25 for oil adding instructions.
20. When the recovery process is complete (indicating the preset "Low Limit" has been reached) unit operation will terminate and the display will indicate:

trans complete Inlet PSIG____

Alternating with...

Fan off delay sec to off __

At completion of transfer process, the two ventilator fans will continue to run for one minute to cool down recovery compressor. The display will indicate number of seconds remaining until the fans go OFF.

a) Depress the STOP Key.

b) Close valve on manifold gauge set.

c) Close recovery cylinder valve.

d) Close refrigeration system access valve.

Caution: Recovery hose MUST be de-pressurized below 250 psig before de-coupling from the Recovery Unit or Recovery Cylinder. De-coupling above 250 psig will damage "Quick-Connect" coupler. .

e) To de-pressurize recovery hose, connect a standard refrigeration hose between the "Evacuation" valve on the recovery unit and a refrigeration cylinder that is under less than 150 psig pressure.

Open refrigerant cylinder valve first, then open "Evacuation" valve and bleed-off pressure into cylinder. Once pressure has been properly bled off, close cylinder valve and "Evacuation" valve. Remove hose and cylinder.

f) Disconnect braided hose "Quick Connect" from recovery unit "TANK PORT".

g) Loosen adapter fitting at recovery cylinder valve and bleed-off any remaining pressure from braided hose.

h) Remove braided hose and valve adapter fitting from recovery cylinder.

i) Disconnect power to recovery unit.

Or....should recovery cylinder become filled:

21. If recovery cylinder becomes filled (*reaches 80% of its storage capacity*) before the recovery process has been completed, proceed as follows….

a) Depress the STOP Key.

b) Close manifold set valve.

c) Close recovery cylinder valve.

Caution: Recovery hose MUST be de-pressurized below 250 psig before de-coupling from the Recovery Unit or Recovery Cylinder. De-coupling above 250 psig will damage "Quick-Connect" coupler. .

d) To de-pressurize recovery hose, connect a standard refrigeration hose between the "Evacuation" valve on the recovery unit and a refrigeration cylinder that is under less than 150 psig pressure.

Open refrigerant cylinder valve first, then open "Evacuation" valve and bleed-off pressure into cylinder. Once pressure has been properly bled off, close cylinder valve and "Evacuation" valve. Remove hose and cylinder.

e) Disconnect braided hose "Quick Connect" from recovery cylinder valve adapter.

f) Remove valve adapter from full cylinder and re-install on additional evacuated recovery cylinder (leave valve adapter *slightly loose* at this time).

g) Reconnect braided hose “Quick Connect” to recovery cylinder valve adapter and allow a second or two for adapter fitting to purge itself. Then tighten adapter.

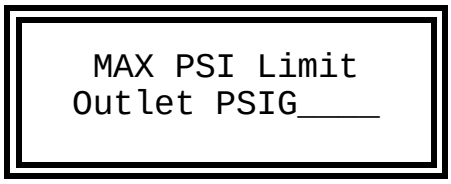
h) Place recovery cylinder on center of weight scale and OPEN both the cylinder valve and gauge set valve.

i) Depress the START Key to resume recovery process

j) **REPEAT STEPS** 16 thru 21 as necessary.

Or....should Recovery Unit shut down on “MAX PSI Limit:

22. Should recovery cylinder pressure reach the factory preset “MAX PSI Limit” before reaching eighty (80%) percent of its rated storage capacity, the recovery process will terminate, and the display will indicate:



Proceed as follows:

a) If not already done, position weight scale and recovery cylinder adjacent to the recovery unit so recovery cylinder will be in the direct air stream of one of the unit’s ventilator fans. This will speed up de-superheating of the refrigerant gas in the cylinder and lower cylinder pressure.

b) Monitor “MAX PSI LIMIT” pressure as indicated above. When the pressure drops below 800 PSI, press “START” to resume the recovery process. Return to Step 16.

CHARGING RECOVERED REFRIGERANT BACK TO SYSTEM

1. First, using standard charging procedure, charge refrigerant **from the recovery cylinder <u>DIRECT</u> to the system** until the pressures equalize.

Warning: Never apply pressure in excess of 250 psig to the Recovery Unit's "Vapor Inlet" port. Applying pressure to the "Vapor Inlet" port in excess of 250 psig will result in damage to the unit and/or release of refrigerant to the atmosphere. .

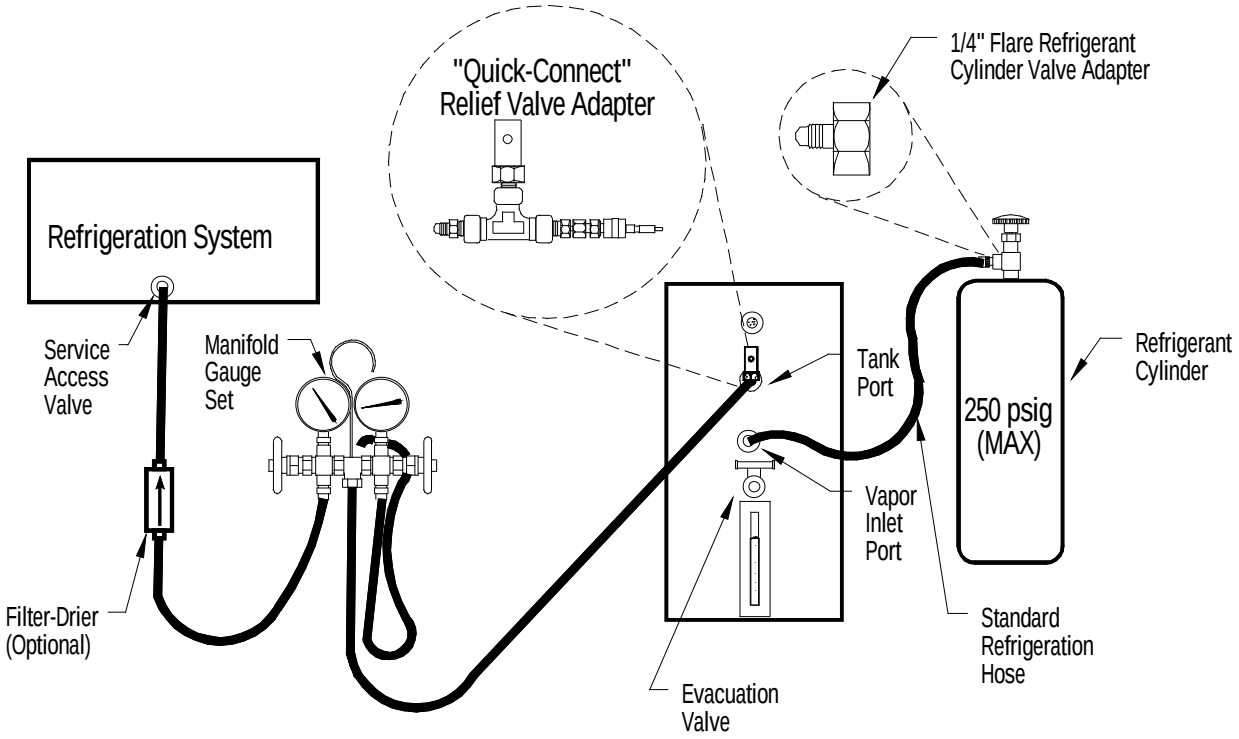


FIGURE 3. ***Charging Mode Hook-Up***

2. Once the pressure between the system and the recovery cylinder has equalized, proceed as follows (see Figure 3):
   a) Close recovery cylinder valve.
   b) Close gauge set valve.
   c) Leave Refrigeration System service access valve open.
   d) Connect center hose of gauge set manifold to the ¼" flare end of "Quick-Connect"/Relief Valve adapter.
   e) Open gauge set valve.
   f) Loosen hose at "Quick-Connect"/Relief Valve adapter and purge hose, then retighten.

g) Plug the “Quick Connect”/Relief Valve adapter into the “TANK PORT” on the recovery unit.

NOTE: *The Relief Valve will prevent accidental over-pressurization of refrigeration manifold set and hoses in the event a valve is inadvertently left closed during the charging process.*

h) Using the ¼” flare cylinder valve adapter, connect standard refrigeration hose to recovery cylinder (Maximum 250 PSIG).

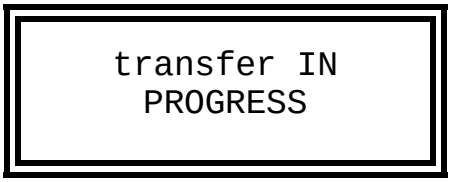
NOTE: *Using a standard refrigeration hose during this part of the charging procedure is permissible because cylinder pressure should now be below 250 psig.*

i) **Crack open** cylinder valve and purge hose. Then, while hose is still purging, quickly connect valve stem depressor end of hose to the “Vapor Inlet” port on recovery unit.

j) Completely open recovery cylinder valve.

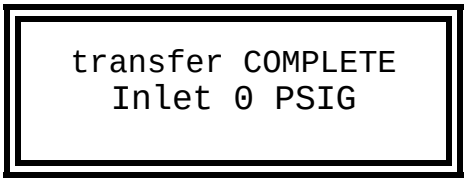
k) Depress 0 PSIG “Low Limit” Key

l) Depress START, the display will read:



NOTE: *When in the CHARGING mode, this indicates transferring refrigerant from the recovery cylinder back to the system.*

When recovery cylinder pressure drops to 0 PSIG, the charging process will automatically terminate and the display will indicate:



NOTE: *This means transfer from the recovery cylinder to the system has been completed and recovery cylinder pressure is now 0 PSIG*

Recovering Different Refrigerant Types

Always completely evacuate the RS-503-13H recovery unit before recovering a different refrigerant type (see “Recovering Refrigerant” Steps 1 thru 10 beginning on page 16).

Caution: DO NOT MIX REFRIGERANT TYPES! The RS-503/13-C3 recovery unit will not separate different refrigerant types.

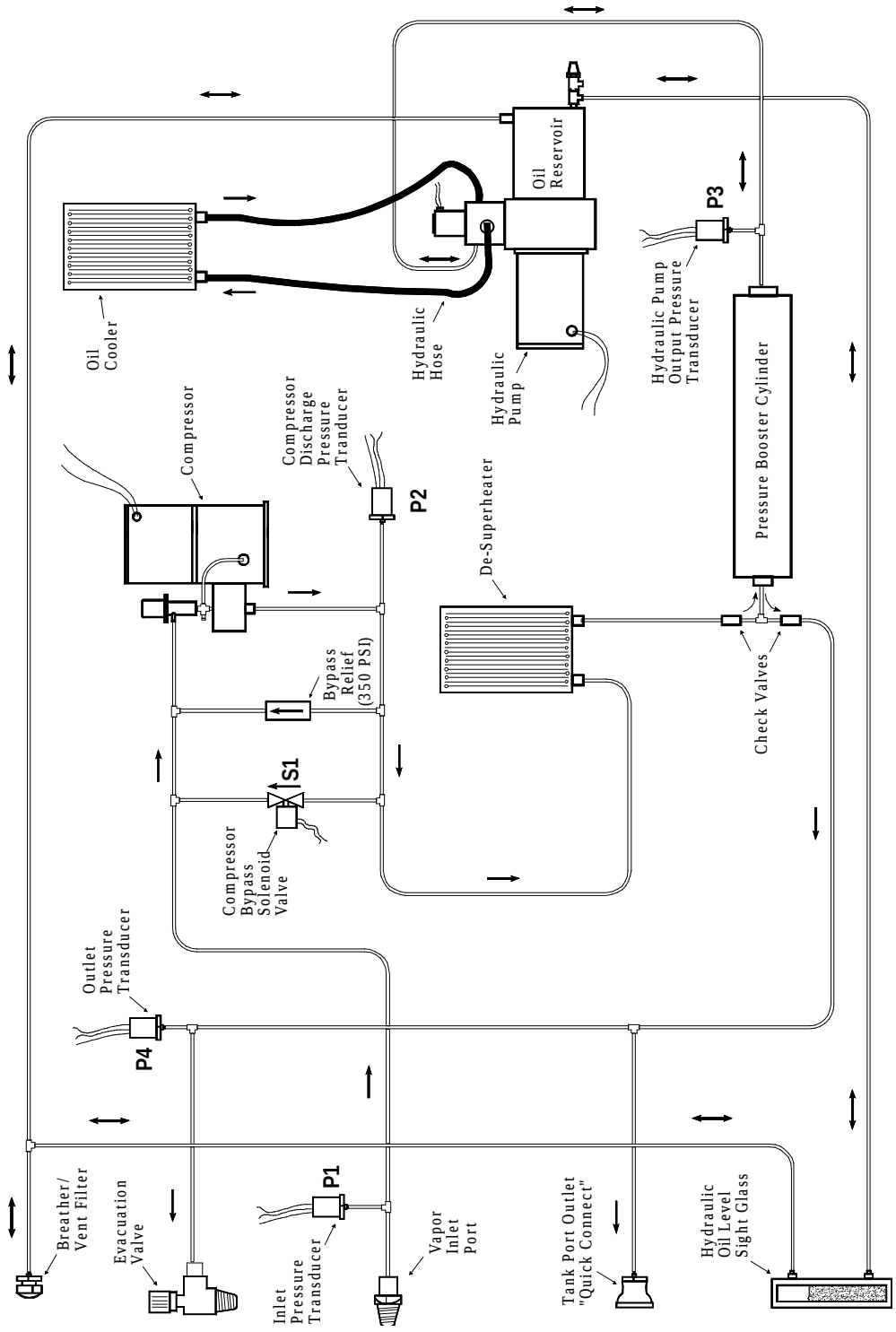


FIGURE 4. ***Flow Diagram***

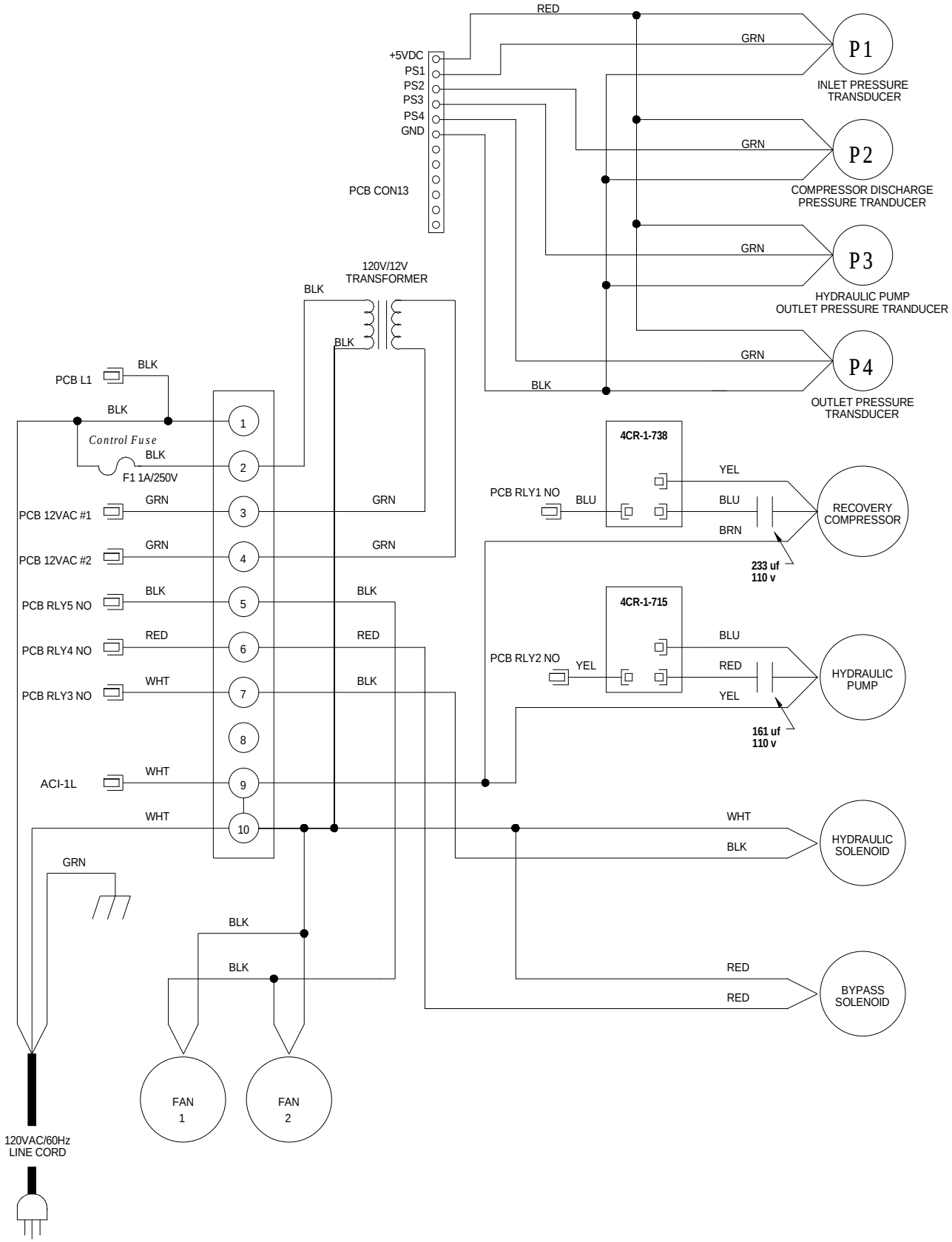


FIGURE 5. ***Electrical Schematic***

MAINTENANCE

When to Add Oil

When unit is operating, if level in oil level sight glass drops below RED "Low Level" marker, add oil. The recovery unit **will not** function properly if the oil level is allowed to drop below the "Low Level" mark.

To add oil to hydraulic system, proceed as follows:

a)..Allow unit to continue to operate.

b)..Remove back panel from recovery unit.

c)..Connect standard refrigeration-type hand operated oil pump and hose to oil charging/drain angle valve on bottom end of oil reservoir.

d)..Connect pump inlet to container of 5GS (*or equivalent*) refrigeration oil.

e)..Open charging/drain angle valve and VERY SLOWLY add oil until the oil level in the oil level gauge fluctuates between the two RED oil level marks. DO NOT over fill!

f).. Close charging/drain valve.

g)..Replace back panel on unit.

Caution: **Use *5GS* or equivalent Refrigeration Oil only.**

Changing Oil (Hydraulic System Reservoir)

As a general rule, the oil in the hydraulic system reservoir should be changed annually. However, the frequency of oil changes is more a function of how much the recovery unit is used. If the unit is used only on occasion, it may not be necessary to change oil for long periods of time, so long as the oil appears clean in the oil level sight glass.

Oil Changing Procedure

a) Unplug unit. The oil cannot be drained from the reservoir while recovery unit is operating.

b) Remove back panel from recovery unit.

c) Connect center hose of refrigeration gauge manifold set to the "Vapor Inlet" port of the recovery unit.

d) Connect low side hose on manifold set to a pressure source, (*such as a regulated nitrogen cylinder*), and apply 150 psi pressure (**DO NOT EXCEED 250 PSI**) to "Vapor Inlet".

NOTE: *This step is necessary to push the "Free Floating" piston in the "Pressure Booster Cylinder" to the end of the cylinder, thereby emptying the oil trapped in the cylinder into the oil reservoir.*

e) Remove pressure source.

f) Open "Evacuation Valve" and bleed off pressure from recovery unit, then re-close valve.

g) Remove manifold gauge set.

h) Observe oil level in oil level gauge. Mark this level on gauge - this is the level you will recharge to.

i) Connect a standard refrigeration hose to oil reservoir charging/drain valve.

j) Place opposite end of hose into appropriate container for receiving oil from reservoir.

k) Open reservoir valve and drain oil into container.

NOTE: *To promote drainage, it may be necessary to apply a very slight pressure (2 psi maximum) to the Breather/Vent port..*

l) Once all oil has drained from oil reservoir, connect hand operated oil pump to reservoir valve and container of 5GS or equivalent refrigeration oil.

m) Slowly add oil to reservoir until the oil level in the oil level gauge reaches the original level previously marked in step h.

n) Close reservoir valve and remove oil pump.

o) Reinstall back panel on unit.

Cleaning Cooling Coils

Cooling coils must be kept clean. To clean, remove back panel from unit and gently blow dust from coils. If using compressed air, do not exceed 25 psi. Be very careful not to bend over fins. If any fins are inadvertently bent over, they must be straightened back out, using an appropriate fin comb.

Pressure Transducer Calibration

The RS-503/13-C3 recovery unit utilizes four (4) pressure transducers: “Inlet Pressure”; “Compressor Discharge Pressure”; “Hydraulic Output pressure” and “Outlet Pressure”. All four pressure transducers must be periodically checked for proper calibration and calibrated when needed.

Calibration Procedure

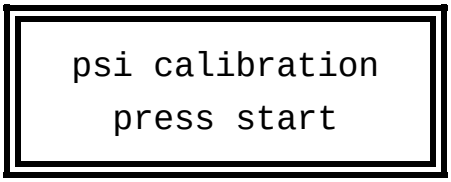
1. Open “Evacuation Valve” and bleed-off any residual pressure in recovery unit into empty refrigerant cylinder.

2. Leave “Evacuation Valve” **OPEN TO ATMOSPHERE** during the entire calibration procedure. The unit **MUST remain at atmospheric pressure** during calibration.

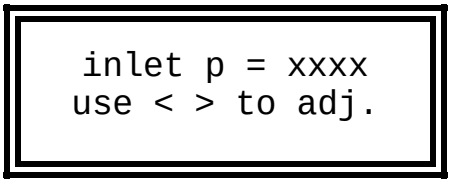
3. Connect valve stem depressor end of refrigeration hose to “Vapor Inlet Port”. Leave other end of hose **open to the atmosphere**.

4. Depress the “Calibrate” keypad switch to enter calibration mode. The display will ask for the **Security Code Number**.

5. Enter Security Code Number “47” by depressing the “4” and “7” keypad switches. Display will change to read:

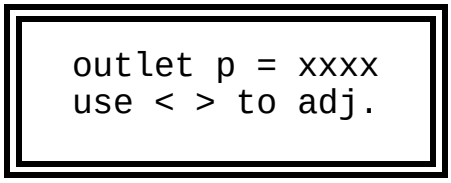


6. To begin calibration, press the “Start” keypad switch. Display will read:

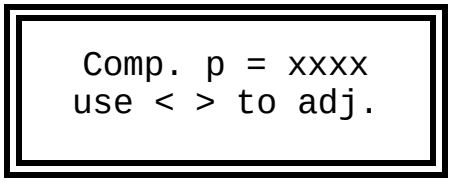


The “Inlet” pressure should be displaying 00.00 PSIG. If it is not, use the “<” or “>” keypad switch to adjust the displayed value up or down as necessary to read 00.00.

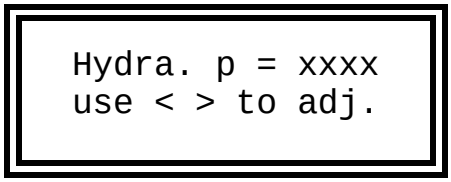
7. Depress "Calibrate" keypad switch again to advance to next pressure transducer. Display will change to read:



8. Depress "Calibrate" keypad switch again to advance to next pressure transducer. Display will change to read:



9. Depress "Calibrate" keypad switch again to advance to next pressure transducer. Display will change to read:



10. Once all four (4) pressure transducers have been properly calibrated, depress the "STOP" keypad switch to exit the Calibration Mode.

11. Remove hose from "Vapor Inlet" port and evacuate RS-503/13-C3 recovery unit.

12. Close "Evacuation" valve.

Field Repair

It is recommended that the RS-503/13-C3 recovery unit be returned to Redi Controls for repair. Only the most minor of repairs should be attempted in the field.

NOTE: *If you have a problem with your RS-503/13-C3 recovery unit, or have a question about operation of the unit, call Redi Controls technical assistance at 1-800-626-8640.*

NOTES

REDI CONTROLS, INC.

Equipment Warranty

Within one year from date of purchase, REDI CONTROLS' will repair any Redi Controls product being used by the original purchaser which is defective due to faulty materials or workmanship. REDI CONTROLS has the right to repair or replace a defective part or replace the entire product.

To file a Warranty claim on any system or component, return the defective unit to the address below, or other location as REDI CONTROLS directs, freight prepaid.

This Warranty <u>does not</u> apply to or cover:

Damages beyond REDI CONTROLS**'** control.

Malfunctions that result from failure to properly connect, operate or maintain a product in accordance with instructions provided by REDI CONTROLS.

Failures of equipment due to abuse, accident or negligence.

Damages from, or part failures due to equipment not being connected or operated per REDI CONTROLS' instructions, per applicable codes or ordinances, or in accordance with good trade practices.

Labor or other charges incurred in removing or reconnecting any REDI CONTROLS product or part.

Damages resulting from use of a REDI CONTROLS product for any purpose other than for which it was designed and manufactured.

Any implied warranty of merchantability or fitness for any particular purpose, occurring after the Warranty Period.

Loss of use, loss of time, inconvenience, rental for substitute products, loss of business, loss of income, or any other consequential damages resulting from use or failure of any REDI CONTROLS product.

Inquiries to: REDI CONTROLS at 755 E. Main Street, Greenwood, Indiana, 46143

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