

OPERATION MANUAL

RRC771

Refrigerant Management Center

For Use With *FRIGC* FR-12 Refrigerant

RTI TECHNOLOGIES, INC.

4075 East Market Street
York, PA 17402

Manual P/N 035-80370-00

BEFORE USING THE RRC771

Check for any shipping damage. Place a claim with carrier if damage is discovered. **DO NOT USE A DAMAGED UNIT.**

Complete and return the Warranty Card to activate technical support service and warranty coverage.

Warranty claims can not be honored without this warranty card on file.

The RRC771 should not be operated or serviced by any person who has not read all the contents of this manual. Failure to read and comply with these instructions or any one of the limitations noted herein can result in serious injury and/or property damage.

These general instructions describe normal operation and maintenance situations encountered with the RRC771. The instructions should not be interpreted to anticipate every possible contingency.

It is the responsibility of the owner/user to operate the RRC771 in accordance with all specifications and laws which may apply.

The following pages contain rules for safe operation of the RRC771. Taking precedence over any specified rule listed herein, however, is the most important rule of all:

USE COMMON SENSE

A few minutes spent reading these instructions can make an operator aware of dangerous practices to avoid and precautions to take for his own safety and the safety of others.

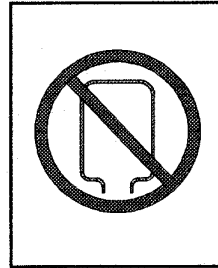
A regular schedule of inspection of the RRC771 should be established and records maintained with special attention given to Hoses, Compressor Oil Level, Moisture Indicator, and Filters.

SAFETY PRECAUTIONS

- Recover, Recycle, and Charge only the refrigerant for which the machine is configured.
- Wear safety glasses and protective gloves. Refrigerant has a very low boiling point and can cause frostbite.
- Follow the RRC771 operating procedures sequentially to avoid prematurely disconnecting hoses or opening valves which may release refrigerant to the atmosphere.
- Do not expose the RRC771 to moisture or operate

in wet areas.

- Use the RRC771 in locations with mechanical ventilation that provides at least four air changes per hour.
- Disconnect power before performing any maintenance or service on the RRC771.
- Avoid using an extension cord with the RRC771. If necessary, use a good condition, UL listed, 3-wire grounded, #14 AWG extension cord of the shortest possible length.
- Connect the RRC771 to a properly protected, grounded receptacle. Do not over load the circuit.
- Do not allow the RRC771 to remain unattended in the Charge Mode with power On. The Internal Cylinder Heater will be energized creating a high pressure condition.



NEVER TURN THE CYLINDERS UP-SIDE-DOWN.

DO NOT CONNECT THE RRC771 TO THE LIQUID SIDE OF ANY A/C SYSTEM WITH A CAPACITY GREATER THAN 4 LBS.

REFRIGERANT IN A/C SYSTEMS HAVING LARGER CAPACITIES MUST BE RECOVERED FROM THE VAPOR SIDE ONLY.

CAUTION

Avoid breathing refrigerant or lubricant vapor or mist.

Exposure may irritate eyes, nose and throat.

If accidental system discharge occurs, ventilate work area before resuming service.

Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.

RRC771

Table of Contents

Summary of A/C System Service 2

Functions Performed by the RRC771 3

Flow Diagram 26

Schematic 27

FILTER CHANGE

4 Times a Year

Technical Support

(8 AM to 5 PM Eastern)

800-468-2321

SUMMARY OF A/C SYSTEM SERVICE

FRIGC FR-12

[Per current EPA Regulations as of July 1996]

If A/C System is R12 - a “conversion” process is required:

- 1) Start with RRC771 having 3 to 5 pounds of refrigerant in the Internal Cylinder (See Page 9).
- 2) Check for leaks . If repairs are not required, use an RRC750, RRC770/R12, or the R12 side of a TC2770 to remove all R12 from the A/C System.
- 3) Install *FRIGC* FR-12 fittings and labels.
- 4) Connect RRC771 and perform Deep Vacuum for 5 minutes (See Page 17).
- 5) Charge POE oil per *FRIGC* instructions (See Page 19).
- 6) Charge *FRIGC* FR-12 per capacity requirements of A/C System (See Page 21).
- 7) Check for leaks.

If A/C System is already equipped with *FRIGC* FR-12 and repairs are not required:

- 1) Start with RRC771 having 3 to 5 pounds of refrigerant in the Internal Cylinder (See Page 9).
- 2) Connect RRC771 and perform a recover/recycle procedure (Recycle to Internal Cylinder - See Page 13).
- 3) Charge *FRIGC* FR-12 per capacity requirements of A/C System (See Page 21).
- 4) Check for leaks.

If A/C System is already equipped with *FRIGC* FR-12 and repairs are required:

- 1) Connect RRC771 and empty A/C System (Transfer refrigerant to DOT Cylinder, See Page 15)
- 2) Make repairs as required.
- 3) Start with RRC771 having 3 to 5 pounds of refrigerant in the Internal Cylinder (See Page 9).
- 4) Connect RRC771 and perform Deep Vacuum for 15 to 30 minutes (See Page 17).
- 5) Charge *FRIGC* FR-12 per capacity requirements of A/C System (See Page 21).
- 6) Check for leaks.

FUNCTIONS PERFORMED BY THE RRC771

Refer to Page 4 for Set-up and Hose Connections for the RRC771. Eight modes of operation can be selected using selector switches on the face of the control panel. Following is a brief explanation of each of these functions. Refer to the indicated pages for detailed instructions.

7 REMOVE OIL & NON-CONDENSABLE AIR

Non-condensable Air and Oil are removed from *FRIGC* as it is transferred into the Internal Cylinder. *If the Air is not purged, the RRC771 will shut down due to high pressure.*

9 TRANSFER NEW *FRIGC* INTO THE INTERNAL CYLINDER

New *FRIGC* is required for charging an A/C System. The Internal Cylinder with a liquid level sight glass provides a very accurate method for charging the A/C System.

11 TRANSFER REFRIGERANT FROM INTERNAL CYLINDER TO DOT CYLINDER

When the Internal Cylinder fills to capacity, the CYLINDER FULL Light will illuminate and the recovery process will stop. This condition is corrected by transferring some of the refrigerant from the Internal Cylinder to the DOT Cylinder.

13 TRANSFER REFRIGERANT FROM A/C SYSTEM TO INTERNAL CYLINDER

New *FRIGC* which has been transferred to the A/C System may need to be removed and recycled so that system repairs can be made. This *FRIGC* can therefore be recycled and transferred back into the Internal Cylinder for reuse. Current EPA Regulations allow recycled *FRIGC* to be returned only into the A/C System from which it was removed.

15 TRANSFER REFRIGERANT FROM A/C SYSTEM TO DOT CYLINDER

FRIGC which is of unknown purity (perhaps in the A/C System from a previous service procedure) can be transferred directly to the DOT Cylinder. Refrigerant is accumulated in this DOT Cylinder until the cylinder is full (Cylinder Full light will illuminate). This refrigerant must then be sent to an outside reclaim facility for re-processing.

17 DEEP VACUUM THE A/C SYSTEM

A deep vacuum should be drawn on any A/C System which has been opened for major component replacements. The deep vacuum will remove moisture (usually from humidity in the air) from the A/C System. A Deep vacuum will also speed up the transfer of new *FRIGC* into the A/C System.

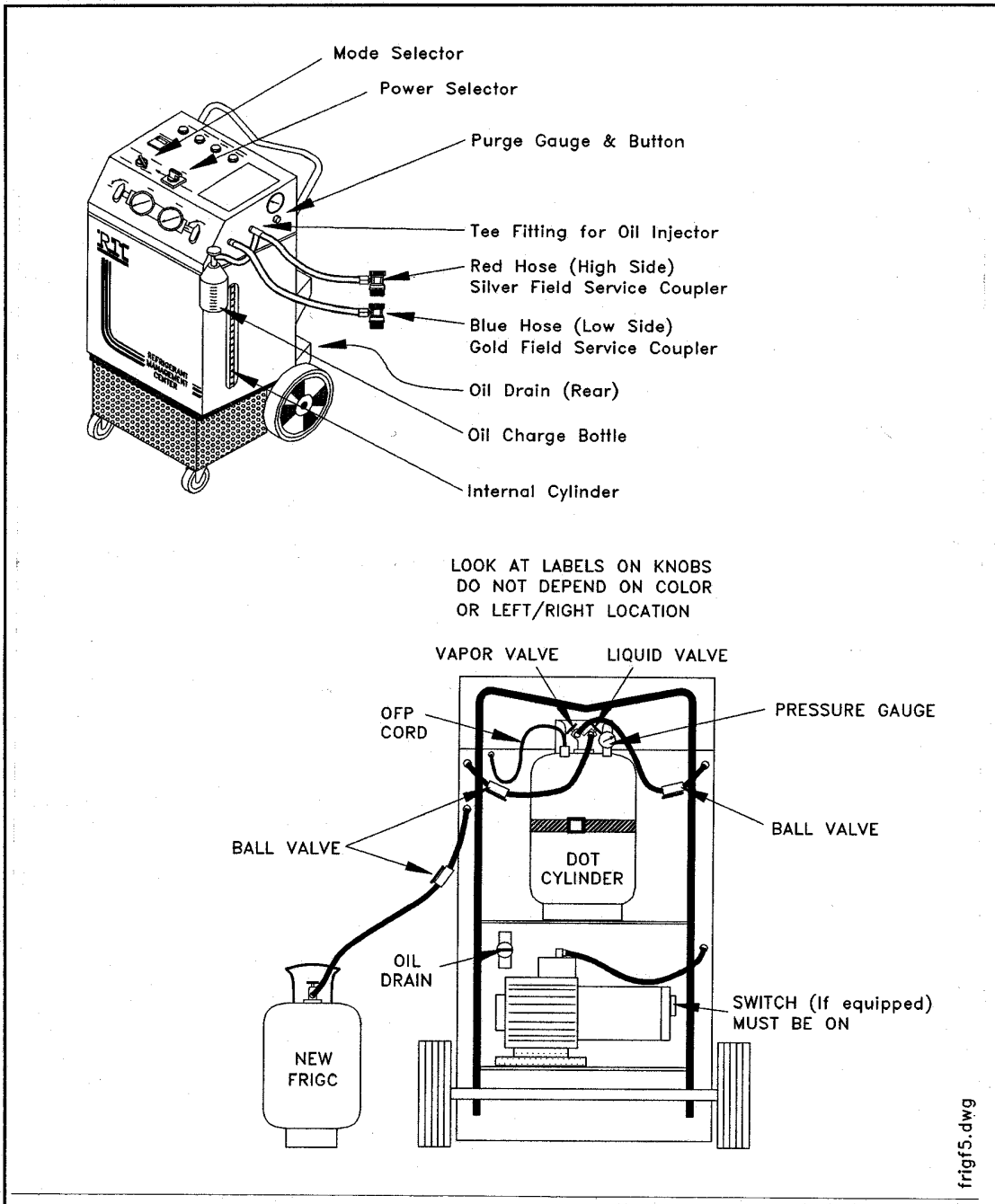
19 TRANSFER OIL INTO THE A/C SYSTEM

Follow manufacturer's recommendations for adding oil to the A/C System.

21 TRANSFER REFRIGERANT FROM INTERNAL CYLINDER TO A/C SYSTEM

The correct amount of new *FRIGC* is accurately transferred to the A/C System using the Internal Cylinder. A sight glass on the Internal Cylinder indicates the amount of liquid *FRIGC* transferred.

SET-UP AND HOSE CONNECTIONS FOR THE RRC771

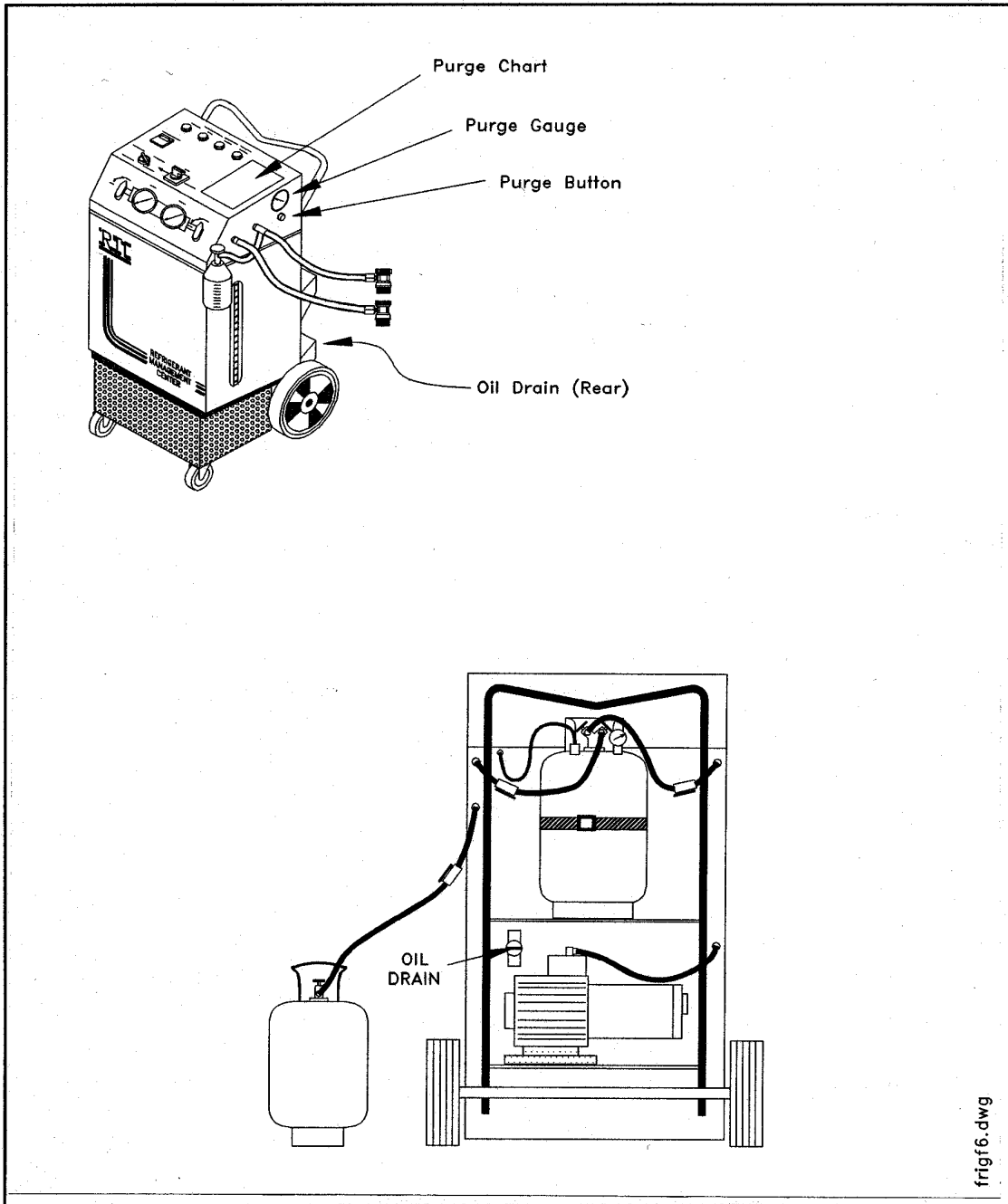


SET-UP AND HOSE CONNECTIONS FOR THE RRC771

Following is a Check List for setting up the RRC771 and connecting hoses prior to operation. Refer to the illustration on the left for location of components and proper connections.

- Set the DOT Cylinder on the rear shelf and securely fasten the web belt.
- Set a cylinder of new *FRIGC* on the floor next to the RRC771
- Plug the Vacuum Pump power cord into the receptacle on the rear of the RRC771
- Turn on the Vacuum Pump power switch (If equipped)
- Close the Oil Drain Valve
- Connect Yellow Hoses from DOT Cylinder: Liquid Valve to **upper** port on left side and Vapor Valve to port on right side on rear of the RRC771.
- Connect Yellow Hose from new *FRIGC* Cylinder to **lower** port on left side of RRC771. Connect the end with the Ball Valve to the RRC771 port.
- Insert OFP (Overfill Protection) Plug into Socket on DOT Cylinder (Carefully align guide on plug - do not force)
- Install Pressure Gauge on third Port of DOT Cylinder
- Mount Oil Charge Bottle (See instructions included with kit) on side of the RRC771 and attach short Red Hose to Tee Fitting on High Side Port. Close valve on top of the bottle.
- Install Field Service Couplers (Silver on Red Hose & Gold on Blue Hose). Connect Red and Blue Hoses to ports on side of RRC771.
- Deep Vacuum Hoses and DOT Cylinder:
 - 1) Turn Power Selector to OFF and plug power cord into 120 Volt power source
 - 2) Open Liquid and Vapor Valves on DOT Cylinder.
 - 3) Turn Low and High Manifold Gauge Valves to ON.
 - 4) Turn Power Selector to VACUUM. Check Vacuum Pump Oil Level as it is running. If low, turn Power Selector to OFF and add oil. Let Vacuum Pump run for 30 minutes to remove all air from the DOT Cylinder and hoses.

REMOVE OIL & NON-CONDENSABLE AIR



**REMOVE OIL & NON-CONDENSABLE AIR
(AFTER EACH USE)**

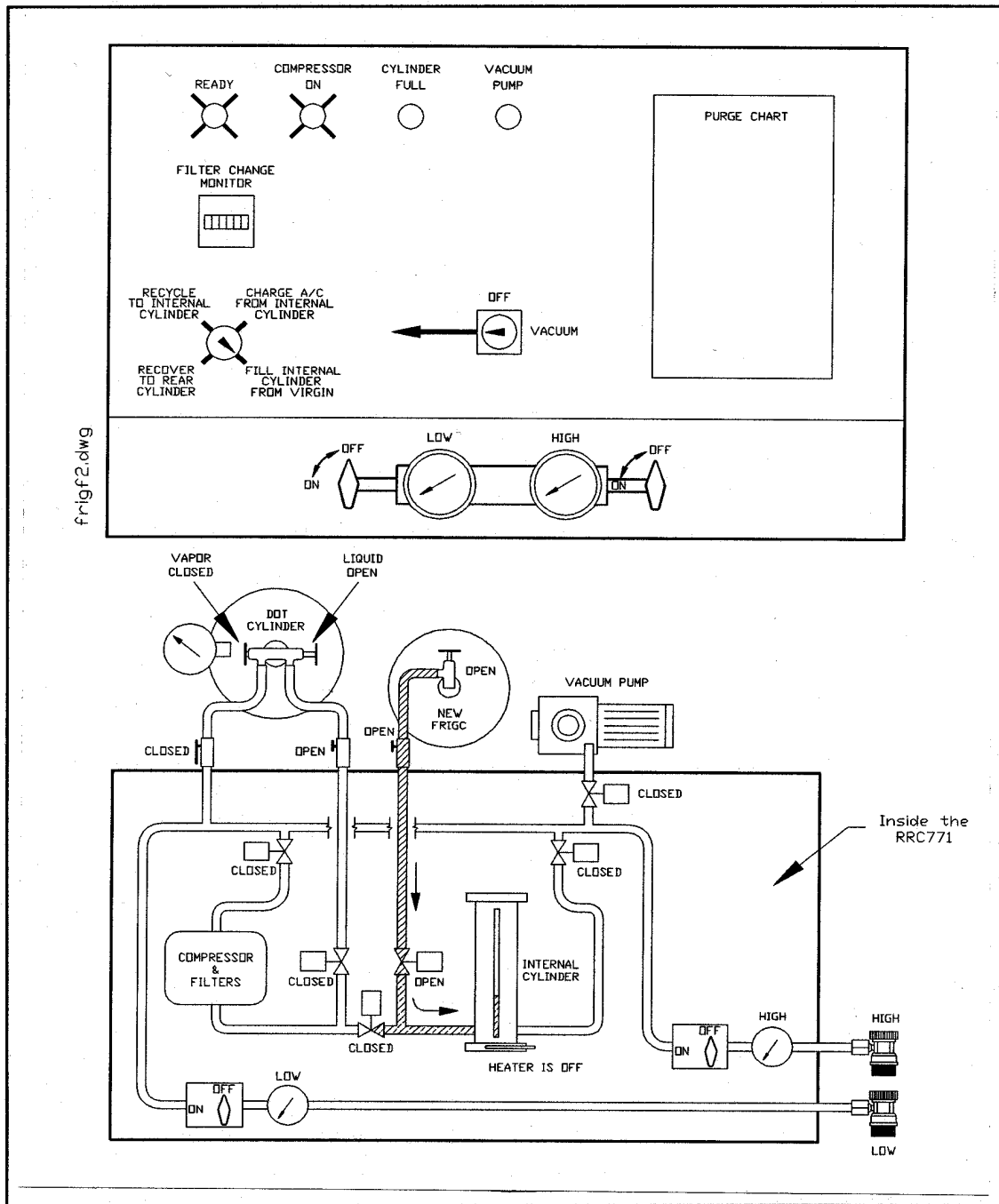
WARNING

Failure to purge Air **after each transfer** of refrigerant may cause the RRC771 to stop the transfer due to a high pressure shutdown. To ensure this never occurs, always be sure the Pressure Gauge on the right side of the unit is below 150 PSIG before starting any refrigerant transfer process.

Following is the procedure for removing any Oil or Non-condensable Air separated from the *FRIGC* (Refer to illustration on the left).

- 1) Set Power Selector to OFF.
- 2) Press and hold the Purge Button for 5 seconds. This button is located under the Pressure Gauge on the right side of the RRC771.
- 3) Place the measuring cup under the Oil Drain on the lower left side of the rear of the RRC771.
- 4) Open the Oil Drain to drain any oil removed from the *FRIGC*. **Leave Oil Drain open.**
- 5) Determine the room temperature and find the corresponding pressure on the Purge Chart printed on the top of the RRC771.
- 6) Compare the pressure determined in Step 5 with that indicated on the Pressure Gauge on the right side of the RRC771.
- 7) If the two pressures are about the same, go to Step 9, otherwise go to Step 8.
- 8) Press and hold the Purge Button until the Pressure Gauge above the button indicates about the same pressure as shown in the Purge Chart.
- 9) **Close the Oil Drain.**

TRANSFER NEW *FRIGC* INTO THE INTERNAL CYLINDER



TRANSFER NEW *FRIGC* INTO THE INTERNAL CYLINDER

Following is the procedure for transferring directly from a new cylinder of *FRIGC* into the RRC771 Internal Cylinder (Refer to illustration on the left). This procedure is done to ensure the Internal Cylinder has 3 to 5 pounds of refrigerant before charging an A/C System.

HOSE CONNECTIONS & VALVE POSITIONS

- 1) Close Vapor Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 2) Open Liquid Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 3) Open valve on cylinder of new *FRIGC*.
- 4) Open Ball Valve on Yellow Hose connected to new *FRIGC* Cylinder.
- 5) Turn Low and High Manifold Gauge Valves to OFF.

START THE TRANSFER

- 1) Set Mode Selector to FILL INTERNAL CYLINDER FROM VIRGIN.
- 2) Set Power Selector to ←.

DURING TRANSFER

- 1) READY Light will illuminate.
- 2) COMPRESSOR ON Light will illuminate.
- 3) The level of *FRIGC* will rise in the Sight Glass of the RRC771 Internal Cylinder.

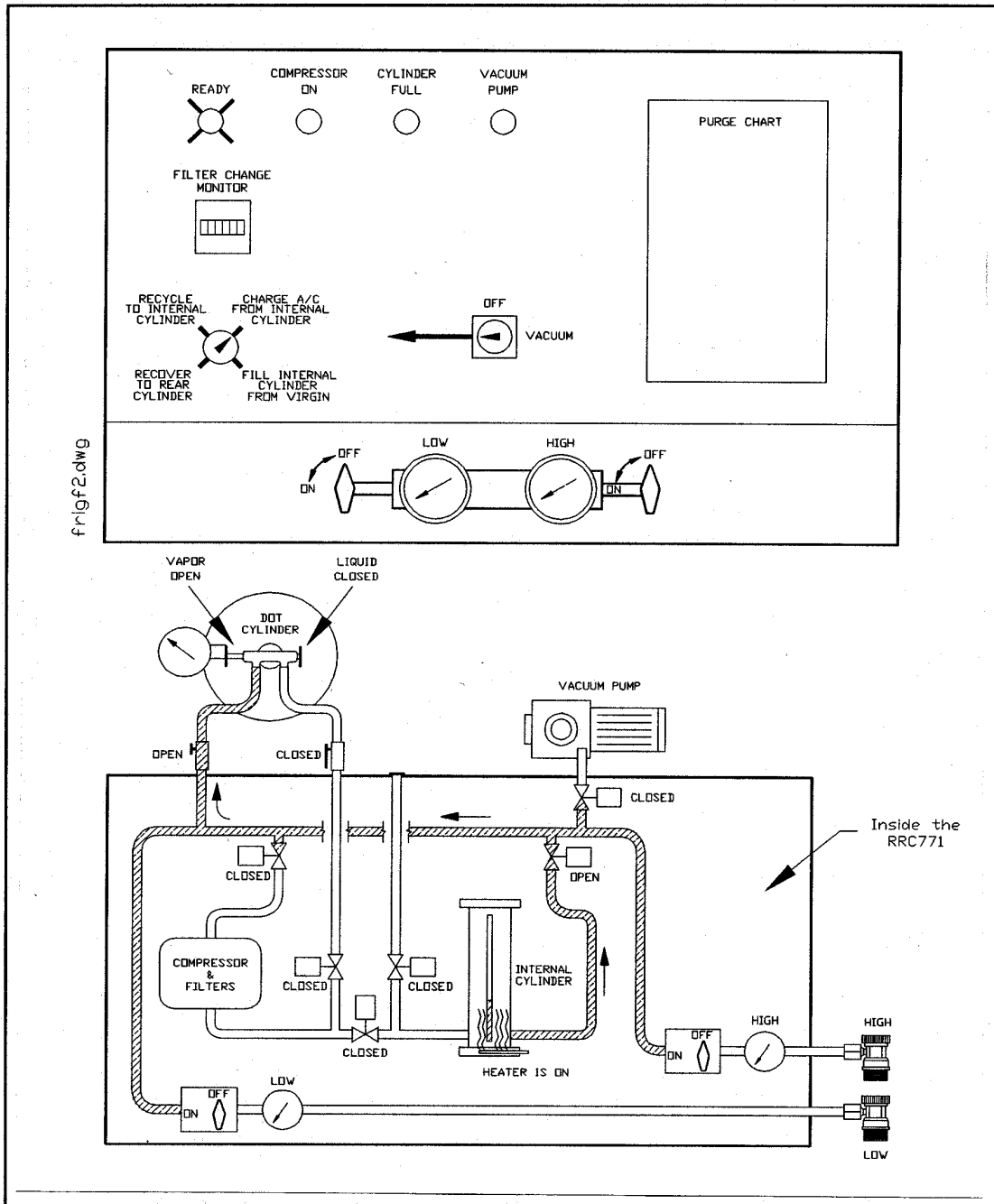
STOP THE TRANSFER

- 1) Turn Power Selector to OFF.
- 2) Close Liquid Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 3) Close valve on cylinder of new *FRIGC*.
- 4) Close Ball Valve on Yellow Hose connected to new *FRIGC* Cylinder.
- 5) Disconnect Yellow Hose (to new *FRIGC* Cylinder) from rear port of RRC771. Store Cylinder and hose in a safe place.

REMOVE OIL & NON-CONDENSABLE AIR

Refer to Page 7

TRANSFER REFRIGERANT FROM INTERNAL CYLINDER TO DOT CYLINDER



TRANSFER REFRIGERANT FROM INTERNAL CYLINDER TO DOT CYLINDER

Following is the procedure for transferring refrigerant from the RRC771 Internal Cylinder to the DOT Cylinder (Refer to illustration on the left). This procedure is required if the Internal Cylinder is too full or the RRC771 is to be stored for an extended period of time.

HOSE CONNECTIONS & VALVE POSITIONS

- 1) Close Liquid Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 2) Open Vapor Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 3) Turn Low and High Manifold Gauge Valves to OFF.

START THE TRANSFER

- 1) Set Mode Selector to CHARGE A/C FROM INTERNAL CYLINDER.
- 2 Set Power Selector to ←.

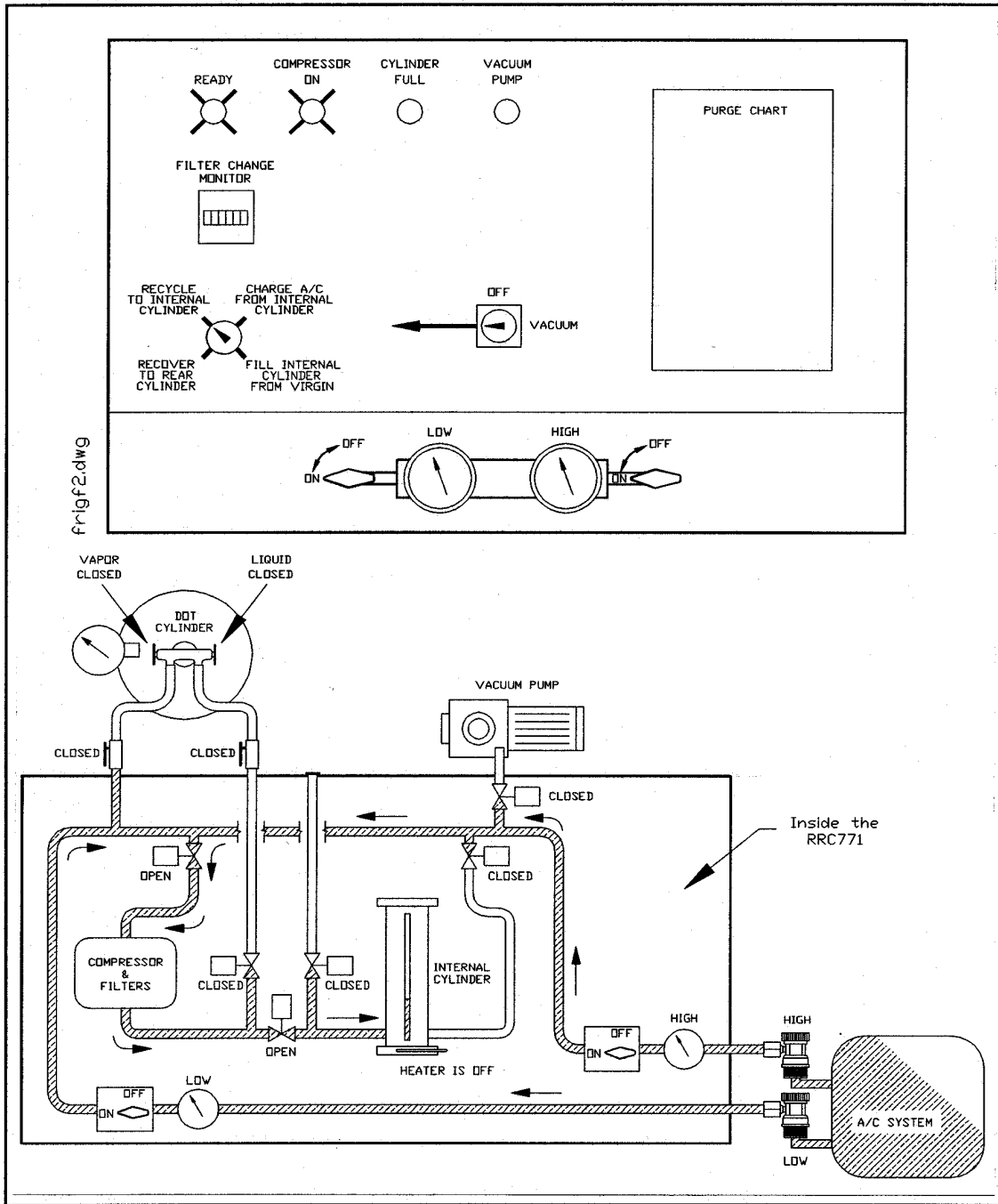
DURING THE TRANSFER

- 1) READY Light will illuminate.
- 2) The level of FRIGC will drop in the Sight Glass of the RRC771 Internal Cylinder.

STOP THE TRANSFER

- 1) Turn Power Selector to OFF.
- 2) Close Vapor Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.

TRANSFER REFRIGERANT FROM A/C SYSTEM TO INTERNAL CYLINDER



TRANSFER REFRIGERANT FROM A/C SYSTEM TO INTERNAL CYLINDER

Following is the procedure for transferring refrigerant from an A/C System to the RRC771 Internal Cylinder (Refer to illustration on the left).

HOSE CONNECTIONS & VALVE POSITIONS

- 1) Close Liquid Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 2) Close Vapor Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 3) Connect Field Service Couplers to A/C System.
- 4) Open both Field Service Couplers.
- 5) Turn Low and High Manifold Gauge Valves to ON.

START THE TRANSFER

- 1) Set Mode Selector to RECYCLE TO INTERNAL CYLINDER.
- 2) Set Power Selector to ←.

DURING THE TRANSFER

- 1) READY Light will illuminate.
- 2) COMPRESSOR ON Light will illuminate.
- 3) Pressure will drop on High and Low Gauges.
- 4) COMPRESSOR ON Light will cycle off and on.
- 5) Automatic transfer is complete when COMPRESSOR ON Light stays off for at least 2 minutes.

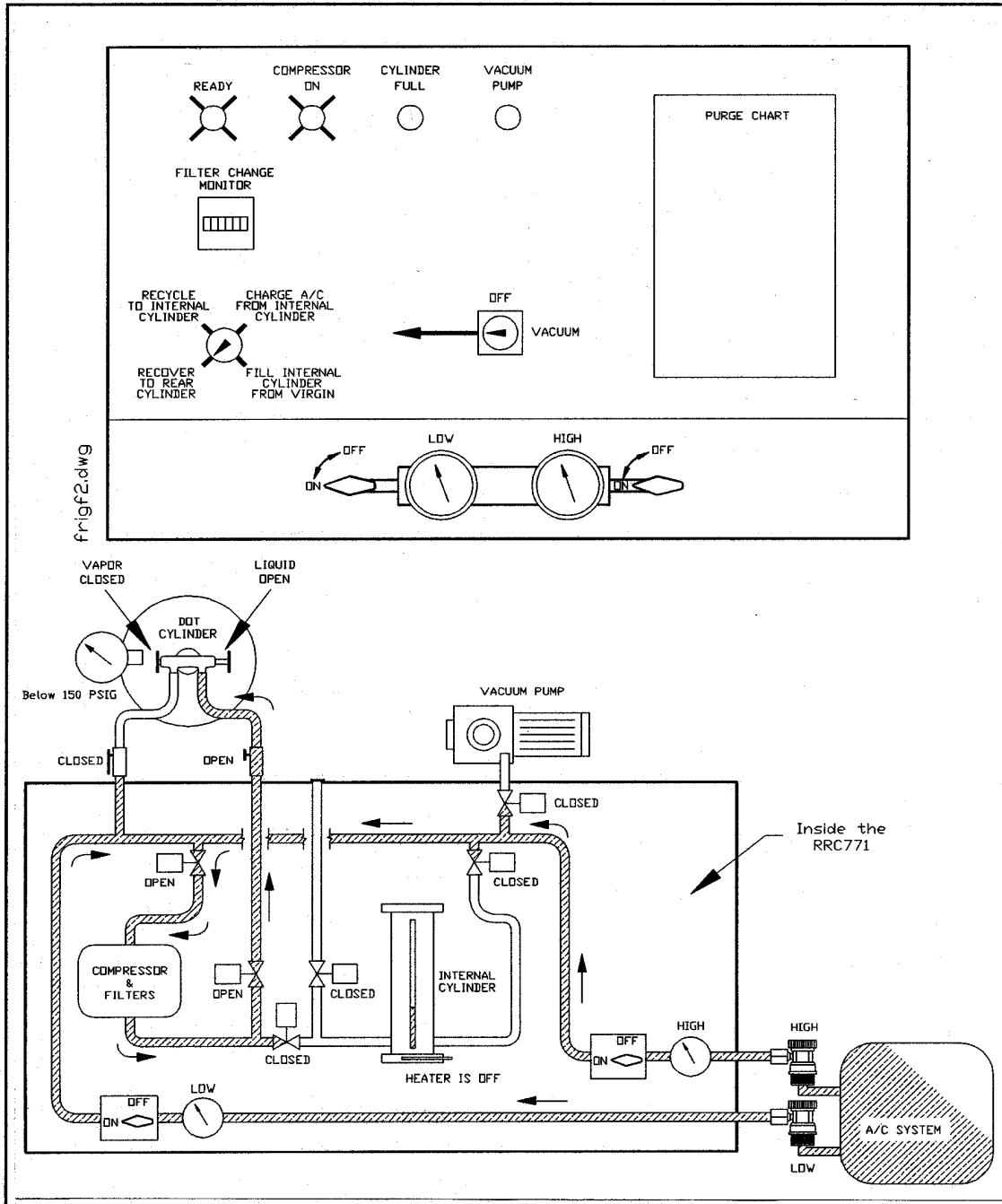
STOP THE TRANSFER

- 1) Turn Power Selector to OFF.
- 2) Close both Field Service Couplers.
- 3) Disconnect Field Service Couplers from A/C System.

REMOVE OIL & NON-CONDENSABLE AIR

Refer to Page 7

TRANSFER REFRIGERANT FROM A/C SYSTEM TO DOT CYLINDER



TRANSFER REFRIGERANT FROM A/C SYSTEM TO DOT CYLINDER

Following is the procedure for transferring refrigerant from an A/C System to the DOT Cylinder (Refer to illustration on the left):

HOSE CONNECTIONS & VALVE POSITIONS

- 1) Open Liquid Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 2) Close Vapor Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 3) Connect Field Service Couplers to A/C System.
- 4) Open both Field Service Couplers.
- 5) Turn Low and High Manifold Gauge Valves to ON.

START THE TRANSFER

- 1) Set Mode Selector to RECOVER TO REAR CYLINDER.
- 2) Set Power Selector to ←.

DURING THE TRANSFER

- 1) READY Light will illuminate.
- 2) COMPRESSOR ON Light will illuminate.
- 3) Pressure will drop on High and Low Gauges.
- 4) COMPRESSOR ON Light will cycle off and on.
- 5) Automatic transfer is complete when COMPRESSOR ON Light stays off for at least 2 minutes.

NOTE: Non-condensable Air may accumulate in the DOT Cylinder to a level where the RRC771 will automatically shut down in high-pressure. The COMPRESSOR ON Light will go Off but the Condenser Fan will still be running.

To avoid this problem, monitor the Pressure Gauge on the DOT Cylinder. If pressure increases above 150 PSIG, disconnect hose from Vapor Port and open the Vapor Valve on the Cylinder to vent Air until the pressure drops to about 150 PSIG.

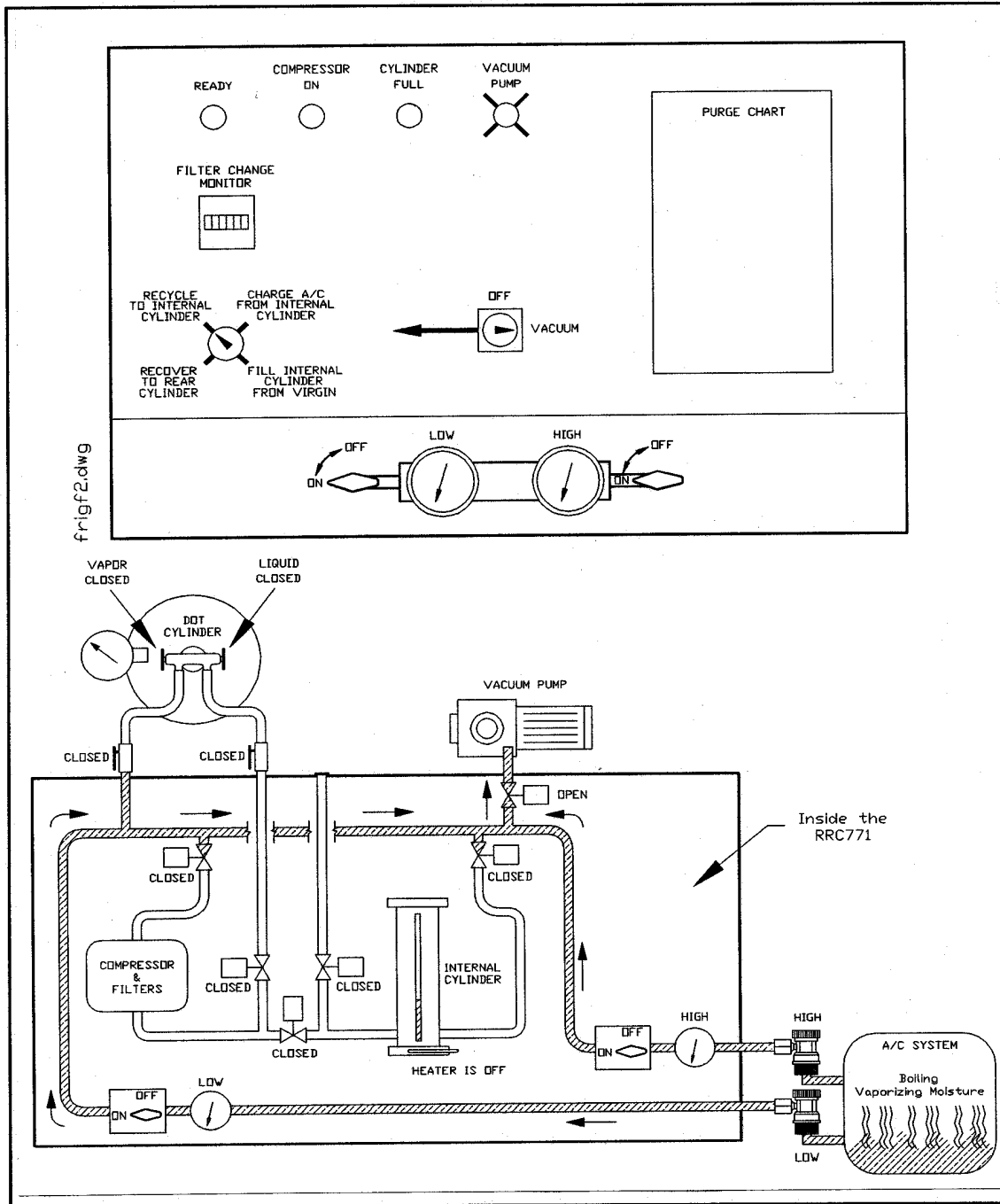
STOP THE TRANSFER

- 1) Turn Power Selector to OFF.
- 2) Close both Field Service Couplers.
- 3) Disconnect Field Service Couplers from A/C System.

REMOVE OIL & NON-CONDENSABLE AIR

Refer to Page 7

DEEP VACUUM THE A/C SYSTEM



DEEP VACUUM THE A/C SYSTEM

Following is the procedure for using the RRC771 to draw a deep vacuum on an A/C System to remove air and moisture (Refer to illustration on the left):

HOSE CONNECTIONS & VALVE POSITIONS

- 1) Close Liquid Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 2) Close Vapor Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 3) Connect Field Service Couplers to A/C System.
- 4) Open both Field Service Couplers.
- 5) Turn Low and High Manifold Gauge Valves to ON.

START THE VACUUM PROCESS

- 1) Mode Selector can be in any position.
- 2) Set Power Selector to VACUUM.

DURING THE VACUUM PROCESS

- 1) VACUUM PUMP Light will illuminate.
- 2) Pressure will drop on High and Low Gauges.

NOTE: If Vacuum Pump does not start, turn both Manifold Gauge Valves to OFF, turn the Mode Selector to RECOVER TO REAR CYLINDER, and Power Selector to ←. Open Liquid Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve. When the COMPRESSOR ON Light goes off, close Liquid Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve. Restart the vacuum procedure.

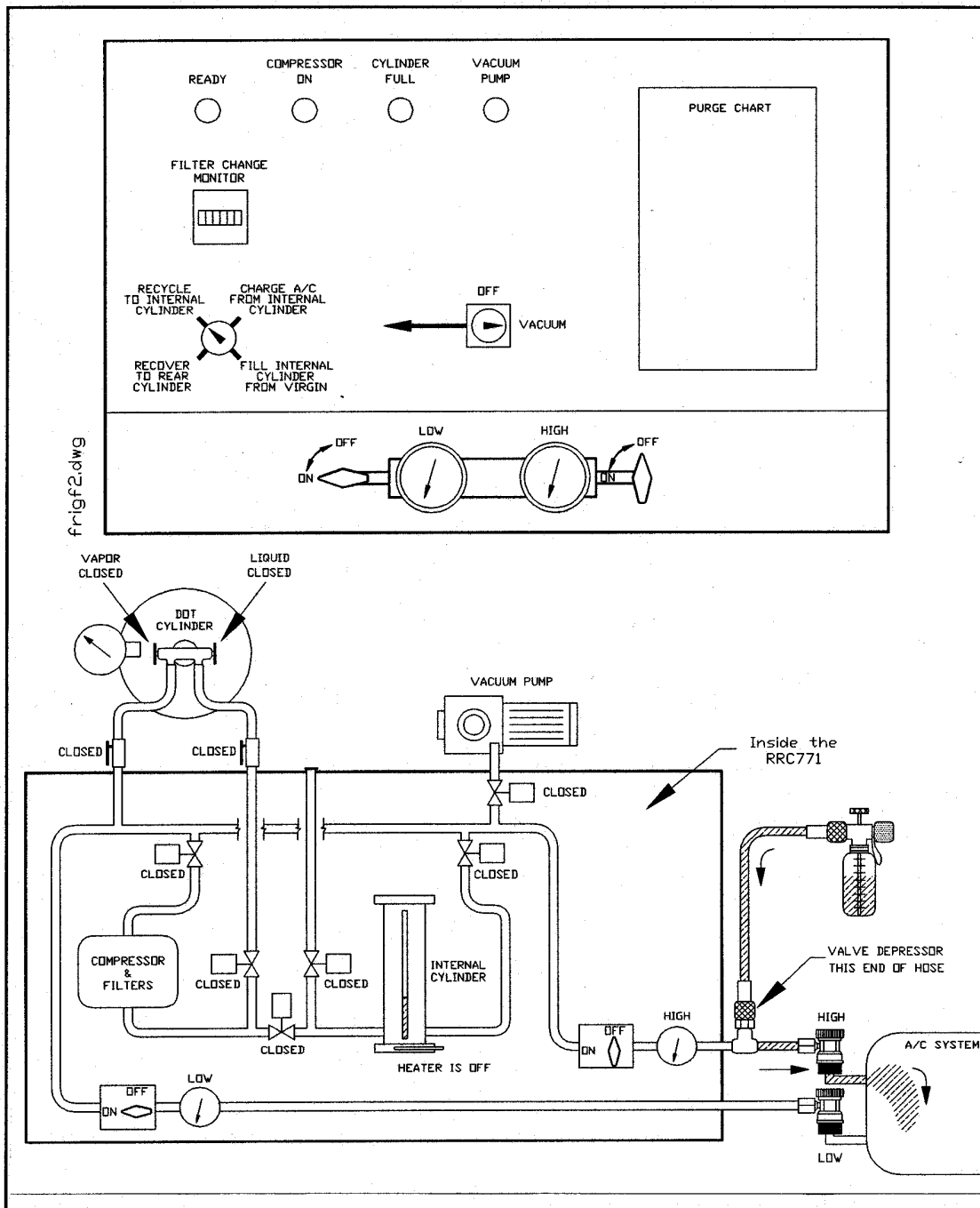
- 3) Let pump run for desired length of time.
- 4) Go to next page if Oil Transfer is required. Leave the Vacuum Pump on.

STOP THE VACUUM PROCESS

- 1) Turn Power Selector to OFF.
- 2) Close both Manifold Gauge Valves and Field Service Couplers.
- 3) Disconnect Field Service Couplers from A/C System.

NOTE: Leave Field Service Couplers connected and open if refrigerant is to be immediately transferred into the A/C System.

TRANSFER OIL INTO THE A/C SYSTEM



TRANSFER OIL INTO THE A/C SYSTEM

Following is the procedure for transferring oil into the A/C System (Refer to illustration on the left):

Deep Vacuum the A/C System

See preceding page. Vacuum Pump should still be running.

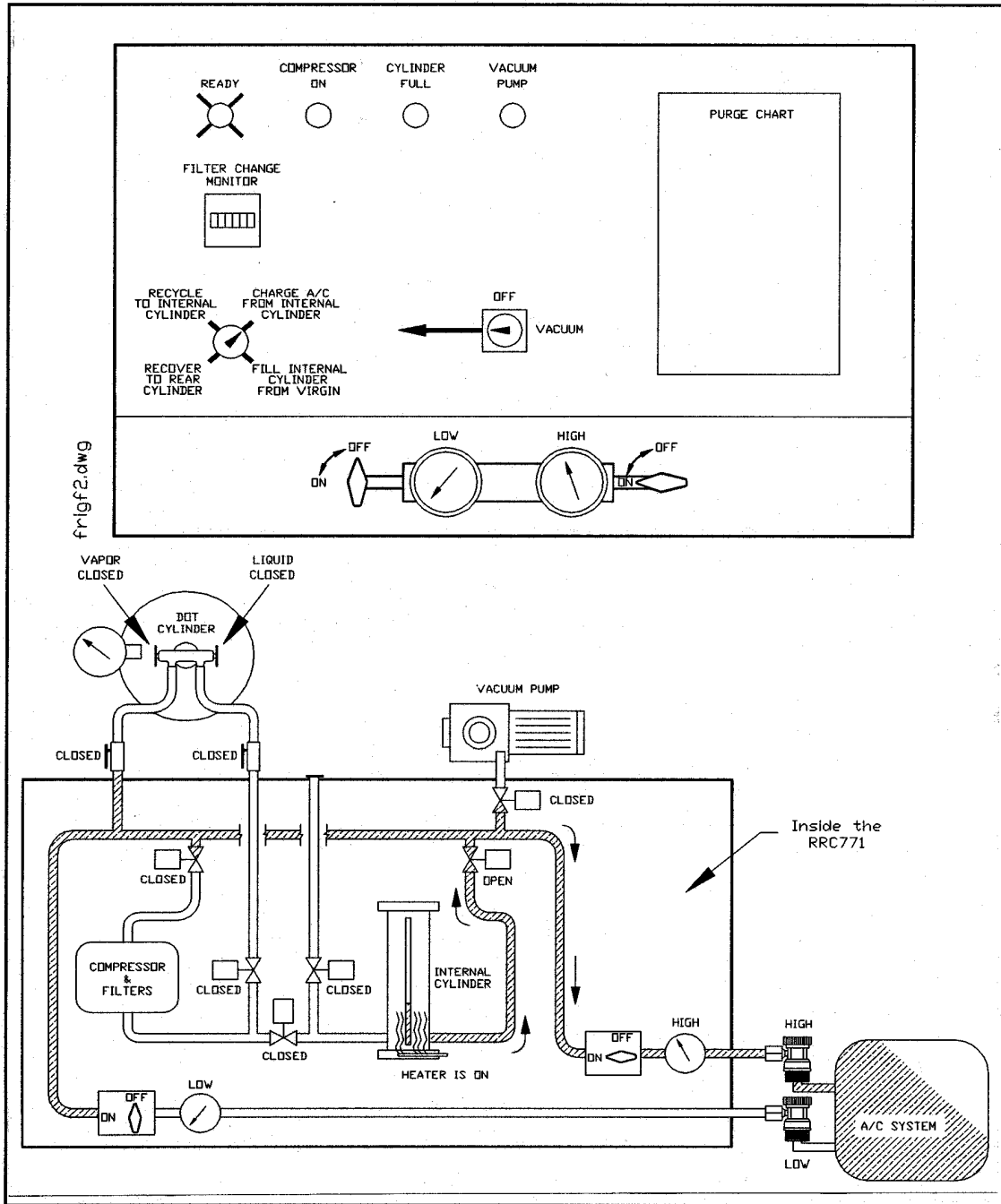
TRANSFER OIL INTO A/C SYSTEM

- 1) Fill Oil Charge Bottle.
- 2) Turn High Manifold Gauge Valve to OFF.
- 3) Open valve on top of the Oil Charge Bottle. Watch as oil level drops and close valve when desired amount of oil has been transferred to the A/C System.

STOP THE VACUUM PROCESS

- 1) Turn Power Selector to OFF.
- 2) Turn Low Manifold Gauge Valve to OFF.
- 3) Leave Field Service Couplers connected and open as refrigerant needs to be immediately transferred into the A/C System through the high side hose to complete the oil transfer.

TRANSFER REFRIGERANT FROM INTERNAL CYLINDER TO A/C SYSTEM



TRANSFER REFRIGERANT FROM INTERNAL CYLINDER TO A/C SYSTEM

HOSE CONNECTIONS & VALVE POSITIONS

- 1) Close Liquid Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 2) Close Vapor Valve on DOT Cylinder and Ball Valve on Yellow Hose connected to this valve.
- 3) Connect Field Service Couplers to A/C System.
- 4) Open both Field Service Couplers.

FILL THE A/C SYSTEM

- 1) Set Mode Selector to CHARGE A/C SYSTEM FROM INTERNAL CYLINDER.
- 2) Set Power Selector to ←.
- 3) Set Level Indicator to calculated setting on Internal Cylinder Sight Glass. Refer to next two pages for detailed instructions on calculating the refrigerant charge and where to set the Indicator.
- 4) Turn High Manifold Gauge Valve to ON.

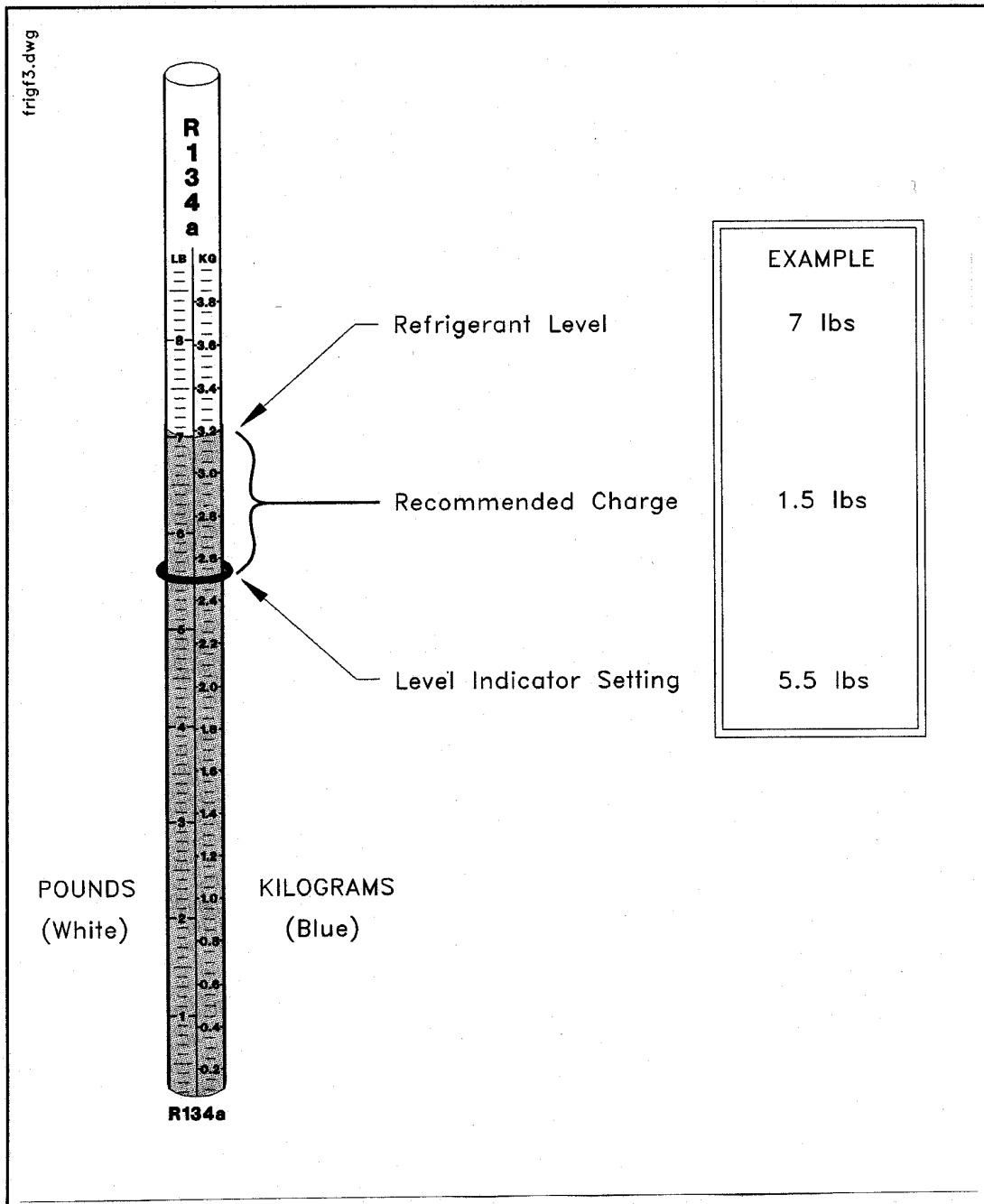
DURING THE TRANSFER

- 1) READY Light will illuminate.
- 2) Refrigerant level in the Internal Cylinder Sight Glass will fall as refrigerant transfers to the A/C System.

STOP THE TRANSFER

- 1) Turn High Manifold Valve to OFF.
- 2) Turn Power Selector to OFF when the refrigerant level reaches the Level Indicator on the Internal Cylinder Sight Glass.
- 3) Test the A/C System performance.
- 3) Close and disconnect Field Service Coupler from the A/C System.
- 4) Set Mode Selector to RECYCLE TO INTERNAL CYLINDER. Set Power Selector to ←. Let RRC771 run until COMPRESSOR ON Light goes Off to empty the hoses.
- 5) Turn Power Selector to OFF.

SETTING THE LEVEL INDICATOR ON THE INTERNAL CYLINDER SIGHT GLASS



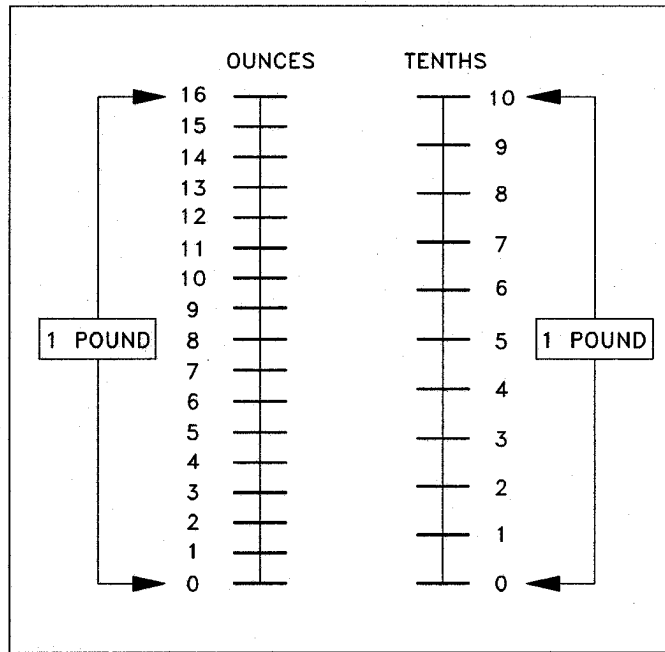
CONVERTING OUNCES TO TENTHS-OF-A-POUND

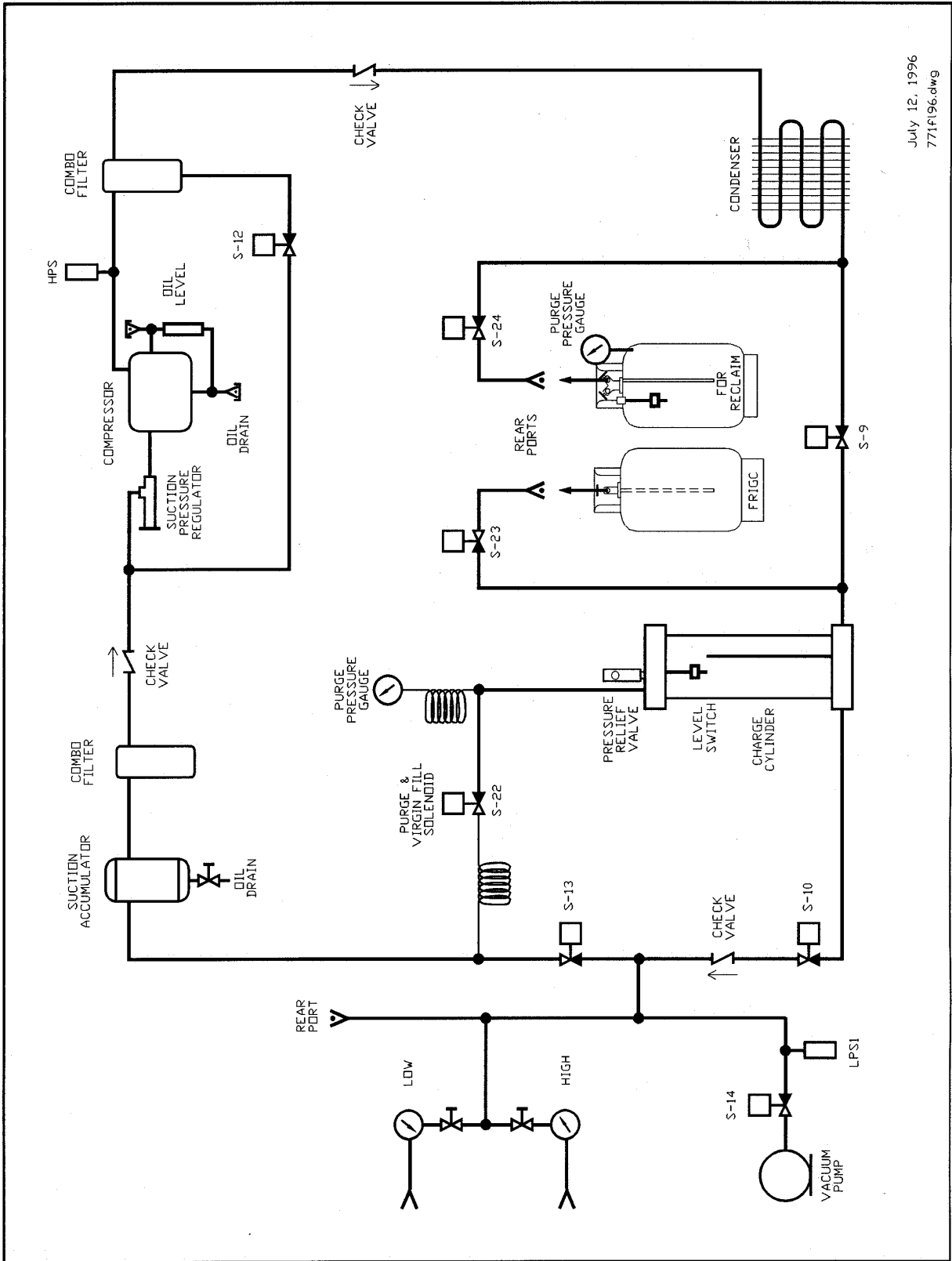
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OUNCES	TENTHS OF A POUND
1	1
2	1
3	2
4	2.5
5	3
6	3.5
7	4
8	5
9	6
10	6
11	7
12	7.5
13	8
14	9
15	9

FORMULA:

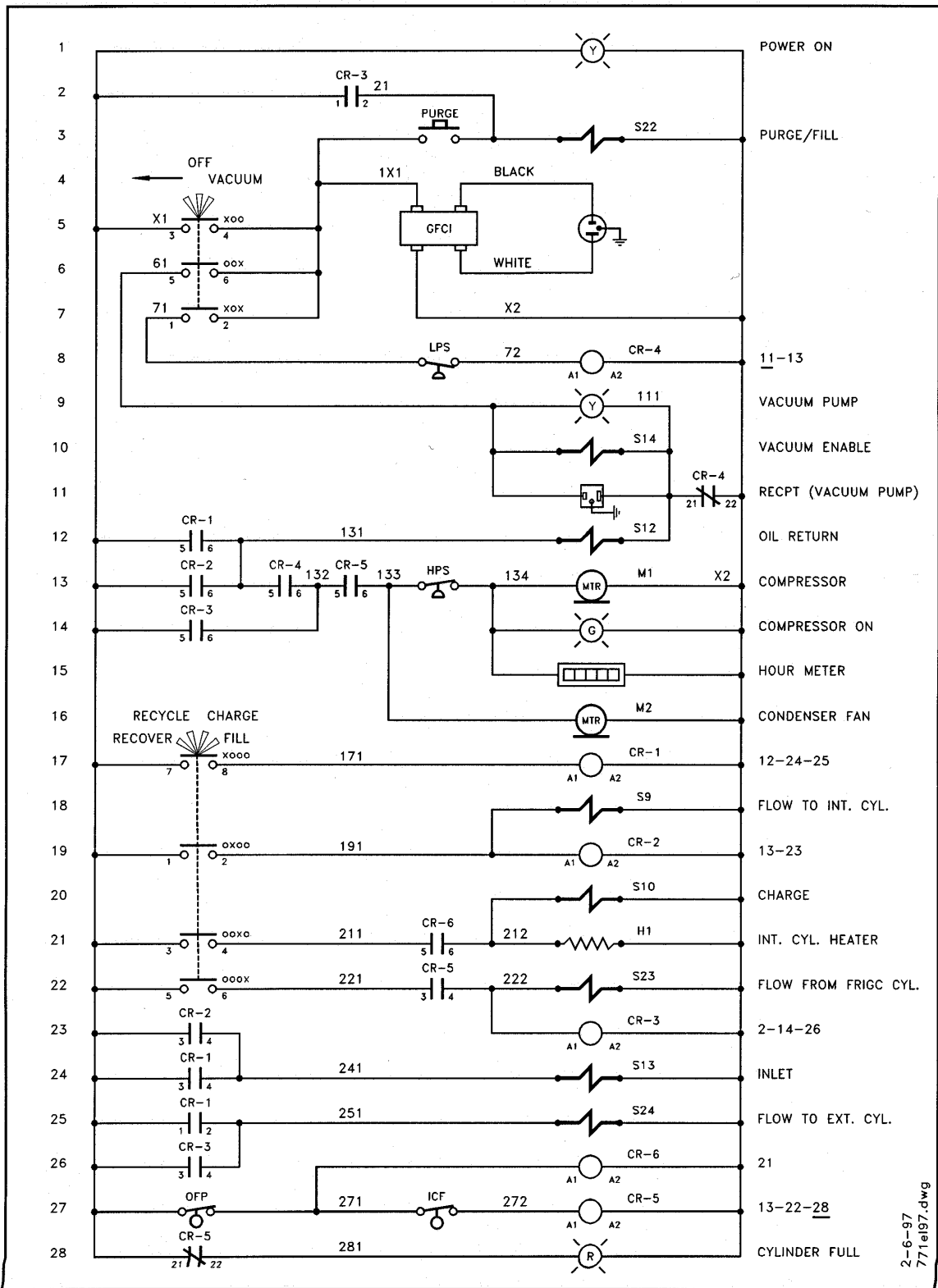
Multiply ounces by 0.625
to obtain Tenths of a Pound





July 12, 1996
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FLOW DIAGRAM - RRC771



SCHEMATIC - RRC771

2-6-97
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