

LIMITED WARRANTY

Replacement Components Division of Carrier Corporation ("Seller") warrants the goods sold hereunder against defects in material or workmanship for a period of thirty (30) days after the date of purchase. Seller's liability and Buyer's remedy under this warranty are limited to the replacement of products, or parts thereof, returned to the Seller and which are shown to Seller's reasonable satisfaction to be defective; provided that notice of the defect shall have been given by Buyer to Seller within thirty (30) days after the date of purchase. Transportation of shipment charges for the return of defective goods to Seller must be prepaid. Reshipment charges for replacement products or parts supplied under this warranty will be borne by the Seller.

Seller provides no warranty expressed or implied concerning the performance of the refrigerant contamination indicator tubes supplied under this agreement including but not limited to the accuracy, repeatability or reliability of the chemical reaction; the shelf life of the tubes under any environmental conditions; or the suitability and fitness of the tubes for any purpose.

The products to be supplied under the agreement will be packaged for shipment in accordance with sound commercial practice as employed within general industry for similar products. Seller provides no warranty for damage incurred during shipping unless such damage can be shown to Seller's reasonable satisfaction to have resulted from defective material or improper packaging by Seller.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND ARE GIVEN AND ACCEPTED IN LIEU OF (i) ANY AND ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND (ii) ANY OBLIGATION, LIABILITY, RIGHT, CLAIM, OR REMEDY IN CONTRACT OR TORT, WHETHER OR NOT ARISING FROM SELLER'S Negligence.

The remedies of the Buyer shall be limited to those provided herein to the exclusion of any and all other remedies, including without limitation, incidental or consequential damages. No agreement varying or extending the foregoing warranties, remedies or this limitation will be binding upon Seller unless in writing and signed by a duly authorized officer of the Seller.

⚠ SAFETY PRECAUTIONS

Safety Considerations

Installation, service, and repair of air conditioners and heat pumps should be attempted only by trained service technicians familiar with standard service instruction and training materials. Potential hazards exist due to system pressures and electrical components.

Safety Precautions

Wear safety glasses and gloves when handling refrigerant and refrigerant oils. The test tubes are made of glass. Use care when handling. Do not touch broken off tips, as these may be extremely sharp.

THE TOTALTEST™ KIT

Contains:

- (1) Instrument



(1) CFC/HCFC Test Tube Pack containing:

- (5) CFC/HCFC Test Tubes



- (2) Test Tube caps



- (1) Replacement "O" ring



Important Notes

- **Refrigerant Loss.** The loss of refrigerant while properly using Totaltest is minimal. It has been reviewed by the EPA and has been determined to conform to guidelines of the Clean Air Act.
- **Tube Storage Conditions.** Store in a cool shaded area. Do not store in temperatures higher than 120°F. Tubes can be exposed to temperatures of 160°F for short periods of time (less than 8 hours) without adverse effects on the accuracy of test results.
- **General Usage Guidelines.**

An O-ring inside the aluminum sleeve of the instrument ensures a tight seal during the test procedure. Always check to see that the O-ring is in place before taking a test. If damaged, lost, or does not seal properly, replace the O-ring using the replacement ring provided.

Use the test tube immediately after breaking off the tips of the test tube. Exposure to contaminants or moisture in the air may cause a false reading. After testing, use the test tube caps to temporarily seal the open ends of the tube. This will ensure that moisture or contamination from the air will not alter the test result.

Before using Totaltest, ensure that the flow through the instrument is not restricted. To check, connect the instrument to the service valve of the unit before testing. A hissing sound, denoting refrigerant flow through the instrument, should be heard. If the instrument is plugged, blow compressed dry air (if available), or purchase a replacement test instrument.

CFC/HCFC (Blue Tubes)

TOTALTEST INSTRUCTIONS

How to Use Totaltest for CFC/HCFC Refrigerants:

CFC/HCFC Refrigerants include: R11, R12, R500, R502, and R22.

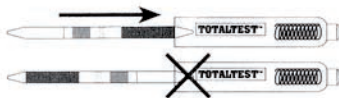
- (1) Remove test tube from pack.



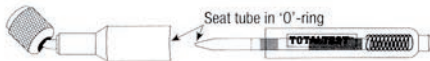
- (2) Break off tips. One end of the pack is provided with a small hole for this purpose.



- (3) Take instrument apart, insert test tube in plastic holder. The tube must be inserted correctly to work properly. (Note: Insert chemical end of test tube first.)



- (4) Couple instrument together, using a 'push-and twist' motion. Ensure that the tube is seated properly into the O-ring inside aluminum sleeve.



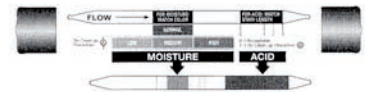
- (5) Hook up instrument to suction-side Schraeder fitting. Wipe the Schraeder fitting to remove moisture, grease, or dirt.

Note: Instrument may be hooked up to discharge line between compressor and condenser if system pressure does not exceed 400 PSIG.



- (6) Leave hooked up no longer than ten (10) minutes. Longer readings may indicate a problem when one does not exist.

- (7) Disconnect instrument from Schraeder fitting, remove test tube and compare to charts on tube pack. For maximum accuracy compare test tube to chart in sunlight. Incandescent and fluorescent light may show a low reading on the moisture chart.



Moisture Test. The moisture-sensing chemical bed will change color in the presence of water vapor. The more intense the color change is, the more moisture is present. If the color of the chemicals in the moisture end of the test tube falls within the range of colors on the chart (indicating low, medium, or high moisture content), follow clean-up procedure.



Acid Test. Note the stain that forms in the acid test portion of the test tube and compare its length to the scale on the test tube pack. (Note: Measure the length of the stain starting from the end closest to the moisture-sensing chemical bed.) Align the zero mark on the label with the zero point on the tube's acid layer. A yellow stain will appear if there is acid present. If the length of the yellow stain falls between 0 and 1 on the scale, no action is required. If the length of the stain is between 1 and 3, follow clean-up procedure.



(For maximum Accuracy: If the stain length is uneven, take the average of the longest and shortest stain lengths observed. This will give a more accurate acid indication.)

Helpful Information when using CFC/HCFC Tubes:

- If clean-up procedure 'B' has been repeated more than twice and Totaltest still indicates a high acid level, or if the acid portion of the tube changes color in less than the prescribed 10 minutes, a more severe compressor problem may exist. Consider a compressor change out.
- If a pink ring appears immediately at the front end of the moisture crystals, and the crystals don't change color further, there may have been moisture contamination in the Schraeder fitting. Or there was not enough pressure in the system (below 60 psig). Replace the test tube and perform the test again.
- Before breaking off the tips, compare the crystals to the charts on the CFC/HCFC pack. If the moisture chamber is pinkish in color, or the acid chamber has a yellow stain, discard the tube and use a fresh tube.
- If tight space prevents hooking up Totaltest directly to the unit, you may use a charging hose and a union. It is important to purge the hose and union before connecting the instrument. Never connect the instrument to a gauge manifold. There is the possibility that contaminants may be present in the lines and valves of the manifold which a simple purge will not remove.