

FOREWORD

The information contained in:

- the "Refrigeration Family products": **REFRIBASE**, **REFREPAIR**, **REFRIDIAG**, **REFRILEC** and the **MANAGER Software**
- the "**REFRIBASE Manual**"
- the "**REFREPAIR Manual**"
- and this "**User's Manual**"

are liable to be amended without warning.

The organisation KOTZA INTERNATIONAL cannot be held responsible for any omissions, nor for any damage, accidental or otherwise, that results from the supply or use of its Software or any of its Manuals.



In this Manual, **the individual in possession of the password** (the supervisor, trainer etc.) will be referred to as: **THE SUPERVISOR**. Those individuals not in possession of the password (students, trainees, technicians, engineers etc.) will be referred to as: **THE USER**.

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All versions of the software have been registered with the Software Protection Agency since 1990.

The Software will only operate on a multimedia PC using Windows 2000, XP, Vista or Seven. The PC should be configured to a *minimum* of 800 x 600 point mode with 65536 colours in small fonts.

In effect, the Software referred to in this Manual will not function on a PC if the corresponding demonstration version of the Software does not function on that PC.

If you require any further information, please contact:

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REFRIBASE: DETAILED DESCRIPTION

REFRIBASE is at a "beginner" level of difficulty.

REFRIBASE (Refrigeration and A/C for the beginner) is a training system that provides refrigeration 'novices' (students, heating engineers, electricians etc.) with the necessary knowledge to allow them to make effective repairs on unitary air-conditioning units.

REFRIBASE is an auto-adaptive program that poses real-life problems according to the quality of responses to earlier questions. Therefore, every time the Software is used, the situations presented to the User will be different. You respond to each problem by using a simple mouse click. REFRIBASE immediately updates your score and displays an appropriate correction on the screen.

REFRIBASE allows you to interrupt your session at any point you wish. The next time that you access it, it will return you to the exact same point in the program that you would have found yourself.

The progressive increase in level of difficulty and the wide range of problems soon means that you can make accurate and rapid diagnosis of faults. The self-correction capability of the program enables the User to train entirely alone, whilst still making progress that is as rapid as it is spectacular.

In addition, the integrated MANAGER, which is only accessible using a password, analyses the results obtained by each User at every Step (up to 450 different Users can be recognised by the Software at any one time). The MANAGER allows the Supervisor full control over the Groups of users, and allows him to review the progress of each User as he pleases.

The Supervisor can also choose the refrigerant (R22 or R134a) to be used, the units (bar and °C or psi and °F), and many other options.

Thanks to its animated graphics, its ease of use, its interactive operation, its progressive training system and its self-adapting properties, REFRIBASE is truly the ideal tool for gaining competence in working with unitary A/C systems.

REFRIBASE: USING AND DURATION OF TRAINING

Refrigeration and Air-conditioning skills are not easy to acquire. In the same way, the refrigeration topics dealt with in the REFRIBASE Software might seem difficult.

This is why, to avoid de-motivating novice engineers, it is strongly recommended that preliminary study is undertaken using the REFRIBASE Manual.

Then you can proceed as follows:

1) Make a first attempt using the PC, perhaps with the assistance of the REFRIBASE Manual (an average time for this would be from 4 to 10 hours to complete the 10 steps in several sessions).


If, after the first five steps the resulting score were too low, it would perhaps be better not to continue immediately. It would then be advisable to carefully re-read the REFRIBASE Manual and then perhaps start the REFRIBASE Software from the beginning.

2) Re-Read the REFRIBASE Manual.

3) A second run through the program on the PC (an average time for this would be from 2 to 6 hours, in several sessions).

A User who wishes to do so could start the REFRIBASE program completely, as often as necessary, until an excellent score is achieved.

Note: These times are, of course, simply indications of what might be expected. The time taken varies enormously according to the User's initial knowledge.

 **REFRIBASE has been designed for the BEGINNER. If, after working through all the steps entirely alone, a User obtains a high score using it, he should then take a course in practical refrigeration skills. There is no doubt that he will then be able to work alone and effectively on most types of stand-alone A/C units.**

He could then continue to improve his knowledge using REFREPAIR (which continues where REFRIBASE leaves off) and the 626 pages REFREPAIR Manual, which is dedicated to refrigeration and A/C repairs.

REFRIBASE: THE SEQUENCE OF STEPS

Every time REFRIBASE is run, a welcome message appears and the User is automatically taken to the appropriate step where his last score (in points and as a percentage score) is displayed.

Pro. : 4500 pts (30.2%)

In this example, the User has a total of 4500 points, which is a percentage score of 30.2% relative to the maximum possible score.



REFRIBASE RECORDS THE RESULT OF EVERY QUESTION IN EVERY STEP FOR EVERY USER. IT IS THEREFORE POSSIBLE TO COMPLETE ALL THE STEPS IN SEVERAL DOZEN SEPARATE SESSIONS.

After every response, REFRIBASE provides the User with a commentary advising him which page of the Manual he should consult to obtain additional information. REFRIBASE simultaneously updates the User's score, archives it on the hard drive and then suggests that the User either continues or breaks off the session.



THE LEVEL OF DIFFICULTY OF THE QUESTIONS (LEVEL 1, 2, OR 3) IS AUTOMATICALLY ADJUSTED ACCORDING TO THE LEVEL OF THE USER'S KNOWLEDGE. (*Unless the configuration has been changed*)

For every question in each step, there are three different levels of difficulty:

- **Level 1:** the questions are at beginner's level.
- **Level 2:** the questions are more difficult, or there are a greater number of possible answers (intermediate level).
- **Level 3:** the questions are even more difficult (highest level).
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**For every correct answer, you rise by one level.
For every incorrect answer, you drop down one level.
If, therefore, the program is restarted from the beginning,
the questions posed (or the possible answers) will be different.**

STEP 08/1

Question 16/17

In the case opposite, the User is currently at Step 8 and at level 1. He is at the 16th question of a total of 17 possible questions.

Thus, every time the program is run, the auto-adaptive nature of REFRIBASE means that the User encounters different situations at a different level of difficulty.

REFRIBASE: THE THEME OF EACH STEP

Steps 1 to 5: the Window A/C unit.

- **Step 1:** the name and function of the various A/C unit components.
- **Step 2:** commissioning. Understanding the refrigeration system.
- **Step 3:** normal operating parameters.
- **Step 4:** The identification plate and control panel. Consequences of small anomalies in operation.
- **Step 5:** introduction to minor repairs, possible (and impossible!) faults.

Steps 6 to 10: the split-system A/C unit.

- **Step 6:** installation and commissioning using the remote control.
- **Step 7:** fitting a set of gauges. Normal operating parameters.
- **Step 8:** diagnosis of faults from a table of trends.
- **Step 9:** diagnosis of faults using pressure and temperature readings.
- **Step 10:** looking for errors in a table of trends.



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