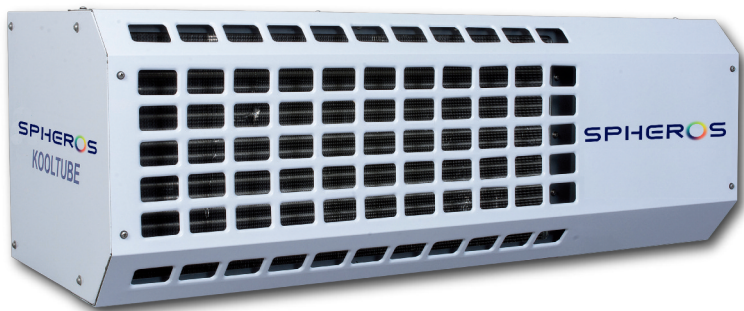


# SPHEROS

EUTECTIC TRANSPORT REFRIGERATION

# KOOLTUBE



## Operators Manual

ADVANCED TECHNOLOGY – YOU CAN RELY ON.

## OWNERS DETAILS

|                  |      |
|------------------|------|
| Company Name     |      |
| Physical Address |      |
|                  | Code |
| Postal Address   |      |
|                  | Code |

|             |  |  |  |  |  |  |  |  |  |  |  |
|-------------|--|--|--|--|--|--|--|--|--|--|--|
| Tel No. (H) |  |  |  |  |  |  |  |  |  |  |  |
| Tel No. (W) |  |  |  |  |  |  |  |  |  |  |  |
| Cell No.    |  |  |  |  |  |  |  |  |  |  |  |

## VEHICLE/FRIDGE DETAILS

|                         |
|-------------------------|
| Registration No:        |
| Date of Sale:           |
| Model/series:           |
| Unit serial No:         |
| Refrigeration gas type: |
| PCB Model & Rev:        |
| Software version:       |

## CONTENTS

This operator's manual is for the Kooltube series units.

The manual includes service intervals, safety information, trouble shooting and other information to assist in the operation and maintenance of the equipment.

Following the correct maintenance program will avoid costly down time. It is essential that during the warranty or contract period (should there be a service contract in place) that the unit is serviced and maintained by an authorised Spheros South Africa dealer only.

Should you require further information, do not hesitate to contact your nearest Spheros South Africa dealer.

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## SAFETY GUIDE

### INSTALLATION

When installing or removing the unit correct lifting equipment should always be used. Do not stand beneath a unit that is being lifted.

### SERVICE AND MAINTENANCE

The unit has many moving parts. Covers and gills have been fitted with customer safety in mind. Always stop the unit before carrying out service and maintenance. This includes pre-trip inspections.

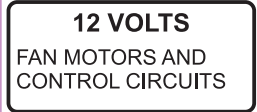


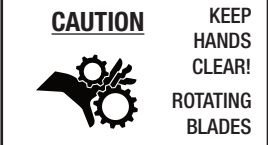



### REFRIGERANTS

It is recommended, in line with current legislation for the refrigeration industry, only persons who have completed the Safe Handling of Refrigerants course and are registered with ACRICSA (The Governing Body), carry out services on your refrigeration system. Contact your nearest Spheros South Africa Dealer.

### ELECTRICAL

Relatively high voltages are used for the electric motor standby drive. Inside the control box there are a combination of low voltage DC for the control circuits and high voltage AC components for switching the electric motor on and off. It is therefore recommended that only personnel who have had the correct factory training carry out service and repairs on the electrical system. Contact your nearest Spheros South Africa Dealer.

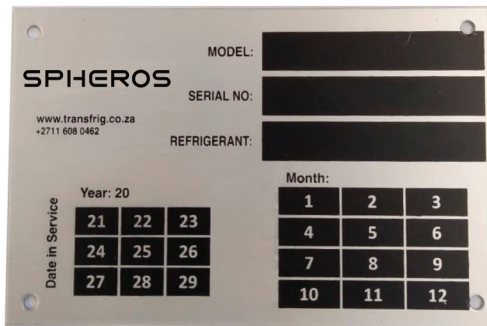
## IMPORTANT SYMBOLS ON SPHEROS SA UNITS

|   |                                       |
|---|---------------------------------------|
|  <p><b>12 VOLTS</b><br/>FAN MOTORS AND<br/>CONTROL CIRCUITS</p>  | Voltage indication.                   |
|    | Warning sign, electric shock hazard.  |
|  <p>THIS UNIT IS CHARGED WITH<br/><b>R404A</b></p>   | Type of refrigerant used              |
|  <p><b>CAUTION</b> KEEP<br/>HANDS<br/>CLEAR!<br/>ROTATING<br/>BLADES</p>   | Warning sign, moving machinery hazard |
|  <p><b>RECOMMENDED</b><br/><b>FUCHS RENISO</b><br/><b>TRITON</b><br/><b>SE 68</b><br/><b>COMPRESSOR OIL</b></p> | Type of compressor oil to be used     |
|  <p><b>FAN ROTATION</b></p>  | Direction of fan rotation             |
|  <p><b>CHECK OIL LEVEL DAILY</b><br/>EXCESS OIL WILL CAUSE OVERFLOW WHEN HOT</p>                               | Oil level indication                  |

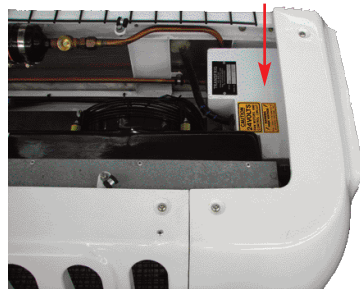
## UNIT IDENTIFICATION

Each unit is identified with a nameplate containing the relevant serial number.

The serial number contains the year, month and day the unit was manufactured.



Position of plate on unit under cover



The serial number and model type must always be used in the event of warranty claims and spares purchase.

## FEATURES

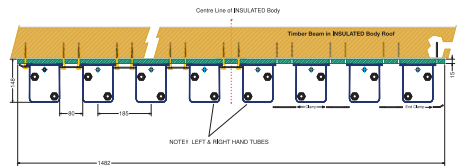
### ◆ Advantages

- Silent daytime operation
- Virtually maintenance free
- No fuel costs
- Lower capital costs
- Lower running costs
- Minimal wearing parts
- Assured refrigeration performance
- No specialised knowledge of operation required
- Better usable volumes

### ◆ Ozone friendly refrigerant

Zero ODP R404A.

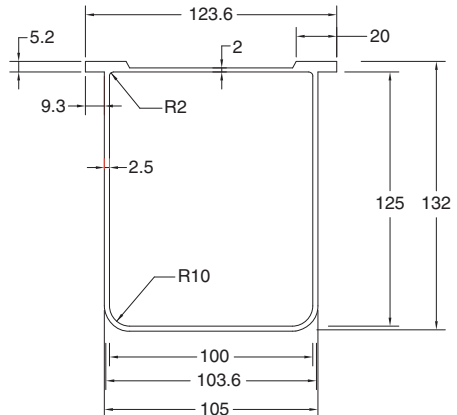
### ◆ Kooltube mounting details



### ◆ Technical data – Beams

The Kooltube is extruded aluminium containing a non-toxic eutectic solution. A wide range of solutions is available for various temperature applications.

### ◆ Aluminium extrusion



### ◆ Technical data – Condensing set

- Semi-hermetic compressor
- Simple accessible controls
- Fully electrically protected
- Nose or undermount
- 380v 3 phase / 220v 1 phase

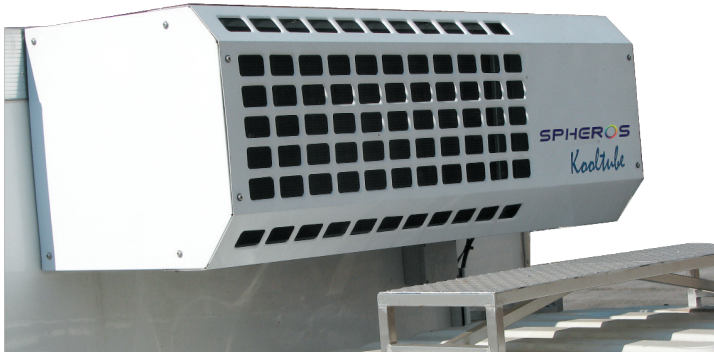
### ◆ Unit capacity and mass

The length of the tubes necessary to provide optimum refrigeration performance must be calculated by your dealer.

The following information is required:

- Internal body dimensions
- Required box temperature
- Holdover period required
- Pull down time available
- Number of door openings per day
- Insulation type and thickness

## PRE TRIP INSPECTION



This inspection should be carried out prior to loading. If the following is strictly adhered to, this should save costly downtime.

## PRE COOLING THE INSULATED BODY

- ◆ Prior to loading inspect the inside and outside of the insulation skin for delamination and holes.

Inspect door seals and door closing mechanisms. Doors that will not close properly and punctures of the insulation material will affect the refrigeration unit's ability to maintain correct temperature.



## OPERATING THE UNIT

The Kooltube eutectic unit is a pulldown holdover system. The unit must be plugged in and turned on, the solution in the tubes will be frozen during the pulldown period. Once the required box temperature has been achieved the vehicle may be used for distribution. The tube temperature is pre-determined and should be approximately 10°C colder than the box temperature.

It is recommended that the frozen product is preloaded in the Kooltube body on condition that the returning box temperature is low enough. It may be necessary to run the unit to reduce box temperature before loading. It is acceptable that the unit continues running during loading.

It is recommended that the tubes are defrosted on a weekly basis. This is done by leaving the doors open until the tubes are free of ice. The process can be assisted with water but the box should be dry before running the system.



### ELECTRIC START UP

1. The unit is supplied with a 10 metre electric cable. Plug one end of the cable into the appliance inlet of the unit. Plug the other end into the external supply point.
2. Switch on the unit via the toggle switch.
3. Wait for the temperature controller display to indicate box temperature, cooling will then commence.

### ELECTRIC SHUT-DOWN

1. Move toggle switch to "off" position.
2. Remove electric cable.

## LOADING

Spheros South Africa Refrigeration units are designed to maintain and not reduce the temperature of the product. It is therefore imperative that the Driver/Operator checks the product is at the correct temperature at the time of loading.

## RECOMMENDED TEMPERATURE GUIDE

Below is a guide to recommended temperature settings for a few products. These are recommendations only. For further information on set point refer to customer/supplier.

| PRODUCT                             | SET-POINT RANGE |
|-------------------------------------|-----------------|
| Ice Cream                           | -25°C           |
| Frozen Meats Vegetables and Seafood | -18° to -20°C   |

Door opening should be kept to a minimum, each time the doors are opened warm air and moisture enters the body.

## TROUBLE SHOOTING

Spheros South Africa strives to achieve the highest possible standards. Should problems arise with your unit, below is a general guide to help the operator carry out some basic checks prior to calling an Authorised Dealer for assistance.

| PROBLEM                                    | CAUSE                                  | REMEDY                    |
|--|--|---------------------------|
| Unit runs but does not achieve temperature | Tubes iced up                          | Manual defrost            |
|  | Preloaded product temperature too high | Check product temperature |
| Unit doesn't switch on                     | Ignition fuse blown                    | Check fuse                |
|  | Units fuse blown                       | Check fuse                |
|  | Power supply breaker tripped           | Check circuit breakers    |

## MAINTENANCE SCHEDULE – REQUIRED SERVICE

The recommended maintenance schedules are designed to give the maximum reliability and operation to your unit, thus ensuring trouble free usage.

**\*Note:** Free Post-delivery inspection (PDI) within 1 month of delivery to validate the warranty.

**\*Note:** The unit must be serviced at a maximum interval of 6 months.

## SERVICE SCHEDULE

**\*NOTE: FREE POST-DELIVERY INSPECTION (PDI) WITHIN 1 MONTH OF DELIVERY TO VALIDATE THE WARRANTY**

- ◆ Check refrigerant level
- ◆ Check all bolts, screws and unit mounting bolts for tightness. Tighten as required
- ◆ Check control box wiring and components for tightness
- ◆ Check & confirm unit operation

## A SERVICE

- ◆ Check refrigerant level
- ◆ Check all bolts, screws and unit mounting bolts for tightness. Tighten as required
- ◆ Check control box wiring and components for tightness
- ◆ Check CPR value setting
- ◆ Check & confirm unit operation
- ◆ Check refrigerant level

## DEALER NETWORK

## SPHEROS SA APPROVED SERVICE DEALER NETWORK

| COMPANY                           | AREA                    | CONTACT            |
|-----------------------------------|-------------------------|--------------------|
| Cool Perfection                   | Bloemfontein            | Geoff Stannard     |
| Zero Temp (Updealers)             | Botswana - FrancisTown  | Vaughan Granville  |
| Airtron                           | Botswana - Gaborone     | Jeremy Babbage     |
| Trans Fridge Botswana             | Botswana - Gaborone     | Louisa Barnard     |
| E.R.T.S                           | Cape - George           | Peter Carney       |
| G.R.A                             | Cape - George           | Danie Pio          |
| Cool Tranz                        | Cape Town               | Des Bradford       |
| Cool Tranz                        | Cape Town               | Shane Bradford     |
| Maxicool                          | Cape Town               | Ian Gilmour        |
| Cool Perfection                   | Durban                  | Geoff Stannard     |
| Fridgetranz                       | Durban                  | Christo Brown      |
| Transfrig Border E.L.             | East London             | Adrian v.d. Merwe  |
| Spheros                           | Gauteng - Linbro Park   | Kobus van Rensburg |
| Spheros                           | Gauteng - Linbro Park   | Kent Donaldson     |
| RTS                               | Gauteng - Midrand       | Daphne / Bonny     |
| AC & R Refrigeration              | Gauteng - Pretoria      | Peter Griezel      |
| Refsatrans                        | Gauteng - Vaal Triangle | Walther Ravyse     |
| Cool Link Technics Ltd            | Kenya                   | James Kamande      |
| Specialised Fibre Glass           | Kenya                   | Ross Field         |
| Instant Service Repairs           | Klerksdorp              | Ruan               |
| Topax Workshop                    | Klerksdorp              | Jose Da Silva      |
| Walvisbay Refrigeration           | Namibia - Walvisbay     | Allester Dronia    |
| Cool Coenie Ref                   | Namibia - Windhoek      | Conrad Stols       |
| Cooltheron                        | Nelspruit               | Eben Theron        |
| Shivers cc                        | Polokwane               | PJ Weir            |
| Transfrig Eastern Cape (Queentek) | Port Elizabeth          | Karel Wolmarans    |
| Mother Cool                       | Swaziland               | Ean Sauerman       |
| SS Stander Herstelwerke           | Upington                | Fanie Stander      |
| Repair                            | Zimbabwe - Bulawayo     | Clive Hill         |
| Cold Control                      | Zimbabwe - Harare       | Theo da Fonseca    |

| PHONE                  | CELL                   | EMAIL                                      |
|------------------------|------------------------|--|
| +2731 914 0170         | +2782 468 3861         | geoff@coolperfection.co.za                 |
| +267 74 052 903        | +267 74 052 903        | vaughan@zerotemp.co.bw                     |
| +267 74 629 121        | +267 74 629 121        | airtron.babbage@gmail.com                  |
| +267 72 336 704        | +267 72 336 704        | louisa@tfb.co.bw                           |
| +2772 963 3020         | +2772 963 3020         | erts.george@gmail.com                      |
| +2744 878 0073         | +2782 445 1831         | georgeref@cybersmart.co.za                 |
| +2721 551 1909         | +2782 604 5764         | cooltranz@cooltranz.co.za                  |
| +2721 551 1909         | 27 826 045 842         | shane.brandford@coolbussystems.co.za       |
| +2721 932 2046         | +2782 773 5036         | ian@maxicool.co.za                         |
| +2731 914 0170         | +2782 468 3861         | geoff@coolperfection.co.za                 |
| +2731 700 5405         | +2784 604 5769         | accounts@fridgetranz.co.za                 |
| +2743 736 9615         | +2782 604 5761         | adrian.van-der-merwe@spheros.com           |
| +2711 608 0462         | +2782 781 2225         | kobus.janse-van-reensburg@spheros.com      |
| +2711 608 0462         | +2782 422 2798         | kent.donaldson@spheros.com                 |
| +2711 315 3630         | +2782 453 4976         | daphne@refts.co.za                         |
| +2711 310 2684         | +2779 873 0277         | peter@ac-r.co.za                           |
| +2716 362 2254         | +2783 263 8106         | refsatrans@ravyse.co.za                    |
| +254 72 290 3009       | +254 72 290 3009       | info@coolinktechnics.com                   |
| +254 20 210 8640       | +254 0721 444 735      | sfglass@africaonline.co.ke                 |
| +2718 469 4317         | +2783 284 7604         | isrepairs1@lantic.net                      |
| +2782 326 4569         | +2782 326 4569         | topaxworkshop@koshcom.co.za                |
| +264 64 206 247        | +264 81 128 4783       | ahm@iway.na                                |
| +264 61 302 894        | +264 81 283 1041       | conrad@coolcoenie.com / amelda@sage.com.na |
| +2782 856 0466         | +2782 856 0466         | eben@cooltheron.co.za                      |
| +2715 295 5659         | +2783 375 7220         | shivers@mweb.co.za                         |
| +2782 820 8894         | +2782 820 8894         | karel.queentek@gmail.com                   |
| +268 2518 8237/3       | +268 760 223 76        | mothercool@mothertruckers.co.sz            |
| +2754 331 1245         | +2782 823 1292         | ssstanderherstel@telkomsa.net              |
| +263 29 261349/50      | +263 78 278 1131       | projects@refair.co.za                      |
| +263 77 418 69 82 / 83 | +263 77 418 69 82 / 83 | theo@hms.co.zw                             |

## WARRANTY

(This version of the above super cedes all previous written and/or implied policies issued by the company). Spheros South Africa (Pty) Ltd and its subsidiaries warrants each new unit for 12 months in respect of defective parts and workmanship effective from date of commissioning or 15 months from date of factory dispatch (whichever is the shorter) and spare parts for a period of 3 months from date of installation or 6 months from date of factory dispatch (whichever is shorter) providing that the unit or spare part is installed by an authorised Spheros South Africa distributor or dealer. Spheros South Africa's obligations under this warranty are limited to repairing or replacing, at its option, by an authorised Spheros South Africa distributor or dealer any part or parts found to be defective during the warranty period.

### 1. EXCLUSIONS FROM THIS WARRANTY

- a) Any part or parts of products becoming defective as a result of negligence, accident or other casualty.
- b) Owner's failure to adhere to the Spheros South Africa recommended maintenance procedures to provide normal maintenance such inter alia, tightening of belts, cleaning coils, loss of refrigeration, drier replacement or improper voltage or electrical connections.
- c) Equipment failure due to specification error, guidelines for which are issued by Spheros South Africa from time to time.
- d) Operation in a manner contrary to Spheros SA printed or implied instructions.
- e) Compressor engine mount adapter kits and their installation if not supplied and installed by Spheros South Africa or approved and authorized distributor or dealer.
- f) Refrigerant leaks (other than caused by component failure) which occur in excess of 45 days after date of commissioning the equipment.
- g) Failure of equipment, which has been modified without specific Spheros South Africa approval.
- h) Wearing parts such as belts, filters, driers, fuses, which fail after 90 days from commissioning.
- i) All labour time outside of normal working hours.
- j) All traveling time and accommodation expenses.
- k) Any consequential costs in contract or tort including payment of any damages of whatever nature, whether general or special, which may be sustained by the purchaser in consequence of any defect of whatever nature as may be found to exist in, relation to, the equipment or any portion thereof.



## WARRANTY

### 2. CONDITIONS OF WARRANTY

- a) Spheros South Africa neither assumes nor authorizes any person to assume for it, any obligation or warranty other than stated in this warranty.
- b) Spheros South Africa reserves the right to make changes in design or improvements of its products or parts thereof without obligation to make or install such changes or improvements in or upon products covered in this warranty.
- c) Spheros South Africa approved dealers does not warrant the workmanship of the installer, other than Spheros South Africa and will not bear any cost due to faulty or incorrect installation or shipping damage or product loss.
- d) Spheros South Africa will not be liable for loss of time, labour, equipment rental or other expense while products are out of service. First service validates full warranty.

This is the sole and only warranty supplied by Spheros South Africa and no other condition of warranty will be recognised unless it is an official written document supplied by the said company.

## SERVICE

(REFER TO MAINTENANCE SCHEDULE) – SEE PAGE 12

All maintenance should be performed by an authorised Spheros South Africa Dealer (as detailed in this book) and at the stipulated hours or time intervals.

|  |
|--|
| <b>PDI SERVICE VALIDATES WARRANTY WITHIN 1 MONTH OF INSTALLATION</b> |
| <b>KM READING</b>  |
| <b>DATE</b>  |
| <b>DEALERS SIGNATURE/STAMP</b>                                       |

|                                |
|--------------------------------|
| <b>SERVICE A</b>               |
| <b>KM READING</b>              |
| <b>DATE</b>                    |
| <b>DEALERS SIGNATURE/STAMP</b> |

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| <b>SERVICE A</b>               |
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| <b>DATE</b>                    |
| <b>DEALERS SIGNATURE/STAMP</b> |

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|--------------------------------|
| <b>SERVICE A</b>               |
| <b>KM READING</b>              |
| <b>DATE</b>                    |
| <b>DEALERS SIGNATURE/STAMP</b> |

|                                |
|--------------------------------|
| <b>SERVICE B</b>               |
| <b>KM READING</b>              |
| <b>DATE</b>                    |
| <b>DEALERS SIGNATURE/STAMP</b> |

|                                |
|--------------------------------|
| <b>SERVICE A</b>               |
| <b>KM READING</b>              |
| <b>DATE</b>                    |
| <b>DEALERS SIGNATURE/STAMP</b> |

**SERVICE**

(REFER TO MAINTENANCE SCHEDULE) – SEE PAGE 12

SERVICE A

KM READING

DATE

DEALERS SIGNATURE/STAMP

SERVICE A

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DEALERS SIGNATURE/STAMP

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## SERVICE

(REFER TO MAINTENANCE SCHEDULE) – SEE PAGE 12

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## NOTES

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This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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[www.transfrig.co.za](http://www.transfrig.co.za) – refer to [www.spheros-transfrig.com](http://www.spheros-transfrig.com)