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# INSTALLATION & OPERATION MANUAL

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MODEL: **ZV1-SC / AZV1-SC**

**SINGLE DECK PRODUCE - SELF CONTAINED**

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THIS REFRIGERATOR CONFORMS TO THE COMMERCIAL  
REFRIGERATOR MANUFACTURERS ASSOCIATION HEALTH AND  
SANITATION STANDARD.

**KYSOR  // WARREN**  
DIVISION OF KYSOR INDUSTRIAL CORPORATION

1600 INDUSTRIAL BLVD., CONYERS, GEORGIA 30207 / 404-483-5600  
5201 TRANSPORT BLVD., COLUMBUS, GEORGIA 31907

# INSTALLATION AND OPERATING INSTRUCTIONS

FOR

ZV1-SC AND A-ZV1-SC

SELF-SERVICE PRODUCE MERCHANDISERS

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## APPLICATION:

The Kysor//Warren self-contained single produce cases are designed to merchandise bulk or packaged vegetables. These cases should be installed and operated according to the instructions contained in this manual to insure proper performance. They are designed for display of products in an air-conditioned store where temperature and humidity are maintained at a maximum of 75-degree F dry bulb, 55% relative humidity.

## MODELS

## DESCRIPTION

|          |   |
|----------|---|
| ZV1-SC   | Single Deck Self-Contained Produce Case<br>on 4 Swivel Casters<br>48 3/4" High Without Canopy |
| A-ZV1-SC | Same as Above, Except Dual Temp<br>(2 Thermostats)  |

Jan. 17, 1995

Rev. 3/9/95

## GENERAL

These display refrigerators may be installed individually in an area of 3-1/2 ft. x 8-1/3 ft. Each case has four swivel brake model casters at each corner. Square Footage - 21.5

Each case has (4) deck pans with adjustable wire racks available. All cases are factory checked and charged.

## INSPECTION

When delivered, the equipment should be carefully inspected. All visible damage and shortages must be properly noted on freight bills.

If while uncrating, evidence of concealed damage is discovered, set the equipment aside and notify the delivering transportation company immediately.

Transportation regulations require that transit damage claims be made within 48 hours after delivery.

Check the electrical requirements of the equipment for compatibility with available power supply, reference unit dataplate or see Chart #1. All claims for shortages must be made within 10 days after receipt of shipment.

## LOCATION

This refrigerator must be located on a firmly based floor and leveled. For proper operation (airflow) 6" minimum required between back of the case and wall.

## CLEANING

To insure minimum maintenance cost, the case should be thoroughly emptied and cleaned every three (3) months. The exterior should be cleaned weekly. A mild soap and water solution is recommended for painted surfaces of the case. Do not use cleaners containing abrasive materials, which will scratch or dull finish. The waste outlet should be checked and cleaned.

Caution: Do not flush with water. This case is not connected to a drain system and has its own evaporating pan with limited capacity.

BE SURE REFRIGERATION IS TURNED OFF AND ALL ELECTRICAL IS OFF BEFORE WASHING YOUR REFRIGERATOR.

## LOADING

Pre-chilled merchandise should not be placed into the case until the case temperature has pulled down to the preset operating temperature.

For proper operation, you must not stock merchandise above the load lines. In doing so, you will seriously affect the performance, which will result in higher product temperatures and increased operating costs.

## ELECTRICAL

All field installed wiring must comply with the NATIONAL ELECTRICAL CODE AND LOCAL CODES.

## ELECTRICAL CONNECTIONS

All cases are supplied with 8' cord and P-20 electrical plug. A 20 amp outlet with a S-20 socket is required.

## NOTE: ALL REFRIGERATORS MUST BE GROUNDED

Make sure that proper wire size and branch circuit protection are employed for safe operation.

Chart #1 shows the electrical ratings for your refrigerator. This is the same information that appears on your unit dataplate.

## EVAPORATOR FAN MOTOR

The fan motor employed is permanently oiled for the life of the motor and requires no periodic maintenance. The motor is wired according to the enclosed wiring diagram and MUST RUN CONTINUOUSLY when the case is operating.

## ANTI-SWEAT HEATER

This heater is in the fixture to eliminate sweat and frost from forming on the back cap.

## EXPANSION VALVE

The expansion valve furnished with your refrigerator has been sized for maximum coil efficiency. The superheat on this expansion valve has been preset at the factory. Should it be necessary to adjust superheat, place a thermocouple under the expansion valve bulb. Read the suction line pressure as near coil as possible. (If at the condensing unit, estimate suction line loss at 2 PSIG). Convert coil suction pressure to temperature. The difference between coil temperature and the thermocouple temperature is superheat. (Use average superheat when expansion valve is hunting). Do not set superheat until the case has pulled down to operating temperature and never open or close valve over 1/2 turn between adjustments and allow 10 minutes or more between adjustments. Superheat should be set to 10-12Dg. F.

## REFRIGERANT

This case has an operating refrigerant charge of 2.75 lbs - R-22.

## OPERATION

Each case contains thermostat(s) for temperature control (preset temperature). The thermostat bulb(s) are located in the discharge air. Chart #2 shows approximate settings for the control. Since many variables are present in each installation, such as store temperature, temperature desired in refrigerator, etc., Chart #2 is only a guide for the installer.

## OFF-CYCLE DEFROST

Off-cycle defrost is standard on these models. The evaporator fan runs continuously during refrigeration and defrost. Termination is by time (fail safe). See Chart #2 for defrost settings.

ZV1-SC & A-ZV1-SC

ELECTRICAL 120 VOLT 660HZ 1PH

Chart #1

|                            |               |          |
|----------------------------|---------------|----------|
| EVAPORATOR FAN             |               | .29 amp  |
| CONDENSER FAN              |               | .37 amp  |
| A/S HEATER                 |               | .67 amp  |
| CONDENSER EVAPORATOR FAN   |               | 8.34 amp |
| COMPRESSOR                 | REFRIG. CYCLE | 16.0 amp |
|                            | DEFROST CYCLE | 8.6 amp  |
| MIN CIRCUIT AMP            |               | 18.9 amp |
| MAX OVERCURRENT PROTECTION |               | 20 amp   |

CHART #2

RECOMMENDED CONTROL SETTING

|                       | ZV1-SC    | A-ZV1-SC          |
|-----------------------|-----------|-------------------|
| REFRIGERANT TYPE      | R-22      |                   |
| CHARGE                | 2.75 lbs  |                   |
| LOW PRESSURE (LP)     | CUT-OUT   | -- 25 psig        |
|                       | CUT-IN    | -- 45 psig        |
| HIGH PRESSURE (HP)    | CUT-OUT   | 370 psig 280 psig |
|                       | CUT-IN    | 450 psig          |
| DEFROST PERIODS       | 6/24 hrs* |                   |
| DEFROST TIME SETTING  | 30 min    |                   |
| THERMOSTAT QUANTITY   | 1 ea      | 2 ea              |
| THERMOSTAT(S) SETTING | 20 F      | 20F/30F           |

\*Defrost frequency is specified at design conditions. Higher temperature or humidity may require frequent defrost settings.

P A R T S   L I S T

| <u>Description</u>               | <u>Part No.</u> | <u>ZV1-SC</u> | <u>A-ZV1-SC</u> |
|----------------------------------|-----------------|---------------|-----------------|
| Compressor                       | 02E10-022       | 1             | 1               |
| Valve - Expansion Sporlan        | 03A25-034       | 1             | 1               |
| Coil - Evaporator                | 05A20-167       | 1             | 1               |
| Clock - Defrost Control          | 08A10-086       | 1             | 1               |
| Thermostat - Electronic          | 08A11-077       | 1             | 2               |
| Control - Dual Pressure Penn     | 08A12-138       | -             | 1               |
| Motor - Evaporator Fan           | 09A10-055       | 1             | 1               |
| Motor - Condenser Fan            | 09A10-069       | 1             | 1               |
| Blade - Evaporator Fan           | 09B10-059       | 1             | 1               |
| Blade - Condenser Fan            | 09B10-064       | 1             | 1               |
| Switch - Toggle                  | 10J10-024       | -             | 1               |
| Control - High Pressure          | 10J10-045       | 1             | -               |
| Breaker - 2 Pole 25 amp          | 10J14-172       | 1             | 1               |
| Heater - 80w Epoxy               | 10K12-062       | 1             | 1               |
| Harness - A/S                    | 10M10-193       | 1             | 1               |
| Honeycomb - Plastic              | 13A15-012       | 2             | 2               |
| Casters - Swivel Plt. Brk. Model | 17B10-014       | 4             | 4               |
| Heater - Condensate (Evapoway)   | 28H12-029       | 1             | 1               |
| Condenser - Coil Assy.           | 32A16-145       | 1             | 1               |
| Panel - Upper Front              | 51A12-224       | 1             | 1               |
| Panel - Lower Front Perf.        | 51A12-339       | 1             | 1               |
| Panel - Back Upper               | 51B12-110       | 1             | 1               |
| Panel - Back Lower Perf.         | 51B12-122       | 1             | 1               |
| Kickplate - Front/Rear Brt.      | 55A32-555       | 2             | 2               |
| Kickplate - End Hinge Assy Brt.  | 55A32-557       | 2             | 2               |

| <u>Description</u>           | <u>Part No.</u> | <u>ZV1-SC</u> | <u>A-ZV1-SC</u> |
|------------------------------|-----------------|---------------|-----------------|
| Box - Electric Control Assy. | 82A17-038       | -             | 1               |
| Box - Electric Control Assy. | 82A17-039       | 1             | -               |
| Coil - Assy.                 | 86C14-166       | 1             | 1               |
| Condensing Unit Assy.        | 88A10-017       | 1             | -               |
| Condensing Unit Assy.        | 88A10-018       | -             | 1               |
| Pan - Evaporator Assy.       | 89B10-029       | 1             | 1               |
| Plenum - Fan Assy.           | 96C19-277       | 1             | 1               |

IN THE CONSTANT EFFORT TO IMPROVE OUR PRODUCTS, WE RESERVE THE RIGHT TO CHANGE AT ANY TIME SPECIFICATIONS, DESIGN, OR PRICES WITHOUT INCURRING OBLIGATION.

# KYSOR // WARREN

DIVISION OF KYSOR INDUSTRIAL CORPORATION

P.O. Box C  
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Conyers, Georgia 30207  
404 483-5600

## ONE-YEAR WARRANTY

KYSOR/WARREN warrants to the original purchaser this new equipment and all parts thereof, to be free from defects in material and workmanship under normal use and service. If any part or parts of the equipment should prove defective during the period of one year from installation date (not to exceed one year and thirty days from the date of original shipment from the factory), KYSOR/WARREN hereby guarantees to replace or repair, without charge (F.O.B. CONYERS, GEORGIA), such part or parts as prove defective, and which KYSOR/WARREN's examination discloses to its satisfaction to be thus defective, with a new or functionally operative part. The liability of KYSOR/WARREN under this warranty shall be limited to claims made by the original purchaser to KYSOR/WARREN or its local distributor within the warranty period.

**GLAZING:** Glass is not guaranteed against breakage. If this refrigerator is equipped with a glazing assembly carrying the manufacturer's brand name (Thermopane, Twindow, etc.), the manufacturer's glazing warranty in effect at the time of this shipment is extended to that assembly. It is void outside the continental United States.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS, AND ALL OTHER OBLIGATIONS OR LIABILITIES OF KYSOR/WARREN.

THIS WARRANTY SHALL NOT APPLY:

1. To the condensing unit used with refrigerated equipment unless same was sold and shipped by KYSOR/WARREN.
2. When this equipment or any part thereof is damaged by fire, flood, act of God, or when the original model and serial-number plate has been altered, defaced, or removed.
3. When this equipment or any part thereof is subject to accident, alteration, abuse, misuse, tampering, operation on low or improper voltages, or is put to a use other than recommended by KYSOR/WARREN.
4. When this equipment or any part thereof is damaged, or when operation is impaired, due to failure to follow installation manual (improper installation is the responsibility of the installer).
5. Outside the continental United States.
6. To labor cost for replacement of parts, or for freight or shipping expenses.
7. If the Warranty holder fails to comply with all the provisions, terms and conditions of this Warranty.

Parts replaced under this Warranty are warranted only through the remainder of the original Warranty. KYSOR/WARREN may, at its option and in its discretion, elect to honor this Warranty and to disregard the original purchaser's noncompliance with any of the provisions, terms and conditions of this Warranty.

THIS WARRANTY DOES NOT COVER CONSEQUENTIAL DAMAGES.

KYSOR/WARREN shall not be liable under any circumstances for any consequential damages, including loss of profits, additional labor costs, loss of refrigerant or food products, or injury to person or property caused by defective material or parts or for any delay in the performance of this Warranty due to causes beyond its control. The foregoing shall constitute the sole and exclusive remedy of any purchaser and the sole and exclusive liability of KYSOR/WARREN in connection with this product.