

WATER COOLED SPLIT AIR CONDITIONERS



INSTALLATION, OPERATION AND MAINTENANCE

SERIES "KACSE 012 TO 144"

Each split air conditioner has been checked out prior to shipment. Failure to operate after installation indicates damage in transit or improper installation.

INSPECTION

Check packaging during unloading. Note transit damage on all copies of bill of lading. Inspect air conditioners for hidden shipping damage after packaging is removed. Transit damage claims must be filed promptly with freight company by purchaser.

HANDLING

Always handle **units flat on their base**. Moving or placing a horizontal unit on end, or dropping it may damage internal parts and displace oil from the compressor's crankcase.

STORAGE

If jobsite storage is necessary, place the unit in a clean, warm dry area. Follow instructions under Handling.

LOCATION

Note that units with different capacities may have identical dimensions. Labels on unit packaging must be carefully scrutinised and matched to job location. These units are not approved for outdoor installation and therefore must be installed inside the space being conditioned.

PLACEMENT

Install split air conditioners in a level plane and locate unit around the service panel to ensure that proper access is available.

WIRING

All wiring should conform to the CEC and/or local code requirements. Power disconnect shall be field provided (by others). The wiring diagram is located on electrical box cover on vertical models and on the back of the service panel on horizontal models. Make certain the line voltage and the 24 volt control circuit are properly identified and wired in accordance with

the unit wiring diagram.

- ◆ Water cooled air conditioners are classified as direct (permanently) connected devices by the CEC. Split air conditioners must be properly grounded as per instructions on the unit wiring diagram.

Connecting to Evaporator:

Evaporator must be sized according to the Condensing unit capacity. Fan interlock must be installed according to local codes & supplied wiring diagram.

Proper vacuum must be performed and system charged with enough refrigerant (R410A) to maintain 48°F suction & 105°F condensing temperature in an 80/67°F environment

WATER SUPPLY (UNIT CONNECTED ON OPEN WATER CIRCUIT)

The source of water for split air conditioner operation is the responsibility of the owner and/or the installing contractor. The split air conditioner **must not function without water**, and predetermined rates of flow (l/s or USGPM) must be maintained for the unit to operate at rated capacity. Since the water function is to absorb heat from the refrigerant, the flow rate for each model varies with the entering water temperature (EWT). A pressure-operated water valve is installed for this reason inside the unit and SAE-13 calibrated at the factory for a condensing pressure of 2816 kPa "gauge" (336 PSIG.). Piping size to and from unit **must match or exceed** the inlet and outlet water connection sizes on the air conditioner.

WATER CONNECTIONS

If flexible hoses are used to make the water in-out connections to the unit, certain precautions must be taken to ensure proper unit operation and avoid hose damage.

- ◆ **Never use** a hose of a smaller inside diameter than that of the water connection sizes on the unit.
- ◆ The hoses must be rated to match or exceed

temperatures and pressures which occur during normal operation of system (temperature between 4° C (40° F) and 43° C (110° F); and pressures up to 1380 kPa (200 PSI).

- ◆ When hoses are connected they must not be subjected to any stress in tension or by twisting or kinking.
- ◆ Hoses available as an accessory to the unit are provided with hexagonal surfaces on the fittings as are the water fittings on units. Use a properly sized wrench on the hexagonal surface to tighten connections. **Never use** a wrench on the hose or sleeve that crimps the fitting into the hose.
- ◆ **Do not over-tighten connections.** Turn in the mating threads by hand or with a wrench until snug, then tighten with a wrench beyond the point just enough to seal the joint (for tapered pipe threads this would be an additional 1/2 to one full turn; for union or flare connections no more than 1/4 of a turn).
- ◆ Before pressurising the system, closely inspect the hose and fittings to be sure there are no cuts, abrasions, twists or kinks. Hoses must not be in contact with any sharp edge while in use.
- ◆ Hose supplier will not take responsibility for hose leakage, failure or damage resulting from water leaks.

WIRING - LINE VOLTAGE

Check main power voltage. Refer to unit wiring diagram and make changes (if required) to permit the unit to operate on the available supply voltage. Connect power as per the unit wiring diagram, conforming to the local and national electrical code requirements.

CONNECTION AND LOCATION OF THERMOSTAT

Wiring the thermostat to the unit should be done as per the wiring diagram (inside the panel of the electrical box on the vertical units and on the inside of the service panel for horizontal units). Thermostat must be absolutely level when installed and located to best sense the actual room temperature. Avoid false sensing heat or cold from sunlight, open doors or window drafts, supply air outlets, fireplaces, ovens, etc.

HIGH PRESSURE PROTECTION

Your unit is protected against excessive high pressure by a pressure limiting control. If the pressure rises above 500 psi (3447 kPa), the pressure switch

will shut down the unit.

RESET UNIT

To restart, **the unit must** be turned "OFF" at the thermostat or at the main power switch. Then switch to "ON" position; the unit will start functioning. If not, call a technician to solve the problem. Repeated resetting on unit without getting the fault corrected will cause compressor failure.

START UP INSTRUCTIONS

- ◆ After installation of unit and the ductwork, water and condensate connections, the wiring in accordance with preceding instructions, the unit is ready for start-up. Check all wire connections to the unit and to external control devices for tightness.
- ◆ Set temperature on the thermostat below room temperature and start the unit. After operating for five(5) minutes, air supply should have a minimum temperature drop of 10-12° C (18-22° F). Use a surface temperature device or any other device to check the temperature of supply water and return water. The **minimum temperature rise** should be 6° C (10° F).
- ◆ If the above conditions are not met, one or more of the following problems exist: low air flow, low water flow, or unit is possibly defective.

MAINTENANCE AND SERVICE

- ◆ Do not operate the split air conditioner without the air filter in place. Filters should be serviced regularly, **at least every three months.**
- ◆ Dirty filters will result in inefficient performance.
- ◆ Check the air coil and fan wheel yearly for cleanliness and clean if necessary.

NOTICE

- ◆ Hot gas by pass
- ◆ To be adjusted to 55 psi