PS MANUAL

AIR CONDITIONING TEST BENCH

1.0 ***Model*** **TB-700-AC-7.5**

2.0 ***Description***

Air Conditioning Test Bench 7.5 Kw

Durst Industries Australia Pty. Ltd.
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Unit 1, 11 Packard Avenue
Castle Hill NSW 2154 Australia

AUSTRALIAN MADE®
AND OWNED SINCE 1918

3.0 Features

- 12/24 Volt DC Power supply Switch with Amp meter
- Emergency Stop Switch
- Motor speed with Tacho
- Pressure Vacuum Gauges
- DC Power Supply Terminals
- Quick Acting clamp bracket – lift to rotate
- Multi Groove pulley & Pulley Guard

4.0 Physical and Dimensional Properties

- Each unit weighs approximately 135.0 Kg – in Crate 150.0Kg
- Width 840 mm – in Crate 920 mm
- Depth 780 mm – in Crate 1000 mm
- Height 1320 mm – in Crate 1600 mm

5.0 Performance

- Variable speed 7.5 Kw motor. Type AP4G3-75R
- 415 Volt AC 50Hz with inbuilt 10 Amp circuit breaker
- Motor Run RPM Min 800- Max 5000
- 3Phase 415 Volt + Neutral & Earth

- **How Refrigerant Flows Through the System**

  - Compressor draws LOW PRESSURE HOT VAPOR refrigerant from the evaporator (suction port - large line), and compresses the vapor.

  - HIGH PRESSURE HOT VAPOR from the compressor goes into the condenser. The vapor gives up its latent heat to the cooler outside air through the condenser and changes back to LIQUID (like steam back to water). Now it's a HIGH PRESSURE LIQUID.

  - The HIGH PRESSURE LIQUID now encounters an orifice (small opening) either an orifice tube or expansion valve. When the liquid squirts through this opening, its pressure is reduced and it gets very cold.

  - The now LOW PRESSURE COLD LIQUID absorbs heat from the cab through the evaporator and the liquid inside turns into vapor (boils) (like water absorbing heat and turning to steam)except refrigerants boil at very low temperatures.

  - Note: If the orifice is an O-tube, under some conditions too much refrigerant might get into the evaporator and not all boil. An accumulator is hooked on the evaporator output to "accumulate" this excess liquid and prevent the liquid from reaching the compressor

- This LOW PRESSURE HOT VAPOR from the evaporator is now drawn into the compressor. Back to step 1.

- **<u>Refrigerant flow</u>**

  Hot compressed gas leaves the compressor via the small hose (high side hose) and enters the top of the condenser where it will cool off a little and "condense" from a hot gas to a high pressure liquid refrigerant.

  Refrigerant exits the bottom of the condenser, and heads towards the evaporator as a high pressure liquid. To get the refrigerant to boil and absorb the heat from the inside of the car, we need to turn that high pressure liquid into a low pressure boiling liquid. That refrigerant pressure drop happens right before the refrigerant enters the evaporator via an expansion valve or an orifice tube. This is the pressure split. The refrigerant enters the evaporator as low pressure mix of boiling liquid and vapor. Heat load on the evaporator changes the liquid to a gas vapor. This low pressure vapor then returns to the compressor (via the suction hose) to start the cycle over again

- **To First Operate:**

  - Plug Test Bench into a 10 or 15 Amp 5 wire (3 Phase 415 Vac + Neutral & Earth)

  - Main switch is located top right hand side of front panel above the Emergency stop switch & circuit breaker at right hand side of control box & panel.

  - Turn Test Bench on.

  - Control is mounted on the right hand side of the front panel.

  - Use the control to select motor direction (Clockwise or anti clockwise) of drive pulley.

  - Dial in speed required to test pump. (LCD screen also shows motor shaft speed)

  - After test reduce speed & select motor stop.

  - Switch Test Bench off at main switch Top Front Panel

  - Emergency Stop switch is located on the Top right hand side of main panel & Cuts all supply to the Test bench.

  - Turn clockwise to reset.

6.0 Uses

- Suitable for Automotive, Marine, Defence, Councils, TAFE

7.0 Documentation

- Bar Code Number: **9346080001164**
- Product Specification Manual - PS 74
- Work Instruction Manual - WI 74
- Product Costing Manual - PC 74

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