# CHAPTER VII

1. Provision has been made for fitting a Sternette open type automatic refrigeration plant when conditions necessitate a refrigerated air-cooled system. This plant is treated in separate makers handbooks supplied with the machine; the purpose of this chapter is to describe how the plant is used with the Pegasus Computer.

## GENERAL DESCRIPTION

2. The plant is designed to operate with Dichlorodifluoromethane $CCl_2F_2$ (Freon 12 or Arcton 6) as the working fluid or refrigerant. The system is illustrated in fig. 7-1 but it should be noted that installations may differ from that shown due to abnormal siting conditions or customers special requirements.

A slip ring motor drives a twin or triple - cylinder compressor in which the refrigerant vapour is compressed and delivered through an oil separator to a condenser, where it undergoes a cooling process which converts it into a liquid form. The liquid refrigerant then passes to the receiver where it is stored ready for recirculation. From the receiver the liquid refrigerant flows through a strainer-drier a sight glass and a magnetic stop valve to the distribution pipes which feed the air cooling coils. Each coil is fitted with a stop valve and a thermostatic expansion valve at which the pressure is reduced. The liquid evaporates at low pressure within the cooling coils thereby extracting heat from the air flowing over the coils. The resultant vapour flows back to the compressor through the back pressure valve completing the refrigeration cycle.

Each bay in a refrigerated Pegasus is equipped with one cooling coil, thus a basic installation will require three cooling coils; a four-bay Pegasus (Pluto) four coils and a Pegasus with converter six coils.

The addition of refrigeration to a Pegasus Computer involves some modifications. The air circulation system normally controlled by twin fans fitted in each bay is replaced by a two-fan system. These fans together with their starting contactors (fig. 7-2) are mounted in a special fairing which abuts on bay three. The cooling coils, stop valves and thermostatic expansion valves are enclosed in a metal housing fitted with three air intakes which extends along the front of the computer.

The exhaust-fans draw air into the computer by way of the air intakes and cooling coils. The cooled air flows upwards extracting heat from valves and other components and is eventually collected by the exhaust fans from which it is expelled through suitable ducting, to a point outside the building. The inter-connections between fans and computer are shown in fig. 7-4. (See also fig. 2-16).

It should be noted that fan and compressor warning lamps are fitted. These lamps are mounted above the monitor lamp panel.