# GENERAL ELECTRICAL POWER SYSTEM PRESENTATION

There are two identical engine driven generators called Integrated Drive Generators (IDGs). They are used as the main power source to supply the A/C electrical network. The IDG basically contains, in a common housing, a generator and a Constant Speed Drive (CSD). The CSD gives a constant input speed to the generator, which is required for a constant output frequency.

Each generator supplies 115V 400Hz AC to its own bus:

- generator 1 supplies AC bus 1,

- generator 2 supplies AC bus 2.

This supply is known as split operation, which means that the AC power sources are never connected in parallel. Each AC bus supplies a Transformer Rectifier (TR):

- AC bus 1 supplies TR 1,

- AC bus 2 supplies TR 2.

The TRs convert 115V AC into 28V DC to supply their associated DC buses, DC 1 and DC 2.

DC bus 1 then supplies the DC BAT bus. The DC battery bus can charge the batteries or receive power from the batteries as a backup supply, if no other power sources are available. The electrical system also includes two ESSential (ESS) Buses. One is the AC ESS bus fed by AC bus 1 and the other is the DC ESS bus fed by DC bus 1. These buses are used to supply the most critical A/C

systems. This is the basic electrical system. We will now introduce some other components which also supply the system. The entire electrical network can also be supplied by the APU generator.

On the ground, the aircraft electrical network can be supplied by an external power source.

Any one of the power sources can supply the entire electrical network. As no parallel connection is allowed on this A/C (split operation), we have to give priorities to the different power sources in supplying the bus bars.

AC 1 and AC 2 buses are supplied in priority by their own side generator, then the external power, then the APU generator and then by the opposite generator.