

MONDAY:

1. Aircraft power supplies

a. Batteries

1. Two twelve volt batteries in series usually used.
2. Two standard types of aircraft batteries, seventeen ampere hours and thirty-four ampere hours.

(a.) Combinations of the two types used in large aircraft, the smaller rating batteries usually being used for operation of the radio gear, and the two (or more) sets being charged in parallel from the main ship's generators.

b. Aircraft generators.

1. In older aircraft of the large types and in small aircraft of all types there will usually be found combination generators that will produce both a.c. and d.c. in limited quantities. The d.c. will usually be twenty-eight volts at fifty or sixty amperes and the a.c. will be 120 volts, 800 cycles.
2. With the recent advent of electric turrets, radar gear, Loran Navigational Equipment, and other gear that require large quantities of electrical power it was found that combination generators that would supply the requisite power would be so large that their use would be impossible. Therefore, the trend has been to drive large d.c. generators (200 and 300 amperes) with the main engines, and to operate inverters from the d.c. line to supply the necessary a.c. for the radio gear, autogyro instruments, etc.

c. Advantages of a.c. current in aircraft.

1. Smaller transmission lines permissible.
2. Electric motors smaller and lighter.
3. Advantages of high cyclage a.c.:

(a.) Smaller inductances, transformers, power supplies easy to filter, smaller leads required.

d. Aircraft bonding and shielding.

1. Static electricity accumulating in electrically isolated portions of the aircraft structure can cause dangerous arcing, leading to intense radio noise and creating a distinct fire hazard. Therefore, all portions of the aircraft structure must be tied together electrically so as to produce a single electrical unit of uniform potential characteristics. This 'tying together' of the aircraft structure electrically is known as 'bonding'.