Electrical System

The C17 Electrical system provides and distributes power to various components and systems onboard, ensuring the proper functioning of essential and non-essential equipment. It powers avionics, lighting, navigation systems, communication devices, cockpit displays, and control surfaces. Additionally, the system supports critical operations such as engine starting, de-icing, cabin pressurization, and fuel management.

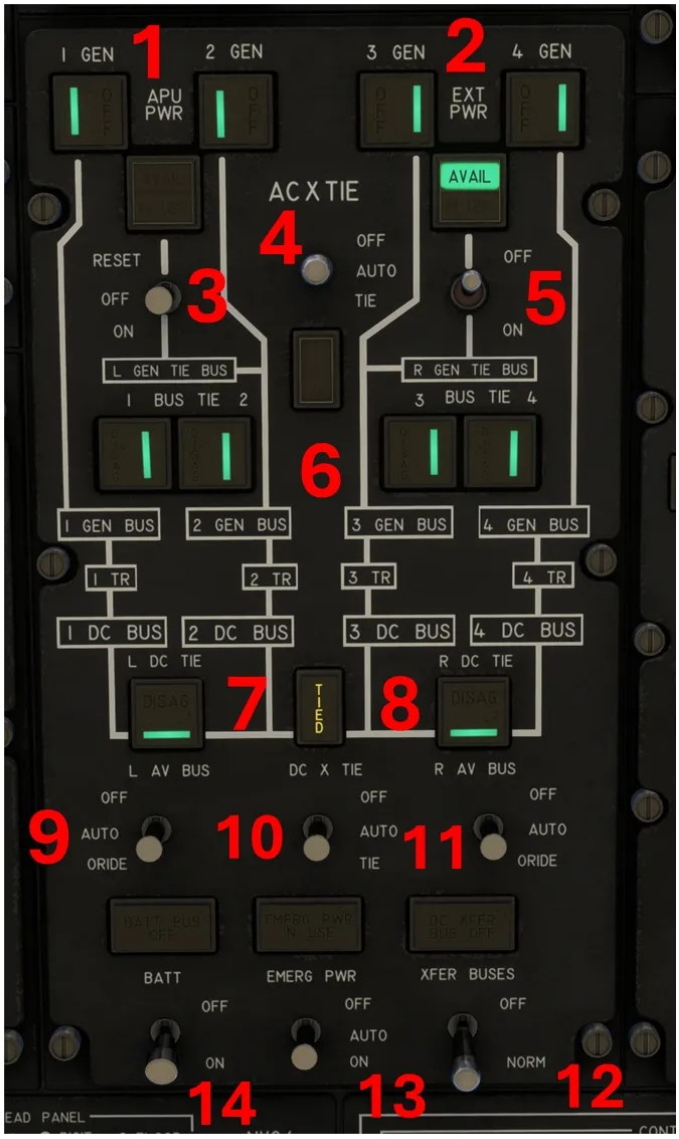
The electrical system on the Globemaster III consists of:

- Four Generators, one for each engine.
- An Auxiliary Power Unit
- An array of Batteries
- A connecting port for Ground Power Units

Additionally, AC Convertors, Buses and Circuit panels guarantee the correct distribution of power in the aircraft.

Electrical Panel

The electrical panel is located on the overhead panel of the aircraft, right next to the fuel and engine panels.



Electrical Panel (Overhead)

1. **Engine Generators 1 and 2:** Provide the aircraft AC Current from the engine 1 and 2 generators. The flow bar indicates switch position only. The yellow OFF light lights up if generator is not providing current.
2. **Engine Generators 3 and 4:** Provide the aircraft AC Current from engine 3 and 4 generators.
3. **APU Generator:** Provide the aircraft AC Current from the Auxiliary Power Unit, provided that the APU is on. The two leds above will display if APU is available or in use.
4. **AC X Tie:** Closes/opens AC Cross Tie circuit. AUTO is its normal position.
5. **External Power Toggle:** Connects/Disconnects External Power/Ground Power Unit, provided GPU is available.
6. **↔ 1-4 Bus Ties Switches:** Opens/closes pass of current through bus ties.
7. **L DC Tie:** Opens/Closes Left DC Tie Circuit.
8. **R DC Tie:** Opens/Closes Right DC Tie Circuit.
9. **Left Avionics Bus:** Opens/Closes flow of electricity to the Left Avionics Bus. AUTO is its normal position.

10. **DC X Tie:** Closes/opens DC Cross Tie circuit. AUTO is its normal position.
11. **Right Avionics Bus:** Opens/Closes flow of electricity to the Right Avionics Bus. AUTO is its normal position.
12. ↔ **XFER Buses Toggle Switch:** Switches behavior of transfer busses in case of de-energizing.
13. ↔ **Emergency Power Toggle:** Switches operation mode of emergency power. AUTO is its normal position.
14. ↔ **Master Battery Switch:** Switches battery on/off.

The Auxiliary Power Unit (APU)

> Note
> The APU may take up to one minute to start. This is normal and accurate to the real aircraft.

The auxiliary power unit is a gas turbine engine, located in the forward section of the right main landing gear pod. The APU provides auxiliary electric, hydraulic, and pneumatic power to the aircraft when the engines are turned off.

The APU Feeds from Fuel Tank #3. Fuel may be fed by gravity, however, it is recommended to have at least one boost pump on to provide sufficient pressure - the APU may shut down due to fuel starvation if pressure is insufficient for a period of more than two minutes. The APU is unable to feed from any other fuel tank, unless XFEED of fuel is occurring towards Tank 3.

The APU Panel is located directly above the Electrical panel.



APU Panel

1. **APU Display:** Displays APU RPM and Engine Gas Temperature.
2. ↔ **APU Starter/Control Switch:** OFF/RUN/START, used to start and stop the APU turbine.
3. **Auto Shutdown Override:** INOP
4. ◇ **Mode Selector:** INOP

5. **Fuel Press Indicator:** The amber light will turn on if fuel pressure to the APU is low. Will extinguish if either Tank 3 Boost Pump is enabled.
6. **APU Fire Alarm**
7. **APU Fire Agent Discharge:** INOP

The Auxiliary Power Unit not only provides electricity (Provided that the APU Generator Switch is on), but it also provides hydraulic pressure through the AUX Pumps. The APU can pressurize all four lines to aprox. 3800 PSI (slightly under their normal pressure of 4000 PSI) by using the AUX Hydraulic Pumps on any of the systems. This means that ramps and doors, as well as control surfaces, can be fully operated on APU Power alone. Auxiliary Pumps are entirely electric (AC), so these can also function with Ground Power.

Additionally, the APU provides Pneumatic pressure through the APU Bleed to the R Pack (Directly) and L Pack through the Bleed XFEED Valve. This provides environmental control (AC) and de-ice/anti-ice systems.