

**Project 2.2.3 Turbine Engine Design Data**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Simulation | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Pick a setting for each of these and lock them in for all trials. Make realistic choices! | | | | | | | | | | |
| Engine type |  |  |  |  |  |  |  |  |  |  |
| Flight Conditions |  |  |  |  |  |  |  |  |  |  |
| Mach |  |  |  |  |  |  |  |  |  |  |
| Airspeed (mph) |  |  |  |  |  |  |  |  |  |  |
| Altitude (ft) |  |  |  |  |  |  |  |  |  |  |
| Pressure (lbs/in2) |  |  |  |  |  |  |  |  |  |  |
| Temperature (oF) |  |  |  |  |  |  |  |  |  |  |
| Throttle (%) |  |  |  |  |  |  |  |  |  |  |
| Afterburner (on/off) |  |  |  |  |  |  |  |  |  |  |
| Design Variable | Change only one variable in each simulation. | | | | | | | | | |
| Inlet: pressure recovery |  |  |  |  |  |  |  |  |  |  |
| Fan: pressure ratio |  |  |  |  |  |  |  |  |  |  |
| Fan: efficiency |  |  |  |  |  |  |  |  |  |  |
| Fan: bypass ratio |  |  |  |  |  |  |  |  |  |  |
| Compressor: stages |  |  |  |  |  |  |  |  |  |  |
| Compressor: CPR |  |  |  |  |  |  |  |  |  |  |
| Compressor: efficiency |  |  |  |  |  |  |  |  |  |  |
| Burner: fuel type | Jet-A | Jet-A | Jet-A | Jet-A | Jet-A | Jet-A | Jet-A | Jet-A | Jet-A | Jet-A |
| Burner: max temperature (R) |  |  |  |  |  |  |  |  |  |  |
| Burner: pressure ratio |  |  |  |  |  |  |  |  |  |  |
| Burner: efficiency |  |  |  |  |  |  |  |  |  |  |
| Turbine: stages |  |  |  |  |  |  |  |  |  |  |
| Turbine: efficiency |  |  |  |  |  |  |  |  |  |  |
| Nozzle: max temperature (R) |  |  |  |  |  |  |  |  |  |  |
| Nozzle: efficiency |  |  |  |  |  |  |  |  |  |  |
| Nozzle: A8/A2 |  |  |  |  |  |  |  |  |  |  |
| Engine size (ft2) |  |  |  |  |  |  |  |  |  |  |
| Material | Change only one variable in each simulation. | | | | | | | | | |
| Inlet |  |  |  |  |  |  |  |  |  |  |
| Compressor |  |  |  |  |  |  |  |  |  |  |
| Burner |  |  |  |  |  |  |  |  |  |  |
| Turbine |  |  |  |  |  |  |  |  |  |  |
| Nozzle |  |  |  |  |  |  |  |  |  |  |
| Data | | | | | | | | | | |
| Average Weight |  |  |  |  |  |  |  |  |  |  |
| Trust to Weight ratio |  |  |  |  |  |  |  |  |  |  |
| Temperatures (R), if overheated |  |  |  |  |  |  |  |  |  |  |
| Section 1 |  |  |  |  |  |  |  |  |  |  |
| Section 2 |  |  |  |  |  |  |  |  |  |  |
| Section 3 |  |  |  |  |  |  |  |  |  |  |
| Section 4 |  |  |  |  |  |  |  |  |  |  |
| Section 5 |  |  |  |  |  |  |  |  |  |  |
| Section 6 |  |  |  |  |  |  |  |  |  |  |
| Section 7 |  |  |  |  |  |  |  |  |  |  |
| Section 8 |  |  |  |  |  |  |  |  |  |  |
| TSFC |  |  |  |  |  |  |  |  |  |  |