

F-15C Performances Charts

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- **FLIGHT Envelope**

Flight Domain

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

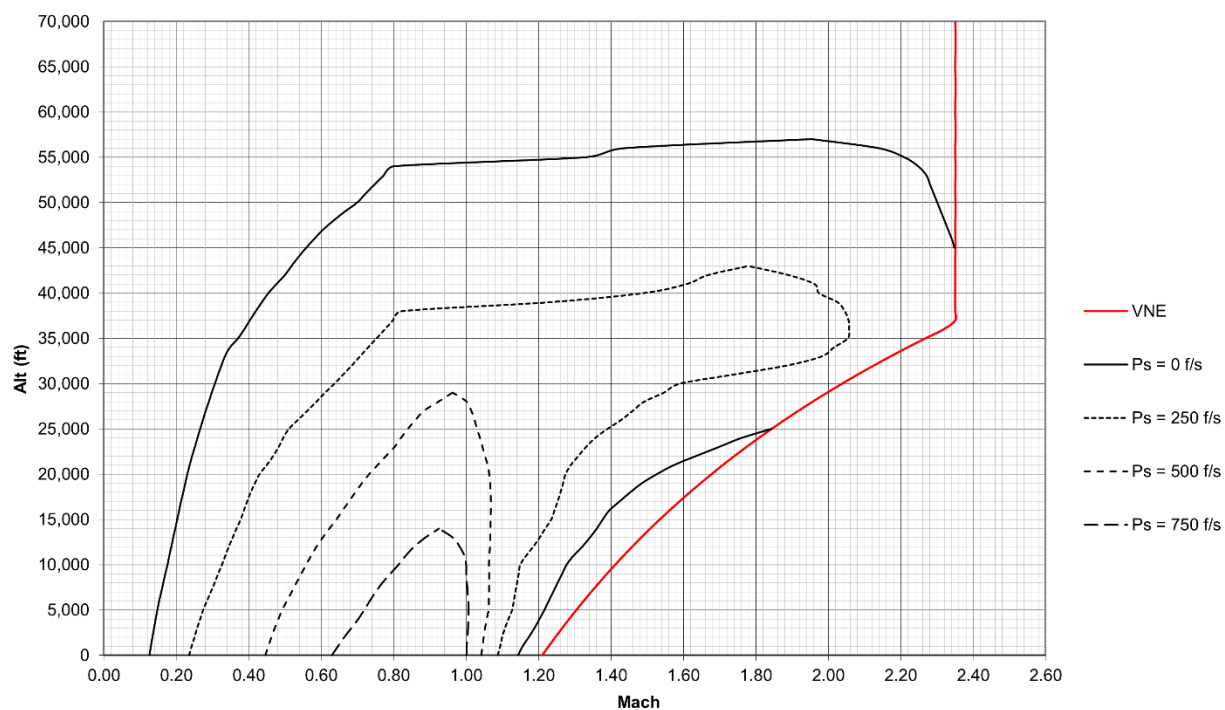
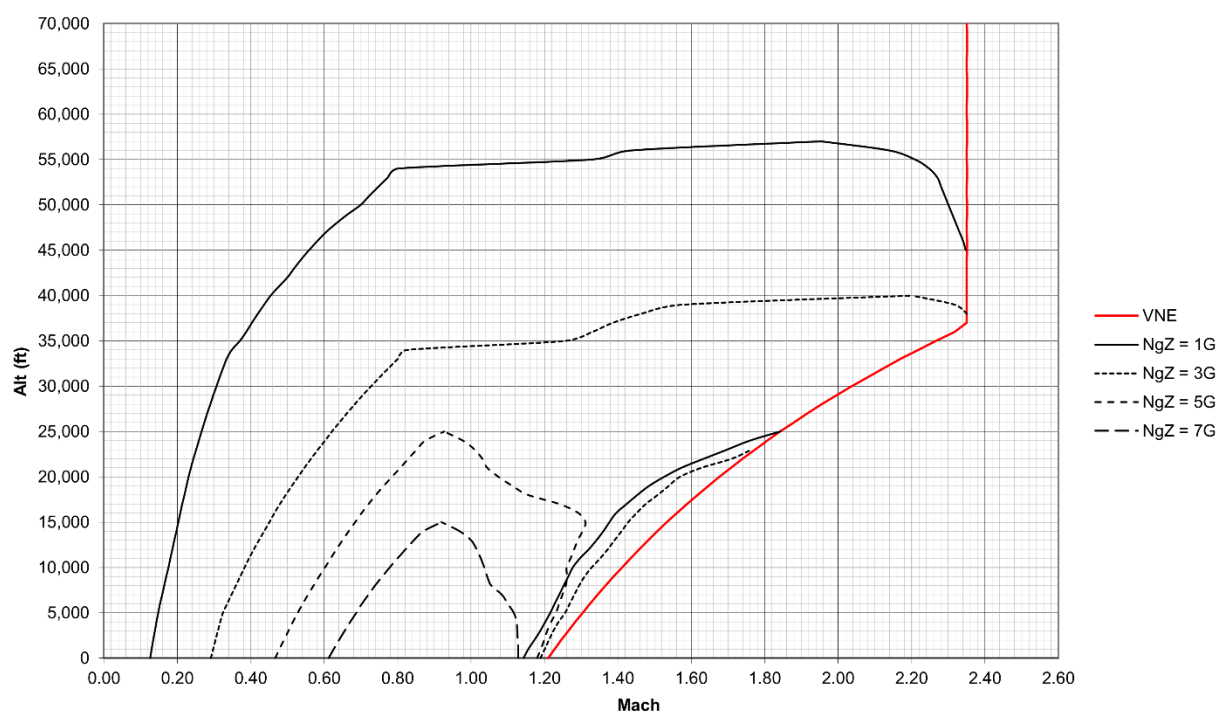
AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs

1G iso-Ps Flight Envelope @ Maximum Power

nG $P_s=0$ Flight Envelope @ Maximum Power

- CLIMB

INSTANTANEOUS CLIMB AT CONSTANT TRUE AIR SPEED

For each identified configuration, two main climb performances are detailed: Constant true air speed climb rate and angle.

The first one is the virtual vertical velocity (in ft/s), of the aircraft when load factor is 1G and true air speed (TAS) is constant, it is called the Specific Excess Power (Ps).

The second one describes the pitch angle (position of the FPM on the HUD ladder) corresponding to the vertical velocity from the first diagram.

Note that these values are lower than for Constant Mach Number Climb rate and angle below 36,000ft, because, as sound speed decreases with altitude, keep the Mach number constant during climb means the True air speed will decrease, consequently allowing for higher climb rates and angles.

Constant Indicated Air Speed (IAS) climb provides lower climb rate and angle as it requires an increase of the True during climb.

SUBSONIC ISO-MACH CLIMB SCHEDULE

These diagrams describe the time, distance and fuel required to climb to a given altitude, using maximum A/B thrust and an Iso-Mach flight profile.

This flight profile assumes the climb angle of the flight path is continuously adapted to keep the Mach number constant over time.

The values displayed in these diagrams do not take into account time, distance and fuel required to accelerate to the desired Mach number, nor to rotate from level flight to climb attitude.

SUBSONIC ISO-IAS CLIMB SCHEDULE

These diagrams describe the time, distance and fuel required to climb to a given altitude, using Military Power thrust and an Iso indicated air speed (IAS) flight profile.

This flight profile assumes the climb angle of the flight path is continuously adapted to keep the IAS constant over time.

The values displayed in these diagrams do not take into account time, distance and fuel required to accelerate to the desired IAS, nor to rotate from level flight to climb attitude.

Climb rate at constant True Air Speed

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

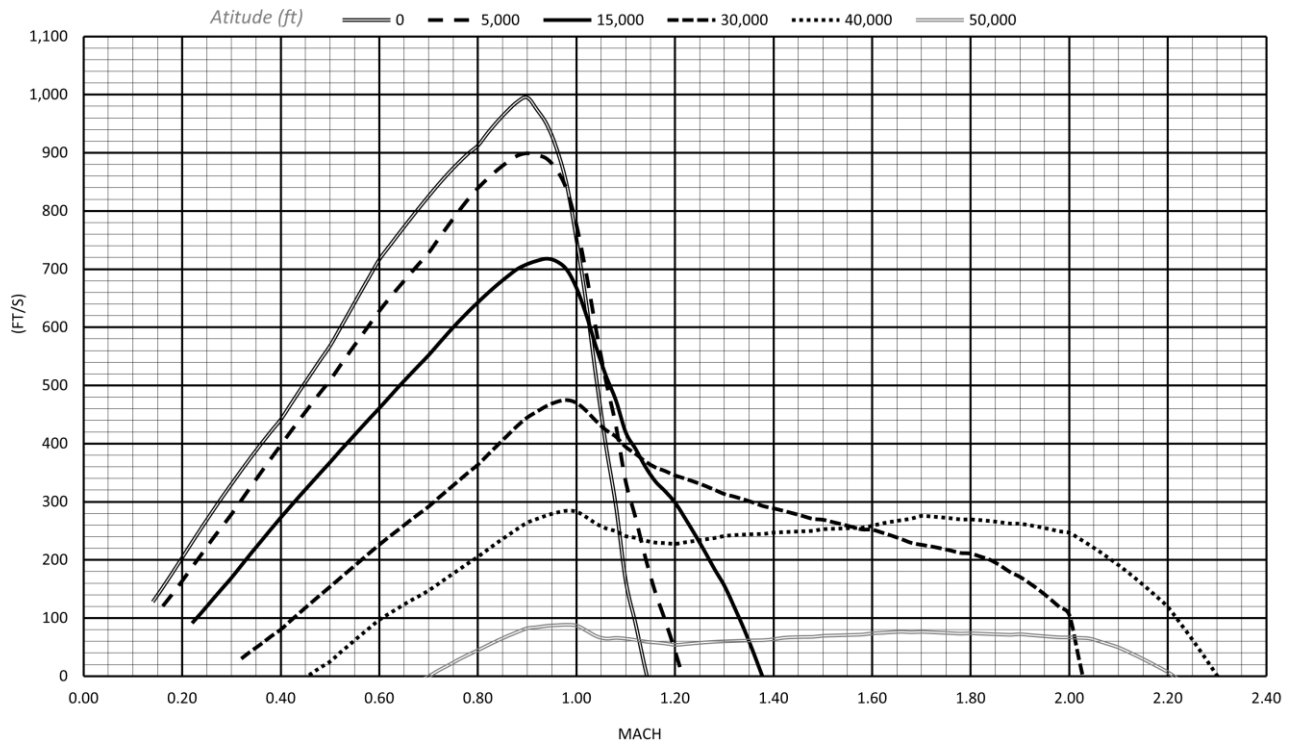
AIRCRAFT: F-15C

ENGINE: PW-F100-220

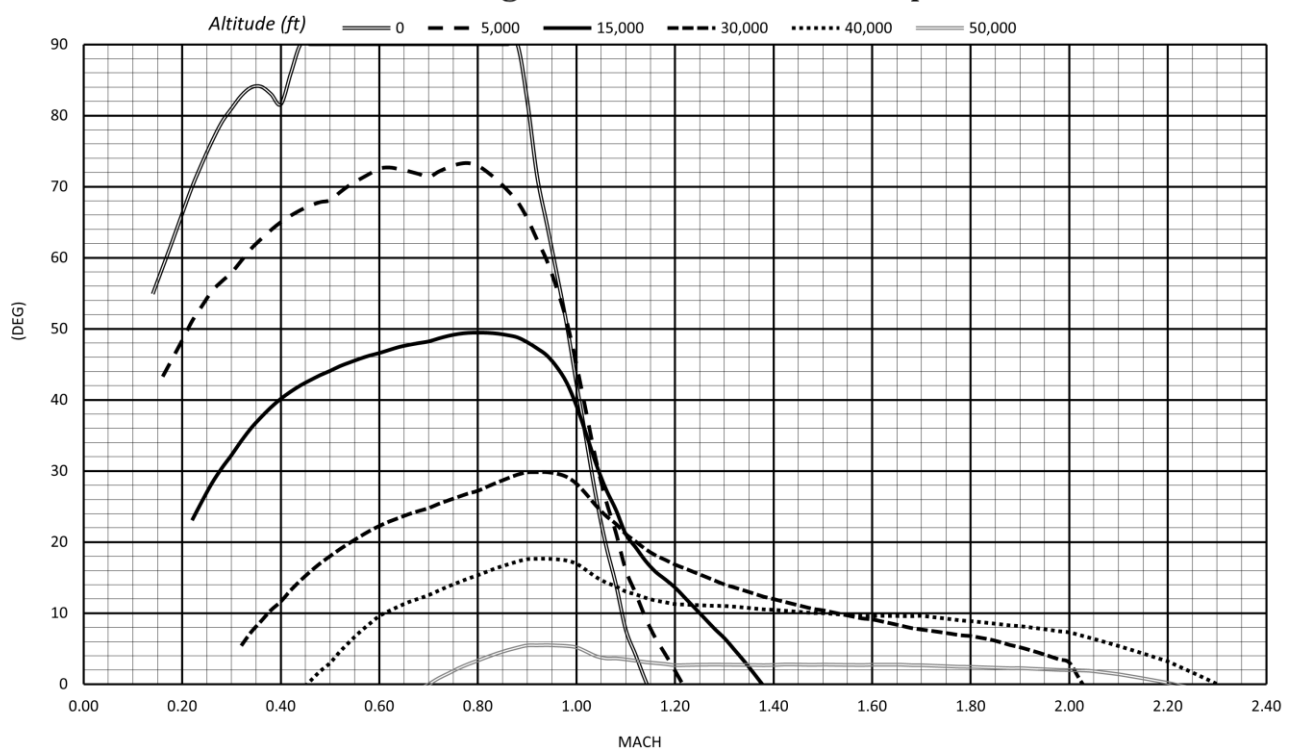
Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs

Climb Rate at Constant True Air Speed



Climb Angle at Constant True Air Speed



Climb Schedule at Iso Mach Number

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

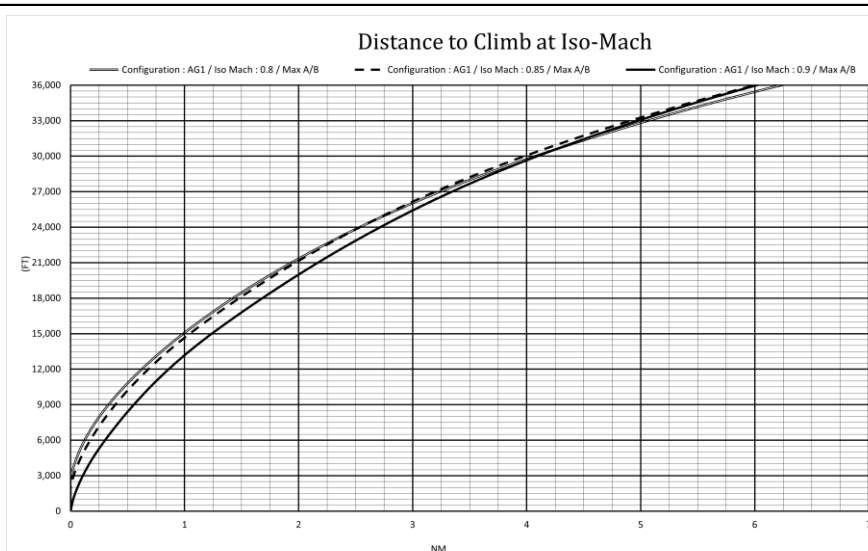
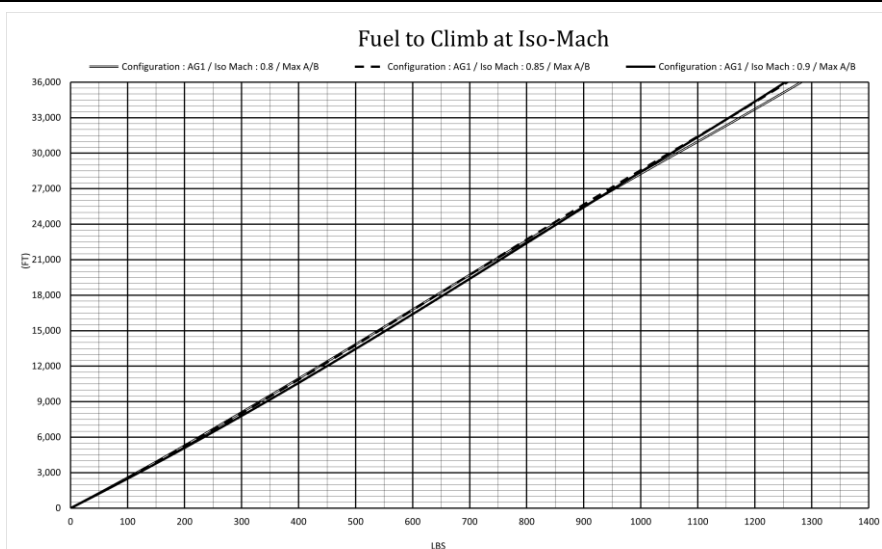
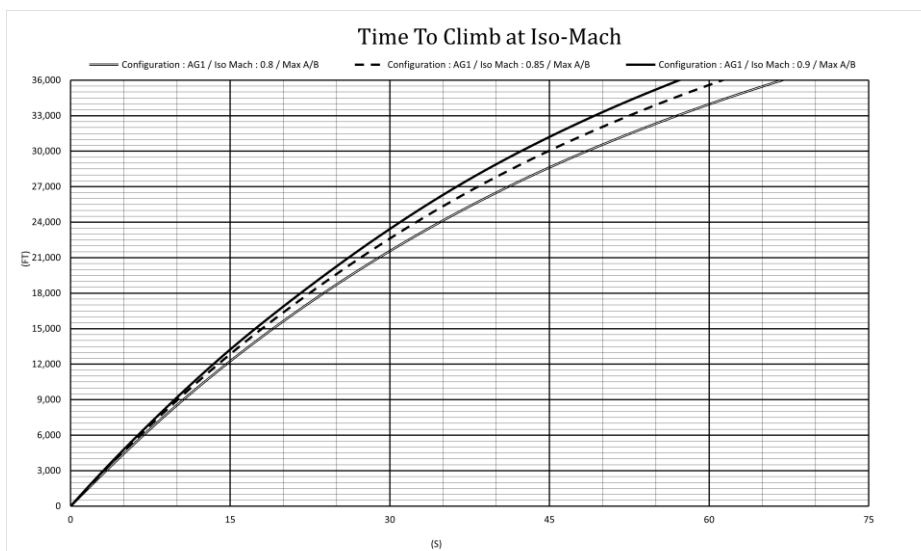
- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



Climb Schedule at Iso Indicated Air Speed

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

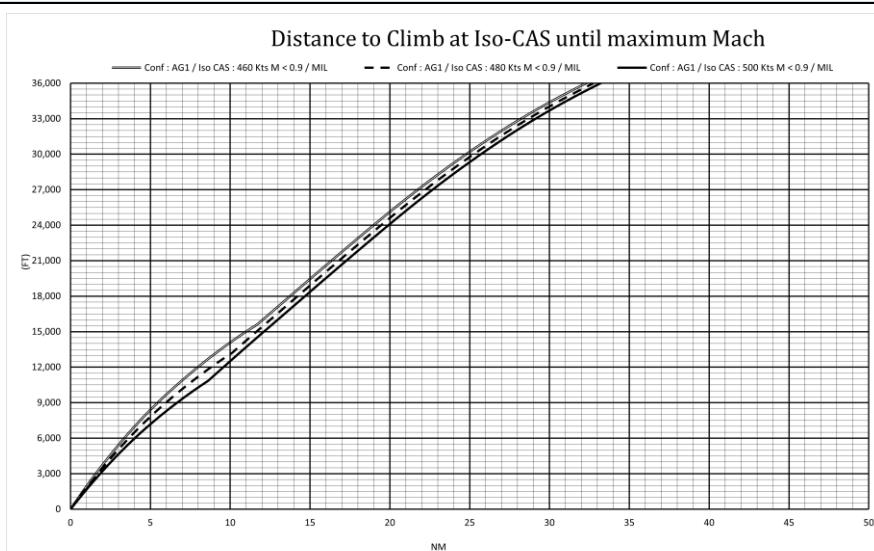
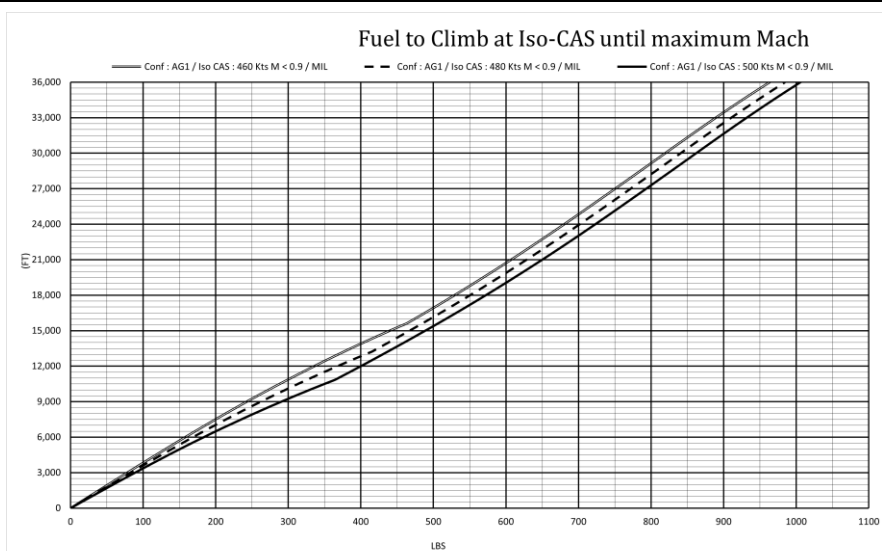
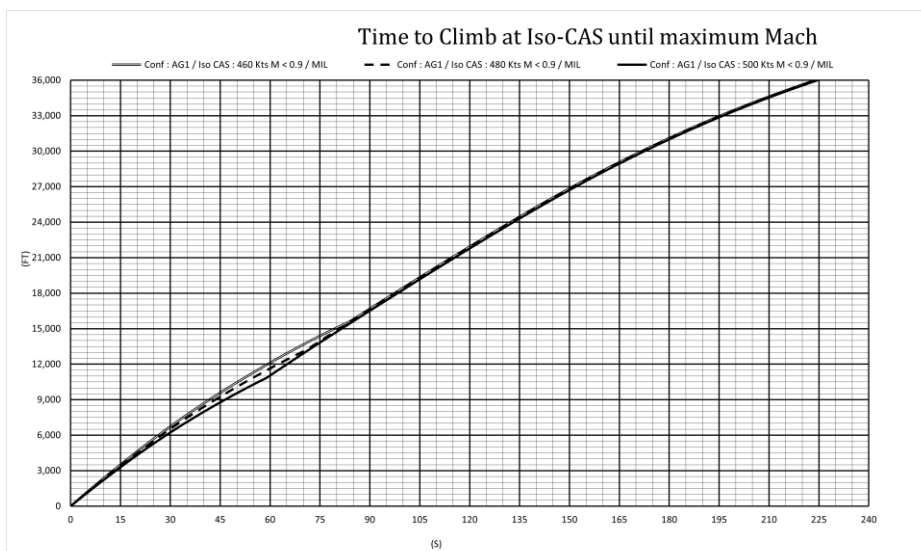
- Atmosphere: Standard Day / ISA
- Engine regime: MIL Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



- **CRUISE, RANGE and ENDURANCE**

This section presents the fuel management data during cruise flight (constant speed and altitude in Military Thrust). For each aircraft configuration, you will find the instantaneous fuel flow (in lbs/h) required to sustain a given Mach number at a given altitude, the autonomy at a given

Mach number and altitude (distance, in Nm that can be covered with a unit amount of fuel: 1,000lbs), and the endurance at a given Mach number and altitude (time in minutes that can be flown with a unit amount of fuel: 1,000lbs)

Fuel Flow – Endurance - Range

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

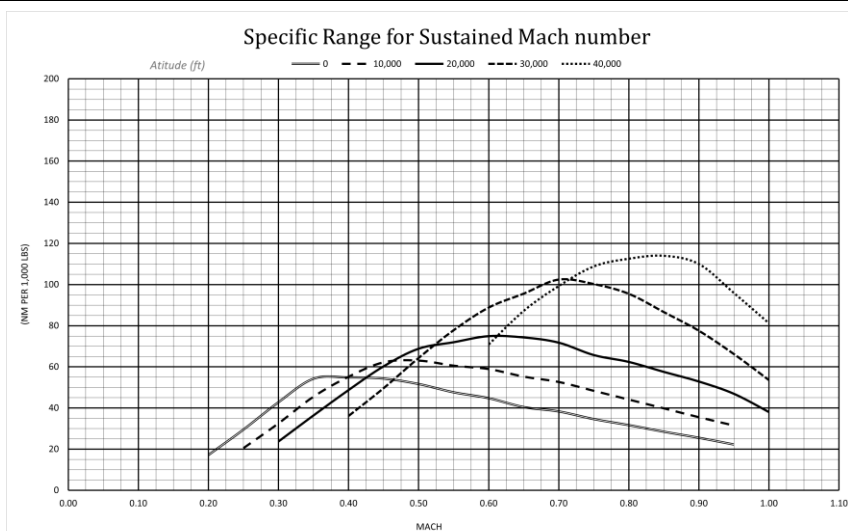
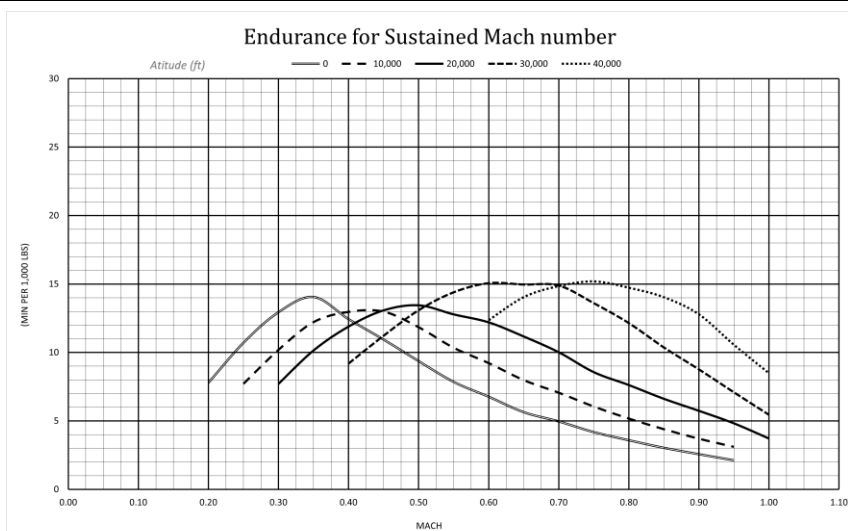
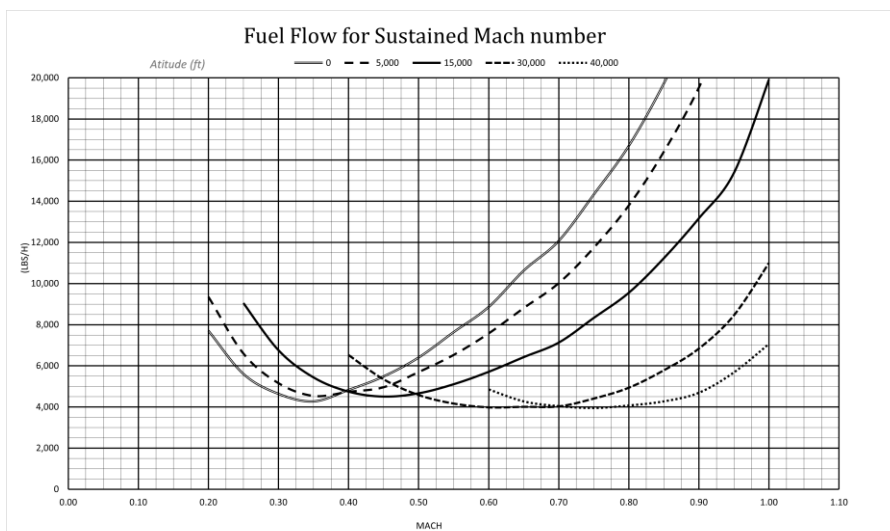
- Atmosphere: Standard Day / ISA
- Engine regime: MIL Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



- TURNING

This section is organized by aircraft configurations. For each of them, you will find the following set of figures:

TURN PERFORMANCE SUMMARY

Maximum Turn Rate summary: three figures for different altitudes, showing the maximum reachable (at maximum possible lift) turn rate (d/s), normal load factor (Ng) and minimum turn radius.

Sustained Turn Rate summary: three figures giving for different altitudes, showing the maximum sustainable

(constant true air speed and altitude) turn rate (deg./s), normal load factor (Ng) and minimum turn radius.

ENERGY MACH DIAGRAM

An Energy Mach Diagram is given for different altitudes (Turn Rate vs Calibrated Air Speed), with Iso-Ps (Extra Specific Power) curves set, and graphical indication of specific performances: maximum reachable (maximum lift and load factor) turn rate, maximum sustainable (Ps=0) turn rate, minimum instantaneous and minimum sustainable (Ps=0) turn radius.

Maximum Lift Turn Capabilities

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

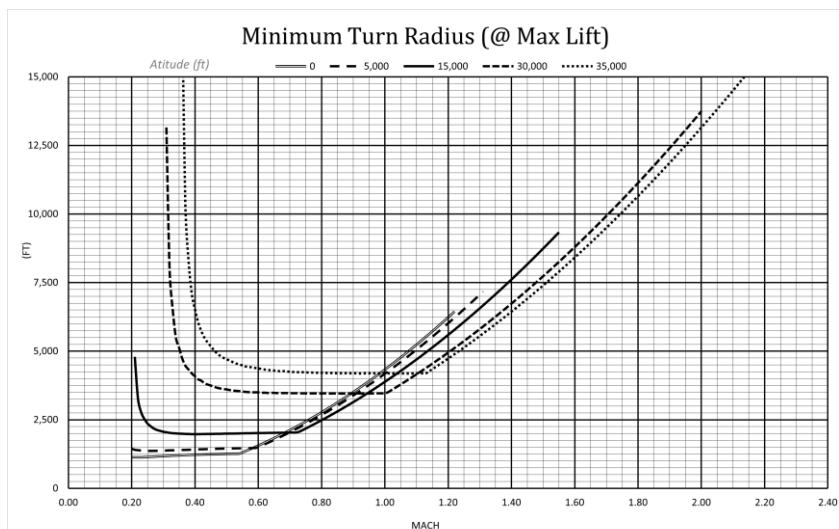
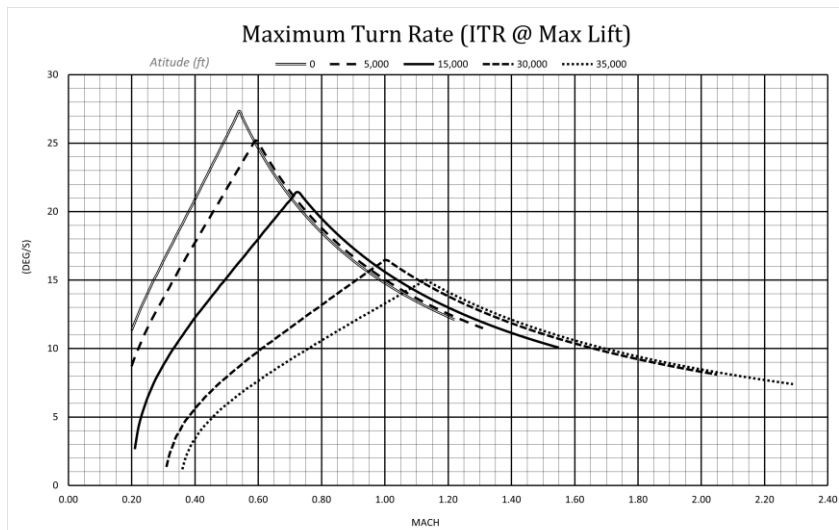
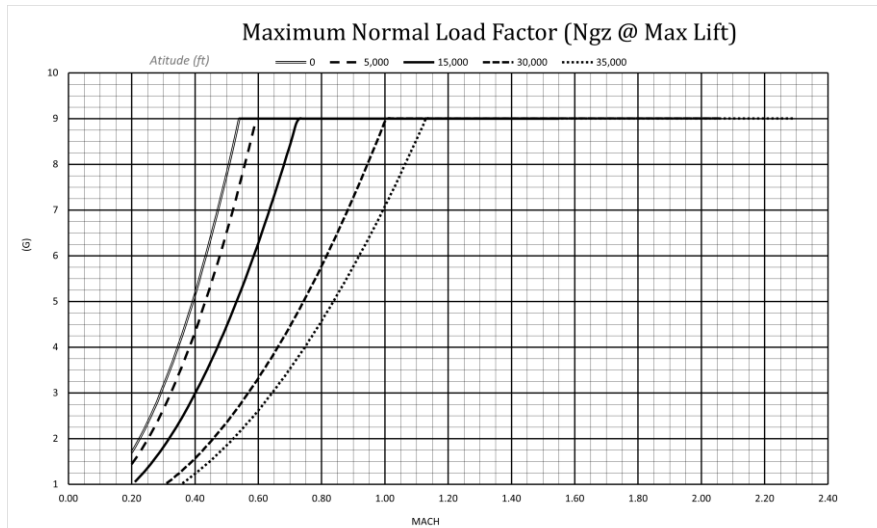
- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



Sustained Turn Capabilities

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

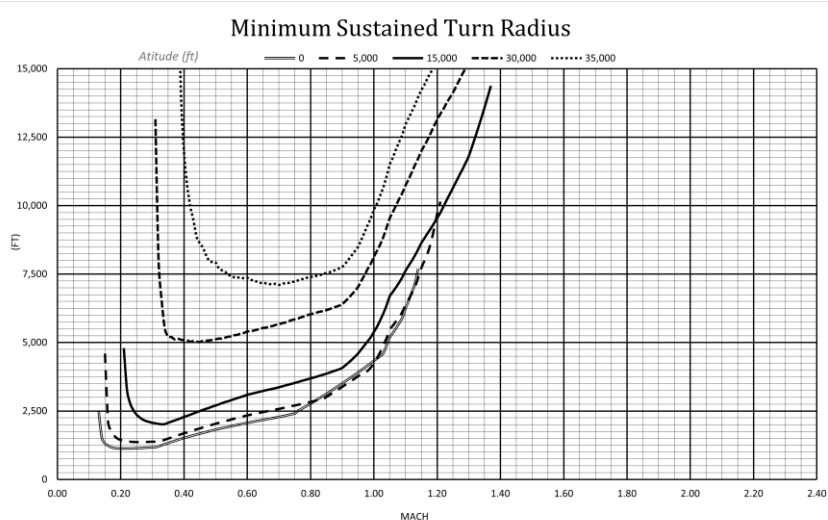
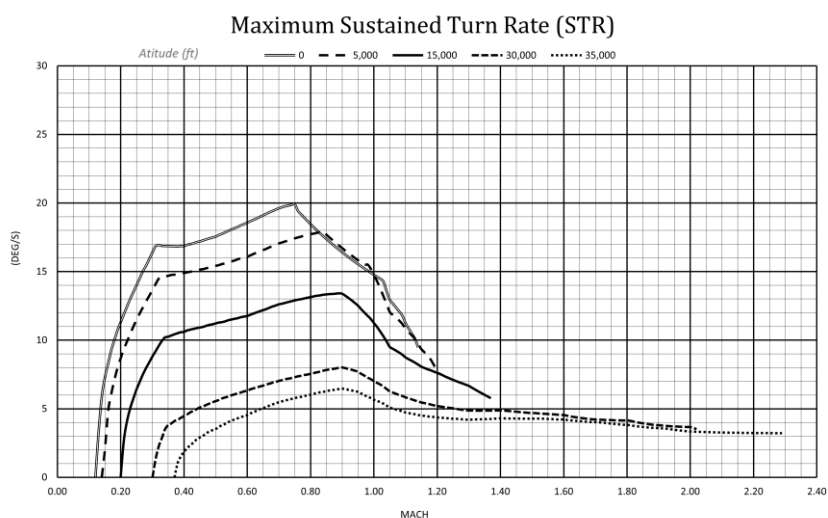
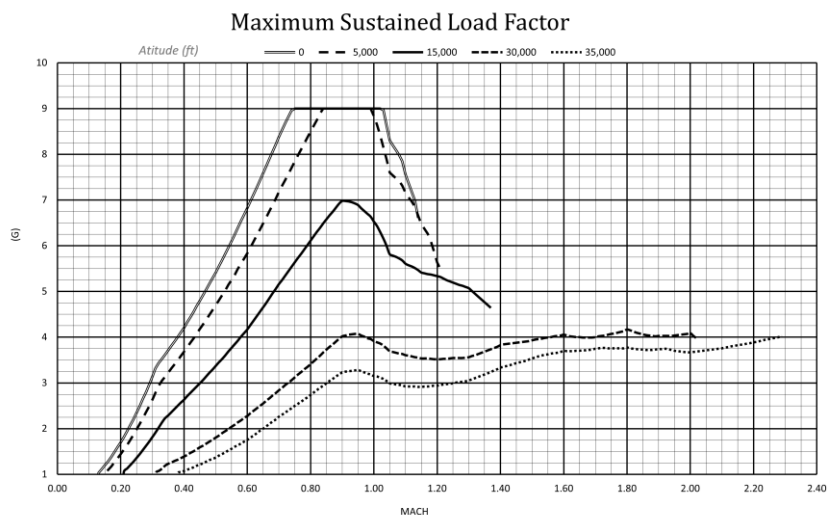
- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



Energy-Mach Diagram at Sea Level

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

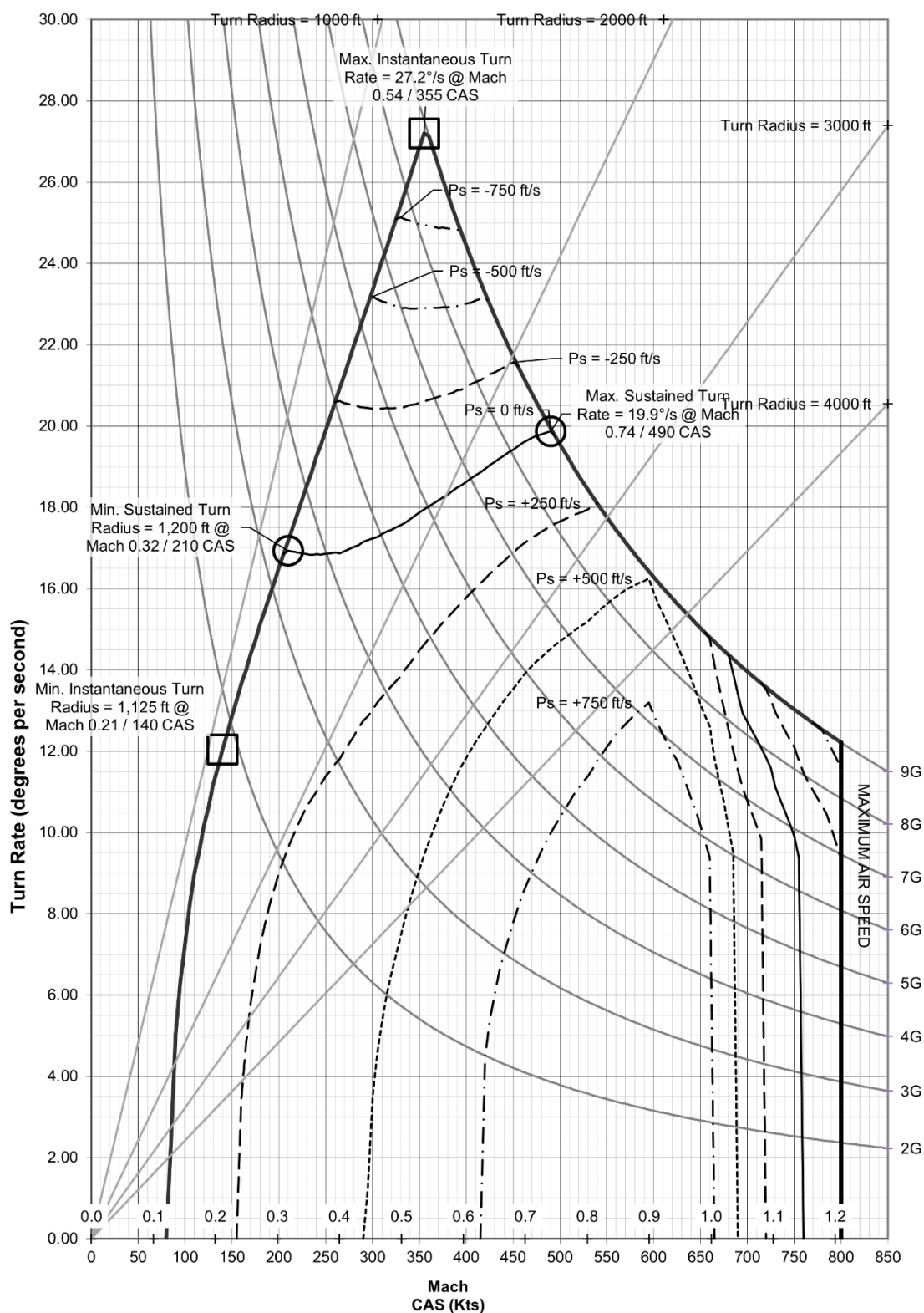
- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



Energy-Mach Diagram at 5,000ft

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

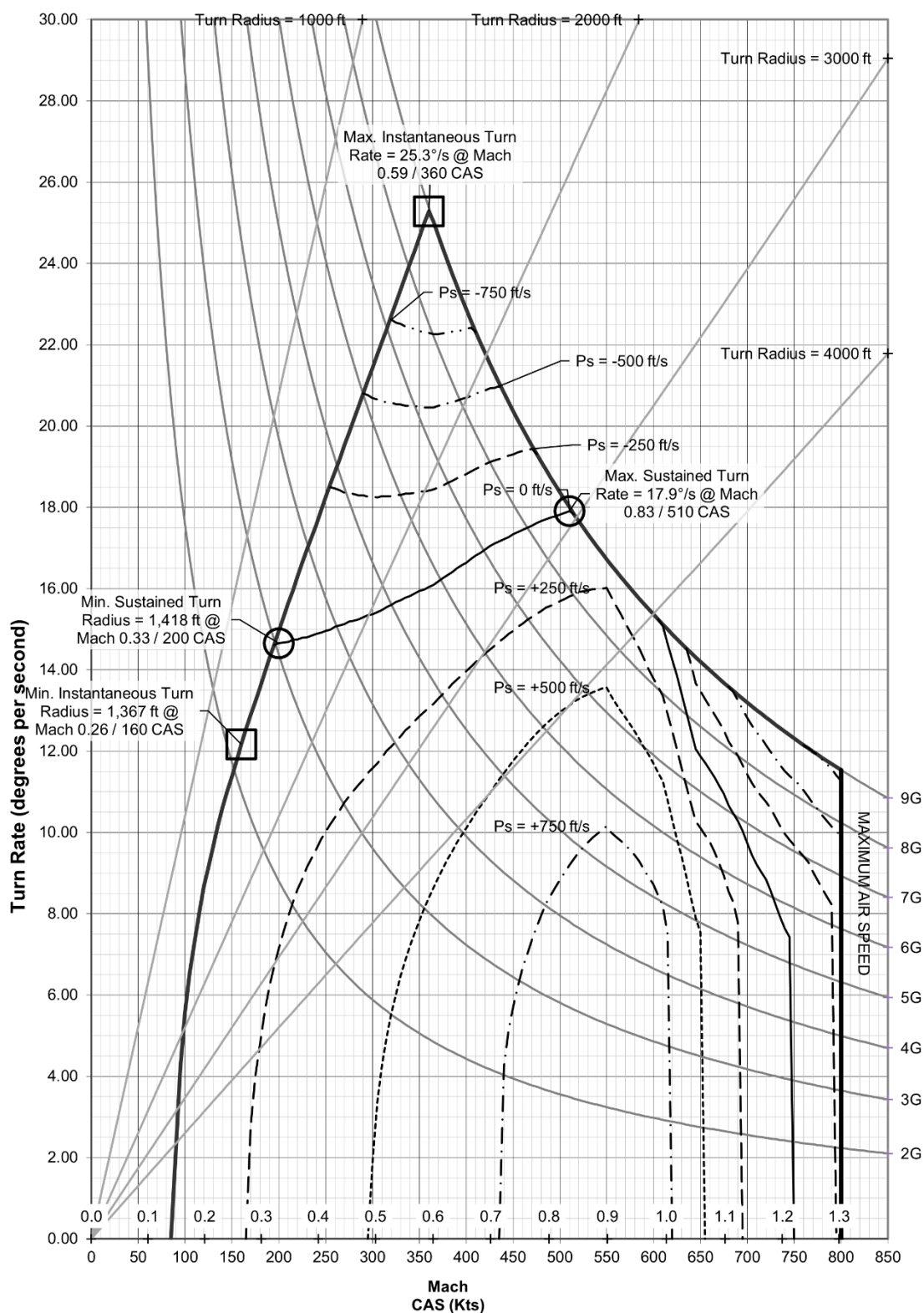
- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



Energy-Mach Diagram at 10,000ft

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

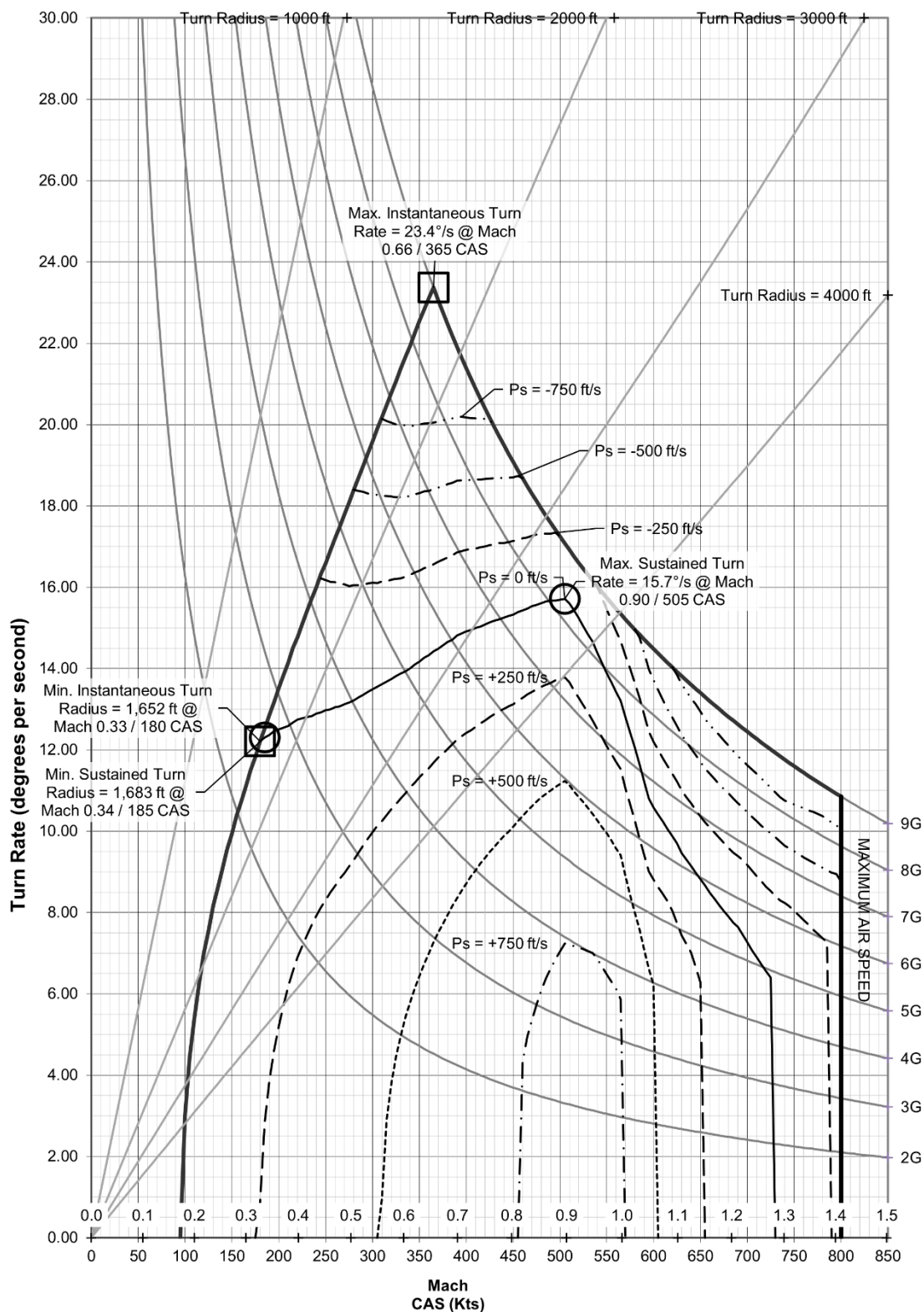
- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



Energy-Mach Diagram at 15,000ft

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

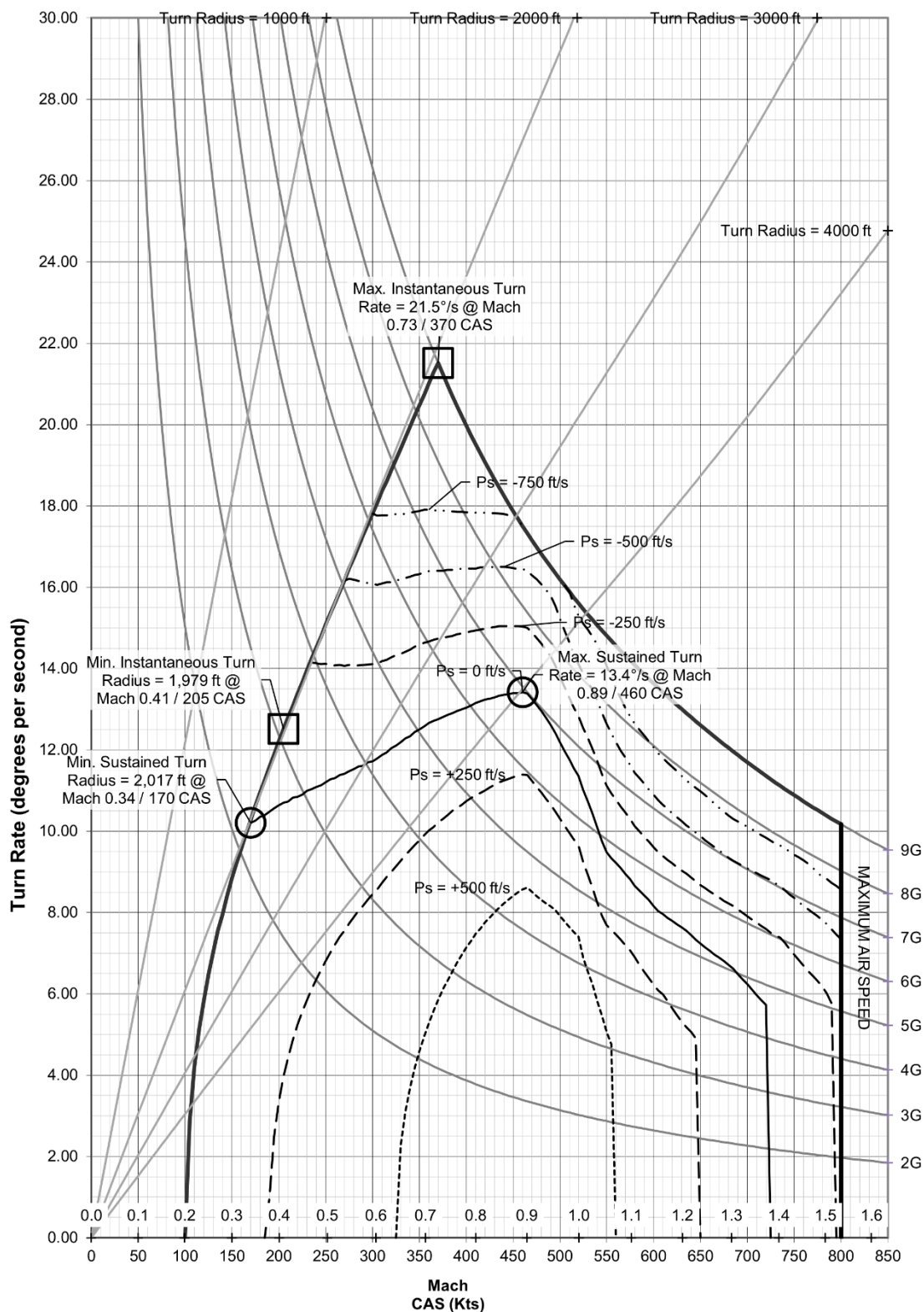
- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



Energy-Mach Diagram at 20,000ft

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

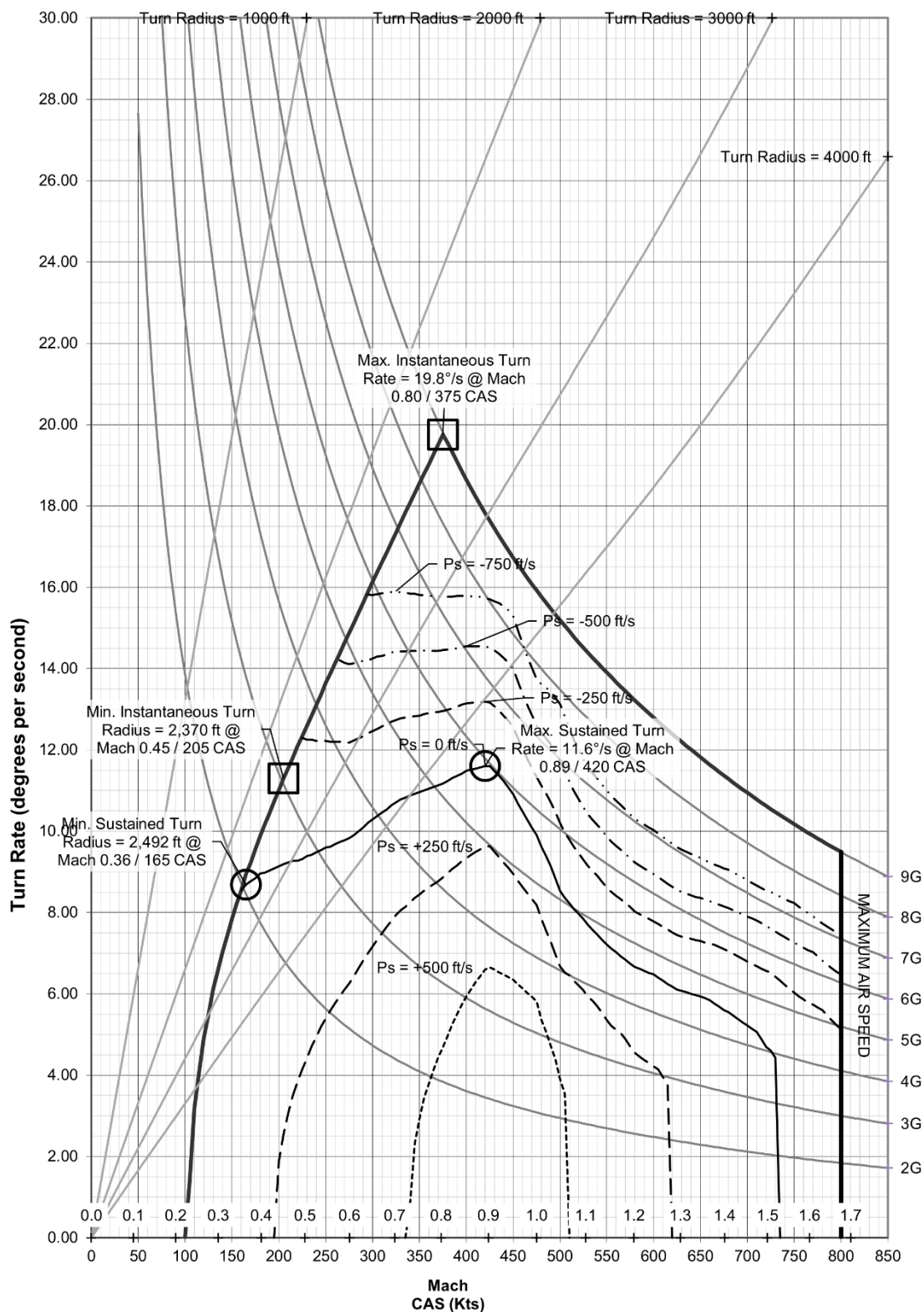
- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



Energy-Mach Diagram at 25,000ft

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

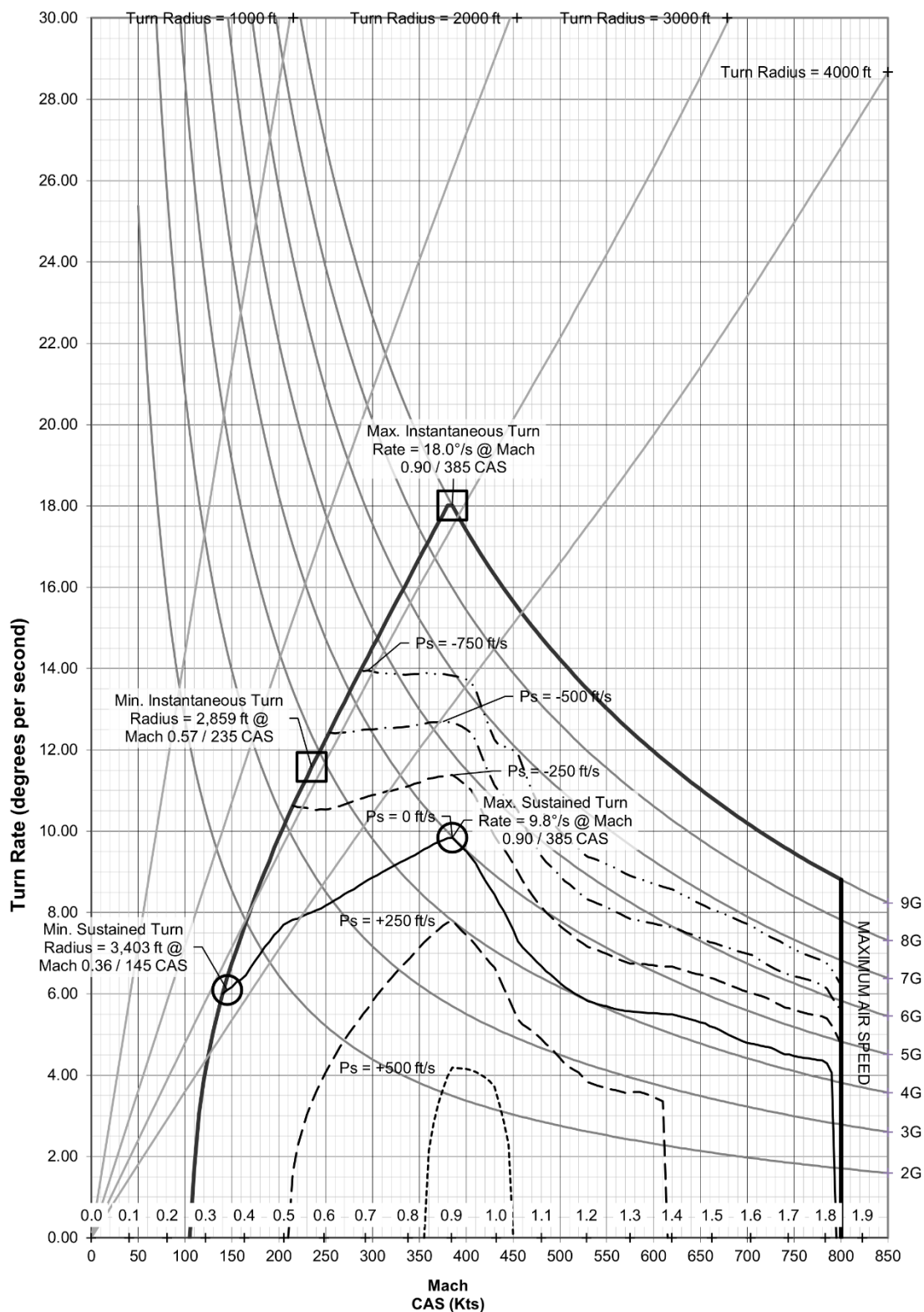
- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



Energy-Mach Diagram at 30,000ft

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

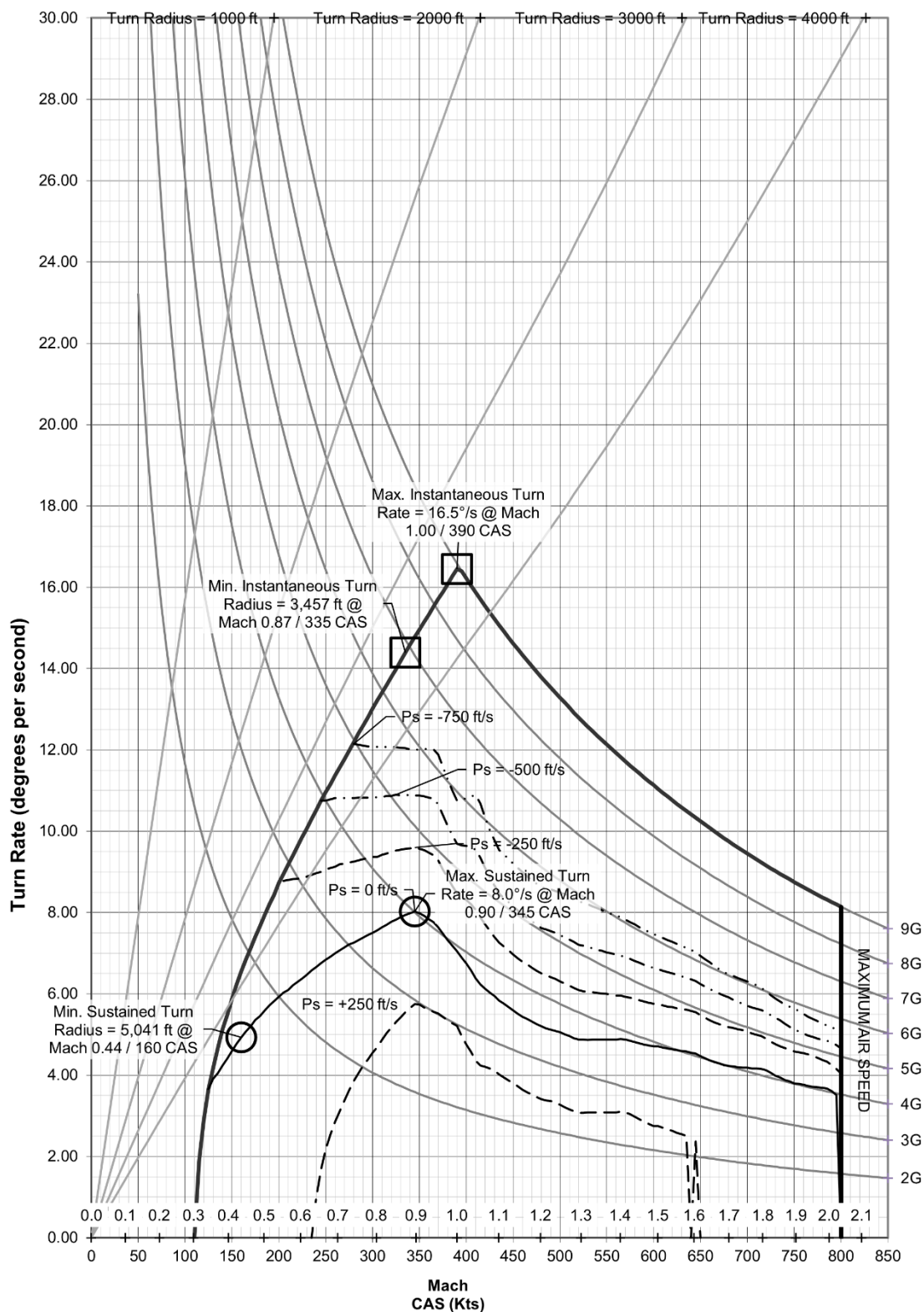
- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs



Energy-Mach Diagram at 35,000ft

DATA BASIS: BMS FLIGHT MODEL

CONDITIONS:

- Atmosphere: Standard Day / ISA
- Engine regime: Max Power

AIRCRAFT: F-15C

ENGINE: PW-F100-220

Loads: 4 x AIM-9 + 4 x AIM-120

Gross Weight: 37,500 lbs

