Simulation Variables

Overview

The following document lists all of the internal simulation variables that can be referenced from either:

- XML Gauges
- Autodesk® Scaleform® gauges
- SimConnect
- Multiplayer

Accessing Simulation Variables

String Format To Access Simulation Variables

Simulation Variables are referenced by the **A:** prefix. Some variables, listed below, take an index to determine which system of a multiple part system is being queried. In XML gauges the syntax for adding an index is *:N*, for example:

```
A:FUEL TANK SELECTOR:index
```

In some systems, where the function calls are specific to simulation variables, the **A:** prefix does not need to be included.

XML Gauges

Examples of how to reference simulation variables while scripting XML gauges can be found here. Getting simulation variables from XML gauges is allowed but setting simulation variables is not allowed on XML gauges and instead the corresponding key event should be used.

Autodesk Scaleform Gauges

The Prepar3D Interface in **ActionScript** contains the **VarGet** function that can be used to query for simulation variables. **VarSet** is not allowed on simulation variables in scaleform. Instead, use the corresponding key event. More information on creating an Autodesk Scaleform Gauge using Adobe® Flash® can be found here.

SimConnect

Simulation variables are referenced from within SimConnect clients with the **SimConnect_AddToDataDefinition** call (see the SimConnect document for full details). When the units are listed as a structure or as a string, enter the empty string, or simply **NULL**, in the units parameter of this function call. For example:

```
hr = SimConnect_AddToDataDefinition(hSimConnect,
DEFINITION_1, "Kohlsman setting hg", "inHg");
hr = SimConnect_AddToDataDefinition(hSimConnect,
DEFINITION_1, "Indicated Altitude", "feet");
hr = SimConnect_AddToDataDefinition(hSimConnect,
DEFINITION_1, "Plane Latitude", "degrees");
hr = SimConnect_AddToDataDefinition(hSimConnect,
DEFINITION_1, "Plane Longitude", "degrees");
hr = SimConnect_AddToDataDefinition(hSimConnect,
DEFINITION_2, "Category", NULL);              \\
string
hr = SimConnect_AddToDataDefinition(hSimConnect,
DEFINITION_2, "AI Waypoint List", NULL);      \\
structure
```

CONTENTS

RELATED LINKS

- Event IDs
- SDK Overview

Unless the **Units** column in the following table identifies the units as a structure or a string, the data will be returned by default in a signed 64 bit floating point value. The **SimConnect_AddToDataDefinition** has an optional parameter to change this to a signed 32 or 64 bit integer, or a signed 32 bit floating point value.

Multiplayer

When the simulation is running in multiplayer mode, only a small number of variables are communicated between aircraft. This is noted in the **Multiplayer** column (**All aircraft** or **Shared Cockpit**).

Simulation Variables

Simulation variables are listed below, grouped by category.

* Only SimConnect and SimDirector's Set Property Action are able to set simulation properties. Other systems should use the corresponding key event.

Aircraft Engine Variables

In the multiplayer Shared Cockpit mode the only supported index is 1, which means that the data is assumed to be identical for all engines. In single player mode engine indexes are from 1 to 4.

Simulation Variable	Description	Units	Settable *	Multiplayer
NUMBER OF ENGINES	Number of engines (minimum 0, maximum 4)	Number	N	-
ENGINE CONTROL SELECT	Selected engines (combination of bit flags) 1 = Engine 1 2 = Engine 2 4 = Engine 3 8 = Engine 4	Mask	Y	-
THROTTLE LOWER LIMIT	Percent throttle defining lower limit (negative for reverse thrust equipped airplanes)	Percent	N	-
ENGINE TYPE	Engine type: 0 = Piston 1 = Jet 2 = None 3 = Helo(Bell) turbine 4 = Unsupported 5 = Turboprop	Enum	N	-
MASTER IGNITION SWITCH	Aircraft master ignition switch (grounds all engines magnetos)	Bool	N	-
GENERAL ENG COMBUSTION:*index*	Combustion flag	Bool	Y	Shared Cockpit (Index of 1 only).
GENERAL ENG MASTER ALTERNATOR:*index*	Alternator (generator) switch	Bool	N	Shared Cockpit (Index of 1 only).
GENERAL ENG FUEL PUMP SWITCH:*index*	Fuel pump switch	Bool	N	Shared Cockpit (Index of 1 only).
GENERAL ENG FUEL PUMP ON:*index*	Fuel pump on/off	Bool	N	-
GENERAL ENG RPM:*index*	Engine rpm	Rpm	N	-
GENERAL ENG PCT MAX RPM:*index*	Percent of max rated rpm	Percent	N	-
GENERAL ENG MAX REACHED RPM:*index*	Maximum attained rpm	Rpm	N	-
GENERAL ENG THROTTLE LEVER POSITION:*index*	Percent of max throttle position	Percent over 100	Y	Shared Cockpit (Index of 1 only).
GENERAL ENG MIXTURE LEVER POSITION:*index*	Percent of max mixture lever position	Percent over 100	Y	Shared Cockpit (Index of 1 only).

Simulation Variable	Description	Units	Settable *	Multiplayer
GENERAL ENG PROPELLER LEVER POSITION:*index*	Percent of max prop lever position	Percent over 100	Y	Shared Cockpit (Index of 1 only).
GENERAL ENG STARTER:*index*	Engine starter on/off	Bool	Y	-
GENERAL ENG EXHAUST GAS TEMPERATURE:*index*	Engine exhaust gas temperature.	Rankine	Y	-
GENERAL ENG OIL PRESSURE:*index*	Engine oil pressure	Psf	Y	-
GENERAL ENG OIL LEAKED PERCENT:*index*	Percent of max oil capacity leaked	Percent	N	-
GENERAL ENG COMBUSTION SOUND PERCENT:*index*	Percent of maximum engine sound	Percent	N	-
GENERAL ENG DAMAGE PERCENT:*index*	Percent of total engine damage	Percent	N	-
GENERAL ENG OIL TEMPERATURE:*index*	Engine oil temperature	Rankine	Y	-
GENERAL ENG FAILED:*index*	Fail flag	Bool	N	-
GENERAL ENG GENERATOR SWITCH:*index*	Alternator (generator) switch	Bool	N	-
GENERAL ENG GENERATOR ACTIVE:*index*	Alternator (generator) on/off	Bool	Y	-
GENERAL ENG ANTI ICE POSITION:*index*	Engine anti-ice switch	Bool	N	-
GENERAL ENG FUEL VALVE:*index*	Fuel valve state	Bool	N	Shared Cockpit (Index of 1 only).
GENERAL ENG FUEL PRESSURE:*index*	Engine fuel pressure	Psi	Y	-
GENERAL ENG ELAPSED TIME:*index*	Total engine elapsed time	Hours	N	-
RECIP ENG COWL FLAP POSITION:*index*	Percent cowl flap opened	Percent	Y	Shared Cockpit (Index of 1 only).
RECIP ENG PRIMER:*index*	Engine primer position	Bool	Y	-
RECIP ENG MANIFOLD PRESSURE:*index*	Engine manifold pressure	Psi	Y	-
RECIP ENG ALTERNATE AIR POSITION:*index*	Alternate air control	Position	Y	-
RECIP ENG COOLANT RESERVOIR PERCENT:*index*	Percent coolant available	Percent	Y	-
RECIP ENG LEFT MAGNETO:*index*	Left magneto state	Bool	Y	Shared Cockpit (Index of 1 only).
RECIP ENG RIGHT MAGNETO:*index*	Right magneto state	Bool	Y	Shared Cockpit (Index of 1 only).

Simulation Variable	Description	Units	Settable *	Multiplayer
RECIP ENG BRAKE POWER:*index*	Brake power produced by engine	Foot pounds per second	Y	-
RECIP ENG STARTER TORQUE:*index*	Torque produced by engine	Foot pound	Y	-
RECIP ENG TURBOCHARGER FAILED:*index*	Turbo failed state	Bool	Y	-
RECIP ENG EMERGENCY BOOST ACTIVE:*index*	War emergency power active	Bool	Y	-
RECIP ENG EMERGENCY BOOST ELAPSED TIME:*index*	Elapsed time war emergency power active	Hours	Y	-
RECIP ENG WASTEGATE POSITION:*index*	Percent turbo wastegate closed	Percent	Y	-
RECIP ENG TURBINE INLET TEMPERATURE:*index*	Engine turbine inlet temperature	Celsius	Y	-
RECIP ENG CYLINDER HEAD TEMPERATURE:*index*	Engine cylinder head temperature	Celsius	Y	-
RECIP ENG RADIATOR TEMPERATURE:*index*	Engine radiator temperature	Celsius	Y	-
RECIP ENG FUEL AVAILABLE:*index*	True if fuel is available	Bool	Y	-
RECIP ENG FUEL FLOW:*index*	Engine fuel flow	Pounds per hour	Y	-
RECIP ENG FUEL TANK SELECTOR:*index*	Fuel tank selected for engine. See fuel tank list.	Enum	Y	-
RECIP ENG FUEL TANKS USED:*index*	Fuel tanks used, one or more of the following bit flags: Center 1 Bit 0 Center 2 Bit 1 Center 3 Bit 2 Left Main Bit 3 Left Aux Bit 4 Left Tip Bit 5 Right Main Bit 6 Right Aux Bit 7 Right Tip Bit 8 External 1 Bit 9 External 2 Bit 10	Mask	Y	-
RECIP ENG FUEL NUMBER TANKS USED:*index*	Number of tanks currently being used	Number	N	-
RECIP CARBURETOR TEMPERATURE:*index*	Carburetor temperature	Celsius	Y	-
RECIP MIXTURE RATIO:*index*	Fuel / Air mixture ratio	Ratio	Y	-
TURB ENG N1:*index*	Turbine engine N1	Percent	Y	Shared Cockpit (Index of 1 only).
TURB ENG N2:*index*	Turbine engine N2	Percent	Y	Shared Cockpit (Index of 1 only).

Simulation Variable	Description	Units	Settable *	Multiplayer
TURB ENG CORRECTED N1:*index*	Turbine engine corrected N1	Percent	Y	Shared Cockpit (Index of 1 only).
TURB ENG CORRECTED N2:*index*	Turbine engine corrected N2	Percent	Y	Shared Cockpit (Index of 1 only).
TURB ENG CORRECTED FF:*index*	Corrected fuel flow	Pounds per hour	Y	-
TURB ENG MAX TORQUE PERCENT:*index*	Percent of max rated torque	Percent	Y	-
TURB ENG PRESSURE RATIO:*index*	Engine pressure ratio	Ratio	Y	-
TURB ENG ITT:*index*	Engine ITT	Rankine	Y	-
TURB ENG AFTERBURNER:*index*	Afterburner state	Bool	N	-
TURB ENG JET THRUST:*index*	Engine jet thrust	Pounds	N	-
TURB ENG BLEED AIR:*index*	Bleed air pressure	Psi	N	-
TURB ENG TANK SELECTOR:*index*	Fuel tank selected for engine. See fuel tank list.	Enum	Y	-
TURB ENG TANKS USED:*index*	Fuel tanks used, one or more of the following bit flags: Center 1 Bit 0 Center 2 Bit 1 Center 3 Bit 2 Left Main Bit 3 Left Aux Bit 4 Left Tip Bit 5 Right Main Bit 6 Right Aux Bit 7 Right Tip Bit 8 External 1 Bit 9 External 2 Bit 10	Mask	N	-
TURB ENG NUM TANKS USED:*index*	Number of tanks currently being used	Number	N	-
TURB ENG FUEL FLOW PPH:*index*	Engine fuel flow	Pounds per hour	N	-
TURB ENG FUEL AVAILABLE:*index*	True if fuel is available	Bool	N	-
TURB ENG REVERSE NOZZLE PERCENT:*index*	Percent thrust reverser nozzles deployed	Percent	N	-
TURB ENG VIBRATION:*index*	Engine vibration value	Number	N	-
ENG FAILED:*index*	Failure flag	Number	N	-
ENG RPM ANIMATION PERCENT:*index*	Percent max rated rpm used for visual animation	Percent	N	-
ENG ON FIRE:*index*	On fire state	Bool	Y	-
ENG ON FIRE INDICATED:*index*	On fire indicator state. This is normally the same as "ENG ON FIRE" unless a false indication is triggered.	Bool	N	-
ENG FUEL FLOW BUG POSITION:*index*	Fuel flow reference	Pounds per hour	N	-
PROP RPM:*index*	Propeller rpm	Rpm	Y	-

Simulation Variable	Description	Units	Settable *	Multiplayer
PROP MAX RPM PERCENT:*index*	Percent of max rated rpm	Percent	N	-
PROP THRUST:*index*	Propeller thrust	Pounds	N	-
PROP BETA:*index*	Prop blade pitch angle	Radians	N	-
PROP FEATHERING INHIBIT:*index*	Feathering inhibit flag	Bool	N	-
PROP FEATHERED:*index*	Feathered state	Bool	N	-
PROP SYNC DELTA LEVER:*index*	Corrected prop correction input on slaved engine	Position	N	-
PROP AUTO FEATHER ARMED:*index*	Auto-feather armed state	Bool	N	-
PROP FEATHER SWITCH:*index*	Prop feather switch	Bool	N	-
PANEL AUTO FEATHER SWITCH:*index*	Auto-feather arming switch	Bool	N	-
PROP SYNC ACTIVE:*index*	True if prop sync is active	Bool	N	-
PROP DEICE SWITCH:*index*	True if prop deice switch on	Bool	N	-
ENG COMBUSTION	True if the engine is running	Bool	N	-
ENG N1 RPM:*index*	Engine N1 rpm [0 to 16384 = 0 to 100%]	Rpm	N	-
ENG N2 RPM:*index*	Engine N2 rpm [0 to 16384 = 0 to 100%]	Rpm	N	-
ENG FUEL FLOW GPH:*index*	Engine fuel flow	Gallons per hour	N	-
ENG FUEL FLOW PPH:*index*	Engine fuel flow	Pounds per hour	N	-
ENG TORQUE:*index*	Torque	Foot pounds	N	-
ENG ANTI ICE:*index*	Anti-ice switch	Bool	N	-
ENG PRESSURE RATIO:*index*	Engine pressure ratio	Ratio	N	-
ENG EXHAUST GAS TEMPERATURE:*index*	Exhaust gas temperature	Rankine	N	-
ENG EXHAUST GAS TEMPERATURE GES:*index*	Governed engine setting	Percent over 100	N	-
ENG CYLINDER HEAD TEMPERATURE:*index*	Engine cylinder head temperature	Rankine	N	-
ENG OIL TEMPERATURE:*index*	Engine oil temperature	Rankine	N	-
ENG OIL PRESSURE:*index*	Engine oil pressure	Pounds per square foot	N	-
ENG OIL QUANTITY:*index*	Engine oil quantity as a percentage of full capacity	Percent over 100	N	-
ENG HYDRAULIC PRESSURE:*index*	Engine hydraulic pressure	Pounds per square foot	N	-

Simulation Variable	Description	Units	Settable *	Multiplayer
ENG HYDRAULIC QUANTITY:*index*	Engine hydraulic fluid quantity, as a percentage of total capacity	Percent over 100	N	-
ENG MANIFOLD PRESSURE:*index*	Engine manifold pressure.	inHG	N	-
ENG VIBRATION:*index*	Engine vibration	Number	N	-
ENG RPM SCALER:*index*	Obsolete	Scalar	N	-
ENG MAX RPM	Maximum rpm	Rpm	N	-
GENERAL ENG STARTER ACTIVE	True if engine starter is active	Bool	N	-
GENERAL ENG FUEL USED SINCE START	Fuel used since the engines were last started	Pounds	N	-
TURB ENG PRIMARY NOZZLE PERCENT:*index*	Percent thrust of primary nozzle	Percent over 100	N	-
TURB ENG IGNITION SWITCH	Turbine engine ignition switch: 0 = OFF, 1 = AUTO, 2 = ON	Enum	N	-
TURB ENG IGNITION ON	True if engine ignition is active	Bool	N	-
TURB ENG MASTER STARTER SWITCH	True if the turbine engine master starter switch is on	Bool	N	-
TURB ENG AFTERBURNER STAGE ACTIVE	The stage of the afterburner, or 0 if the afterburner is not active.	Number	N	-
TURB ENG AFTERBURNER PCT ACTIVE	The percentage that the afterburner is running at.	Percent over 100	N	-

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Fuel Tank Selection

Number	Description
0	Off
1	All
2	Left
3	Right
4	Left auxiliary
5	Right auxiliary
6	Center
7	Center2
8	Center3
9	External1
10	External2
11	Right tip
12	Left tip
13	Crossfeed
14	Crossfeed left to right
15	Crossfeed right to left

Number	Description
16	Both
17	External
18	Isolate
19	Left main
20	Right main

Aircraft Fuel Variables

Simulation Variable	Description	Units	Settable	Multiplayer
FUEL TANK CENTER LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK CENTER2 LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK CENTER3 LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK LEFT MAIN LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK LEFT AUX LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK LEFT TIP LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK RIGHT MAIN LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK RIGHT AUX LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK RIGHT TIP LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK EXTERNAL1 LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK EXTERNAL2 LEVEL	Percent of maximum capacity	Percent over 100	Y	-
FUEL TANK CENTER CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL TANK CENTER2 CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL TANK CENTER3 CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL TANK LEFT MAIN CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL TANK LEFT AUX CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL TANK LEFT TIP CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL TANK RIGHT MAIN CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL TANK RIGHT AUX CAPACITY	Maximum capacity in volume	Gallons	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
FUEL TANK RIGHT TIP CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL TANK EXTERNAL1 CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL TANK EXTERNAL2 CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL LEFT CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL RIGHT CAPACITY	Maximum capacity in volume	Gallons	N	-
FUEL TANK CENTER QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL TANK CENTER2 QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL TANK CENTER3 QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL TANK LEFT MAIN QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL TANK LEFT AUX QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL TANK LEFT TIP QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL TANK RIGHT MAIN QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL TANK RIGHT AUX QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL TANK RIGHT TIP QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL TANK EXTERNAL1 QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL TANK EXTERNAL2 QUANTITY	Current quantity in volume	Gallons	Y	-
FUEL LEFT QUANTITY	Current quantity in volume	Gallons	N	-
FUEL RIGHT QUANTITY	Current quantity in volume	Gallons	N	-
FUEL TOTAL QUANTITY	Current quantity in volume	Gallons	N	-
FUEL WEIGHT PER GALLON	Fuel weight per gallon	Pounds	N	-
FUEL TANK SELECTOR:*index*	Which tank is selected. See fuel tank list.	Enum	Y	-
FUEL CROSS FEED	Cross feed valve: 0 = Closed 1 = Open	Enum	N	-
FUEL TOTAL CAPACITY	Total capacity of the aircraft	Gallons	N	-
FUEL SELECTED QUANTITY PERCENT	Percent or capacity for selected tank	Percent over 100	N	-
FUEL SELECTED QUANTITY	Quantity of selected tank	Gallons	N	-
FUEL TOTAL QUANTITY WEIGHT	Current total fuel weight of the aircraft	Pounds	N	-
NUM FUEL SELECTORS	Number of selectors on the aircraft	Number	N	-
UNLIMITED FUEL	Unlimited fuel flag	Bool	N	-
ESTIMATED FUEL FLOW	Estimated fuel flow at cruise	Pounds per hour	N	-

Aircraft Lights Variables

Simulation Variable	Description	Units	Settable	Multiplayer
LIGHT HEADLIGHT	Light switch state	Bool	Y	All aircraft
LIGHT BRAKE	Light switch state	Bool	Y	All aircraft
LIGHT GENERAL	Light switch state	Bool	Y	All aircraft
LIGHT STROBE	Light switch state	Bool	Y	All aircraft
LIGHT PANEL	Light switch state	Bool	Y	All aircraft
LIGHT LANDING	Light switch state	Bool	Y	All aircraft
LIGHT TAXI	Light switch state	Bool	Y	All aircraft
LIGHT BEACON	Light switch state	Bool	Y	All aircraft
LIGHT NAV	Light switch state	Bool	Y	All aircraft
LIGHT LOGO	Light switch state	Bool	Y	All aircraft
LIGHT WING	Light switch state	Bool	Y	All aircraft
LIGHT RECOGNITION	Light switch state	Bool	Y	All aircraft
LIGHT CABIN	Light switch state	Bool	Y	All aircraft
LIGHT ON STATES	Bit mask: 0x0001: Nav 0x0002: Beacon 0x0004: Landing 0x0008: Taxi 0x0010: Strobe 0x0020: Panel 0x0040: Recognition 0x0080: Wing 0x0100: Logo 0x0200: Cabin	Mask	N	-
LIGHT STATES	Same as LIGHT ON STATES	Mask	N	All aircraft
LANDING LIGHT PBH	Landing light pitch bank and heading (Note: bank will always be zero)	**SIMCONNECT_DATA_XYZ** structure	N	-
LANDING LIGHT PITCH	Landing light pitch	Radians	Y	-
LANDING LIGHT HEADING	Landing light heading	Radians	Y	-
LIGHT TAXI ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-
LIGHT STROBE ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-
LIGHT PANEL ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-
LIGHT RECOGNITION ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-
LIGHT WING ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-
LIGHT LOGO ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-
LIGHT CABIN ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
LIGHT HEAD ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-
LIGHT BRAKE ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-
LIGHT NAV ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-
LIGHT BEACON ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-
LIGHT LANDING ON	Return true if the light is on **(DEPRECATED)**	Bool	N	-

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Aircraft Position and Speed Variables

Simulation Variable	Description	Units	Settable	Multiplayer
GROUND VELOCITY	Speed relative to the earths surface	Knots	N	-
TOTAL WORLD VELOCITY	Speed relative to the earths center	Feet per second	N	-
VELOCITY BODY Z	True longitudinal speed, relative to aircraft axis	Feet per second	Y	-
VELOCITY BODY X	True lateral speed, relative to aircraft axis	Feet per second	Y	-
VELOCITY BODY Y	True vertical speed, relative to aircraft axis	Feet per second	Y	-
VELOCITY WORLD Z	Speed relative to earth, in North/South direction	Feet per second	Y	-
VELOCITY WORLD X	Speed relative to earth, in East/West direction	Feet per second	Y	-
VELOCITY WORLD Y	Speed relative to earth, in vertical direction	Feet per second	Y	-
ACCELERATION WORLD X	Acceleration relative to earth, in east/west direction	Feet per second squared	Y	-
ACCELERATION WORLD Y	Acceleration relative to Earth, in vertical direction	Feet per second squared	Y	-
ACCELERATION WORLD Z	Acceleration relative to earth, in north/south direction	Feet per second squared	Y	-

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Simulation Variable	Description	Units	Settable	Multiplayer
ACCELERATION BODY X	Acceleration relative to aircraft axis, in east/west direction	Feet per second squared	Y	-
ACCELERATION BODY Y	Acceleration relative to aircraft axis, in vertical direction	Feet per second squared	Y	-
ACCELERATION BODY Z	Acceleration relative to aircraft axis, in north/south direction	Feet per second squared	Y	-
ROTATION VELOCITY BODY X	Rotation relative to aircraft axis	Radians per second	Y	-
ROTATION VELOCITY BODY Y	Rotation relative to aircraft axis	Radians per second	Y	-
ROTATION VELOCITY BODY Z	Rotation relative to aircraft axis	Radians per second	Y	-
ROTATION ACCELERATION BODY X	Rotation acceleration relative to aircraft axis	Radians per second	Y	-
ROTATION ACCELERATION BODY Y	Rotation acceleration relative to aircraft axis	Radians per second	Y	-
ROTATION ACCELERATION BODY Z	Rotation acceleration relative to aircraft axis	Radians per second	Y	-
RELATIVE WIND VELOCITY BODY X	Lateral speed relative to wind	Feet per second	N	-
RELATIVE WIND VELOCITY BODY Y	Vertical speed relative to wind	Feet per second	N	-
RELATIVE WIND VELOCITY BODY Z	Longitudinal speed relative to wind	Feet per second	N	-
PLANE ALT ABOVE GROUND	Altitude above the surface	Feet	Y	-
PLANE LATITUDE	Latitude of aircraft, North is positive, South negative	Radians	Y	-
PLANE LONGITUDE	Longitude of aircraft, East is positive, West negative	Radians	Y	-
PLANE ALTITUDE	Altitude of aircraft	Feet	Y	-
PLANE PITCH DEGREES	Pitch angle, although the name mentions degrees the units used are radians	Radians	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
PLANE BANK DEGREES	Bank angle, although the name mentions degrees the units used are radians	Radians	Y	-
PLANE HEADING DEGREES TRUE	Heading relative to true north, although the name mentions degrees the units used are radians	Radians	Y	-
PLANE HEADING DEGREES MAGNETIC	Heading relative to magnetic north, although the name mentions degrees the units used are radians	Radians	Y	-
MAGVAR	Magnetic variation	Degrees	N	-
GROUND ALTITUDE	Altitude of surface	Meters	N	-
SURFACE TYPE	Type of surface: 0 = Concrete 1 = Grass 2 = Water 3 = Grass_bumpy 4 = Asphalt 5 = Short_grass 6 = Long_grass 7 = Hard_turf 8 = Snow 9 = Ice 10 = Urban 11 = Forest 12 = Dirt 13 = Coral 14 = Gravel 15 = Oil_treated 16 = Steel_mats 17 = Bituminus 18 = Brick 19 = Macadam 20 = Planks 21 = Sand 22 = Shale 23 = Tarmac 24 = Wright_flyer_track	Enum	N	-
SIM ON GROUND	On ground flag (To set, passing a non-zero argument will set the object on the ground. Passing zero has no effect.)	Bool	Y	-
INCIDENCE ALPHA	Angle of attack	Radians	N	-
INCIDENCE BETA	Sideslip angle	Radians	N	-
WING FLEX PCT:*index*	The current wing flex. Different values can be set for each wing (for example, during banking). Set an index of 1 for the left wing, and 2 for the right wing.	Percent over 100	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
STRUCT LATLONALT	Returns the latitude, longitude and altitude of the user aircraft.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
STRUCT LATLONALTPBH	Returns the pitch, bank and heading of the user aircraft.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
STRUCT SURFACE RELATIVE VELOCITY	The relative surface velocity.	**SIMCONNECT_DATA_XYZ** structure, feet per second	N	-
STRUCT WORLDVELOCITY	The world velocity.	**SIMCONNECT_DATA_XYZ** structure, feet per second	Y	-
STRUCT WORLD ROTATION VELOCITY	The world rotation velocity.	**SIMCONNECT_DATA_XYZ** structure, radians per second	Y	-
STRUCT BODY VELOCITY	The object body velocity.	**SIMCONNECT_DATA_XYZ** structure, feet per second	Y	-
STRUCT BODY ACCELERATION	The object body acceleration.	**SIMCONNECT_DATA_XYZ** structure, feet per second squared	Y	-
STRUCT BODY ROTATION VELOCITY	The body rotation velocity. Individual body rotation values are in the Aircraft Position and Speed section.	**SIMCONNECT_DATA_XYZ** structure, radians per second	Y	-
STRUCT BODY ROTATION ACCELERATION	The body rotation acceleration. Individual body rotation values are in the Aircraft Position and Speed section.	**SIMCONNECT_DATA_XYZ** structure, radians per second squared	Y	-
STRUCT WORLD ACCELERATION	The world acceleration for each axis. Individual world acceleration values are in the Aircraft Position and Speed section.	**SIMCONNECT_DATA_XYZ** structure, feet per second squared	N	-
STRUCT ENGINE POSITION:*index*	The engine position relative to the reference datum position for the aircraft.	**SIMCONNECT_DATA_XYZ** structure, feet.	N	-
STRUCT EYEPOINT DYNAMIC ANGLE	The angle of the eyepoint view. Zero, zero, zero is straight ahead.	**SIMCONNECT_DATA_XYZ** structure, radians	N	-
STRUCT EYEPOINT DYNAMIC OFFSET	A variable offset away from the EYEPOINT POSITION	**SIMCONNECT_DATA_XYZ** structure, feet	N	-
EYEPOINT POSITION	The eyepoint position relative to the reference datum position for the aircraft.	**SIMCONNECT_DATA_XYZ** structure, feet	N	-

Aircraft Flight Instrumentation Variables

Simulation Variable	Description	Units	Settable	Multiplayer
AIRSPEED TRUE	True airspeed	Knots	Y	-
AIRSPEED INDICATED	Indicated airspeed	Knots	Y	-
AIRSPEED TRUE CALIBRATE	Angle of True calibration scale on airspeed indicator	Degrees	Y	Shared Cockpit
AIRSPEED BARBER POLE	Redline airspeed (dynamic on some aircraft)	Knots	N	-
AIRSPEED MACH	Current mach	Mach	N	-
VERTICAL SPEED	Vertical speed indication	Feet per second	Y	-
MACH MAX OPERATE	Maximum design mach	Mach	N	-
STALL WARNING	Stall warning state	Bool	N	-
OVERSPEED WARNING	Overspeed warning state	Bool	N	-
BARBER POLE MACH	Mach associated with maximum airspeed	Mach	N	-
INDICATED ALTITUDE	Altimeter indication	Feet	Y	-
KOHLSMAN SETTING MB	Altimeter setting	Millibars	Y	-
KOHLSMAN SETTING HG	Altimeter setting	Inches of Mercury, inHg	Y	-
ATTITUDE INDICATOR PITCH DEGREES	AI pitch indication	Radians	N	-
ATTITUDE INDICATOR BANK DEGREES	AI bank indication	Radians	N	-
ATTITUDE BARS POSITION	AI reference pitch reference bars	Percent over 100	N	-
ATTITUDE CAGE	AI caged state	Bool	N	-
WISKEY COMPASS INDICATION DEGREES	Magnetic compass indication	Degrees	Y	-
PLANE HEADING DEGREES GYRO	Heading indicator (directional gyro) indication	Radians	Y	-
HEADING INDICATOR	Heading indicator (directional gyro) indication	Radians	N	-
GYRO DRIFT ERROR	Angular error of heading indicator	Radians	N	-
DELTA HEADING RATE	Rate of turn of heading indicator	Radians per second	Y	-
TURN COORDINATOR BALL	Turn coordinator ball position [-127 to 127]	Position 128	N	-
ANGLE OF ATTACK INDICATOR	AoA indication	Radians	N	-
RADIO HEIGHT	Radar altitude	Feet	N	-
PARTIAL PANEL ADF	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL AIRSPEED	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL ALTIMETER	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL ATTITUDE	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
PARTIAL PANEL COMM	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL COMPASS	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL ELECTRICAL	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL AVIONICS	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	N	-
PARTIAL PANEL ENGINE	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL FUEL INDICATOR	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	N	-
PARTIAL PANEL HEADING	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL VERTICAL VELOCITY	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL TRANSPONDER	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL NAV	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL PITOT	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL TURN COORDINATOR	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	N	-
PARTIAL PANEL VACUUM	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
PARTIAL PANEL TACAN	Gauge fail flag (0 = ok, 1 = fail, 2 = blank)	Enum	Y	-
MAX G FORCE	Maximum G force attained	Gforce	N	-
MIN G FORCE	Minimum G force attained	Gforce	N	-
SUCTION PRESSURE	Vacuum system suction pressure	Inches of Mercury, inHg	Y	-

Aircraft Avionics Variables

Simulation Variable	Description	Units	Settable	Multiplayer
AVIONICS MASTER SWITCH	Avionics switch state	Bool	N	All aircraft
NAV SOUND:*index*	Nav audio flag. Index of 1 or 2.	Bool	N	Shared Cockpit
DME SOUND	DME audio flag	Bool	N	Shared Cockpit
TACAN DME SOUND	Tacan DME audio flag	Bool	N	All Aircraft
ADF SOUND:*index*	ADF audio flag. Index of 0 or 1.	Bool	N	Shared Cockpit
TACAN SOUND:*index*	Tacan audio flag. Index of 0 or 1.	Bool	N	All aircraft
MARKER SOUND	Marker audio flag	Bool	N	Shared Cockpit

Simulation Variable	Description	Units	Settable	Multiplayer
COM TRANSMIT:*index*	Audio panel com transmit state. Index of 1 or 2.	Bool	N	Shared Cockpit
COM RECIEVE ALL	Flag if all Coms receiving	Bool	N	Shared Cockpit
COM ACTIVE FREQUENCY:*index*	Com frequency. Index is 1 or 2.	Frequency BCD16	N	All aircraft
COM STANDBY FREQUENCY:*index*	Com standby frequency. Index is 1 or 2.	Frequency BCD16	N	All aircraft
COM STATUS:*index*	Radio status flag : -1 =Invalid 0 = OK 1 = Does not exist 2 = No electricity 3 = Failed	Enum	N	-
NAV AVAILABLE:*index*	Flag if Nav equipped on aircraft	Bool	N	-
NAV ACTIVE FREQUENCY:*index*	Nav active frequency. Index is 1 or 2.	MHz	N	Shared Cockpit
NAV STANDBY FREQUENCY:*index*	Nav standby frequency. Index is 1 or 2.	MHz	N	Shared Cockpit
NAV SIGNAL:*index*	Nav signal strength	Number	N	-
NAV HAS NAV:*index*	Flag if Nav has signal	Bool	N	-
NAV HAS LOCALIZER:*index*	Flag if tuned station is a localizer	Bool	N	-
NAV HAS DME:*index*	Flag if tuned station has a DME	Bool	N	-
NAV HAS GLIDE SLOPE:*index*	Flag if tuned station has a glideslope	Bool	N	-
NAV BACK COURSE FLAGS:*index*	Returns the following bit flags: BIT0: 1=back course available BIT1: 1=localizer tuned in BIT2: 1=on course BIT7: 1=station active	Flags	N	-
NAV MAGVAR:*index*	Magnetic variation of tuned nav station	Degrees	N	-
NAV RADIAL:*index*	Radial that aircraft is on	Degrees	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
NAV RADIAL ERROR:*index*	Difference between current radial and OBS tuned radial	Degrees	N	-
NAV LOCALIZER:*index*	Localizer course heading	Degrees	N	-
NAV GLIDE SLOPE ERROR:*index*	Difference between current position and glideslope angle. Note that this provides 32 bit floating point precision, rather than the 8 bit integer precision of NAV GSI.	Degrees	N	-
NAV CDI:*index*	CDI needle deflection (+/- 127)	Number	N	-
NAV GSI:*index*	Glideslope needle deflection (+/- 119). Note that this provides only 8 bit precision, whereas NAV GLIDE SLOPE ERROR provides 32 bit floating point precision.	Number	N	-
NAV TOFROM:*index*	Nav TO/FROM flag: 0 = Off 1 = TO 2 = FROM	Enum	N	-
NAV GS FLAG:*index*	Glideslope flag	Bool	N	-
NAV OBS:*index*	OBS setting. Index of 1 or 2.	Degrees	Y	Shared Cockpit
NAV DME:*index*	DME distance	Nautical miles	N	-
NAV DMESPEED:*index*	DME speed	Knots	N	-
ADF ACTIVE FREQUENCY:*index*	ADF frequency. Index of 1 or 2.	Frequency ADF BCD32	N	Shared Cockpit
ADF STANDBY FREQUENCY:*index*	ADF standby frequency	Hz	N	-
ADF RADIAL:*index*	Current direction from NDB station	Degrees	N	-
ADF SIGNAL:*index*	Signal strength	Number	N	-
TACAN ACTIVE CHANNEL:*index*	Active channel	Number	N	-
TACAN STANDBY CHANNEL:*index*	Standby channel	Number	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
TACAN XY BAND:*index*	Selected X-Y Band (0 = X, 1 = Y)	Enum	N	-
TACAN RADIAL:*index*	Direction from the station	Degrees	N	-
TACAN SIGNAL:*index*	Tacan signal strength	Number	N	-
TACAN AVAILABLE:*index*	Flag if equipped on object	Bool	N	-
TACAN HAS NAV:*index*	Flag if Tacan has lateral signal	Bool	N	-
TACAN MAGVAR:*index*	Magnetic variation of tuned station	Degrees	N	-
TACAN DME:*index*	Distance from tuned station	Nautical Miles	N	-
TACAN DMESPEED:*index*	DME speed relative to tuned station	Knots	N	-
TRANSPONDER CODE:*index*	4-digit code	BCO16	N	All aircraft (Index of 1 only).
MARKER BEACON STATE	Marker beacon state: 0 = None 1 = Outer 2 = Middle 3 = Inner	Enum	Y	-
INNER MARKER	Inner marker state	Bool	Y	-
MIDDLE MARKER	Middle marker state	Bool	Y	-
OUTER MARKER	Outer marker state	Bool	Y	-
NAV RAW GLIDE SLOPE:*index*	Glide slope angle	Degrees	N	-
ADF CARD	ADF compass rose setting	Degrees	N	Shared Cockpit
HSI CDI NEEDLE	Needle deflection (+/- 127)	Number	N	-
HSI GSI NEEDLE	Needle deflection (+/- 119)	Number	N	-
HSI CDI NEEDLE VALID	Signal valid	Bool	N	-
HSI GSI NEEDLE VALID	Signal valid	Bool	N	-
HSI TF FLAGS	Nav TO/FROM flag: 0 = Off 1 = TO 2 = FROM	Enum	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
HSI BEARING VALID	This will return true if the HSI BEARING variable contains valid data.	Bool	N	-
HSI BEARING	If the GPS DRIVES NAV1 variable is true and the HSI BEARING VALID variable is true, this variable contains the HSI needle bearing. If the GPS DRIVES NAV1 variable is false and the HSI BEARING VALID variable is true, this variable contains the ADF1 frequency.	Degrees	N	-
HSI HAS LOCALIZER	Station is a localizer	Bool	N	-
HSI SPEED	DME/GPS speed	Knots	N	-
HSI DISTANCE	DME/GPS distance	Nautical miles	N	-
GPS POSITION LAT	Current GPS latitude	Degrees	N	-
GPS POSITION LON	Current GPS longitude	Degrees	N	-
GPS POSITION ALT	Current GPS altitude	Meters	N	-
GPS MAGVAR	Current GPS magnetic variation	Radians	N	-
GPS IS ACTIVE FLIGHT PLAN	Flight plan mode active	Bool	N	-
GPS IS ACTIVE WAY POINT	Waypoint mode active	Bool	N	-
GPS IS ARRIVED	Is flight plan destination reached	Bool	N	-
GPS IS DIRECTTO FLIGHTPLAN	Is Direct To Waypoint mode active	Bool	N	-
GPS GROUND SPEED	Current ground speed	Meters per second	N	-
GPS GROUND TRUE HEADING	Current true heading	Radians	N	-
GPS GROUND MAGNETIC TRACK	Current magnetic ground track	Radians	N	-
GPS GROUND TRUE TRACK	Current true ground track	Radians	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
GPS WP DISTANCE	Distance to waypoint	Meters	N	-
GPS WP BEARING	Magnetic bearing to waypoint	Radians	N	-
GPS WP TRUE BEARING	True bearing to waypoint	Radians	N	-
GPS WP CROSS TRK	Cross track distance	Meters	N	-
GPS WP DESIRED TRACK	Desired track to waypoint	Radians	N	-
GPS WP TRUE REQ HDG	Required true heading to waypoint	Radians	N	-
GPS WP VERTICAL SPEED	Vertical speed to waypoint	Meters per second	N	-
GPS WP TRACK ANGLE ERROR	Tracking angle error to waypoint	Radians	N	-
GPS ETE	Estimated time enroute to destination	Seconds	N	-
GPS ETA	Estimated time of arrival at destination	Seconds	N	-
GPS WP NEXT LAT	Latitude of next waypoint	Degrees	N	-
GPS WP NEXT LON	Longitude of next waypoint	Degrees	N	-
GPS WP NEXT ALT	Altitude of next waypoint	Meters	N	-
GPS WP PREV VALID	Is previous waypoint valid (i.e. current waypoint is not the first waypoint)	Bool	N	-
GPS WP PREV LAT	Latitude of previous waypoint	Degrees	N	-
GPS WP PREV LON	Longitude of previous waypoint	Degrees	N	-
GPS WP PREV ALT	Altitude of previous waypoint	Meters	N	-
GPS WP ETE	Estimated time en route to waypoint	Seconds	N	-
GPS WP ETA	Estimated time of arrival at waypoint	Seconds	N	-
GPS COURSE TO STEER	Suggested heading to steer (for autopilot)	Radians	N	-
GPS FLIGHT PLAN WP INDEX	Index of waypoint	Number	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
GPS FLIGHT PLAN WP COUNT	Number of waypoints	Number	N	-
GPS IS ACTIVE WP LOCKED	Is switching to next waypoint locked	Bool	N	-
GPS IS APPROACH LOADED	Is approach loaded	Bool	N	-
GPS IS APPROACH ACTIVE	Is approach mode active	Bool	N	-
GPS APPROACH MODE	Sub mode within approach mode : 0 = None 1 = Transition 2 = Final 3 = Missed	Enum	N	-
GPS APPROACH WP TYPE	Waypoint type within approach mode : 0 = None 1 = Fix 2 = Procedure turn left 3 = Procedure turn right 4 = Dme arc left 5 = Dme arc right 6 = Holding left 7 = Holding right 8 = Distance 9 = Altitude 10 = Manual sequence 11 = Vector to final	Enum	N	-
GPS APPROACH IS WP RUNWAY	Waypoint is the runway	Bool	N	-
GPS APPROACH SEGMENT TYPE	Segment type within approach : 0 = Line 1 = Arc clockwise 2 = Arc counter-clockwise	Enum	N	-
GPS APPROACH APPROACH INDEX	Index of approach for given airport	Number	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
GPS APPROACH APPROACH TYPE	Approach type : 0 = None 1 = GPS 2 = VOR 3 = NDB 4 = ILS 5 = Localizer 6 = SDF 7 = LDA 8 = VOR/DME 9 = NDB/DME 10 = RNAV 11 = Backcourse 12 = TACAN	Enum	N	-
GPS APPROACH TRANSITION INDEX	Index of approach transition	Number	N	-
GPS APPROACH IS FINAL	Is approach transition final approach segment	Bool	N	-
GPS APPROACH IS MISSED	Is approach segment missed approach segment	Bool	N	-
GPS APPROACH TIMEZONE DEVIATION	Deviation of local time from UTC	Seconds	N	-
GPS APPROACH WP INDEX	Index of current waypoint	Number	N	-
GPS APPROACH WP COUNT	Number of waypoints	Number	N	-
GPS DRIVES NAV1	GPS is driving Nav 1 indicator	Bool	N	Shared Cockpit
COM RECEIVE ALL	Toggles all COM radios to receive on	Bool	N	-
COM AVAILABLE	True if either COM1 or COM2 is available	Bool	N	-
COM TEST:*index*	Enter an index of 1 or 2. True if the COM system is working.	Bool	N	-
TRANSPONDER AVAILABLE	True if a transponder is available	Bool	N	-
ADF AVAILABLE	True if ADF is available	Bool	N	-
ADF FREQUENCY:*index*	Legacy, use ADF ACTIVE FREQUENCY	Frequency BCD16	N	-
ADF EXT FREQUENCY:*index*	Legacy, use ADF ACTIVE FREQUENCY	Frequency BCD16	N	-
ADF IDENT	ICAO code	String	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
ADF NAME	Descriptive name	String	N	-
NAV IDENT	ICAO code	String	N	-
NAV NAME	Descriptive name	String	N	-
TACAN IDENT	ICAO code	String	N	-
TACAN NAME	Descriptive name	String	N	-
NAV CODES:*index*	Returns bit flags with the following meaning: BIT7: 0= VOR 1= Localizer BIT6: 1= glideslope available BIT5: 1= no localizer backcourse BIT4: 1= DME transmitter at glide slope transmitter BIT3: 1= no nav signal available BIT2: 1= voice available BIT1: 1 = TACAN available BIT0: 1= DME available	Flags	N	-
NAV GLIDE SLOPE	The glide slope gradient.	Number	N	-
NAV RELATIVE BEARING TO STATION:*index*	Relative bearing to station	Degrees	N	-
SELECTED DME	Selected DME	Number	N	Shared Cockpit
GPS WP NEXT ID	ID of next GPS waypoint	String	N	-
GPS WP PREV ID	ID of previous GPS waypoint	String	N	-
GPS TARGET DISTANCE	Distance to target	Meters	N	-
GPS TARGET ALTITUDE	Altitude of GPS target	Meters	N	-
ADF LATLONALT:*index*	Returns the latitude, longitude and altitude of the station the radio equipment is currently tuned to, or zeros if the radio is not tuned to any ADF station. Index of 1 or 2 for ADF 1 and ADF 2.	**SIMCONNECT_DATA_LATLONALT**structure	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
NAV VOR LATLONALT:*index*	Returns the VOR station latitude, longitude and altitude.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
NAV GS LATLONALT:*index*	Returns the glide slope.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
NAV DME LATLONALT:*index*	Returns the DME station.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
TACAN LATLONALT:*index*	Returns the latitude, longitude and altitude of the station the radio equipment is currently tuned to, or zeros if the radio is not tuned to any Tacan station. Index of 1 or 2 for Tacan 1 and Tacan 2.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
TACAN DME LATLONALT:*index*	Returns the Tacan DME station.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
INNER MARKER LATLONALT	Returns the latitude, longitude and altitude of the inner marker of an approach to a runway, if the aircraft is within the required proximity, otherwise it will return zeros.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
MIDDLE MARKER LATLONALT	Returns the latitude, longitude and altitude of the middle marker.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
OUTER MARKER LATLONALT	Returns the latitude, longitude and altitude of the outer marker.	**SIMCONNECT_DATA_LATLONALT**structure	N	-

Aircraft Controls Variables

Simulation Variable	Description	Units	Settable	Multiplayer
YOKE Y POSITION	Control deflection fore/aft (for animation) [-1.0: Fully In, 1.0: Fully Out]	Position	Y	-
YOKE X POSITION	Control deflection left/right (for animation) [-1.0: Fully Left, 1.0: Fully Right]	Position	Y	-
RUDDER PEDAL POSITION	Rudder pedal deflection (for animation) [-1.0: Left Fully In, 1.0: Right Fully In]	Position	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
RUDDER POSITION	Rudder input deflection [-1.0: Full Left, 1.0: Full Right]	Position	Y	-
ELEVATOR POSITION	Elevator input deflection [-1.0: Full Down, 1.0: Full Up]	Position	Y	-
AILERON POSITION	Aileron input left/right [-1.0: Full Left, 1.0: Full Right]	Position	Y	-
ELEVATOR TRIM POSITION	Elevator trim deflection	Radians	Y	Shared Cockpit
ELEVATOR TRIM INDICATOR	Elevator trim (for indication) [-1.0: Full Down, 0: Full Up]	Position	N	-
ELEVATOR TRIM PCT	Percent elevator trim	Percent over 100	N	-
BRAKE LEFT POSITION	Percent left brake [0 Off, 1.0: Full Left Brake] Note: Setting this variable is momentary, as the simulation value will bleed back to zero. We are simulating spring-loaded toe brakes, and this is just the brake "effect". To set the brakes to a give position, use the event "KEY_AXIS_LEFT_BRAKE_SET".	Position	Y	-
BRAKE RIGHT POSITION	Percent right brake [0 Off, 1.0: Full Right Brake] Note: Setting this variable is momentary, as the simulation value will bleed back to zero. We are simulating spring-loaded toe brakes, and this is just the brake "effect". To set the brakes to a give position, use the event "KEY_AXIS_RIGHT_BRAKE_SET".	Position	Y	-
BRAKE INDICATOR	Brake on indication [0.0: Off, 1.0: Full Brakes]	Position	N	-
BRAKE PARKING AVAILABLE	Is parking brake available	Bool	N	-
BRAKE PARKING POSITION	Parking brake on [0: Off, 1.0: Full Parking Brake]	Bool	Y	Shared Cockpit
BRAKE PARKING INDICATOR	Parking brake indicator	Bool	N	-
SPOILERS ARMED	Auto-spoilers armed	Bool	N	All aircraft
SPOILERS HANDLE POSITION	Spoiler handle position [0: Retracted, 1.0: Fully Extended]	Position	Y	All aircraft
SPOILERS LEFT POSITION	Percent left spoiler deflected [0: Retracted, 1.0: Fully Extended]	Position	N	-
SPOILERS RIGHT POSITION	Percent right spoiler deflected [0: Retracted, 1.0: Fully Extended]	Position	N	-
FLAPS HANDLE PERCENT	Percent flap handle extended	Percent over 100	N	-
FLAPS HANDLE INDEX	Index of current flap position	Number	Y	All aircraft
FLAPS NUM HANDLE POSITIONS	Number of flap positions	Number	N	-
TRAILING EDGE FLAPS LEFT PERCENT	Percent left trailing edge flap extended	Percent over 100	Y	-
TRAILING EDGE FLAPS RIGHT PERCENT	Percent right trailing edge flap extended	Percent over 100	Y	-
TRAILING EDGE FLAPS LEFT ANGLE	Angle left trailing edge flap extended	Radians	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
TRAILING EDGE FLAPS RIGHT ANGLE	Angle right trailing edge flap extended	Radians	Y	-
LEADING EDGE FLAPS LEFT PERCENT	Percent left leading edge flap extended	Percent over 100	Y	-
LEADING EDGE FLAPS RIGHT PERCENT	Percent right leading edge flap extended	Percent over 100	Y	-
LEADING EDGE FLAPS LEFT ANGLE	Angle left leading edge flap extended	Radians	Y	-
LEADING EDGE FLAPS RIGHT ANGLE	Angle right leading edge flap extended	Radians	Y	-
AILERON LEFT DEFLECTION	Angle deflection	Radians	Y	-
AILERON LEFT DEFLECTION PCT	Percent deflection	Percent over 100	Y	-
AILERON RIGHT DEFLECTION	Angle deflection	Radians	Y	-
AILERON RIGHT DEFLECTION PCT	Percent deflection	Percent over 100	Y	-
AILERON AVERAGE DEFLECTION	Angle deflection	Radians	N	-
AILERON TRIM	Angle deflection	Radians	N	-
AILERON TRIM PCT	Percent deflection	Percent over 100	Y	Shared Cockpit
RUDDER DEFLECTION	Angle deflection	Radians	Y	-
RUDDER DEFLECTION PCT	Percent deflection	Percent over 100	Y	-
RUDDER TRIM	Angle deflection	Radians	N	-
RUDDER TRIM PCT	Percent deflection	Percent over 100	Y	Shared Cockpit
FLAPS AVAILABLE	True if flaps available	Bool	N	-
FLAP DAMAGE BY SPEED	True if flaps are damaged by excessive speed	Bool	N	-
FLAP SPEED EXCEEDED	True if safe speed limit for flaps exceeded	Bool	N	-
ELEVATOR DEFLECTION	Angle deflection	Radians	Y	-
ELEVATOR DEFLECTION PCT	Percent deflection	Percent over 100	Y	-
ALTERNATE STATIC SOURCE OPEN	Alternate static air source	Bool	N	All aircraft
AILERON TRIM PCT	The trim position of the ailerons. Zero is fully retracted.	Percent over 100	Y	-
RUDDER TRIM PCT	The trim position of the rudder. Zero is no trim.	Percent over 100	Y	-
FOLDING WING HANDLE POSITION	True if the folding wing handle is engaged.	Bool	N	-
FUEL DUMP SWITCH	If true the aircraft is dumping fuel at the rate set in the configuration file.	Bool	N	-

Aircraft Autopilot Variables

Simulation Variable	Description	Units	Settable	Multiplayer
AUTOPILOT AVAILABLE	Available flag	Bool	N	-
AUTOPILOT MASTER	On/off flag	Bool	Y	Shared Cockpit
AUTOPILOT NAV SELECTED	Index of Nav radio selected	Number	N	-
AUTOPILOT WING LEVELER	Wing leveler active	Bool	N	Shared Cockpit
AUTOPILOT NAV1 LOCK	Lateral nav mode active	Bool	N	-
AUTOPILOT HEADING LOCK	Heading mode active	Bool	N	Shared Cockpit
AUTOPILOT HEADING LOCK DIR	Selected heading ("heading bug")	Degrees	Y	Shared Cockpit
AUTOPILOT ALTITUDE LOCK	Altitude hole active	Bool	N	Shared Cockpit
AUTOPILOT ALTITUDE LOCK VAR	Selected altitude ("Altitude bug")	Feet	Y	Shared Cockpit
AUTOPILOT ATTITUDE HOLD	Attitude hold active	Bool	N	Shared Cockpit
AUTOPILOT GLIDESLOPE HOLD	GS hold active	Bool	N	Shared Cockpit
AUTOPILOT PITCH HOLD REF	Current reference pitch	Radians	N	-
AUTOPILOT APPROACH HOLD	Approach mode active	Bool	N	Shared Cockpit
AUTOPILOT BACKCOURSE HOLD	Back course mode active	Bool	N	Shared Cockpit
AUTOPILOT VERTICAL HOLD VAR	Selected vertical speed ("VSI bug")	Feet/minute	Y	Shared Cockpit
AUTOPILOT PITCH HOLD	Set to True if the autopilot pitch hold has is engaged.	Bool	N	-
AUTOPILOT FLIGHT DIRECTOR ACTIVE	Flight director active	Bool	N	Shared Cockpit
AUTOPILOT FLIGHT DIRECTOR PITCH	Reference pitch angle	Radians	N	-
AUTOPILOT FLIGHT DIRECTOR BANK	Reference bank angle	Radians	N	-
AUTOPILOT AIRSPEED HOLD	Airspeed hold active	Bool	N	Shared Cockpit
AUTOPILOT AIRSPEED HOLD VAR	Selected airspeed	Knots	N	Shared Cockpit
AUTOPILOT MACH HOLD	Mach hold active	Bool	N	Shared Cockpit
AUTOPILOT MACH HOLD VAR	Selected mach	Number	N	Shared Cockpit
AUTOPILOT YAW DAMPER	Yaw damper active	Bool	N	Shared Cockpit
AUTOPILOT RPM HOLD VAR	Selected rpm	Number	N	-
AUTOPILOT THROTTLE ARM	Autothrottle armed	Bool	N	Shared Cockpit
AUTOPILOT TAKEOFF POWER ACTIVE	Takeoff / Go Around power mode active	Bool	N	Shared Cockpit
AUTOTHROTTLE ACTIVE	Auto-throttle active	Bool	N	-
AUTOPILOT NAV1 LOCK	True if autopilot nav1 lock applied	Bool	N	Shared Cockpit
AUTOPILOT VERTICAL HOLD	True if autopilot vertical hold applied	Bool	N	-
AUTOPILOT RPM HOLD	True if autopilot rpm hold applied	Bool	N	-
AUTOPILOT MAX BANK	True if autopilot max bank applied	Radians	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
FLY BY WIRE ELAC SWITCH	True if the fly by wire Elevators and Ailerons computer is on.	Bool	N	-
FLY BY WIRE FAC SWITCH	True if the fly by wire Flight Augmentation computer is on.	Bool	N	-
FLY BY WIRE SEC SWITCH	True if the fly by wire Spoilers and Elevators computer is on.	Bool	N	-
FLY BY WIRE ELAC FAILED	True if the Elevators and Ailerons computer has failed.	Bool	N	-
FLY BY WIRE FAC FAILED	True if the Flight Augmentation computer has failed.	Bool	N	-
FLY BY WIRE SEC FAILED	True if the Spoilers and Elevators computer has failed.	Bool	N	-

Aircraft Landing Gear Variables

Simulation Variable	Description	Units	Settable	Multiplayer
IS GEAR RETRACTABLE	True if gear can be retracted	Bool	N	-
IS GEAR SKIS	True if landing gear is skis	Bool	N	-
IS GEAR FLOATS	True if landing gear is floats	Bool	N	-
IS GEAR SKIDS	True if landing gear is skids	Bool	N	-
IS GEAR WHEELS	True if landing gear is wheels	Bool	N	-
GEAR HANDLE POSITION	True if gear handle is applied	Bool	Y	All aircraft
GEAR HYDRAULIC PRESSURE	Gear hydraulic pressure	Pound force per square foot (psf)	N	-
TAILWHEEL LOCK ON	True if tailwheel lock applied	Bool	N	-
GEAR CENTER POSITION	Percent center gear extended	Percent over 100	Y	-
GEAR LEFT POSITION	Percent left gear extended	Percent over 100	Y	-
GEAR RIGHT POSITION	Percent right gear extended	Percent over 100	Y	-
GEAR TAIL POSITION	Percent tail gear extended	Percent over 100	N	-
GEAR AUX POSITION	Percent auxiliary gear extended	Percent over 100	N	-
GEAR POSITION:*index*	Position of landing gear: 0 = unknown 1 = up 2 = down	Enum	Y	-
GEAR ANIMATION POSITION:*index*	Percent gear animation extended	Number	N	-
GEAR TOTAL PCT EXTENDED	Percent total gear extended	Percentage	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
AUTO BRAKE SWITCH CB	Auto brake switch position	Number	N	-
WATER RUDDER HANDLE POSITION	Position of the water rudder handle (0 handle retracted, 100 rudder handle applied)	Percent over 100	Y	All aircraft
WATER LEFT RUDDER EXTENDED	Percent extended	Percentage	N	-
WATER RIGHT RUDDER EXTENDED	Percent extended	Percentage	N	-
GEAR CENTER STEER ANGLE	Center wheel angle, negative to the left, positive to the right.	Percent over 100	N	-
GEAR LEFT STEER ANGLE	Left wheel angle, negative to the left, positive to the right.	Percent over 100	N	-
GEAR RIGHT STEER ANGLE	Right wheel angle, negative to the left, positive to the right.	Percent over 100	N	-
GEAR AUX STEER ANGLE	Aux wheel angle, negative to the left, positive to the right. The aux wheel is the fourth set of gear, sometimes used on helicopters.	Percent over 100	N	-
GEAR STEER ANGLE:*index*	Alternative method of getting the steer angle. Index is 0 = center 1 = left 2 = right 3 = aux	Percent over 100	N	-
WATER LEFT RUDDER STEER ANGLE	Water left rudder angle, negative to the left, positive to the right.	Percent over 100	N	-
WATER RIGHT RUDDER STEER ANGLE	Water right rudder angle, negative to the left, positive to the right.	Percent over 100	N	-
GEAR CENTER STEER ANGLE PCT	Center steer angle as a percentage	Percent over 100	N	-
GEAR LEFT STEER ANGLE PCT	Left steer angle as a percentage	Percent over 100	N	-
GEAR RIGHT STEER ANGLE PCT	Right steer angle as a percentage	Percent over 100	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
GEAR AUX STEER ANGLE PCT	Aux steer angle as a percentage	Percent over 100	N	-
GEAR STEER ANGLE PCT:*index*	Alternative method of getting steer angle as a percentage. Index is 0 = center 1 = left 2 = right 3 = aux	Percent over 100	N	-
WATER LEFT RUDDER STEER ANGLE PCT	Water left rudder angle as a percentage	Percent over 100	N	-
WATER RIGHT RUDDER STEER ANGLE PCT	Water right rudder as a percentage	Percent over 100	N	-
WHEEL RPM:*index*	Wheel rpm. Index is 0 = center 1 = left 2 = right 3 = aux	Rpm	N	-
CENTER WHEEL RPM	Center landing gear rpm	Rpm	N	-
LEFT WHEEL RPM	Left landing gear rpm	Rpm	N	-
RIGHT WHEEL RPM	Right landing gear rpm	Rpm	N	-
AUX WHEEL RPM	Rpm of fourth set of gear wheels.	Rpm	N	-
WHEEL ROTATION ANGLE:*index*	Wheel rotation angle. Index is 0 = center 1 = left 2 = right 3 = aux	Radians	N	-
CENTER WHEEL ROTATION ANGLE	Center wheel rotation angle	Radians	N	-
LEFT WHEEL ROTATION ANGLE	Left wheel rotation angle	Radians	N	-
RIGHT WHEEL ROTATION ANGLE	Right wheel rotation angle	Radians	N	-
AUX WHEEL ROTATION ANGLE	Aux wheel rotation angle	Radians	N	-
GEAR EMERGENCY HANDLE POSITION	True if gear emergency handle applied	Bool	Y	-
GEAR WARNING	One of: 0: unknown 1: normal 2: amphib	Enum	N	-
ANTISKID BRAKES ACTIVE	True if antiskid brakes active	Bool	N	-
RETRACT FLOAT SWITCH	True if retract float switch on	Bool	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
RETRACT LEFT FLOAT EXTENDED	If aircraft has retractable floats. [0: Fully Retracted, 100: Fully Extended]	Percent	N	-
RETRACT RIGHT FLOAT EXTENDED	If aircraft has retractable floats. [0: Fully Retracted, 100: Fully Extended]	Percent	N	-
STEER INPUT CONTROL	Position of steering tiller	Percent over 100	N	-
GEAR DAMAGE BY SPEED	True if gear has been damaged by excessive speed	Bool	N	-
GEAR SPEED EXCEEDED	True if safe speed limit for gear exceeded	Bool	N	-
NOSEWHEEL LOCK ON	True if the nosewheel lock is engaged.	Bool	N	-

Aircraft Environment Variables

Simulation Variable	Description	Units	Settable	Multiplayer
AMBIENT DENSITY	Ambient density	Slugs per cubic feet	N	-
AMBIENT TEMPERATURE	Ambient temperature	Celsius	N	-
AMBIENT PRESSURE	Ambient pressure	Millibars	N	-
AMBIENT WIND VELOCITY	Wind velocity	Feet per second	N	-
AMBIENT WIND DIRECTION	Wind direction	Degrees	N	-
AMBIENT WIND X	Wind component in East/West direction.	Feet per second	N	-
AMBIENT WIND Y	Wind component in vertical direction.	Feet per second	N	-
AMBIENT WIND Z	Wind component in North/South direction.	Feet per second	N	-
STRUCT AMBIENT WIND	X (latitude), Y (vertical) and Z (longitude) components of the wind.	Feet per second	N	-
AMBIENT PRECIP STATE	Precip state (bit field): 2 = None 4 = Rain 8 = Snow	Mask	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
AMBIENT PRECIP RATE	Precip rate: 0 = Very Low 1 = Low 2 = Moderate 3 = High 4 = Very High	Enum	N	-
AIRCRAFT WIND X	Wind component in aircraft lateral axis	Knots	N	-
AIRCRAFT WIND Y	Wind component in aircraft vertical axis	Knots	N	-
AIRCRAFT WIND Z	Wind component in aircraft longitudinal axis	Knots	N	-
BAROMETER PRESSURE	Barometric pressure	Millibars	N	-
SEA LEVEL PRESSURE	Barometric pressure at sea level	Millibars	N	-
TOTAL AIR TEMPERATURE	Total air temperature is the air temperature at the front of the aircraft where the ram pressure from the speed of the aircraft is taken into account.	Celsius	N	-
WINDSHIELD RAIN EFFECT AVAILABLE	Is visual effect available on this aircraft	Bool	N	-
AMBIENT IN CLOUD	True if the aircraft is in a cloud.	Bool	N	-
AMBIENT VISIBILITY	Ambient visibility	Meters	N	-
STANDARD ATM TEMPERATURE	Outside temperature on the standard ATM scale	Rankine	N	-

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Helicopter Specific Variables

Note: Only variables that specifically mention the Bell helicopter apply to the Bell.

Simulation Variable	Description	Units	Settable	Multiplayer
ROTOR BRAKE HANDLE POS	Percent actuated	Percent over 100	N	-
ROTOR BRAKE ACTIVE	Active	Bool	N	-
ROTOR CLUTCH SWITCH POS	Switch position	Bool	N	-
ROTOR CLUTCH ACTIVE	Active	Bool	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
ROTOR TEMPERATURE	Main rotor transmission temperature	Rankine	N	-
ROTOR CHIP DETECTED	Chip detection	Bool	N	-
ROTOR GOV SWITCH POS	Switch position	Bool	N	-
ROTOR GOV ACTIVE	Active	Bool	N	-
ROTOR LATERAL TRIM PCT	Trim percent	Percent over 100	N	-
ROTOR RPM PCT:index	Percent max rated rpm of the given rotor index. Index should be specified to 1 for main rotor and 2 for tail rotor.	Percent over 100	Y	-
ENG TURBINE TEMPERATURE	Turbine temperature. Applies only to Bell helicopter. [Degrees * 16384]	Celsius scalar 16K	N	-
ENG TORQUE PERCENT:*index*	Torque. Returns main rotor torque for Bell helicopter, or the indexed rotor torque of other helicopters. [Ft/lbs * 16384]	Percent scalar 16K	N	-
ENG FUEL PRESSURE	Fuel pressure. Applies only to Bell helicopter. [Psi * 16384]	PSI scalar 16K	N	-
ENG ELECTRICAL LOAD	Electrical load. Applies only to Bell helicopter. [Max Load * 16384]	Percent scalar 16K	N	-
ENG TRANSMISSION PRESSURE	Transmission pressure. Applies only to Bell helicopter. [Psi * 16384]	PSI scalar 16K	N	-
ENG TRANSMISSION TEMPERATURE	Transmission temperature. Applies only to Bell helicopter. [Degrees * 16384]	Celsius scalar 16K	N	-
ENG ROTOR RPM:*index*	Rotor rpm. Returns main rotor rpm for Bell helicopter, or the indexed rotor rpm of other helicopters. [Max rpm * 16384]	Percent scalar 16K	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
COLLECTIVE POSITION	The position of the helicopter's collective. 0 is fully up, 100 fully depressed.	Percent over 100	N	-
Slings and Hoists				
NUM SLING CABLES	The number of sling cables (not hoists) that are configured for the aircraft. Refer to the document Notes on Aircraft Systems.	Number	N	-
PAYLOAD STATION OBJECT:index	Places the named object at the payload station identified by the index (starting from 1). The string is the Container name (refer to the title property of Simulation Object Configuration Files).	String	Y- set only	-
PAYLOAD STATION NUM SIMOBJECTS:index	The number of objects at the payload station (indexed from 1).	Number	N	-
SLING OBJECT ATTACHED:index	If units are set as boolean, returns True if a sling object is attached. If units are set as a string, returns the container title of the object. There can be multiple sling positions, indexed from 1. The sling positions are set in the Aircraft Configuration File.	Bool/String	N	-
SLING CABLE BROKEN:index	True if the cable is broken.	Bool	N	-
SLING CABLE EXTENDED LENGTH:index	The length of the cable extending from the aircraft.	Feet	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
SLING ACTIVE PAYLOAD STATION:index	The payload station (identified by the parameter) where objects will be placed from the sling (identified by the index).	Number	Y	-
SLING HOIST PERCENT DEPLOYED:index	The percentage of the full length of the sling cable deployed.	Percent over 100	N	-
SLING HOOK IN PICKUP MODE:index	A Boolean for whether or not the hook is in pickup mode, so capable of picking up another object.	Bool	N	-
IS ATTACHED TO SLING	Set to true if this object is attached to a sling.	Bool	N	-
ROTOR ROTATION ANGLE:index	Rotor rotation angle of the given rotor index. Index should be specified to 1 for main rotor and 2 for tail rotor.	Radians	N	-
DISK PITCH ANGLE:index	Rotor pitch angle of the given rotor index. Index should be specified to 1 for main rotor and 2 for tail rotor.	Radians	N	-
DISK BANK ANGLE:index	Rotor bank angle of the given rotor index. Index should be specified to 1 for main rotor and 2 for tail rotor.	Radians	N	-
DISK PITCH PCT:index	Rotor pitch percent of the given rotor index. Index should be specified to 1 for main rotor and 2 for tail rotor.	Percent over 100	N	-
DISK BANK PCT:index	Rotor bank percent of the given rotor index. Index should be specified to 1 for main rotor and 2 for tail rotor.	Percent over 100	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
DISK CONING PCT:index	Rotor coning percent of the given rotor index. Index should be specified to 1 for main rotor and 2 for tail rotor.	Percent over 100	N	-

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Aircraft Miscellaneous Systems Variables

Simulation Variable	Description	Units	Settable	Multiplayer
SMOKE ENABLE	Set to True to activate the smoke system, if one is available (for example, on the Extra).	Bool	Y	All aircraft
SMOKESYSTEM AVAILABLE	Smoke system available	Bool	N	-
PITOT HEAT	Pitot heat active	Bool	N	All aircraft
FOLDING WING LEFT PERCENT	Left folding wing position, 100 is fully folded	Percent over 100	Y	-
FOLDING WING RIGHT PERCENT	Right folding wing position, 100 is fully folded	Percent over 100	Y	-
CANOPY OPEN	Percent primary door/exit open	Percent over 100	Y	-
TAILHOOK POSITION	Percent tail hook extended	Percent over 100	Y	-
EXIT OPEN:*index*	Percent door/exit open	Percent over 100	Y	-
STALL HORN AVAILABLE	True if stall alarm available	Bool	N	-
ENGINE MIXURE AVAILABLE	True if engine mixture is available for prop engines. Obsolete value as mixture is always available. Spelling error in variable name.	Bool	N	-
CARB HEAT AVAILABLE	True if carb heat available	Bool	N	-
SPOILER AVAILABLE	True if spoiler system available	Bool	N	-
IS TAIL DRAGGER	True if the aircraft is a taildragger	Bool	N	-
STROBES AVAILABLE	True if strobe lights are available	Bool	N	-
TOE BRAKES AVAILABLE	True if toe brakes are available	Bool	N	-
PUSHBACK STATE	Type of pushback : 0 = Straight 1 = Left 2 = Right	Enum	N	-
ELECTRICAL MASTER BATTERY	Battery switch position	Bool	Y	All aircraft
ELECTRICAL TOTAL LOAD AMPS	Total load amps	Amperes	Y	-
ELECTRICAL BATTERY LOAD	Battery load	Amperes	Y	-
ELECTRICAL BATTERY VOLTAGE	Battery voltage	Volts	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
ELECTRICAL BATTERY IS CHARGING	Is battery currently being charged or not	Bool	N	-
ELECTRICAL MAIN BUS VOLTAGE	Main bus voltage	Volts	Y	-
ELECTRICAL MAIN BUS AMPS	Main bus current	Amperes	Y	-
ELECTRICAL AVIONICS BUS VOLTAGE	Avionics bus voltage	Volts	Y	-
ELECTRICAL AVIONICS BUS AMPS	Avionics bus current	Amperes	Y	-
ELECTRICAL HOT BATTERY BUS VOLTAGE	Voltage available when battery switch is turned off	Volts	Y	-
ELECTRICAL HOT BATTERY BUS AMPS	Current available when battery switch is turned off	Amperes	Y	-
ELECTRICAL BATTERY BUS VOLTAGE	Battery bus voltage	Volts	Y	-
ELECTRICAL BATTERY BUS AMPS	Battery bus current	Amperes	Y	-
ELECTRICAL BATTERY BUS CONTACT SWITCH	Switch that disconnects the battery bus from the main system	Volts	Y	-
ELECTRICAL GENALT BUS VOLTAGE:*index*	Genalt bus voltage (takes engine index)	Volts	Y	-
ELECTRICAL GENALT BUS AMPS:*index*	Genalt bus current (takes engine index)	Amperes	Y	-
ELECTRICAL GENALT SWITCH:*index*	Genalt switch (takes generator/alternator index)	Bool	N	-
ELECTRICAL GENALT BUS CONTACT SWITCH:*index*	Switch that disconnects the bus from the main system (takes generator/alternator index)	Bool	N	-
ELECTRICAL GENALT ACTIVE:*index*	Genalt active (takes generator/alternator index)	Bool	N	-
ELECTRIC GPU ACTIVE	Ground Power Unit active	Bool	N	-
ELECTRIC GPU SWITCH	Ground Power Unit switch on/off	Bool	N	-
CIRCUIT GENERAL PANEL ON	Is electrical power available to this circuit	Bool	N	-
CIRCUIT FLAP MOTOR ON	Is electrical power available to this circuit	Bool	N	-
CIRCUIT GEAR MOTOR ON	Is electrical power available to this circuit	Bool	N	-
CIRCUIT AUTOPILOT ON	Is electrical power available to this circuit	Bool	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
CIRCUIT AVIONICS ON	Is electrical power available to this circuit	Bool	N	-
CIRCUIT PITOT HEAT ON	Is electrical power available to this circuit	Bool	N	-
CIRCUIT PROP SYNC ON	Is electrical power available to this circuit	Bool	N	-
CIRCUIT AUTO FEATHER ON	Is electrical power available to this circuit	Bool	N	-
CIRCUIT AUTO BRAKES ON	Is electrical power available to this circuit	Bool	N	-
CIRCUIT STANDY VACUUM ON	Is electrical power available to this circuit	Bool	N	Shared Cockpit
CIRCUIT MARKER BEACON ON	Is electrical power available to this circuit	Bool	N	-
CIRCUIT GEAR WARNING ON	Is electrical power available to this circuit	Bool	N	-
CIRCUIT HYDRAULIC PUMP ON	Is electrical power available to this circuit	Bool	N	-
HYDRAULIC PRESSURE:*index*	Hydraulic system pressure. Indexes start at 1.	Pound force per square foot	N	-
HYDRAULIC RESERVOIR PERCENT:*index*	Hydraulic pressure changes will follow changes to this variable. Indexes start at 1.	Percent over 100	Y	-
HYDRAULIC SYSTEM INTEGRITY	Percent system functional	Percent over 100	N	-
STRUCTURAL DEICE SWITCH	True if the aircraft structure deice switch is on	Bool	N	-
APPLY HEAT TO SYSTEMS	Used when too close to a fire.	Bool	Y	-
DROPPABLE OBJECTS TYPE:*index*	The type of droppable object at the station number identified by the index.	String	Y	-
DROPPABLE OBJECTS COUNT:*index*	The number of droppable objects at the station number identified by the index.	Number	N	-

Miscellaneous Variables

Simulation Variable	Description	Units	Settable	Multiplayer
SIM TIME	The elapsed simulation time	Seconds	N	-
TOTAL WEIGHT	Total weight of the aircraft	Pounds	N	-
MAX GROSS WEIGHT	Maximum gross weight of the aircraft	Pounds	N	-
EMPTY WEIGHT	Empty weight of the aircraft	Pounds	N	-
IS USER SIM	Is this the user loaded aircraft	Bool	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
LABEL SUPPORTED	Is label supported on this object. Setting this will override the default for the object class (TRUE for aircraft, FALSE for everything else), but not the UI settings.	Bool	Y	-
SIM DISABLED	Is sim disabled	Bool	Y	-
IS INVISIBLE	Sets/gets the invisibility flag of the object. This flag can be used to hide an object's model from rendering.	Bool	Y	-
G FORCE	Current g force	GForce	Y	All aircraft
ATC HEAVY	Is this aircraft recognized by ATC as heavy	Bool	Y	-
AUTO COORDINATION	Is auto-coordination active	Bool	Y	-
REALISM	General realism percent	Number	Y	-
TRUE AIRSPEED SELECTED	True if True Airspeed has been selected	Bool	Y	-
DESIGN SPEED VS0	Design speed at VS0	Feet per second	N	-
DESIGN SPEED VS1	Design speed at VS1	Feet per second	N	-
DESIGN SPEED VC	Design speed at VC	Feet per second	N	-
MIN DRAG VELOCITY	Minimum drag velocity	Feet per second	N	-
ESTIMATED CRUISE SPEED	Estimated cruise speed	Feet per second	N	-
CG PERCENT	Longitudinal CG position as a percent of reference chord	Percent over 100	N	-
CG PERCENT LATERAL	Lateral CG position as a percent of reference chord	Percent over 100	N	-
IS SLEW ACTIVE	True if slew is active	Bool	Y	Shared Cockpit
IS SLEW ALLOWED	True if slew is enabled	Bool	Y	Shared Cockpit
ATC SUGGESTED MIN RWY TAKEOFF	Suggested minimum runway length for takeoff. Used by ATC	Feet	N	-
ATC SUGGESTED MIN RWY LANDING	Suggested minimum runway length for landing. Used by ATC	Feet	N	-
PAYLOAD STATION WEIGHT:*index*	Individual payload station weight	Pounds	Y	-
PAYLOAD STATION COUNT	Number of payload stations	Number	N	-
USER INPUT ENABLED	Is input allowed from the user	Bool	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
TYPICAL DESCENT RATE	Normal descent rate	Feet per minute	N	-
VISUAL MODEL RADIUS	Model radius	Meters	N	-
CATEGORY	One of the following: "Airplane", "Animal", "Avatar", "Boat", "ControlTower", "Countermeasure", "ExternalSim", "GroundVehicle", "Helicopter", "SimpleObject", "Submersible", "Viewer", "Weapon"	String	N	-
SIGMA SQRT	Sigma sqrt	Number	N	-
DYNAMIC PRESSURE	Dynamic pressure	Pounds per square foot	N	-
TOTAL VELOCITY	Velocity regardless of direction. For example, if a helicopter is ascending vertically at 100 fps, getting this variable will return 100.	Feet per second	N	-
AIRSPEED SELECT INDICATED OR TRUE	The airspeed, whether true or indicated airspeed has been selected.	Knots	N	-
VARIOMETER RATE	Variometer rate	Feet per second	N	-
VARIOMETER SWITCH	True if the variometer switch is on	Bool	N	-
PRESSURE ALTITUDE	Altitude reading	Meters	N	-
MAGNETIC COMPASS	Compass reading	Degrees	N	-
TURN INDICATOR RATE	Turn indicator reading	Radians per second	N	-
TURN INDICATOR SWITCH	True if turn indicator switch is on	Bool	N	-
YOKE Y INDICATOR	Yoke position in vertical direction	Position	N	-
YOKE X INDICATOR	Yoke position in horizontal direction	Position	N	-
RUDDER PEDAL INDICATOR	Rudder pedal position	Position	N	-
BRAKE DEPENDENT HYDRAULIC PRESSURE	Brake dependent hydraulic pressure reading	Pounds per square foot	N	-
PANEL ANTI ICE SWITCH	True if panel anti-ice switch is on	Bool	N	-
WING AREA	Total wing area	Square feet	N	-
WING SPAN	Total wing span	Feet	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
BETA DOT	Beta dot	Radians per second	N	-
LINEAR CL ALPHA	Linear CL alpha	Per radian	N	-
STALL ALPHA	Stall alpha	Radians	N	-
ZERO LIFT ALPHA	Zero lift alpha	Radians	N	-
CG AFT LIMIT	Aft limit of CG	Percent over 100	N	-
CG FWD LIMIT	Forward limit of CG	Percent over 100	N	-
CG MAX MACH	Max mach CG	Machs	N	-
CG MIN MACH	Min mach CG	Machs	N	-
PAYLOAD STATION NAME	Descriptive name for payload station	String	N	-
ELEVON DEFLECTION	Elevon deflection	Radians	N	-
EXIT TYPE	One of: 0: Main 1: Cargo 2: Emergency 3: Unknown	Enum	N	-
EXIT POSX	Position of exit relative to datum reference point	Feet	N	-
EXIT POSY	Position of exit relative to datum reference point	Feet	N	-
EXIT POSZ	Position of exit relative to datum reference point	Feet	N	-
DECISION HEIGHT	Design decision height	Feet	N	-
DECISION ALTITUDE MSL	Design decision altitude above mean sea level	Feet	N	-
EMPTY WEIGHT PITCH MOI	Empty weight pitch moment of inertia	Slugs per feet squared	N	-
EMPTY WEIGHT ROLL MOI	Empty weight roll moment of inertia	Slugs per feet squared	N	-
EMPTY WEIGHT YAW MOI	Empty weight yaw moment of inertia	Slugs per feet squared	N	-
EMPTY WEIGHT CROSS COUPLED MOI	Empty weight cross coupled moment of inertia	Slugs per feet squared	N	-
TOTAL WEIGHT PITCH MOI	Total weight pitch moment of inertia	Slugs per feet squared	N	-
TOTAL WEIGHT ROLL MOI	Total weight roll moment of inertia	Slugs per feet squared	N	-
TOTAL WEIGHT YAW MOI	Total weight yaw moment of inertia	Slugs per feet squared	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
TOTAL WEIGHT CROSS COUPLED MOI	Total weight cross coupled moment of inertia	Slugs per feet squared	N	-
WATER BALLAST VALVE	True if water ballast valve is available	Bool	N	-
MAX RATED ENGINE RPM	Maximum rated rpm	Rpm	N	-
FULL THROTTLE THRUST TO WEIGHT RATIO	Full throttle thrust to weight ratio	Number	N	-
PROP AUTO CRUISE ACTIVE	True if prop auto cruise active	Bool	N	-
PROP ROTATION ANGLE	Prop rotation angle	Radians	Y	-
PROP BETA MAX	Prop beta max	Radians	N	-
PROP BETA MIN	Prop beta min	Radians	N	-
PROP BETA MIN REVERSE	Prop beta min reverse	Radians	N	-
FUEL SELECTED TRANSFER MODE	One of: -1: off 0: auto 1: forward 2: aft 3: manual	Enum	N	-
DROPPABLE OBJECTS UI NAME	Descriptive name, used in User Interface dialogs, of a droppable object	String	N	-
MANUAL FUEL PUMP HANDLE	Position of manual fuel pump handle. 100 is fully deployed.	Percent over 100	N	-
BLEED AIR SOURCE CONTROL	One of: 0: min 1: auto 2: off 3: apu 4: engines	Enum	N	-
ELECTRICAL OLD CHARGING AMPS	Legacy, use ELECTRICAL BATTERY LOAD	Amps	N	-
HYDRAULIC SWITCH	True if hydraulic switch is on	Bool	N	-
CONCORDE VISOR NOSE HANDLE	One of: 0: visor up, nose down 1: visor down, nose up 2: visor down, nose 5 degrees 3: visor down, nose 12.5 degrees	Enum	N	All aircraft
CONCORDE VISOR POSITION PERCENT	0 = up, 1.0 = extended/down	Percent over 100	N	-
CONCORDE NOSE ANGLE	0 = up	Radians	N	-
REALISM CRASH WITH OTHERS	True indicates crashing with other aircraft is possible.	Bool	N	-
REALISM CRASH DETECTION	True indicates crash detection is turned on.	Bool	N	-
MANUAL INSTRUMENT LIGHTS	True if instrument lights are set manually	Bool	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
PITOT ICE PCT	Amount of pitot ice. 100 is fully iced.	Percent over 100	N	-
RAD INS SWITCH	True if Rad INS switch on	Bool	N	-
SIMULATED RADIUS	Simulated radius	Feet	N	-
STRUCTURAL ICE PCT	Amount of ice on aircraft structure. 100 is fully iced.	Percent over 100	N	-
ARTIFICIAL GROUND ELEVATION	In case scenery is not loaded for AI planes, this variable can be used to set a default surface elevation.	Feet	N	-
SURFACE INFO VALID	True indicates SURFACE CONDITION is meaningful.	Bool	N	-
SURFACE CONDITION	One of: 0: Normal 1: Wet 2: Icy 3: Snow	Enum	N	-
PUSHBACK ANGLE	Pushback angle (the heading of the tug)	Radians	N	-
PUSHBACK CONTACTX	The towpoint position, relative to the aircrafts datum reference point.	Feet	N	-
PUSHBACK CONTACTY	Pushback contact position in vertical direction	Feet	N	-
PUSHBACK CONTACTZ	Pushback contact position in fore/aft direction	Feet	N	-
PUSHBACK WAIT	True if waiting for pushback.	Bool	Y	-
YAW STRING ANGLE	The yaw string angle. Yaw strings are attached to gliders as visible indicators of the yaw angle. An animation of this is not implemented in *Prepar3D*.	Radians	N	-
YAW STRING PCT EXTENDED	Yaw string angle as a percentage	Percent over 100	N	-
INDUCTOR COMPASS PERCENT DEVIATION	Inductor compass deviation reading	Percent over 100	N	-
INDUCTOR COMPASS HEADING REF	Inductor compass heading	Radians	N	-
ANEMOMETER PCT RPM	Anemometer rpm as a percentage	Percent over 100	N	-
NAV VOR LLAF64	Nav VOR latitude, longitude, altitude	LLA structure	N	-
NAV GS LLAF64	Nav GS latitude, longitude, altitude	LLA structure	N	-
STATIC CG TO GROUND	Static CG to ground	Feet	N	-
STATIC PITCH	Static pitch	Radians	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
CRASH SEQUENCE	One of: 0: off 1: complete 3: reset 4: pause 11: start	Enum	N	-
CRASH FLAG	One of: 0: None 2: Mountain 4: General 6: Building 8: Splash 10: Gear up 12: Overstress 14: Building 16: Aircraft 18: Fuel Truck	Enum	N	Shared Cockpit
DAMAGE STATE	This variable can be used to control things such as a model's visual appearance. One of: 0: No damage 1: Light damage 2: Moderate damage 3: Destroyed 4-n: User defined	Enum	Y	Shared Cockpit
TOW RELEASE HANDLE	Position of tow release handle. 100 is fully deployed.	Percent over 100	N	-
TOW CONNECTION	True if a towline is connected to both tow plane and glider.	Bool	N	-
APU PCT RPM	Auxiliary power unit rpm, as a percentage	Percent over 100	N	-
APU PCT STARTER	Auxiliary power unit starter, as a percentage	Percent over 100	N	-
APU VOLTS	Auxiliary power unit voltage	Volts	N	-
APU GENERATOR SWITCH	True if APU generator switch on	Bool	N	-
APU GENERATOR ACTIVE	True if APU generator active	Bool	N	-
APU ON FIRE DETECTED	True if APU on fire	Bool	N	-
PRESSURIZATION CABIN ALTITUDE	The current altitude of the cabin pressurization..	Feet	N	-
PRESSURIZATION CABIN ALTITUDE GOAL	The set altitude of the cabin pressurization.	Feet	N	-
PRESSURIZATION CABIN ALTITUDE RATE	The rate at which cabin pressurization changes.	Feet per second	N	-
PRESSURIZATION PRESSURE DIFFERENTIAL	The difference in pressure between the set altitude pressurization and the current pressurization.	Pounds per square foot	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
PRESSURIZATION DUMP SWITCH	True if the cabin pressurization dump switch is on.	Bool	N	-
FIRE BOTTLE SWITCH	True if the fire bottle switch is on.	Bool	N	-
FIRE BOTTLE DISCHARGED	True if the fire bottle is discharged.	Bool	N	-
CABIN NO SMOKING ALERT SWITCH	True if the No Smoking switch is on.	Bool	Y	-
CABIN SEATBELTS ALERT SWITCH	True if the Seatbelts switch is on.	Bool	Y	-
GPWS WARNING	True if Ground Proximity Warning System installed.	Bool	N	-
GPWS SYSTEM ACTIVE	True if the Ground Proximity Warning System is active	Bool	Y	-
IS LATITUDE LONGITUDE FREEZE ON	True if the lat/lon of the aircraft (either user or AI controlled) is frozen. If this variable returns true, it means that the latitude and longitude of the aircraft are not being controlled by *Prepar3D*, so enabling, for example, a SimConnect client to control the position of the aircraft. This can also apply to altitude and attitude. Also refer to the range of KEY_FREEZE..... Event IDs.	Bool	Y	-
IS ALTITUDE FREEZE ON	True if the altitude of the aircraft is frozen.	Bool	Y	-
IS ATTITUDE FREEZE ON	True if the attitude (pitch, bank and heading) of the aircraft is frozen.	Bool	Y	-
EXTERNAL PRIMARY SIM ID	ExternalSim Primary GUID	String	N	-
EXTERNAL PRIMARY SIM DATA	Data configured through various ExternalSim SimConnect functions through the *szExternalSimParams* parameter.	String	N	-

Aircraft String Variables

Simulation Variable	Description	Units	Settable	Multiplayer
ATC TYPE	Type used by ATC	String (30)	N	-
ATC MODEL	Model used by ATC	String (10)	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
ATC ID	ID used by ATC	String (10)	Y	-
ATC AIRLINE	Airline used by ATC	String (50)	Y	-
ATC FLIGHT NUMBER	Flight Number used by ATC	String (6)	Y	-
title	title from aircraft.cfg	Variable length string	N	-
HSI STATION IDENT	Tuned station identifier	String(6)	N	-
GPS WP_PREV ID	ID of previous GPS waypoint	String	N	-
GPS WP_NEXT ID	ID of next GPS waypoint	String	N	-
GPS APPROACH AIRPORT ID	ID of airport	String	N	-
GPS APPROACH APPROACH ID	ID of approach	String	N	-
GPS APPROACH TRANSITION ID	ID of approach transition	String	N	-

AI Controlled Aircraft

Simulation Variable	Description	Units	Settable	Multiplayer
AI DESIRED SPEED	Desired speed of the AI object.	Knots	Y	-
AI WAYPOINT LIST	List of waypoints that an AI controlled object should follow.	**SIMCONNECT_DATA_WAYPOINT** structure list	Y	-
AI CURRENT WAYPOINT	Current waypoint in the list	Number	Y	-
AI DESIRED HEADING	Desired heading of the AI object.	Degrees	Y	-
AI GROUNDTURNTIME	Time to make a 90 degree turn.	Seconds	Y	-
AI GROUNDCRUISESPEED	Cruising speed.	Knots	Y	-
AI GROUNDTURNSPEED	Turning speed.	Knots	Y	-
AI TRAFFIC ISIFR	Request whether this aircraft is IFR or VFR See Note 1.	Boolean	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
AI TRAFFIC STATE	English string describing an AI object's state. If the object is an aircraft under ATC control the string will be one of: **"init"** **"sleep"** **"flt plan"** **"startup"** **"preflight support"** **"clearance"** **"push back 1"** **"push back 2"** **"pre taxi out"** **"taxi out"** **"takeoff 1"** **"takeoff 2"** **"T&G depart"** **"enroute"** **"pattern"** **"landing"** **"rollout"** **"go around"** **"taxi in"** **"shutdown"** **"postflight support"** If the AI object is not an aircraft under ATC control, the string is one of: **"Sleep"** **"Waypoint"** **"Takeoff"** **"Landing"** **"Taxi"** This string also appears in the State column of the Traffic Explorer tool dialog. See Note 1.	String	N	-
AI TRAFFIC CURRENT AIRPORT	ICAO code of current airport. See Note 1.	String	N	-
AI TRAFFIC ASSIGNED RUNWAY	Assigned runway name (for example: "32R"). See Note 1.	String	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
AI TRAFFIC ASSIGNED PARKING	English assigned parking name. The string is the same as the one shown in the Parking column of the Traffic Explorer dialog, and is made up in the form: Name + Number, Type (radius) For example: **Ramp 1, RAMP sml (10m)** **Gate G 4, RAMP lrg (18m)** Refer also to the Taxiway Parking section of the Compiling BGL document. See Note 1.	String	N	-
AI TRAFFIC FROMAIRPORT	ICAO code of the departure airport in the current schedule. See Note 2.	String	N	-
AI TRAFFIC TOAIRPORT	ICAO code of the destination airport in the current schedule. See Note 2.	String	N	-
AI TRAFFIC ETD	Estimated time of departure for the current schedule entry, given as the number of seconds difference from the current simulation time. This can be negative if ETD is earlier than the current simulation time. See Note 2.	Seconds	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
AI TRAFFIC ETA	Estimated time of arrival for the current schedule entry, given as the number of seconds difference from the current simulated time. This can be negative if ETA is earlier than the current simulated time. See Note 2.	Seconds	N	-

Notes

1. These variables make most sense for aircraft with flight plans. If an aircraft does not have a flight plan, the value returned will be 0 (or false), or an empty string, depending on the units.
2. These variables only make sense for aircraft generated by the traffic database, and so have schedules. If an aircraft does not have a schedule, the value returned will be 0 (or false), or an empty string, depending on the units.

Carrier Operations

Simulation Variable	Description	Units	Settable	Multiplayer
LAUNCHBAR POSITION	Installed on aircraft before takeoff from a carrier catapult. Note that gear cannot retract with this extended. 100 = fully extended. Refer to the document Notes on Aircraft Systems.	Percent over 100	N	-
LAUNCHBAR SWITCH	If this is set to True the launch bar switch has been engaged.	Bool	N	-
LAUNCHBAR HELD EXTENDED	This will be True if the launchbar is fully extended, and can be used, for example, to change the color of an instrument light.	Bool	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
NUMBER OF CATAPULTS	Maximum of 4. A model can contain more than 4 catapults, but only the first four will be read and recognized by the simulation.	Number	N	-
CATAPULT STROKE POSITION:index	Catapults are indexed from 1. This value will be 0 before the catapult fires, and then up to 100 as the aircraft is propelled down the catapult. The aircraft may takeoff before the value reaches 100 (depending on the aircraft weight, power applied, and other factors), in which case this value will not be further updated. This value could be used to drive a bogie animation.	Number	N	-
HOLDBACK BAR INSTALLED	Holdback bars allow build up of thrust before takeoff from a catapult, and are installed by the deck crew of an aircraft carrier.	Bool	N	-
BLAST SHIELD POSITION:index	Indexed from 1, 100 is fully deployed, 0 flat on deck	Percent over 100	N	-
CABLE CAUGHT BY TAILHOOK	A number 1 through 4 for the cable number caught by the tailhook. Cable 1 is the one closest to the stern of the carrier. A value of 0 indicates no cable was caught.	Number	N	-
TAILHOOK HANDLE	True if the tailhook handle is engaged.	Bool	N	-

Simulation Variable	Description	Units	Settable	Multiplayer
SURFACE RELATIVE GROUND SPEED	The speed of the aircraft relative to the speed of the first surface directly underneath it. Use this to retrieve, for example, an aircraft's taxiing speed while it is moving on a moving carrier. It also applies to airborne aircraft, for example when a helicopter is successfully hovering above a moving ship, this value should be zero. The returned value will be the same as GROUND VELOCITY if the first surface beneath it is not moving.	Feet_per_second	N	-
CATAPULT START POSITION LLA:index	The starting position of the catapult. Lat Lon in Degrees. Alt in Meters.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
CATAPULT END POSITION LLA:index	The end position of the catapult. Lat Lon in Degrees. Alt in Meters.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
CABLES ENDPOINT1 POSITION LLA:index	The first endpoint of the cables position. Lat Lon in Degrees. Alt in Meters.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
CABLES ENDPOINT2 POSITION LLA:index	The second endpoint of the cables position. Lat Lon in Degrees. Alt in Meters.	**SIMCONNECT_DATA_LATLONALT**structure	N	-
AIRCRAFT ELEVATOR POSITION:index	The position of the carrier's aircraft elevator at the given index, where 0.0 represents the up position and 1.0 represents the down position. Only available for SimObjects in the Boat category.	Percent over 100	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
AIRCRAFT ELEVATOR CONTROL:index	The control direction of the carrier's aircraft elevator at the given index, where 0 represents the control is in the up position and 1 represents the control in the down position. The value of the control does not indicate the elevator is moving, merely the direction it would be traveling if it were moving. Only available for SimObjects in the Boat category.	Number	Y	-

Racing

Simulation Variable	Description	Units	Settable	Multiplayer
RECIP ENG DETONATING:index	Indexed from 1. Set to True if the engine is detonating.	Bool	N	-
RECIP ENG CYLINDER HEALTH:index	Index high 16 bits is engine number, low 16 cylinder number, both indexed from 1.	Percent over 100	N	-
RECIP ENG NUM CYLINDERS	Indexed from 1. The number of engine cylinders.	Number	N	-
RECIP ENG NUM CYLINDERS FAILED	Indexed from 1. The number of cylinders that have failed.	Number	N	-
RECIP ENG ANTIDETONATION TANK VALVE:index	Indexed from 1, each engine can have one antidetonation tank. Installed on racing aircraft. Refer to the document Notes on Aircraft Systems.	Bool	Y	-
RECIP ENG ANTIDETONATION TANK QUANTITY:index	Indexed from 1.	Gallons	Y	-

Simulation Variable	Description	Units	Settable	Multiplayer
RECIP ENG ANTIDETONATION TANK MAX QUANTITY:index	Indexed from 1. This value set in the Aircraft Configuration File.	Gallons	N	-
RECIP ENG NITROUS TANK VALVE:index	Indexed from 1. Each engine can have one Nitrous fuel tank installed.	Bool	Y	-
RECIP ENG NITROUS TANK QUANTITY:index	Indexed from 1.	Gallons	Y	-
RECIP ENG NITROUS TANK MAX QUANTITY:index	Indexed from 1. This value set in the Aircraft Configuration File.	Gallons	N	-

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Avatar Mode

Simulation Variable	Description	Units	Settable	Multiplayer
AVATAR MODE IS ATTACHED	Sets/gets the attachment state of the user avatar.	Bool	Y	-

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