ANNEX IV

FSUIPC OFFSETS

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Annex IV.- FSUIPC Offsets

Public Version

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Offset	Size	Use	FS2002	FS2004*
0020	4	Ground altitude in Metres x 256. (see also offset 0B4C)	Ok	Ok
0024	varies	Zero terminated string giving the Start-Up situation or flight name, including the path from the FS folder (usually PILOTS\ …)	Ok	Ok
012C	Varies	Zero terminated string giving the name of the current Log book, with the default being called just 'logbook' instead of the true filename. [*This applies to FS2002, but hasn't been verified on the others*]	Ok	Ok
0238	1	Hour of local time in FS (0–23)	Ok	Ok
0239	1	Minute of local time in FS (0–59)	Ok	Ok
023A	1	Second of time in FS (0–59)	Ok	Ok
023B	1	Hour of Zulu time in FS (also known at UTC or GMT)	Ok	Ok
023C	1	Minute of Zulu time in FS2	Ok	Ok
023E	2	Day number in Year in FS (counting from 1)	Ok	Ok
0240	2	Year in FS	Ok	Ok
0246	2	Local time offset from Zulu (minutes). +ve = behind Zulu, –ve = ahead	Ok	Ok
0248	2	Season: 0=Winter, 1=Spring, 2=Summer, 3=Fall	Ok	Ok
0262	2	Pause control (write 1 to pause, 0 to un-pause).	Ok	Ok
0264	2	Pause indicator (0=Not paused, 1=Paused)	Ok	Ok
0274	2	Frame rate is given by 32768/this value	Ok	Ok
0278	2	Auto-co-ordination ("auto-rudder"), 1=on, 0=off	Ok, but doesn't change Menu setting	Ok, as FS2002
0280	1	Lights: this operates the NAV lights, plus, on FS2000, the TAXI, PANEL and WING lights. For separate switches on FS2000 (and CFS2?) see offset 0D0C	Ok	Ok
0281	1	Beacon and Strobe lights. For separate switches on FS2000 (and CFS2?(see offset 0D0C	Ok	Ok
028C	1	Landing lights. (See also offset 0D0C on FS2000, and maybe CFS2).	Ok	Ok
029C	1	Pitot Heat switch (0=off, 1=on)	Ok	Ok
02A0	2	Magnetic variation (signed, –ve = West). For degrees *360/65536. Convert True headings to Magnetic by *subtracting* this value, Magnetic headings to True by *adding* this value.	Ok	Ok
02B2	2	Zoom factor: FS2002 only, and read-only. 64=x1, 128=x2 et cetera	Ok	Ok
02B4	4	GS: Ground Speed, as 65536*metres/sec. Not updated in Slew mode!	Ok	Ok
02B8	4	TAS: True Air Speed, as knots * 128	Ok	Ok
02BC	4	IAS: Indicated Air Speed, as knots * 128	Ok	Ok
02C4	4	Barber pole airspeed, as knots * 128	Ok	Ok

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02C8	4	Vertical speed, signed, as 256 * metres/sec. For the more usual ft/min you need to apply the conversion *60**3.28084/256	**Ok**	**Ok**
02CC	8	Whiskey Compass, degrees in 'double' floating point format (FLOAT64)	**Ok**	**Ok**
02D4	2	[*FS2004 only*] ADF2 Frequency: main 3 digits, in Binary Coded Decimal. See also offset 02D6. A frequency of 1234.5 will have 0x0234 here and 0x0105 in offset 0356.	**No**	**Ok**
02D6	2	[*FS2004 only*] Extended ADF2 frequency. The high byte contains the 1000's digit and the low byte the fraction, so, for a frequency of 1234.5 this offset will contain 0x0105.	**No**	**Ok**
02D8	2	[*FS2004 only*] ADF2: relative bearing to NDB (*360/65536 for degrees, –ve left, +ve right)	**No**	**Ok**
02DC	6	[*FS2004 only*] ADF2 IDENTITY (string supplied: 6 bytes including zero terminator)	**No**	**Ok**
02E2	25	[*FS2004 only*] ADF2 name (string supplied: 25 bytes including zero terminator)	**No**	**Ok**
0310	8	FS2002 timer (double float, elapsed seconds including fractions, incremented each 'tick' – i.e. 1/18th sec). This runs all the time. It is used for all sorts of things, including the elapsed time between key/mouse-originated controls, to determine whether to accelerate inc/dec types.	**Only FS2002/4**	**Ok**
0330	2	Altimeter pressure setting ("Kollsman" window). As millibars (hectoPascals) * 16	**Ok**	**Ok**
0338	2	Airframe can suffer damage if stressed (0=no, 1=yes)	**NO**	**NO**
033A	2	Manual fuel tank selection if set (appears to be standard anyway in FS2000)	**NO**	**NO**
033C	2	Engine stops when out of fuel if set	**NO**	**NO**
033E	2	Jet engine can flameout if set (appears not an option in FS2000?)	**NO**	**NO**
0340	2	Manual magneto controls if set (appears to be standard anyway in FS2000)	**NO**	**NO**
0342	2	Manual mixture control if set	**No**	**No**
034C	2	ADF1 Frequency: main 3 digits, in Binary Coded Decimal. See also offset 0356. A frequency of 1234.5 will have 0x0234 here and 0x0105 in offset 0356. (See also offset 0389)	**Ok**	**Ok**
034E	2	COM1 frequency, 4 digits in BCD format. A frequency of 123.45 is represented by 0x2345. The leading 1 is assumed.	**Ok**	**Ok**
0350	2	NAV1 frequency, 4 digits in BCD format. A frequency of 113.45 is represented by 0x1345. The leading 1 is assumed. (See also offset 0388)	**Ok**	**Ok**
0352	2	NAV2 frequency, 4 digits in BCD format. A frequency of 113.45 is represented by 0x1345. The leading 1 is assumed. (See also offset 0388)	**Ok**	**Ok**
0354	2	Transponder setting, 4 digits in BCD format: 0x1200 means 1200 on the dials.	**Ok**	**Ok**
0356	2	Extended ADF1 frequency. The high byte contains the 1000's digit and the low byte the fraction, so, for a frequency of 1234.5 this offset will contain 0x0105.	**Ok**	**Ok**
0358	2	COM frequency settable in 25KHz increments if true (else 50KHz)	**?**	
035C	2	ADF frequency settable in 100Hz increments if true (else 1KHz)	**?**	
0366	2	Aircraft on ground flag (0=airborne, 1=on ground). Not updated in Slew mode.	**Ok**	**Ok**

036C	1	Stall warning (0=no, 1=stall)	**Ok**	**Ok**
036D	1	Overspeed warning (0=no, 1=overspeed)	**Ok**	**Ok**
036E	1	Turn co-ordinator ball position (slip and skid). –128 is extreme left, +127 is extreme right, 0 is balanced.	**Ok**	**Ok**
0372	2	Reliability % (0–100). (Not sure if this is effective in FS2000)	**Ok**	**?**
0374	2	NAV1 or NAV2 select (256=NAV1, 512=NAV2)	**?**	
0378	2	DME1 or DME2 select (1=DME1, 2=DME2)	**?**	
037C	2	Turn Rate (for turn coordinator). 0=level, –512=2min Left, +512=2min Right	**Ok**	**Ok**
0388	1	NAV radio activation. If you change the NAV1 or NAV2 frequencies, writing 2 here makes FS re-scan for VORs to receive on those frequencies.	**?**	
0389	1	ADF radio activation. If you change the ADF frequency, writing 2 here makes FS re-scan for an NDB to receive on that frequency. (Although FS2000 seems to do this quite soon in any case)	**?**	
038A	1	COM radio activation. If you change the COM radio, writing a 1 here makes FS scan for ATIS broadcasts to receive on that frequency.	**?**	
04B0	48	Area reserved by FSUIPC. (See details for user accessible parts earlier in this document). [FS2000 & CFS2 only]. The more useful ones follow:	**Ok**	**Ok**
04B4	2	FS2K ADVENTURE WEATHER: This provides the TEMPERATURE_SURFACE_ALT in metres. This is used to provide the METAR reporting station altitude so that the cloud bases can be converted to AGL.	**Ok**	**Ok**
04BA	2	FS2K ADVENTURE WEATHER: This provides the WIND_SURF_TURB which is used to provide the surface wind's upper gust speed in knots, with zero indicating no gusts.	**Ok**	**Ok**
04BC	2	FS2K ADVENTURE WEATHER: This provides the BAROMETRIC_DRIFT variable, which is used to provide the *difference* between the current aircraft position QNH (which may be in transition), and the METAR reported QNH as set by the weather control program. Adding this 'drift' value to the pressure will give the correct value for ATIS reports	**Ok**	**Ok**
04C0	2	FS2K ADVENTURE WEATHER: This provides the FSUIPC_VISIBILITY in statute miles * 100	**Ok**	**Ok**
04C2	2	FS2K ADVENTURE WEATHER: This provides the CLOUD_THUNDER_BASE in metres AMSL	**Ok**	**Ok**
04C4	2	FS2K ADVENTURE WEATHER: This provides the CLOUD_LOW_BASE in metres AMSL	**Ok**	**Ok**
04C6	2	FS2K ADVENTURE WEATHER: This provides the CLOUD_HIGH_BASE in metres AMSL	**Ok**	**Ok**
04C8	2	Dew point as degrees C *256, for the surface temperature layer, FS2k/CFS2 read only	**Ok**	**Ok**
04CB	1	Precipitation rate, 0–5, FS2k/CFS2 read only. *Note that in FS2004, rate 0 = light drizzle. Type=0 is no rain/snow*	**Ok**	**Ok**
04CC	1	Precipitation type, 0=none, 1=rain, 2=snow, FS2k/CFS2 read only.	**Ok**	**Ok**
04CD	1	FS2K ADVENTURE WEATHER: This provides the CLOUD_THUNDER_COVER 0–8	**Ok**	**Ok**
04CE	1	FS2K ADVENTURE WEATHER: This provides the CLOUD_LOW_COVER 0–8	**Ok**	**Ok**
04CF	1	FS2K ADVENTURE WEATHER: This provides the	**Ok**	**Ok**

		CLOUD_HIGH_COVER 0–8		
04D2	2	Precipitation control: write hi-byte=type 0–2 (see above), low byte=rate 0–5. Write 0xFFFF to release control back to FS2k/CFS2.	**Ok**	**Ok**
04D4	2	Dew point control: degrees C * 256. Sets surface layer dewpoint only, FSUIPC does rest. Write 0x8000 to release control back to FS2k/CFS2.	**Ok**	**Ok**
04D8	2	Surface layer wind speed, in knots (FS2k/CFS2). This may be different to the **current** wind speed at the aircraft—see offset 0E90. This also provides WIND_SURF_VEL for FS2k Adventures.	**Ok**	**Ok**
04DA	2	Surface layer wind direction, *360/65536 to get degrees MAGNETIC (FS2k/CFS2). This may be different to the **current** wind direction at the aircraft—see offset 0E92. This also provides WIND_SURF_DIR for FS2k Adventures.	**Ok**	**Ok**
04E0	88	Area reserved for Project Magenta and other 3rd party cockpits	**Ok**	**Ok**
0560	8	Latitude of aircraft in FS units. To convert to Degrees: *If your compiler supports **long long** (64-bit) integers* then use such a variable to simply copy this 64-bit value into a **double** floating point variable and multiply by 90.0/(10001750.0 * 65536.0 * 65536.0). *Otherwise* you will have to handle the high 32-bits and the low 32-bits separately, combining them into one **double** floating point value (say **dHi**). To do, copy the high part (the 32-bit **int** at 0564) to one **double** and the low part (the 32-bit **unsigned int** at 0560) to another (say **dLo**). Remember that the low part is only *part* of a bigger number, so doesn't have a sign of its own. Divide **dLo** by (65536.0 * 65536.0) to give it its proper magnitude compared to the high part, then either add it to or subtract it from **dHi** according to whether **dHi** is positive or negative. This preserves the integrity of the original positive or negative number. Finally multiply the result by 90.0/10001750.0 to get degrees. Either way, a negative result is South, positive North. [Can be written to move aircraft: in FS2002 only in slew or pause states]	**Ok but different**	**Ok (can set in all modes)**
0568	8	Longitude of aircraft in FS format. To convert to Degrees: *If your compiler supports **long long** (64-bit) integers* then use such a variable to simply copy this 64-bit value into a **double** floating point variable and multiply by 360.0/(65536.0 * 65536.0 * 65536.0 * 65536.0). *Otherwise* you will have to handle the high 32-bits and the low 32-bits separately, combining them into one **double** floating point value (say **dHi**). To do, copy the high part (the 32-bit **int** at 056C) to one **double** and the low part (the 32-bit **unsigned int** at 0568) to another (say **dLo**). Remember that the low part is only *part* of a bigger number, so doesn't have a sign of its own. Divide **dLo** by (65536.0 * 65536.0) to give it its proper magnitude compared to the high part, then either add it to or subtract it from **dHi** according to whether **dHi** is positive or negative. This preserves the integrity of the original positive or negative number. Finally multiply the result by 360.0/(65536.0 *	**Ok but different**	**Ok (can set in all modes)**

		65536.0) to get degrees. Either way, a negative result is West, positive East. If you did it all unsigned then values over 180.0 represent West longitudes of (360.0 – the value). [Can be written to move aircraft: in FS2002 only in slew or pause states]		
0570	8	Altitude, in metres and fractional metres. The units are in the high 32-bit integer (at 0574) and the fractional part is in the low 32-bit integer (at 0570). [Can be written to move aircraft: in FS2002 only in slew or pause states]	**Ok but different**	**Ok (can set in all modes)**
0578	4	Pitch, *360/(65536*65536) for degrees. 0=level, –ve=pitch up, +ve=pitch down [Can be set in slew or pause states]	**Ok**	**Ok (can set in all modes)**
057C	4	Bank, *360/(65536*65536) for degrees. 0=level, –ve=bank right, +ve=bank left [Can be set in slew or pause states]	**Ok**	**Ok (can set in all modes)**
0580	4	Heading, *360/(65536*65536) for degrees TRUE. [Can be set in slew or pause states]	**Ok**	**Ok (can set in all modes)**
05D4	2	Smoke system available if True	**NO**	
05D8	2	Smoke system enable: write 1 to switch on, 0 to switch off (see also 05D4)	**Ok**	**Ok**
05DC	2	Slew mode (indicator and control), 0=off, 1=on. (See 05DE also).	**Ok**	**Ok but not like FS2002**
05DE	2	Slew control: write non-zero value here *at same time* as changing 05DC above, and the Slew mode change includes the swapping of the assigned joystick axes. [ignored in FS2004 – the axes are swapped in any case]	**Ok**	**No**
05E4	2	Slew roll rate: 0=static, –ve = right roll, +ve=left roll, rate is such that 192 gives a complete 360 roll in about one minute.	**Ok**	**No**
05E6	2	Slew yaw rate: 0=heading constant, –ve = right, +ve=left, rate is such that 24 gives a complete 360 turn in about one minute.	**Ok**	**No**
05E8	2	Slew vertical rate: 16384=no change, 16385–32767 increasing rate down, 16383–0 increasing rate up. One keypress on Q (up) or A (down) makes a change of 512 units.	**Ok**	**No**
05EB	1	Slew forward/backward movement: +ve=backward, –ve=forward. Values 1–127 give slow to fast slewing (–128 is the fastest forward slew).	**Ok**	**No**
05ED	1	Slew left/right movement: +ve=right, –ve=left. Values 1–127 give slow to fast sideways slewing (–128 is the fastest leftward slew).	**Ok**	**No**
05EE	2	Slew pitch rate: 16384=no change, <16384=pitch up, >16384 pitch down, range 0–32767.	**Ok**	**No**
05F4	2	Slew mode display: 0=off, 1=coords/hdg/spd, 2=fps, 3=all	**Ok**	**Ok**
05FC	2	Flight mode display: 0=off, 1=coords/hdg/spd, 2=fps, 3=all	**Ok**	**Ok**
0609	1	Engine type: 0=Piston, 1=Jet, 2=Sailplane, 3=Helo, 4=Rocket, 5=Turboprop	**Ok**	**Ok**
060C	2	Gear type. 0=non-retractable standard, 1=retractable, 2=slides	**No**	**No**
060E	2	Retractable gear flag (0 if not, 1 if retractable)	**No**	**No**
0612	2	Display IAS if TRUE, TAS otherwise	**No**	**No**
0760	4?	Video recording flag, 1=on, 0=off. [*Not verified, maybe FS2002 only*]	**Ok**	**Ok**

0764	4	Autopilot available	**Ok**	**Ok**
0768	4	Autopilot V/S hold available	**No**	**No**
076C	4	Autothrottle airspeed hold available	**No**	**No**
0770	4	Autothrottle mach hold available	**No**	**No**
0774	4	Autothrottle RPM hold available	**No**	**No**
0778	4	Flaps available	**Ok**	**Ok**
077C	4	Stall horn available	**Ok**	
0780	4	Engine mixture available	**Ok**	**Ok**
0784	4	Carb heat available	**Ok**	**Ok**
0788	4	Pitot heat available	**No**	**No**
078C	4	Spoiler available	**Ok**	**Ok**
0790	4	Aircraft is tail dragger	**Ok**	**Ok**
0794	4	Strobes available	**Ok**	**Ok**
0798	4	Prop type available	**No**	**No**
079C	4	Toe brakes available	**Ok**	**Ok**
07A0	4	NAV1 available	**Ok**	**Ok**
07A4	4	NAV2 available	**Ok**	**Ok**
07A8	4	Marker indicators available	**No**	**No**
07AC	4	NAV1 OBS available	**No**	**No**
07B0	4	NAV2 OBS available	**No**	**No**
07B4	4	VOR2 gauge available	**No**	**No**
07B8	4	Gyro drift available	**No**	**No**
07BC	4	Autopilot Master switch	**Ok**	**Ok**
07C0	4	Autopilot wing leveller	**Ok**	**Ok**
07C4	4	Autopilot NAV1 lock	**Ok**	**Ok**
07C8	4	Autopilot heading lock	**Ok**	**Ok**
07CC	2	Autopilot heading value, as degrees*65536/360	**Ok**	**Ok**
07D0	4	Autopilot altitude lock	**Ok**	**Ok**
07D4	4	Autopilot altitude value, as metres*65536	**Ok**	**Ok**
07D8	4	Autopilot attitude hold	**Ok**	**Ok**
07DC	4	Autopilot airspeed hold	**Ok**	**Ok**
07E2	2	Autopilot airspeed value, in knots	**Ok**	**Ok**
07E4	4	Autopilot mach hold	**Ok**	**Ok**
07E8	4	Autopilot mach value, as Mach*65536	**Ok**	**Ok**
07EC	4	Autopilot vertical speed hold [*Not connected in FS2002/4*]	**No**	**No**
07F2	2	Autopilot vertical speed value, as ft/min	**Ok**	**Ok**
07F4	4	Autopilot RPM hold	**?**	
07FA	2	Autopilot RPM value ??	**?**	
07FC	4	Autopilot GlideSlope hold N.B. In at least FS2002 and FS2004 (and maybe FS2000 as well) setting this also sets 0800, approach hold. To clear both you need to write 0 to them in the same FSUIPC process call, as if they are separated by an FS frame, an interlock stops them clearing.	**Ok**	**Ok**
0800	4	Autopilot Approach hold. See the note above, for offset 07FC.	**Ok**	**Ok**
0804	4	Autopilot Back course hold. The note for offset 07FC may also apply here.	**Ok**	**Ok**
0808	4	Yaw damper	**Ok**	**Ok**
080C	4	Autothrottle TOGA (take off power)	**Ok**	**Ok**
0810	4	Autothrottle Arm	**Ok**	**Ok**
0814	4	Flight analysis mode (0=0ff, 1=Landing, 2=Course tracking, 3=Manoevres)	**No**	
0830	4	Action on crash (0=ignore, 1=reset, 2=graph). [*Graph mode not applicable to FS2002*]	**Ok, but different**	**Ok As**

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				FS2002
0840	2	Crashed flag	Ok	Ok
0842	2	Vertical speed in metres per minute, but with –ve for UP, +ve for DOWN. Multiply by 3.28084 and reverse the sign for the normal fpm measure. This works even in slew mode (except in FS2002).	Ok – but not in slew mode	Ok (in slew mode too!)
0848	2	Off-runway crash detection	No	
084A	2	Can collide with dynamic scenery	No	
085C	4	VOR1 Latitude in FS form. Convert to degrees by *90/10001750. If NAV1 is tuned to an ILS this gives the glideslope transmitter Latitude.	Ok	Yes, but it is position of actual antenna
0864	4	VOR1 Longitude in FS form. Convert to degrees by *360/(65536*65536). If NAV1 is tuned to an ILS this gives the glideslope transmitter Longitude.	Ok	Yes, but it is position of actual antenna
086C	4	VOR1 Elevation in metres. If NAV1 is tuned to an ILS this gives the glideslope transmitter Elevation.	Ok	Yes, but it is position of actual antenna
0870	2	ILS localiser inverse runway heading if VOR1 is ILS. Convert to degrees by *360/65536. This is 180 degrees different to the direction of flight to follow the localiser.	Ok	Ok
0872	2	ILS glideslope inclination if VOR1 is ILS. Convert to degrees by *360/65536	Ok	Ok
0874	4	[FS2002 only]: VOR1 Latitude, as in 085C above, except when NAV1 is tuned to an ILS, in which case this gives the localiser Latitude.	Only	Yes, but it is position of actual antenna
0878	4	[FS2002 only]: VOR1 Longitude, as in 0864 above, except when NAV1 is tuned to an ILS, in which case this gives the localiser Longitude.	Only	Yes, but it is position of actual antenna
087C	4	[FS2002 only]: VOR1 Elevation, as in 086C above, except when NAV1 is tuned to an ILS, in which case this gives the localiser Elevation.	Only	Yes, but it is position of actual antenna
0880	4	[FS2002 only]: DME Latitude when available separately. Same units as in 085C above.	Only	Yes, but it is position of actual antenna
0884	4	[FS2002 only]: DME Longitude when available separately. Same units as in 0864 above.	Only	Yes, but it is position of actual antenna
0888	1	Active engine (select) flags. Bit 0 = Engine 1 selected … Bit 3 = Engine 4 selected. See notes against offset 0892.	Ok	Ok
088C	152	ENGINE 1 values, as detailed below		
088C	2	Engine 1 Throttle lever, –4096 to +16384	Ok	Ok
088E	2	Engine 1 Prop lever, –4096 to +16384	Ok	Ok
0890	2	Engine 1 Mixture lever, 0 – 16384	Ok	Ok
0892	2	Engine 1 Starter switch position (Magnetos), Jet/turbojet: 0=Off, 1=Start, 2=Gen	Ok	Ok

		Prop: 0=Off, 1=right, 2=Left, 3=Both, 4=Start **Notes** (for FS2K/CFS2): • Don't forget to switch fuel on to start (mixture to max). • For FS2k type starting you need to set the 'Start' value here and monitor the combustion flag (below). When that is set, change the starter switch to another position (Both or Gen). FS98 models start immediately but you should still adopt the same procedure. • The Engine addressed by writes to this and the equivalent Engine 2–4 offsets will become *selected* (see 0888 above). It needs to stay selected during engine start, which means you can only start engines in sequence, not together. The original selection is restored automatically, however—but only when the starter is 'released' by writing a non-start value here. • FS98 prop planes transposed to FS2000 have misbehaving Magneto/Starter switch controls (whether FSUIPC is installed or not). You can start engines okay, but don't expect to be able to select the Magnetos reliably.		
0894	2	Engine 1 combustion flag (TRUE if engine firing)	**Ok**	**Ok**
0896	2	Engine 1 Jet N2 as 0 – 16384 (100%)	**Ok**	**Ok**
0898	2	Engine 1 Jet N1 as 0 – 16384 (100%), or Prop RPM (derive RPM by multiplying this value by the RPM Scaler (see 08C8) and dividing by 65536).	**Ok**	**Ok**
08A0	2	Engine 1 Fuel Flow PPH SSL (pounds per hour, standardised to sea level). Don't know units, but it seems to match some gauges if divided by 128. Not maintained in all cases.	**Ok**	**Ok**
08B2	2	Engine 1 Anti-Ice or Carb Heat switch (1=On)	**Ok**	**Ok**
08B8	2	Engine 1 Oil temperature, 16384 = 140 C.	**Ok**	**Ok**
08BA	2	Engine 1 Oil pressure, 16384 = 55 psi. Not that in some FS2000 aircraft (the B777) this can exceed the 16-bit capacity of this location. FSUIPC limits it to fit, i.e.65535 = 220 psi	**Ok**	**Ok**
08BC	2	Engine 1 Pressure Ratio (where calculated): 16384 = 1.60	**Ok**	**Ok**
08BE	2	Engine 1 EGT, 16384 = 860 C. [*Note that for Props this value is not actually correct. For FS2004 at least you will get the correct value from 3B70. In FS2004 the value here has been derived by FSUIPC to be compatible with FS2002 et cetera*]	**Ok**	**Ok, but see text**
08C0	2	Engine 1 Manifold Pressure: Inches Hg * 1024	**Ok**	**Ok**
08C8	2	Engine 1 RPM Scaler: For Props, use this to calculate RPM – see offset 0898	**Ok**	**Ok**
08D0	4	Engine 1 Oil Quantity: 16384 = 100% On FS2000 FSUIPC usually has to derive this from a leakage value as it isn't provided directly.	**Ok**	**Ok**
08D4	4	Engine 1 Vibration: 16384 = 5.0. This is a relative measure of amplitude from the sensors on the engine which when too high is an indication of a problem. The value at which you should be concerned varies according to aircraft and engine.	**Ok**	**Ok**
08D8	4	Engine 1 Hydraulic pressure: appears to be 4*psi	**Ok**	**Ok**
08DC	4	Engine 1 Hydraulic quantity: 16384 = 100%	**Ok**	**Ok**
08E8	8	Engine 1 CHT, degrees F in double floating point (FLOAT64)	**Ok**	**Ok**
08F0	4	Engine 1 Turbine temperature: degree C *16384	**Ok**	**Ok**
08F4	4	Engine 1 Torque % (16384 = 100%)	**Ok**	**Ok**
08F8	4	Engine 1 Fuel pressure, psf (i.e. psi*144): not all aircraft files provide this.	**Ok?**	**Ok?**
0900	4	Engine 1 Transmission pressure (psi * 16384): for helos	**Ok?**	**Ok?**

0904	4	Engine 1 Transmission temperature (degrees C * 16384): for helos	**Ok?**	**Ok?**
0908	4	Engine 1 Rotor RPM % (16384=100%): for helos	**Ok?**	**Ok?**
0918	8	Engine 1 Fuel Flow Pounds per Hour, as floating point double (FLOAT64)	**Ok**	**Ok**
0924	152	ENGINE 2 values, as detailed below	**As ENG1**	**As ENG1**
0924	2	Engine 2 Throttle lever, –4096 to +16384		
0926	2	Engine 2 Prop lever, –4096 to +16384		
0928	2	Engine 2 Mixture lever, 0 – 16384		
092A	2	Engine 2 Starter switch position (Magnetos), Jet/turbo: 0=Off, 1=Start, 2=Gen; Prop: 0=Off, 1=right, 2=Left, 3=Both, 4=Start (See **Notes** in Engine 1 entry)		
092C	2	Engine 2 combustion flag (TRUE if engine firing)		
092E	2	Engine 2 Jet N2 as 0 – 16384 (100%)		
0930	2	Engine 2 Jet N1 as 0 – 16384 (100%), or Prop RPM (derive RPM by multiplying this value by the RPM Scaler (see 08C8) and dividing by 65536).		
0938	2	Engine 2 Fuel Flow PPH SSL (pounds per hour, standardised to sea level). Don't know units, but it seems to match some gauges if divided by 128. Not maintained in all cases.		
094A	2	Engine 2 Anti-Ice or Carb Heat switch (1=On)		
0950	2	Engine 2 Oil temperature, 16384 = 140 C.		
0952	2	Engine 2 Oil pressure, 16384 = 55 psi. Not that in some FS2000 aircraft (the B777) this can exceed the 16-bit capacity of this location. FSUIPC limits it to fit, i.e.65535 = 220 psi		
0954	2	Engine 2 Pressure Ratio (where calculated): 16384 = 1.60		
0956	2	Engine 2 EGT, 16384 = 860 C. [*Note that for Props this value is not actually correct. For FS2004 at least you will get the correct value from 3AB0. In FS2004 the value here has been derived by FSUIPC to be compatible with FS2002 et cetera*]		
0958	2	Engine 2 Manifold Pressure: Inches Hg * 1024		
0960	2	Engine 2 RPM Scaler: For Props, use this to calculate RPM – see offset 0898		
0968	4	Engine 2 Oil Quantity: 16384 = 100% On FS2000 FSUIPC usually has to derive this from a leakage value as it isn't provided directly.		
096C	4	Engine 2 Vibration: 16384 = 5.0. This is a relative measure of amplitude from the sensors on the engine which when too high is an indication of a problem. The value at which you should be concerned varies according to aircraft and engine.		
0970	4	Engine 2 Hydraulic pressure: appears to be 4*psi		
0974	4	Engine 2 Hydraulic quantity: 16384 = 100%		
0980	8	Engine 2 CHT, degrees F in double floating point (FLOAT64)		
0988	4	Engine 2 Turbine temperature: degree C *16384		
098C	4	Engine 2 Torque % (16384 = 100%)		
0990	4	Engine 2 Fuel pressure, psf (i.e. psi*144): not all aircraft files provide this.		
0998	4	Engine 2 Transmission pressure (psi * 16384): for helos		
099C	4	Engine 2 Transmission temperature (degrees C * 16384): for helos		
09A0	4	Engine 2 Rotor RPM % (16384=100%): for helos		
09B0	8	Engine 2 Fuel Flow Pounds per Hour, as floating point double (FLOAT64)		

09BC	152	ENGINE 3 values, as detailed below	**As ENG1**	**As ENG1**
09BC	2	Engine 3 Throttle lever, –4096 to +16384		
09BE	2	Engine 3 Prop lever, –4096 to +16384		
09C0	2	Engine 3 Mixture lever, 0 – 16384		
09C2	2	Engine 3 Starter switch position (Magnetos), Jet/turbo: 0=Off, 1=Start, 2=Gen; Prop: 0=Off, 1=right, 2=Left, 3=Both, 4=Start (see N**otes** in Engine 1 entry)		
09C4	2	Engine 3 combustion flag (TRUE if engine firing)		
09C6	2	Engine 3 Jet N2 as 0 – 16384 (100%)		
09C8	2	Engine 3 Jet N1 as 0 – 16384 (100%), or Prop RPM (derive RPM by multiplying this value by the RPM Scaler (see 08C8) and dividing by 65536).		
09D0	2	Engine 3 Fuel Flow PPH SSL (pounds per hour, standardised to sea level). Don't know units, but it seems to match some gauges if divided by 128. Not maintained in all cases.		
09E2	2	Engine 3 Anti-Ice or Carb Heat switch (1=On)		
09E8	2	Engine 3 Oil temperature, 16384 = 140 C.		
09EA	2	Engine 3 Oil pressure, 16384 = 55 psi. Not that in some FS2000 aircraft (the B777) this can exceed the 16-bit capacity of this location. FSUIPC limits it to fit, i.e.65535 = 220 psi		
09EC	2	Engine 3 Pressure Ratio (where calculated): 16384 = 1.60		
09EE	2	Engine 3 EGT, 16384 = 860 C. [*Note that for Props this value is not actually correct. For FS2004 at least you will get the correct value from 39F0. In FS2004 the value here has been derived by FSUIPC to be compatible with FS2002 et cetera*]		
09F0	2	Engine 3 Manifold Pressure: Inches Hg * 1024		
09F8	2	Engine 3 RPM Scaler: For Props, use this to calculate RPM – see offset 0898		
0A00	4	Engine 3 Oil Quantity: 16384 = 100% On FS2000 FSUIPC usually has to derive this from a leakage value as it isn't provided directly.		
0A04	4	Engine 3 Vibration: 16384 = 5.0. This is a relative measure of amplitude from the sensors on the engine which when too high is an indication of a problem. The value at which you should be concerned varies according to aircraft and engine.		
0A08	4	Engine 3 Hydraulic pressure: appears to be 4*psi		
0A0C	4	Engine 3 Hydraulic quantity: 16384 = 100%		
0A18	8	Engine 3 CHT, degrees F in double floating point (FLOAT64)		
0A20	4	Engine 3 Turbine temperature: degree C *16384		
0A24	4	Engine 3 Torque % (16384 = 100%)		
0A28	4	Engine 3 Fuel pressure, psf (i.e. psi*144): not all aircraft files provide this.		
0A30	4	Engine 3 Transmission pressure (psi * 16384): for helos		
0A34	4	Engine 3 Transmission temperature (degrees C * 16384): for helos		
0A38	4	Engine 3 Rotor RPM % (16384=100%): for helos		
0A48	8	Engine 3 Fuel Flow Pounds per Hour, as floating point double (FLOAT64)		
0A54	152	ENGINE 4 values, as detailed below	**As ENG1**	**As ENG1**
0A54	2	Engine 4 Throttle lever, –4096 to +16384		
0A56	2	Engine 4 Prop lever, –4096 to +16384		
0A58	2	Engine 4 Mixture lever, 0 – 16384		
0A5A	2	Engine 4 Starter switch position (Magnetos),		

		Jet/turbo: 0=Off, 1=Start, 2=Gen; Prop: 0=Off, 1=right, 2=Left, 3=Both, 4=Start (see **Notes** in Engine 1 entry)		
0A5C	2	Engine 4 combustion flag (TRUE if engine firing)		
0A5E	2	Engine 4 Jet N2 as 0 – 16384 (100%)		
0A60	2	Engine 4 Jet N1 as 0 – 16384 (100%), or Prop RPM (derive RPM by multiplying this value by the RPM Scaler (see 08C8) and dividing by 65536).		
0A68	2	Engine 4 Fuel Flow PPH SSL (pounds per hour, standardised to sea level). Don't know units, but it seems to match some gauges if divided by 128. Not maintained in all cases.		
0A7A	2	Engine 4 Anti-Ice or Carb Heat switch (1=On)		
0A80	2	Engine 4 Oil temperature, 16384 = 140 C.		
0A82	2	Engine 4 Oil pressure, 16384 = 55 psi. Not that in some FS2000 aircraft (the B777) this can exceed the 16-bit capacity of this location. FSUIPC limits it to fit, i.e.65535 = 220 psi		
0A84	2	Engine 4 Pressure Ratio (where calculated): 16384 = 1.60		
0A86	2	Engine 4 EGT, 16384 = 860 C. [*Note that for Props this value is not actually correct. For FS2004 at least you will get the correct value from 3930. In FS2004 the value here has been derived by FSUIPC to be compatible with FS2002 et cetera*]		
0A88	2	Engine 4 Manifold Pressure: Inches Hg * 1024		
0A90	2	Engine 4 RPM Scaler: For Props, use this to calculate RPM – see offset 0898		
0A98	4	Engine 4 Oil Quantity: 16384 = 100% On FS2000 FSUIPC usually has to derive this from a leakage value as it isn't provided directly.		
0A9C	4	Engine 4 Vibration: 16384 = 5.0. This is a relative measure of amplitude from the sensors on the engine which when too high is an indication of a problem. The value at which you should be concerned varies according to aircraft and engine.		
0AA0	4	Engine 4 Hydraulic pressure: appears to be 4*psi		
0AA4	4	Engine 4 Hydraulic quantity: 16384 = 100%		
0AB0	8	Engine 4 CHT, degrees F in double floating point (FLOAT64)		
0AB8	4	Engine 4 Turbine temperature: degree C *16384		
0ABC	4	Engine 4 Torque % (16384 = 100%)		
0AC0	4	Engine 4 Fuel pressure, psf (i.e. psi*144): not all aircraft files provide this.		
0AC8	4	Engine 4 Transmission pressure (psi * 16384): for helos		
0ACC	4	Engine 4 Transmission temperature (degrees C * 16384): for helos		
0AD0	4	Engine 4 Rotor RPM % (16384=100%): for helos		
0AE0	8	Engine 4 Fuel Flow Pounds per Hour, as floating point double (FLOAT64)		
0AEC	2	Number of Engines	**Ok**	**Ok**
0AF0	2	Propeller pitch control: 0=Fixed, 1=Auto, 2=Manual. On FS2004 this is 0=fixed pitch, 1=constant speed, no differentiation between auto and manual.	**Ok**	**Ok but different**
0AF4	2	Fuel weight as pounds per gallon * 256	**Ok**	**Ok**
0AF8	2	Fuel tank selector: 0=None, 1=All, 2=Left, 3=Right, 4=LeftAux, 5=RightAux, 6=Centre, 7=Centre2, 8=Centre3, 9=External1, 10=External2, 11=Right Tip, 12=Left Tip, 14=Crossfeed LtoR, 15=Crossfeed RtoL.	**Ok**	**Ok**

		According to information received, in FS2002 all of these except the wing tip tanks can be selected and drained.		
0B00	2	Throttle lower limit, 16384=100%. (e.g. for aircraft with reverse thrust this is normally: –4096 indicating 25% in reverse)	**Ok**	**Ok**
0B0C	4	Mach Max Operating speed *20480	**Ok**	**No**
0B18	8	Gyro suction in inches of mercury (Hg), floating point double (FLOAT64)	**Ok**	**Ok**
0B20	2	Sound control: 0 to switch off, 1 to switch on	**Ok**	**Ok**
0B24	2	Sound flag: reads 0 is off, 1 if on	**Ok**	**Ok**
0B4C	2	Ground altitude (metres). See 0020 for more accuracy.	**Ok**	**Ok**
0B60	2	Scenery complexity level, 0 – 4 in FS98, 0 – 5 in FS2000/CFS2	**Ok**	**Ok**
0B64	1	Fail mode: 0 ok, ADF inoperable = 1	**Ok**	
0B65	1	Fail mode: 0 ok, ASI inoperable = 1	**Ok**	
0B66	1	Fail mode: 0 ok, Altimeter inoperable = 1	**Ok**	
0B67	1	Fail mode: 0 ok, Attitude Indicator inoperable = 1	**Ok**	
0B68	1	Fail mode: 0 ok, COM1 radio inoperable = 1 See also 3BD6 (FS2002/FS2004)	**Ok**	
0B69	1	Fail mode: 0 ok, Mag Compass inoperable = 1	**Ok**	
0B6A	1	Fail mode: 0 ok, Electrics inoperable = 1	**Ok**	
0B6B	1	Fail mode: 0 ok, Engine inoperable = 1, extended for FS2000/CFS2 for up to 4 individual engines: bit 0 =Engine 1 … bit 3= Engine 4. (*but note that this may not work for FS98 aircraft transposed into FS2k/CFS2*).	**Ok**	
0B6C	1	Fail mode: 0 ok, Fuel indicators inoperable = 1	**Ok**	
0B6D	1	Fail mode: 0 ok, Direction Indicator inoperable = 1	**Ok**	
0B6E	1	Fail mode: 0 ok, VSI inoperable = 1	**Ok**	
0B6F	1	Fail mode: 0 ok, Transponder inoperable = 1	**Ok**	
0B70	1	Fail mode: 0 ok, NAV radios inoperable = 1 (NAV1 only in FS2002 and FS2004: see also 3BD6)	**Ok**	
0B71	1	Fail mode: 0 ok, Pitot inoperable = 1	**Ok**	
0B72	1	Fail mode: 0 ok, Turn coordinator inoperable = 1	**Ok**	
0B73	1	Fail mode: 0 ok, Vacuum inoperable = 1	**Ok**	
0B74	4	Fuel: centre tank level, % * 128 * 65536	**Ok**	**Ok**
0B78	4	Fuel: centre tank capacity: US Gallons (see also offsets 1244– for extra FS2k/CFS2 fuel tanks)	**Ok**	**Ok**
0B7C	4	Fuel: left main tank level, % * 128 * 65536	**Ok**	**Ok**
0B80	4	Fuel: left main tank capacity: US Gallons	**Ok**	**Ok**
0B84	4	Fuel: left aux tank level, % * 128 * 65536	**Ok**	**Ok**
0B88	4	Fuel: left aux tank capacity: US Gallons	**Ok**	**Ok**
0B8C	4	Fuel: left tip tank level, % * 128 * 65536	**Ok**	**Ok**
0B90	4	Fuel: left tip tank capacity: US Gallons	**Ok**	**Ok**
0B94	4	Fuel: right main tank level, % * 128 * 65536	**Ok**	**Ok**
0B98	4	Fuel: right main tank capacity: US Gallons	**Ok**	**Ok**
0B9C	4	Fuel: right aux tank level, % * 128 * 65536	**Ok**	**Ok**
0BA0	4	Fuel: right aux tank capacity: US Gallons	**Ok**	**Ok**
0BA4	4	Fuel: right tip tank level, % * 128 * 65536	**Ok**	**Ok**
0BA8	4	Fuel: right tip tank capacity: US Gallons	**Ok**	**Ok**
0BAC	2	Inner Marker: activated when TRUE	**Ok**	**Ok**
0BAE	2	Middle Marker: activated when TRUE	**Ok**	**Ok**
0BB0	2	Outer Marker: activated when TRUE	**Ok**	**Ok**
0BB2	2	Elevator control input: –16383 to +16383	**Ok**	**Ok**
0BB4	2	Elevator position indicator (maybe adjusted from input!)	**Ok**	**Ok**
0BB6	2	Aileron control input: –16383 to +16383	**Ok**	**Ok**

0BB8	2	Aileron position indicator (maybe adjusted from input!)	**Ok**	**Ok**
0BBA	2	Rudder control input: –16383 to +16383	**Ok**	**Ok**
0BBC	2	Rudder position indicator (maybe adjusted from input!)	**Ok**	**Ok**
0BC0	2	Elevator trim control input: –16383 to +16383	**Ok**	**Ok**
0BC2	2	Elevator trim indicator (follows input)	**Ok**	**Ok**
0BC4	2	Left brake application read-out (0 off, 16383 full: parking brake=16383). You can apply a fixed brake pressure here, or else use the byte at 0C01 to apply brakes emulating the keypress. [*Note: In FS2002* ***reading*** *this ranges up to 32767, i.e. twice the written value.*]	**Ok (but different)**	**Ok**
0BC6	2	Right brake application read-out (0 off, 16383 full: parking brake=16383). You can apply a fixed brake pressure here, or else use the byte at 0C00 to apply brakes emulating the keypress. [*Note: In FS2002* ***reading*** *this ranges up to 32767, i.e. twice the written value.*]	**Ok (but different)**	**Ok**
0BC8	2	Parking brake: 0=off, 32767=on	**Ok**	**Ok**
0BCA	2	Braking indicator: brake applied if non-zero (16383=on, 0=off). *Note that in FS2002 this is artificially created by FSUIPC from the previous three settings.*	**Ok (but different)**	**Ok**
0BCC	4	Spoilers arm (0=off, 1=arm for auto deployment)	**Ok**	**Ok**
0BD0	4	Spoilers control, 0 off to 16383 fully deployed (4800 is set by arming)	**Ok**	**Ok**
0BD4	4	Spoiler Left position indicator (0-16383)	**Ok**	**Ok**
0BD8	4	Spoiler Right position indicator (0-16383)	**Ok**	**Ok**
0BDC	4	Flaps control, 0=up, 16383=full. The "notches" for different aircraft are spaced equally across this range: calculate the increment by 16383/(number of positions-1), ignoring fractions. See also offset 3BFA below. N.B. Do not expect to read this and see 100% accurate values. For example, 3x2047=6141 for the 3rd détente up. But FS2000, at least, stores the flaps lever position in the FLT file as a % of 16384, and the percentage is stored to two decimal places. 6141 gets saved as 37.48% which converts back to 6140.7232 and this gets truncated here as 6140. However, 6140/2047 = 2.9995 which is as close as you need. Just round if you are using integers.	**Ok**	**Ok**
0BE0	4	Flaps position indicator (left). Note that in FS2002 this gives the correct proportional amount, with 16383=full deflection. It doesn't correspond to the equally spaced notches used for the control lever. If you know the maximum deflection angle you can derive the current angle by ((max * position indicator) / 16383).	**Ok but different**	**Ok**
0BE4	4	Flaps position indicator (right). Note that in FS2002 this gives the correct proportional amount, with 16384=full deflection. It doesn't correspond to the equally spaced notches used for the control lever.	**Ok but different**	**Ok**
0BE8	4	Gear control: 0=Up, 16383=Down	**Ok**	**Ok**
0BEC	4	Gear position (nose): 0=full up, 16383=full down	**Ok**	**Ok**
0BF0	4	Gear position (right): 0=full up, 16383=full down	**Ok**	**Ok**
0BF4	4	Gear position (left): 0=full up, 16383=full down	**Ok**	**Ok**
0BF8	4	Unlimited visibility value, as 1600* statute miles. This is the value set in the Display Quality Settings. (Maybe FS2K/CFS2	**Ok**	**Ok**

		only).		
0C00	1	Right toe brake control: 0 – 200, proportional braking with timed decay	**Ok**	**Ok**
0C01	1	Left toe brake control: 0 –200, proportional braking with timed decay	**Ok**	**Ok**
0C18	2	International units: 0=US, 1=Metric+feet, 2=Metric+metres	**Ok**	
0C1A	2	Simulation rate *256 (i.e. 256=1x)	**Ok**	**Ok**
0C20	9	Local time in character format: "hh:mm:ss" (with zero terminator)	**Ok**	**Ok**
0C29	5	DME1 distance as character string, either "nn.n" or "nnn." (when > 99.9 nm). The 5th character may be a zero or a space. Don't rely on it.	**Ok**	**Ok**
0C2E	5	DME1 speed as character string, "nnn" followed by either space then zero or just zero.	**Ok**	**Ok**
0C33	5	DME2 distance as character string, either "nn.n" or "nnn." (when > 99.9 nm). The 5th character may be a zero or a space. Don't rely on it.	**Ok**	**Ok**
0C38	5	DME2 speed as character string, "nnn" followed by either space then zero or just zero.	**Ok**	**Ok**
0C3E	2	Gyro drift amount (*360/65536 for degrees). [Read and write ok now on FS2002]	**Yes**	
0C44	2	Realism setting, 0 – 100	**No**	
0C46	2	Realism options, bits allocated (but not all used in FS2K, necessarily): 0 ?? 1 elevator trim ratchets (?) 2 gyro drifts [FS2k ok] 3 lights burn out 4 fast throttle kills engine (?) 5 manual light control for instruments [FS2k ok] 6 pressure drifts (unlikely to apply to FS2k]	**No?**	
0C48	1	NAV1 Localiser Needle: –127 left to +127 right	**Ok**	**Ok**
0C49	1	NAV1 Glideslope Needle: –127 up to +127 down	**Ok**	**Ok**
0C4A	1	NAV1 Back Course flags: 0 BC available 1 Localiser tuned in 2 On Back Course (?) 7 Station active (even if no BC)	**Ok**	
0C4B	1	NAV1 To/From flag: 0=not active, 1=To, 2=From	**Ok**	**Ok**
0C4C	1	NAV1 GS flag: TRUE if GS alive	**Ok**	**Ok**
0C4E	2	NAV1 OBS setting (degrees, 0–359)	**Ok**	**Ok**
0C50	2	NAV1 radial (*360/65536 for degrees)	**Ok**	**Ok**
0C59	1	NAV2 Localiser Needle: –127 left to +127 right	**Ok**	**Ok**
0C5A	1	NAV2 Back Course flags: 0 BC available 1 Localiser tuned in 2 On Back Course (?) 7 Station active (even if no BC)	**Ok**	**Ok**
0C5B	1	NAV2 To/From flag: 0=not active, 1=To, 2=From	**Ok**	**Ok**
0C5E	2	NAV2 OBS setting (degrees, 0–359)	**Ok**	**Ok**
0C60	2	NAV2 radial (*360/65536 for degrees)	**Ok**	**Ok**
0C6A	2	ADF1: relative bearing to NDB (*360/65536 for degrees, –ve left, +ve right)	**Ok**	**Ok**
0C6C	2	ADF1: dial bearing, where adjustable (in degrees, 1–360)	**Ok**	**Ok**

0C92	2	Texture quality, 0–3, as on FS2K's slider in Display Quality	**Ok**	
0D0C	2	Lights (FS2k/CFS2), a switch for each one (bits from lo to hi): 0 Navigation 1 Beacon 2 Landing 3 Taxi 4 Strobes 5 Instruments 6 Recognition 7 Wing 8 Logo 9 Cabin	**Ok**	**Ok**
0D50	8	Tower Latitude in FS units. To convert to Degrees, take the High 32-bit integer (at offset 0564) and *90/10001750. For more precision, then take the Low 32-bit integer (at offset 0560) and do the same but divide this by a further (65536*65536). Add the two results together (taking care with the sign of course). [Can be written to move aircraft]	**Ok**	
0D58	8	Tower Longitude, low 32-bits and high 32-bits. Degrees obtained by *360/(65536*65536) from hi 32-bits – use low 32-bits for more precision	**Ok**	
0D64	4	Tower Elevation, in metres.	**Ok**	
0D98	2	International N/S setting: 2=North, 3=South	**Ok**	
0D9C	2	International E/W setting: 0=East, 1=West	**Ok**	
0DD6	2	Scenery BGL variable "usrvar" (originally 0312h in BGL)	**Ok**	
0DD8	2	Scenery BGL variable "usrvr2" (originally 0314h in BGL)	**Ok**	
0DDA	2	Scenery BGL variable "usrvr3" (originally 0316h in BGL)	**Ok**	
0DDC	2	Scenery BGL variable "usrvr4" (originally 0318h in BGL)	**Ok**	
0DDE	2	Scenery BGL variable "usrvr5" (originally 031Ah in BGL)	**Ok**	
0DE2	2	Scenery BGL variable "spar10" (originally 031Eh in BGL)	**Ok**	
0DE4	2	Scenery BGL variable "spar11" (originally 0320h in BGL)	**Ok**	
0DE6	2	Scenery BGL variable "spar12" (originally 0322h in BGL)	**Ok**	
0DE8	2	Scenery BGL variable "spar13" (originally 0324h in BGL)	**Ok**	
0DEA	2	Scenery BGL variable "spar14" (originally 0326h in BGL)	**Ok**	
0DEC	2	Scenery BGL variable "spar15" (originally 0328h in BGL)	**Ok**	
0DEE	2	Scenery BGL variable "spar16" (originally 032Ah in BGL)	**Ok**	
0DF0	2	Scenery BGL variable "spar17" (originally 032Ch in BGL)	**Ok**	
0DF2	2	Scenery BGL variable "spar18" (originally 032Eh in BGL)	**Ok**	
0E5A	2	EFIS active (1=enabled)	**?**	
0E5C	2	EFIS VOR/ILS elevation in metres	**?**	
0E5E	2	EFIS density: 0=thin, 1=medium, 2=thick	**?**	
0E60	2	EFIS range: 0=short, 1=medium, 2=long	**?**	
0E62	2	EFIS mode: 0=normal, 1=reset, 2=plot intercept	**?**	
0E64	2	EFIS via VOR (2) or ILS (4)	**?**	
0E66	2	EFIS NAV select (1 or 2)	**?**	
0E68	2	EFIS display type: 0=rectangles, 1=telegraph poles, 2=yellow brick road	**?**	
0E8A	2	Current visibility (Statue miles * 100)	**Ok**	**Ok**
0E8C	2	Outside Air Temperature (OAT), degrees C * 256	**Ok**	**Ok**
0E90	2	Ambient wind speed (at aircraft) in knots	**Ok**	**Ok**
0E92	2	Ambient wind direction (at aircraft), *360/65536 to get degrees Magnetic *or* True. For compatibility with FS98, the direction is Magnetic for	**Ok**	**Ok**

		surface winds (aircraft below the altitude set into offset 0EEE), but True for all upper winds. See offset 02A0 for magnetic variation and how to convert.		
0E9A	112	Current Weather as Set: details follow. [See 0F1C for Global weather setting area] *On FS2000/CFS2 FSUIPC maps writes to this area to the Global weather area starting at 0F1C, and reads from the Global weather area to this Current weather area. Therefore you may not always read back what you last wrote. The main differences occur when FS local weather is in operation.* N.B. See also 0E8A above, which is the "current" visibility equivalent of the global setting at 0F8C.	**Ok**	**Ok**
0E9A	2	Upper cloud layer ceiling in metres AMSL	**Ok**	**Ok**
0E9C	2	Upper cloud layer base in metres AMSL	**Ok**	**Ok**
0E9E	2	Upper cloud layer coverage, 65535 = 8 oktas, … 32768= 4 oktas … 0 = clear	**Ok**	**Ok**
0EA0	2	Upper cloud layer, cloud altitude variation (metres)	**Ok**	**Ok**
0EA2	2	Lower cloud layer ceiling in metres AMSL	**Ok**	**Ok**
0EA4	2	Lower cloud layer base in metres AMSL	**Ok**	**Ok**
0EA6	2	Lower cloud layer coverage, 65535 = 8 oktas, … 32768= 4 oktas … 0 = clear	**Ok**	**Ok**
0EA8	2	Lower cloud layer, cloud altitude variation (metres)	**Ok**	**Ok**
0EAA	2	Storm layer ceiling in metres AMSL	**Ok**	**Ok**
0EAC	2	Storm layer base in metres AMSL (if a Storm layer is present, it must be the lowest, below "Lower Cloud").	**Ok**	**Ok**
0EAE	2	Storm cloud layer coverage, 65535 = 8 oktas, … 32768= 4 oktas … 0 = clear	**Ok**	**Ok**
0EB0	2	Storm cloud layer, cloud altitude variation (metres)	**Ok**	**Ok**
0EB2	2	Upper Temperature level, metres AMSL	**Ok**	**Ok**
0EB4	2	Upper Temperature in degrees C * 256	**Ok**	**Ok**
0EB6	2	Middle Temperature level, metres AMSL	**Ok**	**Ok**
0EB8	2	Middle Temperature in degrees C * 256	**Ok**	**Ok**
0EBA	2	Lower Temperature level, metres AMSL	**Ok**	**Ok**
0EBC	2	Lower Temperature in degrees C * 256	**Ok**	**Ok**
0EBE	2	Surface Temperature level, metres AMSL (best to be the ground elevation)	**Ok**	**Ok**
0EC0	2	Surface Temperature in degrees C * 256	**Ok**	**Ok**
0EC2	2	Temperature drift, degrees C *256 (not used in FS2k/CFS2?)	**Ok**	**Ok**
0EC4	2	Temperature day/night variation, degrees C *256	**Ok**	**Ok**
0EC6	2	Pressure (QNH) as millibars (hectoPascals) *16.	**Ok**	**Ok**
0EC8	2	Pressure drift as millibars *16 (not used on FS2k/CFS2?)	**Ok**	**Ok**
0ECA	2	Upper wind ceiling, metres AMSL	**Ok**	**Ok**
0ECC	2	Upper wind base, metres AMSL	**Ok**	**Ok**
0ECE	2	Upper wind speed, knots	**Ok**	**Ok**
0ED0	2	Upper wind direction, *360/65536 gives degrees True	**Ok**	**Ok**
0ED2	2	Upper wind turbulence setting, 0 none, 64, 128, 192, 224, 255 worst	**Ok**	**Ok**
0ED4	2	Upper wind gusts, enabled if True.	**Ok**	**Ok**
0ED6	2	Middle wind ceiling, metres AMSL	**Ok**	**Ok**
0ED8	2	Middle wind base, metres AMSL	**Ok**	**Ok**
0EDA	2	Middle wind speed, knots	**Ok**	**Ok**
0EDC	2	Middle wind direction, *360/65536 gives degrees True	**Ok**	**Ok**
0EDE	2	Middle wind turbulence setting, 0 none, 64, 128, 192, 224, 255 worst	**Ok**	**Ok**

0EE0	2	Middle wind gusts, enabled if True.	Ok	Ok
0EE2	2	Lower wind ceiling, metres AMSL	Ok	Ok
0EE4	2	Lower wind base, metres AMSL	Ok	Ok
0EE6	2	Lower wind speed, knots	Ok	Ok
0EE8	2	Lower wind direction, *360/65536 gives degrees True	Ok	Ok
0EEA	2	Lower wind turbulence setting, 0 none, 64, 128, 192, 224, 255 worst	Ok	Ok
0EEC	2	Lower wind gusts, enabled if True.	Ok	Ok
0EEE	2	Surface wind ceiling, metres AMSL	Ok	Ok
0EF0	2	Surface wind speed, knots. [See also 04D8]	Ok	Ok
0EF2	2	Surface wind direction, *360/65536 gives degrees Magnetic (!). [See also 04DA]	Ok	Ok
0EF4	2	Surface wind turbulence setting, 0 none, 64, 128, 192, 224, 255 worst	Ok	Ok
0EF6	2	Surface wind gusts, enabled if True.	Ok	Ok
0EF8	2	Upper cloud layer type: 0=user-defined, 1=cirrus, 8=stratus, 9=cumulus	Ok	Ok
0EFA	2	Upper cloud layer icing: enabled if True	Ok	Ok
0EFC	2	Upper cloud layer turbulence (0 to 255 I think). Divided into steps by FSUIPC for FS2k/CFS2.	Ok	Ok
0EFE	2	Lower cloud layer type: 0=user-defined, 1=cirrus, 8=stratus, 9=cumulus	Ok	Ok
0F00	2	Lower cloud layer icing: enabled if True	Ok	Ok
0F02	2	Lower cloud layer turbulence (0 to 255 I think). Divided into steps by FSUIPC for FS2k/CFS2.	Ok	Ok
0F04	2	Storm layer type: 10=storm. [FSUIPC allows this to be a third and lowest layer of any type, for FS2k/CFS2, so then: 0=user-defined, 1=cirrus, 8=stratus, 9=cumulus]	Ok	Ok
0F06	2	Storm layer icing: enabled if True	Ok	Ok
0F08	2	Storm layer turbulence (0 to 255 I think). Divided into steps by FSUIPC for FS2k/CFS2.	Ok	Ok
0F1C	114	Global Weather setting area: details follow. [See 0E9A for Current weather setting area] *On FS2000/CFS2 FSUIPC maps reads from this area to the Current weather area starting at 0E9A, and writes to the Current weather area to this Global weather area. Therefore you may not always read back what you last wrote. The main differences occur when FS local weather is in operation.*	Ok	Ok
0F1C	2	Upper cloud layer ceiling in metres AMSL	Ok	Ok
0F1E	2	Upper cloud layer base in metres AMSL	Ok	Ok
0F20	2	Upper cloud layer coverage, 65535 = 8 oktas, … 32768= 4 oktas … 0 = clear	Ok	Ok
0F22	2	Upper cloud layer, cloud altitude variation (metres)	Ok	Ok
0F24	2	Lower cloud layer ceiling in metres AMSL	Ok	Ok
0F26	2	Lower cloud layer base in metres AMSL	Ok	Ok
0F28	2	Lower cloud layer coverage, 65535 = 8 oktas, … 32768= 4 oktas … 0 = clear	Ok	Ok
0F2A	2	Lower cloud layer, cloud altitude variation (metres)	Ok	Ok
0F2C	2	Storm layer ceiling in metres AMSL	Ok	Ok
0F2E	2	Storm layer base in metres AMSL (if a Storm layer is present, it must be the lowest, below “Lower Cloud”).	Ok	Ok
0F30	2	Storm cloud layer coverage, 65535 = 8 oktas, … 32768= 4 oktas … 0 = clear	Ok	Ok
0F32	2	Storm cloud layer, cloud altitude variation (metres)	Ok	Ok

0F34	2	Upper Temperature level, metres AMSL	Ok	Ok
0F36	2	Upper Temperature in degrees C * 256	Ok	Ok
0F38	2	Middle Temperature level, metres AMSL	Ok	Ok
0F3A	2	Middle Temperature in degrees C * 256	Ok	Ok
0F3C	2	Lower Temperature level, metres AMSL	Ok	Ok
0F3E	2	Lower Temperature in degrees C * 256	Ok	Ok
0F40	2	Surface Temperature level, metres AMSL (set this to the ground elevation of the weather reporting station)	Ok	Ok
0F42	2	Surface Temperature in degrees C * 256	Ok	Ok
0F44	2	Temperature drift, degrees C *256 (not used in FS2k/CFS2?)	Ok	Ok
0F46	2	Temperature day/night variation, degrees C *256	Ok	Ok
0F48	2	Pressure (QNH) as millibars (hectoPascals) *16.	Ok	Ok
0F4A	2	Pressure drift as millibars *16 (not used on FS2k/CFS2?)	Ok	Ok
0F4C	2	Upper wind ceiling, metres AMSL	Ok	Ok
0F4E	2	Upper wind base, metres AMSL	Ok	Ok
0F50	2	Upper wind speed, knots	Ok	Ok
0F52	2	Upper wind direction, *360/65536 gives degrees True	Ok	Ok
0F54	2	Upper wind turbulence setting, 0 none, 64, 128, 192, 224, 255 worst	Ok	Ok
0F56	2	Upper wind gusts, enabled if True.	Ok	Ok
0F58	2	Middle wind ceiling, metres AMSL	Ok	Ok
0F5A	2	Middle wind base, metres AMSL	Ok	Ok
0F5C	2	Middle wind speed, knots	Ok	Ok
0F5E	2	Middle wind direction, *360/65536 gives degrees True	Ok	Ok
0F60	2	Middle wind turbulence setting, 0 none, 64, 128, 192, 224, 255 worst	Ok	Ok
0F62	2	Middle wind gusts, enabled if True.	Ok	Ok
0F64	2	Lower wind ceiling, metres AMSL	Ok	Ok
0F66	2	Lower wind base, metres AMSL	Ok	Ok
0F68	2	Lower wind speed, knots	Ok	Ok
0F6A	2	Lower wind direction, *360/65536 gives degrees True	Ok	Ok
0F6C	2	Lower wind turbulence setting, 0 none, 64, 128, 192, 224, 255 worst	Ok	Ok
0F6E	2	Lower wind gusts, enabled if True.	Ok	Ok
0F70	2	Surface wind ceiling, metres AMSL	Ok	Ok
0F72	2	Surface wind speed, knots. [See also 04D8]	Ok	Ok
0F74	2	Surface wind direction, *360/65536 gives degrees Magnetic (!). [See also 04DA]	Ok	Ok
0F76	2	Surface wind turbulence setting, 0 none, 64, 128, 192, 224, 255 worst	Ok	Ok
0F78	2	Surface wind gusts, enabled if True.	Ok	Ok
0F7A	2	Upper cloud layer type: 0=user-defined, 1=cirrus, 8=stratus, 9=cumulus	Ok	Ok
0F7C	2	Upper cloud layer icing: enabled if True	Ok	Ok
0F7E	2	Upper cloud layer turbulence (0 to 255 I think). Divided into steps by FSUIPC for FS2k/CFS2.	Ok	Ok
0F80	2	Lower cloud layer type: 0=user-defined, 1=cirrus, 8=stratus, 9=cumulus	Ok	Ok
0F82	2	Lower cloud layer icing: enabled if True	Ok	Ok
0F84	2	Lower cloud layer turbulence (0 to 255 I think). Divided into steps by FSUIPC for FS2k/CFS2.	Ok	Ok
0F86	2	Storm layer type: 10=storm. [FSUIPC allows this to be a third and lowest layer of any type, for FS2k/CFS2, so then: 0=user-defined, 1=cirrus, 8=stratus, 9=cumulus]	Ok	Ok

0F88	2	Storm layer icing: enabled if True	**Ok**	**Ok**
0F8A	2	Storm layer turbulence (0 to 255 I think). Divided into steps by FSUIPC for FS2k/CFS2.	**Ok**	**Ok**
0F8C	2	Visibility setting as 100 * statute miles	**Ok**	**Ok**
115E	1	Time of day inidcator, 1=Day, 2=Dusk or Dawn, 4=Night. Set according to the local time, read for lighting effects and so on in BGLs.	**Ok**	**Ok**
11BA	2	G Force: units unknown, but /625 seems to give quite sensible values.	**Ok**	**Ok**
11BE	2	Angle of Attack. This is actually a relative value, giving in %*32767 the difference between the current AofA and the maximum angle of attack for the current aircraft. For a relative measure of AofA calculate 100-(100*#/32767), where # is this number. (*Thanks to Sergey Khantsis for this clarification*).	**Ok**	
11C6	2	Mach speed *20480.	**Ok**	**Ok**
11D0	2	Total Air Temperature (TAT), degrees Celsius * 256	**Ok**	**Ok**
11D4	4	This is an internal pointer, not for specific use by applications, *except* that it can be used as a flag to indicate when it is possible to read or write most of the simulation variables. When this DWORD is zero FSUIPC cannot obtain correct values from SIM1.SIM (SIM1.DLL in FS2002) because either it isn't loaded or because it is busy re-calculating values by reading and processing Flight or aircraft files.	**Ok**	**Not applicable**
1244	4	Fuel: centre 2 tank level, % * 128 * 65536 [FS2k/CFS2 only]	**Ok**	**Ok**
1248	4	Fuel: centre 2 tank capacity: US Gallons [FS2k/CFS2 only]	**Ok**	**Ok**
124C	4	Fuel: centre 3 tank level, % * 128 * 65536 [FS2k/CFS2 only]	**Ok**	**Ok**
1250	4	Fuel: centre 3 tank capacity: US Gallons [FS2k/CFS2 only]	**Ok**	**Ok**
1254	4	Fuel: external 1 tank level, % * 128 * 65536 [FS2k/CFS2 only]	**Ok**	**Ok**
1258	4	Fuel: external 1 tank capacity: US Gallons [FS2k/CFS2 only]	**Ok**	**Ok**
125C	4	Fuel: external 2 tank level, % * 128 * 65536 [FS2k/CFS2 only]	**Ok**	**Ok**
1260	4	Fuel: external 2 tank capacity: US Gallons [FS2k/CFS2 only]	**Ok**	**Ok**
1274	2	Text display mode (eg for ATIS): =0 static, =1 scrolling [FS2k/CFS2 only]. (*Note that this is accessible in FS98 at 1254, but this was discovered after the FS2k extra fuel information was mapped.*)	**OK**	
132C	4	NAV/GPS switch, in FS2000 & FS2002. 0=NAV, 1=GPS	**Ok**	**Ok**
13FC	4	Count of Payload Stations (FS2004 only)	**No**	**Ok**
1400	48 x n	A set of Payload Station data, 48 bytes for each payload station (the count is in 13FC above). [FS2004 only]. Each 48 byte entry contains: double weight (lbs) double lateral distance from datum (feet) double vertical distance from datum (feet) double longitudinal distance from datum (feet) char Name[16]; // 16 char name, including 0 at end There's room for up to 61 such stations here. If there are more you can't access them this way. You can change the payload weights by writing. I've not tested the results of writing any of the other values, nor trying to add or remove stations.	**No**	**Ok**
1F80	*	Write-only area for a TCAS_DATA structure, used to add entries to the TCAS data tables—see offset, below, and the section on TCAS earlier in this document. * The length of data written here is determined by the size of the	**Ok**	**Ok**

		TCAS_DATA structure, currently 40 bytes (but read this from offset F000).		
2000	8	Turbine Engine 1 N1 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2008	8	Turbine Engine 1 N2 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2010	8	Turbine Engine 1 corrected N1 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2018	8	Turbine Engine 1 corrected N2 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2020	8	Turbine Engine 1 corrected fuel flow (pounds per hour) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2028	8	Turbine Engine 1 max torque fraction (range 0.0–1.0) as a double (FLOAT64). (*Only tested on turboprops*).	**Ok**	**Ok**
2030	8	Turbine Engine 1 EPR as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
2038	8	Turbine Engine 1 ITT (interstage turbine temperature) in degrees Rankine, as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
204C	8	Turbine Engine 1 jet thrust, in pounds, as a double (FLOAT64). This is the jet thrust. See 2410 for propeller thrust (turboprops have both).	**Ok**	**Ok**
2060	8	Turbine Engine 1 fuel flow (pounds per hour) as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
206C	8	Turbine Engine 1 bleed air pressure (pounds per square inch) as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
2100	8	Turbine Engine 2 N1 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2108	8	Turbine Engine 2 N2 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2110	8	Turbine Engine 2 corrected N1 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2118	8	Turbine Engine 2 corrected N2 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2120	8	Turbine Engine 2 corrected fuel flow (pounds per hour) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2128	8	Turbine Engine 2 max torque fraction (range 0.0–1.0) as a double (FLOAT64). (*Only tested on turboprops*).	**Ok**	**Ok**
2130	8	Turbine Engine 2 EPR as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
2138	8	Turbine Engine 2 ITT (interstage turbine temperature) in degrees Rankine, as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
214C	8	Turbine Engine 2 jet thrust, in pounds, as a double (FLOAT64).	**Ok**	**Ok**

		This is the jet thrust. See 2510 for propeller thrust (turboprops have both).		
2160	8	Turbine Engine 2 fuel flow (pounds per hour) as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
216C	8	Turbine Engine 2 bleed air pressure (pounds per square inch) as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
2200	8	Turbine Engine 3 N1 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2208	8	Turbine Engine 3 N2 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2210	8	Turbine Engine 3 corrected N1 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2218	8	Turbine Engine 3 corrected N2 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2220	8	Turbine Engine 3 corrected fuel flow (pounds per hour) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2228	8	Turbine Engine 3 max torque fraction (range 0.0–1.0) as a double (FLOAT64). (*Only tested on turboprops*).	**Ok**	**Ok**
2230	8	Turbine Engine 3 EPR as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
2238	8	Turbine Engine 3 ITT (interstage turbine temperature) in degrees Rankine, as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
224C	8	Turbine Engine 3 jet thrust, in pounds, as a double (FLOAT64). This is the jet thrust. See 2610 for propeller thrust (turboprops have both).	**Ok**	**Ok**
2260	8	Turbine Engine 3 fuel flow (pounds per hour) as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
226C	8	Turbine Engine 3 bleed air pressure (pounds per square inch) as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
2300	8	Turbine Engine 4 N1 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2308	8	Turbine Engine 4 N2 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2310	8	Turbine Engine 4 corrected N1 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2318	8	Turbine Engine 4 corrected N2 value (%) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2320	8	Turbine Engine 4 corrected fuel flow (pounds per hour) as a double (FLOAT64). This is for jets and turboprops—it has no meaning on reciprocating prop aircraft.	**Ok**	**Ok**
2328	8	Turbine Engine 4 max torque fraction (range 0.0–1.0) as a double (FLOAT64). (*Only tested on turboprops*).	**Ok**	**Ok**
2330	8	Turbine Engine 4 EPR as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**

2338	8	Turbine Engine 4 ITT (interstage turbine temperature) in degrees Rankine, as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
234C	8	Turbine Engine 4 jet thrust, in pounds, as a double (FLOAT64). This is the jet thrust. See 2710 for propeller thrust (turboprops have both).	**Ok**	**Ok**
2360	8	Turbine Engine 4 fuel flow (pounds per hour) as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
236C	8	Turbine Engine 4 bleed air pressure (pounds per square inch) as a double (FLOAT64). This is for jets and turboprops.	**Ok**	**Ok**
2400	8	Propeller 1 RPM as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2410	8	Propeller 1 thrust in pounds, as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2418	8	Propeller 1 Beta blade angle in radians, as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2500	8	Propeller 2 RPM as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2510	8	Propeller 2 thrust in pounds, as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2518	8	Propeller 2 Beta blade angle in radians, as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2600	8	Propeller 3 RPM as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2610	8	Propeller 3 thrust in pounds, as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2618	8	Propeller 3 Beta blade angle in radians, as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2700	8	Propeller 4 RPM as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2710	8	Propeller 4 thrust in pounds, as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
2718	8	Propeller 4 Beta blade angle in radians, as a double (FLOAT64). This is for props and turboprops.	**Ok**	**Ok**
290C	4	Number of Hot Joystick Button slots available for Application Programs to use. Currently this is fixed at 56, representing the 56 DWORDs available in the following offsets:	**Ok**	**Ok**
2910	224	56 DWORDs containing zero (when free for use), or a Hot Joystick Button specification as detailed earlier in this document. See also 32FF below.	**Ok**	**Ok**
2DC6	2	Helicopter “beep” (whatever that is—something to do with the governor). This value is also controlled by the *Increase Heli Beep* and *Decrease Heli Beep* FS controls. It appears to change from 0 to 16313 then more slowly to 16368.	**Ok**	**Ok**
2E98	8	Elevator deflection, in radians, as a double (FLOAT64). Up positive, down negative.	**Ok**	**Ok**
2EA0	8	Elevator trim deflection, in radians, as a double (FLOAT64). Up positive, down negative.	**Ok**	**Ok**
2EA8	8	Aileron deflection, in radians, as a double (FLOAT64). Right turn positive, left turn negative.	**Ok**	**Ok**
2EB0	8	Aileron trim deflection, in radians, as a double (FLOAT64). Right turn positive, left turn negative.	**Ok**	
2EB8	8	Rudder deflection, in radians, as a double (FLOAT64).	**Ok**	**Ok**
2EC0	8	Rudder trim deflection, in radians, as a double (FLOAT64).	**Ok**	

2ED0	8	Incidence “alpha”, in radians, as a double (FLOAT64). This is the aircraft *body* angle of attack (AoA) not the *wing* AoA.	**Ok**	**Ok**
2ED8	8	Incidence “beta”, in radians, as a double (FLOAT64). This is the side slip angle.	**Ok**	**Ok**
2EE0	4	FLIGHT_DIRECTOR_ACTIVE control and indicator. 1=active, 0=inactive. [FS2000–FS2004 only]	**Ok**	**Ok**
2EE8	8	Flight director pitch value, in degrees. Double floating point format. This is the FLIGHT_DIRECTOR_PITCH variable previously listed as specific to FS2000. [FS2000/FS2002 only]	**Ok**	**Ok**
2EF0	8	Flight director bank value, in degrees. Double floating point format. This is the FLIGHT_DIRECTOR_BANK variable previously listed as specific to FS2000. [FS2000/FS2002 only]	**Ok**	**Ok**
2EF8	8	CG percent, as a double (FLOAT64). This is probably the position of the actual CoG as a % of MAC (?).	**Ok**	**Ok**
2F70	8	Attitude indicator pitch value, in degrees. Double floating point format. This is the ATTITUDE_INDICATOR _PITCH_DEGREES variable previously listed as specific to FS2000. [FS2000/FS2002 only]	**Ok**	**Ok**
2F78	8	Attitude indicator bank value, in degrees. Double floating point format. This is the ATTITUDE_INDICATOR_BANK_DEGREES variable previously listed as specific to FS2000. [FS2000/FS2002 only]	**Ok**	**Ok**
2F80	1	PANEL AUTOBRAKE SWITCH Read to check setting, write to change it. 0=RTO, 1=Off, 2=brake1, 3=brake2, 4=brake3, 5=max	**Ok**	**Ok**
2FE0	32	Modules Menu, application item write area (see earlier in this document)	**Ok**	**Ok**
3000	6	VOR1 IDENTITY (string supplied: 6 bytes including zero terminator)	**Ok**	**Ok**
3006	25	VOR1 name (string supplied: 25 bytes including zero terminator)	**Ok**	**Ok**
301F	6	VOR2 IDENTITY (string supplied: 6 bytes including zero terminator)	**Ok**	**Ok**
3025	25	VOR2 name (string supplied: 25 bytes needed including zero terminator)	**Ok**	**Ok**
303E	6	ADF1 IDENTITY (string supplied: 6 bytes including zero terminator)	**Ok**	**Ok**
3044	25	ADF1 name (string supplied: 25 bytes including zero terminator)	**Ok**	**Ok**
3060	8	X (lateral, or left/right) acceleration in ft/sec/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
3068	8	Y (vertical, or up/down) acceleration in ft/sec/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
3070	8	Z (longitudinal, or forward/backward) acceleration in ft/sec/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
3078	8	Pitch acceleration in radians/sec/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
3080	8	Roll acceleration in ft/sec/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
3088	8	Yaw acceleration in ft/sec/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
3090	8	Z (longitudinal, or forward/backward) GS-velocity in ft/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
3098	8	X (lateral, or left/right) GS-velocity in ft/sec relative to the body	**Ok**	

		axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]		
30A0	8	Y (vertical, or up/down) GS-velocity in ft/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
30A8	8	Pitch velocity in rads/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
30B0	8	Roll velocity in rads/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
30B8	8	Yaw velocity in rads/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
30C0	8	Current loaded weight in lbs. This is in double floating point format (FLOAT64). [FS2k only]	**Ok**	
30C8	8	Plane's current mass, in slugs (1 slug = 1lb*G = 32.174 lbs mass. This is in double floating point format (FLOAT64). [FS2k only]	**No**	**No**
30D0	8	Vertical acceleration in G's. This is in double floating point format (FLOAT64). [FS2k only]	**No**	**No**
30D8	8	Dynamic pressure (lbs/sqft). [FS2k/CFS2/FS2002 only]	**Ok**	**Ok**
3100	1	Engine primer (just write a non-zero byte to operate the primer. This is a one-shot and reading it is meaningless) [FS2k/CFS2 only]	**Ok**	
3101	1	Alternator (1 = on, 0 = off), read for state, write to control [FS2k/CFS2 only]	**Ok**	
3102	1	Battery (1 = on, 0 = off), read for state, write to control [FS2k/CFS2 only]	**Ok**	**Ok**
3103	1	Avionics (1 = on, 0 = off), read for state, write to control [FS2k/CFS2 only]	**Ok**	**Ok**
3104	1	Fuel pump (1 = on, 0 = off), read for state, write to control [FS2k, CFS2, FS2002 only]. For separate switches for separate fuel pumps see offset 3125.	**Ok**	
3105	1	VOR1 morse ID sound (1 = on, 0 = off), read for state, write to control [FS2k/CFS2 only]	**Ok**	
3106	1	VOR2 morse ID sound (1 = on, 0 = off), read for state, write to control [FS2k/CFS2 only]	**Ok**	
3107	1	ADF morse ID sound (1 = on, 0 = off), read for state, write to control [FS2k/CFS2 only]	**Ok**	
3108	1	Write 1 here to disable FSUIPC's "AutoTune ADF1" facility, if this has been enabled by the user in FSUIPC.INI.	**Ok**	**Ok**
3109	1	Write 1 here to disable AxisCalibration even if enabled in FSUIPC.INI.	**Ok**	**Ok**
310A	1	Controls the joystick connection to the main flight controls. Normally all zero, set the following bits to actually disconnect the specific joystick axes (from least significant bit = 0): 0 Elevator 1 Aileron 2 Rudder 3 Throttles (all) This feature is intended for use in protecting autopilot flight from interference from axis flutter. In order to protect the user from a broken or crashed application, all the flags are cleared 10 seconds after they have been set, so applications will need to	**Ok**	**Ok**

		repeat the setting every few seconds. Additionally, since version 2.83 of FSUIPC, bit 2^4 has been available to switch "throttle sync" on. In this mode all throttles are driven from the main throttle or throttle 1 inputs, and other throttle inputs are discarded. (The same option can also be used from an optional Hot Key). See also offsets 3328–3337, which provide the live axis values, post calibration. These would have been applied to FS if not prevented by the flags above. Applications can use these facilities to provide a responsive "fly-by-wire" control.		
310B	1	Controls the joystick connection to the slewing controls. Normally all zero, set the following bits to actually disconnect the specific slewing axes (from least significant bit = 0): 0 Slew Ahead 1 Slew Side 2 Slew Heading 3 Slew Altitude 4 Slew Bank 5 Slew Pitch In order to protect the user from a broken or crashed application, all the flags are cleared 10 seconds after they have been set, so applications will need to repeat the setting every few seconds.	**Ok**	**Ok**
310C	4	*Reserved*		
3110	8	Operates a facility to send any 'controls' to Flight simulator. This works with *all* versions of FS & CFS. Write all 8 bytes for controls which use a value (axes and all _SET controls), but just 4 will do for 'button' types. This is really two 32-bit integers. The first contains the Control number (normally 65536 upwards), as seen in my FS Controls lists. The second integer is used for the parameter, such as the scaled axis value, where this is appropriate. Always write all 8 bytes in one IPC block if a parameter is used, as FSUIPC will fire the control when you write to 3110.	**Ok**	**Ok**
3118	2	COM2 frequency (FS2002 only), 4 digits in BCD format. A frequency of 123.45 is represented by 0x2345. The leading 1 is assumed.	**Ok**	**Ok**
311A	2	COM1 standby frequency (FS2002 only), 4 digits in BCD format. A frequency of 123.45 is represented by 0x2345. The leading 1 is assumed.	**Ok**	**Ok**
311C	2	COM2 standby frequency (FS2002 only), 4 digits in BCD format. A frequency of 123.45 is represented by 0x2345. The leading 1 is assumed.	**Ok**	**Ok**
311E	2	NAV1 standby frequency (FS2002 only), 4 digits in BCD format. A frequency of 113.45 is represented by 0x1345. The leading 1 is assumed.	**Ok**	**Ok**
3120	2	NAV2 standby frequency (FS2002 only), 4 digits in BCD format. A frequency of 113.45 is represented by 0x1345. The leading 1 is assumed.	**Ok**	**Ok**
3122	1	Radio audio switches (FS2002 only). Read/write bit settings as follows: 2^7 COM1 transmit 2^6 COM2 transmit	**Ok**	**Ok**

		2^5 COM receive both 2^4 NAV1 sound 2^3 NAV2 ound 2^2 Marker sound 2^1 DME sound 2^0 ADF1 sound		
3123	1	Radio Use/Standby swap toggles (FS2002 only), Write bits to operate toggles. Don't bother to read it, there's no meaning to anything read. 2^3 COM1 swap 2^2 COM2 swap 2^1 NAV1 swap 2^0 NAV2 swap	**Ok**	**Ok**
3124	1	FS2002 only: "electric always available" flag: set if 1, clear if 0. Can be controlled by writing also.	**Ok**	**No**
3125	1	FS2000/FS2002 only: separate switches for up to 4 Fuel Pumps (one for each engine). Bit 2^0=Pump1, 2^1=Pump2, 2^2=Pump3, 2^4=Pump4. (*see also offset 3104*)	**Ok**	
3126	1	Set view direction (write only, current view not detected). 0 = FORWARD 1–7 = FORWARD RIGHT and 45 degree views, clockwise 8 = DOWN 9 = UP 10-17 = FORWARD UP then 45 degree UP views, clockwise all other values = RESET	**Ok**	
3127	9	FSUIPC weather option control area: see text section earlier in this document.	**Ok**	**Ok**
3130	12	ATC flight number string for currently loaded user aircraft, as declared in the AIRCRAFT.CFG file. This is limited to a maximum of 12 characters, including a zero terminator. [FS2002 only]	**Ok**	**Ok**
313C	12	ATC identifier (tail number) string for currently loaded user aircraft, as declared in the AIRCRAFT.CFG file. This is limited to a maximum of 12 characters, including a zero terminator. [FS2002 only]	**Ok**	**Ok**
3148	24	ATC airline name string for currently loaded user aircraft, as declared in the AIRCRAFT.CFG file. This is limited to a maximum of 24 characters, including a zero terminator. [FS2002 only]	**Ok**	**Ok**
3160	24	ATC aircraft type string for currently loaded user aircraft, as declared in the AIRCRAFT.CFG file. This is limited to a maximum of 24 characters, including a zero terminator. [FS2002 only]	**Ok**	**Ok**
3178	8	Z (longitudinal, or forward/backward) TAS-velocity in ft/sec relative to the body axes. This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
3180	8	X (lateral, or left/right) TAS-velocity in ft/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
3188	8	Y (vertical, or up/down) TAS-velocity in ft/sec relative to the body axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	

3190	8	Z (longitudinal, or forward/backward) GS-velocity in ft/sec relative to world axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
3198	8	X (lateral, or left/right) GS-velocity in ft/sec relative to world axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only] N.B. The sign may be reversed in FS2002.	**Ok?**	
31A0	8	Y (vertical, or up/down) GS-velocity in ft/sec relative to world axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
31A8	8	Pitch velocity in rads/sec relative to world axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only]	**Ok**	
31B0	8	Roll velocity in rads/sec relative to world axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only] N.B. In FS2002 the sign may be reversed, and the units may be 16x	**Ok?**	
31B8	8	Yaw velocity in rads/sec relative to world axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2k/CFS2/FS2002 only] N.B. In FS2002 the sign may be reversed, and the units may be 16x	**Ok?**	
31C0	8	X (lateral, or left/right) acceleration in ft/sec/sec relative to the world axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2002 only]	**Ok**	
31C8	8	Y (vertical, or up/down) acceleration in ft/sec/sec relative to the world axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2002 only]	**Ok**	
31D0	8	Z (longitudinal, or forward/backward) acceleration in ft/sec/sec relative to the world axes (*see Note at end of table*). This is in double floating point format (FLOAT64). [FS2002 only]	**Ok**	
31D8	16	*Reserved*		
31E8	4	Surface type as a 32-bit integer (FS2002 only). I think this only applies when the aircraft is on the ground. The values probably correspond to the surface encoding in the scenery files, thus: CONCRETE 0 GRASS 1 SOFT, BUMPY GROUND (LANDABLE) WATER 2 GRASS BUMPY 3 VERY BUMPY GRASS & MUD (CRASHABLE) ASPHALT 4 SHORT GRASS 5 LONG GRASS 6 HARD TURF 7 SNOW 8 ICE 9 URBAN 10 FOREST 11 DIRT 12 CORAL 13 GRAVEL 14 OIL TREATED 15 TAR & CHIP STEEL MATS 16 STEEL MESH TEMPORARY RUNWAYS BITUMINUS 17 BRICK 18 MACADAM 19 PLANKS 20 SAND 21 SHALE 22 TARMAC 23 UNKNOWN 254	**Ok**	

31EC	4	Surface condition as a 32-bit integer (FS2002 only), probably as follows: NORMAL 0 WET 1 ICY 2 SNOW 3 SNOW ON A NON-SNOW SURFACE	**Ok**	
31F0	4	Pushback status (FS2002 only). 3=off, 0=pushing back, 1=pushing back, tail to swing to left (port), 2=pushing back, tail to swing to right (starboard)	**Ok**	
31F4	4	Pushback control (FS2002 only). Write 0–3 here to set pushback operation, as described for the status, above.	**Ok**	
31F8	4	Tug Heading (FS2002 only). [*not investigated*]	**Ok?**	
31FC	4	Tug Speed (FS2002 only). [*not investigate*]	**Ok?**	
3200	12	These locations operate the FSUIPC facility to send keystrokes to FS. For this to operate correctly the PC must be using Windows 98, ME or 2000. The facilities used just do not exist in Windows 95 nor NT. 3200 message (WM_KEYDOWN or WM_KEYUP) 3204 wParam for the message 3208 lParam for the message All 12 bytes must be written in one IPC write. (This feature is used in WideClient version 3.998 and later, when the [User] parameter "SendKeyPresses=Yes" is included in its .ini file, to relay all non-system (i.e. no Alt key) key presses it receives to the WideServer host).	**Ok**	**Ok**
320C	4	Number of Hot Key slots available for Application Programs to use. Currently this is fixed at 56, representing the 56 DWORDs available in the following offsets:	**Ok**	**Ok**
3210	224	56 DWORDs containing zero (when free for use), or a Hot Key specification as detailed earlier in this document. See also 32FE below.	**Ok**	**Ok**
32F0	4	This DWORD controls some protected mode facilities in FSUIPC, designed to set known conditions in FSUIPC and prevent access to specific menus, whilst an application is running. The whole 32 bit DWORD should be written at once, but the use is divided into Bytes, as follows: Bits 0–7 (byte at 32F0): FSUIPC option settings 2^0 Sets FSUIPC “normal defaults” 2^1 Sets FSUIPC “minimum weather defaults” any non-zero value in this byte stops entry to FSUIPC options Bits 8–15 (byte at 32F1): Flight Sim menu restrictions 2^13 Disable Options menu 2^14 Disable Flights, Aircraft and World menus 2^15 Disable ALL Menus Bits 16–23 (byte at 32F2): *reserved* Bits 24–31 (byte at 32F3): Timeout (in ticks or 55 mSecs units) The application must write this DWORD regularly for the restrictions to stay in place. The count in the high byte is decremented by 1 every 55 mSecs, so a maximum time of 14 seconds can be set. To be safe the application should be re-	**Ok**	**Ok**

		writing this with a count of FF (255) every 5 or so seconds, especially if it is likely to be running across WideFS. When the count expires, or the application whites a zero DWORD here, all the options and menus return to normal.		
32F4	2	The 16-bit ID of the last menu command item accessed in FS can be read here. By "access" is not meant "used"–that cannot be determined easily. Just having a menu command highlit will denote an access. To decode command Ids, use FSUIPC logging. First, before running FSUIPC set "Debug=Please" and "LogExtras=64" into the FSUIPC.INI file. Then run FS and select the menu items in which you are interested. Examine the FSUIPC Log afterwards to determine the ID.	**Ok**	
32FA	2	Text display control word. You can display messages from an external program just like an Adventure. Write the message as a zero-terminated string to offset 3380 (see below), subject to the maximum of 128 characters *including* the zero terminator, then write a number to this offset, 32FA, as follows: 0 display till replaced +n display for n seconds, or until replaced –1 display and scroll, or until replaced –n display and scroll, or for n seconds, or until replaced In the last two cases, whether the message scrolls or not depends upon the setting of the "Options—Settings—General—Text Display" option. See also offset 1274 above, and the "white messages" option in 3302 below.	**Ok**	**Ok**
32FC	2	AIR file change counter (incremented by FSUIPC whenever the AIR file as defined at offset 3C00 changes).	**Ok**	**Ok**
32FE	1	Hot Key change counter, incremented by FSUIPC whenever any of the Hot Keys defined in the table at offset 3210 occurs and therefore has its flag set by FSUIPC.	**Ok**	**Ok**
32FF	1	Hot Button change counter, incremented by FSUIPC whenever any of the Hot Buttons defined in the table at offset 2910 changes state in the right way, and therefore has its flag set by FSUIPC.	**Ok**	**Ok**
3300	2	[FS2k, CFS2 *and* FS98, as applicable] Additional radio and autopilot status indicators (read only access). Allocation by bits which are set when true. Bit 0 = least significant (value 1): 0 = reserved 1 = good NAV1 2 = good NAV2 3 = good ADF 4 = NAV1 has DME 5 = NAV2 has DME 6 = NAV1 is ILS 7 = AP NAV1 radial acquired 8 = AP ILS LOC acquired 9 = AP ILS GS acquired 10–15 reserved	**Ok**	**Ok**
3302	2	Assorted FSUIPC options, set by user parameters: read-only via the IPC. Those allocated so far (bits from least significant): 0 = Static (i.e. non-scrolling) messages sent to FS	**Ok**	**Ok**

		are to be displayed in white rather than the default red. (If AdvDisplay is installed it must be version 2.11 or later for this option).		
3304	4	FSUIPC version number: The HIWORD (i.e. bytes 3306-7) gives the main version as BCD x 1000: e.g. 0x1998 for 1.998 The LOWORD (bytes 3304-5) gives the Interim build letter: 0=none, 1-26=a-z: e.g. 0x0005 = 'e'	**Ok**	**Ok**
3308	2	FS version, as determined by FSUIPC: Currently only one of these: 1 = FS98 2 = FS2000 3 = CFS2 4 = CFS1 5 = reserved 6 = FS2002 7 = FS2004 "A Century of Flight"	**Ok**	**Ok**
330A	2	Fixed *read-only* pattern, set to 0xFADE. Use this to check that the values in 3304-3308 are valid (Note: the supplied LIB writes its version number here, but this has no effect and is only for assistance when viewing LOG files).	**Ok**	**Ok**
330F	17	Reserved area for WideFS KeySend facility (version 4.23 and later)	**Ok**	**Ok**
3320	2	This word is used to activate a facility supported by WideFS to automatically shut down the PCs running WideServer (i.e. this one) and WideClient. The .ini files of each WideFS component which is to activate the shutdown needs the "AllowShutdown=Yes" parameter included. The application performing the shut down action must write 0xABCD to this offset. WideServer automatically resets this word to zero 5 seconds afterwards, before it initiates its own PC's shutdown if specified. This delay is to ensure the Clients get the message before the host dies, and the clearing to zero is done so that the survivors can continue. Note that, since version 5.30, WideFS also provides the lesser option "AllowShutdown=App" which only closes down the WideClient or, in the case of WideServer, the FS session. A hot key facility to invoke this WideFS shutdown from the FS keyboard is added in version 5.301 of WideServer.	**Ok**	**Ok**
3322	2	WideServer version number, if running *and* if version 5.00 or later. Otherwise this is zero. This is a BCD value giving the version number x 1000, for example 0x5110 means version 5.110. See also offset 333C.	**Ok**	**Ok**
3324	4	This is the altimeter reading in feet, as a 32-bit signed integer. The same value can be calculated from the actual altitude and the difference between the QNH and the altimeter "Kollsman" pressure setting, but this value ensures agreement.	**Ok**	**Ok**
3328	2	Elevator Axis input value, post calibration, just before being	**Ok**	**Ok**

		applied to the simulation (if allowed to by the byte at offset 310A).		
332A	2	Aileron Axis input value, post calibration, just before being applied to the simulation (if allowed to by the byte at offset 310A).	**Ok**	**Ok**
332C	2	Rudder Axis input value, post calibration, just before being applied to the simulation (if allowed to by the byte at offset 310A).	**Ok**	**Ok**
332E	2	Throttle Axis input value, post calibration, just before being applied to the simulation (if allowed to by the byte at offset 310A). This is the single throttle, applied to whichever engines are denoted by the bits in offset 0888.	**Ok**	**Ok**
3330	2	Throttle 1 Axis input value, post calibration, just before being applied to the simulation (if allowed to by the byte at offset 310A).	**Ok**	**Ok**
3332	2	Throttle 2 Axis input value, post calibration, just before being applied to the simulation (if allowed to by the byte at offset 310A).	**Ok**	**Ok**
3334	2	Throttle 3 Axis input value, post calibration, just before being applied to the simulation (if allowed to by the byte at offset 310A).	**Ok**	**Ok**
3336	2	Throttle 4 Axis input value, post calibration, just before being applied to the simulation (if allowed to by the byte at offset 310A).	**Ok**	**Ok**
333A	2	Throttle lower limit (FS2002 and later only). This is normally 0 if no reverse is available, otherwise gives the reverse limit such as –4096 (for 25%). For earlier versions than FS2002 this location will be zero.	**Ok**	**Ok**
333C	2	WideFS flags: only set from version 5.50 or later of WideFS. Flags used so far are: 2^0 1 =if TCP is being used, 0 if SPX 2^1 1 if connected at all, 0 is waiting for connections See offset 3322 for WideFS version number, which also confirms that WideServer is installed and running.	**Ok**	**Ok**
3340	36	This area is used for externally signalled “joystick button” control. Each DWORD or 32 bits represents one “joystick” with 32 buttons. If an external program sets or clears a bit in any of these 9 DWORDS the “Buttons” page in FSUIPC will register the change as a button operation on one of Joystick numbers 64 to 73 (corresponding to the 9 DWORDs). So, FSUIPC can be used to program whatever actions the user wants.	**Ok**	**Ok**
337E	2	FSUIPC activity count. Simply a number which is incremented every time FSUIPC receives a call or message from Flight Simulator. This can be used through WideFS to check if FS is still active, for example. Note that when FS is loading aircraft or scenery/textures, this value may not change for many seconds as FSUIPC is then not getting any processor time at all.	**Ok**	**Ok**
3380	128	Message text area. It is used by AdvDisplay.dll for a copy of the ADVenture text display: useful for programs wishing to display the adventure texts on a separate PC, via WideFS. The text is truncated if longer than 127 characters, there always being a zero terminator provided.	**Ok**	**Ok**

		You can also *write* messages to this area, always zero terminated, for display on the FS windshield or via AdvDisplay if it is running. After placing the message text, you must write the 16-bit timer value to offset 32FA to make FSUIPC send the message through to FS (see 32FA above).		
35A8	8	Reciprocating engine 4 manifold pressure, in lbs/sqft, as a double (FLOAT64). Divide by 70.7262 for inches Hg.	**Ok**	**Ok**
35B0	8	Engine 4 cowl flap position, as a double float: 0.0=fully closed, 1.0=fully open. Can be used to handle position and set it. [FS2000/2002 only]	**Ok**	
35D8	8	Reciprocating engine 4 fuel/air mass ratio, as a double (FLOAT64).	**Ok**	**Ok**
35E0	8	Reciprocating engine 4 brake power in ft-lbs, as a double (FLOAT64). Divide by 550 for HP.	**Ok**	**Ok**
3668	8	Reciprocating engine 3 manifold pressure, in lbs/sqft, as a double (FLOAT64). Divide by 70.7262 for inches Hg.	**Ok**	**Ok**
3670	8	Engine 3 cowl flap position, as a double float: 0.0=fully closed, 1.0=fully open. Can be used to handle position and set it. [FS2000/2002 only]	**Ok**	
3698	8	Reciprocating engine 3 fuel/air mass ratio, as a double (FLOAT64).	**Ok**	**Ok**
36A0	8	Reciprocating engine 3brake power in ft-lbs, as a double (FLOAT64). Divide by 550 for HP.	**Ok**	**Ok**
3728	8	Reciprocating engine 2 manifold pressure, in lbs/sqft, as a double (FLOAT64). Divide by 70.7262 for inches Hg.	**Ok**	**Ok**
3730	8	Engine 2 cowl flap position, as a double float: 0.0=fully closed, 1.0=fully open. Can be used to handle position and set it. [FS2000/2002 only]	**Ok**	
3758	8	Reciprocating engine 2 fuel/air mass ratio, as a double (FLOAT64).	**Ok**	**Ok**
3760	8	Reciprocating engine 2 brake power in ft-lbs, as a double (FLOAT64). Divide by 550 for HP.	**Ok**	**Ok**
37E8	8	Reciprocating engine 1 manifold pressure, in lbs/sqft, as a double (FLOAT64). Divide by 70.7262 for inches Hg.	**Ok**	**Ok**
37F0	8	Engine 1 cowl flap position, as a double float: 0.0=fully closed, 1.0=fully open. Can be used to handle position and set it. [FS2000/2002 only]	**Ok**	
3818	8	Reciprocating engine 1 fuel/air mass ratio, as a double (FLOAT64).	**Ok**	**Ok**
3820	8	Reciprocating engine 1 brake power in ft-lbs, as a double (FLOAT64). Divide by 550 for HP.	**Ok**	**Ok**
38B0	8	General engine 4 mixture lever position, as a double (FLOAT64). 0.0=cutoff, 1.0=full rich	**Ok**	**Ok**
3918	8	General engine 4 oil temperature in degrees Rankine, as a double (FLOAT64).	**Ok**	**Ok**
3920	8	General engine 4 oil pressure in lbs/sqft, as a double (FLOAT64). Divide by 144 for PSI.	**Ok**	**Ok**
3930	8	General engine 4 EGT in degrees Rankine, as a double (FLOAT64). Convert to Fahrenheit by Rankine – 459.67. FS default gauges show Centigrade.	**Ok**	**Ok**
3938	4	Engine 4 generator switch, a 32-bit BOOL (0 = off, 1= on) [FS2000/2002 only]	**Ok**	
3970	8	General engine 3 mixture lever position, as a double (FLOAT64). 0.0=cutoff, 1.0=full rich	**Ok**	**Ok**
39D8	8	General engine 3 oil temperature in degrees Rankine, as a double (FLOAT64).	**Ok**	**Ok**
39E0	8	General engine 3 oil pressure in lbs/sqft, as a double (FLOAT64). Divide by 144 for PSI.	**Ok**	**Ok**
39F0	8	General engine 3 EGT in degrees Rankine, as a double (FLOAT64). Convert to Fahrenheit by Rankine – 459.67. FS default gauges show Centigrade.	**Ok**	**Ok**
39F8	4	Engine 3 generator switch, a 32-bit BOOL (0 = off, 1= on)	**Ok**	

		[FS2000/2002 only]		
3A30	8	General engine 2 mixture lever position, as a double (FLOAT64). 0.0=cutoff, 1.0=full rich	**Ok**	**Ok**
3A98	8	General engine 2 oil temperature in degrees Rankine, as a double (FLOAT64).	**Ok**	**Ok**
3AA0	8	General engine 2 oil pressure in lbs/sqft, as a double (FLOAT64). Divide by 144 for PSI.	**Ok**	**Ok**
3AB0	8	General engine 2 EGT in degrees Rankine, as a double (FLOAT64). Convert to Fahrenheit by Rankine – 459.67. FS default gauges show Centigrade.	**Ok**	**Ok**
3AB8	4	Engine 2 generator switch, a 32-bit BOOL (0 = off, 1= on) [FS2000/2002 only]	**Ok**	
3AF0	8	General engine 1 mixture lever position, as a double (FLOAT64). 0.0=cutoff, 1.0=full rich	**Ok**	**Ok**
3B58	8	General engine 1 oil temperature in degrees Rankine, as a double (FLOAT64).	**Ok**	**Ok**
3B60	8	General engine 1 oil pressure in lbs/sqft, as a double (FLOAT64). Divide by 144 for PSI.	**Ok**	**Ok**
3B70	8	General engine 1 EGT in degrees Rankine, as a double (FLOAT64). Convert to Fahrenheit by Rankine – 459.67. FS default gauges show Centigrade.	**Ok**	**Ok**
3B78	4	Engine 1 generator switch, a 32-bit BOOL (0 = off, 1= on) [FS2000/2002 only]	**Ok**	
3BA0	8	The tailhook position, as a double floating point value (0.0=fully retracted, 1.0=fully lowered). [FS2002 and FS2004 only]	**Ok**	**Ok**
3BD6	18	Panel failure modes (FS2002 and FS2004 only): one byte flag/control for each of the following "partial panel" modes: 3BD6 ADF1 3BD7 ASI 3BD8 Altimeter 3BD9 Attitude Indicator 3BDA COMM1 3BDB COMM2 3BDC Compass 3BDD ? (unknown) 3BDE Engine (see 0B6B for separate engines) 3BDF Fuel Indicator 3BE0 Heading Indicator 3BE1 NAV1 3BE2 NAV2 3BE3 Pitot heat 3BE4 Transponder 3BE5 Turn Co-ordinator 3BE6 Vacuum 3BE7 VSI	**Ok**	**Ok**
3BE8	8	Attitude Indicator failure timer, as a double floating point value. [FS2k/CFS2 only]	**No**	**No**
3BF0	4	Attitude indicator lock indicator, 32-bit integer but probable only Boolean (0 or 1) [FS2k/CFS2 only]	**No**	**No**
3BF4	4	Low vacuum indicator, 32-bit integer but probable only Boolean (0 or 1) [FS2k/CFS2 only]	**No**	**No**
3BFA	2	FS2K only: flaps détente increment. The full range of flap movement is 0–0x3FFF (16383). Each détente position or "notch" is spaced equally over this range, no matter what flap angle is represented—a table in the AIR file gives those. To obtain the number of détentes, divide this increment value into 16383 and add 1. For example 2047 (0x7FF) would be the increment for 9 positions as on the default FS2K 737.	**Ok**	**Ok**
3BFC	4	FS2K/CFS2 only: Zero Fuel Weight, lbs * 256	**Ok**	
3C00	256	Pathname of the current AIR file, excluding the FS main path (see 3E00), but including everything from "Aircraft\…" to the final "…air".	**Ok**	**Ok**

		This is zero padded to fill the 256 bytes available. When this changes the 16-bit counter at 32FC is incremented, so interested programs don't have to keep on reading the whole 256 bytes to check.		
3D00	256	Name of the current aircraft (from the "title" parameter in the AIRCRAFT.CFG file). Valid for FS2K only.	**Ok**	**Ok**
3E00	256	Path of the Flight Simulator installation, down to and including the FS main folder and a following \ character. If the PC is on a Network and the drive or path is shared, then the full UNC (universal naming convention) path is given. Examples are: D:\FS2000\ (non-Network) \\MyMainPC\drived\FS2000\ (Network, named PC and named shared drive))	**Ok**	**Ok**
3F00	2	To load or save a Flight (FS2000/2002) or Situation (FS98) you first set up the pathname (and optional description) at offset 3F04 below, then write here. Write one of these values: 0 to simply load the specified flight/situation. 1 to save the flight/situation with an empty description 257 to save the flight/situation with a description as well This facility works on FS98, FS2000 and FS2002 but not CFS1 nor CFS2. Also note that for Loading you don't have to have the files in the "Pilots" or "Situatio" folder (or "flights" for FS2002)—any folder within the FS main folder can be used to load Flights/Situations. However, they can only be saved in "Pilots" (FS98/FS2000) or "Flights\MyFlts" (FS2002), and this folder is assumed by default. If you are Loading a file, please allow time for the file to load before expecting any further meaningful response across the FSUIPC interface. FSUIPC will probably not be able to respond for several seconds even on the fastest machines.	**Ok**	**Ok**
3F02	2	FLT/STN file loading counter (incremented by FSUIPC whenever the FLT or STN file, as defined at offset 3F04 changes or is reloaded). This word is read only—attempting to write here will do no harm.	**Ok**	**Ok**
3F04	252	**READ:** (FS2000/2002/2004 only) Pathname of the currently loaded FLT file, excluding the FS main path (see 3E00), but including everything from "Pilots\…" or "Situatio\…" (or "Flights\" in FS2002), or whatever, to the final ".flt" or ".stn". This is zero padded to fill the 252 bytes available, or truncated if longer. When this changes (or simply reloaded) the 16-bit counter at 3F02 is incremented, so interested programs don't have to keep on reading the whole 252 bytes to check. **WRITE:** (FS2000, FS2002, FS2004 and FS98) Write the file name for the FLT+WX (FS2000/FS2002) or STN (FS98) file you wish to Load or Save. The name can include the final ".flt" or ".stn" but this will be discarded in any case. You can specify a folder (existing within FS's main folder) such as "Pilots\" or "Situatio\" ("Flights\MyFlts\" in FS2002) for Loading, but files can only be saved to "Pilots\" in FS98/2000, "Flights\MyFlts\" in FS2002 and in your documents folder in FS2004. If you give a path for saving, it is discarded. There must be a zero terminator. If you are writing the file, a description can also be specified, following the pathname and its zero terminator. Obviously this is limited by the space available. It must also be terminated by a zero byte, and indicated in the value written to 3F00 above. See 3F00 above for details of actually Loading or Saving the Flight or Situation so identified.	**Ok**	**Ok**
4000	5632	*Reserved*		

5600	3072	*Available for applications: apply for allocations to Pete Dowson*		
6200	544	*Reserved*		
6420	6112	*Available for applications: apply for allocations to Pete Dowson*		
7C00	1024	*Reserved*		
8000	256	*Reserved for FSUIPC internals*		
810D	16115	*Available for applications: apply for allocations to Pete Dowson*		
B000	4096	*Reserved for future improvements*		
C000	4096	FS2004 New Weather Interface areas, allowing both local and global weather data to be read and written. (details of the NWI are provided separately in the SDK)	**No**	**Ok**
D000	4096	*Reserved for future improvements*		
E000	4096	FS2002 A.I. ground aircraft traffic data (see section on AI Traffic earlier)	**Ok**	**Ok**
F000	4096	FS2002 A.I. airborne aircraft traffic data (see section on AI Traffic earlier)	**Ok**	**Ok**

* The FS2004 column in the above table is a work-in-progress. In particular, those entries left blank are currently "don't knows", awaiting checking.

NOTE on aircraft dynamic values: (thanks to Ian Donohoe)

The aircraft linear velocity and acceleration values are, of course, related to specific references. In the cases of the values given these are the "body axes", and the "world axes". This can become more confusing because of the different ways of naming the axes. In the FS2000 .FLT files (the [SimVars] section), and in the table above, the names are different to those generally used in engineering and mathematics, as follows:

Description	FS notation	Engineering
Lateral, left–right	X	Y
Vertical, up-down	Y	Z
Longitudinal, forward–backward	Z	X
Pitch	P	Q
Roll, or bank	B	P
Yaw, or heading	H	R

Here are more specific definitions of the sets of linear reference axes themselves:

World frame of reference:
X-axis (Z-axis in FS) = True North-South
Y-axis (X-axis in FS) = True East-West
Z-axis (Y-axis in FS) = True Vertical

Body Frame Of Reference:
X-axis (Z in FS) = longitudinal through CG
Y-axis (X in FS) = lateral through CG
Z-axis (Y in FS) = vertical (in body terms) through CG

There's a complication with the body frame in deciding the longitudinal centreline from which the other axes are offset by 90 degrees. This is generally taken to be the zero lift line (i.e. alpha at which there is zero lift).

Note that some of the values obtained from FS2002 may not abide by exactly the same rules—but this is noted against the specific values in the Table. Clarification will be added as more details are discovered.

Table of additional PANELS variables for FS2000

Please refer to the Microsoft FS Panels SDK for more details of both the token variable names and the meanings of the assorted "type" names. In particular the file "gauges.h" contains these details. (Similar names, but more of them, apply to FS2002 and FS2004).

These variables can be read or written via FSUIPC since version 1.94, or through WideFS from version 3.96, but none of them are guaranteed, and they may not be carried over into future versions of FS or FSUIPC.

A program called "FSLOOK2.EXE" is supplied with this document which can be run with FSUIPC or WideFS and which will display all the tokenised variables listed (but not the extras added by FSUIPC, without token names). Click "file" and select "AutoRefresh" to see the values updated as you use FS.

With a few exceptions, as noted, access to these variables under FS98 will simply obtain zeroes on reading, and writes will be discarded. FSUIPC will not crash. But take care if you are using FS6IPC on FS98. These offsets will refer to completely different things in FS98 with FS6IPC, or will likely crash FS98.

The table is organised in order of the offsets assigned. Most variables are 4 or 8 bytes in length. Addresses in the 2000–3FFF range which are not implied by this list may read/write useful data—check the table above for uses of some addresses in this range by FSUIPC's mapping—but if so it is not identified here. Because of the way the mapping works, some such accesses may merely obtain one of the other listed values.

Offset	Token Name	Token Id	Type	FS2002	FS2004
2048	TURB_ENGINE_1_AFTERBURNER	632	BOOL	Yes	
2054	TURB_ENGINE_1_TANK_SELECTOR	635	SINT32	Yes	
2058	TURB_ENGINE_1_TANKS_USED	636	SINT32	Yes	
205C	TURB_ENGINE_1_NUMBER_TANKS	637	UINT32	Yes	
2068	TURB_ENGINE_1_FUEL_AVAILABLE	639	BOOL	Yes	
2074	TURB_ENGINE_1_PCT_AREA	640	FLOAT64	Yes	
207C	TURB_ENGINE_1_PCT_REVERSER	641	FLOAT64	Yes	
2084	TURB_ENGINE_1_VIBRATION	642	FLOAT64	Yes	
2148	TURB_ENGINE_2_AFTERBURNER	651	BOOL	Yes	
2154	TURB_ENGINE_2_TANK_SELECTOR	654	SINT32	Yes	
2158	TURB_ENGINE_2_TANKS_USED	655	SINT32	Yes	
215C	TURB_ENGINE_2_NUMBER_TANKS	656	UINT32	Yes	
2168	TURB_ENGINE_2_FUEL_AVAILABLE	658	BOOL	Yes	
2174	TURB_ENGINE_2_PCT_AREA	659	FLOAT64	Yes	
217C	TURB_ENGINE_2_PCT_REVERSER	660	FLOAT64	Yes	
2184	TURB_ENGINE_2_VIBRATION	661	FLOAT64	Yes	
2248	TURB_ENGINE_3_AFTERBURNER	670	BOOL	Yes	
2254	TURB_ENGINE_3_TANK_SELECTOR	673	SINT32	Yes	
2258	TURB_ENGINE_3_TANKS_USED	674	SINT32	Yes	
225C	TURB_ENGINE_3_NUMBER_TANKS	675	UINT32	Yes	
2268	TURB_ENGINE_3_FUEL_AVAILABLE	677	BOOL	Yes	
2274	TURB_ENGINE_3_PCT_AREA	678	FLOAT64	Yes	
227C	TURB_ENGINE_3_PCT_REVERSER	679	FLOAT64	Yes	
2284	TURB_ENGINE_3_VIBRATION	680	FLOAT64	Yes	
2348	TURB_ENGINE_4_AFTERBURNER	689	BOOL	Yes	

2354	TURB_ENGINE_4_TANK_SELECTOR	692	SINT32	Yes	
2358	TURB_ENGINE_4_TANKS_USED	693	SINT32	Yes	
235C	TURB_ENGINE_4_NUMBER_TANKS	694	UINT32	Yes	
2368	TURB_ENGINE_4_FUEL_AVAILABLE	696	BOOL	Yes	
2374	TURB_ENGINE_4_PCT_AREA	697	FLOAT64	Yes	
237C	TURB_ENGINE_4_PCT_REVERSER	698	FLOAT64	Yes	
2384	TURB_ENGINE_4_VIBRATION	699	FLOAT64	Yes	
2408	PROPELLER_1_PCT_MAX_RPM	701	FLOAT64	Yes	
2420	PROPELLER_1_FEATHERING_INHIBIT	704	BOOL	Yes	
2424	PROPELLER_1_FEATHERED	705	BOOL	Yes	
2428	PROPELLER_1_SYNC_DELTA_LEVER	706	FLOAT64	Yes	
2430	PROPELLER_1_AUTOFEATHER_ARMED	707	BOOL	Yes	
2508	PROPELLER_2_PCT_MAX_RPM	709	FLOAT64	Yes	
2520	PROPELLER_2_FEATHERING_INHIBIT	712	BOOL	Yes	
2524	PROPELLER_2_FEATHERED	713	BOOL	Yes	
2528	PROPELLER_2_SYNC_DELTA_LEVER	714	FLOAT64	Yes	
2530	PROPELLER_2_AUTOFEATHER_ARMED	715	BOOL	Yes	
2608	PROPELLER_3_PCT_MAX_RPM	717	FLOAT64	Yes	
2620	PROPELLER_3_FEATHERING_INHIBIT	720	BOOL	Yes	
2624	PROPELLER_3_FEATHERED	721	BOOL	Yes	
2628	PROPELLER_3_SYNC_DELTA_LEVER	722	FLOAT64	Yes	
2630	PROPELLER_3_AUTOFEATHER_ARMED	723	BOOL	Yes	
2708	PROPELLER_4_PCT_MAX_RPM	725	FLOAT64	Yes	
2720	PROPELLER_4_FEATHERING_INHIBIT	728	BOOL	Yes	
2724	PROPELLER_4_FEATHERED	729	BOOL	Yes	
2728	PROPELLER_4_SYNC_DELTA_LEVER	730	FLOAT64	Yes	
2730	PROPELLER_4_AUTOFEATHER_ARMED	731	BOOL	Yes	
281C	MASTER_BATTERY	364	BOOL	Yes	
2824	TOTAL_LOAD_AMPS	750	FLOAT64	Yes	
282C	BATTERY_LOAD	751	FLOAT64	Yes	
2834	BATTERY_VOLTAGE	752	FLOAT64	Yes	
2840	MAIN_BUS_VOLTAGE	753	FLOAT64	Yes	
2848	MAIN_BUS_AMPS	754	FLOAT64	Yes	
2850	AVIONICS_BUS_VOLTAGE	755	FLOAT64	Yes	
2858	AVIONICS_BUS_AMPS	756	FLOAT64	Yes	
2860	HOT_BATTERY_BUS_VOLTAGE	757	FLOAT64	Yes	
2868	HOT_BATTERY_BUS_AMPS	758	FLOAT64	Yes	
2870	BATTERY_BUS_VOLTAGE	759	FLOAT64	Yes	
2878	BATTERY_BUS_AMPS	760	FLOAT64	Yes	
2880	GENERATOR_ALTERNATOR_1_BUS_VOLTAGE	761	FLOAT64	Yes	
2888	GENERATOR_ALTERNATOR_1_BUS_AMPS	762	FLOAT64	Yes	
2890	GENERATOR_ALTERNATOR_2_BUS_VOLTAGE	763	FLOAT64	Yes	
2898	GENERATOR_ALTERNATOR_2_BUS_AMPS	764	FLOAT64	Yes	
28A0	GENERATOR_ALTERNATOR_3_BUS_VOLTAGE	765	FLOAT64	Yes	
28A8	GENERATOR_ALTERNATOR_3_BUS_AMPS	766	FLOAT64	Yes	
28B0	GENERATOR_ALTERNATOR_4_BUS_VOLTAGE	767	FLOAT64	Yes	
28B8	GENERATOR_ALTERNATOR_4_BUS_AMPS	768	FLOAT64	Yes	
2A00	ELEVON_1_DEFLECTION	809	FLOAT64	Yes	
2A08	ELEVON_2_DEFLECTION	810	FLOAT64	Yes	
2A10	ELEVON_3_DEFLECTION	811	FLOAT64	Yes	
2A18	ELEVON_4_DEFLECTION	812	FLOAT64	Yes	
2A20	ELEVON_5_DEFLECTION	813	FLOAT64	Yes	
2A28	ELEVON_6_DEFLECTION	814	FLOAT64	Yes	

2A30	ELEVON_7_DEFLECTION	815	FLOAT64	Yes	
2A38	ELEVON_8_DEFLECTION	816	FLOAT64	Yes	
2A98	Left Flaps true deflection angle (Rds)	-	FLOAT64	No	
2AA0	Right Flaps true deflection angle (Rds)	-	FLOAT64	No	
2AA8	Left Flaps indicator angle	-	FLOAT64	?	
2AB0	Right Flaps indicator angle	-	FLOAT64	?	
2AB8	Nose gear extension (as a 0-1 fraction)	-	FLOAT64	?	
2AC0	Left gear extension (as a 0-1 fraction)	-	FLOAT64	?	
2AC8	Right gear extension (as a 0-1 fraction)	-	FLOAT64	?	
2B08	HYDRAULICS1_PRESSURE_PSF	732	FLOAT64	Yes	
2B1C	HYDRAULICS1_RESERVOIR_PCT	733	FLOAT64	Yes	
2C08	HYDRAULICS2_PRESSURE_PSF	734	FLOAT64	Yes	
2C1C	HYDRAULICS2_RESERVOIR_PCT	735	FLOAT64	Yes	
2D08	HYDRAULICS3_PRESSURE_PSF	736	FLOAT64	Yes	
2D1C	HYDRAULICS3_RESERVOIR_PCT	737	FLOAT64	Yes	
2E08	HYDRAULICS4_PRESSURE_PSF	738	FLOAT64	Yes	
2E1C	HYDRAULICS4_RESERVOIR_PCT	739	FLOAT64	Yes	
2E80	AVIONICS_MASTER_SWITCH	740	BOOL	Yes	
2E88	PANEL_AUTOFEATHER_SWITCH	741	BOOL	No	
2E90	STANDBY_VACUUM_CIRCUIT_ON	778	BOOL	No	
2EC8	PROPSYNC_ACTIVE	788	BOOL	Yes	
2F00	CG_AFT_LIMIT	796	FLOAT64	No	
2F08	CG_FWD_LIMIT	797	FLOAT64	No	
2F10	CG_MAX_MACH	798	FLOAT64	Yes	
2F18	CG_MIN_MACH	799	FLOAT64	Yes	
2F20	CONCORDE_VISOR_NOSE_HANDLE	805	SINT32	Yes	
2F28	CONCORDE_VISOR_POS_PCT	806	FLOAT64	Yes	
2F30	CONCORDE_NOSE_ANGLE	807	FLOAT64	Yes	
2F38	GEAR_POS_TAIL	808	FLOAT64	No	
2F40	AUTOPILOT_MAX_SPEED	820	FLOAT64	Yes	
2F48	AUTOPILOT_CRUISE_SPEED	821	FLOAT64	Yes	
2F50	BARBER_POLE_MACH	822	FLOAT64	Yes	
2F58	SELECTED_FUEL_TRANSFER_MODE	823	SINT32	Yes	
2F60	HYDRAULIC_SYSTEM_INTEGRITY	824	FLOAT64	Yes	
2F68	ATTITUDE_CAGE_BUTTON	825	BOOL	Yes	
3420	RAD_INS_SWITCH	613	BOOL32	Yes	
3424	LOW_HEIGHT_WARNING	616	BOOL32	No	
3428	DECISION_HEIGHT	615	FLOAT64	Yes	
3438	ENGINE_1_FUELFLOW_BUG_POSITION	801	FLOAT64	Yes	
3440	ENGINE_2_FUELFLOW_BUG_POSITION	802	FLOAT64	Yes	
3448	ENGINE_3_FUELFLOW_BUG_POSITION	803	FLOAT64	Yes	
3450	ENGINE_4_FUELFLOW_BUG_POSITION	804	FLOAT64	Yes	
3458	PANEL_AUTOPILOT_SPEED_SETTING	817	FLOAT64	Yes	
3460	AUTOPILOT_AIRSPEED_HOLD_CURRENT	819	BOOL	No	
34D0	G_FORCE_MAXIMUM	605	FLOAT64	No	
34D8	G_FORCE_MINIMUM	606	FLOAT64	No	
34E8	ENGINE1_MAX_RPM	608	UINT32	No	
34EC	ENGINE2_MAX_RPM	609	UINT32	No	
34F0	ENGINE3_MAX_RPM	610	UINT32	No	
34F4	ENGINE4_MAX_RPM	611	UINT32	No	
3540	RECIP_ENGINE1_SHAFT_TORQUE	403	FLOAT64	No	
3540 *	RECIP_ENGINE1_PROP_BETA	411	FLOAT64	No	
3540	RECIP_ENGINE1_THRUST	412	FLOAT64	No	

3540	RECIP_ENGINE1_INDUCED_VELOCITY	427	FLOAT64	No	
3540	RECIP_ENGINE2_SHAFT_TORQUE	442	FLOAT64	No	
3540	RECIP_ENGINE2_PROP_BETA	450	FLOAT64	No	
3540	RECIP_ENGINE2_THRUST	451	FLOAT64	No	
3540	RECIP_ENGINE2_INDUCED_VELOCITY	466	FLOAT64	No	
3540	RECIP_ENGINE3_SHAFT_TORQUE	481	FLOAT64	No	
3540	RECIP_ENGINE3_PROP_BETA	489	FLOAT64	No	
3540	RECIP_ENGINE3_THRUST	490	FLOAT64	No	
3540	RECIP_ENGINE3_INDUCED_VELOCITY	505	FLOAT64	No	
3540	RECIP_ENGINE4_SHAFT_TORQUE	520	FLOAT64	No	
3540	RECIP_ENGINE4_PROP_BETA	528	FLOAT64	No	
3540	RECIP_ENGINE4_THRUST	529	FLOAT64	No	
3540	RECIP_ENGINE4_INDUCED_VELOCITY	544	FLOAT64	No	
3548	HORIZON_BAR_OFFSET	371	FLOAT64	No	
3548	ATTITUDE_BARS_POSITION	612	FLOAT64	Yes	
3550	ENGINE4_THROTTLE_LEVER_POS	233	SINT16	No	
3552	ENGINE4_PROPELLER_LEVER_POS	234	UINT16	No	
3554	ENGINE4_MIXTURE_LEVER_POS	235	UINT16	No	
3556	ENGINE4_STARTER_SWITCH_POS	237	ENUM16	No	
3558	ENGINE4_MAGNETO_LEFT	238	BOOL16	No	
355A	ENGINE4_MAGNETO_RIGHT	239	BOOL16	No	
3560	ENGINE3_THROTTLE_LEVER_POS	198	SINT16	No	
3562	ENGINE3_PROPELLER_LEVER_POS	199	UINT16	No	
3564	ENGINE3_MIXTURE_LEVER_POS	200	UINT16	No	
3566	ENGINE3_STARTER_SWITCH_POS	202	ENUM16	No	
3568	ENGINE3_MAGNETO_LEFT	203	BOOL16	No	
356A	ENGINE3_MAGNETO_RIGHT	204	BOOL16	No	
3570	ENGINE2_THROTTLE_LEVER_POS	163	SINT16	No	
3572	ENGINE2_PROPELLER_LEVER_POS	164	UINT16	No	
3574	ENGINE2_MIXTURE_LEVER_POS	165	UINT16	No	
3576	ENGINE2_STARTER_SWITCH_POS	167	ENUM16	No	
3578	ENGINE2_MAGNETO_LEFT	168	BOOL16	No	
357A	ENGINE2_MAGNETO_RIGHT	169	BOOL16	No	
3580	ENGINE1_THROTTLE_LEVER_POS	128	SINT16	No	
3582	ENGINE1_PROPELLER_LEVER_POS	129	UINT16	No	
3584	ENGINE1_MIXTURE_LEVER_POS	130	UINT16	No	
3586	ENGINE1_STARTER_SWITCH_POS	132	ENUM16	No	
3588	ENGINE1_MAGNETO_LEFT	133	BOOL16	No	
358A	ENGINE1_MAGNETO_RIGHT	134	BOOL16	No	
35A0	RECIP_ENGINE4_ENGINE_RPM	507	FLOAT64	No	
35B8	RECIP_ENGINE4_CARB_HEAT_POS	513	FLOAT64	No	
35C0	RECIP_ENGINE4_ALTERNATE_AIR_POS	514	FLOAT64	Yes	
35C8	RECIP_ENGINE4_COOLANT_RESERVOIR_PCT	515	FLOAT64	Yes	
35D0	RECIP_ENGINE4_LEFT_MAG	516	BOOL	Yes	
35D4	RECIP_ENGINE4_RIGHT_MAG	517	BOOL	Yes	
35E8	RECIP_ENGINE4_PROP_TORQUE	521	FLOAT64	No	
35F0	RECIP_ENGINE4_STARTER_TORQUE	522	FLOAT64	Yes	
35F8	RECIP_ENGINE4_TURBOCHARGER_FAILED	524	BOOL	Yes	
35FC	RECIP_ENGINE4_EMERGENCY_BOOST_ACTIVE	525	BOOL	Yes	
3600	RECIP_ENGINE4_EMERGENCY_BOOST_ELAPSED_TIME	526	FLOAT64	Yes	
3608	RECIP_ENGINE4_WASTEGATE_POS	527	FLOAT64	Yes	
3610	RECIP_ENGINE4_TIT_DEGR	531	FLOAT64	Yes	
3618	RECIP_ENGINE4_CHT_DEGR	532	FLOAT64	Yes	

3620	RECIP_ENGINE4_RADIATOR_DEGR	534	FLOAT64	Yes	
3628	RECIP_ENGINE4_FUEL_PRESSURE_PSF	542	FLOAT64	No	
3640	RECIP_ENGINE4_TANK_SELECTOR	539	ENUM	Yes	
3644	RECIP_ENGINE4_TANKS_USED	540	FLAGS	Yes	
3648	RECIP_ENGINE4_NUMBER_OF_TANKS_USED	541	UINT32	Yes	
364C	RECIP_ENGINE4_FUELFLOW_PPH	538	FLOAT64	Yes	
3654	RECIP_ENGINE4_FUEL_AVAILABLE	537	BOOL	Yes	
3660	RECIP_ENGINE3_ENGINE_RPM	468	FLOAT64	No	
3678	RECIP_ENGINE3_CARB_HEAT_POS	474	FLOAT64	No	
3680	RECIP_ENGINE3_ALTERNATE_AIR_POS	475	FLOAT64	Yes	
3688	RECIP_ENGINE3_COOLANT_RESERVOIR_PCT	476	FLOAT64	Yes	
3690	RECIP_ENGINE3_LEFT_MAG	477	BOOL	Yes	
3694	RECIP_ENGINE3_RIGHT_MAG	478	BOOL	Yes	
36A8	RECIP_ENGINE3_PROP_TORQUE	482	FLOAT64	No	
36B0	RECIP_ENGINE3_STARTER_TORQUE	483	FLOAT64	Yes	
36B8	RECIP_ENGINE3_TURBOCHARGER_FAILED	485	BOOL	Yes	
36BC	RECIP_ENGINE3_EMERGENCY_BOOST_ACTIVE	486	BOOL	Yes	
36C0	RECIP_ENGINE3_EMERGENCY_BOOST_ELAPSED_TIME	487	FLOAT64	Yes	
36C8	RECIP_ENGINE3_WASTEGATE_POS	488	FLOAT64	Yes	
36D0	RECIP_ENGINE3_TIT_DEGR	492	FLOAT64	Yes	
36D8	RECIP_ENGINE3_CHT_DEGR	493	FLOAT64	Yes	
36E0	RECIP_ENGINE3_RADIATOR_DEGR	495	FLOAT64	Yes	
36E8	RECIP_ENGINE3_FUEL_PRESSURE_PSF	503	FLOAT64	No	
3700	RECIP_ENGINE3_TANK_SELECTOR	500	ENUM	Yes	
3704	RECIP_ENGINE3_TANKS_USED	501	FLAGS	Yes	
3708	RECIP_ENGINE3_NUMBER_OF_TANKS_USED	502	UINT32	Yes	
370C	RECIP_ENGINE3_FUELFLOW_PPH	499	FLOAT64	Yes	
3714	RECIP_ENGINE3_FUEL_AVAILABLE	498	BOOL	Yes	
3720	RECIP_ENGINE2_ENGINE_RPM	429	FLOAT64	No	
3738	RECIP_ENGINE2_CARB_HEAT_POS	435	FLOAT64	No	
3740	RECIP_ENGINE2_ALTERNATE_AIR_POS	436	FLOAT64	Yes	
3748	RECIP_ENGINE2_COOLANT_RESERVOIR_PCT	437	FLOAT64	Yes	
3750	RECIP_ENGINE2_LEFT_MAG	438	BOOL	Yes	
3754	RECIP_ENGINE2_RIGHT_MAG	439	BOOL	Yes	
3768	RECIP_ENGINE2_PROP_TORQUE	443	FLOAT64	No	
3770	RECIP_ENGINE2_STARTER_TORQUE	444	FLOAT64	Yes	
3778	RECIP_ENGINE2_TURBOCHARGER_FAILED	446	BOOL	Yes	
377C	RECIP_ENGINE2_EMERGENCY_BOOST_ACTIVE	447	BOOL	Yes	
3780	RECIP_ENGINE2_EMERGENCY_BOOST_ELAPSED_TIME	448	FLOAT64	Yes	
3788	RECIP_ENGINE2_WASTEGATE_POS	449	FLOAT64	Yes	
3790	RECIP_ENGINE2_TIT_DEGR	453	FLOAT64	Yes	
3798	RECIP_ENGINE2_CHT_DEGR	454	FLOAT64	Yes	
37A0	RECIP_ENGINE2_RADIATOR_DEGR	456	FLOAT64	Yes	
37A8	RECIP_ENGINE2_FUEL_PRESSURE_PSF	464	FLOAT64	No	
37C0	RECIP_ENGINE2_TANK_SELECTOR	461	ENUM	Yes	
37C4	RECIP_ENGINE2_TANKS_USED	462	FLAGS	Yes	
37C8	RECIP_ENGINE2_NUMBER_OF_TANKS_USED	463	UINT32	Yes	
37CC	RECIP_ENGINE2_FUELFLOW_PPH	460	FLOAT64	Yes	
37D4	RECIP_ENGINE2_FUEL_AVAILABLE	459	BOOL	Yes	
37E0	RECIP_ENGINE1_ENGINE_RPM	390	FLOAT64	No	
37F8	RECIP_ENGINE1_CARB_HEAT_POS	396	FLOAT64	No	
3800	RECIP_ENGINE1_ALTERNATE_AIR_POS	397	FLOAT64	Yes	
3808	RECIP_ENGINE1_COOLANT_RESERVOIR_PCT	398	FLOAT64	Yes	

3810	RECIP_ENGINE1_LEFT_MAG	399	BOOL	Yes	
3814	RECIP_ENGINE1_RIGHT_MAG	400	BOOL	Yes	
3828	RECIP_ENGINE1_PROP_TORQUE	404	FLOAT64	No	
3830	RECIP_ENGINE1_STARTER_TORQUE	405	FLOAT64	Yes	
3838	RECIP_ENGINE1_TURBOCHARGER_FAILED	407	BOOL	Yes	
383C	RECIP_ENGINE1_EMERGENCY_BOOST_ACTIVE	408	BOOL	Yes	
3840	RECIP_ENGINE1_EMERGENCY_BOOST_ELAPSED_TIME	409	FLOAT64	Yes	
3848	RECIP_ENGINE1_WASTEGATE_POS	410	FLOAT64	Yes	
3850	RECIP_ENGINE1_TIT_DEGR	414	FLOAT64	Yes	
3858	RECIP_ENGINE1_CHT_DEGR	415	FLOAT64	Yes	
3860	RECIP_ENGINE1_RADIATOR_DEGR	417	FLOAT64	Yes	
3868	RECIP_ENGINE1_FUEL_PRESSURE_PSF	425	FLOAT64	No	
3870	ENGINE_PRIMER	361	FLOAT64	Yes	
3880	RECIP_ENGINE1_TANK_SELECTOR	422	ENUM	Yes	
3884	RECIP_ENGINE1_TANKS_USED	423	FLAGS	Yes	
3888	RECIP_ENGINE1_NUMBER_OF_TANKS_USED	424	UINT32	Yes	
388C	RECIP_ENGINE1_FUELFLOW_PPH	421	FLOAT64	Yes	
3894	RECIP_ENGINE1_FUEL_AVAILABLE	420	BOOL	Yes	
38A0	GENERAL_ENGINE4_FAILURE	594	BOOL	Yes	
38A4	RECIP_ENGINE4_COMBUSTION	523	BOOL	Yes	
38A8	RECIP_ENGINE4_THROTTLE_LEVER_POS	509	FLOAT64	Yes	
38A8	GENERAL_ENGINE4_THROTTLE_LEVER_POS	588	FLOAT64	Yes	
38B8	RECIP_ENGINE4_PROP_LEVER_POS	511	FLOAT64	Yes	
38B8	GENERAL_ENGINE4_PROPELLER_LEVER_POS	589	FLOAT64	Yes	
38C0	RECIP_ENGINE4_STARTER	518	BOOL	Yes	
38C0	GENERAL_ENGINE4_STARTER	593	FLOAT64	Yes	
3928	RECIP_ENGINE4_OIL_LEAK_PCT	536	FLOAT64	Yes	
393C	GENERAL_ENGINE4_GENERATOR_ACTIVE	596	BOOL	Yes	
3940	RECIP_ENGINE4_DAMAGE_PERCENT	545	FLOAT64	Yes	
3948	RECIP_ENGINE4_COMBUSTION_SOUND_PCT	543	FLOAT64	Yes	
3960	GENERAL_ENGINE3_FAILURE	584	BOOL	Yes	
3964	RECIP_ENGINE3_COMBUSTION	484	BOOL	Yes	
3968	RECIP_ENGINE3_THROTTLE_LEVER_POS	470	FLOAT64	Yes	
3968	GENERAL_ENGINE3_THROTTLE_LEVER_POS	578	FLOAT64	Yes	
3978	RECIP_ENGINE3_PROP_LEVER_POS	472	FLOAT64	Yes	
3978	GENERAL_ENGINE3_PROPELLER_LEVER_POS	579	FLOAT64	Yes	
3980	RECIP_ENGINE3_STARTER	479	BOOL	Yes	
3980	GENERAL_ENGINE3_STARTER	583	FLOAT64	Yes	
39E8	RECIP_ENGINE3_OIL_LEAK_PCT	497	FLOAT64	Yes	
39FC	GENERAL_ENGINE3_GENERATOR_ACTIVE	586	BOOL	Yes	
3A00	RECIP_ENGINE3_DAMAGE_PERCENT	506	FLOAT64	Yes	
3A08	RECIP_ENGINE3_COMBUSTION_SOUND_PCT	504	FLOAT64	Yes	
3A20	GENERAL_ENGINE2_FAILURE	574	BOOL	Yes	
3A24	RECIP_ENGINE2_COMBUSTION	445	BOOL	Yes	
3A28	RECIP_ENGINE2_THROTTLE_LEVER_POS	431	FLOAT64	Yes	
3A28	GENERAL_ENGINE2_THROTTLE_LEVER_POS	568	FLOAT64	Yes	
3A38	RECIP_ENGINE2_PROP_LEVER_POS	433	FLOAT64	Yes	
3A38	GENERAL_ENGINE2_PROPELLER_LEVER_POS	569	FLOAT64	Yes	
3A40	RECIP_ENGINE2_STARTER	440	BOOL	Yes	
3A40	GENERAL_ENGINE2_STARTER	573	FLOAT64	Yes	
3AA8	RECIP_ENGINE2_OIL_LEAK_PCT	458	FLOAT64	Yes	
3ABC	GENERAL_ENGINE2_GENERATOR_ACTIVE	576	BOOL	Yes	
3AC0	RECIP_ENGINE2_DAMAGE_PERCENT	467	FLOAT64	Yes	

3AC8	RECIP_ENGINE2_COMBUSTION_SOUND_PCT	465	FLOAT64	Yes	
3AE0	GENERAL_ENGINE1_FAILURE	564	BOOL	Yes	
3AE4	RECIP_ENGINE1_COMBUSTION	406	BOOL	Yes	
3AE8	RECIP_ENGINE1_THROTTLE_LEVER_POS	392	FLOAT64	Yes	
3AE8	GENERAL_ENGINE1_THROTTLE_LEVER_POS	558	FLOAT64	Yes	
3AF8	RECIP_ENGINE1_PROP_LEVER_POS	394	FLOAT64	Yes	
3AF8	GENERAL_ENGINE1_PROPELLER_LEVER_POS	559	FLOAT64	Yes	
3B00	RECIP_ENGINE1_STARTER	401	BOOL	Yes	
3B00	GENERAL_ENGINE1_STARTER	563	FLOAT64	Yes	
3B68	RECIP_ENGINE1_OIL_LEAK_PCT	419	FLOAT64	Yes	
3B7C	GENERAL_ENGINE1_GENERATOR_ACTIVE	566	BOOL	Yes	
3B80	RECIP_ENGINE1_DAMAGE_PERCENT	428	FLOAT64	Yes	
3B88	RECIP_ENGINE1_COMBUSTION_SOUND_PCT	426	FLOAT64	Yes	
3B98	FUEL_PUMP	367	FLOAT64	Yes	