Argo program IDG SOLO Engineering Table **SOLO V0.4** **Last updated December 18th, 2013 Adapted from SBE524 Rev 1.3** **John Gilson**	
	Standard dive "F" message
Char	**Contents**
1	ID: engineering message identifier 'F'
2	BST 4-bit status of miscellaneous operations
3-6	P1: Pressure counts at the end of drift
7-10	T1: Temperature counts at same time as P1
11-14	S1: Salinity counts at same time as P1
15-26	LSB of P,T,S data + 2 and +4 seconds taken after P1
27-28	Vcpu: CPU battery voltage counts on surface at start of Xmit after data processed (LSB=0.1 V) ARGO TECHNICAL NAME: VOLTAGE_BatteryCPUStartXmit_volts
29-30	Vpmp: Pump Battery voltage on last reading before surface (LSB=0.1volts) ARGO TECHNICAL NAME: VOLTAGE_BatterySurfaceNoLoad_volts
31-34	Savg1: Average salinity counts over first half of drift – Trajectory Information
35-36	DS : signed 8 LSB of Savg2 -Savg1 – Trajectory Information
37-38	num_bad: Number of bins in the profile with invalid data. ARGO_TECHNICAL_NAME: NUMBER_BinsWithBadData_COUNT
39-41	ATE: Air pressure inside float at the end of the previous cycles surface interval.
42-44	ATS: Air pressure inside float at the start of the current cycles surface interval.
45-47	PFS: Pressure counts at start of the SOLO fall time ARGO TECHNICAL NAME: PRES_SurfaceOffsetAfterReset_5cBarResolution_dbar
48-50	PFE: Pressure counts at the end of the SOLO fall time
51-53	PRE: Pressure counts at the end of the SOLO rise time.
54-56	TSK *2: seconds that piston ran during first settling (SEEK) cycle. ARGO TECHNICAL NAME: TIME_PistonRanDuringFirstSeek_seconds
57-59	PSK: (signed) dbar change in 1st settling cycle (SEEK) ARGO TECHNICAL NAME: PRESSURE_ChangeInFirstSeek_dbar
60-62	TIP *2 : seconds to run piston UP to get to SEEK depth. ARGO TECHNICAL NAME:TIME_PistonRanDuring DescentFrom100db_seconds
	Other Technical information found in other SOLO messages

Msg/Char	Contents
0 / 2-4	Pavg1: Average pressure counts over first half of drift – Trajectory Information
0 / 5-6	Tavg2: 8 LSB of Average temperature over second half of drift – Trajectory Information
1 / 2-4	Tavg1: Average temperature counts over first half of drift – Trajectory Information
1 / 5-6	Pavg2: 8 LSB of average pressure over second half of drift – Trajectory Information
2 / 2-4	SPRX Average surface pressure at the surface from last cycle ARGO TECHNICAL NAME: PRES_SurfaceOffsetBeforeReset_dbar or PRES_SurfaceOffsetBeforeRest_5cbarResolution_dbar
3 / 2	Err: 4-bit error code. signifying a spurious interrupt, stack overflow or spurious reset.
3 / 3-4	Imin: Minimum depth bin with valid data according to the float In TS09: If the first bin is filled, Imin=1; ARGO TECHNICAL NAME: NUMBER_MinimumDepthBinWithValidData_COUNT
3 / 5-6	Bmax: Maximum depth bin with valid data according to the float In TS09: The number of good bins are stored in Bmax: Thus Bmax=Bmax+(Imin-1) ARGO TECHNICAL NAME: NUMBER_MaximumDepthBinWithValidData_COUNT

IDG Manual Errors which this document attempts to fix.

The IDG manual SBE524 states P1,T1, and S1 are taken at the start of ascent. This is incorrect. They are taken at end of Park (this was later fixed in firmware SBE601 04May04).

The IDG manual SBE524 does not indicate that in the determination of T1, S1, T2, S2, T3, and S3, the counts must be divided by 4 before converting to the standard units.

	Argo program measurement codes (MC) **SOLO floats return the following Measurements and no other. However, enough spots**

Code (timing)	SOLO I Variable	Description	Units
in the Measurements array must be reserved for possible DMQC modification.		
0	Cy 0	Deployment (Metafile)	Time,position
150	Cy>0: Eng "F"	PFE: Pressure taken at end of SOLO fall time (Eng "F", bytes 48-50)	P(0.5db)
296	Cy>0: Msg 0,1	Drift broken into two averaged halves. Stored in Msg 0,1 Bytes 2-6; Time is fill value.	$P(0.5db), T(0.001°C), S(0.001psu)$
300	Cy>0: Eng "F"	P,T,S triplet taken at end of drift (Eng "F", bytes 3-14)	$P(0.5db); P(0.04db), T(0.001°C), S(0.001psu)$
600	Cy>0: Eng "F"	PRE: Pressure taken at end of SOLO rise time (Eng "F", bytes 51-53)	P(0.5db)
702, 704	ARGOS messages	Time of first/last ARGOS messages received	
703	ARGOS positions	ARGOS positions received	

SOLO floats return the previous Measurements and no other.
Enough spots in the Measurements array must be reserved for DMQC modification.

For Cycle 0:
100(fillvalue),200(fillvalue),500(fillvalue),600(fillvalue),700(fillvalue),800(fillvalue)

For Cycle>0:
100(fillvalue),200(fillvalue),150(fillvalue),250(fillvalue),296,296,300(fillvalue),400(fillvalue),
500(fillvalue),600(fillvalue),700(fillvalue),800(fillvalue)