VERB - NOUNS R. LARSON

Massachusetts Institute of Technology
Instrumentation Laboratory
Cambridge, Massachusetts

204 Memo #12-65

From: T. J. Lawton
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Subject: Verbs and Nouns for Flight AS 204

The attached list of verbs and nouns appears to satisfy the known requirements of the flight. It will, accordingly, be incorporated into R-507. Please contact me at once if you have any complaints or suggestions.

NOTE: An asterisk indicates that the item in question is for non-flight usage.

Verbs

01	Display Octal Component 1 (R1)
02	Display Octal Component 2 (R1)
03	Display Octal Component 3 (R1)
04	Display Octal Component 1, 2 (R1, R2)
05	Display Octal Component 1, 2, 3 (R1, R2, R3)
06	Decimal Display
07	DP Decimal Display (R1, R2)
10*	Request Waitlist
11	Monitor Octal Component 1 (R1)
12	Monitor Octal Component 2 (R1)
13	Monitor Octal Component 3 (R1)
14	Monitor Octal Component 1, 2 (R1, R2)
15	Monitor Octal Component 1, 2, 3 (R1, R2, R3)
16	Monitor Decimal
17	Monitor DP Decimal (R1, R2)
20*	Request Executive
21	Load Component 1 (R1)
22	Load Component 2 (R2)
23	Load Component 3 (R3)
24	Load Component 1, 2 (R1, R2)
25	Load Component 1, 2, 3 (R1, R2, R3)
26	
27	
30	
31	Bank Display (Fixed Memory)
32	
33	Proceed without Data
34	Terminate
35	
36	Fresh Start
37	Change Program (Major Mode)

Verbs

40	Zero (used with noun ICDU or CCDU)
41	Coarse Align (used with noun ICDU or OCDU)
42	Fine Align IMU
43	Lock IMU
44	Set IMU to Attitude Control
45	Set IMU to Entry Control
46	Return IMU to Coarse Align
47	
50	Please Perform
51	Please Mark
52	Mark Reject (in lieu of Button)
53	Free (used with noun ICDU or OCDU)
54	Pulse Torque Gyros
55	Align Time
56	Perform Banksum
57*	Do System Test
60	Prepare for Standby
61	Recover from Standby
62	
63	
64	Calculate orbital Parameters
65	Calculate Time of Arrival at Longitude
66	Calculate Lat. and Long. at Specified Time
67	Calculate Max. Declination and Time of Arrival There
70	
71	
72	
73	Return-to-earth Aim Point Update
74	Orbit Change Aim Point Update
75	Manual [illegible]O for Flights
76	R, V, T Update (state vector)
~~77~~	~~Abort~~

Nouns

Number	Description		Scale	Units
01	Specify machine address		.XXXXX	undetermined
02	Specify machine address		XXXXX.	undetermined
03				
04				
05	Angular error		XXX.XX	degrees
06	Pitch angle		XXX.XX	degrees
	Heads up/down		+00001	none
07	Change of program (major mode) - used with Please Perform only			
10				
11	Engine on enable - used with Please Perform only			
12	ΔV allowable		XXXXX.	ft/sec
	ΔV tail-off		XXXXX.	ft/sec
13	ΔV measured (vector magnitude)		XXXXX.	ft/sec
14	ΔV counter setting		XXXXX.	ft/sec
15*	Increment machine address			(octal only)
16	AGC clock time:		00XXX. 000XX 0XX.XX	hours minutes seconds
17				
20	ICDUS	X	XXX.XX	degrees
		Y	XXX.XX	degrees
		Z	XXX.XX	degrees
21	PIPA counters	X	XXXXX.	pulses
		Y	XXXXX.	pulses
		Z	XXXXX.	pulses
22	New Angles I	X	XXX.XX	degrees
		Y	XXX.XX	degrees
		Z	XXX.XX	degrees
23	Delta Angles I	X	XXX.XX	degrees
		Y	XXX.XX	degrees
		Z	XXX.XX	degrees
24	Delta time for AGC clock		00XXX	hours
			000XX	minutes
			0XX.XX	seconds

Nouns

Number	Description	Scale	Units
25	Checklist-used with Please Perform Only	XXXXX.	
26*	Prio/Delay	XXXXX.	
27	Self-test ON/OFF switch	XXXXX.	
30	Star number	XXXXX.	
31	Failure register code	(octal only)	
	Self-test diagnostic information	(octal only)	
	Self-test diagnostic information	(octal only)	
32*	Decision time		
33*	Ephemeris time		
34	Event time	00XXX	hours
		000XX	minutes
		0XX. XX	seconds
35	Delta-event time	00XXX	hours
		000XX	minutes
		0XX. XX	seconds
36	Delta-event time (display only)	XX ΔXX	mins. Δsecs.
		(Δ = Blank)	
37			
40	Gamma (γ) - inertial flight path angle	XXX. XX	degrees
	Inertial velocity (VI)	XXXXX.	ft/sec.
	Altitude above launch pad (h_{pad})	XXXX. X	n. m.
41	Maximum acceleration (G_{max})	XXXX. X	G's
	Perigee altitude (h_p)	XXXX X	n. m.
	Free-fall time (t_{ff})	XX ΔXX	min, sec.
42	Miss Distance (ΔR)	XXXX. X	n. m.
	Perigee altitude (h_p)	XXXX. X	n. m.
	Free-fall time (t_{ff})	XX ΔXX	min, sec.
43	Perigee altitude (h_p)	XXXX. X	n. m.
	Apogee altitude (h_a)	XXXX. X	n. m.
	Free-fall time (t_{ff})	XX ΔXX	min, sec.

Nouns

Number	Description	Scale	Units
44	Latitude	XXX. XX	degrees
	Longitude	XXX. XX	degrees
	Altitude (above spherical earth)	XXXX. X	n. m.
45	Perigee altitude (h_p)	XXXX. X	n. m.
	Apogee altitude (h_a)	XXXX. X	n. m.
	Delta-velocity-required (ΔV_{req})	XXXXX.	ft/sec
46	Time-to-event	XX ΔXX	min, sec.
	Velocity-to-be-gained (V_g)	XXXXX.	ft/sec.
	Perigee altitude (h_p)	XXXX. X	n. m.
47	Flight path angle (γ)	XXX. XX	degrees
	Miss distance (ΔR)	XXXX. X	n. m.
50	Time-to-event	XX ΔXX	min, sec.
	Delta-T-burn	XX ΔXX	min, sec.
51	Time-to-event	XX ΔXX	min, sec.
	Velocity-to-be-gained (V_g)	XXXXX	ft/sec.
	Measured velocity change along X_{SC}	XXXXX	ft/sec.
52	Time-to-event	XX ΔXX	min, secs.
	Velocity-to-be-gained (V_g)	XXXXX	ft/sec.
	Free-fall-time (t_{ff})	XX ΔXX	min, secs.
53	Maximum acceleration (G_{max})	XXXX. X	G's
	Free-fall-time (t_{ff})	XX ΔXX	min, sec.
54	Commanded roll angle (β)	XXX. XX	degrees
	Present acceleration (G)	XXXX. X	G's
55	OCDU X (SDA)	XXX. XX	degrees
	Y(PDA)	XX. XXX	degrees

Nouns

Number	Description		Scale	Units
56	Uncalled mark data	X (SDA)	XXX. XX	degrees
		Y (PDA)	XX. XXX	degrees
57	New Angles OCDU	X (SDA)	XXX. XX	degrees
		Y (PDA)	XX. XXX	degrees
60*	IMU mode status	IN3	(octal only)	
		WASKSET		
		OLDERR		
61*	Target Azimuth		XXX. XX	degrees
	Elevation		XX. XXX	degrees
62	Delta-velocity-insert (ΔV_{ins})		XXXXX.	ft/sec
	Miss distance (ΔR)		XXXX. X	n. m.
	Free-fall-time (t_{ff})		XX Δ XX	min, secs.
63	Lat (landmark load)		XX.XXX	degrees
64	Long/2		XX.XXX	degrees
	ALT		XXX.XX	n. m.
65	Sampled time (fetched in interrupt)		00XXX	hours
			000XX	minutes
			0XX. XX	seconds
66*	System test results			
67*	Delta gyro angles	X	XX. XXX	degrees
		Y	XX. XXX	degrees
		Z	XX. XXX	degrees
70	Pitch trim		XXX. XX	degrees
	Yaw trim		XXX. XX	degrees
	Delta-velocity-tail-off		XXX. XX	degrees

Nouns

Number	Description	Scale	Units
71			
72*	Delta position		
73*	Delta velocity		
74			
75	Delta position magnitude	XXXX.X	n.m.
	Delta velocity magnitude	XXXXX.	ft/sec
	Measurement angle Deviation	XXX.XX	degrees
76*	R		
77*	V		

Checklist Codes	Appear in R1 with Noun 25
00001	SCS Mode to G&N Attitude Control
00002	SCS Mode to G&N Delta-V
00003	SCS Mode to G&N Entry
00004	SCS Mode to [redacted] Monitor
00007	Manual Attitude Maneuver
00011	Automatic Optics Positioning
00012	Target Data Entry
00013	Switch OSS to Computer Control
00014	Fine Align Check
00015	Perform Star Acquisition
00031	Engine On
00035	Prepare AGC for Thrust
00036	Thrust Terminate
00041	CM/SM Sep