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Massachusetts Institute of Technology  
C. S. Draper Laboratory  
Cambridge, Massachusetts

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GEORGE SILVER

COLOSSUS Memo #191 LUMINARY Memo #90, Revision 1

To: Distribution  
From: Jenny Flaherty  
Date: 11 June 1970  
Subject: Memo Indexes

Attached are copies of the COLOSSUS and LUMINARY memo indexes  
as of 11 June 1970.

APOLLO SOFTWARE MEMOSSERIES: COLOSSUS

Memo #	Date	Author	Subject
X 1	11/7	J. Rhode	Nothing's Here to Stay - Not Even KKK
X 2	11/15	S. Copps	Tiger Team
3	11/20	F. Martin	TLI Design & Review Committee
4	11/22	S. Copps	Chapter 4 COLOSSUS GSOP
X 5	11/27	J. Saponaro	Synchronization of W-Matrix & State Vector
6	11/30	D. Estabrook	Alarm & Abort Codes in SUNDISK
7	11/30	A. Kosmala	Preliminary COLOSSUS Level 4 Test Plan
8	12/4	F. Martin	GSOP Review
9	12/5	S. Copps	Expected NASA Initiated PCR
10	12/8	F. Martin	SUNDISK & COLOSSUS Chapter 3 and Autopilot Priorities
11	12/14	F. Martin	TLI And Mass-Inertia Update
12	12/20	F. Martin	Chapter 4 and 5 of COLOSSUS GSOP
13	12/15	S. Copps	Chapter 4 COLOSSUS GSOP
14	1/8	M. Hamilton	COLOSSUS Revisions 136, 137 and 138
15	1/8	F. Martin	Translunar Injection Program P15
16	1/14	M. Hamilton	COLOSSUS Revisions 139, 140 and 141
X 17	1/17	R. Bairnsfather	Conic Time of Flight Calculation
18	1/17	F. Martin	COLOSSUS Internal Change Procedures
19	1/22	M. Hamilton	COLOSSUS Revisions 142, 143 and 144
20	1/22	C. Braunhardt	Test Plans
X 21	1/24	J. Vella	Recent Changes to PINBALL Affecting DSKY Operation
22	NOT PUBLISHED		
X 23	1/29	F. Martin	Detailed Description of the SUNDISK/COLOSSUS Delta-V Monitor
24	1/29	M. Hamilton	COLOSSUS Revisions 145, 146, 147 and 148

APOLLO SOFTWARE MEMOSSERIES: COLOSSUS

Memo #	Date	Author	Subject
25	2/6	M. Hamilton	COLOSSUS Rev. 149, 150, 151 and 152
X 26	2/6	A. Martorano	Minutes of PCR Meeting 2 February 1968
27	2/12	M. Hamilton	Revisions 153, 154, 155, 156 and 157
X 28	2/14	S. Davis	Hybrid Facility Procedures
29	2/14	M. Hamilton, A. Kosmala	Milestones for Level 4 Testing
30	2/14	A. Kosmala	COLOSSUS Level 4 Documentation
31	2/16	F. Martin	COLOSSUS Internal Change Procedures
32	2/19	M. Hamilton	COLOSSUS Rev. 158, 159, 160, 161, 162 & 163
33	2/20	J. Saponaro	Lunar Landmark Tables for Use in COLOSSUS Testing
34	2/26	B. Tinkham	COLOSSUS Downlists
35	2/26	M. Hamilton	COLOSSUS Revs. 164, 165, 166, 167 and 168
36	2/27	M. Hamilton	COLOSSUS Priority Displays
37	3/4	M. Hamilton	COLOSSUS Revisions 169, 170, 171 and 172
X 38	3/4	A. Kosmala	Key Release Light
X 39	3/8	N. Neville	SETUP504
40	3/11	M. Hamilton	COLOSSUS Rev. 173, 174, 175, 176 and 177
41	3/14	A. Kosmala	ABORT
42	3/15	J. Saponaro	AGC Time Dependent Constants
43	3/18	M. Hamilton	COLOSSUS Revs. 178, 179, 180, 181 and 182
44	3/20	F. Martin	COLOSSUS Verification Plan-Preliminary
45	3/26	M. Hamilton	COLOSSUS Revs. 183, 184 and 185
46	3/26	C. Braunhardt	Status Report-COLOSSUS Level 3 Verification Plan
47	3/28	M. Hamilton	COLOSSUS Level 4 Assignments
48	4/5	C. Braunhardt	Addenda COLOSSUS Level 3 Verification Plan

APOLLO SOFTWARE MEMOSSERIES: COLOSSUS

Memo #	Date	Author	Subject
49	4/3	M. Hamilton	COLOSSUS Revisions 186, 187 and 188
50	4/9	M. Hamilton	COLOSSUS Revisions 189, 190 and 191
51	4/17	M. Hamilton	COLOSSUS Revisions 192, 193 and 194
X 52	4/24	C. Braunhardt	Standards for Verification Plans
53	4/23	M. Hamilton	COLOSSUS Revision 196
54	4/25	F. Martin	Section 4 (Rev. 1) of the COLOSSUS GSOP
X 55	4/25	H. Walsh	Downlink Edit Notes
56	5/2	M. Hamilton	COLOSSUS Revs. 197, 198, 199 and 200
57	5/6	M. Hamilton	COLOSSUS Revisions 201 and 202
X 58	5/13	D. Eyles	RTB
59	5/13	J. Saponaro	Problems at the Lunar Sphere of Influence
60	5/14	M. Hamilton	COLOSSUS Revs. 203, 204 and 205
61	5/22	M. Hamilton	COLOSSUS Revs. 206, 207 and 208
62	5/31	M. Hamilton	COLOSSUS Revs. 209 and 210
63	6/6	M. Hamilton	COLOSSUS Revs. 211 and 212
64	6/14	M. Hamilton	COLOSSUS Revs. 213 and 214
65	6/18	S. David	Revision of COLOSSUS Digital Environment
66	6/12	F. Martin	A Multiplier Effect While Using TLOSS During Simulations
67	6/21	M. Hamilton	COLOSSUS Revisions 215 and 216
68	6/26	M. Hamilton	COLOSSUS Revision 217
69	7/8	M. Hamilton	COLOSSUS Revisions 218 and 219
70	7/10	M. Hamilton	COLOSSUS Revision 220
71	7/11	F. Martin	Coasting in Average-G
72	7/17	M. Hamilton	COLOSSUS Revision 221
73	7/22	F. Martin	Behavior of the Tracker & Uplink ACTY Lights During Rendezvous

APOLLO SOFTWARE MEMOSSERIES: COLOSSUS

Memo #	Date	Author	Subject
74	7/29	P. Rye	COLOSSUS Revisions 223 and 224
75	8/2	P. Rye	COLOSSUS Revs. 225, 226 and 227
76	8/6	P. Rye	COLOSSUS Revs. 228, 229 and 230
77	8/6	P. Rye	COLOSSUS Program Notes at Time of FACI (8/8/68)
78	8/13	P. Rye	COLOSSUS Revisions 231 and 232
79	8/13	F. Martin	Pre-FACI Action Items
80	8/20	F. Martin	COLOSSUS Release
81	8/19	P. Rye	COLOSSUS Revisions 233 through 236, COL 236 Revisions 1 and 2
82	8/28	M. Hamilton	COLOSSUS Level 5 Hybrid Testing
83	8/29	M. Hamilton	COLOSSUS Digital Level 5 Testing
84	8/26	T. Crocker	Lunar Landmark Tables
85	9/6	F. Martin	Sketch of COLOSSUS I Level 5 Plan
86	9/11	M. Hamilton	COLOSSUS Digital Level 5 Assignments
87	9/12	W. Ostanek	Relative Coasting Integration Error Variance
88	9/13	F. Martin	Priorities for COLOSSUS 1 Level 5 Mission Performance Testing Plan
89	9/24	M. Hamilton	COLOSSUS Assemblies
90	9/25	N. Brodeur	COLOSSUS Revision 238
91	9/26	N. Brodeur	Known Anomalies in Revision 237
92	10/1	N. Brodeur	COLOSSUS Revision 239
93	10/2	M. Hamilton	New Names for COLOSSUS Assemblies
94	10/3	M. Hamilton	COLOSSUS Revision 237*
95	10/10	N. Brodeur	COLOSSUS Revision 240
96	10/11	F. Martin	COL I Level 5/6* Test Plan
97	10/15	N. Brodeur	COLOSSUS Revisions 241 and 242
98	10/23	N. Brodeur	COLOSSUS Revision 243 and 244

APOLLO SOFTWARE MEMOSSERIES: COLOSSUS

Memo #	Date	Author	Subject
99	10/22	P. Rye	Revisions 1 - 5 of COMANCHE
100	10/30	N. Brodeur	COLOSSUS Revisions 245 - 249
101	11/5	G. Edmonds	System Test Group Tests of COLOSSUS I
102	11/15	P. Rye	Revisions 6, 7 and 8 of COMANCHE
103	11/18	F. Martin	COLOSSUS 1A
104	11/18	F. Martin	GSOP Changes for COLOSSUS 1A (Rev. 249)
105	11/20	M. Hamilton	Changes Made to COLOSSUS (Rev. 237 to 249) or How We Created COL. 1A
106	11/25	M. Hamilton	COMANCHE & COLOSSUS 1B Assemblies
107	11/25	M. Hamilton	Meeting Held on COMANCHE & COLOSSUS 1B Changes
108	11/25	M. Hamilton	Noun Limits in COLOSSUS
109	11/21	M. Hamilton	P23 Operation Information
110	11/22	I. Johnson, G. Levine	Mission C Prime Rules for Maintaining W-Matrix Validity
111	11/26	M. Hamilton	Illegal Program Sequences in COLOSSUS
112	11/27	F. Martin	Verb 67 Operation Information
113	12/3	M. Hamilton	Meeting Held on COMANCHE & COLOSSUS 1B
114	12/3	P. Rye, N. Brodeur	Fresh Start Initialization
115	12/4	F. Martin	Avoid Difficulties in Vicinity of the Lunar Sphere of Influence (COL Rev. 237, 249)
116	12/5	P. Rye	COMANCHE Rev. 9 and 10
117	12/10	T. Brand	Suggested Targeting Using P37, P21 and P61 to Secure a 1350NM Entry for Mission C
118	12/6	G. Levine	COLOSSUS Guidance Equation Singularities
119	12/9	P. Rye	COMANCHE Revisions 11 and 12
120	12/9	N. Brodeur	Rev. 237 References to SQRT, ARCSIN, ARCCOS, ASIN, ACOS
121	12/10	T. Brand	P37 Restrictions Resulting from COL Anomaly #53

APOLLO SOFTWARE MEMOSSERIES: COLOSSUS

Memo #	Date	Author	Subject
122	12/11	M. Hamilton	COMANCHE Level 4 Testing Assignments for CDH-CSI Sequences
123	12/11	M. Hamilton	V83 Operational Information for Rev. 237
124	12/11	F. Martin	Return to Earth Operational Information
125	12/13	F. Martin	P22 Operation Information for Rev. 237
126	12/13	F. Martin	P52, P54 Operation Information
127	12/16	W. Ostanek	Preliminary COLOSSUS 2 Level 4 Test Plan for CSI-CDH
128	12/18	P. Rye	COMANCHE Revs. 13 - 17
129	12/19	M. Hamilton	Operational Information on V99 and V97
130	12/23	P. Rye	Revs. 18 and 19 of COMANCHE
131	1/3	P. Rye	Revs. 20, 21 and 22 of COMANCHE
132	12/31	M. Hamilton	COLOSSUS II (COMANCHE) Testing
133	1/8	N. Brodeur	Known Anomalies in Rev. 249
134	1/9	F. Martin	COLOSSUS 1A, Level 6 Plan
135	1/10	W. Ostanek	Notes on State Vector/W-Matrix Synchronization in COLOSSUS 1A
136	1/13	N. Brodeur	Rev. 250 - 252 of COL 1B
137	1/13	A. Engel	COL Rev. 249 Level 6 Powered Flight Tests
138	1/13	P. Rye	Revs. 23 - 27 of COMANCHE
139	1/15	M. Hamilton	Discussion of Anomaly COL 69
140	1/16	F. Martin	Content of COLOSSUS 2
141	1/15	P. Rye	Revs. 28, 29 & 30 of COMANCHE
142	1/15	J. Vittek	Mission Action Items for the D Mission
143	1/20	J. Turnbull	RCS DAP Orbital Rate
144	1/22	M. Hamilton	Operational Information on P40 for Rev. 249
145	1/21	P. Rye	Revs. 31 - 33 of COMANCHE

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Memo #	Date	Author	Subject
146	1/27	P. Rye	Revs. 34 - 36 of COMANCHE
147	2/3	P. Rye	Revs. 37 - 39 of COMANCHE
148	1/30	J. Turnbull	Orbital Rate (+ Passive Thermal Control Oper. Information for COLOSSUS 1A(Rev. 24
149	2/5	D. Densmore	As of COMANCHE Rev. 38
150	1/69	N. Brodeur	Revs. 253, 254, 255, 256 & 257
151	2/7	F. Martin	V35 DSKK Light Test Oper. Information
152	2/7	P. Rye	Revs. 40 and 41 of COMANCHE
153	2/7	S. Copps	CSM Monitoring of the Docked DPS Burn
X 154	2/18	S. Copps	Program Notes Review with D Crew
155	2/20	S. Copps	So Called Average G White Paper, Mission Action Item 8
156	2/20	T. Crocker	P21 Edit for COMANCHE 39
157	2/21	R. Schlundt	COLOSSUS 2 Uprated TVC DAP Test Plan
158	3/3	M. Hamilton	Reduction of Coding in COL Attached COL Note #12
159	3/3	P. Rye	Revisions 42 - 45 of COMANCHE
160	3/5	P. Rye	Revisions 46 and 47 of COMANCHE
161	3/7	P. Rye	Revision 48 of COMANCHE
162	3/13	P. Rye	Revision 49 of COMANCHE
X 163	3/13	J. Saponaro	Accuracy of Verb 83 (Range, Rate Rate, Theta Display)
164	3/17	F. Martin	Final Content of COLOSSUS 2A COMANCHE Rev. 51
165	3/20	F. Martin	COLOSSUS 2 and 2A Level 4 Test Summary
166	3/20	P. Rye	Revisions 50 and 51 of COMANCHE
X 167	4/8	W. Ostanek	Use of V96 During State Vector/W Matrix Synchronization



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Memo #	Date	Author	Subject
168	3/31	I. Johnson	COMANCHE 45 Rendezvous Performance Equals COLOSSUS 249 Rendezvous Perform.
169	4/3	J. Stoppelman	Padloads for Testing Mission F & G
170	4/4	S. Zeldin	MIT Review of Boeing-Houston (MSC) Information Package on CMC Boost Takeover
X 171	4/15	J. Goode	Computation Cycle Timing in TPI, TPM Programs
172	5/6	A. Engel, C. Beals J. Stoppelman	COLOSSUS 2 Level 6 Performance Comparisons
173	4/25	J. Turnbull	Details of How PTC & Orb Rate Procedures Work-Applicable to COLOSSUS 1, 1A, 2 & 2A
174	4/25	G. Levine	Transearch MSFN State Vector Updates
175	4/23	B. Ostanek	Notes on State Vector/W Matrix Synchronization in COLOSSUS 2, 2A
176	5/2	B. Ostanek	Crossing the Sphere in COLOSSUS 2
177	5/6	A. Engel, C. Beals	Comparisons of COLOSSUS 2 Level 6 Power Flight Runs With/Without Boeing R2 to Lunar Potential Model
178	5/7	B. Bairnsfather	Disagreement Between AGC & MAC For Routine 30 in Nearly Circular Orbits
179	5/8	S. Capps	COLOSSUS 2D and Subsequent Releases
180	5/9	S. Capps	Technique for Loading Landing Site on Board
181	5/19	R. Schlundt	CMC Sample Rate During Boost Takeover-Asimulation with 10% TLOSS
182	5/21	B. Ostanek	Notes on the Lunar Surface Flag (SURFFLA) in COLOSSUS 2A
X 183	5/21	E. Muller, P.	Affect of Radar (or the HF Ranging) AGC Interface Problem on F Mission Rendezvous Performance
184	5/23	P. Rye	COMANCHE Revisions 52 - 55, Rerelease of COMANCHE Rev. 45 as MANCHE 45
185	5/28	J. Stoppelman	Standardization of the Mission G Level 6 EFFORT For the CSM

APOLLO SOFTWARE MEMOSSERIES: COLOSSUS

Memo #	Date	Author	Subject
186	6/2	N. Brodeur	Optical Marking During P00 or P23
187	6/6	D. Densmore	Revisions 56 through 58 of COMANCHE
188	6/13	S. Copps	SCB Meeting #31 Held on 5 June 1969
189	6/23	C. Beals	New S40.13 (Short Burn Logic) for COLOSSUS III
190	6/23	D. Densmore	Revision 59 and 60 of COMANCHE
X 191	6/30	J. Flaherty	Memo Indexes
192	6/26	P. Rye	Revisions 61 and 62 of COMANCHE
193	7/1	T. Brand	P37 Ignition Time Bias
194	7/9	P. Rye	Use of V83 and V85 (R31, R34) at Altitudes 425 N. M.
195	7/16	P. Rye	Revisions 63-67 of COMANCHE
196	7/16	S. Copps	Final Content of COLOSSUS 2B
197	7/17	S. Copps	Final Content in Testing of COLOSSUS 2C
X 198	7/22	M. Hamilton	Review of Reduction of Coding Approval Procedures
199	7/22	N. Brodeur	Introduction to COLOSSUS 2C
200	7/14	J. Turnbull, W. Widnall	Apollo 10 PTC
201	7/29	A. Engel	COLOSSUS 2C (COMANCHE Rev. 67) Padloa Relocations
202	7/28	R. Bairnsfather	Changes to Entry Monitor System Display in P61 Affecting Crew and Downlist
203	7/31	J. Turnbull	PCR815/V79/R64/PTC-ORBRATE Routine
204	8/6	S. Copps	Saturn DAP Meeting
205	8/7	N. Brodeur	Revision 1 of ARTEMIS
206	8/11	S. Copps	Optics Calibration for P23
207	8/12	A. Engel, B. Ostanek	COLOSSUS 2C Testing Summary

APOLLO SOFTWARE MEMOSSERIES: COLOSSUS

Memo #	Date	Author	Subject
208	8/13	K. Greene	Minutes of Technical Committee Meeting for COLOSSUS 2D and 3
X 209	8/14	A. Engel, B. McCoy	H Mission RTCC Compatibility Testing, Test Plan & Schedule (Preliminary)
X 210	8/14	" "	RTCC Compatibility Testing at MIT, Current Understanding of Scope, Responsibilities, etc.
211	8/21	S. Copps	Technical Committee Meeting of 8/29/69 Resulting from MSC Requirements Meeting of 8/19/69
212	8/27	S. Copps	New Requirement for Performing Zero Optics
X 213	9/10	W. Ostanek	Bad Other Vehicle State Vector
214	9/11	S. Copps	Progress Report on Rate Aided Optics
215	9/22	N. Brodeur	Rev. 2 of ARTEMIS (COLOSSUS 3)
216	9/24	S. Copps	Proposed Contents of COLOSSUS 2D
217	9/24	J. Turnbull	Performance of R64 4 Axis Option at a Rate .0507 with CDUX = 180 Degrees
X 218	10/2	S. David	Configuration Control of RTCC Digital Environment
219	10/3	S. Copps	PCR Priority Assignment
220	9/30	P. Rye	Revisions 68 & 69 of COMANCHE
221	10/1	O. W. Eliassen	CMC Backup Guidance for Saturn V
222	10/8	J. Stoppelman, N. Barnert & Covelli	T6JOB for COLOSSUS 2C
223	10/13	P. Rye	Revisions 70 & 71 of COMANCHE
224	10/20	N. Brodeur	Revision 72 of COMANCHE
225	10/22	E. Olsen	Noun 93 During Pulse Torquing
226	10/27	S. Copps	Final Content & Testing of COLOSSUS 2D
227	11/5	J. Goode, N. Brodeur, R. Kiburtz	Automatic Rendezvous Sequence

APOLLO SOFTWARE MEMOSSERIES: COLOSSUS

Memo #	Author	Date	Subject
228	A. Engel, B. Ostanek	11/10/69	Level 3 Tests Conducted on COLOSSUS 2D
229	J. Turnbull	11/12/69	Jet Failed on Detector
230	P. Rye	11/10/69	Revisions 73, 74 & 75 of COMANCHE
231	O. W. Eliassen	11/25/69	CMC Backup SATURN V (PCR 954)
232	D. Reinke	11/21/69	Work-Around for P32 Bomb-Outs
233	C. Beals	12/1/69	Revision of COLOSSUS Memo #189 (23 June 69) New S40.13 (Short Burn Logic for COLOSSUS 3)
234	R. S. Whittredge	12/8/69	Rate Aided Optics
235	P. Rye	12/15/69	Fixed Memory Consideration in COLOSSUS 2E
236	N. Barnert, S. Copps	12/16/69	CSM Automatic Rendezvous Task Description
237	P. Rye	12/15/69	Revisions 76-80 of COMANCHE
238	N. Brodeur	12/23/69	Re-release of COLOSSUS 2D (COMANCHE Rev. 72)
239	P. Rye	12/23/69	Revisions 81 - 83 of COMANCHE
240	K. Greene	1/8/70	Definitions & Usages of PCRs, PCNs, Anomalies & ACB
241	A. Engel, B. Ostanek	1/8/70	COLOSSUS 2D Level 6 Activity (Apollo 13, Mission H2)
242	S. Copps	2/3/70	COLOSSUS 3 Development
243	P. Rye	2/2/70	Revisions 84 - 89 of COMANCHE
244	P. Rye	2/10/70	The Contents of ARTEMIS Thru Revision 19
245	P. Rye, E. Grace	2/11/70	Erasable (Prelaunch) Performance Test Programs
246	Muller, Kachmar	2/10/70	Procedures for Avoidance of Apollo 12 Pre-CSI CSM Rendezvous Navigation Problem
247	" "	2/12/70	Apollo 12 Pre-CSI CSM Rendezvous Navigation
248	O. W. Eliassen, A. Engel	2/10/70	SATURN Backup Package (PCR 954)
249	O. W. Eliassen, A. Engel	2/13/70	COLOSSUS Level 4 Test Plan
250	S. Rosenberg	2/18/70	Contents of ARTEMIS from Revision 20 to Rev. 24
251	M. Hamilton, P. Rye	2/23/70	AAP Assembly //

APOLLO SOFTWARE MEMOSSERIES: COLOSSUS

Memo #	Author	Date	Subject
252	N. Brodeur, P. Rye	2/26/70	Revisions 90 - 96 of COMANCHE
253	M. Hamilton	2/27/70	Powered Flight POODOO's
254	A. Engel, C. Beals	2/20/70	SPS ENG ON Channel Outbit of State Failure
255	A. Engel, C. Beals V. Demery	2/26/70	Concerning Failure of the SPS ENG ON Channel Flipflop
256	A. Engel, C. Beals V. Demery	3/2/70	SPS ENG ON Channel Outbit "ON" - State Failure
257	A. Engel, P. Rye	3/10/70	LONGCALL Behavior with Negative $\Delta t$
258	N. Brodeur	3/10/70	Revisions 97 & 98 of COMANCHE
259	E. Hume, C. Beals	3/12/70	Apollo 13 DOI Level 6 Perturbation Analysis
260	N. Brodeur	3/10/70	Revisions 25 - 28 of ARTEMIS
261	J. F. Turnbull	3/12/70	Unusual Apollo 12 RCS Firing
262	O. S. Eliassen	3/13/70	Special Boost Glitch Testing on COLOSSUS 2D MANCHE 72 Revision 3
263	E. Hume, C. Beals	3/24/70	Simulation of DOI Perturbations for Apollo 13
264	P. Rye	3/26/70	Revisions 99-101 of COLOSSUS
265	N. Barnert	4/6/70	Universal Tracking
266	N. Brodeur	4/27/70	Revisions 102-104
267	P. Rye	4/28/70	Revisions 29-36 of ARTEMIS
268	N. Barnert, A. Engel	4/23/70	All Digital Pre-Level 4 Test Plan for SATURN & BACUP Package (PCR 954) (Preliminary)
269	N. Barnert, N. Smith	5/20/70	Results of a Universal Tracking (Pointing Option) Study
270	N. Smith	5/28/70	Universal Tracking-Astronaut DSKY Inputs
271	N. Brodeur	6/3/70	The Last of the COMANCHEs
272	N. Brodeur, P. Rye	6/3/70	Revisions 37-41 of ARTEMIS
273	S. Copps, K. Greene	6/3/70	Final Content & Testing of COLOSSUS 2E
274	S. Copps	6/10/70	ARTEMIS Discrepancy Reporting Procedure
275	S. Copps, K. Greene	6/10/70	COLOSSUS Plans

APOLLO SOFTWARE MEMOSSERIES: LUMINARY

Memo #	Date	Author	Subject
X 1	11/7	J. Rhode	Nothing's Here to Stay - Not Even KKK
X 2	11/15	S. Copps	Tiger Team
X 3	11/13	G. Cherry	Minutes of MSC LM Digital Autopilot Design Review
4	11/29	G. Cherry	LGC Computer Program Execution Time During Lunar Landing
X 5	11/27	J. Saponaro	Synchronization of W-Matrix and State Vector
6	1/12	G. Cherry	Summary of Information from Level III Testing Status Reports for LUMINARY Dev Plan, Week of 8 Jan. 1968
7	1/16	G. Cherry	LUMINARY GSOP Chapter 5 & Chapter 4 Review
X 8	1/24	J. Vella	Recent Changes to PINBALL Affecting DSK Operation
X 9	2/6	A. Martorano	Minutes of PRC Meeting 2 February 1968
X 10	2/9	G. Cherry	RCS Jet Firings During Gyro Torquing in P52 on SUNDANCE
X 11	2/12	J. S. Miller	Inhibition of DAP Operation in SUNDANCE and LUMINARY
X 12	2/13	S. Davis	Hybrid Facility Procedures
X 13	2/26	G. Cherry	Deadband Setting PCR #86
X 14	3/4	A. Kosmala	Key Release Light
X 15	3/8	N. Neville	SETUP504
X 16	3/14	A. Kosmala	ABORT
X 17	3/15	J. Saponaro	AGC Time Dependent Constants
18	3/	R. Tinkham	LUMINARY Downlist
19	3/16	A. Klumpp	Comparison of Body Drive & Gimbal Drive FINDCDUW Routines
X 20	4/1	J. Kernan	SUNDANCE Revisions 280, 281 and 282 and LUMINARY Revision 0

APOLLO SOFTWARE MEMOSSERIES: LUMINARY

Memo #	Date	Author	Subject
21	4/8	C. Schulenberg	LUMINARY Revisions 1, 2 and 3
22	4/15	C. Schulenberg	LUMINARY Revisions 4, 5, and 6
23	4/22	C. Schulenberg	LUMINARY Revisions 7 and 8
X 24	4/24	C. Braunhardt	Standards for Verification Plans
25	4/30	C. Schulenberg	LUMINARY Revisions 9, 10 and 11
X 26	5/13	D. Eyles	RTB
27	5/10	A. Klumpp	FINDCDUW Guidance Autopilot Interface Routine
28	5/14	C. Schulenberg	LUMINARY Revisions 12 - 16
29	6/6	C. Schulenberg	LUMINARY Revisions 17 and 18
30	6/7	J. Kernan, C. Schulenberg	LUMINARY Level 4 Test Plan
31	6/12	C. Schulenberg	LUMINARY Revisions 19 - 26
X 32	NOT PUBLISHED		
33	6/24	G. Cherry	Z-Axis Tracking in LUMINARY
34	7/15	C. Schulenberg	LUMINARY Revisions 27 - 34
35	7/30	G. Cherry	Don't Wrap Rendezvous Radar Around the Axle
X 36	7/30	G. Cherry	Computing Lag Angles Which Prevent Beginning and Ending Overshoots During Attitude Maneuver Routine Supervised DAP Maneuver
37	8/5	C. Schulenberg	LUMINARY Revisions 35 - 38
X 38	8/6	C. Work	Restrictions to R03 (Verb 48) Inputs
39	8/29	G. Cherry	Scheduling Proposed Modifications to the LUMINARY Digital Autopilot
40	9/5	C. Schulenberg	LUMINARY Revisions 39 - 43
41	8/28	A. Laats, J. Shillingford	LUMINARY Level 3 Verification Plan
42	9/12	G. Cherry	LUMINARY Program Changes Suggested at MSC/MIT Lunar Landing Co-ordination Meeting Held at MIT on 9/12/68

9/16/68 - 2/4/69

APOLLO SOFTWARE MEMOSSERIES: LUMINARY

Memo #	Date	Author	Subject
43	9/16	G. Cherry	Implementation of One-Phase Descent Guidance Logic PCR
44	9/19	D. Eyles	Implementation of "One-Phase" Guidance in the AGC
45	9/24	D. Eyles	New Landing Initialization
46	10/15	G. Cherry	LUMINARY Level IV Test Data Requirements for Pre-FACI Review
47	10/29	G. Cherry	DPS and APS Engine Data
48	10/24	J. Connor	R65 Edit
49	11/1	C. Schulenberg	LUMINARY Revisions 44 - 47
50	11/2	C. Schulenberg	LUMINARY Revisions 48 - 50
51	11/2	C. Schulenberg	LUMINARY Revisions 51 - 53
52	11/3	C. Schulenberg	LUMINARY Revisions 54 - 60
53	11/12	G. Cherry	Final LUMINARY Tree-Shaking
54	11/18	G. Cherry	LUMINARY Pre-Release Activities
55	12/4	C. Schulenberg	LUMINARY Revision 61
X 56	12/4	G. Cherry	DANCE & LUMINARY Program Activity Calender
57	12/9	G. Cherry	Report on LUMINARY FACI
58	12/17	C. Schulenberg	LUMINARY Revisions 62 - 64
X 59	1/3	C. Work	SUNDANCE Edits for DAP and for Powered Descent
60	1/9	J. Kernan, P. Volante	LUMINARY Level 5 Test Plan
61	1/14	C. Schulenberg	LUMINARY Revisions 65 - 69
62	1/24	G. Cherry	A Set of Lunar Landing Guidance Equations, e
63	1/27	G. Cherry	A Derivation of the Improved Lunar Landing Guidance Equations
64	2/4	J. Kernan	Verb 85-RR Antenna Line-of-Sight Display



2/7/69 - 5/21/69

APOLLO SOFTWARE MEMOSSERIES: LUMINARY

Memo #	Date	Author	Subject
65	2/7	G. Cherry	A Variable Time Constant Velocity-Nulling Guidance Law
66	2/12	G. Cherry	Aborts from the Lunar Landing & Nominal Lunar Ascent Targetting
67	2/17	C. Schulenberg	LUMINARY Revisions 70 - 79
68	2/20	G. Cherry	Lunar Landing Guidance Equations Program Alarms
69	3/10	C. Work	LUMINARY 1A Edits for DAP & For Powered Descent
X 70	3/13	J. Saponaro	Accuracy of Verb 83 (Range, Range Rate, Theta Display)
71	3/14	P. Volante	LUMINARY TEDITS
X 72		B. Ostanek	Use of V96 During State Vector/W Matrix Synchronization
73	3/27	C. Schulenberg	LUMINARY Revisions 80 - 92
74	3/31	P. Adler	Response to V99 & V97 in LUMINARY
75	4/1	G. Cherry	R-2 Lunar Potential Model Added to LUM
76	4/1	D. Eyles	Variable Gains in Guidance Frame Erectio
77	4/3	G. Cherry	Let's Continue the LUMINARY 1A Test Results Review
78	4/10	C. Schulenberg	LUMINARY Revisions 93 - 96
X 79	4/15	J. Goode	Computation Cycle Timing in TPI, TPM Programs
80	4/24	D. Eyles	Abnormal Exit from Landing Ignition Algorithm
81	4/28	D. Eyles	Landing Dependence on Platform Alignmen
82	6/8	J. E. Jones	Suggestions for LUMINARY 1A Simulations
83	5/19	J. Kernan	LUMINARY Revision 98
84	5/21	D. Eyles	Ignition Algorithm Convergence
85	5/21	J. Kernan	LUMINARY Revision 99

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Memo #	Date	Author	Subject
X 86	5/21	E. Muller, P. Kachmar	Affect of Radar (or the HF Ranging) AGC Interface Problem on F Mission Rendezvous Sequence
87	5/28	G. Cherry	George Lowe's Decision at CCB Regarding LGC Radar Interface Problem
88	6/5	D. Eyles	Anomaly 64
89	6/23	P. Adler, D. Densmore	A Metaphysic of Downrupts
X 90	6/30	J. Flaherty	Memo Indexes
91	7/7	C. Schulenberg	LUMINARY Revisions 100 - 105
92	7/10	C. Schulenberg	LUMINARY Revision 106
93	7/14	J. E. Jones	Intermediate Throttle-up of LEM DP5 During CSM-docked Burn
94	7/14	B. McCoy	Revision 107
95	7/9	R. Covelli	Landing Radar Orientation
96	7/14	B. McCoy	Level 3 Test Plan for LUMINARY 1B
97	7/16	D. Eyles	Anomaly 79 Test Data
X 98	7/22	M. Hamilton	Review of Reduction of Coding Approval Procedures
99	7/23	G. Cherry	Providing a Glossary of the "Level 3 Test Plan for LUMINARY 1B"
100	7/31	C. Schulenberg	Brief Summary of Verb, Noun, Alarm, Flagword & Downlist Changes between LUMINARY 1A & LUMINARY 1B (Rev. 111)
101	8/4	McCoy, Cherry	Level III/IV Tests Review
102	8/6	G. Cherry	Some Results of the Apollo 12 Pinpoint Lunar Landing Data Priority Meeting
103	8/6	C. Schulenberg	LUMINARY Revisions 108 - 113
104	8/8	Moore, Eyles	LUMINARY 1B-Level 4 Lunar Landing Test I
X 105	8/14	Engel, McCoy	H Mission RTTC Compatibility Testing, Test Plan & Schedule (Preliminary)

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Memo #	Date	Author	Subject
X 106	8/14/69	A. Engel, B. McCoy	RTCC Compatability Testing at MIT, Current Understanding of Scope, Responsibilities, etc.
107	8/20/69	C. Schulenberg	LUMINARY Revisions 114-116
108	8/22/69	B. McCoy	LUMINARY 1B is Revision 116
109	9/9/69	B. McCoy	Work Around for P22 Bug
X 110	9/10/69	W. Ostanek	Bad Other Vehicle State Vector
111	9/19/69	B. McCoy	Level 6
112	9/22/69	M. Albert	RTCC Compatable Uplink Edit
X 113	10/2/69	S. David	Configuration Control of RTCC Digital Environment
114	10/7/69	R. Larson	Proposed Contents of LUMINARY 1C
115	10/9/69	D. Eyles	Notes on Implementation of Delta-Guidance
116	10/22/69	L. Berman	ACB #L5/120-Operation of Rotation Control
117	10/24/69	G. Kalan	Special Crew Procedures Necessary for Controlling the CSM-Docked Configuration with the LEM DAP
118	10/27/69	D. Eyles	Landing Changes Put into LUMINARY 1C
119	10/30/69	H. McOuat	New LOSSEM Numbers
120	11/5/69	R. Larson	C13STALL
121	11/5/69	B. McCoy	What is LUMINARY 1C
122	11/6/69	D. Densmore	LUMINARY Revisions 117-120
123	11/18/69	D. Eyles	More About Delta-Guidance
124	11/11/69	D. Densmore	LUMINARY Revisions 121 - 130
X 125	11/21/69	D. Reinke	Work-around for P32 Bomb-Outs
126	12/2/69	D. Eyles	Delta-Guidance
127	12/3/69	B. McCoy	Re-release of LUMINARY 1C
128	12/3/69	B. McCoy	Level 6 Test Plan for LUMINARY 1C

APOLLO SOFTWARE MEMOSSERIES: LUMINARY

Memo #	Author	Date	Subject
129	D. Densmore	12/5/69	LUMINARY Revision 131
130	R. Larson	12/15/69	LUMINARY 1C Program Notes
131	D. Densmore	1/2/70	LUMINARY Revisions 132-135
132	K. Greene	1/8/70	Definitions & Usages of PCRs, PCNs, Anomalies & ACB
133	P. Volante, G. Dunbar	1/9/70	Implementation of PCR 287
134	D. Densmore	1/19/70	LUMINARY Revisions 136-139
135	B. Covelli	1/23/70	Downrupt Losses During Periods of High Computer Activity Programs
136	D. Densmore	1/29/70	LUMINARY Revisions 140 - 143
137	R. Larson	1/30/70	LUM131A REV 3 Testing
138	D. Eyles	2/14/70	Variable Guidance Period Servicer
139	D. Eyles	2/3/70	Description of Variable Servicer
140	A. Klumpp	2/3/70	A Collection of Known Manifestations of Time Loss
141	L. Berman	3/10/70	Replacement of LOGSUB in LUMINARY
142	D. Densmore	3/18/70	LUMINARY Revisions 144-147
143	A. Klumpp	3/24/70	Automatic P66
144	D. Eyles	4/6/70	Variable Servicer Tests
145	D. Densmore	5/5/70	LUMINARY Revisions 148-151
146	R. Covelli	5/70	The New R12
147	A. Klumpp, D. Eyles B. McCoy	5/5/70	Lunar Terrain Model
148	B. McCoy	5/11/70	Call It LUMINARY 1D
149	D. Eyles	5/13/70	Further Tests of ZERLINA
150	D. Densmore	5/15/70	LUMINARY Revisions 152-154
151	D. Densmore	5/19/70	LUMINARY Revisions 155-158
152	D. Eyles	5/21/70	Cyclical PIPA Reader
153	S. Albert	5/26/70	Variable Servicer Tests
154	L. Berman	6/1/70	Luminary Dev. Memo #141-Replacement of LOGSUB

APOLLO SOFTWARE MEMOS

SERIES: LUMINARY

Memo #	Author	Date	Subject
155	B. McCoy	6/1/70	LUMINARY 1D Re-release
156	D. Densmore	6/9/70	LUMINARY Revisions 159-163
157	D. Densmore	6/10/70	LUMINARY Revisions 164-167