SATURN I/IB
Quarterly Report
No 21

July, August, September 1964

1
00:00:14,959 --> 00:00:12,680
Saturn one 1d quarterly film report

2
00:00:24,950 --> 00:00:14,969
number 21 covers progress during the

3
00:00:26,960 --> 00:00:24,960
period July August September 1964 the

4
00:00:28,790 --> 00:00:26,970
leading of that of the report period was

5
00:00:32,209 --> 00:00:28,800
the successful launch in flight of the

6
00:00:34,400 --> 00:00:32,219
seventh Saturn sa seven sa seven booster

7
00:00:36,799 --> 00:00:34,410
check out at Cape Kennedy were slowed

8
00:00:38,840 --> 00:00:36,809
down in early July when the eight h1

9
00:00:42,319 --> 00:00:38,850
engines were removed for LOX dome

10
00:00:44,540 --> 00:00:42,329
replacement MSFC decided to replace the

11
00:00:47,060 --> 00:00:44,550
dome after investigating the stress

12
00:00:49,580 --> 00:00:47,070
corrosion cracking in the dome of engine

13
00:00:51,740 --> 00:00:49,590

number seven rocket dines Neosho

14
00:00:53,720 --> 00:00:51,750
Missouri plant performed the dome

15
00:00:55,819 --> 00:00:53,730
replacement the remainder of the

16
00:00:59,840 --> 00:00:55,829
checkout was routine except for two

17
00:01:01,729 --> 00:00:59,850
brief delays by hurricanes sa seven

18
00:01:04,340 --> 00:01:01,739
countdown started in the early morning

19
00:01:07,100 --> 00:01:04,350
of September 18th liftoff occurred at

20
00:01:09,440 --> 00:01:07,110
11:22 a.m. Eastern Standard Time the

21
00:01:11,929 --> 00:01:09,450
payload a boilerplate Apollo spacecraft

22
00:01:14,660 --> 00:01:11,939
and flight missions were very similar to

23
00:01:16,969 --> 00:01:14,670
those of si6 successfully launched last

24
00:01:19,580 --> 00:01:16,979
quarter the launch vehicle contained

25
00:01:23,330 --> 00:01:19,590
minor changes made to improve overall

26
00:01:25,730 --> 00:01:23,340
performance sa seven flight objectives

27
00:01:28,100 --> 00:01:25,740
included retesting a vehicle propulsion

28
00:01:30,530 --> 00:01:28,110
structural guidance in flight control

29
00:01:32,420 --> 00:01:30,540
systems and providing additional data on

30
00:01:34,789 --> 00:01:32,430
Apollo boilerplate behavior during

31
00:01:36,710 --> 00:01:34,799
powered flight in addition the

32
00:01:39,200 --> 00:01:36,720
spacecraft launch escape system was

33
00:01:41,450 --> 00:01:39,210
successfully jettisoned and the s4's

34
00:01:43,999 --> 00:01:41,460
recently added non propulsive vent

35
00:01:45,889 --> 00:01:44,009
systems successfully tested the purpose

36
00:01:50,539 --> 00:01:45,899
of this new vent system is to reduce

37
00:01:52,580 --> 00:01:50,549
payload spin and tumble this was the

38
00:01:55,010 --> 00:01:52,590

seventh straight successful flight of

39
00:01:57,770 --> 00:01:55,020
the Marshall engineered Saturn s1 stage

40
00:02:00,230 --> 00:01:57,780
and the third straight successful s4

41
00:02:02,149 --> 00:02:00,240
flight the three remaining R&D flight

42
00:02:04,850 --> 00:02:02,159
test vehicles will carry the large

43
00:02:06,750 --> 00:02:04,860
meteoroid technology satellite recently

44
00:02:10,320 --> 00:02:06,760
named Pegasus

45
00:02:12,600 --> 00:02:10,330
for the first time the st 124 guidance

46
00:02:17,700 --> 00:02:12,610
system platform was in complete control

47
00:02:19,890 --> 00:02:17,710
of the entire vehicle s for stage flight

48
00:02:22,350 --> 00:02:19,900
was as expected the boilerplate

49
00:02:24,870 --> 00:02:22,360
spacecraft was successfully placed into

50
00:02:26,580 --> 00:02:24,880
a low orbit closely approximating the

51
00:02:31,440 --> 00:02:26,590
parking orbit for future manned

52
00:02:33,870 --> 00:02:31,450
exploration missions at fairchild hiller

53
00:02:35,760 --> 00:02:33,880
the pegasus prototype spacecraft is

54
00:02:38,310 --> 00:02:35,770
structurally and mechanically complete

55
00:02:39,960 --> 00:02:38,320
however installation of electronic

56
00:02:43,290 --> 00:02:39,970
systems has been delayed because of

57
00:02:45,840 --> 00:02:43,300
development problems as a result Pegasus

58
00:02:48,060 --> 00:02:45,850
a will be launched by sa9 as an

59
00:02:51,270 --> 00:02:48,070
operational engineering test model

60
00:02:53,850 --> 00:02:51,280
Pegasus B to be launched later by si8

61
00:02:56,400 --> 00:02:53,860
will be the first fully flight qualified

62
00:02:58,530 --> 00:02:56,410
meteoroid satellite Marshall is

63
00:03:02,970 --> 00:02:58,540

presently re-evaluating the entire

64
00:03:06,090 --> 00:03:02,980
Pegasus program scheduled as a result of

65
00:03:08,430 --> 00:03:06,100
the h1 engine LOX dome problem sa 9

66
00:03:11,010 --> 00:03:08,440
booster final check out at Marshall was

67
00:03:12,710 --> 00:03:11,020
discontinued for about one month until

68
00:03:15,449 --> 00:03:12,720
the engine domes had been replaced

69
00:03:17,850 --> 00:03:15,459
staged checkout was then resumed and

70
00:03:21,229 --> 00:03:17,860
completed late in the quarter shipment

71
00:03:23,760 --> 00:03:21,239
to Cape Kennedy is scheduled for October

72
00:03:26,550 --> 00:03:23,770
following successful static firings at

73
00:03:28,410 --> 00:03:26,560
Marshall the Chrysler built s18 was

74
00:03:31,080 --> 00:03:28,420
shipped back to miss you arriving on

75
00:03:33,030 --> 00:03:31,090
June 28 repair operations and

76
00:03:36,570 --> 00:03:33,040
modifications were completed late this

77
00:03:39,570 --> 00:03:36,580
quarter LOX dome retrofit of all engines

78
00:03:41,220 --> 00:03:39,580
was also completed stage post static

79
00:03:44,460 --> 00:03:41,230
checkout is scheduled to begin in

80
00:03:46,800 --> 00:03:44,470
October the booster for the tenth flight

81
00:03:49,110 --> 00:03:46,810
vehicle s 110 was shipped from Chrysler

82
00:03:51,810 --> 00:03:49,120
Michou and directed in Marshall static

83
00:03:54,120 --> 00:03:51,820
test and LOX dome retrofit of the

84
00:03:56,100 --> 00:03:54,130
engines was accomplished and preparation

85
00:04:05,370 --> 00:03:56,110
for static firing began in early

86
00:04:07,440 --> 00:04:05,380
September on September 24th the stage

87
00:04:09,840 --> 00:04:07,450
successfully completed the first of two

88
00:04:11,550 --> 00:04:09,850

flight acceptance firings following the

89
00:04:13,500 --> 00:04:11,560
second acceptance firing the booster

90
00:04:15,300 --> 00:04:13,510
will be shipped back to Mishu for

91
00:04:18,810 --> 00:04:15,310
routine modification and repair

92
00:04:19,479 --> 00:04:18,820
operations and post static checkout s110

93
00:04:23,730 --> 00:04:19,489
is

94
00:04:29,800 --> 00:04:27,430
at Doug mrs. sacto test facility s 49

95
00:04:32,110 --> 00:04:29,810
underwent a new weighing procedure in

96
00:04:34,719 --> 00:04:32,120
this new program the stage is covered

97
00:04:36,909 --> 00:04:34,729
with a plastic bag warm air is

98
00:04:39,520 --> 00:04:36,919
circulated around the stage preventing

99
00:04:42,189 --> 00:04:39,530
frost build-up allowing more accurate

100
00:04:44,589 --> 00:04:42,199
cryogenic propellant weighing with this

101
00:04:52,480 --> 00:04:44,599
data a more precise orbital trajectory

102
00:04:54,640 --> 00:04:52,490
can be calculated on August 6th a

103
00:04:57,040 --> 00:04:54,650
successful acceptance firing was

104
00:04:58,960 --> 00:04:57,050
performed the stage was then removed

105
00:05:01,120 --> 00:04:58,970
from the stand and installation and

106
00:05:04,450 --> 00:05:01,130
check out of the non propulsive venting

107
00:05:06,790 --> 00:05:04,460
system were begun s 4/9 is presently

108
00:05:11,320 --> 00:05:06,800
undergoing preparations for shipment to

109
00:05:14,080 --> 00:05:11,330
Cape Kennedy on August 28 the S 4 8

110
00:05:16,629 --> 00:05:14,090
stage was erected on test stand to be

111
00:05:18,700 --> 00:05:16,639
and acceptance firing test preparations

112
00:05:23,560 --> 00:05:18,710
including cryogenic propellant weighing

113
00:05:25,529 --> 00:05:23,570

were begun at santa monica s410 stage

114
00:05:27,879 --> 00:05:25,539
checkout is nearing completion

115
00:05:31,480 --> 00:05:27,889
preparations for acceptance firing is

116
00:05:34,390 --> 00:05:31,490
scheduled to begin next quarter at

117
00:05:36,850 --> 00:05:34,400
Marshall SIU 9 pre-flight check out was

118
00:05:39,459 --> 00:05:36,860
completed in mid-september the unit is

119
00:05:43,689 --> 00:05:39,469
being prepared for shipment to KSC with

120
00:05:45,520 --> 00:05:43,699
s-19 siu 8th component installation

121
00:05:47,680 --> 00:05:45,530
continued during the quarter with

122
00:05:51,070 --> 00:05:47,690
checkout scheduled to start early next

123
00:05:53,050 --> 00:05:51,080
quarter siu 10 structure was removed

124
00:05:56,890 --> 00:05:53,060
from storage and component installation

125
00:05:58,870 --> 00:05:56,900
started in mid-september at Marshall the

126
00:06:01,510 --> 00:05:58,880
last phase of the dynamic test program

127
00:06:04,270 --> 00:06:01,520
was finished in July with a successful

128
00:06:12,760 --> 00:06:04,280
completion of the sa nine eight and ten

129
00:06:14,649 --> 00:06:12,770
vehicle configuration tests following

130
00:06:17,740 --> 00:06:14,659
completion of the Saturn one dynamic

131
00:06:19,270 --> 00:06:17,750
test program the sa D 5 first stage was

132
00:06:22,689 --> 00:06:19,280
shipped to Chrysler Michou for

133
00:06:24,700 --> 00:06:22,699
modification to s 1 B D F design the

134
00:06:26,439 --> 00:06:24,710
booster has been weighed to determine

135
00:06:28,659 --> 00:06:26,449
the longitudinal center of gravity

136
00:06:31,060 --> 00:06:28,669
necessary ballast will be placed in the

137
00:06:32,800 --> 00:06:31,070
stage to relocate the center of gravity

138
00:06:35,980 --> 00:06:32,810

to the s-1 b1

139
00:06:38,379 --> 00:06:35,990
figuration following the weighing

140
00:06:41,830 --> 00:06:38,389
Chrysler began removing components in

141
00:06:44,290 --> 00:06:41,840
tanks to tanks the 105 inch LOX tank and

142
00:06:45,970 --> 00:06:44,300
one fuel tank were shipped to Ling temp

143
00:06:48,400 --> 00:06:45,980
Co bought Dallas Texas for a

144
00:06:50,950 --> 00:06:48,410
modification the components earmarked

145
00:06:53,170 --> 00:06:50,960
for the s-1 BDF have been labeled

146
00:06:56,260 --> 00:06:53,180
wrapped hermetically sealed and stored

147
00:06:58,570 --> 00:06:56,270
in late September build-up of the s-1

148
00:07:01,659 --> 00:06:58,580
btf stage started with the modified

149
00:07:04,450 --> 00:07:01,669
flight tail section new spider beam the

150
00:07:08,680 --> 00:07:04,460
modified tanks and the usable si d5

151
00:07:11,469 --> 00:07:08,690
components also Michou chrysler assembly

152
00:07:14,860 --> 00:07:11,479
operations on the s-1 b1 continued

153
00:07:17,230 --> 00:07:14,870
unschedule all eight operated h1 engines

154
00:07:19,240 --> 00:07:17,240
have been installed pre static check out

155
00:07:24,159 --> 00:07:19,250
of the stage is expected to begin in

156
00:07:26,590 --> 00:07:24,169
November s 1 b2 fabrication operations

157
00:07:29,920 --> 00:07:26,600
were completed and clustering began in

158
00:07:32,890 --> 00:07:29,930
late September s1 b3 fabrication began

159
00:07:35,140 --> 00:07:32,900
in July tail section assembly operations

160
00:07:38,500 --> 00:07:35,150
are proceeding with clustering scheduled

161
00:07:39,580 --> 00:07:38,510
for late next quarter at Huntington

162
00:07:41,290 --> 00:07:39,590
Beach California

163
00:07:43,630 --> 00:07:41,300

Douglas completed installation of

164
00:07:46,029 --> 00:07:43,640
additional instrumentation in the s4 be

165
00:07:47,710 --> 00:07:46,039
structural test stage Marshall had

166
00:07:49,900 --> 00:07:47,720
requested this instrumentation to

167
00:07:53,230 --> 00:07:49,910
provide more complete data in event of a

168
00:07:54,880 --> 00:07:53,240
rupture on July 14th the stages liquid

169
00:07:57,370 --> 00:07:54,890
hydrogen tank did ruptured during

170
00:08:00,040 --> 00:07:57,380
hydrostatic testing the failure caused

171
00:08:04,270 --> 00:08:00,050
by an incomplete weld fusion occurred at

172
00:08:06,520 --> 00:08:04,280
34 psi g2 psig less than proof pressure

173
00:08:08,890 --> 00:08:06,530
for this test with this additional

174
00:08:10,960 --> 00:08:08,900
instrumentation enough test data was

175
00:08:13,779 --> 00:08:10,970
recorded to eliminate the necessity for

176
00:08:16,029 --> 00:08:13,789
additional LH to tank structural testing

177
00:08:18,100 --> 00:08:16,039
the necessary testing of the thrust

178
00:08:21,540 --> 00:08:18,110
structure will be performed with the

179
00:08:24,310 --> 00:08:21,550
repaired LOX tank and common bulkhead

180
00:08:27,070 --> 00:08:24,320
insulation of the s4 be dynamic stage

181
00:08:29,350 --> 00:08:27,080
was completed in July installation of

182
00:08:32,800 --> 00:08:29,360
simulated systems and staged checkout is

183
00:08:34,990 --> 00:08:32,810
underway assembly of the old system

184
00:08:37,449 --> 00:08:35,000
stage has been completed and the stage

185
00:08:39,699 --> 00:08:37,459
moved into insulation chamber number one

186
00:08:42,250 --> 00:08:39,709
this activity is scheduled to be

187
00:08:44,350 --> 00:08:42,260
completed in October as a result of the

188
00:08:46,050 --> 00:08:44,360

Apollo program assessment the all

189
00:08:48,210 --> 00:08:46,060
systems test program will

190
00:08:50,250 --> 00:08:48,220
terminated upon completion of propellant

191
00:08:52,620 --> 00:08:50,260
loading tests the stage has been

192
00:08:56,100 --> 00:08:52,630
redesignated as a facilities checkout

193
00:08:58,290 --> 00:08:56,110
stage assembly of the original

194
00:09:00,600 --> 00:08:58,300
facilities checkout stage was completed

195
00:09:02,490 --> 00:09:00,610
this quarter following installation of

196
00:09:04,950 --> 00:09:02,500
the stage scheduled for next quarter

197
00:09:06,930 --> 00:09:04,960
further work will be stopped and the

198
00:09:08,790 --> 00:09:06,940
stage stored until the decision can be

199
00:09:12,420 --> 00:09:08,800
made about assigning other program

200
00:09:13,890 --> 00:09:12,430
missions to the stage at Douglass's

201
00:09:16,200 --> 00:09:13,900
Santa Monica and Huntington Beach

202
00:09:21,240 --> 00:09:16,210
facilities fabrication and assembly of

203
00:09:22,950 --> 00:09:21,250
the s4 b-1b stages continued at

204
00:09:24,720 --> 00:09:22,960
Huntington Beach insulation is being

205
00:09:27,660 --> 00:09:24,730
applied to the tanks of the first flight

206
00:09:30,720 --> 00:09:27,670
stage 201 with completion scheduled for

207
00:09:32,400 --> 00:09:30,730
early next quarter tank assembly and

208
00:09:35,610 --> 00:09:32,410
proof testing for the second flight

209
00:09:37,620 --> 00:09:35,620
stage 202 are complete insulation

210
00:09:41,100 --> 00:09:37,630
operations will be in process next

211
00:09:43,050 --> 00:09:41,110
quarter fabrication and assembly of the

212
00:09:45,090 --> 00:09:43,060
propellant tanks and thrust structures

213
00:09:49,890 --> 00:09:45,100

for the third and fourth flight stages

214
00:09:52,380 --> 00:09:49,900
203 and 204 are underway at the

215
00:09:55,020 --> 00:09:52,390
Sacramento test area dub discontinued

216
00:09:58,470 --> 00:09:55,030
preparing for the first s4b battleship

217
00:10:01,320 --> 00:09:58,480
hot firing at the end of last quarter

218
00:10:03,690 --> 00:10:01,330
douglas completed installing a j2 engine

219
00:10:06,210 --> 00:10:03,700
on the battleship test stage following

220
00:10:08,790 --> 00:10:06,220
this the stage was prepared for cold

221
00:10:12,780 --> 00:10:08,800
flow testing the first hot firing is

222
00:10:14,579 --> 00:10:12,790
scheduled for next quarter other efforts

223
00:10:16,380 --> 00:10:14,589
leading to the hot firing included

224
00:10:18,360 --> 00:10:16,390
completing checkout of the battleship

225
00:10:22,530 --> 00:10:18,370
ground support equipment at the sacto

226
00:10:25,200 --> 00:10:22,540
site the sacto gamma test facility to be

227
00:10:27,570 --> 00:10:25,210
used for testing s4b attitude control

228
00:10:29,310 --> 00:10:27,580
engines has been completed several

229
00:10:31,530 --> 00:10:29,320
engines were received from the Tapco

230
00:10:34,199 --> 00:10:31,540
plant at Cleveland Ohio and are being

231
00:10:36,150 --> 00:10:34,209
installed on the test stems the first

232
00:10:39,630 --> 00:10:36,160
firing test is scheduled for next

233
00:10:41,970 --> 00:10:39,640
quarter Saturn 1b instrument unit

234
00:10:44,610 --> 00:10:41,980
structure redesign necessitated by

235
00:10:46,829 --> 00:10:44,620
revised vehicle loads was completed in

236
00:10:49,350 --> 00:10:46,839
August structural units already

237
00:10:53,190 --> 00:10:49,360
delivered for the old design will be

238
00:10:55,470 --> 00:10:53,200

used for Saturn 1b and five tests not

239
00:10:57,690 --> 00:10:55,480
affected by the change the first

240
00:10:59,610 --> 00:10:57,700
redesigned IU structure will be

241
00:11:01,650 --> 00:10:59,620
delivered to Marshall next quarter

242
00:11:04,620 --> 00:11:01,660
by General Dynamics Fort Worth Texas

243
00:11:09,690 --> 00:11:04,630
this unit will be used in the Saturn 1b

244
00:11:12,329 --> 00:11:09,700
and five dynamic test programs at MSFC

245
00:11:14,430 --> 00:11:12,339
an IU environmental control system

246
00:11:16,980 --> 00:11:14,440
prototype heat exchanger was

247
00:11:19,230 --> 00:11:16,990
successfully tested the heat exchanger

248
00:11:22,019 --> 00:11:19,240
would provide temperature control during

249
00:11:24,930 --> 00:11:22,029
flight for the IU equipment and for

250
00:11:27,720 --> 00:11:24,940
equipment in the s4b stage forward skirt

251
00:11:29,970 --> 00:11:27,730
area the cooling method utilizes a

252
00:11:31,890 --> 00:11:29,980
solution of water methanol which

253
00:11:36,000 --> 00:11:31,900
circulates through the cold plates on

254
00:11:38,160 --> 00:11:36,010
which the components are mounted also at

255
00:11:40,740 --> 00:11:38,170
Marshall mounting of components on the

256
00:11:43,290 --> 00:11:40,750
IU structure for Saturn 1b and five

257
00:11:45,450 --> 00:11:43,300
vibration tests began in early September

258
00:11:47,880 --> 00:11:45,460
and is expected to be completed in

259
00:11:49,980 --> 00:11:47,890
October fabrication of redesigned

260
00:11:53,010 --> 00:11:49,990
structural segments for the Saturn 1b

261
00:11:55,230 --> 00:11:53,020
and five dynamic test unit began July

262
00:11:57,600 --> 00:11:55,240
1st at Fort Worth and continued

263
00:11:59,550 --> 00:11:57,610

throughout the quarter contract

264
00:12:01,890 --> 00:11:59,560
negotiations are still in progress with

265
00:12:04,610 --> 00:12:01,900
International Business Machines recently

266
00:12:07,560 --> 00:12:04,620
selected as prime contractor for the IU

267
00:12:09,329 --> 00:12:07,570
IBM has been authorized to proceed with

268
00:12:12,690 --> 00:12:09,339
its efforts in personnel and facilities

269
00:12:14,730 --> 00:12:12,700
buildup at Huntsville at Marshall

270
00:12:16,380 --> 00:12:14,740
testing continued on various ground

271
00:12:19,500 --> 00:12:16,390
support equipment for the Kennedy Space

272
00:12:24,329 --> 00:12:19,510
Center such as this prototype s4b aft

273
00:12:26,310 --> 00:12:24,339
swing arm assembly also at Marshall the

274
00:12:29,100 --> 00:12:26,320
Saturn system development facility is

275
00:12:31,019 --> 00:12:29,110
being enlarged to accommodate Saturn 1b

276
00:12:33,780 --> 00:12:31,029
ground support equipment and stage

277
00:12:36,269 --> 00:12:33,790
simulators the facility is used for

278
00:12:38,030 --> 00:12:36,279
checkout tape development GSE and

279
00:12:41,190 --> 00:12:38,040
vehicle system debugging and

280
00:12:42,960 --> 00:12:41,200
certification of systems integration the

281
00:12:45,600 --> 00:12:42,970
delivery and installation of some

282
00:12:46,769 --> 00:12:45,610
consoles is underway and will continue

283
00:12:49,500 --> 00:12:46,779
throughout the year

284
00:12:50,970 --> 00:12:49,510
the remaining GSE and flight simulation

285
00:12:54,150 --> 00:12:50,980
equipment will be delivered and

286
00:12:56,370 --> 00:12:54,160
installed early in 1965 greater

287
00:13:00,810 --> 00:12:56,380
versatility will be provided for Saturn

288
00:13:05,130 --> 00:13:00,820

1b operations by 2rc a 110 a computers

289
00:13:07,230 --> 00:13:05,140
connected in a tandem mode also at MSFC

290
00:13:09,900 --> 00:13:07,240
construction of the j2 engine test

291
00:13:11,730 --> 00:13:09,910
facility is about 90% complete with

292
00:13:13,800 --> 00:13:11,740
beneficial occupancy expected in

293
00:13:16,080 --> 00:13:13,810
November the facility will be

294
00:13:20,300 --> 00:13:16,090
used for various test programs using a

295
00:13:22,860 --> 00:13:20,310
Marshall built battleship s4p unit

296
00:13:25,680 --> 00:13:22,870
meanwhile at Rocketdyne at Canoga Park

297
00:13:27,990 --> 00:13:25,690
California assembly a flexible armor

298
00:13:30,150 --> 00:13:28,000
clad harnesses for all j2 engine

299
00:13:32,820 --> 00:13:30,160
electrical control and instrumentation

300
00:13:35,579 --> 00:13:32,830
harness wiring is underway this will

301
00:13:37,800 --> 00:13:35,589
provide the 14 individual j2 engine

302
00:13:39,750 --> 00:13:37,810
harness assemblies with handling and

303
00:13:45,210 --> 00:13:39,760
abrasion protection moisture protection

304
00:13:47,280 --> 00:13:45,220
and short-term fire protection in a

305
00:13:50,160 --> 00:13:47,290
series of successful tests the gun last

306
00:13:52,110 --> 00:13:50,170
report period the Rocketdyne j2 engine

307
00:13:53,790 --> 00:13:52,120
has demonstrated its ability to meet

308
00:13:56,130 --> 00:13:53,800
preliminary flight rating test

309
00:14:01,470 --> 00:13:56,140
requirements for gimble incurring hot

310
00:14:03,930 --> 00:14:01,480
firing in summary July August and

311
00:14:07,280 --> 00:14:03,940
September four months of significant

312
00:14:09,630 --> 00:14:07,290
progress in the Saturn one 1b program

313
00:14:12,570 --> 00:14:09,640

highlighting this quarter was the

314
00:14:14,940 --> 00:14:12,580
successful flight of Saturn 7 and the

315
00:14:18,329 --> 00:14:14,950
successful completion of the Saturn one

316
00:14:20,790 --> 00:14:18,339
dynamic test program in the Saturn 1b

317
00:14:24,690 --> 00:14:20,800
program emphasis was placed on

318
00:14:27,690 --> 00:14:24,700
contractor efforts s4v ground and flight

319
00:14:30,200 --> 00:14:27,700
stage assembly continued ground support

320
00:14:33,180 --> 00:14:30,210
equipment build-up engine programs