1
00:00:00,000 --> 00:00:22,950
foreign

2
00:00:26,550 --> 00:00:24,870
in late october nasa headquarters

3
00:00:29,109 --> 00:00:26,560
directed marshall to terminate the

4
00:00:31,990 --> 00:00:29,119
saturn one program following conclusion

5
00:00:34,310 --> 00:00:32,000
of the ten flight vehicle r d program

6
00:00:36,790 --> 00:00:34,320
this action eliminated four operational

7
00:00:39,670 --> 00:00:36,800
vehicles plus two spare vehicles

8
00:00:41,990 --> 00:00:39,680
deleting all saturn one manned flights

9
00:00:44,389 --> 00:00:42,000
prime hardware contracts for operational

10
00:00:46,549 --> 00:00:44,399
vehicles have been canceled hardware on

11
00:00:51,190 --> 00:00:46,559
hand will be used when possible on the

12
00:00:53,110 --> 00:00:51,200
boosters for sa-201 and 202.

13
00:00:54,950 --> 00:00:53,120

nasa headquarters also approved

14
00:00:58,150 --> 00:00:54,960
launching of the remaining saturn 1

15
00:01:01,110 --> 00:00:58,160
vehicles from launch complex 37b and

16
00:01:03,590 --> 00:01:01,120
modifying launch complex 34 for initial

17
00:01:06,789 --> 00:01:03,600
saturn 1b launches

18
00:01:08,710 --> 00:01:06,799
at cape kennedy early in october the s45

19
00:01:11,990 --> 00:01:08,720
stage was mated with the previously

20
00:01:14,070 --> 00:01:12,000
erected sa-5 booster the instrument unit

21
00:01:15,830 --> 00:01:14,080
and the payload

22
00:01:18,230 --> 00:01:15,840
pre-launch checkout of the vehicle

23
00:01:20,230 --> 00:01:18,240
continued as scheduled until november

24
00:01:23,670 --> 00:01:20,240
when an explosion in launch complex

25
00:01:26,310 --> 00:01:23,680
37b's gaseous hydrogen vent line caused

26
00:01:28,070 --> 00:01:26,320
a delay of one week

27
00:01:30,149 --> 00:01:28,080
other technical problems encountered

28
00:01:32,230 --> 00:01:30,159
during testing were quickly resolved

29
00:01:34,469 --> 00:01:32,240
until cracked sleeves were discovered in

30
00:01:35,670 --> 00:01:34,479
the s1 stage high pressure pneumatic

31
00:01:37,429 --> 00:01:35,680
lines

32
00:01:40,230 --> 00:01:37,439
these sleeves which had cracked because

33
00:01:42,310 --> 00:01:40,240
of stress corrosion had to be replaced

34
00:01:44,310 --> 00:01:42,320
this requirement forced rescheduling the

35
00:01:45,990 --> 00:01:44,320
launch from late december until early

36
00:01:48,149 --> 00:01:46,000
1964.

37
00:01:50,870 --> 00:01:48,159
to prevent reoccurrence of the problem

38
00:01:52,950 --> 00:01:50,880

msfc issued new specifications on heat

39
00:01:56,469 --> 00:01:52,960
treating and began installing new

40
00:01:58,069 --> 00:01:56,479
sleeves on s15 and all subsequent s1

41
00:01:59,910 --> 00:01:58,079
stages

42
00:02:01,670 --> 00:01:59,920
marshall and douglas have taken

43
00:02:05,030 --> 00:02:01,680
advantage of the delay to perform

44
00:02:06,550 --> 00:02:05,040
additional testing on s45s cold helium

45
00:02:08,389 --> 00:02:06,560
sphere mountings

46
00:02:10,389 --> 00:02:08,399
following completion of these tests and

47
00:02:12,790 --> 00:02:10,399
the critical tubing replacements the

48
00:02:15,430 --> 00:02:12,800
simulated flight test will be repeated

49
00:02:17,589 --> 00:02:15,440
and the vehicle launched

50
00:02:19,830 --> 00:02:17,599
at marshall the flow of subsequent s1

51
00:02:22,070 --> 00:02:19,840
stages continued even though work on

52
00:02:24,150 --> 00:02:22,080
each stage is being interrupted to allow

53
00:02:25,830 --> 00:02:24,160
for tubing replacement

54
00:02:27,910 --> 00:02:25,840
booster post static checkout was

55
00:02:30,710 --> 00:02:27,920
completed for the sixth saturn flight

56
00:02:32,470 --> 00:02:30,720
vehicle sa-6 during november

57
00:02:34,630 --> 00:02:32,480
following completion of preparation for

58
00:02:37,030 --> 00:02:34,640
shipment the stage will be barged to

59
00:02:39,110 --> 00:02:37,040
cape kennedy early in the next quarter

60
00:02:41,589 --> 00:02:39,120
sa-6 will be the first vehicle to have

61
00:02:49,990 --> 00:02:41,599
an apollo boilerplate spacecraft as

62
00:02:54,150 --> 00:02:51,670
meanwhile the booster for the seventh

63
00:02:56,229 --> 00:02:54,160

flight vehicle sa-7 underwent two

64
00:02:59,270 --> 00:02:56,239
successful firings at marshall's test

65
00:03:02,710 --> 00:02:59,280
laboratory during october one for 35

66
00:03:05,110 --> 00:03:02,720
seconds the other for 145 seconds

67
00:03:06,869 --> 00:03:05,120
stage post static checkout delayed

68
00:03:09,589 --> 00:03:06,879
temporarily to allow for tubing

69
00:03:19,030 --> 00:03:09,599
modification is expected to be completed

70
00:03:23,670 --> 00:03:20,869
assembly of the booster for the eighth

71
00:03:27,350 --> 00:03:23,680
flight vehicle sa-9 was completed in

72
00:03:29,509 --> 00:03:27,360
october and pre-static checkout started

73
00:03:33,990 --> 00:03:29,519
static firing of the stage is presently

74
00:03:38,710 --> 00:03:37,110
at michoud on october 27th chrysler

75
00:03:42,390 --> 00:03:38,720
began checkout of the first

76
00:03:44,070 --> 00:03:42,400
industry-produced saturn one booster s18

77
00:03:46,229 --> 00:03:44,080
the functional checkout began in

78
00:03:48,869 --> 00:03:46,239
november mechanical systems were the

79
00:03:50,869 --> 00:03:48,879
first to be checked out

80
00:03:55,350 --> 00:03:50,879
pneumatic pressure lines and connections

81
00:03:59,110 --> 00:03:57,030
checkout completion is presently

82
00:04:01,030 --> 00:03:59,120
scheduled for march

83
00:04:05,030 --> 00:04:01,040
in april the stage will be shipped to

84
00:04:10,309 --> 00:04:07,990
assembly of s110 by chrysler continued

85
00:04:12,070 --> 00:04:10,319
at michoud during this quarter assembly

86
00:04:16,870 --> 00:04:12,080
completion and start of checkout is

87
00:04:22,069 --> 00:04:19,590
preparation of h1 engines for the stage

88
00:04:24,950 --> 00:04:22,079

continued on schedule two engines

89
00:04:27,749 --> 00:04:24,960
originally intended for s111

90
00:04:31,510 --> 00:04:27,759
will be used to replace s110 engines

91
00:04:33,749 --> 00:04:31,520
that developed thrust chamber leaks

92
00:04:36,950 --> 00:04:33,759
early in october the douglas aircraft

93
00:04:39,670 --> 00:04:36,960
company installed s46 in sacto test

94
00:04:42,550 --> 00:04:39,680
stand 2b and began preparations for

95
00:04:44,710 --> 00:04:42,560
acceptance testing on november 22nd a

96
00:04:48,469 --> 00:04:44,720
successful static firing was conducted

97
00:04:50,710 --> 00:04:48,479
for 460 seconds as planned post static

98
00:04:52,710 --> 00:04:50,720
checkout was completed in december

99
00:04:55,430 --> 00:04:52,720
presently necessary modifications are

100
00:04:58,390 --> 00:04:55,440
being performed including moog engine

101
00:05:02,629 --> 00:04:58,400
actuator retrofit the stage is scheduled

102
00:05:05,430 --> 00:05:02,639
for shipment to amr during february

103
00:05:09,029 --> 00:05:05,440
also at santa monica final assembly of

104
00:05:10,629 --> 00:05:09,039
s47 by douglas was completed in november

105
00:05:12,710 --> 00:05:10,639
checkout of the stage in the new

106
00:05:13,830 --> 00:05:12,720
vertical checkout facility is nearing

107
00:05:16,790 --> 00:05:13,840
completion

108
00:05:19,430 --> 00:05:16,800
s 47 is scheduled to arrive at sacto for

109
00:05:21,350 --> 00:05:19,440
acceptance testing early in february and

110
00:05:23,749 --> 00:05:21,360
will be installed in the stand a few

111
00:05:26,870 --> 00:05:23,759
days later

112
00:05:29,430 --> 00:05:26,880
the s49 stage located in douglas's

113
00:05:31,670 --> 00:05:29,440

assembly facility is approximately 20

114
00:05:37,270 --> 00:05:31,680
percent complete stage completion

115
00:05:41,749 --> 00:05:39,830
meanwhile s 4 8 was moved from the

116
00:05:43,990 --> 00:05:41,759
insulation installation room to the

117
00:05:46,870 --> 00:05:44,000
assembly area where miscellaneous pickup

118
00:05:48,310 --> 00:05:46,880
work was completed parts shortages which

119
00:05:51,110 --> 00:05:48,320
delayed moving the stage to the

120
00:05:55,430 --> 00:05:51,120
hydrostatic tower have been negated and

121
00:06:00,629 --> 00:05:57,590
during the latter portion of the quarter

122
00:06:02,950 --> 00:06:00,639
installation of s410 stage insulation at

123
00:06:05,110 --> 00:06:02,960
santa monica started immediately after

124
00:06:07,830 --> 00:06:05,120
completion of leak tests and tank

125
00:06:09,990 --> 00:06:07,840
calibration the stage is scheduled to be

126
00:06:12,629 --> 00:06:10,000
removed from the insulation installation

127
00:06:15,270 --> 00:06:12,639
room and be installed in the hydrostatic

128
00:06:18,469 --> 00:06:15,280
tower for additional leak checks in late

129
00:06:24,150 --> 00:06:21,189
at sacramento douglas buildup of the all

130
00:06:26,469 --> 00:06:24,160
systems s4 vehicle continued during this

131
00:06:30,230 --> 00:06:26,479
quarter static firings are scheduled to

132
00:06:33,430 --> 00:06:32,070
at marshall completion of functional

133
00:06:36,870 --> 00:06:33,440
checkout for

134
00:06:39,029 --> 00:06:36,880
6 was rescheduled for january 1964 to

135
00:06:41,110 --> 00:06:39,039
allow checkout of engineering changes

136
00:06:44,230 --> 00:06:41,120
incorporated during december

137
00:06:47,590 --> 00:06:44,240
siu6 and s16 will be shipped to cape

138
00:06:49,670 --> 00:06:47,600

kennedy in february

139
00:06:52,150 --> 00:06:49,680
martial assembly of the instrument unit

140
00:06:54,390 --> 00:06:52,160
for essay 7 is complete and final

141
00:06:59,510 --> 00:06:54,400
checkout is presently scheduled to begin

142
00:07:02,469 --> 00:06:59,520
at msfc on february 10 1964.

143
00:07:05,350 --> 00:07:02,479
structural fabrication of siu9 will be

144
00:07:07,909 --> 00:07:05,360
completed in january 1964 at marshall's

145
00:07:09,830 --> 00:07:07,919
manufacturing engineering laboratory the

146
00:07:14,550 --> 00:07:09,840
structure will then be stored until

147
00:07:16,469 --> 00:07:14,560
start of assembly march 2 1964.

148
00:07:18,950 --> 00:07:16,479
at marshall's test laboratory

149
00:07:21,350 --> 00:07:18,960
dynamic testing for the sa 6 and 7

150
00:07:24,150 --> 00:07:21,360
configuration using the saturn dynamic

151
00:07:25,830 --> 00:07:24,160
vehicle and the apollo boilerplate was

152
00:07:28,710 --> 00:07:25,840
successfully completed during this

153
00:07:31,350 --> 00:07:28,720
quarter later in february msfc has

154
00:07:34,550 --> 00:07:31,360
scheduled dynamic testing for the sa 9

155
00:07:37,909 --> 00:07:34,560
and 8 configuration sa 9 and 8 will

156
00:07:39,990 --> 00:07:37,919
carry micro meteoroid detection payloads

157
00:07:41,749 --> 00:07:40,000
preparations are underway at the dynamic

158
00:07:45,990 --> 00:07:41,759
test stand and are proceeding

159
00:07:50,870 --> 00:07:48,469
during this same period the s4 stage

160
00:07:59,189 --> 00:07:50,880
moog actuator systems were tested by

161
00:08:03,990 --> 00:08:01,430
marshall approved chrysler designs for

162
00:08:06,710 --> 00:08:04,000
the s-1b spyder beam and completed the

163
00:08:09,270 --> 00:08:06,720

50 design review of the 60-degree

164
00:08:11,670 --> 00:08:09,280
fairing and the conceptual design review

165
00:08:13,830 --> 00:08:11,680
of the gox line and diffuser

166
00:08:16,309 --> 00:08:13,840
the design associated with elements of

167
00:08:27,350 --> 00:08:16,319
the tail section is now approximately

168
00:08:32,709 --> 00:08:30,150
on november 8th msfc authorized

169
00:08:35,110 --> 00:08:32,719
rocketdyne to continue with design

170
00:08:38,310 --> 00:08:35,120
development and testing required to

171
00:08:40,469 --> 00:08:38,320
upgrade the h1 engine from 188 000

172
00:08:42,870 --> 00:08:40,479
pounds of thrust to two hundred thousand

173
00:08:44,870 --> 00:08:42,880
pounds of thrust the first production

174
00:08:49,430 --> 00:08:44,880
engines are scheduled to be acceptance

175
00:08:54,150 --> 00:08:51,910
at santa monica douglas finished welding

176
00:08:57,590 --> 00:08:54,160
studs to the hydrogen forward dome of

177
00:09:00,070 --> 00:08:57,600
the s4b hydrostatic test stage work on

178
00:09:03,030 --> 00:09:00,080
the dynamics test stage included bonding

179
00:09:05,590 --> 00:09:03,040
the honeycomb core to aft common dome

180
00:09:08,550 --> 00:09:05,600
welding of flanges and elbows to the aft

181
00:09:13,190 --> 00:09:08,560
locks dome subfittings and seal welding

182
00:09:17,750 --> 00:09:15,750
also the liquid hydrogen cylinder skins

183
00:09:20,389 --> 00:09:17,760
for this stage were milled for forming

184
00:09:23,030 --> 00:09:20,399
and welding but one skin was rejected

185
00:09:27,269 --> 00:09:23,040
due to several cracks a replacement has

186
00:09:32,230 --> 00:09:29,590
meanwhile work progressed on the all

187
00:09:34,310 --> 00:09:32,240
systems test stage the attach rings for

188
00:09:36,790 --> 00:09:34,320

the common domes were completed and

189
00:09:39,030 --> 00:09:36,800
welding operations are underway

190
00:09:44,070 --> 00:09:39,040
the common bulkhead is being welded for

191
00:09:49,509 --> 00:09:46,790
at douglas's beta complex at sacramento

192
00:09:51,430 --> 00:09:49,519
static firing site for s4b the

193
00:09:54,389 --> 00:09:51,440
superstructure for the battleship test

194
00:09:56,310 --> 00:09:54,399
stand beta 1 was completed following

195
00:09:59,030 --> 00:09:56,320
final assembly and installation of

196
00:10:03,430 --> 00:09:59,040
installation the battleship tank was

197
00:10:05,750 --> 00:10:03,440
placed in the beta 1 stand december 18th

198
00:10:08,389 --> 00:10:05,760
the beta complex block house is nearing

199
00:10:12,870 --> 00:10:10,790
at beta 3 the all systems test and

200
00:10:16,790 --> 00:10:12,880
superstructure and propellant tanks were

201
00:10:21,269 --> 00:10:19,030
rocketdyne has completed fabrication of

202
00:10:23,350 --> 00:10:21,279
the first j-2 production engine

203
00:10:25,509 --> 00:10:23,360
originally designed for cold flow

204
00:10:27,990 --> 00:10:25,519
testing delivery was made to santa

205
00:10:30,150 --> 00:10:28,000
monica in november after inspection and

206
00:10:31,670 --> 00:10:30,160
checkout the engine will be used in the

207
00:10:34,550 --> 00:10:31,680
engineering development systems

208
00:10:37,670 --> 00:10:34,560
integration laboratory

209
00:10:39,910 --> 00:10:37,680
activity at douglas's s4b mock-up area

210
00:10:41,990 --> 00:10:39,920
at santa monica included electrical

211
00:10:43,110 --> 00:10:42,000
component installation in the aft thrust

212
00:10:44,870 --> 00:10:43,120
structure

213
00:10:47,590 --> 00:10:44,880

aft skirt electrical paneling

214
00:10:50,630 --> 00:10:47,600
installation customer connect panels

215
00:10:52,069 --> 00:10:50,640
installation dac's mating area to the j2

216
00:10:55,190 --> 00:10:52,079
engine

217
00:10:59,350 --> 00:10:55,200
work on the instrumentation probe

218
00:11:01,990 --> 00:10:59,360
and forward dome instrumentation wiring

219
00:11:03,990 --> 00:11:02,000
the delta ii test stand at santa susana

220
00:11:06,470 --> 00:11:04,000
which affords a 500 second run

221
00:11:08,630 --> 00:11:06,480
capability for the j2 engine was

222
00:11:11,110 --> 00:11:08,640
activated november 9th and engine

223
00:11:19,910 --> 00:11:11,120
testing at both positions began late

224
00:11:25,030 --> 00:11:22,389
a major milestone in the j-2 engine

225
00:11:27,430 --> 00:11:25,040
program was achieved late in the quarter

226
00:11:30,389 --> 00:11:27,440
with two successful full-duration hot