SATURN V
QUARTERLY FILM REPORT
NO. 9

DEC. 1, 1964 - FEB. 28, 1965

1
00:00:15,430 --> 00:00:13,110
saturn five quarterly film report number

2
00:00:19,109 --> 00:00:15,440
nine covers progress during the period

3
00:00:21,830 --> 00:00:19,119
december 1st 1964 through february 28

4
00:00:23,910 --> 00:00:21,840
1965

5
00:00:26,310 --> 00:00:23,920
development manufacturing and testing of

6
00:00:28,230 --> 00:00:26,320
s1c stage components by the boeing

7
00:00:31,589 --> 00:00:28,240
company and the marshall center

8
00:00:34,389 --> 00:00:31,599
continued throughout the quarter

9
00:00:36,310 --> 00:00:34,399
at marshall the first s1ct horizontal

10
00:00:37,430 --> 00:00:36,320
assembly operation began early in

11
00:00:39,430 --> 00:00:37,440
december

12
00:00:42,869 --> 00:00:39,440
the thrust structure fuel tank assembly

13
00:00:44,709 --> 00:00:42,879

for the s1ct static firing stage was

14
00:00:46,869 --> 00:00:44,719
transferred to the assembly area from

15
00:00:49,029 --> 00:00:46,879
the vertical assembly building and was

16
00:00:51,670 --> 00:00:49,039
mated on december 18th to the forward

17
00:00:54,549 --> 00:00:51,680
skirt lox tank inner tank assembly which

18
00:00:55,830 --> 00:00:54,559
had been moved from the vab last quarter

19
00:00:58,069 --> 00:00:55,840
cable installation and other

20
00:01:01,349 --> 00:00:58,079
miscellaneous mechanical assembly work

21
00:01:03,910 --> 00:01:01,359
continued during the report period

22
00:01:06,870 --> 00:01:03,920
in early february a dummy f-1 engine was

23
00:01:09,190 --> 00:01:06,880
installed on the s-1 ct vehicle to check

24
00:01:11,109 --> 00:01:09,200
out various fittings and connections

25
00:01:12,390 --> 00:01:11,119
the operation went so smoothly that the

26
00:01:14,710 --> 00:01:12,400
engine was installed

27
00:01:17,749 --> 00:01:14,720
fittings checked and the engine removed

28
00:01:19,749 --> 00:01:17,759
all within four hours

29
00:01:21,510 --> 00:01:19,759
at the end of the quarter the saturn v

30
00:01:24,710 --> 00:01:21,520
program reached one of its most

31
00:01:26,950 --> 00:01:24,720
significant milestones when the s-1 ct

32
00:01:29,749 --> 00:01:26,960
was installed at marshall's new s1c

33
00:01:32,469 --> 00:01:29,759
static test stand for the first s1c

34
00:01:34,870 --> 00:01:32,479
stage single engine test firing expected

35
00:01:36,710 --> 00:01:34,880
in early april

36
00:01:39,590 --> 00:01:36,720
notable progress in the manufacture of

37
00:01:41,990 --> 00:01:39,600
assemblies for s1cs structural test

38
00:01:44,310 --> 00:01:42,000

components was made this quarter with

39
00:01:45,670 --> 00:01:44,320
completion and hydrostatic testing of

40
00:01:47,190 --> 00:01:45,680
the lox tank

41
00:01:49,030 --> 00:01:47,200
and mating of the fuel tank to the

42
00:01:52,789 --> 00:01:49,040
thrust structure which had arrived at

43
00:01:55,350 --> 00:01:52,799
marshall from michoud in late december

44
00:01:57,429 --> 00:01:55,360
meanwhile the marshall center's new load

45
00:01:59,830 --> 00:01:57,439
test tower was placed in operation in

46
00:02:01,830 --> 00:01:59,840
february when structural testing got

47
00:02:05,429 --> 00:02:01,840
underway on the first intertank for the

48
00:02:10,309 --> 00:02:07,830
maximum aerodynamic loads expected in

49
00:02:11,750 --> 00:02:10,319
flight were simulated by two load rings

50
00:02:13,910 --> 00:02:11,760
and the bootstrap arrangement of

51
00:02:15,350 --> 00:02:13,920
hydraulic cylinders tension straps and

52
00:02:17,589 --> 00:02:15,360
load cells

53
00:02:20,390 --> 00:02:17,599
the inner tank buckled at 110 percent of

54
00:02:21,750 --> 00:02:20,400
the axial load and 117 percent of the

55
00:02:24,550 --> 00:02:21,760
moment load

56
00:02:27,430 --> 00:02:24,560
since a 140 percent factor is required

57
00:02:29,430 --> 00:02:27,440
in all man-rated saturn v hardware a

58
00:02:33,030 --> 00:02:29,440
strengthened inner tank built at michoud

59
00:02:35,830 --> 00:02:33,040
will later undergo similar testing

60
00:02:38,630 --> 00:02:35,840
following removal of the intertank the

61
00:02:40,710 --> 00:02:38,640
fuel tank thrust structure assembly was

62
00:02:42,869 --> 00:02:40,720
installed in the load test tower

63
00:02:45,670 --> 00:02:42,879

structural testing of this assembly is

64
00:02:47,750 --> 00:02:45,680
scheduled next quarter

65
00:02:50,070 --> 00:02:47,760
meanwhile bulkhead fabrication

66
00:02:54,070 --> 00:02:50,080
progressed steadily on the first two s1c

67
00:02:57,110 --> 00:02:54,080
flight stages s1c1 and s1c2

68
00:02:59,830 --> 00:02:57,120
another bulkhead for the s1cf facility's

69
00:03:03,589 --> 00:02:59,840
checkout stage lox tank was finished in

70
00:03:06,229 --> 00:03:03,599
early february and shipped to michoud

71
00:03:09,589 --> 00:03:06,239
cylindrical skin assembly for the s1c1

72
00:03:11,670 --> 00:03:09,599
lux tank was also underway

73
00:03:14,869 --> 00:03:11,680
at michoud the new vertical assembly

74
00:03:17,350 --> 00:03:14,879
building became operational in january

75
00:03:20,390 --> 00:03:17,360
initial use of the vab was an assembly

76
00:03:22,630 --> 00:03:20,400
of the fuel tank for the s1cd or dynamic

77
00:03:25,910 --> 00:03:22,640
test stage when the fuel tank forward

78
00:03:28,550 --> 00:03:25,920
bulkhead and skin ring were mated

79
00:03:31,110 --> 00:03:28,560
on february 24th the forward and aft

80
00:03:33,430 --> 00:03:31,120
assemblies were joined to form the s1cd

81
00:03:35,589 --> 00:03:33,440
fuel tank

82
00:03:38,869 --> 00:03:35,599
the exclusion riser was installed on the

83
00:03:41,030 --> 00:03:38,879
s1cd lower fuel tank bulkhead purpose of

84
00:03:42,789 --> 00:03:41,040
the exclusion riser is to occupy space

85
00:03:44,630 --> 00:03:42,799
in the bottom of the tank which would

86
00:03:46,949 --> 00:03:44,640
otherwise hold fuel that would never be

87
00:03:49,190 --> 00:03:46,959
used the displacement of this fuel by

88
00:03:52,949 --> 00:03:49,200

the exclusion riser results in a weight

89
00:03:55,910 --> 00:03:52,959
saving of some five thousand pounds

90
00:03:58,229 --> 00:03:55,920
bulkhead fabrication for s1cd was

91
00:04:01,110 --> 00:03:58,239
concluded in january with completion of

92
00:04:02,949 --> 00:04:01,120
the lower lox bulkhead

93
00:04:06,309 --> 00:04:02,959
fuel tank bulkhead assembly for the

94
00:04:08,390 --> 00:04:06,319
s-1cf facilities checkout stage began in

95
00:04:10,149 --> 00:04:08,400
january

96
00:04:11,670 --> 00:04:10,159
several major components were shipped

97
00:04:13,750 --> 00:04:11,680
about barge to the marshall center

98
00:04:15,589 --> 00:04:13,760
during the report period including the

99
00:04:17,830 --> 00:04:15,599
thrust structure and forward skirt for

100
00:04:21,189 --> 00:04:17,840
the structural test stage and the thrust

101
00:04:23,110 --> 00:04:21,199
structure for the first flight stage

102
00:04:25,270 --> 00:04:23,120
other components being manufactured by

103
00:04:28,390 --> 00:04:25,280
boeing michoud included the first of

104
00:04:30,469 --> 00:04:28,400
four fins for the structural test stage

105
00:04:33,430 --> 00:04:30,479
and upper faring frame assemblies which

106
00:04:35,189 --> 00:04:33,440
attach to the thrust structure

107
00:04:37,110 --> 00:04:35,199
the electro development corporation of

108
00:04:38,790 --> 00:04:37,120
seattle washington which manufactures

109
00:04:40,390 --> 00:04:38,800
various electronic components for

110
00:04:43,110 --> 00:04:40,400
telemetry systems

111
00:04:45,030 --> 00:04:43,120
is representative of the 2500 companies

112
00:04:47,430 --> 00:04:45,040
which keep supply lines of components

113
00:04:49,510 --> 00:04:47,440

and sub-assemblies moving on schedule to

114
00:04:51,510 --> 00:04:49,520
boeing michoud from all over the united

115
00:04:52,950 --> 00:04:51,520
states

116
00:04:55,350 --> 00:04:52,960
the brown engineering company of

117
00:04:58,070 --> 00:04:55,360
huntsville alabama also manufactures

118
00:05:00,469 --> 00:04:58,080
telemetry equipment

119
00:05:03,030 --> 00:05:00,479
another typical boeing supplier borns

120
00:05:04,629 --> 00:05:03,040
incorporated of riverside california

121
00:05:07,350 --> 00:05:04,639
makes some of the smallest pressure

122
00:05:17,029 --> 00:05:07,360
transducers seven tenths of a cubic inch

123
00:05:22,390 --> 00:05:19,590
at the s2 static test facility at santa

124
00:05:25,749 --> 00:05:22,400
susana a successful single engine main

125
00:05:28,310 --> 00:05:25,759
stage firing of 9.8 seconds duration on

126
00:05:30,230 --> 00:05:28,320
december 11th highlighted activity at

127
00:05:32,310 --> 00:05:30,240
the battleship test stand

128
00:05:34,150 --> 00:05:32,320
the test marked the first occasion in

129
00:05:36,710 --> 00:05:34,160
which the j-2 engine had been fully

130
00:05:38,469 --> 00:05:36,720
fired as an integral component of the s2

131
00:05:40,469 --> 00:05:38,479
propulsion system

132
00:05:42,710 --> 00:05:40,479
now that the single engine test program

133
00:05:44,390 --> 00:05:42,720
is completed all battleship effort is

134
00:05:47,830 --> 00:05:44,400
being directed toward activation for

135
00:05:50,870 --> 00:05:47,840
cluster firing all j2 engines as well as

136
00:05:54,629 --> 00:05:50,880
all gse or systems development devices

137
00:05:57,029 --> 00:05:54,639
have been received at santa susana

138
00:05:59,830 --> 00:05:57,039

a preliminary system checkout of the j2

139
00:06:02,469 --> 00:05:59,840
engine gimbal actuation system installed

140
00:06:04,710 --> 00:06:02,479
in the s2 electromechanical mockup was

141
00:06:07,189 --> 00:06:04,720
performed this quarter at downey by the

142
00:06:09,510 --> 00:06:07,199
s2 prime contractor north american

143
00:06:11,510 --> 00:06:09,520
aviation's space and information systems

144
00:06:14,150 --> 00:06:11,520
division

145
00:06:16,469 --> 00:06:14,160
in the gse checkout and test area of the

146
00:06:18,710 --> 00:06:16,479
electro mechanical mock-up facility

147
00:06:20,870 --> 00:06:18,720
check out of control room gse racks is

148
00:06:22,710 --> 00:06:20,880
expected to be completed in march

149
00:06:25,990 --> 00:06:22,720
the control room contains a computer

150
00:06:28,710 --> 00:06:26,000
complex a telemetry checkout station rf

151
00:06:31,029 --> 00:06:28,720
station electrical checkout station and

152
00:06:32,870 --> 00:06:31,039
digital data checkout station

153
00:06:34,469 --> 00:06:32,880
the major subcontractor effort for

154
00:06:36,629 --> 00:06:34,479
delivery of gsc for the

155
00:06:38,150 --> 00:06:36,639
electromechanical mock-up is being

156
00:06:40,309 --> 00:06:38,160
accomplished by brown engineering

157
00:06:43,110 --> 00:06:40,319
company of huntsville consolidated

158
00:06:44,870 --> 00:06:43,120
electrodynamics corporation of pasadena

159
00:06:47,350 --> 00:06:44,880
and computer data corporation of

160
00:06:49,749 --> 00:06:47,360
minneapolis

161
00:06:52,070 --> 00:06:49,759
an s2 program milestone was reached on

162
00:06:54,629 --> 00:06:52,080
february 1st with completion of the

163
00:06:56,070 --> 00:06:54,639

structural test stage at s and id's seal

164
00:06:57,909 --> 00:06:56,080
beach facility

165
00:06:59,830 --> 00:06:57,919
primary aims of the structural test

166
00:07:01,909 --> 00:06:59,840
program will be to certify the

167
00:07:03,990 --> 00:07:01,919
structural integrity of the complete

168
00:07:05,909 --> 00:07:04,000
stage when subjected to critical design

169
00:07:07,830 --> 00:07:05,919
loads and simulated temperature

170
00:07:11,189 --> 00:07:07,840
environments and to determine the

171
00:07:12,790 --> 00:07:11,199
stiffness of the thrust structure

172
00:07:15,270 --> 00:07:12,800
the stage was removed from the vertical

173
00:07:16,870 --> 00:07:15,280
assembly building on february second the

174
00:07:18,870 --> 00:07:16,880
stage was lifted and rotated to a

175
00:07:21,110 --> 00:07:18,880
horizontal position for loading on the

176
00:07:23,110 --> 00:07:21,120
stage transporter which hauled it to the

177
00:07:24,070 --> 00:07:23,120
structural test tower for installation

178
00:07:25,909 --> 00:07:24,080
there

179
00:07:27,589 --> 00:07:25,919
fabrication of jigs and fixtures

180
00:07:29,909 --> 00:07:27,599
required for structural testing is

181
00:07:31,749 --> 00:07:29,919
complete and instrumentation of stage

182
00:07:34,070 --> 00:07:31,759
and tower is progressing toward the

183
00:07:36,390 --> 00:07:34,080
scheduled start of testing in april

184
00:07:39,110 --> 00:07:36,400
after testing the stage will be modified

185
00:07:41,350 --> 00:07:39,120
to a dynamic stage configuration deleted

186
00:07:42,870 --> 00:07:41,360
during a recent reprogramming and is

187
00:07:46,390 --> 00:07:42,880
slated for delivery to marshall in

188
00:07:49,350 --> 00:07:46,400

november for dynamic testing

189
00:07:51,350 --> 00:07:49,360
also at seal beach fabrication of the s2

190
00:07:53,589 --> 00:07:51,360
common bulkhead test tank was

191
00:07:56,550 --> 00:07:53,599
highlighted by completion and ultrasonic

192
00:07:58,550 --> 00:07:56,560
inspection using dye penetrant solution

193
00:08:00,629 --> 00:07:58,560
of the common bulkhead and by

194
00:08:02,469 --> 00:08:00,639
circumferential welding of liquid

195
00:08:03,749 --> 00:08:02,479
hydrogen tank cylinders number one and

196
00:08:06,230 --> 00:08:03,759
number two

197
00:08:08,469 --> 00:08:06,240
welding of the common bulkhead and lh2

198
00:08:11,029 --> 00:08:08,479
bulkhead to the cylinder assembly was

199
00:08:12,950 --> 00:08:11,039
also completed

200
00:08:14,790 --> 00:08:12,960
construction of the common bulkhead test

201
00:08:17,909 --> 00:08:14,800
tank facility at santa susana was

202
00:08:19,909 --> 00:08:17,919
completed in february the cbt test

203
00:08:23,110 --> 00:08:19,919
article is scheduled to be received at

204
00:08:25,350 --> 00:08:23,120
santa susana in april

205
00:08:27,589 --> 00:08:25,360
final assembly of the all systems stage

206
00:08:29,510 --> 00:08:27,599
was begun in february the first

207
00:08:31,589 --> 00:08:29,520
operation being the welding of cylinder

208
00:08:34,389 --> 00:08:31,599
number three to number four

209
00:08:36,949 --> 00:08:34,399
cylinder number five was later welded to

210
00:08:39,029 --> 00:08:36,959
three and four

211
00:08:41,350 --> 00:08:39,039
all major structural components such as

212
00:08:43,269 --> 00:08:41,360
bulkheads and thrust structure necessary

213
00:08:45,430 --> 00:08:43,279

for vertical assembly of the all system

214
00:08:48,070 --> 00:08:45,440
stage are scheduled for completion by

215
00:08:50,070 --> 00:08:48,080
the end of march

216
00:08:52,389 --> 00:08:50,080
assembly of major structural components

217
00:08:54,550 --> 00:08:52,399
is also in progress at seal beach for

218
00:08:57,990 --> 00:08:54,560
the facility's checkout stage

219
00:09:01,030 --> 00:08:58,000
final assembly will begin next quarter

220
00:09:02,790 --> 00:09:01,040
at snid's tulsa facility manufacturer of

221
00:09:09,990 --> 00:09:02,800
components continued for the first two

222
00:09:14,389 --> 00:09:12,230
a ceremony at douglas aircraft companies

223
00:09:16,550 --> 00:09:14,399
huntington beach california facility

224
00:09:19,829 --> 00:09:16,560
early in december marked the formal

225
00:09:21,829 --> 00:09:19,839
turnover to nasa of the first s-4b stage

226
00:09:25,030 --> 00:09:21,839
built by the company

227
00:09:26,389 --> 00:09:25,040
the stage designated s4bd was then

228
00:09:29,509 --> 00:09:26,399
shipped from the west coast to the

229
00:09:33,590 --> 00:09:29,519
marshall center for use in saturn 1b and

230
00:09:35,509 --> 00:09:33,600
saturn 5 dynamic test programs

231
00:09:38,310 --> 00:09:35,519
at marshall the stage was installed in

232
00:09:40,949 --> 00:09:38,320
the saturn 1 1b dynamic test stand in

233
00:09:42,870 --> 00:09:40,959
mid-january as part of the saturn 1b

234
00:09:45,030 --> 00:09:42,880
vehicle

235
00:09:46,710 --> 00:09:45,040
meanwhile back at huntington beach after

236
00:09:50,230 --> 00:09:46,720
completion of checkout and painting of

237
00:09:52,070 --> 00:09:50,240
the facility's checkout stage s4bf the

238
00:09:55,190 --> 00:09:52,080

stage was moved to douglas sacramento

239
00:09:57,110 --> 00:09:55,200
test area on february 18th the stage was

240
00:09:59,509 --> 00:09:57,120
installed in beta test stand number

241
00:10:02,310 --> 00:09:59,519
three for propellant loading tests

242
00:10:04,310 --> 00:10:02,320
scheduled next quarter

243
00:10:06,470 --> 00:10:04,320
fabrication and assembly of components

244
00:10:09,110 --> 00:10:06,480
for the first and second s-4b flight

245
00:10:13,190 --> 00:10:09,120
stages for the saturn 5 program

246
00:10:14,870 --> 00:10:13,200
continued at douglas santa monica plant

247
00:10:17,030 --> 00:10:14,880
also in progress during the report

248
00:10:20,389 --> 00:10:17,040
period was douglas structural test

249
00:10:22,310 --> 00:10:20,399
program involving various s4b components

250
00:10:24,230 --> 00:10:22,320
such as this static test thrust

251
00:10:26,230 --> 00:10:24,240
structure

252
00:10:28,470 --> 00:10:26,240
another item undergoing qualification

253
00:10:30,550 --> 00:10:28,480
testing was this liquid oxygen tank

254
00:10:33,110 --> 00:10:30,560
assembly

255
00:10:34,949 --> 00:10:33,120
and an s4b forward skirt was tested to

256
00:10:39,990 --> 00:10:34,959
failure to determine maximum load

257
00:10:45,030 --> 00:10:42,710
at the sacramento test area the s4b

258
00:10:47,509 --> 00:10:45,040
battleship firing test program continued

259
00:10:50,470 --> 00:10:47,519
during december with successful firings

260
00:10:51,829 --> 00:10:50,480
varying from 10 seconds to 416 seconds

261
00:10:54,870 --> 00:10:51,839
in duration

262
00:10:57,750 --> 00:10:54,880
the 416 second firing was the longest

263
00:11:01,430 --> 00:10:57,760

s4b test to date

264
00:11:03,269 --> 00:11:01,440
in late january j2 engine number 2003

265
00:11:05,350 --> 00:11:03,279
was removed from the battleship test

266
00:11:07,910 --> 00:11:05,360
stand and was replaced with engine

267
00:11:10,710 --> 00:11:07,920
number 2013 which has a gimbal

268
00:11:12,630 --> 00:11:10,720
capability for the continuation of tests

269
00:11:15,030 --> 00:11:12,640
in addition to hot firings such

270
00:11:17,269 --> 00:11:15,040
development tests as engine chill down

271
00:11:25,990 --> 00:11:17,279
and propellant utilization were also

272
00:11:30,509 --> 00:11:28,230
rocketdyne's f1 engine flight rating

273
00:11:33,430 --> 00:11:30,519
test program which began november 16

274
00:11:35,750 --> 00:11:33,440
1964 at the edwards rocket engine test

275
00:11:37,990 --> 00:11:35,760
site in california was successfully

276
00:11:40,790 --> 00:11:38,000
concluded on december 16th

277
00:11:43,430 --> 00:11:40,800
engine number 2004 installed in test

278
00:11:45,829 --> 00:11:43,440
stand a1 was utilized in the safety

279
00:11:48,630 --> 00:11:45,839
limits series of tests

280
00:11:51,190 --> 00:11:48,640
while engine number 2006 installed in

281
00:11:53,509 --> 00:11:51,200
stand 1d was used for the calibration

282
00:11:55,829 --> 00:11:53,519
series

283
00:11:57,430 --> 00:11:55,839
at the high flow water facility a new

284
00:11:59,590 --> 00:11:57,440
flow collection system has been

285
00:12:01,670 --> 00:11:59,600
installed to provide an accurate means

286
00:12:04,069 --> 00:12:01,680
of measuring the volume of flow through

287
00:12:05,910 --> 00:12:04,079
selected orifice groups this data will

288
00:12:08,870 --> 00:12:05,920

be used in the development of injectors

289
00:12:10,870 --> 00:12:08,880
with improved performance

290
00:12:13,590 --> 00:12:10,880
rocketdyne is conducting qualification

291
00:12:15,590 --> 00:12:13,600
tests on a number of f1 components the

292
00:12:17,350 --> 00:12:15,600
heat exchanger check valve which

293
00:12:19,590 --> 00:12:17,360
prevents locks from the propellant tank

294
00:12:22,150 --> 00:12:19,600
from entering the system during standby

295
00:12:24,790 --> 00:12:22,160
was installed on the 15-ton shaker for

296
00:12:26,550 --> 00:12:24,800
vibration testing

297
00:12:28,310 --> 00:12:26,560
the flight combustion monitor has

298
00:12:30,389 --> 00:12:28,320
undergone a number of tests including

299
00:12:34,470 --> 00:12:30,399
function testing to determine frequency

300
00:12:36,710 --> 00:12:34,480
response amplitude and time delay

301
00:12:38,629 --> 00:12:36,720
several types of f1 engine insulation

302
00:12:41,350 --> 00:12:38,639
fastener samples have been subjected to

303
00:12:43,509 --> 00:12:41,360
stress tests to determine fastener size

304
00:12:45,269 --> 00:12:43,519
and spacing

305
00:12:47,350 --> 00:12:45,279
structural integrity of the f1

306
00:12:49,590 --> 00:12:47,360
electrical interface panel has been

307
00:12:51,430 --> 00:12:49,600
successfully proved in a series of tests

308
00:12:59,430 --> 00:12:51,440
in which the panel was loaded along

309
00:13:03,990 --> 00:13:01,430
at the marshall center propulsion system

310
00:13:06,470 --> 00:13:04,000
testing of three of the five f1 engines

311
00:13:09,190 --> 00:13:06,480
for the s1c static firing stage has been

312
00:13:11,910 --> 00:13:09,200
accomplished test completion is expected

313
00:13:14,949 --> 00:13:11,920

by the middle of march

314
00:13:17,110 --> 00:13:14,959
at marshall's new f-1 static test stand

315
00:13:19,590 --> 00:13:17,120
interior work continued in preparation

316
00:13:24,150 --> 00:13:19,600
for initial engine testing scheduled for

317
00:13:28,790 --> 00:13:26,150
a milestone of vital importance to the

318
00:13:31,590 --> 00:13:28,800
entire saturn apollo program was reached

319
00:13:33,430 --> 00:13:31,600
on december 9th when rocketdyne's j2

320
00:13:35,990 --> 00:13:33,440
engine successfully demonstrated its

321
00:13:38,470 --> 00:13:36,000
ability to stop and restart in a static

322
00:13:40,710 --> 00:13:38,480
firing conducted at santa susana

323
00:13:43,829 --> 00:13:40,720
the test engine was operated initially

324
00:13:46,150 --> 00:13:43,839
for 165 seconds and shut down

325
00:13:48,870 --> 00:13:46,160
following a 75-minute simulated coast

326
00:13:51,110 --> 00:13:48,880
period the engine was restarted the

327
00:13:53,030 --> 00:13:51,120
restart was cut off at seven seconds

328
00:13:53,910 --> 00:13:53,040
because of an erroneous helium pressure

329
00:13:56,150 --> 00:13:53,920
reading

330
00:13:59,829 --> 00:13:56,160
after six minutes the engine was started

331
00:14:03,509 --> 00:13:59,839
again and run for 310 seconds simulating

332
00:14:05,430 --> 00:14:03,519
the s4b stage in flight

333
00:14:08,069 --> 00:14:05,440
following successful completion last

334
00:14:10,470 --> 00:14:08,079
quarter of j2 engine preliminary flight

335
00:14:11,829 --> 00:14:10,480
rating tests the test engine was removed

336
00:14:14,389 --> 00:14:11,839
from the stand and completely

337
00:14:16,790 --> 00:14:14,399
disassembled for a tear down inspection

338
00:14:18,470 --> 00:14:16,800

at rocketdyne's canoga park plant to

339
00:14:21,030 --> 00:14:18,480
determine the extent of wear on the

340
00:14:25,269 --> 00:14:21,040
engine after eighteen firings totaling

341
00:14:29,350 --> 00:14:27,670
on january twenty second acceptance

342
00:14:31,509 --> 00:14:29,360
testing of the first j2 flight

343
00:14:34,550 --> 00:14:31,519
configuration engine was conducted at

344
00:14:36,389 --> 00:14:34,560
santa susana and on january 26th the

345
00:14:40,230 --> 00:14:36,399
engine was delivered to douglas for use

346
00:14:43,030 --> 00:14:40,240
in its s-4b battleship program

347
00:14:44,949 --> 00:14:43,040
also at santa susana major modification

348
00:14:46,949 --> 00:14:44,959
of vertical test stand number three has

349
00:14:49,110 --> 00:14:46,959
been completed to provide improved

350
00:14:56,150 --> 00:14:49,120
propellant conditioning and increased

351
00:15:01,430 --> 00:14:58,470
vibration testing of the instrument unit

352
00:15:03,670 --> 00:15:01,440
designated as siu 200v

353
00:15:05,110 --> 00:15:03,680
got underway in late february

354
00:15:06,870 --> 00:15:05,120
the tests are being conducted for

355
00:15:08,150 --> 00:15:06,880
marshall by the wiley laboratories in

356
00:15:10,150 --> 00:15:08,160
huntsville

357
00:15:12,870 --> 00:15:10,160
although the 200v unit testing is

358
00:15:15,350 --> 00:15:12,880
actually a part of the saturn 1b program

359
00:15:18,389 --> 00:15:15,360
information gained will apply also to

360
00:15:20,470 --> 00:15:18,399
the saturn 5 program

361
00:15:24,790 --> 00:15:20,480
assembly of the dynamic test instrument

362
00:15:26,790 --> 00:15:24,800
unit siu 200 d 500d was completed

363
00:15:29,350 --> 00:15:26,800

february 1st at marshall with

364
00:15:32,069 --> 00:15:29,360
installation of dummy equipment the unit

365
00:15:33,590 --> 00:15:32,079
is for use in both the saturn 1b and 5

366
00:15:36,790 --> 00:15:33,600
programs

367
00:15:39,110 --> 00:15:36,800
assembly of siu-200s-500s

368
00:15:41,509 --> 00:15:39,120
a structural test unit was finished in

369
00:15:43,269 --> 00:15:41,519
late february

370
00:15:45,910 --> 00:15:43,279
the dynamic test unit was later

371
00:15:49,030 --> 00:15:45,920
installed atop the s4b dynamic test

372
00:15:51,350 --> 00:15:49,040
stage in marshall saturn 1 1b dynamic

373
00:15:54,550 --> 00:15:51,360
test stand where it underwent testing as

374
00:15:57,430 --> 00:15:54,560
part of the saturn 1b vehicle

375
00:15:59,430 --> 00:15:57,440
structural buildup of the 500 fs flight

376
00:16:00,790 --> 00:15:59,440
systems instrument unit began in

377
00:16:02,310 --> 00:16:00,800
mid-february

378
00:16:04,870 --> 00:16:02,320
this unit will be shipped to douglas

379
00:16:07,269 --> 00:16:04,880
next fall for use in testing there

380
00:16:10,230 --> 00:16:07,279
assembly of the facility's checkout unit

381
00:16:13,189 --> 00:16:10,240
500 f continued it will be sent to cape

382
00:16:15,590 --> 00:16:13,199
kennedy in june

383
00:16:18,150 --> 00:16:15,600
a breadboard version of the iu's launch

384
00:16:20,550 --> 00:16:18,160
vehicle digital computer used in

385
00:16:22,389 --> 00:16:20,560
guidance operations has been received at

386
00:16:24,629 --> 00:16:22,399
marshall from the manufacturer

387
00:16:27,269 --> 00:16:24,639
international business machines and is

388
00:16:29,509 --> 00:16:27,279

now being checked out and evaluated the

389
00:16:32,470 --> 00:16:29,519
first of the several prototype computers

390
00:16:35,030 --> 00:16:32,480
will be delivered next quarter

391
00:16:37,030 --> 00:16:35,040
at ibm's huntsville facility the first

392
00:16:39,430 --> 00:16:37,040
major piece of hard tooling for use in

393
00:16:42,069 --> 00:16:39,440
iu assembly a structural assembly

394
00:16:44,230 --> 00:16:42,079
fixture was received and installed early

395
00:16:46,310 --> 00:16:44,240
in the quarter

396
00:16:48,310 --> 00:16:46,320
installation calibration and checkout of

397
00:16:51,670 --> 00:16:48,320
one of ibm's two telemetry ground

398
00:16:54,310 --> 00:16:51,680
stations was also accomplished

399
00:16:56,710 --> 00:16:54,320
at ibm space guidance center in oregon

400
00:16:58,069 --> 00:16:56,720
new york radiographic inspection was

401
00:16:59,910 --> 00:16:58,079
accomplished on the first piece of

402
00:17:02,629 --> 00:16:59,920
production hardware to enter the

403
00:17:04,710 --> 00:17:02,639
company's production cycle a magnesium

404
00:17:05,470 --> 00:17:04,720
casting which forms the base assembly

405
00:17:08,230 --> 00:17:05,480
for

406
00:17:10,470 --> 00:17:08,240
siu-201's emergency detection system

407
00:17:12,549 --> 00:17:10,480
distributor

408
00:17:15,110 --> 00:17:12,559
other machining operations underway at

409
00:17:17,270 --> 00:17:15,120
owego included a casting to be used in

410
00:17:19,270 --> 00:17:17,280
the launch vehicle data adapter a

411
00:17:25,189 --> 00:17:19,280
component of the guidance and control

412
00:17:29,350 --> 00:17:27,270
at the marshall center saturn 5 ground

413
00:17:31,270 --> 00:17:29,360

support equipment test facility

414
00:17:33,350 --> 00:17:31,280
installation of technical systems has

415
00:17:35,830 --> 00:17:33,360
been finished and checkout is now

416
00:17:37,510 --> 00:17:35,840
nearing completion

417
00:17:40,390 --> 00:17:37,520
build up of the facilities vehicle

418
00:17:42,789 --> 00:17:40,400
motion simulator by the prime contractor

419
00:17:46,630 --> 00:17:42,799
american machine and foundry company is

420
00:17:49,029 --> 00:17:46,640
approximately 25 percent complete

421
00:17:51,590 --> 00:17:49,039
a new landmark arose at marshall as the

422
00:17:53,909 --> 00:17:51,600
120 foot tall acceleration test and

423
00:17:55,510 --> 00:17:53,919
calibration facility took shape

424
00:17:58,390 --> 00:17:55,520
the facility will contain a large

425
00:18:00,789 --> 00:17:58,400
centrifuge an acceleration tower and an

426
00:18:03,110 --> 00:18:00,799
acoustical chamber for testing guidance

427
00:18:05,909 --> 00:18:03,120
components

428
00:18:07,909 --> 00:18:05,919
at marshall's mississippi test facility

429
00:18:09,590 --> 00:18:07,919
the first of three static test stands

430
00:18:11,909 --> 00:18:09,600
towered more than 100 feet above its

431
00:18:14,630 --> 00:18:11,919
foundation by the end of the quarter

432
00:18:17,110 --> 00:18:14,640
this stand nearest completion is for the

433
00:18:19,990 --> 00:18:17,120
s2 stage

434
00:18:22,710 --> 00:18:20,000
in mtf's test complex work also

435
00:18:25,590 --> 00:18:22,720
progressed on a second s2 stand

436
00:18:27,750 --> 00:18:25,600
and on the dual position s1c static test

437
00:18:30,230 --> 00:18:27,760
stand

438
00:18:32,150 --> 00:18:30,240

in other areas of mtf buildings such as

439
00:18:33,510 --> 00:18:32,160
the office and administration building

440
00:18:35,669 --> 00:18:33,520
were completed

441
00:18:37,350 --> 00:18:35,679
while others took form so that the

442
00:18:39,750 --> 00:18:37,360
entire site began to shape into the

443
00:18:41,830 --> 00:18:39,760
comprehensive rocket testing facility it

444
00:18:45,510 --> 00:18:41,840
is destined to be when operations

445
00:18:48,230 --> 00:18:45,520
commence almost a year from now

446
00:18:49,990 --> 00:18:48,240
in summary this report period witnessed

447
00:18:52,230 --> 00:18:50,000
the accomplishment of an outstanding

448
00:18:54,549 --> 00:18:52,240
number of major milestones

449
00:18:57,430 --> 00:18:54,559
the s1c static firing stage was

450
00:18:59,909 --> 00:18:57,440
completed and made ready for testing

451
00:19:02,150 --> 00:18:59,919
the first s2 stage battleship firing was

452
00:19:04,150 --> 00:19:02,160
successfully conducted and the assembly

453
00:19:05,270 --> 00:19:04,160
of the s2 structural test stage was

454
00:19:07,990 --> 00:19:05,280
completed

455
00:19:10,230 --> 00:19:08,000
the first s-4b stage for use in dynamic

456
00:19:11,909 --> 00:19:10,240
testing was delivered to nasa and

457
00:19:13,990 --> 00:19:11,919
testing was begun

458
00:19:17,110 --> 00:19:14,000
the f-1 engine flight rating test

459
00:19:19,510 --> 00:19:17,120
program was successfully concluded

460
00:19:21,270 --> 00:19:19,520
the j-2 engine demonstrated its restart

461
00:19:23,270 --> 00:19:21,280
capability

462
00:19:24,789 --> 00:19:23,280
vibration testing of the instrument unit

463
00:19:27,029 --> 00:19:24,799

got underway

464
00:19:29,510 --> 00:19:27,039
as well as dynamic testing as part of

465
00:19:30,870 --> 00:19:29,520
the saturn 1b vehicle

466
00:19:33,190 --> 00:19:30,880
and new facilities such as the

467
00:19:35,029 --> 00:19:33,200
mississippi test facility moved still

468
00:19:37,590 --> 00:19:35,039
closer toward the time when they will