1
00:00:02,009 --> 00:00:24,640
[Music]

2
00:00:28,970 --> 00:00:27,349
over a decade of effort by the Marshall

3
00:00:31,400 --> 00:00:28,980
Space Flight Center and the Saturn

4
00:00:33,860 --> 00:00:31,410
Apollo industrial contractors was

5
00:00:35,900 --> 00:00:33,870
culminated this report period with two

6
00:00:38,240 --> 00:00:35,910
highly successful launchings of Saturn

7
00:00:44,209 --> 00:00:38,250
five vehicles four manned lunar landing

8
00:00:47,540 --> 00:00:44,219
missions Apollo 11 and Apollo 12 on the

9
00:00:49,819 --> 00:00:47,550
morning of July 16th 1969 the sixth

10
00:00:51,319 --> 00:00:49,829
Saturn five flight vehicle lifted off

11
00:00:54,410 --> 00:00:51,329
from the Kennedy Space Center's launch

12
00:00:57,170 --> 00:00:54,420
complex 39b for the beginning of

13
00:00:59,180 --> 00:00:57,180

mankind's most historic undertaking the

14
00:01:01,760 --> 00:00:59,190
first manned landing on the moon

15
00:01:04,729 --> 00:01:01,770
the launch vehicle designated Apollo

16
00:01:06,530 --> 00:01:04,739
Saturn 506 developed and manufactured by

17
00:01:09,050 --> 00:01:06,540
the Marshall Center and its industrial

18
00:01:12,020 --> 00:01:09,060
team performed its mission almost

19
00:01:13,940 --> 00:01:12,030
flawlessly as it carried astronauts Neil

20
00:01:16,550 --> 00:01:13,950
Armstrong Edwin Aldrin and Michael

21
00:01:18,859 --> 00:01:16,560
Collins aboard the Apollo 11 spacecraft

22
00:01:21,830 --> 00:01:18,869
on their epic journey to the lunar

23
00:01:24,710 --> 00:01:21,840
surface engineering evaluation of flight

24
00:01:27,260 --> 00:01:24,720
data indicated no significant deviations

25
00:01:30,469 --> 00:01:27,270
from the flight program with all mission

26
00:01:33,230 --> 00:01:30,479
objectives attained the s1c stages

27
00:01:35,960 --> 00:01:33,240
center f1 engine cutoff at 2 minutes 15

28
00:01:39,170 --> 00:01:35,970
seconds the four outboard engines shut

29
00:01:41,149 --> 00:01:39,180
down at 2 minutes 41 seconds all staging

30
00:01:43,700 --> 00:01:41,159
sequences were performed within seconds

31
00:01:47,690 --> 00:01:43,710
or even fractions of a second of their

32
00:01:50,270 --> 00:01:47,700
predicted times separation of the S 1 C

33
00:01:53,149 --> 00:01:50,280
and s 2 stages occurred at 2 minutes 42

34
00:01:57,770 --> 00:01:53,159
seconds into flight S 2 ignition was

35
00:02:00,260 --> 00:01:57,780
achieved at 2 minutes 43 seconds S 2

36
00:02:02,630 --> 00:02:00,270
Center J 2 engine cutoff came at 7

37
00:02:05,149 --> 00:02:02,640
minutes 40 seconds into the flight with

38
00:02:09,529 --> 00:02:05,159

s 2 outboard engines cutoff at 9 minutes

39
00:02:12,470 --> 00:02:09,539
8 seconds separation of the s 2 and s 4

40
00:02:14,240 --> 00:02:12,480
B stages occurred at 9 minutes 9 seconds

41
00:02:16,730 --> 00:02:14,250
and s 4 B Agnes

42
00:02:19,550 --> 00:02:16,740
two tenths of a second later the first

43
00:02:22,340 --> 00:02:19,560
burn of the s4b stage lasting two

44
00:02:24,080 --> 00:02:22,350
minutes 30 seconds established a

45
00:02:27,620 --> 00:02:24,090
circular parking orbit around the earth

46
00:02:31,820 --> 00:02:27,630
of 103 nautical miles precisely as

47
00:02:35,180 --> 00:02:31,830
planned during the second revolution the

48
00:02:37,730 --> 00:02:35,190
s4b stage was reignited on schedule two

49
00:02:41,270 --> 00:02:37,740
hours 44 minutes 16 seconds after launch

50
00:02:44,890 --> 00:02:41,280
time for a five minute 44 second burn to

51
00:02:47,270 --> 00:02:44,900
achieve translunar injection after

52
00:02:49,970 --> 00:02:47,280
transposition docking and ejection of

53
00:02:51,470 --> 00:02:49,980
the Apollo 11 spacecraft residual

54
00:02:53,750 --> 00:02:51,480
propellants in the s4b

55
00:02:56,000 --> 00:02:53,760
were used to increase the separation of

56
00:02:58,460 --> 00:02:56,010
the stage in spacecraft trajectories and

57
00:03:02,449 --> 00:02:58,470
to dispose of the stage into a solar

58
00:03:04,040 --> 00:03:02,459
orbit the accuracy with which the s4b

59
00:03:05,570 --> 00:03:04,050
second burn had sent the three

60
00:03:08,060 --> 00:03:05,580
astronauts on their moon word coast

61
00:03:10,070 --> 00:03:08,070
trajectory was such that only one of

62
00:03:14,060 --> 00:03:10,080
four planned mid-course Corrections

63
00:03:15,800 --> 00:03:14,070

proved necessary as astronaut Colin

64
00:03:17,990 --> 00:03:15,810
circled the moon in the spacecraft's

65
00:03:20,449 --> 00:03:18,000
command and service module codenamed

66
00:03:22,130 --> 00:03:20,459
Columbia brother space travelers

67
00:03:25,250 --> 00:03:22,140
descended to the surface in their lunar

68
00:03:28,580 --> 00:03:25,260
module the Eagle landing at 3:18 p.m.

69
00:03:32,690 --> 00:03:28,590
Sunday July 20th only four miles from

70
00:03:34,850 --> 00:03:32,700
their predicted landing site some six

71
00:03:37,640 --> 00:03:34,860
and a half hours later Neil Armstrong

72
00:03:41,509 --> 00:03:37,650
became the first man ever to set foot on

73
00:03:43,850 --> 00:03:41,519
the moon Edwin Aldrin followed the

74
00:03:48,380 --> 00:03:43,860
Apollo 11 commander some twenty minutes

75
00:03:50,960 --> 00:03:48,390
later the two men spent a total of 2

76
00:03:53,030 --> 00:03:50,970
hours and 32 minutes on the moon taking

77
00:03:55,430 --> 00:03:53,040
photographs gathering lunar material

78
00:03:59,630 --> 00:03:55,440
samples and deploying scientific

79
00:04:03,020 --> 00:03:59,640
experiment packages then a perfect

80
00:04:06,740 --> 00:04:03,030
liftoff from the lunar surface docking

81
00:04:08,360 --> 00:04:06,750
with the Columbia in lunar orbit firing

82
00:04:11,020 --> 00:04:08,370
of the spacecraft service propulsion

83
00:04:13,610 --> 00:04:11,030
system engine for trans Earth injection

84
00:04:15,770 --> 00:04:13,620
the fifty nine and a half hour coast

85
00:04:17,199 --> 00:04:15,780
back to Earth a quarter of a million

86
00:04:19,969 --> 00:04:17,209
miles away

87
00:04:22,339 --> 00:04:19,979
splashdown and recovery in the Pacific

88
00:04:25,490 --> 00:04:22,349

near Hawaii all accomplished without

89
00:04:27,170 --> 00:04:25,500
mishap and the historic mission begun so

90
00:04:27,950 --> 00:04:27,180
successfully by the saturn v launch

91
00:04:31,840 --> 00:04:27,960
vehicle

92
00:04:34,670 --> 00:04:31,850
eight days earlier had ended in Tryon

93
00:04:37,070 --> 00:04:34,680
meanwhile preparations for the second

94
00:04:38,809 --> 00:04:37,080
lunar landing mission Apollo 12 were

95
00:04:41,659 --> 00:04:38,819
well underway at the beginning of this

96
00:04:43,749 --> 00:04:41,669
report period as the seventh saturn v

97
00:04:46,640 --> 00:04:43,759
flight vehicle underwent check out in

98
00:04:51,080 --> 00:04:46,650
KSC's vehicle assembly building during

99
00:04:53,120 --> 00:04:51,090
July August and early September the

100
00:04:56,510 --> 00:04:53,130
vehicle was moved on September 8th to

101
00:04:58,760 --> 00:04:56,520
its launch pad the astronaut crew for

102
00:05:03,950 --> 00:04:58,770
the Apollo 12 mission would be Charles

103
00:05:05,749 --> 00:05:03,960
Conrad Richard Gordon and Alan bean the

104
00:05:07,909 --> 00:05:05,759
flight readiness test was concluded on

105
00:05:10,040 --> 00:05:07,919
September 30th the countdown

106
00:05:12,860 --> 00:05:10,050
demonstration test last major test

107
00:05:16,520 --> 00:05:12,870
before launch began on October 24th and

108
00:05:18,620 --> 00:05:16,530
was finished five days later after final

109
00:05:20,870 --> 00:05:18,630
checks the launch count was picked up on

110
00:05:25,040 --> 00:05:20,880
November 8th and proceeded with only a

111
00:05:26,960 --> 00:05:25,050
few minor problems with us event of the

112
00:05:28,909 --> 00:05:26,970
United force an estimated thousand other

113
00:05:31,879 --> 00:05:28,919

spectators watching from the bleachers

114
00:05:33,409 --> 00:05:31,889
nning of November teens under dark and

115
00:05:36,920 --> 00:05:33,419
threatening skies which severely

116
00:05:38,990 --> 00:05:36,930
curtailed photographic coverage a s 507

117
00:05:55,720 --> 00:05:39,000
lifted off disappearing almost

118
00:06:02,960 --> 00:05:59,000
at 30 6.5 seconds

119
00:06:05,300 --> 00:06:02,970
lightning struck the vehicle this artist

120
00:06:07,670 --> 00:06:05,310
concept based on photographs of the

121
00:06:10,159 --> 00:06:07,680
lightning phenomenon shows three bolts

122
00:06:12,110 --> 00:06:10,169
hitting near the launch platform another

123
00:06:14,840 --> 00:06:12,120
electrical discharge between clouds

124
00:06:16,670 --> 00:06:14,850
occurred at 52 seconds minor

125
00:06:19,070 --> 00:06:16,680
disturbances were recorded in the launch

126
00:06:23,180 --> 00:06:19,080
vehicle but these had no effect on

127
00:06:24,770 --> 00:06:23,190
system performance with photographic

128
00:06:27,580 --> 00:06:24,780
tracking footage unavailable due to

129
00:06:30,260 --> 00:06:27,590
weather animation depicts the flight

130
00:06:32,960 --> 00:06:30,270
evaluation of flight data indicated that

131
00:06:35,030 --> 00:06:32,970
despite some unanticipated events a.s

132
00:06:38,270 --> 00:06:35,040
507 accomplished all mandatory

133
00:06:40,219 --> 00:06:38,280
objectives placing the s4b stage and

134
00:06:42,260 --> 00:06:40,229
spacecraft into an accurate earth

135
00:06:45,730 --> 00:06:42,270
parking orbit and then sending the

136
00:06:49,190 --> 00:06:45,740
spacecraft into translunar trajectory

137
00:06:50,870 --> 00:06:49,200
during s2 stage burn some reappearance

138
00:06:53,360 --> 00:06:50,880

of the low frequency vibrations of

139
00:06:55,760 --> 00:06:53,370
previous vehicles was recorded however

140
00:06:57,670 --> 00:06:55,770
such vibrations did not persist long

141
00:07:00,200 --> 00:06:57,680
enough to produce fatigue effects and

142
00:07:02,450 --> 00:07:00,210
qualification levels of components such

143
00:07:06,800 --> 00:07:02,460
as valves lines and electronic packages

144
00:07:09,140 --> 00:07:06,810
were not exceeded both first and second

145
00:07:11,719 --> 00:07:09,150
burns of the s4 B stage were successful

146
00:07:14,510 --> 00:07:11,729
all guidance and control performances

147
00:07:16,190 --> 00:07:14,520
were as expected during second burn with

148
00:07:20,390 --> 00:07:16,200
the stage being placed on the proper

149
00:07:23,270 --> 00:07:20,400
trajectory as shown in this non scale

150
00:07:24,980 --> 00:07:23,280
animation sequence the s4 B stage was

151
00:07:27,050 --> 00:07:24,990
disposed out by using residual

152
00:07:29,510 --> 00:07:27,060
propellants to send it into a trans

153
00:07:31,250 --> 00:07:29,520
lunar orbit with an Apogee approximately

154
00:07:33,680 --> 00:07:31,260
four times the distance of the moon from

155
00:07:37,850 --> 00:07:33,690
the earth and a perigee about one-half

156
00:07:39,560 --> 00:07:37,860
the moon's distance the three Apollo 12

157
00:07:43,100 --> 00:07:39,570
astronauts arrived at the moon on

158
00:07:46,640 --> 00:07:43,110
November 17th going into a 54 to 66

159
00:07:48,230 --> 00:07:46,650
nautical mile orbit while Gordon

160
00:07:50,650 --> 00:07:48,240
remained behind in the command and

161
00:07:53,060 --> 00:07:50,660
service module codenamed Yankee Clipper

162
00:07:57,610 --> 00:07:53,070
Conrad and bean descended in the lunar

163
00:08:02,630 --> 00:08:00,440

Charles Conrad became the third man ever

164
00:08:04,850 --> 00:08:02,640
to set foot on the moon with Alan bean

165
00:08:06,710 --> 00:08:04,860
stepping down shortly afterwards

166
00:08:08,690 --> 00:08:06,720
the two men left the lunar module twice

167
00:08:11,900 --> 00:08:08,700
to set up scientific experiments and

168
00:08:13,730 --> 00:08:11,910
make geological investigations only six

169
00:08:15,680 --> 00:08:13,740
hundred feet from their own landing site

170
00:08:18,050 --> 00:08:15,690
they inspected the surveyor three

171
00:08:20,920 --> 00:08:18,060
unmanned spacecraft which had been sent

172
00:08:23,620 --> 00:08:20,930
to the moon two and a half years ago

173
00:08:25,820 --> 00:08:23,630
then ascent from the moon surface

174
00:08:28,520 --> 00:08:25,830
docking with the orbiting command and

175
00:08:31,130 --> 00:08:28,530
service module the long voyage home to

176
00:08:34,430 --> 00:08:31,140
earth safe splashdown in recovery near

177
00:08:37,400 --> 00:08:34,440
Hawaii all accomplished smoothly Apollo

178
00:08:41,270 --> 00:08:37,410
12 just as Apollo 11 a thoroughly

179
00:08:43,460 --> 00:08:41,280
successful mission meanwhile the final

180
00:08:46,910 --> 00:08:43,470
portion the instrument unit for the next

181
00:08:49,940 --> 00:08:46,920
Saturn 5 flight vehicle 508 arrived at

182
00:08:52,910 --> 00:08:49,950
KSC from the contractor IBM Huntsville

183
00:08:57,920 --> 00:08:52,920
on July 7th the other stages had been

184
00:08:59,600 --> 00:08:57,930
delivered in June erection of the AS 508

185
00:09:02,420 --> 00:08:59,610
vehicle began in the Vehicle Assembly

186
00:09:03,560 --> 00:09:02,430
Building in early July and was completed

187
00:09:05,570 --> 00:09:03,570
on August 1st

188
00:09:07,700 --> 00:09:05,580

during troubleshooting on the IU

189
00:09:10,190 --> 00:09:07,710
platform electronics assembly a

190
00:09:11,900 --> 00:09:10,200
defective relay was discovered the

191
00:09:13,820 --> 00:09:11,910
assembly was removed and sent to the

192
00:09:14,570 --> 00:09:13,830
Marshall Center for repair in late

193
00:09:16,280 --> 00:09:14,580
November

194
00:09:21,050 --> 00:09:16,290
then returned four days later and

195
00:09:24,350 --> 00:09:21,060
reinstalled rollout was accomplished on

196
00:09:27,170 --> 00:09:24,360
December 15th AS 508 will launch the

197
00:09:29,570 --> 00:09:27,180
Apollo 13 spacecraft in April on the

198
00:09:31,550 --> 00:09:29,580
third lunar landing mission the flight

199
00:09:33,620 --> 00:09:31,560
was postponed from its original March

200
00:09:35,840 --> 00:09:33,630
launch date in order to allow more time

201
00:09:38,900 --> 00:09:35,850
for scientific investigation between

202
00:09:39,890 --> 00:09:38,910
Apollo missions the astronaut crew will

203
00:09:43,820 --> 00:09:39,900
be James level

204
00:09:47,450 --> 00:09:43,830
Thomas Mattingly and Fred Hayes after

205
00:09:49,520 --> 00:09:47,460
the s4b stage of 508 pushes Apollo 13

206
00:09:51,160 --> 00:09:49,530
toward the moon it will be purposely

207
00:09:54,470 --> 00:09:51,170
crashed on the lunar surface a

208
00:09:56,900 --> 00:09:54,480
seismometer left by Apollo 12 screw will

209
00:09:59,000 --> 00:09:56,910
measure the impact as part of scientific

210
00:10:02,450 --> 00:09:59,010
investigations to be conducted during

211
00:10:05,480 --> 00:10:02,460
the mission at the Mississippi test

212
00:10:08,120 --> 00:10:05,490
facility recovery from the s1c 11 fire

213
00:10:10,220 --> 00:10:08,130

of late June was rapidly affected with

214
00:10:12,080 --> 00:10:10,230
tests and refurbishment and development

215
00:10:14,300 --> 00:10:12,090
of workaround procedures allowing

216
00:10:17,720 --> 00:10:14,310
continuance of test operations without

217
00:10:18,290 --> 00:10:17,730
major delays cause of the s 1 C 11 fire

218
00:10:20,270 --> 00:10:18,300
was the

219
00:10:22,940 --> 00:10:20,280
to have been failure of a technician to

220
00:10:26,840 --> 00:10:22,950
remove a polyethylene disc dust cover in

221
00:10:28,730 --> 00:10:26,850
a duct leading to one of the engines the

222
00:10:31,190 --> 00:10:28,740
damage stage was returned to the Michoud

223
00:10:35,420 --> 00:10:31,200
assembly facility in July for engine

224
00:10:38,120 --> 00:10:35,430
removals and refurbishment fire damaged

225
00:10:40,220 --> 00:10:38,130
components of the s-1 c11 stage are

226
00:10:44,510 --> 00:10:40,230
shown in this display at the musci

227
00:10:46,160 --> 00:10:44,520
facility in mid-august Hurricane Camille

228
00:10:48,350 --> 00:10:46,170
hit the Mississippi coast with

229
00:10:51,170 --> 00:10:48,360
devastating fury causing damage attempt

230
00:10:53,270 --> 00:10:51,180
Festa mated to be approximately 750

231
00:10:56,780 --> 00:10:53,280
thousand dollars and delaying test

232
00:10:59,120 --> 00:10:56,790
schedules for several weeks damaged the

233
00:11:01,820 --> 00:10:59,130
saturn v flight stages either in storage

234
00:11:03,650 --> 00:11:01,830
or in position in the test complexes was

235
00:11:05,780 --> 00:11:03,660
very slight a thorough inspection

236
00:11:08,570 --> 00:11:05,790
assured there were no leaks electrical

237
00:11:10,250 --> 00:11:08,580
shorts or other defects MTF static

238
00:11:12,350 --> 00:11:10,260

firing schedule was resumed without

239
00:11:17,780 --> 00:11:12,360
impact to Apollo launch vehicle

240
00:11:20,030 --> 00:11:17,790
schedules the s2 stage for the 10th

241
00:11:24,050 --> 00:11:20,040
saturn v flight vehicle was successfully

242
00:11:30,110 --> 00:11:24,060
test-fired in late September s2 11 was

243
00:11:32,120 --> 00:11:30,120
tested in mid-november the s-1 sea stage

244
00:11:34,640 --> 00:11:32,130
for the 12th flight vehicle was

245
00:11:38,260 --> 00:11:34,650
successfully fired at MTF in early

246
00:11:40,540 --> 00:11:38,270
November at the McDonnell Douglas

247
00:11:43,130 --> 00:11:40,550
Sacramento California test site

248
00:11:45,050 --> 00:11:43,140
acceptance firing of the s4 be staged

249
00:11:47,540 --> 00:11:45,060
for the 10th flight vehicle was

250
00:11:49,640 --> 00:11:47,550
performed in August static testing of

251
00:11:53,870 --> 00:11:49,650
the 11th flight stage occurred in

252
00:11:56,270 --> 00:11:53,880
december at nasa's edwards test site in

253
00:11:58,610 --> 00:11:56,280
california acceptance firing of the

254
00:12:00,710 --> 00:11:58,620
final f1 production engine was performed

255
00:12:02,630 --> 00:12:00,720
in September under the Rocketdyne

256
00:12:06,020 --> 00:12:02,640
contract supporting Apollo launches

257
00:12:08,000 --> 00:12:06,030
through a s 515 engine activity at

258
00:12:10,550 --> 00:12:08,010
Edwards is now reduced to one test and

259
00:12:14,560 --> 00:12:10,560
for operation support and test have

260
00:12:16,970 --> 00:12:14,570
repaired or refurbished engines

261
00:12:20,570 --> 00:12:16,980
fabrication and assembly work by Boeing

262
00:12:23,570 --> 00:12:20,580
is progressing at massú on s1 c 13 14

263
00:12:28,160 --> 00:12:23,580

and 15 last of the currently contracted

264
00:12:32,160 --> 00:12:28,170
stages also at Massu the final Saturn 1b

265
00:12:34,530 --> 00:12:32,170
first stage s1 B 14 was completed by the

266
00:12:37,220 --> 00:12:34,540
Derr Chrysler Corporation space division

267
00:12:39,540 --> 00:12:37,230
and was placed in storage in late July

268
00:12:44,040 --> 00:12:39,550
Chrysler will maintain a support force

269
00:12:45,629 --> 00:12:44,050
at the musci facility at the s2 stage

270
00:12:47,670 --> 00:12:45,639
contractor plant the seal Beach

271
00:12:50,129 --> 00:12:47,680
California facility of North American

272
00:12:52,470 --> 00:12:50,139
Rockwell space division assembly and

273
00:12:55,170 --> 00:12:52,480
check out of s 2 stages continued during

274
00:12:57,810 --> 00:12:55,180
the report period post manufacturing

275
00:12:59,790 --> 00:12:57,820
check out of s 212 was completed in

276
00:13:03,000 --> 00:12:59,800
December and the stage was shipped to

277
00:13:07,009 --> 00:13:03,010
MTF for acceptance firing systems

278
00:13:10,590 --> 00:13:07,019
installation was progressing on s 213

279
00:13:12,240 --> 00:13:10,600
the liquid hydrogen tank for s 214 was

280
00:13:14,490 --> 00:13:12,250
damaged during detergent cleaning

281
00:13:16,829 --> 00:13:14,500
operations in October when a spray

282
00:13:19,110 --> 00:13:16,839
nozzle detached and fell about 45 feet

283
00:13:21,990 --> 00:13:19,120
causing a small hole in the forward

284
00:13:24,030 --> 00:13:22,000
bulkhead repair was effected by use of a

285
00:13:26,480 --> 00:13:24,040
doubler a pneumo static test was

286
00:13:28,980 --> 00:13:26,490
successfully conducted in mid-november

287
00:13:32,100 --> 00:13:28,990
lifecycle tests of the foil seal and

288
00:13:35,540 --> 00:13:32,110

doubler repair were also satisfactory no

289
00:13:39,060 --> 00:13:35,550
s two-stage delivery impact is foreseen

290
00:13:41,400 --> 00:13:39,070
s 215 had completed vertical assembly

291
00:13:43,590 --> 00:13:41,410
operations and was in the pneumo static

292
00:13:47,370 --> 00:13:43,600
test and cleaning phases near the end of

293
00:13:49,740 --> 00:13:47,380
the report period production of s4b

294
00:13:51,840 --> 00:13:49,750
stages for saturn v flight vehicles

295
00:13:54,300 --> 00:13:51,850
continued during the report period by

296
00:13:56,210 --> 00:13:54,310
the contractor McDonnell Douglas at its

297
00:13:59,460 --> 00:13:56,220
Huntington Beach California facility

298
00:14:02,630 --> 00:13:59,470
painting of s4b 512 was finished in

299
00:14:06,630 --> 00:14:02,640
November and the stage is now in storage

300
00:14:10,949 --> 00:14:06,640
post manufacturing check out of s4b 513

301
00:14:14,250 --> 00:14:10,959
neared completion assembly operations

302
00:14:18,990 --> 00:14:14,260
continued on s4b 514 with tank cleaning

303
00:14:21,150 --> 00:14:19,000
underway on 515 fabrication and assembly

304
00:14:23,759 --> 00:14:21,160
of saturn v instrument units is

305
00:14:26,069 --> 00:14:23,769
progressing at IBM Huntsville in late

306
00:14:28,559 --> 00:14:26,079
October a request for quotation was

307
00:14:30,750 --> 00:14:28,569
issued to IBM by the Marshall Center for

308
00:14:33,870 --> 00:14:30,760
six instrument units for the Saturn 5

309
00:14:39,809 --> 00:14:33,880
follow-on program launch vehicles by 15

310
00:14:42,900 --> 00:14:39,819
through 521 RFQ is for the six s1 c s2

311
00:14:45,329 --> 00:14:42,910
and s4 b stages were issued in november

312
00:14:45,850 --> 00:14:45,339
efforts by marshal and contractors to

313
00:14:48,069 --> 00:14:45,860

procure

314
00:14:51,190 --> 00:14:48,079
reduced-cost vehicles for the follow-on

315
00:14:53,680 --> 00:14:51,200
program are progressing well the basic

316
00:14:56,199 --> 00:14:53,690
concept for this procurement is to phase

317
00:14:58,569 --> 00:14:56,209
from an R&D mode to a production mode

318
00:15:02,800 --> 00:14:58,579
and procure the vehicles on a fixed

319
00:15:05,410 --> 00:15:02,810
price contract a follow-on reduced cost

320
00:15:08,290 --> 00:15:05,420
procurement plan for 30 f1 engines and

321
00:15:10,720 --> 00:15:08,300
the combination of 36 J 2 and J 2's

322
00:15:14,380 --> 00:15:10,730
engines from Rocketdyne is being studied

323
00:15:16,060 --> 00:15:14,390
by NASA batching of f1 and j2 production

324
00:15:18,730 --> 00:15:16,070
to better utilize production machine

325
00:15:21,400 --> 00:15:18,740
capabilities combined procurement of raw

326
00:15:23,410 --> 00:15:21,410
materials and revising mode of operation

327
00:15:25,420 --> 00:15:23,420
from development production to

328
00:15:27,460 --> 00:15:25,430
production only are expected to

329
00:15:31,600 --> 00:15:27,470
contribute significantly to reduced

330
00:15:33,940 --> 00:15:31,610
engine costs this is an artist's concept

331
00:15:36,519 --> 00:15:33,950
of the lunar roving vehicle for which

332
00:15:39,730 --> 00:15:36,529
the Boeing Company was selected by MSFC

333
00:15:42,190 --> 00:15:39,740
in November to be prime contractor the

334
00:15:44,199 --> 00:15:42,200
LRV will provide transportation on the

335
00:15:46,300 --> 00:15:44,209
moon for two astronauts and their

336
00:15:50,410 --> 00:15:46,310
collected lunar samples equipment and

337
00:15:53,740 --> 00:15:50,420
experiments this is a full-scale mock-up

338
00:15:55,990 --> 00:15:53,750

of the moon car the LRV will be needed

339
00:15:58,780 --> 00:15:56,000
for extended scientific investigation of

340
00:16:02,160 --> 00:15:58,790
the moon the first of four operational l

341
00:16:04,480 --> 00:16:02,170
RVs will be delivered by boeing in 1971

342
00:16:07,120 --> 00:16:04,490
the fourth wheeled vehicle will weigh

343
00:16:09,240 --> 00:16:07,130
approximately 400 pounds and will be

344
00:16:12,400 --> 00:16:09,250
about 10 feet long and eight feet wide

345
00:16:14,410 --> 00:16:12,410
electric motors will drive the LRV with

346
00:16:17,139 --> 00:16:14,420
silver zinc batteries providing power

347
00:16:21,430 --> 00:16:17,149
top speed will be about 10 miles per

348
00:16:24,130 --> 00:16:21,440
hour preliminary design and definition

349
00:16:26,170 --> 00:16:24,140
studies for a dual-mode LRV which could

350
00:16:28,090 --> 00:16:26,180
be either manned or unmanned will be

351
00:16:30,970 --> 00:16:28,100
performed by Grumman aircraft and the

352
00:16:32,920 --> 00:16:30,980
Bendix corporation the dual mode vehicle

353
00:16:34,870 --> 00:16:32,930
could be operated remotely from Earth

354
00:16:38,980 --> 00:16:34,880
while making long-range automated

355
00:16:41,500 --> 00:16:38,990
traverses across the moon with the

356
00:16:43,600 --> 00:16:41,510
report period just ending the saturn v

357
00:16:46,269 --> 00:16:43,610
launch vehicle has helped achieve the

358
00:16:48,220 --> 00:16:46,279
historic culmination of a decade of

359
00:16:51,950 --> 00:16:48,230
national effort and the dream of

360
00:16:53,990 --> 00:16:51,960
centuries man has walked upon the moon

361
00:16:56,390 --> 00:16:54,000
this is but the beginning of a new age

362
00:16:59,420 --> 00:16:56,400
of space exploration for the benefit of