



1
00:00:18,230 --> 00:00:15,829
Saturn five quarterly film report number

2
00:00:21,890 --> 00:00:18,240
three covers progress during the period

3
00:00:24,439 --> 00:00:21,900
May June July August 1963 highlighting

4
00:00:26,420 --> 00:00:24,449
major effort concentrated in initiation

5
00:00:34,760 --> 00:00:26,430
of fabrication of ground test stage

6
00:00:37,670 --> 00:00:34,770
components during this report period at

7
00:00:39,979 --> 00:00:37,680
Marshall s 1c efforts were primarily in

8
00:00:43,040 --> 00:00:39,989
support of the test fuel tank and the

9
00:00:44,959 --> 00:00:43,050
static test stage the s 1c test fuel

10
00:00:47,389 --> 00:00:44,969
tank schedule has been delayed more than

11
00:00:54,049 --> 00:00:47,399
12 weeks by late documentation releases

12
00:00:56,389 --> 00:00:54,059
and manufacturing problems among the

13
00:00:58,369 --> 00:00:56,399

first problems encountered was excessive

14

00:01:01,250 --> 00:00:58,379

thin out in hydraulically bulge formed

15

00:01:02,959 --> 00:01:01,260

bulkhead gore segments compensatory skin

16

00:01:05,810 --> 00:01:02,969

mill blanks will be used in alleviating

17

00:01:08,090 --> 00:01:05,820

thin out also clapping pressure will be

18

00:01:13,940 --> 00:01:08,100

controlled to permit drawing of metal

19

00:01:16,100 --> 00:01:13,950

from around the margins of the die early

20

00:01:17,780 --> 00:01:16,110

in this report period pressure spike

21

00:01:20,330 --> 00:01:17,790

problems were also encountered with

22

00:01:22,730 --> 00:01:20,340

explosive forming a technique used is

23

00:01:24,830 --> 00:01:22,740

back up to the Bulge forming method use

24

00:01:31,520 --> 00:01:24,840

of a neoprene blanket has alleviated the

25

00:01:34,010 --> 00:01:31,530

problem following chemical milling

26

00:01:36,080 --> 00:01:34,020

a-tryin manual rework of some gore

27

00:01:38,450 --> 00:01:36,090

segments was required because of a non

28

00:01:39,469 --> 00:01:38,460

uniform edge rate to relieve the

29

00:01:44,770 --> 00:01:39,479

thickness problem

30

00:01:49,969 --> 00:01:48,139

despite the earlier difficulties MSFC

31

00:01:52,310 --> 00:01:49,979

accomplished Meridian welding on the

32

00:01:54,889 --> 00:01:52,320

first bulkhead the upper bulkhead for

33

00:01:56,780 --> 00:01:54,899

the test fuel tank during May and the

34

00:02:03,499 --> 00:01:56,790

closure plate was welded into complete

35

00:02:05,810 --> 00:02:03,509

the first bulkhead after trimming the

36

00:02:07,880 --> 00:02:05,820

wiring mating edge of the first bulkhead

37

00:02:10,940 --> 00:02:07,890

was welded to the wiring in late May

38

00:02:13,400 --> 00:02:10,950

during girth welding porosity problems

39

00:02:13,970 --> 00:02:13,410

were encountered repairs were successful

40

00:02:16,520 --> 00:02:13,980

and the

41

00:02:18,380 --> 00:02:16,530

completed and accepted in August the

42

00:02:20,869 --> 00:02:18,390

porosity problem is being investigated

43

00:02:23,300 --> 00:02:20,879

several possible solutions are under

44

00:02:25,369 --> 00:02:23,310

study work is underway to complete a

45

00:02:34,070 --> 00:02:25,379

second bulkhead for use as the test

46

00:02:36,140 --> 00:02:34,080

tanks lower bulkhead in June

47

00:02:38,270 --> 00:02:36,150

Marshall finished welding on the upper

48

00:02:43,520 --> 00:02:38,280

cylindrical skin section for the test

49

00:02:45,559 --> 00:02:43,530

fuel tank during July the first

50

00:02:48,259 --> 00:02:45,569

cylindrical skin section was welded to

51
00:02:51,020 --> 00:02:48,269
the Y ring fabrication of a second skin

52
00:02:52,640 --> 00:02:51,030
section was begun with Marshall and the

53
00:02:54,500 --> 00:02:52,650
responsible contractor is now

54
00:02:57,289 --> 00:02:54,510
satisfactorily solving major

55
00:03:00,589 --> 00:02:57,299
manufacturing problems test fuel tank

56
00:03:04,190 --> 00:03:00,599
completion is forecast in December at

57
00:03:06,020 --> 00:03:04,200
Wichita fabrication of the s1 CT dual

58
00:03:09,020 --> 00:03:06,030
configuration thrust ring assembly

59
00:03:11,300 --> 00:03:09,030
fixture is underway however this and

60
00:03:13,130 --> 00:03:11,310
other items have been delayed because of

61
00:03:15,680 --> 00:03:13,140
late documentation releases and

62
00:03:20,809 --> 00:03:15,690
consequently delayed component tooling

63
00:03:23,300 --> 00:03:20,819

construction at Michou during program

64

00:03:25,879 --> 00:03:23,310

review in early August Marshall and

65

00:03:27,920 --> 00:03:25,889

Boeing formed a joint task group to deal

66

00:03:30,379 --> 00:03:27,930

with the s1 CT problems

67

00:03:32,390 --> 00:03:30,389

Marshall expects to reduce the present

68

00:03:38,539 --> 00:03:32,400

delay to 12 weeks during the production

69

00:03:40,690 --> 00:03:38,549

phase the thrust structure assembly

70

00:03:43,360 --> 00:03:40,700

fixture was completed at Wichita and

71

00:03:46,640 --> 00:03:43,370

installation begun at Marshall in August

72

00:03:49,370 --> 00:03:46,650

during August sufficient gore segments

73

00:03:51,500 --> 00:03:49,380

for the first test 1ct bulkhead plus

74

00:03:54,319 --> 00:03:51,510

spare segments were received at Marshall

75

00:03:56,629 --> 00:03:54,329

however bulkhead gore fittings are still

76

00:04:01,220 --> 00:03:56,639

in delay due to a change in forging

77

00:04:04,309 --> 00:04:01,230

requirements installation of two f1

78

00:04:05,780 --> 00:04:04,319

engine mock-ups on the s-1 sea basic

79

00:04:09,099 --> 00:04:05,790

thrust structure mock-up was

80

00:04:11,870 --> 00:04:09,109

accomplished at Marshall this quarter

81

00:04:13,699 --> 00:04:11,880

construction of the s-1 sea hydrostatic

82

00:04:16,490 --> 00:04:13,709

test and vertical Assembly Building at

83

00:04:18,529 --> 00:04:16,500

me Co is on schedule to meet the

84

00:04:21,379 --> 00:04:18,539

beneficial occupancy date of November

85

00:04:24,589 --> 00:04:21,389

first erection of structural steel is

86

00:04:27,350 --> 00:04:24,599

85% complete the west wall is being

87

00:04:32,110 --> 00:04:27,360

closed up and steel work on all others

88

00:04:38,119 --> 00:04:35,839

at Marshall's Mississippi test

89

00:04:40,219 --> 00:04:38,129

Operations construction is progressing

90

00:04:43,040 --> 00:04:40,229

on schedule completion of the dock and

91

00:04:44,629 --> 00:04:43,050

Road II is scheduled by November receipt

92

00:04:49,159 --> 00:04:44,639

of steel for the dock area was

93

00:04:50,600 --> 00:04:49,169

accomplished this quarter Harbor

94

00:04:54,050 --> 00:04:50,610

dredging is due to be finished by

95

00:04:55,339 --> 00:04:54,060

January 1964 contract award for the

96

00:05:00,019 --> 00:04:55,349

bascule bridge was made

97

00:05:01,850 --> 00:05:00,029

August 15 clearing of the static test

98

00:05:04,760 --> 00:05:01,860

area is scheduled for completion by

99

00:05:07,909 --> 00:05:04,770

December a contract was awarded in July

100

00:05:14,749 --> 00:05:07,919

for construction of the S 1 C and s 2

101
00:05:16,999 --> 00:05:14,759
stage test stand foundations a contract

102
00:05:20,119 --> 00:05:17,009
was awarded August 6th for assembly of

103
00:05:21,980 --> 00:05:20,129
2s1 C transporters assembly began

104
00:05:25,399 --> 00:05:21,990
immediately and is scheduled for

105
00:05:27,439 --> 00:05:25,409
completion by September 1964 the

106
00:05:29,779 --> 00:05:27,449
Marshall Center's hydrostatic test and

107
00:05:32,119 --> 00:05:29,789
vertical Assembly Building was inspected

108
00:05:34,459 --> 00:05:32,129
on August 15th and contractors are

109
00:05:36,950 --> 00:05:34,469
correcting deficiencies that official

110
00:05:39,490 --> 00:05:36,960
occupancy was granted and full-scale

111
00:05:42,439 --> 00:05:39,500
equipment installation is underway

112
00:05:44,809 --> 00:05:42,449
pouring of concrete for Marshalls s1c

113
00:05:47,029 --> 00:05:44,819

static test facilities towers was

114

00:05:49,640 --> 00:05:47,039

completed this quarter a direction of

115

00:05:51,649 --> 00:05:49,650

structural steel is underway on site

116

00:05:56,300 --> 00:05:51,659

deflector fabrication and installation

117

00:05:58,939 --> 00:05:56,310

of cable has also begun at Marshalls

118

00:06:01,550 --> 00:05:58,949

saturn v dynamic test facility area

119

00:06:03,399 --> 00:06:01,560

site preparation excavation for the

120

00:06:05,689 --> 00:06:03,409

tower base and pouring the foundation

121

00:06:07,820 --> 00:06:05,699

concrete were finished during the report

122

00:06:16,120 --> 00:06:07,830

period steel erection is scheduled to

123

00:06:22,280 --> 00:06:19,730

at Rocketdyne the use of ablative

124

00:06:24,290 --> 00:06:22,290

material in the f1 engine 16 to one

125

00:06:26,690 --> 00:06:24,300

nozzle extension was undertaken this

126

00:06:29,540 --> 00:06:26,700

quarter with initial short duration

127

00:06:32,210 --> 00:06:29,550

tests proving successful however during

128

00:06:35,380 --> 00:06:32,220

the third firing the liner bond system

129

00:06:38,030 --> 00:06:35,390

failed and ablative material was ejected

130

00:06:40,130 --> 00:06:38,040

investigation revealed that failure was

131

00:06:42,410 --> 00:06:40,140

due to poor bond between a bladed

132

00:06:47,330 --> 00:06:42,420

material and the structural honeycomb

133

00:06:49,550 --> 00:06:47,340

material a divergent ring baffled

134

00:06:52,010 --> 00:06:49,560

injector one of several designs

135

00:06:54,050 --> 00:06:52,020

undergoing tests is complete the

136

00:06:56,510 --> 00:06:54,060

injector consists of three radial

137

00:06:58,520 --> 00:06:56,520

baffles designed to aid in debiting

138

00:07:01,220 --> 00:06:58,530

circumferential pressure oscillations

139

00:07:03,410 --> 00:07:01,230

and a divergent ring installed on the

140

00:07:05,420 --> 00:07:03,420

perimeter to help dampen chamber

141

00:07:07,700 --> 00:07:05,430

pressure waves near the injector face

142

00:07:13,130 --> 00:07:07,710

and protect the thrust chamber tubes

143

00:07:15,830 --> 00:07:13,140

adjacent to the injector crusher data

144

00:07:18,440 --> 00:07:15,840

from initial tests on the new f1 turbine

145

00:07:21,290 --> 00:07:18,450

exhaust manifold indicated unequal

146

00:07:23,180 --> 00:07:21,300

distribution of exhaust gases an angle

147

00:07:27,830 --> 00:07:23,190

baffle was inserted in the manifold

148

00:07:30,860 --> 00:07:27,840

Inlet to correct this condition at

149

00:07:33,740 --> 00:07:30,870

Edwards rocket site construction of new

150

00:07:37,040 --> 00:07:33,750

production f1 engine static test stands

151

00:07:39,200 --> 00:07:37,050

1c 1d and 1e continued with

152

00:07:41,360 --> 00:07:39,210

superstructure tanks and exhaust

153

00:07:44,600 --> 00:07:41,370

deflectors having been completed on

154

00:07:46,310 --> 00:07:44,610

stands 1d and 1e these stands will be

155

00:07:48,650 --> 00:07:46,320

complemented by the necessary block

156

00:07:52,340 --> 00:07:48,660

house and hangar facilities now also

157

00:07:55,070 --> 00:07:52,350

being built a new flame deflector has

158

00:07:57,410 --> 00:07:55,080

been installed in test stand one B at

159

00:07:59,720 --> 00:07:57,420

Edwards the installation was on an

160

00:08:04,850 --> 00:07:59,730

expedited basis to minimize interruption

161

00:08:07,670 --> 00:08:04,860

of testing on 1b construction of

162

00:08:10,490 --> 00:08:07,680

Marshalls f1 single engine static test

163

00:08:12,530 --> 00:08:10,500

stand is on schedule the concrete towers

164

00:08:19,390 --> 00:08:12,540

have been completed and steel erection

165

00:08:26,089 --> 00:08:23,629

at North American space and information

166

00:08:28,129 --> 00:08:26,099

systems division at Downey structural

167

00:08:30,320 --> 00:08:28,139

assembly of the s2 full-scale

168

00:08:33,680 --> 00:08:30,330

electromechanical mock-up was completed

169

00:08:36,250 --> 00:08:33,690

this quarter to j2 soft mock-up engines

170

00:08:39,829 --> 00:08:36,260

capable of gimbal have been installed

171

00:08:42,019 --> 00:08:39,839

mock-up completion is due in March 1964

172

00:08:44,360 --> 00:08:42,029

it will be used in establishing

173

00:08:46,490 --> 00:08:44,370

installation requirements and will

174

00:08:51,189 --> 00:08:46,500

provide s2 systems with checkout

175

00:08:56,360 --> 00:08:53,780

full-scale waffle sections for s2

176
00:08:58,819 --> 00:08:56,370
bulkheads have been machined for s and

177
00:09:05,150 --> 00:08:58,829
ID in preparation for high energy

178
00:09:07,129 --> 00:09:05,160
forming at El Toro initial proofing of

179
00:09:09,980 --> 00:09:07,139
methods and procedures for a chemical

180
00:09:12,350 --> 00:09:09,990
milling thin gore segments has also been

181
00:09:14,870 --> 00:09:12,360
accomplished at supplier facilities the

182
00:09:19,610 --> 00:09:14,880
thin segments are formed sized and heat

183
00:09:22,850 --> 00:09:19,620
aged prior to chem milling at SN ids

184
00:09:25,040 --> 00:09:22,860
tulsa plant s2 aft and forward skirt

185
00:09:26,750 --> 00:09:25,050
tooling has been completed and sub

186
00:09:29,300 --> 00:09:26,760
assembly of manufactured parts is

187
00:09:36,050 --> 00:09:29,310
underway the full-scale forward skirt

188
00:09:38,329 --> 00:09:36,060

mating jig is nearing completion parts

189

00:09:41,090 --> 00:09:38,339

for the s2 battleship thrust structure

190

00:09:42,710 --> 00:09:41,100

are being produced and inspected the

191

00:09:49,069 --> 00:09:42,720

structure is two months behind schedule

192

00:09:50,960 --> 00:09:49,079

because of manufacturing problems ground

193

00:09:54,680 --> 00:09:50,970

support equipment assembly has also

194

00:09:57,319 --> 00:09:54,690

begun at the tulsa facility installation

195

00:09:59,060 --> 00:09:57,329

of tooling @sn ids seal beach bulkhead

196

00:10:01,400 --> 00:09:59,070

fabrication building has been virtually

197

00:10:03,559 --> 00:10:01,410

completed tool proofing and

198

00:10:05,960 --> 00:10:03,569

certification have been accomplished on

199

00:10:08,240 --> 00:10:05,970

the bulkhead welders the common bulkhead

200

00:10:11,960 --> 00:10:08,250

automatic welding jig and the dollar

201
00:10:13,790 --> 00:10:11,970
section welder the autoclave lid and

202
00:10:19,280 --> 00:10:13,800
dome have been assembled and the

203
00:10:22,069 --> 00:10:19,290
honeycomb bonding tool completed sub

204
00:10:24,470 --> 00:10:22,079
assembly of the first s2 bulkhead for

205
00:10:27,439 --> 00:10:24,480
the structural test stage is underway

206
00:10:29,569 --> 00:10:27,449
the first thick to thin production gore

207
00:10:33,440 --> 00:10:29,579
segment weld was accomplished in late

208
00:10:43,410 --> 00:10:36,060
x-rays of the segment proved the wells

209
00:10:45,750 --> 00:10:43,420
to be satisfactory at the seal Beach

210
00:10:48,150 --> 00:10:45,760
hydrostatic test and vertical assembly

211
00:10:50,460 --> 00:10:48,160
facility the hydrostatic it's neared

212
00:10:52,020 --> 00:10:50,470
completion this quarter and tanks for

213
00:10:58,560 --> 00:10:52,030

the water conditioning facility were

214

00:11:01,950 --> 00:10:58,570

being fabricated at KOCO one Santa

215

00:11:04,170 --> 00:11:01,960

Susana the s2 battleship test stand all

216

00:11:06,390 --> 00:11:04,180

flame deflector anchors were placed on

217

00:11:08,730 --> 00:11:06,400

the completed foundation and all four

218

00:11:14,130 --> 00:11:08,740

retaining walls were erected early this

219

00:11:16,860 --> 00:11:14,140

quarter the battleship liquid oxygen

220

00:11:18,510 --> 00:11:16,870

tank was later installed and the service

221

00:11:20,910 --> 00:11:18,520

tower has been erected to the first

222

00:11:27,930 --> 00:11:20,920

level fabrication of the stages pro

223

00:11:31,440 --> 00:11:27,940

comment feed system is underway at koko

224

00:11:41,740 --> 00:11:31,450

for the all systems tests and all flame

225

00:11:46,960 --> 00:11:44,400

at Douglas Aircraft Santa Monica land

226

00:11:49,269 --> 00:11:46,970

fabrication and installation of s4b

227

00:11:50,100 --> 00:11:49,279

tooling is four to six weeks behind

228

00:11:52,600 --> 00:11:50,110

schedule

229

00:11:56,379 --> 00:11:52,610

pacing items included the LOX tank

230

00:11:59,530 --> 00:11:56,389

welder and common bulkhead tooling at

231

00:12:02,829 --> 00:11:59,540

Sacramento complex beta construction is

232

00:12:05,259 --> 00:12:02,839

continuing on schedule test stand beta

233

00:12:07,749 --> 00:12:05,269

one and three foundations are completed

234

00:12:11,050 --> 00:12:07,759

a direction of data one superstructure

235

00:12:15,100 --> 00:12:11,060

is underway work on the cryogenic

236

00:12:17,079 --> 00:12:15,110

vessels is in progress test stand data

237

00:12:20,079 --> 00:12:17,089

one instrumentation tunnel construction

238

00:12:22,929 --> 00:12:20,089

has been completed assembly of

239

00:12:25,449 --> 00:12:22,939

propellant tanks for the s4 V battleship

240

00:12:28,269 --> 00:12:25,459

stage was finished at complex beta

241

00:12:30,100 --> 00:12:28,279

during the report period hydrostatic

242

00:12:32,410 --> 00:12:30,110

test and calibration of the battleship

243

00:12:34,150 --> 00:12:32,420

stage tank was completed in late August

244

00:12:40,590 --> 00:12:34,160

as the next step

245

00:12:45,519 --> 00:12:43,210

construction of the s4 B Assembly

246

00:12:48,189 --> 00:12:45,529

Building at Douglass's Huntington Beach

247

00:12:50,920 --> 00:12:48,199

facility is continuing and tooling is

248

00:12:52,660 --> 00:12:50,930

being installed assembly tower

249

00:12:54,869 --> 00:12:52,670

foundations have been finished and

250

00:12:57,309 --> 00:12:54,879

structural steel is being erected

251
00:12:59,829 --> 00:12:57,319
construction is behind schedule however

252
00:13:02,230 --> 00:12:59,839
because of delays and contract award

253
00:13:05,100 --> 00:13:02,240
present estimated start of hydrostatic

254
00:13:08,170 --> 00:13:05,110
stage assembly is November 30th a

255
00:13:10,509 --> 00:13:08,180
full-scale mock-up of the s4 be forward

256
00:13:12,730 --> 00:13:10,519
dome and skirt section has been shipped

257
00:13:15,429 --> 00:13:12,740
from Douglas to the Marshall Center for

258
00:13:26,900 --> 00:13:15,439
use in evaluating interface problems and

259
00:13:32,330 --> 00:13:30,050
at Rocketdyne evaluation tests of an

260
00:13:35,180 --> 00:13:32,340
initial design of a pressurized armored

261
00:13:37,670 --> 00:13:35,190
harness for use on the j2 engine were

262
00:13:40,160 --> 00:13:37,680
held this quarter objective of the

263
00:13:42,080 --> 00:13:40,170

harness is to provide complete moisture

264

00:13:44,450 --> 00:13:42,090

abrasion and heat protection of

265

00:13:50,170 --> 00:13:44,460

electrical and fuel lines when the

266

00:13:55,760 --> 00:13:52,970

construction of j2 engine test stand

267

00:13:57,920 --> 00:13:55,770

Delta 2 at Santa Susana is almost

268

00:14:00,920 --> 00:13:57,930

complete the stand will initially be

269

00:14:10,550 --> 00:14:00,930

used to static fire the j2 in duration

270

00:14:12,500 --> 00:14:10,560

up to 500 seconds at sea level a two

271

00:14:15,920 --> 00:14:12,510

hundred twenty five foot tall exhaust

272

00:14:18,980 --> 00:14:15,930

stack at CTL five was installed to vent

273

00:14:25,820 --> 00:14:18,990

gases generated during j2 and f1 pump

274

00:14:28,880 --> 00:14:25,830

tests a prototype hyperflow system of

275

00:14:31,190 --> 00:14:28,890

generating steam was also tested steam

276

00:14:33,200 --> 00:14:31,200

is generated by injecting water into a

277

00:14:35,960 --> 00:14:33,210

heat generating device which operates

278

00:14:38,450 --> 00:14:35,970

like a rocket engine steam is ejected

279

00:14:40,880 --> 00:14:38,460

into a diffuser which lowers pressure in

280

00:14:43,370 --> 00:14:40,890

the altitude chamber to permit testing