



1
00:00:06,470 --> 00:00:03,990
they say that most eras end

2
00:00:08,629 --> 00:00:06,480
but such is not the case for a unique

3
00:00:11,509 --> 00:00:08,639
group of people who build and launch a

4
00:00:13,430 --> 00:00:11,519
pioneering american launch vehicle whose

5
00:00:14,709 --> 00:00:13,440
satellites revolutionized weather

6
00:00:16,470 --> 00:00:14,719
forecasting

7
00:00:19,029 --> 00:00:16,480
brought live television events from

8
00:00:21,349 --> 00:00:19,039
around the world into your home

9
00:00:23,029 --> 00:00:21,359
and investigated the mysteries of our

10
00:00:25,029 --> 00:00:23,039
universe

11
00:00:27,109 --> 00:00:25,039
during the early years of america's

12
00:00:29,349 --> 00:00:27,119
space program most of the public's

13
00:00:30,390 --> 00:00:29,359

interest was focused on man going to the

14

00:00:33,350 --> 00:00:30,400

moon

15

00:00:35,990 --> 00:00:33,360

but during that same incredible epic a

16

00:00:39,270 --> 00:00:36,000

story unfolded about a little publicized

17

00:00:41,590 --> 00:00:39,280

launch vehicle named delta which orbited

18

00:00:43,430 --> 00:00:41,600

history-making satellites that helped to

19

00:00:46,869 --> 00:00:43,440

change the culture of hundreds of

20

00:00:49,590 --> 00:00:46,879

millions of people living on our planet

21

00:00:50,790 --> 00:00:49,600

today delta has a vital date with

22

00:00:53,270 --> 00:00:50,800

destiny

23

00:00:55,350 --> 00:00:53,280

it is about to launch a scientific

24

00:00:57,189 --> 00:00:55,360

messenger to keep an appointment with

25

00:01:00,229 --> 00:00:57,199

the beginning of time

26

00:01:02,950 --> 00:01:00,239

the creation of the universe

27

00:01:05,350 --> 00:01:02,960

this is the story about delta

28

00:01:07,750 --> 00:01:05,360

and its people in their pursuit of

29

00:01:10,710 --> 00:01:07,760

excellence with a legendary rocket which

30

00:01:24,870 --> 00:01:10,720

earned the reputation of being the best

31

00:01:30,550 --> 00:01:28,149

today marks the 189th delta launching

32

00:01:32,710 --> 00:01:30,560

over a 30-year period

33

00:01:35,590 --> 00:01:32,720

this magnificent flying machine will

34

00:01:38,630 --> 00:01:35,600

send the cosmic background explorer or

35

00:01:41,190 --> 00:01:38,640

kobe for short into space to study the

36

00:01:43,990 --> 00:01:41,200

radiation remaining from the cataclysmic

37

00:01:46,550 --> 00:01:44,000

explosion called the big bang which

38

00:01:49,910 --> 00:01:46,560

spawned the birth of our universe some

39

00:01:58,389 --> 00:01:49,920

15 billion years ago

40

00:02:03,670 --> 00:02:01,749

two minutes 25 seconds and counting

41

00:02:07,350 --> 00:02:03,680

to understand this space vehicle's

42

00:02:09,669 --> 00:02:07,360

remarkable success record of 94

43

00:02:11,830 --> 00:02:09,679

one must look back into time to

44

00:02:14,869 --> 00:02:11,840

understand the philosophy of the people

45

00:02:16,949 --> 00:02:14,879

who first created the indomitable delta

46

00:02:20,630 --> 00:02:16,959

in the embryonic space age of the

47

00:02:25,750 --> 00:02:23,350

america's space program in the 1950s was

48

00:02:27,830 --> 00:02:25,760

struggling with failure after failure

49

00:02:29,110 --> 00:02:27,840

being chronicled in the day's top news

50

00:02:32,390 --> 00:02:29,120

stories

51
00:02:34,949 --> 00:02:32,400
then on october 4th 1957

52
00:02:37,509 --> 00:02:34,959
sputnik shocked the world

53
00:02:39,589 --> 00:02:37,519
sending unprecedented electronic beeps

54
00:02:42,150 --> 00:02:39,599
to radio and television stations around

55
00:02:44,309 --> 00:02:42,160
the world as commentators struggled to

56
00:02:46,949 --> 00:02:44,319
explain the phenomenon to hundreds of

57
00:02:48,869 --> 00:02:46,959
millions of people

58
00:02:50,390 --> 00:02:48,879
the fact that the soviet union was the

59
00:02:53,110 --> 00:02:50,400
first into space

60
00:02:56,150 --> 00:02:53,120
tarnished america's technological image

61
00:02:59,589 --> 00:02:56,160
and challenged its leadership worldwide

62
00:03:02,949 --> 00:02:59,599
public concerns soared higher than ever

63
00:03:05,430 --> 00:03:02,959

on january 31st of 1958 the united

64

00:03:07,350 --> 00:03:05,440

states orbited its first satellite

65

00:03:10,390 --> 00:03:07,360

explorer 1.

66

00:03:13,990 --> 00:03:10,400

vanguard 1 followed about 2 months later

67

00:03:18,229 --> 00:03:14,000

the space race had begun

68

00:03:21,750 --> 00:03:18,239

on april 28 1959 delta was born when the

69

00:03:24,149 --> 00:03:21,760

newly created space agency named nasa

70

00:03:26,390 --> 00:03:24,159

signed a 24 million dollar contract with

71

00:03:29,270 --> 00:03:26,400

the douglas aircraft company now the

72

00:03:31,350 --> 00:03:29,280

mcdonnell douglas corporation for 12

73

00:03:33,350 --> 00:03:31,360

launch vehicles

74

00:03:35,750 --> 00:03:33,360

delta's configuration would be a

75

00:03:38,789 --> 00:03:35,760

three-stage launch vehicle the first

76
00:03:41,110 --> 00:03:38,799
stage utilizing the thor missile and the

77
00:03:43,670 --> 00:03:41,120
second and third stage hardware from the

78
00:03:45,910 --> 00:03:43,680
vanguard rocket

79
00:03:48,229 --> 00:03:45,920
managed by nasa's goddard space flight

80
00:03:51,270 --> 00:03:48,239
center delta was to be an interim

81
00:03:54,390 --> 00:03:51,280
vehicle to fill a two-year gap when more

82
00:03:56,070 --> 00:03:54,400
powerful vehicles would replace it

83
00:03:58,630 --> 00:03:56,080
launch vehicles like delta are

84
00:04:01,350 --> 00:03:58,640
complicated dangerous devices that

85
00:04:02,869 --> 00:04:01,360
require disciplined vigilance to achieve

86
00:04:04,949 --> 00:04:02,879
success

87
00:04:07,509 --> 00:04:04,959
during an era of change when rocket

88
00:04:09,750 --> 00:04:07,519

technology was in its infancy delta's

89

00:04:12,949 --> 00:04:09,760

early success record was a remarkable

90

00:04:17,990 --> 00:04:14,869

it is ironic that the first delta

91

00:04:20,069 --> 00:04:18,000

launching on a friday the 13th of may in

92

00:04:22,069 --> 00:04:20,079

1960 failed

93

00:04:23,510 --> 00:04:22,079

presenting the delta team with its first

94

00:04:25,749 --> 00:04:23,520

major challenge

95

00:04:27,749 --> 00:04:25,759

pinpoint the problem

96

00:04:29,909 --> 00:04:27,759

after exhaustive ground testing the

97

00:04:31,189 --> 00:04:29,919

reason for the failure was identified

98

00:04:33,350 --> 00:04:31,199

and fixed

99

00:04:36,870 --> 00:04:33,360

three months later delta scored its

100

00:04:38,629 --> 00:04:36,880

first success by orbiting echo1 a

101
00:04:40,870 --> 00:04:38,639
communication satellite that would be

102
00:04:42,629 --> 00:04:40,880
seen by more people than any other

103
00:04:44,629 --> 00:04:42,639
man-made object

104
00:04:46,550 --> 00:04:44,639
president eisenhower took part in the

105
00:04:48,870 --> 00:04:46,560
first transmission

106
00:04:50,390 --> 00:04:48,880
it is a great personal satisfaction to

107
00:04:54,070 --> 00:04:50,400
participate

108
00:04:55,990 --> 00:04:54,080
in this experiment in communications

109
00:04:59,030 --> 00:04:56,000
involving the use of the satellite

110
00:05:02,150 --> 00:04:59,040
balloon known as echo

111
00:05:03,350 --> 00:05:02,160
following echo delta ran off 22 straight

112
00:05:05,510 --> 00:05:03,360
successes

113
00:05:07,510 --> 00:05:05,520

rapidly earning the reputation of being

114

00:05:09,590 --> 00:05:07,520

the most versatile and reliable of

115

00:05:10,469 --> 00:05:09,600

american launch systems earning the

116

00:05:12,070 --> 00:05:10,479

nickname

117

00:05:14,629 --> 00:05:12,080

workhorse

118

00:05:16,950 --> 00:05:14,639

as reliability improved over the years

119

00:05:19,830 --> 00:05:16,960

delta passed the test of time by

120

00:05:23,590 --> 00:05:19,840

achieving 43 successful launchings in a

121

00:05:25,830 --> 00:05:23,600

row some 25 years later

122

00:05:27,909 --> 00:05:25,840

delta's success can be traced not only

123

00:05:30,070 --> 00:05:27,919

to superior hardware provided by its

124

00:05:32,070 --> 00:05:30,080

contractors but to the people of the

125

00:05:34,710 --> 00:05:32,080

government industry team

126

00:05:36,830 --> 00:05:34,720

especially their first leader a crew-cut

127

00:05:39,590 --> 00:05:36,840

engineer named bill

128

00:05:41,670 --> 00:05:39,600

schindler one of the youngest project

129

00:05:43,670 --> 00:05:41,680

managers in the history of nasa

130

00:05:46,070 --> 00:05:43,680

schindler brought to the delta program a

131

00:05:47,670 --> 00:05:46,080

sound engineering background and a

132

00:05:51,270 --> 00:05:47,680

simple philosophy

133

00:05:54,070 --> 00:05:51,280

keep costs down make it work and always

134

00:05:56,230 --> 00:05:54,080

satisfy your spacecraft customer

135

00:05:58,230 --> 00:05:56,240

this philosophy filtered down to every

136

00:06:03,749 --> 00:05:58,240

member of the nasa mcdonnell douglas

137

00:06:09,510 --> 00:06:07,110

creative honest highly competitive and a

138

00:06:11,670 --> 00:06:09,520

tireless worker schindler had a vision

139

00:06:15,270 --> 00:06:11,680

that delta could provide flexible

140

00:06:17,270 --> 00:06:15,280

dependable access to space exploration

141

00:06:19,270 --> 00:06:17,280

he knew where he wanted to go and

142

00:06:21,590 --> 00:06:19,280

possess the leadership ability to bring

143

00:06:24,390 --> 00:06:21,600

the delta people along with it

144

00:06:27,350 --> 00:06:24,400

more than a thousand people engineers

145

00:06:28,629 --> 00:06:27,360

administrators technicians manufacturers

146

00:06:31,430 --> 00:06:28,639

suppliers

147

00:06:33,590 --> 00:06:31,440

all dedicated to the common goal

148

00:06:37,270 --> 00:06:33,600

the delta team established a standard of

149

00:06:40,790 --> 00:06:37,280

excellence acclaimed worldwide

150

00:06:42,629 --> 00:06:40,800

during the 1960s yuri gagarin a russian

151
00:06:43,830 --> 00:06:42,639
became the first human to orbit the

152
00:06:45,270 --> 00:06:43,840
earth

153
00:06:47,110 --> 00:06:45,280
president john f kennedy was

154
00:06:49,029 --> 00:06:47,120
assassinated

155
00:06:50,870 --> 00:06:49,039
chubby checker and the twist were the

156
00:06:53,110 --> 00:06:50,880
rage of the nation

157
00:06:55,589 --> 00:06:53,120
and american astronaut neil armstrong

158
00:06:57,749 --> 00:06:55,599
became the first human to walk on the

159
00:07:00,550 --> 00:06:57,759
moon

160
00:07:02,710 --> 00:07:00,560
meanwhile with little public recognition

161
00:07:05,990 --> 00:07:02,720
delta chalked up an impressive list of

162
00:07:08,070 --> 00:07:06,000
difficult launchings and space firsts

163
00:07:10,710 --> 00:07:08,080

one of delta's many firsts was the

164

00:07:12,629 --> 00:07:10,720

united kingdom's ariel the first

165

00:07:14,790 --> 00:07:12,639

international satellite to be launched

166

00:07:17,670 --> 00:07:14,800

by the united states

167

00:07:19,909 --> 00:07:17,680

this 1962 launching marked the first of

168

00:07:21,589 --> 00:07:19,919

many international space missions

169

00:07:23,589 --> 00:07:21,599

whereby the united states would be

170

00:07:25,990 --> 00:07:23,599

reimbursed hundreds of millions of

171

00:07:27,990 --> 00:07:26,000

dollars for the use of delta

172

00:07:30,629 --> 00:07:28,000

contributing substantially to the united

173

00:07:32,870 --> 00:07:30,639

states balance of payments and creating

174

00:07:34,629 --> 00:07:32,880

thousands of new jobs in american

175

00:07:39,430 --> 00:07:34,639

industry

176

00:07:41,589 --> 00:07:39,440

also during 1962 at t's telstar one the

177

00:07:44,230 --> 00:07:41,599

first privately built communication

178

00:07:46,230 --> 00:07:44,240

satellite beamed the first live

179

00:07:49,589 --> 00:07:46,240

television show from france to the

180

00:07:56,830 --> 00:07:53,189

at t paid the u.s treasury 2.6 million

181

00:07:59,510 --> 00:07:56,840

dollars for the delta telstar

182

00:08:01,670 --> 00:07:59,520

launching possibly the most remarkable

183

00:08:04,309 --> 00:08:01,680

of the early delta launchings was the

184

00:08:06,629 --> 00:08:04,319

world's first geosynchronous satellite

185

00:08:09,589 --> 00:08:06,639

named cincom1

186

00:08:12,230 --> 00:08:09,599

from its vantage point 22 300 miles

187

00:08:14,710 --> 00:08:12,240

above the equator simcom remained at the

188

00:08:16,869 --> 00:08:14,720

same point above earth making it

189

00:08:19,510 --> 00:08:16,879

possible for the first time to beam

190

00:08:22,390 --> 00:08:19,520

telephone calls and television programs

191

00:08:25,270 --> 00:08:22,400

like the 1964 olympics from one

192

00:08:28,309 --> 00:08:25,280

continent to another

193

00:08:30,150 --> 00:08:28,319

this unprecedented orbital task silenced

194

00:08:32,389 --> 00:08:30,160

those critics who said that achieving a

195

00:08:34,949 --> 00:08:32,399

synchronous orbit was too risky to be

196

00:08:37,990 --> 00:08:34,959

worthwhile

197

00:08:40,310 --> 00:08:38,000

in 1965 delta launched the first

198

00:08:42,550 --> 00:08:40,320

operational communication satellite

199

00:08:45,430 --> 00:08:42,560

early bird for the newly created

200

00:08:47,670 --> 00:08:45,440

communications satellite corporation

201
00:08:49,990 --> 00:08:47,680
as the result of early bird telephone

202
00:08:53,030 --> 00:08:50,000
capacity across the atlantic increased

203
00:08:54,790 --> 00:08:53,040
by two-thirds with costs per call

204
00:08:56,790 --> 00:08:54,800
dropping sharply

205
00:09:00,470 --> 00:08:56,800
in a conference call with statesmen in

206
00:09:02,870 --> 00:09:00,480
europe president lyndon b johnson said

207
00:09:04,630 --> 00:09:02,880
this moment marks a milestone in the

208
00:09:06,949 --> 00:09:04,640
history of communications between

209
00:09:08,790 --> 00:09:06,959
peoples and nations

210
00:09:11,269 --> 00:09:08,800
for the first time

211
00:09:13,190 --> 00:09:11,279
the man-made satellite of earth

212
00:09:14,790 --> 00:09:13,200
is being put into commercial service as

213
00:09:17,269 --> 00:09:14,800

a means of communication between

214

00:09:19,590 --> 00:09:17,279

continents

215

00:09:21,430 --> 00:09:19,600

the occasion is as happy as it is

216

00:09:23,590 --> 00:09:21,440

historic

217

00:09:26,150 --> 00:09:23,600

satellites launched by delta fueled a

218

00:09:28,550 --> 00:09:26,160

revolution in communications technology

219

00:09:30,790 --> 00:09:28,560

providing the world with a box seat view

220

00:09:33,030 --> 00:09:30,800

of history being made

221

00:09:36,310 --> 00:09:33,040

when american astronaut neil armstrong

222

00:09:39,430 --> 00:09:36,320

walked on the moon's surface in 1969

223

00:09:41,990 --> 00:09:39,440

700 million people from the earth's four

224

00:09:44,870 --> 00:09:42,000

corners watched his movements

225

00:09:47,430 --> 00:09:44,880

and heard his historical first words

226

00:09:55,350 --> 00:09:47,440

live via satellite

227

00:10:00,070 --> 00:09:57,750

communication satellites projected all

228

00:10:03,030 --> 00:10:00,080

nations into the mainstream of modern

229

00:10:06,310 --> 00:10:03,040

world communications new avenues to

230

00:10:08,710 --> 00:10:06,320

trade education entertainment and the

231

00:10:11,910 --> 00:10:08,720

many kinds of political discourse

232

00:10:14,150 --> 00:10:11,920

essential to international understanding

233

00:10:17,030 --> 00:10:14,160

in only 10 years communication

234

00:10:20,389 --> 00:10:17,040

satellites achieved what had eluded man

235

00:10:23,430 --> 00:10:20,399

for 10 000 years

236

00:10:25,670 --> 00:10:23,440

according to folklore mark twain said

237

00:10:28,230 --> 00:10:25,680

everybody talks about the weather but

238

00:10:30,389 --> 00:10:28,240

nobody does anything about it

239

00:10:32,470 --> 00:10:30,399

but delta did something about it by

240

00:10:36,150 --> 00:10:32,480

launching a series of weather satellites

241

00:10:37,990 --> 00:10:36,160

during the 1960s named tyros

242

00:10:40,310 --> 00:10:38,000

kairos provided the national weather

243

00:10:42,150 --> 00:10:40,320

service with man's first view of the

244

00:10:44,630 --> 00:10:42,160

world's cloud cover

245

00:10:46,870 --> 00:10:44,640

constantly on guard for those inevitable

246

00:10:48,230 --> 00:10:46,880

moments when friendly weather turns to

247

00:10:50,069 --> 00:10:48,240

foe

248

00:10:52,550 --> 00:10:50,079

weather measuring instruments aboard

249

00:10:55,030 --> 00:10:52,560

these sentinels in the sky tell us when

250

00:10:57,670 --> 00:10:55,040

a far away low pressure system over our

251
00:10:59,269 --> 00:10:57,680
oceans may develop into a dangerous

252
00:11:01,190 --> 00:10:59,279
hurricane

253
00:11:03,750 --> 00:11:01,200
weather satellites created a new

254
00:11:06,790 --> 00:11:03,760
industry resulting in large economic

255
00:11:09,670 --> 00:11:06,800
benefits to the agriculture trucking and

256
00:11:11,590 --> 00:11:09,680
shipping industries

257
00:11:14,150 --> 00:11:11,600
what have better forecasts from these

258
00:11:16,550 --> 00:11:14,160
weather observers men's in estimated

259
00:11:19,110 --> 00:11:16,560
cost and human benefits

260
00:11:21,430 --> 00:11:19,120
a three to five day improved weather

261
00:11:23,750 --> 00:11:21,440
prediction can save the agricultural

262
00:11:25,750 --> 00:11:23,760
industry an estimated five billion

263
00:11:27,910 --> 00:11:25,760

dollars annually

264

00:11:30,470 --> 00:11:27,920

and shipping operations in the arctic

265

00:11:33,430 --> 00:11:30,480

great lakes and st lawrence seaway can

266

00:11:35,430 --> 00:11:33,440

save about five million dollars a year

267

00:11:37,590 --> 00:11:35,440

or how about the countless lives and

268

00:11:39,509 --> 00:11:37,600

millions of dollars in property damage

269

00:11:42,389 --> 00:11:39,519

saved through advance warnings of

270

00:11:44,870 --> 00:11:42,399

destructive hurricanes

271

00:11:47,430 --> 00:11:44,880

during delta's first decade it also sent

272

00:11:50,069 --> 00:11:47,440

a series of scientific messengers named

273

00:11:53,269 --> 00:11:50,079

explorer into orbits around the earth

274

00:11:54,790 --> 00:11:53,279

moon and sun to study the solar wind

275

00:11:57,350 --> 00:11:54,800

cosmic rays

276

00:11:59,829 --> 00:11:57,360

and planet earth's magnetic field and

277

00:12:03,110 --> 00:11:59,839

radiation belts

278

00:12:06,069 --> 00:12:03,120

as the decade of the 60s ended 68 of the

279

00:12:08,710 --> 00:12:06,079

74 delta launchings worked to near

280

00:12:12,150 --> 00:12:08,720

perfection for an astounding batting

281

00:12:14,230 --> 00:12:12,160

average of 92 percent

282

00:12:16,949 --> 00:12:14,240

to accommodate spacecraft growth during

283

00:12:18,870 --> 00:12:16,959

the 60s several engineering innovations

284

00:12:21,670 --> 00:12:18,880

made it possible for delta to orbit

285

00:12:23,829 --> 00:12:21,680

spacecraft 10 times heavier

286

00:12:26,069 --> 00:12:23,839

and the good news for delta customers

287

00:12:28,629 --> 00:12:26,079

was that the price increase was less

288

00:12:31,590 --> 00:12:28,639

than the cost of inflation

289

00:12:33,269 --> 00:12:31,600

during the 70s a ceasefire was declared

290

00:12:36,470 --> 00:12:33,279

in vietnam

291

00:12:38,870 --> 00:12:36,480

hank aaron hit his 715th home run

292

00:12:42,550 --> 00:12:38,880

besting babe ruth's record

293

00:12:44,790 --> 00:12:42,560

america celebrated its 200th birthday

294

00:12:46,629 --> 00:12:44,800

and delta's list of customers looked

295

00:12:49,590 --> 00:12:46,639

like the telephone directory for the

296

00:12:51,590 --> 00:12:49,600

united nations

297

00:12:54,150 --> 00:12:51,600

delta's schedule included a host of

298

00:12:56,230 --> 00:12:54,160

scientific and communications satellites

299

00:13:00,790 --> 00:12:56,240

designed and built by the european space

300

00:13:03,910 --> 00:13:00,800

agency indonesia japan italy germany

301
00:13:04,829 --> 00:13:03,920
france canada united kingdom

302
00:13:07,670 --> 00:13:04,839
and

303
00:13:10,150 --> 00:13:07,680
nato these foreign space teams were

304
00:13:13,670 --> 00:13:10,160
totally dependent on a highly reliable

305
00:13:15,829 --> 00:13:13,680
cost effective on schedule launch system

306
00:13:18,870 --> 00:13:15,839
delta met their needs

307
00:13:22,150 --> 00:13:18,880
for delta it was an international decade

308
00:13:25,670 --> 00:13:22,160
popularizing the word reimbursable with

309
00:13:28,150 --> 00:13:25,680
38 of the 76 launchings being paid for

310
00:13:30,470 --> 00:13:28,160
by the customer

311
00:13:32,790 --> 00:13:30,480
during the decade of the 70s the need

312
00:13:34,629 --> 00:13:32,800
for advanced communications satellites

313
00:13:37,430 --> 00:13:34,639

expanded rapidly

314

00:13:39,670 --> 00:13:37,440

delta launched 29 communication

315

00:13:42,790 --> 00:13:39,680

satellites for foreign countries and

316

00:13:45,430 --> 00:13:42,800

private companies like comsat rca and

317

00:13:48,150 --> 00:13:45,440

western union to deliver live television

318

00:13:50,870 --> 00:13:48,160

reports instant telephone calls and

319

00:13:53,750 --> 00:13:50,880

computer data exchanges

320

00:13:56,069 --> 00:13:53,760

nearly 200 nations and territories now

321

00:13:58,230 --> 00:13:56,079

depend on this communication service

322

00:14:01,269 --> 00:13:58,240

which has annual revenues in the

323

00:14:07,030 --> 00:14:03,670

in a remote eskimo village in canada's

324

00:14:08,069 --> 00:14:07,040

yukon children learn their abcs via

325

00:14:10,069 --> 00:14:08,079

space

326

00:14:12,870 --> 00:14:10,079

they watch sesame street and other

327

00:14:15,829 --> 00:14:12,880

children's programs courtesy of canada's

328

00:14:17,829 --> 00:14:15,839

anic communication satellite launched by

329

00:14:19,750 --> 00:14:17,839

delga

330

00:14:22,550 --> 00:14:19,760

another delta launched communications

331

00:14:24,870 --> 00:14:22,560

satellite named palapa united the

332

00:14:26,790 --> 00:14:24,880

country of indonesia in a way not

333

00:14:29,590 --> 00:14:26,800

previously possible

334

00:14:31,509 --> 00:14:29,600

palapa provides telephone and television

335

00:14:33,910 --> 00:14:31,519

channels to a nation of more than one

336

00:14:36,550 --> 00:14:33,920

hundred sixty million people living on

337

00:14:39,269 --> 00:14:36,560

more than thirteen thousand islands in

338

00:14:42,629 --> 00:14:39,279

asia covering a stretch of ocean some

339

00:14:44,870 --> 00:14:42,639

three thousand one hundred miles long

340

00:14:47,509 --> 00:14:44,880

this remarkable satellite system makes

341

00:14:49,750 --> 00:14:47,519

it possible for schools and universities

342

00:14:52,389 --> 00:14:49,760

industrial plants and oil drilling

343

00:14:56,870 --> 00:14:52,399

platforms at sea to keep in constant

344

00:15:00,629 --> 00:14:58,550

in 1972

345

00:15:03,189 --> 00:15:00,639

delta faced one of its most demanding

346

00:15:05,430 --> 00:15:03,199

tests the launching of a pathfinding

347

00:15:08,470 --> 00:15:05,440

satellite named earth resources

348

00:15:09,990 --> 00:15:08,480

technology satellite later renamed

349

00:15:12,470 --> 00:15:10,000

landsat

350

00:15:14,870 --> 00:15:12,480

costing more than 100 million dollars

351
00:15:17,670 --> 00:15:14,880
landsat was the most expensive satellite

352
00:15:19,750 --> 00:15:17,680
launched up to that time by delta

353
00:15:22,150 --> 00:15:19,760
to carry out the landsat mission the

354
00:15:24,790 --> 00:15:22,160
delta team had to make major changes in

355
00:15:26,629 --> 00:15:24,800
the propulsion and guidance system

356
00:15:29,189 --> 00:15:26,639
recognizing what was at stake with the

357
00:15:31,269 --> 00:15:29,199
international earth sciences community

358
00:15:33,670 --> 00:15:31,279
the delta team made the necessary

359
00:15:35,030 --> 00:15:33,680
vehicle modifications without a previous

360
00:15:37,110 --> 00:15:35,040
test launching

361
00:15:40,470 --> 00:15:37,120
a vivid testimonial of their faith in

362
00:15:42,150 --> 00:15:40,480
themselves to make the system work

363
00:15:44,710 --> 00:15:42,160

and work it did

364

00:15:46,790 --> 00:15:44,720

providing dramatic detailed pictures

365

00:15:50,230 --> 00:15:46,800

containing new information about man's

366

00:15:51,430 --> 00:15:50,240

most essential needs food water and

367

00:15:53,430 --> 00:15:51,440

energy

368

00:15:56,310 --> 00:15:53,440

forcing us to become wiser and more

369

00:15:58,069 --> 00:15:56,320

efficient custodians of earth's limited

370

00:16:00,550 --> 00:15:58,079

resources

371

00:16:03,110 --> 00:16:00,560

landsat provided scientists with a view

372

00:16:04,310 --> 00:16:03,120

of the eerie and unexpected beauty of

373

00:16:07,350 --> 00:16:04,320

our planet

374

00:16:09,590 --> 00:16:07,360

enabling them to identify diseased crops

375

00:16:12,389 --> 00:16:09,600

map earth's crust for potential oil

376

00:16:15,110 --> 00:16:12,399

deposits locate pollution

377

00:16:17,670 --> 00:16:15,120

monitor the depletion of our forests and

378

00:16:20,829 --> 00:16:17,680

inventory fresh water supplies the most

379

00:16:23,910 --> 00:16:20,839

important single resource on

380

00:16:25,430 --> 00:16:23,920

earth most productive telescope in the

381

00:16:27,829 --> 00:16:25,440

solar system

382

00:16:29,110 --> 00:16:27,839

that's what astronomers call the iue

383

00:16:32,790 --> 00:16:29,120

satellite

384

00:16:36,870 --> 00:16:32,800

launched with delta in 1978 iue is still

385

00:16:39,590 --> 00:16:36,880

operating after 12 years open to all

386

00:16:41,590 --> 00:16:39,600

scientists worldwide some sixteen

387

00:16:44,150 --> 00:16:41,600

hundred astronomers from all five

388

00:16:47,829 --> 00:16:44,160

continents have used iue for their

389

00:16:49,670 --> 00:16:47,839

investigation of the universe

390

00:16:52,310 --> 00:16:49,680

by the end of the nineteen seventies

391

00:16:57,749 --> 00:16:52,320

delta's reliability over 20 years and

392

00:16:59,829 --> 00:16:57,759

150 launchings was an impressive 93

393

00:17:02,389 --> 00:16:59,839

to meet the rapidly changing demands of

394

00:17:05,029 --> 00:17:02,399

the satellite community delta once again

395

00:17:07,590 --> 00:17:05,039

underwent several changes such as the

396

00:17:10,069 --> 00:17:07,600

straight eight look making its diameter

397

00:17:11,750 --> 00:17:10,079

the same from the bottom upward

398

00:17:13,750 --> 00:17:11,760

delta's performance for placing a

399

00:17:16,069 --> 00:17:13,760

satellite into synchronous transfer

400

00:17:17,189 --> 00:17:16,079

orbit increased to over two thousand

401
00:17:19,829 --> 00:17:17,199
pounds

402
00:17:25,909 --> 00:17:19,839
quite a difference from the 146 pound

403
00:17:30,630 --> 00:17:28,150
in the decade of the eighties the united

404
00:17:32,470 --> 00:17:30,640
states shocked the sporting world by

405
00:17:33,990 --> 00:17:32,480
defeating the russian hockey team in the

406
00:17:35,990 --> 00:17:34,000
winter olympics

407
00:17:37,110 --> 00:17:36,000
president reagan was shot and seriously

408
00:17:39,190 --> 00:17:37,120
wounded

409
00:17:41,430 --> 00:17:39,200
sally ride became the first american

410
00:17:43,990 --> 00:17:41,440
woman to go into space

411
00:17:45,190 --> 00:17:44,000
the berlin wall opened to unrestricted

412
00:17:47,990 --> 00:17:45,200
travel

413
00:17:49,909 --> 00:17:48,000

and for the delta rocket it was business

414

00:17:52,070 --> 00:17:49,919

as usual

415

00:17:53,990 --> 00:17:52,080

beginning its third decade delta's

416

00:17:57,029 --> 00:17:54,000

performance continued to grow to

417

00:17:59,750 --> 00:17:57,039

accommodate its customers of the 1980s

418

00:18:02,310 --> 00:17:59,760

a host of very large communications

419

00:18:05,510 --> 00:18:02,320

weather and landsat satellites to

420

00:18:08,789 --> 00:18:05,520

constantly monitor our planet's pulse

421

00:18:10,789 --> 00:18:08,799

several pioneering scientific satellites

422

00:18:13,110 --> 00:18:10,799

and a challenging military mission for

423

00:18:14,630 --> 00:18:13,120

the defense department

424

00:18:16,390 --> 00:18:14,640

spacecraft weight for these

425

00:18:19,750 --> 00:18:16,400

communication satellites tipped the

426

00:18:21,909 --> 00:18:19,760

scale at almost 3 000 pounds

427

00:18:24,710 --> 00:18:21,919

some of these switchboards in the sky

428

00:18:26,230 --> 00:18:24,720

can handle 24 000 telephone calls

429

00:18:29,350 --> 00:18:26,240

simultaneously

430

00:18:32,549 --> 00:18:29,360

or 24 television channels compared to

431

00:18:37,350 --> 00:18:32,559

240 phone calls or only one television

432

00:18:42,470 --> 00:18:39,590

one of several scientific missions was

433

00:18:44,950 --> 00:18:42,480

the 1983 launching of a satellite named

434

00:18:47,990 --> 00:18:44,960

iras which explored the heretofore

435

00:18:50,230 --> 00:18:48,000

invisible infrared universe

436

00:18:52,870 --> 00:18:50,240

iras discovered the first evidence for

437

00:18:55,510 --> 00:18:52,880

another planetary system like our own in

438

00:18:59,029 --> 00:18:55,520

its first stage of growth

439

00:19:01,270 --> 00:18:59,039

another 1983 mission involving a complex

440

00:19:03,990 --> 00:19:01,280

scientific mission to study cosmic

441

00:19:06,310 --> 00:19:04,000

x-rays for the european space agency

442

00:19:08,789 --> 00:19:06,320

severely tested delta's ability to be

443

00:19:10,470 --> 00:19:08,799

launched on short notice

444

00:19:13,190 --> 00:19:10,480

because of scheduling problems with

445

00:19:15,190 --> 00:19:13,200

another rocket the exosat satellite had

446

00:19:17,669 --> 00:19:15,200

to be launched over a period of only a

447

00:19:19,590 --> 00:19:17,679

few days and the target date was only

448

00:19:21,830 --> 00:19:19,600

four months away

449

00:19:24,710 --> 00:19:21,840

the delta team accomplished a two-year

450

00:19:27,909 --> 00:19:24,720

task during this four-month deadline

451
00:19:30,870 --> 00:19:27,919
successfully launching exosat precisely

452
00:19:35,590 --> 00:19:33,590
the 180th delta launching was one of the

453
00:19:37,430 --> 00:19:35,600
greatest challenges in the vehicle's

454
00:19:39,430 --> 00:19:37,440
distinguished history

455
00:19:42,230 --> 00:19:39,440
the mission was the first for defense

456
00:19:44,630 --> 00:19:42,240
purposes and was given a top priority by

457
00:19:47,110 --> 00:19:44,640
the president of the united states

458
00:19:49,669 --> 00:19:47,120
in less than two years the delta people

459
00:19:52,470 --> 00:19:49,679
assembled the launch vehicles built new

460
00:19:54,789 --> 00:19:52,480
unique orbital stages and integrated the

461
00:19:57,669 --> 00:19:54,799
scientific payloads for this national

462
00:19:59,430 --> 00:19:57,679
defense space spectacular

463
00:20:01,590 --> 00:19:59,440

the mission proved that a network of

464

00:20:04,070 --> 00:20:01,600

american defense rockets could intercept

465

00:20:06,149 --> 00:20:04,080

and destroy potential enemy missiles

466

00:20:07,750 --> 00:20:06,159

before they could strike our cities or

467

00:20:09,990 --> 00:20:07,760

other targets

468

00:20:12,470 --> 00:20:10,000

this extraordinary program exceeded all

469

00:20:14,630 --> 00:20:12,480

objectives and was called the most

470

00:20:16,870 --> 00:20:14,640

complex command and controlled space

471

00:20:19,190 --> 00:20:16,880

mission ever conducted by the united

472

00:20:22,070 --> 00:20:19,200

states

473

00:20:24,149 --> 00:20:22,080

what made delta unique compared to other

474

00:20:26,310 --> 00:20:24,159

launch vehicle systems

475

00:20:28,950 --> 00:20:26,320

it was the delta philosophy over three

476
00:20:30,470 --> 00:20:28,960
decades which never changed

477
00:20:32,390 --> 00:20:30,480
reliability

478
00:20:33,430 --> 00:20:32,400
it had to work

479
00:20:36,310 --> 00:20:33,440
service

480
00:20:37,909 --> 00:20:36,320
meet the satellite customers needs

481
00:20:40,310 --> 00:20:37,919
cost effectiveness

482
00:20:42,710 --> 00:20:40,320
keep the price down

483
00:20:46,310 --> 00:20:42,720
improvements systematically phased in

484
00:20:48,390 --> 00:20:46,320
over several years using proven systems

485
00:20:50,390 --> 00:20:48,400
careful but constant change

486
00:20:52,230 --> 00:20:50,400
using the benefits of state-of-the-art

487
00:20:54,870 --> 00:20:52,240
technology

488
00:20:57,190 --> 00:20:54,880

and delta folks at nasa mcdonnell

489

00:20:59,430 --> 00:20:57,200

douglas and the many contractors who

490

00:21:00,549 --> 00:20:59,440

devoted most of their careers working

491

00:21:02,470 --> 00:21:00,559

together

492

00:21:04,710 --> 00:21:02,480

making it a way of life

493

00:21:07,510 --> 00:21:04,720

rather than a job

494

00:21:09,990 --> 00:21:07,520

30 years yet the thrill of launch is

495

00:21:13,110 --> 00:21:10,000

still there for the delta people as the

496

00:21:24,789 --> 00:21:13,120

countdown for the delta 189 kobe mission

497

00:21:29,750 --> 00:21:27,110

another delta heads for space

498

00:21:31,750 --> 00:21:29,760

this time with a satellite named kobe

499

00:21:34,470 --> 00:21:31,760

whose instruments will peer back to the

500

00:21:37,750 --> 00:21:34,480

beginning of time to investigate the

501
00:21:40,070 --> 00:21:37,760
fossil radiation remains and the seeds

502
00:21:41,990 --> 00:21:40,080
which led to today's structure of the

503
00:21:44,549 --> 00:21:42,000
universe

504
00:21:46,789 --> 00:21:44,559
with the launching of delta 189

505
00:21:49,270 --> 00:21:46,799
the torch is being passed by nasa to the

506
00:21:51,430 --> 00:21:49,280
defense department and mcdonnell douglas

507
00:21:53,909 --> 00:21:51,440
for a commercial transportation system

508
00:21:55,990 --> 00:21:53,919
called delta ii

509
00:21:58,950 --> 00:21:56,000
delta ii will carry on with the same

510
00:22:00,070 --> 00:21:58,960
tradition in the 90s and into the 21st

511
00:22:02,870 --> 00:22:00,080
century

512
00:22:05,350 --> 00:22:02,880
when dreamers creators and builders of

513
00:22:08,149 --> 00:22:05,360

future generations will establish human

514

00:22:11,510 --> 00:22:08,159

colonies in space in man's quest to

515

00:22:14,549 --> 00:22:11,520

explore the final frontier

516

00:22:16,950 --> 00:22:14,559

delta changed the course of history

517

00:22:19,750 --> 00:22:16,960

making it possible for many groups and

518

00:22:22,070 --> 00:22:19,760

nations to go into space

519

00:22:24,470 --> 00:22:22,080

when historians of future generations

520

00:22:27,029 --> 00:22:24,480

discuss delta's place in the annals of

521

00:22:29,830 --> 00:22:27,039

space rocketry they are sure to devote

522

00:22:32,630 --> 00:22:29,840

several pages to this workhorse

523

00:22:35,669 --> 00:22:32,640

and the prominent men and women of delta