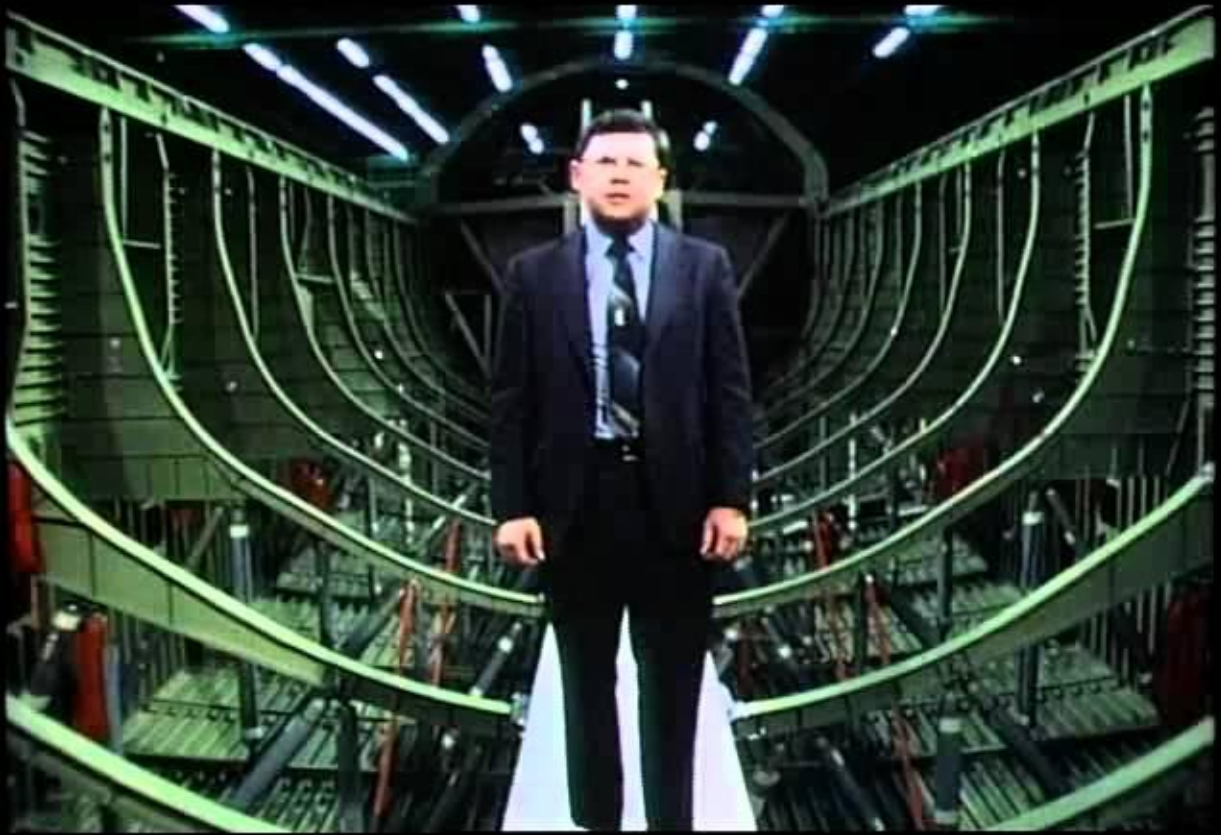

1
00:00:07,900 --> 00:00:06,470
Enterprise euston go ahead fellow we

2
00:00:11,299 --> 00:00:07,910
have a couple of updates to your

3
00:00:15,550 --> 00:00:11,309
pre-flight cue cards the altitude hey

4
00:00:21,950 --> 00:00:15,560
fellas okay we're ready the copy

5
00:00:26,570 --> 00:00:21,960
separation is that to 3.0 next one 18.0

6
00:00:30,080 --> 00:00:26,580
rolled out on final at 8.3 and then one

7
00:00:31,669 --> 00:00:30,090
point Niner i suggest you go ahead and

8
00:00:57,930 --> 00:00:31,679
start your engines and begin your

9
00:01:03,430 --> 00:01:01,120
it's called Enterprise first of the

10
00:01:05,650 --> 00:01:03,440
space shuttle orbiters the beginning of

11
00:01:09,160 --> 00:01:05,660
a new space transportation system a

12
00:01:11,590 --> 00:01:09,170
craft that can carry up to 65,000 pounds

13
00:01:14,830 --> 00:01:11,600

into space and land back on earth like

14
00:01:17,740 --> 00:01:14,840
an airplane five times two astronauts

15
00:01:20,050 --> 00:01:17,750
were carried piggyback atop this 747

16
00:01:21,790 --> 00:01:20,060
chat and released five times they

17
00:01:26,200 --> 00:01:21,800
brought the youth spaceship in for

18
00:01:32,560 --> 00:01:26,210
powerless landings hey the gear is

19
00:01:34,300 --> 00:01:32,570
coming down at 270 you're coming stores

20
00:01:41,850 --> 00:01:34,310
open there there are down some of that

21
00:02:01,070 --> 00:01:41,860
look down here puppy beach party big 30

22
00:02:05,730 --> 00:02:03,780
summing up the years work for all four

23
00:02:08,640 --> 00:02:05,740
of the astronaut crewman astronaut

24
00:02:11,090 --> 00:02:08,650
gordon fullerton we're at the end of the

25
00:02:14,250 --> 00:02:11,100
person hiring test phase of this program

26
00:02:19,170 --> 00:02:14,260
but it it's really not an end at the

27
00:02:20,910 --> 00:02:19,180
beginning with the smash-up really

28
00:02:25,020 --> 00:02:20,920
accomplished so good in the orbiter into

29
00:02:27,950 --> 00:02:25,030
space and and that affects I I'm looking

30
00:02:30,930 --> 00:02:27,960
forward to more of the sirna seven times

31
00:02:33,990 --> 00:02:30,940
as we continue on toward our first

32
00:02:36,030 --> 00:02:34,000
orbital flight enterprise will not be

33
00:02:38,610 --> 00:02:36,040
the first shuttle into space but this

34
00:02:40,890 --> 00:02:38,620
one will be shown here being assembled

35
00:02:44,970 --> 00:02:40,900
by Rockwell International it is simply

36
00:02:46,980 --> 00:02:44,980
designated orbiter 102 102 is undergoing

37
00:02:49,230 --> 00:02:46,990
construction right now in Palmdale and

38
00:02:51,270 --> 00:02:49,240

it's scheduled to be shipped in the

39
00:02:53,910 --> 00:02:51,280
middle of next year over the DFR see

40
00:02:56,550 --> 00:02:53,920
where we will perform a hot fire test on

41
00:02:58,140 --> 00:02:56,560
it we will made it through 747 and slide

42
00:03:01,890 --> 00:02:58,150
to florida in preparation for launch

43
00:03:04,770 --> 00:03:01,900
into orbit in march of 1979 after about

44
00:03:07,590 --> 00:03:04,780
24 hours in orbit on 102 it also will

45
00:03:10,380 --> 00:03:07,600
land here d FRC on the lake bed in the

46
00:03:11,729 --> 00:03:10,390
manner similar to the test flight that

47
00:03:14,580 --> 00:03:11,739
we just completed on the approach and

48
00:03:18,660 --> 00:03:14,590
landing deck also completed this year

49
00:03:21,410 --> 00:03:18,670
the 154 foot long 27 and one half foot

50
00:03:23,699 --> 00:03:21,420
wide external fuel tank for the shuttle

51
00:03:25,440 --> 00:03:23,709
designed and assembled by Martin

52
00:03:28,470 --> 00:03:25,450
Marietta at NASA's Michoud assembly

53
00:03:30,330 --> 00:03:28,480
facility near New Orleans the external

54
00:03:34,040 --> 00:03:30,340
tank will fuel shuttles three main

55
00:03:39,030 --> 00:03:36,570
another major milestone for the new

56
00:03:41,190 --> 00:03:39,040
space transportation system was the

57
00:03:44,070 --> 00:03:41,200
successful test firing of one of the two

58
00:03:46,320 --> 00:03:44,080
fire calls solid rocket motors that will

59
00:03:50,910 --> 00:03:46,330
also help boost the Shuttle Orbiter into

60
00:03:53,100 --> 00:03:50,920
space this animation shows how they work

61
00:03:55,440 --> 00:03:53,110
during launch the two solid rocket

62
00:03:57,570 --> 00:03:55,450
boosters strapped to each side carry

63
00:04:00,210 --> 00:03:57,580

their own propellants and burn for about

64
00:04:02,220 --> 00:04:00,220
two minutes before separating their

65
00:04:05,880 --> 00:04:02,230
onboard parachutes will then bring them

66
00:04:07,950 --> 00:04:05,890
back to earth for recovery and reuse the

67
00:04:09,600 --> 00:04:07,960
large external fuel tank continues

68
00:04:11,850 --> 00:04:09,610
feeding the shuttle engines for an

69
00:04:14,700 --> 00:04:11,860
additional six minutes separating just

70
00:04:16,770 --> 00:04:14,710
before the shuttle reaches orbit this is

71
00:04:21,300 --> 00:04:16,780
the only part of the shuttle system that

72
00:04:23,220 --> 00:04:21,310
will not be used again when NASA

73
00:04:25,920 --> 00:04:23,230
announced it was recruiting between 30

74
00:04:28,050 --> 00:04:25,930
and 40 new astronauts more than 8,000

75
00:04:31,170 --> 00:04:28,060
hopeful candidates responded including

76
00:04:32,970 --> 00:04:31,180
over 1,500 women the Johnson Space

77
00:04:35,250 --> 00:04:32,980
Center in Houston is in the final

78
00:04:37,050 --> 00:04:35,260
screening process to select from this

79
00:04:41,240 --> 00:04:37,060
group both mission specialists and

80
00:04:43,500 --> 00:04:41,250
pilots for future space shuttle flights

81
00:04:45,870 --> 00:04:43,510
to get a feel for handling large

82
00:04:47,640 --> 00:04:45,880
structures in space engineers at the

83
00:04:49,860 --> 00:04:47,650
Marshall Space Flight Center have been

84
00:04:51,900 --> 00:04:49,870
practicing underwater the closest you

85
00:04:53,840 --> 00:04:51,910
can come for long periods of time to

86
00:04:56,790 --> 00:04:53,850
simulating the weightlessness of space

87
00:04:58,260 --> 00:04:56,800
it's anticipated that the shuttle will

88
00:05:00,360 --> 00:04:58,270

make the building of large space

89
00:05:02,159 --> 00:05:00,370
structures possible as well as the

90
00:05:04,260 --> 00:05:02,169
Assembly of heavier satellites and

91
00:05:12,000 --> 00:05:04,270
instruments to better observe Earth and

92
00:05:14,100 --> 00:05:12,010
provide improved communications even

93
00:05:16,170 --> 00:05:14,110
solar satellites could be constructed to

94
00:05:17,940 --> 00:05:16,180
beam the sun's energy to earth if it

95
00:05:19,920 --> 00:05:17,950
becomes an economic and reasonable

96
00:05:28,390 --> 00:05:19,930
alternative to some of our ground-based

97
00:05:32,899 --> 00:05:30,920
many of the early shuttle flights are

98
00:05:35,360 --> 00:05:32,909
already booked with confirmed payloads

99
00:05:36,860 --> 00:05:35,370
according to NASA's director of pricing

100
00:05:39,830 --> 00:05:36,870
launch agreements and customer

101
00:05:41,659 --> 00:05:39,840
engineering services Mike Smith this

102
00:05:43,790 --> 00:05:41,669
payload section of the shuttle under

103
00:05:46,969 --> 00:05:43,800
construction gives some idea of the

104
00:05:50,420 --> 00:05:46,979
space available I were sold out on

105
00:05:54,200 --> 00:05:50,430
flight to nineteen eighties have firm

106
00:05:56,180 --> 00:05:54,210
tight assignment through 1981 physical

107
00:05:58,219 --> 00:05:56,190
of these flights of a launch of a

108
00:06:00,950 --> 00:05:58,229
long-duration exposure facility for NASA

109
00:06:04,879 --> 00:06:00,960
on flight 7 and its retrieval from

110
00:06:09,770 --> 00:06:04,889
flight 17 we have a full Man Faced lash

111
00:06:13,490 --> 00:06:09,780
line on size 11 and Jupiter orbiter

112
00:06:15,200 --> 00:06:13,500
probe crying on site 26 to have numerous

113
00:06:18,980 --> 00:06:15,210

communication satellites being launched

114
00:06:21,980 --> 00:06:18,990
for terrified senator contact satellite

115
00:06:26,510 --> 00:06:21,990
businesses and corporations and India in

116
00:06:28,339 --> 00:06:26,520
the early 8081 time period manufacturer

117
00:06:31,430 --> 00:06:28,349
the first flight unit has begun on

118
00:06:33,649 --> 00:06:31,440
Spacelab shown here in makkah space lab

119
00:06:35,689 --> 00:06:33,659
is unique because it represents a

120
00:06:38,839 --> 00:06:35,699
cooperative venture by NASA and the

121
00:06:41,059 --> 00:06:38,849
European Space Agency to be built in

122
00:06:42,620 --> 00:06:41,069
self-contained modules the space lab

123
00:06:45,680 --> 00:06:42,630
will be placed inside the shuttle

124
00:06:47,600 --> 00:06:45,690
payload section there from one to four

125
00:06:50,120 --> 00:06:47,610
payload specialists will attend to a

126
00:06:53,059 --> 00:06:50,130
variety of experiments while working in

127
00:06:54,559 --> 00:06:53,069
a shirtsleeve environment space lab is

128
00:06:56,659 --> 00:06:54,569
expected to make significant

129
00:07:01,610 --> 00:06:56,669
contributions to science medicine

130
00:07:06,650 --> 00:07:04,640
in space science two unmanned voyager

131
00:07:08,390 --> 00:07:06,660
spacecraft like this are now on their

132
00:07:11,300 --> 00:07:08,400
way toward the planets jupiter and

133
00:07:13,700 --> 00:07:11,310
saturn their journey could last over a

134
00:07:16,010 --> 00:07:13,710
decade with investigations of more than

135
00:07:19,430 --> 00:07:16,020
a dozen major planetary bodies including

136
00:07:21,350 --> 00:07:19,440
uranus the program is designed to yield

137
00:07:23,150 --> 00:07:21,360
valuable new information about the

138
00:07:25,460 --> 00:07:23,160

origins of the solar system and

139
00:07:28,969 --> 00:07:25,470
formation of the earth one of the ways

140
00:07:30,770 --> 00:07:28,979
that will do this is with pictures dr.

141
00:07:33,439 --> 00:07:30,780
Bradford a Smith is associate professor

142
00:07:35,810 --> 00:07:33,449
of planetary sciences at the University

143
00:07:38,629 --> 00:07:35,820
of Arizona and team leader of the

144
00:07:40,430 --> 00:07:38,639
imaging experiment on Voyager we begin

145
00:07:42,050 --> 00:07:40,440
our observations of both Jupiter and

146
00:07:44,659 --> 00:07:42,060
Saturn approximately a hundred days

147
00:07:47,150 --> 00:07:44,669
before we arrive at the planet control

148
00:07:49,670 --> 00:07:47,160
during that period of time we're

149
00:07:52,219 --> 00:07:49,680
constantly looking at the planet each

150
00:07:54,950 --> 00:07:52,229
planet both Jupiter and Saturn rotates

151
00:07:57,830 --> 00:07:54,960
in approximately ten hours so every ten

152
00:07:59,750 --> 00:07:57,840
hours as we're approaching these planets

153
00:08:01,700 --> 00:07:59,760
over a hundred day period we will see

154
00:08:05,300 --> 00:08:01,710
the whole surface of the planet rotating

155
00:08:08,060 --> 00:08:05,310
benitez as we get closer and closer the

156
00:08:10,310 --> 00:08:08,070
resolution its power we see smaller and

157
00:08:14,000 --> 00:08:10,320
smaller features and as we get very

158
00:08:16,520 --> 00:08:14,010
close we we finally get so close that we

159
00:08:18,230 --> 00:08:16,530
can't see we don't have enough pictures

160
00:08:20,690 --> 00:08:18,240
to cover the entire surface of the

161
00:08:23,000 --> 00:08:20,700
planet but we will select out particular

162
00:08:24,950 --> 00:08:23,010
features of great interest observed

163
00:08:26,960 --> 00:08:24,960

during that so-called Observatory phase

164
00:08:31,279 --> 00:08:26,970
and these features will be targeted for

165
00:08:33,260 --> 00:08:31,289
post examination as we fly by the

166
00:08:35,839 --> 00:08:33,270
voyagers will eventually leave the solar

167
00:08:37,730 --> 00:08:35,849
system each carrying a cosmic greeting

168
00:08:40,190 --> 00:08:37,740
card in the form of a copper record

169
00:08:41,630 --> 00:08:40,200
called the sounds of earth' they were

170
00:08:44,480 --> 00:08:41,640
assembled by a group of prominent

171
00:08:47,630 --> 00:08:44,490
scientists and educators the record

172
00:08:50,240 --> 00:08:47,640
begins with 115 photographs and diagrams

173
00:08:52,730 --> 00:08:50,250
in analog form that described

174
00:08:56,810 --> 00:08:52,740
mathematics chemistry geology and

175
00:08:58,400 --> 00:08:56,820
biology of earth and our location the

176
00:09:04,820 --> 00:08:58,410
pictures are followed by spoken

177
00:09:07,400 --> 00:09:04,830
greetings in 60 languages Shalom hola

178
00:09:11,150 --> 00:09:07,410
saludos a todos se llama llama Darren

179
00:09:13,180 --> 00:09:11,160
scallion hello children of planet Earth

180
00:09:16,180 --> 00:09:13,190
the sounds of weather

181
00:09:18,570 --> 00:09:16,190
birds and other animals and almost 90

182
00:09:21,670 --> 00:09:18,580
minutes of music from around the world

183
00:09:23,440 --> 00:09:21,680
finally here in part is the text of a

184
00:09:25,510 --> 00:09:23,450
printed message from the President of

185
00:09:28,930 --> 00:09:25,520
the United States on the chance that

186
00:09:31,390 --> 00:09:28,940
someone is out there this is a present

187
00:09:33,940 --> 00:09:31,400
from a small distant world a token of

188
00:09:37,270 --> 00:09:33,950

our sounds our science our images our

189
00:09:39,550 --> 00:09:37,280
music our thoughts and our feelings we

190
00:09:42,160 --> 00:09:39,560
are attempting to survive our time so we

191
00:09:45,040 --> 00:09:42,170
may live into yours we hope someday

192
00:09:46,720 --> 00:09:45,050
having solved the problems we face to

193
00:09:49,750 --> 00:09:46,730
join a community of galactic

194
00:09:51,940 --> 00:09:49,760
civilizations this record represents our

195
00:09:59,430 --> 00:09:51,950
hope and our determination and our

196
00:10:04,600 --> 00:10:02,500
how stars produce the energy that makes

197
00:10:06,760 --> 00:10:04,610
them burn so bright and then how they

198
00:10:08,710 --> 00:10:06,770
transmit this energy through millions of

199
00:10:11,140 --> 00:10:08,720
miles of space losing very little

200
00:10:13,990 --> 00:10:11,150
intensity along the way is of great

201
00:10:17,500 --> 00:10:14,000
interest to scientists to study the

202
00:10:19,690 --> 00:10:17,510
stars eyo one high-energy Astronomy

203
00:10:22,750 --> 00:10:19,700
Observatory was launched in august

204
00:10:25,180 --> 00:10:22,760
already heels instruments have found a

205
00:10:27,550 --> 00:10:25,190
gigantic star whose x-ray radiation

206
00:10:30,940 --> 00:10:27,560
increases violently over a period of

207
00:10:33,010 --> 00:10:30,950
time then returns to normal po1 will be

208
00:10:35,320 --> 00:10:33,020
joined in its task of mapping the sky

209
00:10:39,520 --> 00:10:35,330
for x-ray sources by two other

210
00:10:41,740 --> 00:10:39,530
observatories in the future NASA

211
00:10:43,750 --> 00:10:41,750
continued applying the technology and

212
00:10:45,670 --> 00:10:43,760
science learned in space to improve

213
00:10:47,910 --> 00:10:45,680

systems for managing the earth and

214
00:10:50,860 --> 00:10:47,920
managing our business here on the ground

215
00:10:53,350 --> 00:10:50,870
this includes further use of our remote

216
00:10:55,930 --> 00:10:53,360
sensing capabilities which enable us to

217
00:10:57,850 --> 00:10:55,940
look at the whole earth or large regions

218
00:11:01,480 --> 00:10:57,860
of the earth in ways not previously

219
00:11:03,400 --> 00:11:01,490
possible Landsat satellites one and two

220
00:11:05,380 --> 00:11:03,410
for instance are helping us understand

221
00:11:08,470 --> 00:11:05,390
the condition of agricultural crops

222
00:11:10,300 --> 00:11:08,480
forests and groundwater observations

223
00:11:14,350 --> 00:11:10,310
that make it possible to predict and

224
00:11:16,180 --> 00:11:14,360
manage more efficiently most of NASA's

225
00:11:17,600 --> 00:11:16,190
launches this year were paid for by

226
00:11:20,389 --> 00:11:17,610
other users and other

227
00:11:23,680 --> 00:11:20,399
these included launches for the European

228
00:11:26,449 --> 00:11:23,690
Space Agency Japan Indonesia and Italy

229
00:11:28,370 --> 00:11:26,459
not all the launches were successful

230
00:11:31,100 --> 00:11:28,380
however both the Delta and an atlas

231
00:11:33,410 --> 00:11:31,110
rocket failed shortly after liftoff the

232
00:11:36,350 --> 00:11:33,420
first unsuccessful launch in three years

233
00:11:42,019 --> 00:11:36,360
for the Delta and since 1975 for the

234
00:11:43,699 --> 00:11:42,029
Atlas more and more NASA is working with

235
00:11:45,800 --> 00:11:43,709
other government agencies such as the

236
00:11:47,480 --> 00:11:45,810
Department of Energy NASA's

237
00:11:50,389 --> 00:11:47,490
understanding of rotating machinery

238
00:11:52,340 --> 00:11:50,399

solar cells and heat transfer is being

239
00:11:58,009 --> 00:11:52,350
applied to the development of windmills

240
00:11:59,930 --> 00:11:58,019
and better turbines the Lewis Research

241
00:12:01,550 --> 00:11:59,940
Center in Cleveland for example is

242
00:12:03,920 --> 00:12:01,560
gathering information on as many

243
00:12:05,840 --> 00:12:03,930
electric vehicles as possible and is

244
00:12:11,660 --> 00:12:05,850
also working to improve nickel zinc

245
00:12:14,120 --> 00:12:11,670
batteries NASA is also applying solar

246
00:12:16,130 --> 00:12:14,130
energy technology to new developments

247
00:12:21,009 --> 00:12:16,140
that may bring it into effective use as

248
00:12:26,600 --> 00:12:23,689
efforts to apply technology to make

249
00:12:28,910 --> 00:12:26,610
aviation safer more economical cleaner

250
00:12:31,850 --> 00:12:28,920
and quieter continued this year at

251
00:12:33,800 --> 00:12:31,860
several NASA field centers energy

252
00:12:37,040 --> 00:12:33,810
efficiency to curb airplane fuel

253
00:12:39,560 --> 00:12:37,050
consumption has high priority areas of

254
00:12:41,840 --> 00:12:39,570
study include engine research improved

255
00:12:44,509 --> 00:12:41,850
shapes computerized flight control

256
00:12:54,489 --> 00:12:44,519
systems and lighter stronger aircraft

257
00:12:58,729 --> 00:12:56,869
these crash tests at the Langley

258
00:13:00,379 --> 00:12:58,739
Research Center are an attempt to find

259
00:13:03,349 --> 00:13:00,389
out what happens when a general aviation

260
00:13:05,119 --> 00:13:03,359
airplane does just that the highly

261
00:13:07,460 --> 00:13:05,129
instrumented plane and dummies should

262
00:13:14,419 --> 00:13:07,470
help aircraft manufacturers build even

263
00:13:16,220 --> 00:13:14,429

safer airplanes in the future piece

264
00:13:18,530 --> 00:13:16,230
Pincess look at a different safety

265
00:13:21,559 --> 00:13:18,540
problem the problem of spins and stalls

266
00:13:23,720 --> 00:13:21,569
and general aviation airplanes in part

267
00:13:25,759 --> 00:13:23,730
of the project researchers are trying to

268
00:13:29,780 --> 00:13:25,769
determine the effects of tail design on

269
00:13:32,119 --> 00:13:29,790
spin characteristics a new research

270
00:13:34,340 --> 00:13:32,129
aircraft which combines features of both

271
00:13:37,939 --> 00:13:34,350
helicopters and conventional airplanes

272
00:13:41,030 --> 00:13:37,949
the XV 15 tiltrotor completed its first

273
00:13:42,650 --> 00:13:41,040
phase of flight testing these short and

274
00:13:45,049 --> 00:13:42,660
vertical takeoff and landing aircraft

275
00:13:53,980 --> 00:13:45,059
may one day improve intra-city

276
00:13:59,390 --> 00:13:56,720
1977 an important year for both

277
00:14:01,370 --> 00:13:59,400
Aeronautics and Space Research with much