



1
00:00:04,849 --> 00:00:02,929
it is my privilege to introduce our

2
00:00:08,870 --> 00:00:04,859
guest speaker tonight mr. gene Kranz

3
00:00:11,930 --> 00:00:08,880
gene joined NASA in 1960 is chief of the

4
00:00:14,299 --> 00:00:11,940
flight operations branch he served as

5
00:00:16,010 --> 00:00:14,309
one of the original project mercury

6
00:00:18,349 --> 00:00:16,020
assistant flight directors and his

7
00:00:21,260 --> 00:00:18,359
flight director for the Gemini program

8
00:00:23,720 --> 00:00:21,270
in 1969 he became chief of the flight

9
00:00:26,929 --> 00:00:23,730
control division and served as flight

10
00:00:29,000 --> 00:00:26,939
director for Apollo and Skylab among his

11
00:00:30,980 --> 00:00:29,010
achievements during Apollo was serving

12
00:00:33,770 --> 00:00:30,990
his flight director for the first lunar

13
00:00:35,600 --> 00:00:33,780

landing of Apollo 11 and playing a lead

14

00:00:38,560 --> 00:00:35,610

role in the mission control centers

15

00:00:41,240 --> 00:00:38,570

successful efforts to return Apollo 13

16

00:00:42,889 --> 00:00:41,250

genes been awarded many awards as you

17

00:00:45,139 --> 00:00:42,899

might imagine to NASA exceptional

18

00:00:49,760 --> 00:00:45,149

service medals three NASA distinguished

19

00:00:53,330 --> 00:00:49,770

service medals AI double a's lawrence

20

00:00:56,840 --> 00:00:53,340

speery award the AAS spaceflight award

21

00:00:58,760 --> 00:00:56,850

the robert r gill roots award the Arthur

22

00:01:01,580 --> 00:00:58,770

Eze swimming award the National Space

23

00:01:03,950 --> 00:01:01,590

Club astronautics engineer award the st.

24

00:01:06,469 --> 00:01:03,960

louis university presidents award the

25

00:01:09,770 --> 00:01:06,479

presidential medal of freedom and for

26

00:01:11,120 --> 00:01:09,780

presidential rank awards is my distinct

27

00:01:20,330 --> 00:01:11,130

honor this evening to introduce our

28

00:01:29,150 --> 00:01:23,030

thank you

29

00:01:32,000 --> 00:01:29,160

to yell so you probably want to turn the

30

00:01:34,430 --> 00:01:32,010

volume down on your control unit there

31

00:01:37,030 --> 00:01:34,440

through a pleasure to have the

32

00:01:39,610 --> 00:01:37,040

opportunity to be here in Huntsville

33

00:01:44,270 --> 00:01:39,620

this evening and have the opportunity to

34

00:01:49,250 --> 00:01:44,280

speak to operators you know operations

35

00:01:51,940 --> 00:01:49,260

is literally an art it's really

36

00:01:54,950 --> 00:01:51,950

something where virtually every day

37

00:01:59,090 --> 00:01:54,960

you're faced with decisions no ambiguity

38

00:02:03,890 --> 00:01:59,100

go or no-go Slayer no state launch or

39

00:02:07,880 --> 00:02:03,900

hold so it's really a great opportunity

40

00:02:11,780 --> 00:02:07,890

to basically congratulate you and the

41

00:02:14,090 --> 00:02:11,790

career selection that you've made you

42

00:02:19,370 --> 00:02:14,100

know I was I was a young fighter pilot

43

00:02:22,790 --> 00:02:19,380

in Korea flying the f-86 and one day I

44

00:02:26,060 --> 00:02:22,800

came down from a flight and makrooh

45

00:02:30,140 --> 00:02:26,070

chief told me that Soviet Union had

46

00:02:32,479 --> 00:02:30,150

launched a Sputnik and I had no clue

47

00:02:34,640 --> 00:02:32,489

what they were talking about except that

48

00:02:37,729 --> 00:02:34,650

this was a small basketball-sized

49

00:02:41,420 --> 00:02:37,739

satellite that was a circling the Earth

50

00:02:44,000 --> 00:02:41,430

and I could look up to the heavens and

51
00:02:46,449 --> 00:02:44,010
say there's some new object up there and

52
00:02:48,680 --> 00:02:46,459
I don't understand what it's all about I

53
00:02:50,630 --> 00:02:48,690
also had a high level of frustration

54
00:02:52,430 --> 00:02:50,640
because when we were over in Korea we

55
00:02:54,530 --> 00:02:52,440
could see the Soviet MiG's with about a

56
00:02:59,320 --> 00:02:54,540
two thousand foot altitude advantage on

57
00:03:01,910 --> 00:02:59,330
us and this was a concern so literally

58
00:03:07,280 --> 00:03:01,920
another nation had captured the high

59
00:03:09,229 --> 00:03:07,290
ground in space I came and did a couple

60
00:03:13,640 --> 00:03:09,239
years as a flight test engineer in the

61
00:03:15,560 --> 00:03:13,650
early jet bombers the b-52 and be 47 and

62
00:03:18,229 --> 00:03:15,570
then I saw an advertisement in aviation

63
00:03:21,199 --> 00:03:18,239

week that indicated they were forming a

64

00:03:25,130 --> 00:03:21,209

space class group and they're looking

65

00:03:27,259 --> 00:03:25,140

for qualified engineers to determine the

66

00:03:30,890 --> 00:03:27,269

feasibility of putting an American in

67

00:03:33,409 --> 00:03:30,900

space well gee that sounds like a pretty

68

00:03:35,880 --> 00:03:33,419

cool job so I filled out the standard

69

00:03:40,020 --> 00:03:35,890

government form 52 centered in

70

00:03:41,820 --> 00:03:40,030

didn't hear anything from NASA and now I

71

00:03:43,410 --> 00:03:41,830

was faced with the career choice what am

72

00:03:45,210 --> 00:03:43,420

I going to do and about the time I was

73

00:03:48,000 --> 00:03:45,220

either going to go back out to Edwards

74

00:03:53,220 --> 00:03:48,010

with one of the f force or go back to

75

00:03:54,930 --> 00:03:53,230

st. Louis and I got a call they said are

76

00:03:58,670 --> 00:03:54,940

you still interested and I said

77

00:04:01,860 --> 00:03:58,680

certainly they said when can you report

78

00:04:03,420 --> 00:04:01,870

and I said give me a couple weeks to two

79

00:04:06,150 --> 00:04:03,430

weeks later I was back at Langley field

80

00:04:08,699 --> 00:04:06,160

in Virginia and we went into pool

81

00:04:10,979 --> 00:04:08,709

because they were still setting up the

82

00:04:13,290 --> 00:04:10,989

structure of the space Task Group and

83

00:04:15,780 --> 00:04:13,300

they had a launch operations under merit

84

00:04:17,509 --> 00:04:15,790

Preston and they had recovery operations

85

00:04:20,520 --> 00:04:17,519

under jury hammock and they had

86

00:04:22,980 --> 00:04:20,530

trajectory design under Johnny Marin and

87

00:04:24,720 --> 00:04:22,990

you didn't know who I'd be working for

88

00:04:26,670 --> 00:04:24,730

it so they gave you a whole bunch of

89

00:04:28,920 --> 00:04:26,680

manuals and they studied these manuals

90

00:04:30,690 --> 00:04:28,930

and got reasonably familiar with what a

91

00:04:32,190 --> 00:04:30,700

spacecraft look like which was the

92

00:04:35,880 --> 00:04:32,200

pointy end that was the end that would

93

00:04:39,180 --> 00:04:35,890

up and uh two weeks after I was on the

94

00:04:40,830 --> 00:04:39,190

job gentleman comes up tasked me in the

95

00:04:43,650 --> 00:04:40,840

shoulder and says I'm chris-craft you're

96

00:04:46,500 --> 00:04:43,660

working for me and I want you to go down

97

00:04:49,020 --> 00:04:46,510

to the cape and write a countdown write

98

00:04:50,430 --> 00:04:49,030

submission rules and when you're through

99

00:04:54,510 --> 00:04:50,440

give me a call and we'll come down and

100

00:04:57,600 --> 00:04:54,520

launch operations at that time was sort

101
00:04:59,640 --> 00:04:57,610
of like playing Sandlot baseball where

102
00:05:01,440 --> 00:04:59,650
you throw the bat you move up you get

103
00:05:03,060 --> 00:05:01,450
chicken claws up the top and that's a

104
00:05:05,850 --> 00:05:03,070
guy who gets the first choice of picking

105
00:05:09,270 --> 00:05:05,860
the players and that was basically the

106
00:05:15,600 --> 00:05:09,280
nature of operations as we moved into

107
00:05:18,390 --> 00:05:15,610
the Mercury program at the time that we

108
00:05:20,070 --> 00:05:18,400
started our world was vastly different

109
00:05:21,860 --> 00:05:20,080
our nation would soon be torn by the

110
00:05:24,659 --> 00:05:21,870
beginning of the conflict in Vietnam

111
00:05:26,790 --> 00:05:24,669
during that decade of the 60s we would

112
00:05:29,070 --> 00:05:26,800
see three political assassinations and

113
00:05:32,370 --> 00:05:29,080

the civil rights movement was just

114

00:05:34,529 --> 00:05:32,380

emerging within the nation the cold war

115

00:05:36,210 --> 00:05:34,539

with Soviet Union provided the stimulus

116

00:05:38,810 --> 00:05:36,220

for the space program that guided every

117

00:05:41,870 --> 00:05:38,820

aspect of America's foreign policy

118

00:05:45,270 --> 00:05:41,880

computers existed only in laboratories

119

00:05:47,310 --> 00:05:45,280

there are no global communications and

120

00:05:49,290 --> 00:05:47,320

in that decade American students would

121

00:05:52,689 --> 00:05:49,300

riot in the caf

122

00:05:54,070 --> 00:05:52,699

then in 1961 a young brash and

123

00:05:57,189 --> 00:05:54,080

articulate president john f kennedy

124

00:05:59,439 --> 00:05:57,199

issued a challenge he said we choose to

125

00:06:02,019 --> 00:05:59,449

go to the moon we choose to go to the

126

00:06:03,959 --> 00:06:02,029

moon in this decade and do the other

127

00:06:07,899 --> 00:06:03,969

things not because they are easy but

128

00:06:09,909 --> 00:06:07,909

because they are hard and issued this

129

00:06:11,649 --> 00:06:09,919

challenge as we were struggling to put a

130

00:06:13,540 --> 00:06:11,659

spacecraft into orbit one month prior

131

00:06:17,529 --> 00:06:13,550

the speech we had blown up our second

132

00:06:19,119 --> 00:06:17,539

Atlas rocket 11 days prior the speech we

133

00:06:21,100 --> 00:06:19,129

had launched Alan Shepard so he had a

134

00:06:22,689 --> 00:06:21,110

total of twenty minutes manned space

135

00:06:25,839 --> 00:06:22,699

flight experience we'd never been to

136

00:06:29,499 --> 00:06:25,849

orbit and we were directed to go to the

137

00:06:32,709 --> 00:06:29,509

moon so engineers and people experience

138

00:06:34,359 --> 00:06:32,719

in flight tests in a small group of 31

139

00:06:36,670 --> 00:06:34,369

Canadians and Englishmen from the

140

00:06:38,739 --> 00:06:36,680

Cracker Jack Avro Arrow flight test teen

141

00:06:41,589 --> 00:06:38,749

joined with the mercury 7 astronauts at

142

00:06:43,869 --> 00:06:41,599

Langley field in Virginia to form a

143

00:06:47,739 --> 00:06:43,879

space task group that would win

144

00:06:49,749 --> 00:06:47,749

supremacy in space our boss was Walt

145

00:06:52,659 --> 00:06:49,759

Williams well it was the toughest man I

146

00:06:54,670 --> 00:06:52,669

have ever known he is a brawler is more

147

00:06:57,699 --> 00:06:54,680

fitted the working as a longshoreman New

148

00:07:00,339 --> 00:06:57,709

York or San Diego or San Francisco than

149

00:07:01,929 --> 00:07:00,349

leading the American space program but

150

00:07:04,749 --> 00:07:01,939

the business of aircraft like Tess

151
00:07:07,600 --> 00:07:04,759
Williams was a legend he is a pioneer

152
00:07:09,429 --> 00:07:07,610
director of the NACA high speed test

153
00:07:12,489 --> 00:07:09,439
station that today we call Edwards Air

154
00:07:15,129 --> 00:07:12,499
Force Base there's a project manager for

155
00:07:17,559 --> 00:07:15,139
the x1 rocket ship that a 1947 took

156
00:07:21,730 --> 00:07:17,569
Chuck Yeager and the world into the age

157
00:07:24,249 --> 00:07:21,740
of supersonic flight Williams deputy was

158
00:07:27,999 --> 00:07:24,259
prophetically named Christopher Columbus

159
00:07:29,829 --> 00:07:28,009
craft Chris developed the concept for

160
00:07:31,749 --> 00:07:29,839
spaceflight operations he directed the

161
00:07:33,429 --> 00:07:31,759
implementation of the worldwide tracking

162
00:07:36,040 --> 00:07:33,439
network launched each one of the mercury

163
00:07:38,559 --> 00:07:36,050

missions but most importantly he was the

164

00:07:40,239 --> 00:07:38,569

mentor the teacher the tutor for the

165

00:07:43,589 --> 00:07:40,249

first generation of young people that

166

00:07:45,999 --> 00:07:43,599

became known as mission controllers

167

00:07:48,639 --> 00:07:46,009

mercury control did not have a single

168

00:07:50,679 --> 00:07:48,649

computer there were three mainframe

169

00:07:53,619 --> 00:07:50,689

computers supporting all of Project

170

00:07:55,689 --> 00:07:53,629

Mercury two of these mainframes were 700

171

00:07:57,040 --> 00:07:55,699

miles north of the Cape at greenbelt

172

00:07:59,619 --> 00:07:57,050

maryland goddard space flight center

173

00:08:00,870 --> 00:07:59,629

because IBM did not trust us to operate

174

00:08:03,090 --> 00:08:00,880

computers

175

00:08:06,510 --> 00:08:03,100

and these machines were the first solid

176

00:08:08,430 --> 00:08:06,520

state machines ever produced by BM on

177

00:08:11,550 --> 00:08:08,440

the island of Bermuda we put a reliable

178

00:08:13,430 --> 00:08:11,560

vacuum tube computer because we we and

179

00:08:16,020 --> 00:08:13,440

we always lost eastward over the island

180

00:08:17,970 --> 00:08:16,030

such that if we lost communications with

181

00:08:19,650 --> 00:08:17,980

our crew during card flight the team in

182

00:08:22,830 --> 00:08:19,660

place would tell the astronauts what to

183

00:08:25,290 --> 00:08:22,840

do when the engine shut down global

184

00:08:27,750 --> 00:08:25,300

communications consisted of a sixty word

185

00:08:29,490 --> 00:08:27,760

permitted teletype network that dated

186

00:08:32,790 --> 00:08:29,500

back to the days of America's Pony

187

00:08:34,710 --> 00:08:32,800

Express 1860s so after a couple weeks

188

00:08:36,719 --> 00:08:34,720

training in spacecraft systems and

189

00:08:38,400 --> 00:08:36,729

operations and after we all became very

190

00:08:39,690 --> 00:08:38,410

proficient in Morse code because Morse

191

00:08:41,850 --> 00:08:39,700

code was our backup form of

192

00:08:44,340 --> 00:08:41,860

communication within the ground tracking

193

00:08:47,010 --> 00:08:44,350

network as L is between the team on the

194

00:08:49,440 --> 00:08:47,020

ground and the crew in space once we

195

00:08:51,600 --> 00:08:49,450

achieved this proficiency we sent young

196

00:08:54,240 --> 00:08:51,610

men to 13 tracking stations around the

197

00:08:57,210 --> 00:08:54,250

world they went into the heart of Africa

198

00:08:59,610 --> 00:08:57,220

they went to Zanzibar Australia ships at

199

00:09:01,170 --> 00:08:59,620

sea and islands of the Pacific these

200

00:09:03,960 --> 00:09:01,180

were sites that were literally at the

201

00:09:05,460 --> 00:09:03,970

ends of the earth and the risk to the

202

00:09:07,380 --> 00:09:05,470

young people at sites was very high