



APPOLLO  
TELESCOPE  
MOUNT

SATURN  
WORKSHOP

AIRLOCK  
MODULE

MULTIPLE DOCKING  
ADAPTER

MICRO  
METEOROID  
SHIELD

SLEEP  
COMPARTMENT

WARD ROOM

WASTE  
COMPARTMENT

1  
00:00:11,730 --> 00:00:09,629  
well I think what comes to my mind is

2  
00:00:15,270 --> 00:00:11,740  
primarily a culmination of a lot of work

3  
00:00:16,340 --> 00:00:15,280  
I started here at the center in 1964 is

4  
00:01:07,070 --> 00:00:16,350  
a

5  
00:01:09,649 --> 00:01:07,080  
now is more the current focus of NASA

6  
00:01:12,500 --> 00:01:09,659  
we're looking at how do you now utilize

7  
00:01:15,469 --> 00:01:12,510  
space what is the basics of Science in

8  
00:01:19,010 --> 00:01:15,479  
low gravity and it has essentially been

9  
00:01:21,170 --> 00:01:19,020  
that message which NASA has had in the

10  
00:01:22,429 --> 00:01:21,180  
near term and it has for the future so

11  
00:01:25,340 --> 00:01:22,439  
we've essentially got a new research

12  
00:01:29,750 --> 00:01:25,350  
platform in space so it has changed its

13  
00:01:37,250 --> 00:01:35,120

it was an extremely exciting time for us

14

00:01:40,370 --> 00:01:37,260

when I look at the video that comes down

15

00:01:43,430 --> 00:01:40,380

now from our missions and think back on

16

00:01:45,230 --> 00:01:43,440

what that downlink looked like for the

17

00:01:47,840 --> 00:01:45,240

Apollo moon landing I think of how far

18

00:01:49,700 --> 00:01:47,850

we've come but at the time it was just

19

00:01:51,710 --> 00:01:49,710

so overwhelming to think of those

20

00:01:53,300 --> 00:01:51,720

signals coming from the moon and that

21

00:01:56,180 --> 00:01:53,310

those were people from the United States

22

00:01:58,040 --> 00:01:56,190

putting foot out there it was as much an

23

00:02:01,340 --> 00:01:58,050

emotional experience as it was anything

24

00:02:03,950 --> 00:02:01,350

else just it felt like a big weight had

25

00:02:05,690 --> 00:02:03,960

come off but yet it also felt like that

26

00:02:10,729 --> 00:02:05,700

was the starting point for it's not an

27

00:02:15,289 --> 00:02:12,380

well it was different as you might

28

00:02:17,059 --> 00:02:15,299

imagine the NASA at that time was white

29

00:02:19,819 --> 00:02:17,069

shirts and Crewcuts and black ties

30

00:02:21,740 --> 00:02:19,829

narrow black ties which I obviously

31

00:02:23,630 --> 00:02:21,750

didn't qualify for any of those or want

32

00:02:25,520 --> 00:02:23,640

to be involved in that but there were

33

00:02:28,670 --> 00:02:25,530

some other pioneer women engineers at

34

00:02:31,940 --> 00:02:28,680

the center so we kind of adopted each

35

00:02:33,470 --> 00:02:31,950

other and work together and it was a lot

36

00:02:35,959 --> 00:02:33,480

of hard work but there was a lot of hard

37

00:02:37,910 --> 00:02:35,969

work to be done so as you were a member

38

00:02:40,490 --> 00:02:37,920

of that team I never really felt any

39

00:02:42,589 --> 00:02:40,500

differentiation it was going in and

40

00:02:44,780 --> 00:02:42,599

getting the work done just as well good

41

00:02:48,110 --> 00:02:44,790

as you could do it well I think Marshall

42

00:02:49,849 --> 00:02:48,120

was focused on what's the next step we

43

00:02:52,270 --> 00:02:49,859

were looking at the Apollo applications

44

00:02:55,039 --> 00:02:52,280

program beyond the landing on the moon

45

00:02:58,520 --> 00:02:55,049

we were looking forward to Skylab and

46

00:03:00,559 --> 00:02:58,530

what we would do for the future so there

47

00:03:03,500 --> 00:03:00,569

was the future thinking going on as well

48

00:03:05,690 --> 00:03:03,510

as the the goal of reaching the moon so

49

00:03:07,459 --> 00:03:05,700

things were starting to shift in their

50

00:03:12,080 --> 00:03:07,469

focus as they should have at that point

51  
00:03:15,949 --> 00:03:14,150  
I never met him personally he was the

52  
00:03:18,890 --> 00:03:15,959  
center director when I was here and it

53  
00:03:20,449 --> 00:03:18,900  
was more a presence of a spirit as a as

54  
00:03:22,160 --> 00:03:20,459  
a worker down in the lab and get my

55  
00:03:24,470 --> 00:03:22,170  
hands dirty all the time didn't have an

56  
00:03:27,080 --> 00:03:24,480  
opportunity to react with him but his

57  
00:03:29,509 --> 00:03:27,090  
vision was clear everyone knew what it

58  
00:03:36,229 --> 00:03:29,519  
was that he wanted and he was basically

59  
00:03:41,899 --> 00:03:38,539  
well we certainly knew about it people

60  
00:03:43,729 --> 00:03:41,909  
were informed and those were things

61  
00:03:46,580 --> 00:03:43,739  
which you watched as we currently watch

62  
00:03:49,100 --> 00:03:46,590  
the nightly news every day but they were

63  
00:03:51,649 --> 00:03:49,110

not things that you felt like intruded

64

00:03:54,280 --> 00:03:51,659

on your world we were in a very special

65

00:03:56,509 --> 00:03:54,290

place at a very special time and

66

00:03:59,449 --> 00:03:56,519

contributing to a very focused and

67

00:04:02,809 --> 00:03:59,459

special effort and I think the outside

68

00:04:05,390 --> 00:04:02,819

world was didn't penetrate to the degree

69

00:04:06,920 --> 00:04:05,400

that it probably does today so it was a

70

00:04:10,940 --> 00:04:06,930

different feeling you knew those things

71

00:04:14,449 --> 00:04:10,950

were going on but somehow NASA had

72

00:04:17,029 --> 00:04:14,459

become such a family that was all tied

73

00:04:19,460 --> 00:04:17,039

within ourselves and we had such a focus

74

00:04:21,319 --> 00:04:19,470

on such a goal that those things just

75

00:04:23,150 --> 00:04:21,329

didn't interfere with the way we did

76  
00:04:27,710 --> 00:04:23,160  
work or how we did our work or what we

77  
00:04:31,580 --> 00:04:29,810  
I think communication was a big part of

78  
00:04:35,270 --> 00:04:31,590  
that I think people really talk to each

79  
00:04:37,550 --> 00:04:35,280  
other I think we had good crisp ways of

80  
00:04:40,030 --> 00:04:37,560  
coming to grips with systems engineering

81  
00:04:43,160 --> 00:04:40,040  
making sure all the pieces went together

82  
00:04:44,930 --> 00:04:43,170  
everyone understood the job we had clean

83  
00:04:46,880 --> 00:04:44,940  
interfaces if you look at the Saturn 5

84  
00:04:49,460 --> 00:04:46,890  
and how it was built there were clean

85  
00:04:51,290 --> 00:04:49,470  
interfaces between each stage everyone

86  
00:04:53,420 --> 00:04:51,300  
knew what their job was and they went

87  
00:04:55,820 --> 00:04:53,430  
and did it it was a time that there was

88  
00:04:58,700 --> 00:04:55,830

a lot of experimentation there was a lot

89

00:05:01,220 --> 00:04:58,710

of new area being looked at and being

90

00:05:03,170 --> 00:05:01,230

explored both in design and the

91

00:05:05,960 --> 00:05:03,180

operations and the activity of how you

92

00:05:07,880 --> 00:05:05,970

go about doing space flight but it was

93

00:05:13,980 --> 00:05:07,890

all a very successful time period as

94

00:05:19,969 --> 00:05:16,640

my first job at Marshall

95

00:05:22,580 --> 00:05:19,979

education student I was 18 years old had

96

00:05:24,770 --> 00:05:22,590

never seen a computer we were still

97

00:05:27,650 --> 00:05:24,780

using side rules in school and we didn't

98

00:05:31,430 --> 00:05:27,660

know anything else at the time we were

99

00:05:33,320 --> 00:05:31,440

doing Saturn weight control which was

100

00:05:34,820 --> 00:05:33,330

classified activity at that time because

101  
00:05:36,170 --> 00:05:34,830  
you were looking at the performance of

102  
00:05:39,170 --> 00:05:36,180  
the engines of performance of the

103  
00:05:42,170 --> 00:05:39,180  
vehicle but all the key cars were hand

104  
00:05:44,689 --> 00:05:42,180  
punched if you dropped a box of cards

105  
00:05:47,570 --> 00:05:44,699  
you could lose three weeks of work it

106  
00:05:51,050 --> 00:05:47,580  
was a very manual intensive the

107  
00:05:54,050 --> 00:05:51,060  
computers that we dealt with were huge

108  
00:05:56,689 --> 00:05:54,060  
filled rooms and they would do now

109  
00:05:58,689 --> 00:05:56,699  
probably much less than any handheld

110  
00:06:01,820 --> 00:05:58,699  
calculator you could buy from any store

111  
00:06:03,590 --> 00:06:01,830  
so the the way the technology has grown

112  
00:06:06,080 --> 00:06:03,600  
I think that's because of what NASA did

113  
00:06:09,350 --> 00:06:06,090

there has to be a need there has to be a

114

00:06:11,930 --> 00:06:09,360

market for technology and for tools we

115

00:06:13,850 --> 00:06:11,940

provided both the market we provided the

116

00:06:16,279 --> 00:06:13,860

research capability we provided the

117

00:06:17,960 --> 00:06:16,289

inspiration to go out and do those kind

118

00:06:19,640 --> 00:06:17,970

of things so the world has changed

119

00:06:22,040 --> 00:06:19,650

tremendously I thought it was wonderful

120

00:06:23,810 --> 00:06:22,050

when I got a manual calculator that