



1

00:00:01,459 --> 00:00:03,750

>>> GOOD AFTERNOON, EVERYBODY, I'M  
DAN HEWITT.

2

00:00:03,750 --> 00:00:10,580

WELCOME TO JOHNSON SPACE CENTER  
IN HOUSTON, TEXAS.

3

00:00:10,580 --> 00:00:13,530

WE'RE HERE TO LEARN A LITTLE BIT  
MORE ABOUT THEM TODAY.

4

00:00:13,530 --> 00:00:17,019

JOINING ME HERE UP ON THE DESK  
TO TALK TO YOU, IS KENNY TODD,

5

00:00:17,019 --> 00:00:20,419

THE INTERNATIONAL SPACE STATION  
OPERATIONS AND INTEGRATIONS

6

00:00:20,419 --> 00:00:24,449

MANAGER.  
THE LEAD FLIGHT DIRECTOR AND TWO

7

00:00:24,449 --> 00:00:31,210

LEAD SPACE WALK OFFICERS, FOR  
EVA 32 AND ART TOM ASSON.

8

00:00:31,210 --> 00:00:34,600

AS USUAL WE'LL HEAR FROM EACH OF  
THEM FIRST, THEIR OPENING

9

00:00:34,600 --> 00:00:39,230

REMARKS AND OPEN IT UP FOR  
QUESTION IN THE ROOM AND ON THE

10

00:00:39,230 --> 00:00:41,190

PHONE.  
JUST A REMINDER IF YOU'RE ON THE

11  
00:00:41,190 --> 00:00:45,410  
PHONE BRIDGE PRESS STAR 1 TO ASK  
A QUESTION.

12  
00:00:45,410 --> 00:00:49,449  
LET'S KICK THIS OFF.  
KENNY, WHY DON'T YOU START?

13  
00:00:49,449 --> 00:00:53,339  
>> THANKS, STAN.  
GOOD AFTERNOON, EVERYONE.

14  
00:00:53,339 --> 00:00:57,579  
FIRST OFF, I'LL START OFF BY  
SAYING THAT OUR CREW IS DOING

15  
00:00:57,579 --> 00:01:02,319  
EXTREMELY WELL ON ORBIT.  
THEY ARE TODAY CELEBRATING THEIR

16  
00:01:02,319 --> 00:01:06,880  
208th DAY ABOARD THE  
INTERNATIONAL SPACE STATION.

17  
00:01:06,880 --> 00:01:19,700  
OLEG IS 91 DAYS IN, SERGEI IS ON  
ORBIT TODAY FOR HIS 50th DAY.

18  
00:01:19,700 --> 00:01:26,290  
THE GUYS ARE DOING GREAT.  
NO MAJOR ISSUES ON BOARD.

19  
00:01:26,290 --> 00:01:29,340  
WE'RE COMING UP ON A PRETTY  
SIGNIFICANT TIME FOR THE

20  
00:01:29,340 --> 00:01:33,579  
PROGRAM, AND ON THE 2nd OF  
NOVEMBER, AS A PROGRAM WE

21  
00:01:33,579 --> 00:01:38,110  
CELEBRATE 15 YEARS HUMAN  
PRESENCE ON ORBIT.

22  
00:01:38,110 --> 00:01:42,380  
WHEN YOU THINK WHAT YOU WERE  
DOING 15 YEARS AGO IT WAS PRETTY

23  
00:01:42,380 --> 00:01:44,899  
IMPRESSIVE.  
THAT WE'VE MANAGED TO KEEP

24  
00:01:44,899 --> 00:01:48,280  
PEOPLE OFF THE PLANET FOR 15  
YEARS STRAIGHT.

25  
00:01:48,280 --> 00:01:52,740  
SO, IT'S†-- ANYWAY, IT'S A GREAT  
MILESTONE FOR THIS PROGRAM AND

26  
00:01:52,740 --> 00:01:58,250  
SO WE'RE EXCITED THAT WE'RE  
ABOUT TO BE ABLE TO CELEBRATE

27  
00:01:58,250 --> 00:02:03,619  
THAT IMPORTANT FEAT.  
AS FAR AS THIS YEAR, WE HAD SOME

28  
00:02:03,619 --> 00:02:07,299  
CHALLENGES THIS YEAR.  
PRIMARILY, TRYING TO GET INTO

29  
00:02:07,299 --> 00:02:09,320  
ORBIT.  
I DON'T THINK THAT'S A SURPRISE

30  
00:02:09,320 --> 00:02:12,590  
TO ANYBODY.  
WHAT MIGHT SURPRISE YOU, IN THE

31  
00:02:12,590 --> 00:02:16,560  
MIDST OF ALL OF THAT, WE MANAGED  
TO MAINTAIN A PRETTY STEADY AND

32  
00:02:16,560 --> 00:02:20,110  
BALANCED SCIENCE PROGRAM  
OBTAINING WITH OUR ONE-YEAR CREW

33  
00:02:20,110 --> 00:02:25,700  
MEMBERS ON BOARD.  
DOING WHAT WE TERM OUR RESOURCE

34  
00:02:25,700 --> 00:02:28,580  
PROGRAM.  
THAT'S SOMETHING WE'VE DONE.

35  
00:02:28,580 --> 00:02:35,900  
DONE A LOT OF GOOD WORK ON BOTH  
SIDES.

36  
00:02:35,900 --> 00:02:42,120  
DECISION TO THAT, BIOLOGICAL  
SCIENCES, WE'RE CONTINUING TO

37  
00:02:42,120 --> 00:02:47,890  
WORK ON EARTH SCIENCE TYPE OF  
PROJECTS, SO, AND AS MUCH AS WE

38  
00:02:47,890 --> 00:02:50,480  
CAN, DO AN EDUCATIONAL TYPE  
PAYLOADS AS WELL.

39  
00:02:50,480 --> 00:02:52,650  
A LOT OF GOOD THINGS STILL GOING  
ON.

40  
00:02:52,650 --> 00:02:57,730  
IT'S A VARIETY OF DIFFERENT  
ACTIVITIES, AND PROBABLY ONE OF

41  
00:02:57,730 --> 00:03:00,270  
THE MOST IMPORTANT OBJECTIVES  
THAT WE HAD LAID UP THIS YEAR,

42  
00:03:00,270 --> 00:03:04,110  
WAS TO DO SOME RECONFIGURATION  
AS PART OF GETTING READY FOR

43  
00:03:04,110 --> 00:03:08,250  
SOME OF OUR COMMERCIAL CREW  
VEHICLES IN THE NEXT COUPLE OF

44  
00:03:08,250 --> 00:03:10,310  
YEARS.  
SO, WE SET THE MILESTONES FOR

45  
00:03:10,310 --> 00:03:14,110  
OUR SERVICE TO TRY TO ACCOMPLISH  
THIS YEAR, AND WHILE WE HAVE NOT

46  
00:03:14,110 --> 00:03:17,840  
BEEN ABLE TO DO EVERYTHING WE  
HOPE WE WOULD, JUST BECAUSE THE

47  
00:03:17,840 --> 00:03:20,600  
CARGO DON'T GET TO ORBIT.  
WE HAD A SIGNIFICANT AMOUNT THAT

48  
00:03:20,600 --> 00:03:25,600  
WAS ON ORBIT THAT ALLOWED US TO  
MOVE FORWARD WITH THOSE TASKS.

49  
00:03:25,600 --> 00:03:31,400  
ONE OF OUR PRIMARY GOALS WAS TO  
GET THE LOCATION READY FOR A

50  
00:03:31,400 --> 00:03:35,450  
VISITING VEHICLE, AND JUST THIS  
PAST WEEK, WE WERE ABLE TO CHECK

51  
00:03:35,450 --> 00:03:39,590  
THAT BOX, AND NOW WE'RE READY TO  
RECEIVE A VEHICLE THERE, AND IN

52  
00:03:39,590 --> 00:03:43,940  
FACT, HOPEFULLY IN EARLY  
DECEMBER, WE'LL WELCOME THAT

53  
00:03:43,940 --> 00:03:49,440  
NOTE WHEN THEY ARE IN PORT.  
SO, LOOKING FORWARD A LITTLE

54  
00:03:49,440 --> 00:03:53,510  
BIT, OBVIOUSLY, THE FLIGHT  
PROGRAM THAT WE HAD IN JANUARY

55  
00:03:53,510 --> 00:03:56,650  
IS NOT THE FLIGHT PROGRAM THAT  
WE HAD TODAY IN TERMS OF OUR

56  
00:03:56,650 --> 00:04:01,460  
VISITING VEHICLES, SO WE'VE BEEN  
DOING A LOT OF WORK TRYING TO

57  
00:04:01,460 --> 00:04:04,000  
WORK WITH THE PROVIDERS, AND  
FIGURE OUT WHERE THE BEST

58  
00:04:04,000 --> 00:04:06,330  
OPPORTUNITIES FOR THEM ARE GOING  
TO BE BASED ON THEIR RECOVERY

59  
00:04:06,330 --> 00:04:10,910  
EFFORT FOR THEIR LAUNCHERS, AND  
NOW THAT WE'VE GOT THAT SQUARED

60  
00:04:10,910 --> 00:04:13,060  
AWAY, IT'S LOOKING LIKE THIS  
WINTER IS GOING TO BE AN

61  
00:04:13,060 --> 00:04:16,930  
EXTREMELY BUSY TIME FOR THE  
FOLKS ON THE GROUND AND CREW ON

62  
00:04:16,930 --> 00:04:19,519  
ORBIT.  
IF YOU LOOK OVER THE NEXT COUPLE

63  
00:04:19,519 --> 00:04:23,800  
MONTHS, STARTING MID NOVEMBER TO  
THE END OF THE YEAR, WE'RE GOING

64  
00:04:23,800 --> 00:04:27,150  
TO GET THREE VISITING VEHICLES  
COME TOGETHER STATION.

65  
00:04:27,150 --> 00:04:29,020  
WE'RE GOING TO TAKE ONE OF THE  
VEHICLES THERE THAT IS CURRENTLY

66  
00:04:29,020 --> 00:04:33,800  
THERE AND ROTATE IT TO ANOTHER  
PORT AND THEN THAT SAME VEHICLE,

67  
00:04:33,800 --> 00:04:36,810  
RETURNED ABOUT EIGHT OR NINE  
DAYS LATER, BRINGING A CREW

68  
00:04:36,810 --> 00:04:39,330  
HOME.  
SO, A LOT GOING ON RELATIVE TO

69  
00:04:39,330 --> 00:04:44,520  
VISITING VEHICLE TRAFFIC BETWEEN  
NOW AND THE END OF THE YEAR.

70  
00:04:44,520 --> 00:04:48,270  
AND JUST AFTER WE TURNED THE  
CORNER INTO THE NEW YEAR, IF

71  
00:04:48,270 --> 00:04:52,400  
EVERYTHING HOLDS TO SCHEDULE,  
WE'LL BE WELCOMING THE SPACEX

72  
00:04:52,400 --> 00:04:57,259  
DRAGON BACK ON BOARD AGAIN, AND  
THOSE DISCUSSIONS ARE STILL

73  
00:04:57,259 --> 00:05:00,599  
ONGOING IN TERMS OF EXACTLY WHAT  
DATE WE'RE TALKING ABOUT, BUT

74  
00:05:00,599 --> 00:05:05,229  
CERTAINLY, JANUARY IS IN OUR  
SIGHTS RIGHT NOW.

75  
00:05:05,229 --> 00:05:09,159  
SO, EVERYTHING, AS FAR AS WE  
KNOW, IS PROGRESSING DOWN THAT

76  
00:05:09,159 --> 00:05:11,490  
PATH.  
THAT KIND OF BRINGS US TO WHY

77  
00:05:11,490 --> 00:05:14,860  
WE'RE HERE TODAY.  
WHEN I TALKED TO YOU GUYS

78  
00:05:14,860 --> 00:05:18,020  
EARLIER THIS YEAR, I KIND OF  
LATE OUT A PLAN, BASED ON A LOT

79  
00:05:18,020 --> 00:05:21,530  
OF THE RECONFIGURATION WORK THAT  
WE WOULD DO ABOUT SEVEN EVAs

80  
00:05:21,530 --> 00:05:24,449  
THIS YEAR.  
OBTVIOUSLY, WE WEREN'T ABLE TO DO

81  
00:05:24,449 --> 00:05:25,740  
THAT.  
WE HAD TO DEFER SOME OF THOSE

82  
00:05:25,740 --> 00:05:30,669  
TASKS, WE DID GET THREE BEHIND  
US EARLIER THIS YEAR AND THE

83  
00:05:30,669 --> 00:05:34,039  
FACT OF THE MATTER IS, WE HAVE  
WHAT I WOULD CONSIDER A BACK

84  
00:05:34,039 --> 00:05:38,229  
LOG, TO DEVIATE PAST THINGS THAT  
WE'VE BEEN WANTING TO ACCOMPLISH

85  
00:05:38,229 --> 00:05:42,460  
ON THE OUTSIDE OF THE STATION.  
AND BASICALLY, BEEN CARRYING

86  
00:05:42,460 --> 00:05:47,379  
THOSE TASKS AS THINGS THAT WE  
PUT INTO THE MIX WHEN WE COULD.

87  
00:05:47,379 --> 00:05:50,039  
GIVEN THAT WE NOW KNOW WHERE THE  
VISITING VEHICLE TRAFFIC IS

88  
00:05:50,039 --> 00:05:53,370  
GOING TO BE, WE LOOKED FOR A  
WINDOW, IF YOU WILL, AN

89  
00:05:53,370 --> 00:05:57,650  
OPPORTUNITY TO JUMP IN WITH A  
COUPLE OF EVAs AND WE FOUND THAT

90  
00:05:57,650 --> 00:06:00,990  
WINDOW HERE IN THE END OF  
OCTOBER, FIRST OF NOVEMBER TIME

91  
00:06:00,990 --> 00:06:03,629  
FRAME.  
SO, WE GOT TOGETHER AS A

92  
00:06:03,629 --> 00:06:08,090  
PROGRAM, LOOKED AT THAT EVA BACK  
LOG LIST, DETERMINED THAT WORK

93  
00:06:08,090 --> 00:06:11,219  
THAT†-- PRIORITY WISE WAS THE  
MOST IMPORTANT TO GO AHEAD AND

94  
00:06:11,219 --> 00:06:13,979  
GET BEHIND US THE WORK THAT WE  
COULD GET DONE WITH THE HARDWARE

95  
00:06:13,979 --> 00:06:17,729  
THAT WE HAD ON ORBIT, SO THAT'S  
WHAT WE'RE GOING TO DO HERE

96  
00:06:17,729 --> 00:06:22,819  
STARTING NEXT WEEK.  
SO, NONE OF THE HARDWARE IS

97  
00:06:22,819 --> 00:06:26,779  
EXTREMELY CRITICAL TO THE  
COMMERCIAL CREW EFFORT.

98  
00:06:26,779 --> 00:06:29,439  
WE'RE GOING TO DO A LITTLE BIT  
OF WORK THERE, BUT BY AND LARGE,

99  
00:06:29,439 --> 00:06:32,349  
THIS IS A LOT OF WORK THAT'S  
GOING BE IMPORTANT TO THE LONG

100  
00:06:32,349 --> 00:06:36,229  
TERM SUSTAINING OF SPACE  
STATION, SO THAT'S WHAT WE'LL

101

00:06:36,229 --> 00:06:39,930

SET OUR GOAL ON FOR THE NEXT  
COACH EVAs.

102

00:06:39,930 --> 00:06:45,870

AS FAR AS THE EVA PREPS GO, THE  
CREW HAS BEEN DOING THAT WORK.

103

00:06:45,870 --> 00:06:48,659

MIKE WILL TALK A LITTLE BIT  
ABOUT THE SPECIFICS WHAT WE'RE

104

00:06:48,659 --> 00:06:53,340

GOING TO BE DOING ON THE EVAs.  
THE CREW IS CERTAINLY ON THE

105

00:06:53,340 --> 00:06:57,059

RIGHT PATH AND NEXT MONDAY,  
WE'LL DO AT MISSION MANAGEMENT

106

00:06:57,059 --> 00:07:01,349

TEAM WE'LL DO OUR FINAL GO-KNOW  
GO, AND ALL INDICATORS WILL BE

107

00:07:01,349 --> 00:07:05,340

THAT WE'LL BE READY TO GO FOR  
THE FIRST E.V.A.

108

00:07:05,340 --> 00:07:09,569

WITH THAT, I THINK I'LL TURN TO  
OVER TO MIKE AND TALK ABOUT THE

109

00:07:09,569 --> 00:07:16,069

SPECIFIC LIST OF THINGS THAT  
WE'RE GOING TRY TO GET

110

00:07:16,069 --> 00:07:16,539

ACCOMPLISHED.  
>> THANK YOU, KENNY.

111

00:07:16,539 --> 00:07:19,809

AGAIN, I'M MIKE LAMBERT, THE  
INCREMENT 45 LEAD FLIGHT

112

00:07:19,809 --> 00:07:21,830

DIRECTOR.  
THE GUY THAT'S MANAGING THE

113

00:07:21,830 --> 00:07:26,990

DAY-TO-DAY OPS OF THE CREW.  
WE'LL TALK ABOUT NEW YORK SPACE

114

00:07:26,990 --> 00:07:32,169

WALKS 32 AND 33.  
U.S. SPACE WALK 32 IS SCHEDULED

115

00:07:32,169 --> 00:07:35,479

FOR OCTOBER 28th AND U.S. SPACE  
WALK 33 IS SCHEDULED FOR

116

00:07:35,479 --> 00:07:38,960

NOVEMBER 6.  
EACH SPACE WALK IS PLANNED FOR

117

00:07:38,960 --> 00:07:44,499

THE STANDARD 6½ HOURS OF TIME  
OUTSIDE OF THE AIR LOCK.

118

00:07:44,499 --> 00:07:48,159

BOTH SPACE WALKS WILL TAKE PLACE  
IN U.S. SUITS WITH PREPARATION

119

00:07:48,159 --> 00:07:50,889

EGRESS FROM THE U.S. QUEST AIR  
LOCK.

120

00:07:50,889 --> 00:07:54,249

AS I MENTIONED.  
WE'VE GOT PLANS TO SET OURSELVES

121

00:07:54,249 --> 00:08:02,830

UP FOR A VERY BUSY 2016, GETTING  
READY FOR SOME OF THE VEHICLES

122

00:08:02,830 --> 00:08:04,289

THAT KENNY MENTIONED ARE COMING  
UP.

123

00:08:04,289 --> 00:08:07,979

SORT OF TAKING CARE OF THIS BACK  
LOCK OF E.V.A. WORK.

124

00:08:07,979 --> 00:08:11,339

OVER THE PAST COUPLE OF WEEK,  
ALONG WITH THE ONGOING SCIENCE

125

00:08:11,339 --> 00:08:17,379

PROGRAM, AS WELL AS DOING THAT  
WORK, THE CREW HAS BEEN PREPPING

126

00:08:17,379 --> 00:08:20,199

THE SUIT, AND STUD DIG  
PROCEDURES FOR THE E.V.A.

127

00:08:20,199 --> 00:08:23,779

IN FACT JUST THIS AFTERNOON WHEN  
I LEFT, THEY WERE WRAPPING UP

128

00:08:23,779 --> 00:08:28,180

THEIR DRY RUN WHERE THEY GET  
INTO THE SUIT AS KIND OF A FINAL

129

00:08:28,180 --> 00:08:32,990

PREP BEFORE THE E.V.A.  
THE INTERESTING THING ABOUT ISS

130

00:08:32,990 --> 00:08:38,550

EVA IS THE TRAINING AND  
PREPARATION OF THE FAMILIARITY

131

00:08:38,550 --> 00:08:41,360

OF THE TASK ACTUALLY HAPPENS  
AFTER THE CREW IS LAUNCHED.

132

00:08:41,360 --> 00:08:44,920

THIS IS NO EXCEPTION.  
THESE E.V.A.s, A LOT OF CONTENT

133

00:08:44,920 --> 00:08:50,380

WAS FINALIZED AND PUT TOGETHER  
AFTER THESE GRIESE PUT IN SPACE.

134

00:08:50,380 --> 00:08:55,230

AFTER THE EXECUTION GRANT ANT  
ART WILL TALK ABOUT, KIND OF

135

00:08:55,230 --> 00:08:58,180

LAYING OUT THE TECHNICAL PARTS  
OF THE E.V.A., A BIG COMPONENT

136

00:08:58,180 --> 00:09:02,300

IS ACTUALLY TRAINING THE CREW IN  
ORBIT AND ALONG WITH ALL OF THE

137

00:09:02,300 --> 00:09:04,690

OTHER THINGS THEY DO IN ORBIT TO  
KEEP THEM BUSY.

138

00:09:04,690 --> 00:09:09,410

FIRST, LET'S INTRODUCE THE SPACE  
WALKERS.

139

00:09:09,410 --> 00:09:13,580

FOR BOTH E.V.A.s.  
SCOTT KELLY AND LYNN FRONT WILL

140

00:09:13,580 --> 00:09:21,150

BE THE CREW AND FROM THE  
JAPANESE CREW.

141

00:09:21,150 --> 00:09:41,050

THEY HAD THE BRIEF PROTOCOL.  
ALSO, WE HAVE ASSISTANCE FROM

142

00:09:41,050 --> 00:09:44,890

THE RUSSIAN SPACE AGENCY.  
SERGEI WILL BE HELPING WITH THE

143

00:09:44,890 --> 00:09:49,440

SUIT UP, EXTRA PAIR OF HANDS IS  
ALWAYS HELPFUL IN THE AIR LOCK.

144

00:09:49,440 --> 00:09:53,740

I MENTIONED GOING BACK TO SCOTT  
AND JEL.

145

00:09:53,740 --> 00:10:01,220

I TALKED TO JEL ON THE PHONE  
LAST NIGHT.

146

00:10:01,220 --> 00:10:08,960

SCOTT, IN PARTICULAR, HAS HAD A  
LONG HISTORY HERE AT NASA.

147

00:10:08,960 --> 00:10:19,080

AS THE SHUTTLE COMMANDER SO,  
IT'S PARTICULARLY NICE TO SEE

148

00:10:19,080 --> 00:10:27,500

HIM WITH THIS OPPORTUNITY.  
FOR I.V.A. 32, WE HAVE

149

00:10:27,500 --> 00:10:33,840

INDIVIDUAL FLIGHT OFFICERS THAT  
WILL TALK TO YOU IN THE MINUTE.

150

00:10:33,840 --> 00:10:37,840

GREG WHITNEY WILL BE THE FLIGHT  
DIRECTOR AND THE LEADING E.V.A.

151

00:10:37,840 --> 00:10:44,440

OFFICER IS GRANT SLUSSER TO MY  
LEFT.

152

00:10:44,440 --> 00:10:50,310

E.V.A. 32 IS THE E.V.A. WE  
PLANNED FOR WEDNESDAY, OCTOBER

153

00:10:50,310 --> 00:10:52,500

28th.  
AS KENNY MENTIONED OVER THE NEXT

154

00:10:52,500 --> 00:10:56,590

SEVERAL MONTHS, ISS WILL BE  
RECONFIGURED TO PROVIDE†--

155

00:10:56,590 --> 00:11:00,450

ACTUALLY THE NEXT SEVERAL YEARS  
IT WILL BE PROVIDING TWO NEW

156

00:11:00,450 --> 00:11:06,720

DOCKING PORTS FOR COMMERCIAL  
VEHICLES.

157

00:11:06,720 --> 00:11:10,070

THIS E.V.A. WILL TAKE CARE OF  
LAYING POWER CABLES TO SUPPORT

158

00:11:10,070 --> 00:11:12,680

PRESSURIZED ADAPTER NUMBER  
THREE.

159

00:11:12,680 --> 00:11:17,800

THAT, AS YOU CAN SEE IN THE  
GRAPHIC, THAT IS EVENTUALLY

160

00:11:17,800 --> 00:11:24,470

GOING TO BE MOVED TO THE ZENITH  
PORT OF NOTE 2.

161

00:11:24,470 --> 00:11:32,360

IT WILL BE RELOCATED  
ROBOTICALLY, IN THE NEAR FUTURE.

162

00:11:32,360 --> 00:11:38,130

WE'LL ALSO AID POWER CABLES TO  
SUPPORT THE INTERNATIONAL

163

00:11:38,130 --> 00:11:42,820

DOCKING ADAPTER.  
THAT'S FLOWN UP ON SPACEX

164

00:11:42,820 --> 00:11:46,040

VEHICLES.  
THAT WILL BE THE SECONDARY

165

00:11:46,040 --> 00:11:50,800

DOCKING PORT.  
THE PRIMARY DOCKING PORT YOU SEE

166

00:11:50,800 --> 00:11:59,000

THERE WILL BE ON FORE END WHERE  
THE ORBITER USED TO DOCK.

167

00:11:59,000 --> 00:12:01,580

WHILE WE'RE OUT THERE, BESIDES  
LAYING THOSE CABLES, WE'LL ALSO

168

00:12:01,580 --> 00:12:06,190

TAKE CARE OF REMOVING A THERMAL  
COVER ON A SPARE MAIN BUS

169

00:12:06,190 --> 00:12:09,290

SWITCHING UNITY OR MBSU.  
THERE ARE FOUR OF THESE IN OUR

170

00:12:09,290 --> 00:12:14,540

STATIONED ELECTRICAL SYSTEM AND  
IT ALLOWS US TO BASICALLY ROUTE

171

00:12:14,540 --> 00:12:18,100

POWER BETWEEN THE VARIOUS POWER CHANNELS WE HAVE ON BOARD.

172

00:12:18,100 --> 00:12:21,350

BY TAKING THAT THERMAL COVER OFF, WE'LL BE ABLE TO MANIPULATE

173

00:12:21,350 --> 00:12:25,130

THAT AND REMOVE IT FROM WHERE IT IS ON THE LOGISTICS CARRIER FROM

174

00:12:25,130 --> 00:12:30,240

THE ROBOTIC ASPECTS AND EVENTUALLY BRING IT INSIDE ISS

175

00:12:30,240 --> 00:12:33,700

TO PERFORM MAINTENANCE AND REPAIR ON IT.

176

00:12:33,700 --> 00:12:37,380

WE'LL ALSO INSTALL A THERMAL COVER ON THE AMS.

177

00:12:37,380 --> 00:12:43,300

AMS IS KIND OF OUR SIGNATURE EXTERNAL PAYLOAD AND THE

178

00:12:43,300 --> 00:12:49,230

INTERESTING NODE ABOUT AMS IS THAT IT WAS DELIVERED ON SBS 34,

179

00:12:49,230 --> 00:12:54,910

THE PRIMARY PAYLOAD COMMANDED BY SCOTT KELLY IN MAY 2011.

180

00:12:54,910 --> 00:12:58,650

THE LAST THING WE'LL DO ON THIS E.V.A., WE'LL DO LUBRICATION ON

181

00:12:58,650 --> 00:13:07,670

THE END EDEFECTOR IS THE PART  
THAT GRABS ON TO THINGS ON THE

182

00:13:07,670 --> 00:13:09,270

SPACE ARM.  
THERE'S TWO END DEFECTORS ON THE

183

00:13:09,270 --> 00:13:11,400

ARM.  
ONE ON EACH END.

184

00:13:11,400 --> 00:13:15,850

TYPICALLY ONE IS HOLDING ON TO  
ISS AND THE OTHER END IS CATCH,

185

00:13:15,850 --> 00:13:20,000

FOR EXAMPLE, YOUR DRAGON  
VEHICLE.

186

00:13:20,000 --> 00:13:24,910

WE ACTUALLY LUBRICATED ONE END  
OF THAT ARM, THE END DEFECTOR ON

187

00:13:24,910 --> 00:13:29,810

THE ARM, IN FEBRUARY IN E.V.A.  
NUMBER 30 AND THIS IS A

188

00:13:29,810 --> 00:13:34,490

DUPLICATION OF THAT EFFORT ON  
THE OTHER SET OF THE ARM.

189

00:13:34,490 --> 00:13:38,960

>>> MOVING ON TO E.V.A. 33, THE  
LEAD FLIGHT DIRECTOR FOR E.V.A.

190

00:13:38,960 --> 00:13:44,560

33 IS SCOTT SILVER AND ART  
THOMASSON, AND YOU SEE GRAPHICS

191  
00:13:44,560 --> 00:13:48,420  
OUT THERE.  
THE BRIEF OVERVIEW OF E.V.A. 33.

192  
00:13:48,420 --> 00:13:53,680  
WE CALL IT THE RETURN TO  
ORIGINAL CONFIGURATION OF THE

193  
00:13:53,680 --> 00:13:58,390  
P-6 TRUST.  
WE ALSO REFER TO IT, AS ART.

194  
00:13:58,390 --> 00:14:03,220  
THAT'S PLANNED FOR NOVEMBER 6th.  
TO GIVE AN OVERVIEW, THERE ARE

195  
00:14:03,220 --> 00:14:07,660  
EIGHT POWER CHANNELS ON ISS AND  
THEY ARE ASSOCIATED WITH THE

196  
00:14:07,660 --> 00:14:10,920  
LARGE SOLAR RAYS ON EITHER END  
OF THE TRUSS.

197  
00:14:10,920 --> 00:14:16,240  
AND EACH ONE OF THOSE EIGHT  
POWER CHANNELS HAS ITS OWN SMALL

198  
00:14:16,240 --> 00:14:20,570  
AMMONIA COOLING SYSTEM WITH,  
OBVIOUSLY AN AMMONIA WORKING

199  
00:14:20,570 --> 00:14:24,630  
FLUID.  
PUMP PACKAGE AND RADIATOR.

200  
00:14:24,630 --> 00:14:28,200  
IT'S MAINLY THERE TO PULL  
BATTERIES AND AVIONICS.

201  
00:14:28,200 --> 00:14:34,140  
THAT ACTUALLY ROTATE THE SOLAR  
ARRAYS.

202  
00:14:34,140 --> 00:14:37,510  
WE HAVE A LITTLE BIT OF A  
HISTORY OF THE SYSTEM OUT ON THE

203  
00:14:37,510 --> 00:14:42,310  
PORT SIDE OF THE P-6 TRUSS.  
IT HAD A VERY SLOW LEAK THAT

204  
00:14:42,310 --> 00:14:45,940  
WE'VE BEEN TRACKING FOR A NUMBER  
OF YEARS, AND OUR TELEMETRY

205  
00:14:45,940 --> 00:14:48,920  
ACTUALLY STARTED TO WORSEN A BIT  
AS WE WERE MONITORING IT A BIT,

206  
00:14:48,920 --> 00:14:53,980  
IN TO 2012.  
IT'S NOT EASY TO ISOLATE A LEAK.

207  
00:14:53,980 --> 00:14:58,210  
IT'S MORE COMPLEX WHEN TALKING  
ABOUT HARDWARE THAT'S OUTSIDE.

208  
00:14:58,210 --> 00:15:02,210  
TYPICALLY WHAT YOU DO IS TRY TO  
ISOLATE INDIVIDUAL PARTS OF THE

209  
00:15:02,210 --> 00:15:06,990  
SYSTEM AND WE STARTED DOING THAT  
WITH AN E.V.A. ON NOVEMBER 1st,

210  
00:15:06,990 --> 00:15:09,240  
2012.  
WHAT WE DID, BE BYPASSED THE

211  
00:15:09,240 --> 00:15:14,180  
SYSTEM BY MOVING ITS AMMONIA  
LINE, CONNECTING IT TO AN OLDER

212  
00:15:14,180 --> 00:15:19,340  
SYSTEM THAT HAPPENED TO BE IN  
THE P-6 TRUSS FROM ASSEMBLY AND

213  
00:15:19,340 --> 00:15:23,650  
WE ALSO DEPLOYED A SPARE  
RADIATOR, THAT'S CALLED THE

214  
00:15:23,650 --> 00:15:28,660  
TICKER, OR THE TRAILING THERMAL  
CONTROL RADIATOR.

215  
00:15:28,660 --> 00:15:32,350  
THE TRAILING SORT OF COMES FROM  
THAT WHOLE TRUSS THAT USED TO BE

216  
00:15:32,350 --> 00:15:37,170  
ON THE ZENITH SIDE OF ISS AND  
THAT WAS WHAT WHAT WAS BASING

217  
00:15:37,170 --> 00:15:39,900  
THE AFT AND THAT'S WHERE THE  
TRAILING COMES FROM.

218  
00:15:39,900 --> 00:15:43,330  
BY DEPLOYING THAT RADIATOR,  
THERE'S SOME THOUGHT THAT

219  
00:15:43,330 --> 00:15:47,830  
PERHAPS THE LEAK WAS IN THE  
ORIGINAL RADIATOR, SO SORT OF

220  
00:15:47,830 --> 00:15:51,290  
LIKE TROUBLESHOOTING A HOME AIR  
CONDITIONING SYSTEM, WE PUT THE

221  
00:15:51,290 --> 00:15:53,890  
AMMONIA THROUGH THAT NEW  
RADIATOR TO SEE IF THAT WAS THE

222  
00:15:53,890 --> 00:15:55,880  
PROBLEM.  
ALSO, BY CONNECTING THINGS TO

223  
00:15:55,880 --> 00:15:59,280  
THE OLDER SYSTEM WE ALLOWED MORE  
AMMONIA TO GO IN AND AT THE

224  
00:15:59,280 --> 00:16:03,500  
TIME.  
AS IT TURNS OUT THAT PARTICULAR

225  
00:16:03,500 --> 00:16:07,590  
EVA DIDN'T STOP THE LEAK BUT DID  
BUY US SOME MORE TIME.

226  
00:16:07,590 --> 00:16:12,050  
THE LEAK DID GET WORSE.  
AFTER THE CREW REPORTED SEEING

227  
00:16:12,050 --> 00:16:13,810  
FLAKES OF AMMONIA OUTSIDE THE  
WINDOW.

228  
00:16:13,810 --> 00:16:19,220  
WE FAIRLY RAPIDLY, DID A FINAL  
E.V.A. ON MAY 11th.

229  
00:16:19,220 --> 00:16:23,780  
2013 WHICH REPLACED THE PUMP  
PACKAGE IN THAT SYSTEM.

230  
00:16:23,780 --> 00:16:25,860  
AFTER THAT OCCURRED.  
INDICATED THAT SYSTEM IS NOW

231  
00:16:25,860 --> 00:16:29,530  
LEAK-TIGHT.  
WHAT WE WOULD LIKE TO DO IS GET

232  
00:16:29,530 --> 00:16:33,760  
BACK TO THE ORIGINAL  
CONFIGURATION.

233  
00:16:33,760 --> 00:16:39,580  
BIG REASON FOR THAT.  
THAT RADIATOR HAS TO BE THE

234  
00:16:39,580 --> 00:16:46,210  
RADIATORER.  
BY HAVING IT DEPLOYED IT COULD

235  
00:16:46,210 --> 00:16:53,160  
POSSIBLY CAUSE ANOTHER LEAK.  
WHAT WE LIKE TO DO IS RETRACT

236  
00:16:53,160 --> 00:17:00,240  
THAT RADIATOR.  
RESTORE THE COOLING SYSTEM AND

237  
00:17:00,240 --> 00:17:05,270  
THAT'S THE GOAL THAT.  
WITH THAT, I'LL PASS OFF TO

238  
00:17:05,270 --> 00:17:14,350  
GRANT SLUSHER AND ART WILL TALK  
ABOUT E.V.A. 336789.

239  
00:17:14,350 --> 00:17:19,929  
>> THANKS, MIKE.  
I'M FIRST-TIME E.V.A. OFFICER.

240  
00:17:19,929 --> 00:17:25,679  
FOR E.V.A. 32.  
I'VE BEEN BLESSED TO VEY GREAT

241

00:17:25,679 --> 00:17:29,389  
TEAM WORKING WITH ME.  
WITH SANDY MOORE.

242

00:17:29,389 --> 00:17:33,899  
REAGAN CHENEY.  
GOOSE, GUSTAD AS WELL AS GREG

243

00:17:33,899 --> 00:17:37,999  
WHITNEY.  
TRACEY CALDWELL AND A SLEW OF

244

00:17:37,999 --> 00:17:39,370  
TEAMS THAT HELPED ME GET THIS  
WAY.

245

00:17:39,370 --> 00:17:42,809  
WE HAVE A QUICK DEVELOPMENT ON  
THIS E.V.A. IN THE LAST THREE

246

00:17:42,809 --> 00:17:45,370  
MONTHS.  
WE PUT IT TOGETHER TO GET THE

247

00:17:45,370 --> 00:17:54,080  
CREW TRAINED AND READY TO GO ON  
BOARD.

248

00:17:54,080 --> 00:18:01,600  
I WOULD LIKE TO INTRODUCE A CREW  
THAT IS DOING BOTH E.V.A.s.

249

00:18:01,600 --> 00:18:15,029  
SCOTT WILL BEING RED STRIPES  
AND  
KJELL WITH WHITE STRIPES.

250

00:18:15,029 --> 00:18:21,120  
AS MENTIONED WE ARE DOING A LOT  
OF WORK TO GET AHEAD.

251

00:18:21,120 --> 00:18:30,590

WE'RE SENDING BOTH CREW OUT TOTA  
AREA, THE FIRST OF THE EVA.

252

00:18:30,590 --> 00:18:37,429

DOING IDA CABLE ROUTING.  
AFTER THAT, WE'VE GOT MPV OUT ON

253

00:18:37,429 --> 00:18:39,799

NODE 3 PM.  
IF YOU DON'T MIND I'LL GO AHEAD

254

00:18:39,799 --> 00:18:43,360

AND GO TO THE VIDEO AND DISCUSS  
THE VIDEO.

255

00:18:43,360 --> 00:18:48,190

ALL RIGHT.  
LIKE I SAID, SCOTT WILL COME OUT

256

00:18:48,190 --> 00:18:50,850

OF THE AIR LOCK, WILL HAND OUT  
THE BAG.

257

00:18:50,850 --> 00:18:53,659

ONCE SCOTT'S OUT.  
KJELL WILL HAND OUT THE BAGS TO

258

00:18:53,659 --> 00:18:57,370

KEEP US FROM GOING BACK INTO THE  
AIR LOCK MIDWAY THROUGH THE

259

00:18:57,370 --> 00:19:01,559

E.V.A., KJELL WILL COME OUT  
SHORTLY.

260

00:19:01,559 --> 00:19:09,440

SCOTT WILL CARRY THE MLI BAG AND  
KJELL WILL TAKE CARE OF THE LEAD

261

00:19:09,440 --> 00:19:13,909

LUBE EQUIPMENT THAT WILL STAGE  
AT THE LEAD LUBE AREA.

262

00:19:13,909 --> 00:19:20,850

SO KJELL WILL GRAB THE TOOL,  
FROM SCOTT AND MOVE OVER TO ESP

263

00:19:20,850 --> 00:19:25,940

2 WHERE HE PICKS UP AN APL.  
SCOTT WILL HEAD OUT.

264

00:19:25,940 --> 00:19:30,499

WE ARE BOTH HEADING TO THE  
STARBOARD TRUSS, ON THE FORWARD

265

00:19:30,499 --> 00:19:34,399

SIDE.  
WE'LL GO THROUGH THIS WITH

266

00:19:34,399 --> 00:19:36,620

SCOTT.  
HE'S GOING TO TRANSLATE OUT, ALL

267

00:19:36,620 --> 00:19:44,009

OF THE WAY TO THE END TO THE  
LOGISTICS CARRIER MODULE WHERE

268

00:19:44,009 --> 00:19:50,830

MBSU IS STOWED.  
AS WE GET THERE, HE'S GOING TO

269

00:19:50,830 --> 00:19:55,740

TAKE THE BAG THAT HE HAS AND  
STOW IT ON THE BAG.

270

00:19:55,740 --> 00:20:01,789

WHILE HE'S DOING THAT.  
KJELL IS WORKING TO GET OFF THE

271

00:20:01,789 --> 00:20:07,330

LEAD CONTROLS AND BRING IT OUT  
TO AMS.

272

00:20:07,330 --> 00:20:15,519

WHEN KJELL HAS IT DEPLOYED.  
HE'LL START COMING DOWN WHAT WE

273

00:20:15,519 --> 00:20:19,200

CALL THE SKIRT, WHICH IS THE  
LOWER PORTION OF MLI.

274

00:20:19,200 --> 00:20:22,759

IT HAS EIGHT TABS ON THE FRONT.  
WE TIE FOUR DOWN TO ONE

275

00:20:22,759 --> 00:20:26,730

HANDRAIL, FOUR DOWN TO THE OTHER  
AND NEAR THE EXTHROW CONNECTIONS

276

00:20:26,730 --> 00:20:30,330

WE'LL TIE THAT SIDE OF THE MLS  
SKIRT DOWN.

277

00:20:30,330 --> 00:20:35,220

AFTER WE GET IT TIED DOWN.  
THERE ARE TWO BOLTS THAT MOVE

278

00:20:35,220 --> 00:20:39,309

THE MLI.  
AFTER THERE, SCOTT STUFFS IT

279

00:20:39,309 --> 00:20:44,159

BACK IN THE BAG AND ALLOW KJELL  
TO GO INSIDE.

280

00:20:44,159 --> 00:20:53,090

THERE'S KJELL WHERE HE DROPS OFF  
THE TOOLS AND TAKE IT OUT TO

281  
00:20:53,090 --> 00:20:54,369  
AMS.  
HE'S PRETTY MUCH GOING GO THE

282  
00:20:54,369 --> 00:21:00,470  
SAME ROUTE, THROUGH THE FORWARD  
TRUSS AND OUT TO THE AREA UP

283  
00:21:00,470 --> 00:21:05,499  
THROUGH AMS, AND DEPLOY APFR.  
BECAUSE OF THE TRANSLATION ON

284  
00:21:05,499 --> 00:21:13,220  
THE AMS, WE'RE TAKING THE APFR  
OUT THERE FOR ADDITIONAL HAND

285  
00:21:13,220 --> 00:21:17,499  
HOLDS AND TRANSLATION.  
ONCE HE GETS THERE, WE'LL TAKE

286  
00:21:17,499 --> 00:21:21,129  
SOME PICTURES AND INSTALL A  
SMALL WEDGE OVER ONE OF THE

287  
00:21:21,129 --> 00:21:22,720  
RADIATORS.  
IT'S GOING TO SLIDE INTO AN

288  
00:21:22,720 --> 00:21:25,860  
AREA.  
AND I HAVE A VIDEO SHORTLY.

289  
00:21:25,860 --> 00:21:28,159  
SLIDE INTO THE AREA BETWEEN THE  
TWO RADIATORS.

290  
00:21:28,159 --> 00:21:32,690  
AND WE'RE SLIDING IT OVER THE  
MAIN RADIATOR, AND WE'RE

291

00:21:32,690 --> 00:21:35,639

GRAPPLING WITH THE WATER TIE TO  
TIE IT DOWN.

292

00:21:35,639 --> 00:21:41,220

ONCE WE GET IT SECURED, THE MLI  
WILL POP OUT LIKE A SMALL TENT,

293

00:21:41,220 --> 00:21:45,710

WEDGE IN BETWEEN TWO RADIATORS  
TO PROTECT THE RADIATORS.

294

00:21:45,710 --> 00:21:50,999

ONCE WE'RE THERE, SCOTT†-- KJELL  
WORKS BACK TO PUT ON THE BIG

295

00:21:50,999 --> 00:21:52,429

BLANKET.  
YOU'LL SEE IT HERE.

296

00:21:52,429 --> 00:21:54,860

THIS IS POINT "A," THE FIRST  
TIE-DOWN HE DOES.

297

00:21:54,860 --> 00:21:57,929

YOU SAW THE BLANKET POP IN.  
IT'S NOT GOING HAPPEN THAT

298

00:21:57,929 --> 00:21:59,950

QUICK.  
IT WILL HAVE TO GO DOWN TO A

299

00:21:59,950 --> 00:22:04,210

SECOND STRAP.  
PUT IT AROUND AMS AND THEN WORK

300

00:22:04,210 --> 00:22:08,230

FOR A THIRD STRAP.  
THIS THIRD STRAP, IT'S POSSIBLE

301

00:22:08,230 --> 00:22:12,379

TO GET INTO THE APFR AND TIE  
THAT STRAP AROUND THE STRUT

302

00:22:12,379 --> 00:22:17,590

RIGHT THERE BY THE WEDGE AND IT  
WILL MOVE, AFT, AND ZENITH TO

303

00:22:17,590 --> 00:22:23,460

PROTECT THE FINAL AREA OF  
STAGING THERE.

304

00:22:23,460 --> 00:22:25,799

ONCE WE DO THAT, IT DOES HAVE A  
GROUNDING PIN ON IT THAT WE'LL

305

00:22:25,799 --> 00:22:29,759

APPLY ONCE THE GROUNDING PIN IS  
INSTALLED, COMPLETE WITH AMS.

306

00:22:29,759 --> 00:22:35,039

SMALL BLANKET AND LARGE BLANKET.  
HERE'S A VIDEO TO SHOW THE SIZE

307

00:22:35,039 --> 00:22:38,879

OF THE BLANKET AS IT'S DEPLOYED.  
HE'S WORKING DOWN WHAT WOULD

308

00:22:38,879 --> 00:22:44,029

HAVE BEEN THE NEGATIVE PART OF  
THE PREVIOUS PHOTO.

309

00:22:44,029 --> 00:22:51,970

ONCE WE GET THE TWO BLANKETS  
INSTALLED AND THE MLI REMOVED.

310

00:22:51,970 --> 00:22:57,659

KJELL AND SCOTT WILL WORK  
TOGETHER TO BRING THE ABFR AND

311

00:22:57,659 --> 00:23:04,360

MSU BACK.

KJELL WILL GRAB THE BAG AND GO

312

00:23:04,360 --> 00:23:08,029

BACK COMPLETELY, THE SAME WAY HE  
CAME TO THE AIR LOCK WHERE HE'LL

313

00:23:08,029 --> 00:23:13,480

STOW THAT BAG OUTSIDE OF THE AIR  
LOCK AND GRAB A CABLE BAG.

314

00:23:13,480 --> 00:23:18,600

THE CABLE BAG IS THE ONE MIKE  
SPOKE OF WITH THE CABLES IN IT.

315

00:23:18,600 --> 00:23:25,889

AGAIN, SARATOGA MOST OF THE BAG  
TO THE OUTSIDE OF THE AIR LOCKS

316

00:23:25,889 --> 00:23:33,159

SO WE DON'T HAVE INGRESS.  
SCOTT COMES BACK AND INSTALLS IT

317

00:23:33,159 --> 00:23:36,649

AT ESP 2 TO PERFORM THE LEAD  
LUBING.

318

00:23:36,649 --> 00:23:40,529

THE ARM WILL BE PRESENTED THERE  
AND MOVE IN CLOSE TO SCOTT.

319

00:23:40,529 --> 00:23:43,429

WE HAVE SOME PHOTOS OF THAT A  
LITTLE BIT LATER.

320

00:23:43,429 --> 00:23:49,409

KJELL WILL GRAB THAT CABLE BAG  
AND THROW IT TO THE PORT SIDE,

321

00:23:49,409 --> 00:23:51,700

WHERE HE'LL DEPLOY THE BAG.  
AND WHILE HE'S DOING THAT WILL

322

00:23:51,700 --> 00:23:56,779

GIVE REFERENCE HAND-HOLDS WHERE  
THE CABLE WILL BE APPLIED TO OR

323

00:23:56,779 --> 00:24:01,649

DEPLOYED TO.  
AFTER HE INSTALLS THE CABLE BAG

324

00:24:01,649 --> 00:24:05,360

HE'LL PULL OUT THE FORWARD  
VERSION OF THE CABLE AND

325

00:24:05,360 --> 00:24:06,889

TEMPORARILY STOW IT ON THE  
HANDRAIL.

326

00:24:06,889 --> 00:24:11,470

THAT GIVES A GOOD POINT WHERE  
THE CENTER LINE OF THE CABLE IS.

327

00:24:11,470 --> 00:24:16,009

WE'LL SECURE IT AT THE CENTER  
POINT.

328

00:24:16,009 --> 00:24:22,049

OUT OF THE BAG AND ROUTE IT,  
ZENITH, ON THE LAB OVER TO THE

329

00:24:22,049 --> 00:24:32,309

NODE WHERE WE CONNECT.  
THE FIRST WE DO, WE'LL ROUTE IT

330

00:24:32,309 --> 00:24:38,129

THROUGH THE DATA PORT AND AS WE  
MOVE BACK FORWARD†-- AS WE MOVE

331

00:24:38,129 --> 00:24:40,710

BACK FORWARD, WE'LL PUSH ALL OF  
THE CABLES FORWARD AND MAKE SURE

332

00:24:40,710 --> 00:24:46,440

WE HAVE ENOUGH WHEN WE INSTALL  
THE IDA.

333

00:24:46,440 --> 00:24:48,559

ONCE HE'S BACK AT THE CENTER  
POINT HE'LL MOVE THAT BACK

334

00:24:48,559 --> 00:24:54,169

DIRECTLY FORWARD ON STATION,  
OVER TO NODE 2.

335

00:24:54,169 --> 00:24:57,909

AND THEN UP TO THE CBM AREA.  
WHERE WE ARE GOING TO DEPLOY

336

00:24:57,909 --> 00:25:02,159

THOSE TWO CABLES, TUGGING IT OUT  
OF THE WAY OF DEPLOYMENT ON THE

337

00:25:02,159 --> 00:25:04,879

CBM.  
ONCE IT'S COMPLETE WITH THE

338

00:25:04,879 --> 00:25:07,879

ORANGE CABLE.  
WE'LL GO BACK AND GET THE POWER

339

00:25:07,879 --> 00:25:10,179

CABLE WHICH WE CALL THE PURPLE  
WHITE CABLE.

340

00:25:10,179 --> 00:25:12,739

HE'LL DO THE EXACT SAME THING  
WHERE HE STOWS THE FORWARD HALF

341

00:25:12,739 --> 00:25:17,110

OF THE CABLE OUT AND ROUTES THE  
AFT PORTION OF THE CABLE BACK

342

00:25:17,110 --> 00:25:21,639

TOWARDS NODE ONE WHERE WE ARE  
GOING TO PLUG IT IN AGAIN.

343

00:25:21,639 --> 00:25:25,279

NADR ON NODE ONE.  
AS HE'S DONE WITH THAT, HE'LL

344

00:25:25,279 --> 00:25:29,850

MOVE BACK FORWARD, PUSHING THE  
CABLE FORWARD AND BACK TO THE

345

00:25:29,850 --> 00:25:33,179

CENTER POINT.  
AT THIS POINT, KJELL BREAKS OUT

346

00:25:33,179 --> 00:25:38,259

AND GOES TO WORK ON THE MPV.  
WHILE HE'S DOING THAT, SCOTT IS

347

00:25:38,259 --> 00:25:43,940

BACK AT THE LEAD WORKING ON THE  
LUBRICATING LEAD "B."

348

00:25:43,940 --> 00:25:47,570

HERE'S A GOOD SHOT OF LEAD "A"  
THAT WAS PREVIOUSLY LUBRICATED

349

00:25:47,570 --> 00:25:50,690

AS WE BRING IT IN.  
YOU CAN SEE THE CONTROL RIGHT IN

350

00:25:50,690 --> 00:25:54,210

THE MIDDLE AND FOUR LATCHES.  
WE'LL LABEL THOSE AROUND

351

00:25:54,210 --> 00:25:58,129

CLOCKWISE SO WE HAVE A REFERENCE  
POINT, ONE, TWO, THREE, AND

352

00:25:58,129 --> 00:25:59,820

FOUR.  
EACH SIDE HAS AN "A" AND "B"

353

00:25:59,820 --> 00:26:06,029

SIDE SO WE CAN TALK TO SCOTT  
WHILE GREASING UP.

354

00:26:06,029 --> 00:26:09,039

THERE'S TWO EQUALIZATION  
BRACKETS AND FOUR ROLLERS.

355

00:26:09,039 --> 00:26:16,649

WHEN IT'S RETRACTED, WE'LL ALSO  
GREASE THE LINEAR BEARING TRACK

356

00:26:16,649 --> 00:26:21,570

ON EACH SIDE OF THE LAB.  
THERE YOU SEE A DEMONSTRATION OF

357

00:26:21,570 --> 00:26:25,669

THE BALL CREW, USING THE BALL  
SCREW LUBRICATING TOOL.

358

00:26:25,669 --> 00:26:33,419

IT'S GOT GREASE ON IT, ADDRESS  
IT TO THE SCREW AND PUSH IT

359

00:26:33,419 --> 00:26:35,249

FORWARD.  
AND THEN JUST MAKE SURE WE HAVE

360

00:26:35,249 --> 00:26:37,919

THE GREASE IN THE GROOVES THAT  
WE ARE LOOKING AT.

361

00:26:37,919 --> 00:26:40,610

THIS IS AN EASY BALL SCREW,  
WE'LL ATTACK IT FIRST.

362

00:26:40,610 --> 00:26:45,580

IT'S VERY VISIBLE.  
YOU CAN LOOK HERE AND SEE AN

363

00:26:45,580 --> 00:26:49,049

INDICATION THAT THERE IS GREASE  
THAT'S MOVED BY SEEING THE

364

00:26:49,049 --> 00:26:51,899

RIDGES IN THE GREASE.  
HERE'S THE BLIND MAIN CONNECTER

365

00:26:51,899 --> 00:26:56,889

ON ANY ONE OF THE LAMPS.  
WE GO IN THROUGH A SMALL CUT-OUT

366

00:26:56,889 --> 00:27:05,739

NEAR THE ELECTRICAL CONNECTIONS,  
GO BACK ABOUT 12 INCHES.

367

00:27:05,739 --> 00:27:08,950

AS HE INSERTS IT, HE'S TRYING TO  
MISS ANY ELECTRONIC BOLTS IN

368

00:27:08,950 --> 00:27:11,720

THERE.  
ONCE WE GET IT INTO THE DEPTH

369

00:27:11,720 --> 00:27:15,749

WHICH IS THE TAPE THAT'S ON THE  
VLT, WE'RE GOING TO ROTATE THE

370

00:27:15,749 --> 00:27:17,970

CRADLE IN TOWARDS THE BALL  
SCREW.

371  
00:27:17,970 --> 00:27:21,159  
ONCE IT'S THERE WE'LL APPLY  
GREASE TO THE BALL SCREW THAT'S

372  
00:27:21,159 --> 00:27:32,909  
IN THE BACK.  
AND, OF COURSE, THIS IS VERY

373  
00:27:32,909 --> 00:27:36,940  
EASY TO SEE.  
AFTER THAT, WE GO AFTER THOSE

374  
00:27:36,940 --> 00:27:44,450  
LINEAR BEARING TRACTS TO GET  
GREASE, AND AS THEY MOVE

375  
00:27:44,450 --> 00:27:49,649  
FORWARD, IT PULLS THE GREASE  
BACK THROUGH THE BEARING TRACK.

376  
00:27:49,649 --> 00:27:52,549  
AFTER THAT, WE'RE GOING TO GO  
THROUGH THE EQUALIZATION

377  
00:27:52,549 --> 00:28:00,999  
BRACKET.  
BOTH INBOARD AND OUTBOARD.

378  
00:28:00,999 --> 00:28:05,429  
THERE'S TWO EACH, "A" SIDE AND  
"B" SIDE.

379  
00:28:05,429 --> 00:28:09,210  
AFTER THAT, WE'RE COMPLETE  
TAKING PHOTOS AND IN THE NEXT

380  
00:28:09,210 --> 00:28:12,940  
VIDEO, YOU SEE THE ARM MOVING  
IN.

381

00:28:12,940 --> 00:28:24,539

YOU SEE THE DOTS OF GREASE THAT  
TERRY APPLIED ON EVA 30.

382

00:28:24,539 --> 00:28:30,139

ON EACH YOU SEE GREASE DROPPED  
ON EACH ROLLER.

383

00:28:30,139 --> 00:28:32,710

THE ONLY THING YOU CAN'T SEE  
HERE IS THE BALL SCREW LUBE THAT

384

00:28:32,710 --> 00:28:42,389

WE PUT ON.

>>> ALL RIGHT.

385

00:28:42,389 --> 00:28:47,419

WHEN SCOTT'S DONE WITH THAT,  
WE'LL CLEAN UP THE WORK STATION.

386

00:28:47,419 --> 00:28:52,389

HE'S GOING TO GO NADR OVER THE  
LAB TO PICK UP CABLES.

387

00:28:52,389 --> 00:28:57,049

KJELL PICKS UP THE  
NON-PROPULSION.

388

00:28:57,049 --> 00:29:03,159

ZENITH ON NODE 3 TO THE PORT  
SIDE WHERE WE INSTALL THE NPV.

389

00:29:03,159 --> 00:29:06,480

YOU SEE HERE THE ROAD SIDE AREA.  
WE HAVE THE PMM THAT WAS

390

00:29:06,480 --> 00:29:09,330

RELOCATED AND REMOVED.  
THERE'S A PLATE ON IT.

391

00:29:09,330 --> 00:29:14,940

IT'S REMOVED FOR THIS VIDEO.  
WE'LL MOVE THAT FIRST PLATE THEN

392

00:29:14,940 --> 00:29:16,919

PUT THE NON-PROPULSION JET BACK  
ON.

393

00:29:16,919 --> 00:29:19,809

AGAIN, THIS IS A VERY TIGHT WORK  
SPACE.

394

00:29:19,809 --> 00:29:23,809

YOU CAN SEE HERE IN THE VIDEO  
HOW TIGHT THOSE TWO WILL BE

395

00:29:23,809 --> 00:29:25,960

TOGETHER.  
SO WE'RE USING A LOT OF SPECIAL

396

00:29:25,960 --> 00:29:31,200

TOOLS TO GET THAT TIED DOWN,  
WHEN WE GET IT IN AND INSTALLED

397

00:29:31,200 --> 00:29:33,749

AND KJELL HAS THE LONGEST ARMS.  
THAT'S WHY WE'RE SPINNING INTO

398

00:29:33,749 --> 00:29:38,779

THE MPV.  
MOVING SCOTT OVER TO THE PORT

399

00:29:38,779 --> 00:29:43,809

SIDE, HE'S GOING RUN THE FORWARD  
CABLE.

400

00:29:43,809 --> 00:29:46,859

THAT KJELL HAS TEMPORARILY RUN  
IT THE EXACT SAME WAY OVER THE

401  
00:29:46,859 --> 00:29:50,399  
ORANGE CABLE.  
THAT'S OUR POWER CABLE DEPLOYED

402  
00:29:50,399 --> 00:29:56,379  
ON THE HANDRAILS GETTING READY  
FOR IDA INSTALL.

403  
00:29:56,379 --> 00:29:58,889  
ONCE WE'RE DONE WITH THAT, WE'LL  
CLEAN UP THE WORK AND HEAD BACK

404  
00:29:58,889 --> 00:30:04,259  
TO THE AIR LOCK ABOUT 6½ HOUR  
E.V.A., AND COMING INSIDE AND

405  
00:30:04,259 --> 00:30:18,049  
GET IT READY FOR ART'S U.V.A. A  
WEEK LATER.

406  
00:30:18,049 --> 00:30:34,440  
>> SO, I DID BRING A B.L.T., OR  
BALL SCREW LUBRICATING TOOL WITH

407  
00:30:34,440 --> 00:30:39,960  
ME.  
WE ARE GOING TO PUT GREASE ON IT

408  
00:30:39,960 --> 00:30:44,070  
AND SCOTT WILL TAKE IT OUT AND  
INSERT IT INTO FOR LUBRICATION.

409  
00:30:44,070 --> 00:30:49,450  
SO, IT IS A PROBE, WITH A COUPLE  
WIRE-TIED CRADLE ADDED TO IT FOR

410  
00:30:49,450 --> 00:30:51,529  
STRENGTH.  
ANOTHER BIG ITEM WE HAVE IS THE

411

00:30:51,529 --> 00:30:57,840

AMS BLANKET, THE 1 G VERSION  
WILL BE COMPLETELY WIDE.

412

00:30:57,840 --> 00:31:00,049

YOU CAN SEE WHAT KJELL HAS TO DO  
WHEN HE GOES.

413

00:31:00,049 --> 00:31:05,440

WITH THAT I WOULD LIKE TO HAND  
IT OVER TO ART AND EVA 33.

414

00:31:05,440 --> 00:31:11,289

>> THANKS.

HI, I'M ART THOMASON.

415

00:31:11,289 --> 00:31:19,739

I WOULD LIKE TO THANK YOU SCOTT  
RAY, REAGAN CHENEY AND PAUL

416

00:31:19,739 --> 00:31:25,999

DUNNE FOR THE WORK THEY'VE DONE.  
AS MIKE MENTIONED THE PRIMARY

417

00:31:25,999 --> 00:31:31,239

PUP OF THIS E.V.A. IS RETURN THE  
SCHOOLING SYSTEM BACK TO ITS

418

00:31:31,239 --> 00:31:34,190

CONFIGURATION.  
IN ORDER TO DO THAT WE HAVE THE

419

00:31:34,190 --> 00:31:40,419

CREW OUT OF THE P-6 TRUSS 0 FOR  
THE MAJORITY OF EVA.

420

00:31:40,419 --> 00:31:47,169

SO, THE FIRST THING THEY'LL DO  
IS REINTEGRATE THE P-6 TO BE THE

421

00:31:47,169 --> 00:31:49,989

RADIATOR.

IN ORDER TO DO THIS, THEY DRIVE

422

00:31:49,989 --> 00:31:53,529

A BOLT THAT OPENS A VALVE THAT  
WILL ALLOW AMMONIA TO FLOAT INTO

423

00:31:53,529 --> 00:31:58,129

THE RADIATOR AGAIN AND COOL THE  
ELECTRONIC SYSTEM.

424

00:31:58,129 --> 00:32:02,229

>> THE NEXT THING IS ISOLATE THE  
TUBE SYSTEMS.

425

00:32:02,229 --> 00:32:06,529

THERE'S THE THERMAL CONTROL  
SYSTEM AND EXTERNAL THERMAL

426

00:32:06,529 --> 00:32:10,100

CONTROL SYSTEM WHICH ARE  
CURRENTLY LINKED TOGETHER.

427

00:32:10,100 --> 00:32:15,559

THEY'LL ISOLATE THOSE, THAT THE  
NOMINAL RADIATOR IS DEPLOYED.

428

00:32:15,559 --> 00:32:19,009

BY ISOLATING THEM IT PUTS US IN  
A BETTER POSTURE IN CASE WE GET

429

00:32:19,009 --> 00:32:22,179

ANOTHER LEAK, THE SYSTEMS ARE NO  
LONGER TIED TOGETHER.

430

00:32:22,179 --> 00:32:26,289

THE THIRD THING THEY DO IS  
RETRACT THE THERMAL CONTROL

431

00:32:26,289 --> 00:32:29,909

RADIATOR.

AS YOU SEE, WE CALL IT A PICKER

432

00:32:29,909 --> 00:32:32,549

HERE, WE'LL DO THAT BECAUSE THIS

RADIATOR IS NO LONGER NEEDED.

433

00:32:32,549 --> 00:32:36,169

WE HAVE THE NOMINAL RADIATOR IN

SERVICE FOR US.

434

00:32:36,169 --> 00:32:41,109

WE'LL RETRACT IT, AND PUT A

PROTECTIVE THERMAL COVER OVER

435

00:32:41,109 --> 00:32:43,669

IT.

THAT PROTECTS IT IN THE EVENT WE

436

00:32:43,669 --> 00:32:48,470

EVER NEED TO USE IT AGAIN.

THE FINAL THING WE DO IS TOP OFF

437

00:32:48,470 --> 00:32:51,779

BOTH AMMONIA SYSTEMS.

WE HAVE ENOUGH AMMONIA IN

438

00:32:51,779 --> 00:32:54,320

SYSTEMS TO RUN NOW.

BUT WE WANT TO HAVE THAT EXTRA

439

00:32:54,320 --> 00:32:56,999

MARGIN IN CASE WE NEED IT IN THE

FUTURE.

440

00:32:56,999 --> 00:33:00,149

IN ORDER TO DO THAT, WE HAVE A

PIPELINE THAT RUNS FROM THE P-1

441

00:33:00,149 --> 00:33:05,190

AMMONIA TANK ASSEMBLY TO P-6.  
MOST OF THAT IS IN PLACE BUT

442

00:33:05,190 --> 00:33:11,279

THERE'S A SECTION ABOUT 20 FEET  
LONG OVER THE ROTARY JOINT AND

443

00:33:11,279 --> 00:33:14,259

WE CAN'T HAVE THAT IN PLACE AND  
STILL ROTATE THE JOINT SO THAT'S

444

00:33:14,259 --> 00:33:18,359

STOWED ON THE P-4 BULKHEAD.  
THE CREW COMES OUT AND INSTALLS

445

00:33:18,359 --> 00:33:21,419

THE JUMPER.  
ON EACH END WE'LL HAVE A FLUID

446

00:33:21,419 --> 00:33:24,039

QUICK DISCONNECT THAT YOU SEE  
HERE.

447

00:33:24,039 --> 00:33:27,580

THAT WILL BE ON EACH END AND  
WHEN THE CREW COMES OUT THEY'LL

448

00:33:27,580 --> 00:33:30,369

FIND IT STOWED ON A DUMMY JUST  
LIKE THIS.

449

00:33:30,369 --> 00:33:33,259

IN ORDER TO REMOVE IT.  
THEY PULL BACK ON THE RELEASE

450

00:33:33,259 --> 00:33:37,499

RING AND THEN THEY'LL DO AN  
INSPECTION REAL QUICK TO MAKE

451

00:33:37,499 --> 00:33:39,309

SURE THERE'S NO DEBRIS OR  
DAMAGE.

452

00:33:39,309 --> 00:33:42,989

THEY'LL MOVE IT OVER TO WHERE  
THE PIPELINE INTERFACE IS, PLUG

453

00:33:42,989 --> 00:33:45,649

IT INTO THE PIPELINE, AND AT  
THAT POINT, THEY'LL SEE THE

454

00:33:45,649 --> 00:33:48,299

FORWARD BAND IS VISIBLE.  
THEY KNOW THEY'LL HAVE

455

00:33:48,299 --> 00:33:50,580

MECHANICAL MAINTENANCE AT THAT  
POINT.

456

00:33:50,580 --> 00:33:54,049

THEY'LL PULL ON IT TO MAKE SURE  
IT'S IN PLACE AND TO OPEN THE

457

00:33:54,049 --> 00:33:58,159

VALVE THEY'LL PRESS THE BUTTON  
AND MOVE THE BAIL ALL OF THE WAY

458

00:33:58,159 --> 00:34:00,190

FORWARD.  
AT THAT POINT, THEY'LL SEE THE

459

00:34:00,190 --> 00:34:03,289

AFT BAND.  
AND THIS MEANS AMMONIA IS NOW

460

00:34:03,289 --> 00:34:06,899

FLOWING THROUGH THE SYSTEM.  
ONE REASON I WANTED TO MENTION

461

00:34:06,899 --> 00:34:09,960

THIS TO YOU GUYS.

BECAUSE YOU WILL HEAR A LOT OF

462

00:34:09,960 --> 00:34:12,889

TALK BETWEEN THE GROUND I.V. AND

CREW ON ORBIT.

463

00:34:12,889 --> 00:34:16,919

HOW TO OPERATE THOSE AND CHECKS

TO MAKE SURE THEY ARE IN THE

464

00:34:16,919 --> 00:34:19,940

RIGHT CONFIGURATION.

WE'VE HAD PROBLEMS WITH THESE IN

465

00:34:19,940 --> 00:34:21,559

THE PAST.

THEY HAVE BEEN FINICKY FROM TIME

466

00:34:21,559 --> 00:34:24,119

TO TIME.

WE WANT TO MAKE SURE WE DON'T

467

00:34:24,119 --> 00:34:27,750

DAMAGE HARDWARE OR CREATE NEW

LEEKS.

468

00:34:27,750 --> 00:34:31,819

I DID MENTION THE GROUND IV.

THAT WILL BE MEGAN.

469

00:34:31,819 --> 00:34:34,919

SHE WILL BE WALKING THE CREW

THROUGH THE PROCEDURE STEP BY

470

00:34:34,919 --> 00:34:37,659

STEP KEEPING THEM ON THE TIME

LINE.

471

00:34:37,659 --> 00:34:40,859

ON OR BID WE HAVE THREE CREW  
MEMBERS WORKING TOGETHER.

472

00:34:40,859 --> 00:34:47,789

WE HAVE KIMIYA YUI.  
HE'LL HELP SCOTT AND KJELL.

473

00:34:47,789 --> 00:35:02,140

THE CREW MEMBERS WILL BE KJEL  
AND SCOTT KELLY, INDICATING HE

474

00:35:02,140 --> 00:35:05,270

WILL BE E.V. 2.  
YOU PROBABLY NOTICE THESE GUYS

475

00:35:05,270 --> 00:35:08,839

REVERSED ROLES.  
THIS IS SO THEY BOTH GOT

476

00:35:08,839 --> 00:35:11,150

EXPERIENCE IN THE LEAD SPACE  
WALKER ROLE.

477

00:35:11,150 --> 00:35:15,390

KJELL AND SCOTT HAVE NOT SEEN  
THIS IN THE LAB.

478

00:35:15,390 --> 00:35:19,740

THEY'VE INTRODUCED VIDEO AND  
PACKAGES ON BOARD.

479

00:35:19,740 --> 00:35:25,160

SO THEY WILL BE READY TO  
GOVERNMENT WE'VE RUN THIS WITH

480

00:35:25,160 --> 00:35:28,609

OTHER CREW MEMBERS A FEW TIMES.  
THAT'S HELPED US DETERMINE THAT

481

00:35:28,609 --> 00:35:33,760

WE HAVE THE RIGHT TIMES FOR THE  
CREW TO BE SUCCESSFUL AND OUR

482

00:35:33,760 --> 00:35:37,720

PROCEDURES IDENTIFY THEM WITH  
THE RIGHT INFORMATION TO WORK

483

00:35:37,720 --> 00:35:39,559

WITH.  
WITH THAT, I THINK WE HAVE

484

00:35:39,559 --> 00:35:43,099

EVERYTHING IN PLACE.  
I HAVE A SHORT VIDEO I WOULD

485

00:35:43,099 --> 00:35:45,549

LIKE TO GO THROUGH NOW AND WE  
CAN WALK THROUGH SOME OF THE

486

00:35:45,549 --> 00:35:51,470

DETAILS.  
FOR UV 33.

487

00:35:51,470 --> 00:35:58,109

BOTH START OUT IN THE AIR LOCK.  
KJELL IN THE RED STRIPES HE

488

00:35:58,109 --> 00:36:00,650

SCOTT WITH ILL HAVE THE SUIT  
WITH THE WHITE STRIPES.

489

00:36:00,650 --> 00:36:03,900

SCOTT WILL BRING OUT THE BAG  
THAT HAS ALL OF THE TOOLS THEY

490

00:36:03,900 --> 00:36:08,650

NEED TO USE.  
KJELL PICKS OUT A BAG ON THE

491

00:36:08,650 --> 00:36:12,359

ZENITH PORTION OF THE CREW LOCK.  
HE'LL TAKE THAT OUT FROM THE

492

00:36:12,359 --> 00:36:16,950

WORK SITE.  
FROM HERE, THEY'LL SET UP WHAT

493

00:36:16,950 --> 00:36:19,770

WE CALL A SLING SHOT.  
AS A WAY TO GET THE MAXIMUM

494

00:36:19,770 --> 00:36:24,720

LENGTH OUT OF YOUR TETHER.  
TRANSLATE TO P-6, PASS THE

495

00:36:24,720 --> 00:36:29,280

THERMAL CONTROL RADIATOR.  
HE'LL STOW THE BAG IN THIS

496

00:36:29,280 --> 00:36:34,140

LOCATION.  
AND THIS WILL BE SET UP LATER IN

497

00:36:34,140 --> 00:36:36,700

THE EVA.  
AND THEN HE'LL HEAD OVER TO THE

498

00:36:36,700 --> 00:36:41,569

FLUID QUICK DISCONNECT COUPLER.  
SCOTT WILL BE RIGHT BEHIND THEM

499

00:36:41,569 --> 00:36:45,220

AND THEY WORK TOGETHER TO REMOVE  
A COVER AND THEN DRIVE A BOLT

500

00:36:45,220 --> 00:36:49,780

WHICH ALLOWS FLOW INTO THE  
RADIATOR.

501

00:36:49,780 --> 00:36:55,530

ON THE RIGHT SIDE OF THIS VIEW.  
THEY WORK TOGETHER TO GET THE

502

00:36:55,530 --> 00:37:00,150

COVER BACK ON.  
AND SCOTT WILL HEAD OVER TO THE

503

00:37:00,150 --> 00:37:10,410

JUMPER AND KJELL WILL CLOSE THE  
VALVE AND THE EARLY EXTERNAL

504

00:37:10,410 --> 00:37:15,930

CONTROL SYSTEM.  
STOW 1 OF THOSE JUMPERS TO KEEP

505

00:37:15,930 --> 00:37:20,680

IT PROTECTED FOR THE FUTURE.  
HERE WE HAVE SCOTT AT THE

506

00:37:20,680 --> 00:37:24,089

SCHOLAR ALPHA ROTARY JOINT.  
HE'S GOING INSTALL THE JUMPER

507

00:37:24,089 --> 00:37:28,190

ACROSS THE SARGE.  
THIS WILL COMPLETE THE FILL

508

00:37:28,190 --> 00:37:34,520

PIPELINE.  
MEANWHILE, KJELL WILL START

509

00:37:34,520 --> 00:37:41,720

SETTING UP THE VENT TOOL.  
WE WANT THIS SET UP.

510

00:37:41,720 --> 00:37:45,859

BEFORE THEN WE'LL NEED TO VENT  
THE FILL LINE TO PREVENT

511  
00:37:45,859 --> 00:37:50,049  
OVERPRESSURIZATION.  
WE DON'T WANT TO LOCK THAT LINE

512  
00:37:50,049 --> 00:37:54,690  
UP WITH AMMONIA.  
AT THIS POINT, WE'LL BE READY TO

513  
00:37:54,690 --> 00:37:56,760  
START THE FILL.  
WE HAVE SCOTT OVER AT THE

514  
00:37:56,760 --> 00:38:00,380  
AMMONIA TANK.  
HE'LL REPOSITION THE JUMPER AND

515  
00:38:00,380 --> 00:38:04,230  
THAT WILL ROUTE AMMONIA FROM THE  
TANK INTO THE FILL LINE.

516  
00:38:04,230 --> 00:38:07,680  
AFTER A SHORT LEAK CHECK, AS  
LONG AS EVERYTHING IS SUCCESSFUL

517  
00:38:07,680 --> 00:38:13,780  
THERE, WE'LL HAVE KJELL MAKE THE  
P 5, P 6 JUMPER OVER TO P 6 AND

518  
00:38:13,780 --> 00:38:21,240  
THIS STARTS THE FILL OF THE  
EARLY EXTERNAL CONTROL SYSTEM.

519  
00:38:21,240 --> 00:38:24,440  
FROM THERE, HE'LL HEAD BACK OVER  
TO THE EARLY AMMONIA SERVICER

520  
00:38:24,440 --> 00:38:26,510  
JUMPERS.  
HE'LL OPEN A VALVE AND THAT WILL

521

00:38:26,510 --> 00:38:30,089

INITIATE THE FILL OF THE THERMAL  
CONTROL SYSTEM.

522

00:38:30,089 --> 00:38:33,289

WE EXPECT IT TO TAKE ABOUT TO 20  
MINUTES.

523

00:38:33,289 --> 00:38:37,059

WHILE THAT FILL IS GOING ON.  
WE'LL HAVE KJELL RETRACT THE

524

00:38:37,059 --> 00:38:41,750

THERMAL CONTROL RADIATOR USING A  
PISTOL GRIP TOOL WHICH IS AN EVA

525

00:38:41,750 --> 00:38:46,650

VERSION OF A CORDLESS DRILL.  
DRIVE BOTH 50 TURNS AND IT WILL

526

00:38:46,650 --> 00:38:54,210

RETRACT THE RADIATOR.  
ONCE THIS IS COMPLETE, WE EXPECT

527

00:38:54,210 --> 00:38:58,299

THE FILL TO BE FINISHED AS WELL.  
SO, KJELL HEADS BACK TO THE

528

00:38:58,299 --> 00:39:02,400

EARLY AMMONIA SERVICER JUMPERS.  
ONE LAST TIME HE'LL CLOSE THAT

529

00:39:02,400 --> 00:39:06,119

CONNECTION BETWEEN THE TWO  
SYSTEMS AND STOW THEM IN A SAFE

530

00:39:06,119 --> 00:39:10,349

CONFIGURATION, AND LEAVE THOSE  
TWO SYSTEMS ISOLATED.

531

00:39:10,349 --> 00:39:14,720

HE'LL THEN PICK UP THE BAGS THAT  
SCOTT LEFT BEHIND THERE AND MOVE

532

00:39:14,720 --> 00:39:17,390

THEM TO THE NEW LOCATION THAT'S  
MORE CONVENIENT FOR THIS PORTION

533

00:39:17,390 --> 00:39:21,960

OF THE EVA AND THEM HEAD DOWN TO  
THE P 5, P 6 JUMPER.

534

00:39:21,960 --> 00:39:24,980

HE'LL BREAK THAT CONNECTION IN  
THE FILL LINE AND WRAP THAT TO

535

00:39:24,980 --> 00:39:28,720

THE VENT TOOL AND VENT TOOL  
EXTENDER AND THIS WILL BEGIN THE

536

00:39:28,720 --> 00:39:37,020

VENTING OF THE FILL LINE.  
SO, YOU CAN SEE HERE, THE VENT

537

00:39:37,020 --> 00:39:39,630

TOOL AND VENT TOOL EXTENDER.  
YOU SEE A CONE SHOWING WHERE WE

538

00:39:39,630 --> 00:39:43,650

EXPECT TO VENT OUT THE AMMONIA  
FROM THE SYSTEM.

539

00:39:43,650 --> 00:39:49,720

HERE YOU SEE FOOTAGE FROM SPS 4.  
THEY DID A FILL OF THIS SYSTEM

540

00:39:49,720 --> 00:39:52,910

AS WELL.  
YOU SEE HE JUST OPENED THE VALVE

541

00:39:52,910 --> 00:39:56,470

VIA THE VENT TOOL AND YOU SEE  
HIM LOOK OVER THE SHOULDER AND

542

00:39:56,470 --> 00:39:59,359

EVENTING OF AMMONIA OUT OF THE  
SYSTEM.

543

00:39:59,359 --> 00:40:04,750

WE EXPECT A SIMILAR VIEW.  
EXPECT THAT TO TAKE ABOUT

544

00:40:04,750 --> 00:40:09,140

17 MINUTES TO FULLY GET THE  
AMMONIA OUT OF THE LINE.

545

00:40:09,140 --> 00:40:14,869

MEANWHILE WE'LL HAVE SCOTT HEAD  
OVER TO THE CART, SO WE CAN TAKE

546

00:40:14,869 --> 00:40:18,880

THE MOBILE TRANSPORTER TO WORK  
SITE 1 AND STILL ROTATE THE

547

00:40:18,880 --> 00:40:21,490

SARGE.  
HE'LL FOLD OVER TWO BREAK

548

00:40:21,490 --> 00:40:27,200

HANDLES AND SECURE THOSE WITH A  
TETHER.

549

00:40:27,200 --> 00:40:30,049

FROM THERE, HE'LL MOVE OVER TO  
THE COUPLER, HE'LL REMOVE THAT

550

00:40:30,049 --> 00:40:34,099

AND ATTACH IT TO THE SWING ARM.  
AND I'M DRIVE FOUR BOLTS TO

551

00:40:34,099 --> 00:40:38,210

RELEASE THE SWING ARM AND WE'LL  
NOW HAVE A GOOD CONFIGURATION TO

552

00:40:38,210 --> 00:40:41,270

GO TO WORK BY ONE.  
WE'LL TRANSLATE TO THE AFT SIDE

553

00:40:41,270 --> 00:40:44,200

OF THE STATION NEAR THE AMMONIA  
TANK WHERE HE WAS WORKING

554

00:40:44,200 --> 00:40:49,650

EARLIER AND STOW THAT SWING ARM  
ON A TOOL WE CALL THE PARA.

555

00:40:49,650 --> 00:41:04,980

THIS IS A TOOL WE HAVE NOT USED  
AT ALL IN

556

00:41:04,980 --> 00:41:11,930

THE PAST.  
THE CREW MEMBERS ARE BOTH GOING

557

00:41:11,930 --> 00:41:15,109

WORK AND DRIVE A BOLT ON TWO  
DIFFERENT STRUTS.

558

00:41:15,109 --> 00:41:18,140

IT WILL BE A FRAC OF A TURN.  
HOPEFULLY THAT WILL FIX THE

559

00:41:18,140 --> 00:41:23,140

VIBRATION ISSUE THAT WE'VE SEEN.  
WE'LL THEN HAVE SCOTT HEAD

560

00:41:23,140 --> 00:41:27,650

FORWARD.  
HE'LL REMOVE THE P 3, P 4

561

00:41:27,650 --> 00:41:29,670

JUMPER.

ONCE THIS IS REMOVED AND STOWED,

562

00:41:29,670 --> 00:41:33,500

YOU'LL BE ABLE TO ROTATE THE

SOLAR ROTATOR JOINT AGAIN AT THE

563

00:41:33,500 --> 00:41:39,650

END OF THE EVA AND KJELL WIN

BEGIN WORK ON CLEANING UP THE

564

00:41:39,650 --> 00:41:43,680

VENT TOOL AND VENT TOOL

EXTENDER.

565

00:41:43,680 --> 00:41:45,880

ALL OF THE AMMONIA HAS BEEN

VENTED OUT OF THESE LINES AT

566

00:41:45,880 --> 00:41:49,940

THIS POINT.

SO HE'LL DETONATE THE P 5, P 6

567

00:41:49,940 --> 00:41:54,359

JUMP EARP, HE'LL STOW THAT ON A

DUMMY AND BEGIN COOLING OUT THE

568

00:41:54,359 --> 00:41:56,920

VENT TOOL AND VENT TOOL

EXTENDER.

569

00:41:56,920 --> 00:42:00,630

HE'LL PASS THAT ALL BACK IN HIS

BAG.

570

00:42:00,630 --> 00:42:04,779

THIS IS A BAG THAT REMAINS

OUTSIDE BECAUSE IT HAS AMMONIA

571

00:42:04,779 --> 00:42:06,730

IN THERE.

SO IF YOU MOVE LA THAT BACK TO

572

00:42:06,730 --> 00:42:12,450

THE AIR LOCK, NOW BOTH CREW

MEMBERS WILL MEET UP AT THE

573

00:42:12,450 --> 00:42:17,730

TICKER AND WILL WORK TOGETHER TO

INSTALL SIX CINCHES, THESE WILL

574

00:42:17,730 --> 00:42:21,720

HOLD THE RADIATOR INTO PLACE, TO

PREVENT IT FROM BEING DAMAGED.

575

00:42:21,720 --> 00:42:25,740

HERE YOU SEE WHAT THE CREW WILL

DO.

576

00:42:25,740 --> 00:42:30,579

I THINK IT'S TEN POUNDS OF

FORCE.

577

00:42:30,579 --> 00:42:33,599

THE CREW WILL WORK TOGETHER TO

INSTALL A THERMAL COVER OVER THE

578

00:42:33,599 --> 00:42:38,170

PICKER AND WILL PROTECT IT FROM

THE ENVIRONMENT.

579

00:42:38,170 --> 00:42:41,920

HERE YOU SEE A CREW HELP WORKING

IN ONE OF THE TRAINING SESSIONS

580

00:42:41,920 --> 00:42:46,910

TO GET THAT THERMAL COVER

INSTALLED OVER THE TICKER.

581

00:42:46,910 --> 00:42:49,869

IT TAKES TWO PEOPLE TO DO.  
THERE'S ANOTHER CREW MEMBER IN

582

00:42:49,869 --> 00:42:54,260

THE TOP TWO HERE.  
ONE GUY ZENITH, ONE GUY NADR.

583

00:42:54,260 --> 00:42:59,099

BOTH WILL PICK UP THE RESPECTIVE  
BAGS.

584

00:42:59,099 --> 00:43:02,750

HERE YOU SEE SCOTT WITH THE VENT  
BAG.

585

00:43:02,750 --> 00:43:12,460

AND THEN KJELL WILL MOVE IT TO  
THE VENT POSITION IN CASE WE

586

00:43:12,460 --> 00:43:15,890

EVER GET AN OVERPRESSURIZATION  
OF THE SYSTEM WE HAVE ABILITY TO

587

00:43:15,890 --> 00:43:19,190

VENT OVERBOARD.  
WE THE V THE ABILITY TO DO THAT.

588

00:43:19,190 --> 00:43:23,359

KJELL WILL TRANSLATE BACK TO THE  
AIR LOCK.

589

00:43:23,359 --> 00:43:27,690

PICK UP SCOTT'S TETHER AT THE  
SLING SHOT LOCATION, COME BACK

590

00:43:27,690 --> 00:43:33,049

IN ON SCOTT'S TETHER AND HE'LL  
HAVE THE CREW LOCK BAGS WITH HIM

591

00:43:33,049 --> 00:43:37,099

THAT ARE BONED TOGETHER.  
HE'LL INGRESS THE AIR LOCK AND

592

00:43:37,099 --> 00:43:46,549

THAT WILL CONCLUDE THE EVA 33.  
THAT CONCLUDES MY BRIEFING.

593

00:43:46,549 --> 00:43:48,000

I'LL TURN IT BACK OVER TO THE  
MODERATOR.

594

00:43:48,000 --> 00:43:49,529

>> ALL RIGHT.  
THANKS.

595

00:43:49,529 --> 00:43:53,670

NOW WE'LL MOVE INTO OUR QUESTION  
SECTION OF TODAY'S BRIEFING.

596

00:43:53,670 --> 00:43:56,390

WE'LL START OFF HERE IN THE  
ROOM.

597

00:43:56,390 --> 00:43:59,700

IF YOU'RE ON THE PHONE BRIDGE,  
PRESS STAR 1, AND WE'LL NOT SEE

598

00:43:59,700 --> 00:44:04,529

YOU IN THE CUE, AND YOU WON'T  
GET TO ANSWER YOUR QUESTION.

599

00:44:04,529 --> 00:44:14,479

WE'LL START OFF IN THE ROOM.  
WHY DON'T WE START IN THE FRONT?

600

00:44:14,479 --> 00:44:19,730

>> REGARDING THE THERMAL COVER  
ON AMS, THE TEAM†-- REMIND ME

601

00:44:19,730 --> 00:44:23,710

WHY A THERMAL COVER IS NEEDED  
AND WHY IT WASN'T PART OF THE

602

00:44:23,710 --> 00:44:30,460

INITIAL AND THOUSAND WAS  
DISCOVERED THAT WOULD BE NEEDED?

603

00:44:30,460 --> 00:44:35,170

>> YEAH.  
I WAS TALKING TO THE AMS GUY

604

00:44:35,170 --> 00:44:36,849

THIS MORNING.  
WE'RE SEEING A LITTLE BIT OF

605

00:44:36,849 --> 00:44:40,950

DEGRADATION.  
THE PUMPS ARE WORKING WELL.

606

00:44:40,950 --> 00:44:45,579

THEY GOT ABOUT†-- WE WERE  
PLANNING THREE YEARS.

607

00:44:45,579 --> 00:44:49,869

GOT ABOUT 4†1/2 YEARS WITH AMF.  
THEY WANT TO PROTECT IT BETTER.

608

00:44:49,869 --> 00:44:56,950

WE ARE USING A STATION TO SHIELD  
IT DURING HIGH BETA ANGLES.

609

00:44:56,950 --> 00:44:59,750

NOW WE ARE PUTTING THE RADIATORS  
UP SO WE NO LONGER HAVE TO POINT

610

00:44:59,750 --> 00:45:04,539

THE CHARGES TO PROTECT AMS.  
THEY ARE SEE A SMALL AMOUNT OF

611

00:45:04,539 --> 00:45:08,650

DEGRADATION AND THEY WANT TO  
ENSURE A LONGER LIFE OUT OF IT.

612

00:45:08,650 --> 00:45:14,440

>> AND A FOLLOW-UP, FOR THE  
SECOND EVA, GIVEN THAT THEY ARE

613

00:45:14,440 --> 00:45:21,410

WORKING IN AND AROUND AMMONIA,  
IS THERE ENOUGH TIME AT THE END

614

00:45:21,410 --> 00:45:24,430

OF THE EVA?

>> THAT'S CORRECT.

615

00:45:24,430 --> 00:45:26,720

WE HAVE A TIME BUILT INTO OUR  
PROCEDURES.

616

00:45:26,720 --> 00:45:30,720

ONE THING WE DON'T WANT IT DO IS  
AMMONIA AFTER THAT TIME TO

617

00:45:30,720 --> 00:45:34,359

PROTECT FROM A BAKE-OUT.

IF THEY GET CONTAMINATED THERE'S

618

00:45:34,359 --> 00:45:38,410

A FEW DIFFERENT DEGREES OF  
CONTAMINATION.

619

00:45:38,410 --> 00:45:41,279

THERE'S A LIKELY, UNLIKELY AND  
CONFIRMED.

620

00:45:41,279 --> 00:45:43,680

I'M SORRY.

UNLIKELY, SUSPECTED AND

621

00:45:43,680 --> 00:45:47,349

CONFIRMED.

DEPENDING HOW SEVERE IT DEPENDS

622

00:45:47,349 --> 00:45:52,220

HOW MUCH WE DO.

AT THE VERY LEAST WE DO A

623

00:45:52,220 --> 00:45:57,920

BAKE-OUT IF WE SEE AMMONIA NEAR

THE CREW, AND THEN, IF IT

624

00:45:57,920 --> 00:46:00,990

ISSUSPECTED OR CONFIRMED WE HAVE

A TEST THAT WE DO IN THE AIR

625

00:46:00,990 --> 00:46:03,150

LOCK TO MAKE SURE WE'RE NOT

BRINGING AMOAN YACK YEAH BACK IN

626

00:46:03,150 --> 00:46:12,820

WITH IT.

>> MARK?

627

00:46:12,820 --> 00:46:17,339

>> I HAD SOME IDA QUESTION.

FIRST I WANT TO MAKE SURE THE

628

00:46:17,339 --> 00:46:21,799

ONLY WAY TO GET IDA TO ISS NOW

AS I UNDERSTAND IT.

629

00:46:21,799 --> 00:46:26,660

YOU MENTIONED THE POSSIBILITY OF

JANUARY FOR A DRAGON FLIGHT.

630

00:46:26,660 --> 00:46:32,359

CAN YOU KIND OF GO OVER WHICH

IDA WILL OR WON'T GO ON THAT

631

00:46:32,359 --> 00:46:36,940

FLIGHT, OR THE NEXT FLIGHT?  
AND IN A BIG PICTURE SENSE, I'M

632

00:46:36,940 --> 00:46:42,650

JUST WONDERING IF, IN YOUR  
EVALUATION OF THE WORK AHEAD, IF

633

00:46:42,650 --> 00:46:47,170

YOU KNOW YOU ALREADY IMPACTED  
YOUR DESIRE TO START OPERATIONS,

634

00:46:47,170 --> 00:46:52,609

AND VIOLATE 2017 WITH CREW  
ROTATIONS, OR IS THAT SOMETHING

635

00:46:52,609 --> 00:46:57,520

TO BE DETERMINED IN THE FUTURE?  
>> WHERE WE'RE AT RIGHT NOW,

636

00:46:57,520 --> 00:47:00,069

MARK?  
WE WILL LAUNCH WHAT WE TERM IDA

637

00:47:00,069 --> 00:47:02,720

NUMBER 2.  
IDA NUMBER ONE WAS THE ONE THAT

638

00:47:02,720 --> 00:47:06,020

WE LOST BACK IN THE SUMMER ON  
THE DRAGON.

639

00:47:06,020 --> 00:47:10,799

TODAY, THE ONLY WAY WE CAN GET  
AN IDA TO WORK IS ON THE DRAGON.

640

00:47:10,799 --> 00:47:15,940

WE WON'T FLY ONE ON SPACEX 8,  
WE'LL FLY IT ON SPACEX 9.

641

00:47:15,940 --> 00:47:22,940

AND WE'LL DO APPROPRIATE EVAs TO  
GET WHAT WE TERM IVA NUMBER 2 ON

642

00:47:22,940 --> 00:47:26,640

BOARD AND WE'LL PUT THAT  
PARTICULAR IVA ON THE FRONT END

643

00:47:26,640 --> 00:47:33,200

OF THE STATION ON TMA NUMBER 2.  
SO, WHERE THAT LEAVES US THEN,

644

00:47:33,200 --> 00:47:37,339

IS HOW DO WE GET THE REDUNN IDA  
AND WHEN?

645

00:47:37,339 --> 00:47:43,420

WE'RE IN THE PROCESS OF GETTING  
THAT IDA MANUFACTURED.

646

00:47:43,420 --> 00:47:49,269

LOOKING LIKE PROBABLY SPRING OF  
2017, PROBABLY THE APRIL TIME

647

00:47:49,269 --> 00:47:53,410

FRAME, AND, AGAIN, A LOT WILL  
DEPEND WHERE WE END UP IN THE

648

00:47:53,410 --> 00:47:54,869

LAUNCH SCHEDULE ON THAT TIME  
FRAME.

649

00:47:54,869 --> 00:47:58,819

IN TERMS OF HARDWARE BEING READY  
TO GO AND TODAY IF WE HAD TO

650

00:47:58,819 --> 00:48:01,529

MATCH IT BASED ON FLIGHT MAN  
TEST WE'LL FLY IT IN THE SPRING

651

00:48:01,529 --> 00:48:05,140

OF 2017.

IN TERMS OF OUR ABILITY TO

652

00:48:05,140 --> 00:48:11,650

SUPPORT COMMERCIAL CREW VEHICLE,

I THINK WE FEEL VERY CONFIDENT

653

00:48:11,650 --> 00:48:15,869

THAT WE HAD A PLAN TO TRY TO BE

THERE, BY THE END OF THIS YEAR,

654

00:48:15,869 --> 00:48:19,809

BUT SOME OF THOSE CIRCUMSTANCES

WERE A LITTLE BIT BEYOND OUR

655

00:48:19,809 --> 00:48:26,319

CONTROL WHEN WE LOST THE

HARDWARE BUT WE'LL HAVE ONE IDA

656

00:48:26,319 --> 00:48:33,359

IN PLACE IN RELATIVELY EARLY

2016 AND WE'LL HAVE THE

657

00:48:33,359 --> 00:48:40,140

REMAINING WORK IN FRONT OF US TO

GET THEM REMOVED IN THE CURRENT

658

00:48:40,140 --> 00:48:46,000

LOCATION, ON NODE 3 PORT SIDE TO

THE NODE 3 ZENITH AND AT THAT

659

00:48:46,000 --> 00:48:50,769

POINT WE'LL TAKE IDA NUMBER 3

WHICH IS WHAT WE'RE CALLING THAT

660

00:48:50,769 --> 00:48:54,170

PARTICULAR IDA AND INSTALL IT IN

THE SPRING OF 2017.

661

00:48:54,170 --> 00:48:58,519

I ANTICIPATE IN THE COMMERCIAL  
CREW GUYS CONTINUE ON THE

662

00:48:58,519 --> 00:49:02,460

SCHEDULE THAT THEY ARE ON.  
WE'LL BE THERE AND READY LOOKING

663

00:49:02,460 --> 00:49:07,920

FOR IT.  
>> ARE DOW HAVE A FOLLOW-UP?

664

00:49:07,920 --> 00:49:13,130

>> I DO HAVE A FOLLOW-UP.  
FOR GRANT.

665

00:49:13,130 --> 00:49:27,799

I WANT TO MAKE SURE THAT THE  
CABLES, YOU ARE INSTALLING THIS

666

00:49:27,799 --> 00:49:29,670

TIME†--  
>> THE FIRST CABLE WE'RE LAYING

667

00:49:29,670 --> 00:49:35,880

DOWN IS POWER CABLES.  
THE PURPLE CABLE IS A POWER

668

00:49:35,880 --> 00:49:39,010

CABLE AND IF WE WERE TO GET TO  
IT AND GET AHEAD, THERE'S STILL

669

00:49:39,010 --> 00:49:43,760

A THIRD CABLE IN THE BACK THAT'S  
15 IS 53 COMMAND AND DATA.

670

00:49:43,760 --> 00:49:48,510

WE'RE LAYING DOWN THE DATA AND  
POWER AND ABLE TO LAY DOWN THE

671

00:49:48,510 --> 00:49:52,180

COMMANDING DATA.

>> I JUST SAW THAT†-- I'M SORRY,

672

00:49:52,180 --> 00:49:56,740

I TRIED TO FOLLOW ALL OF THIS.

BUT IT'S COMPLICATED.

673

00:49:56,740 --> 00:50:03,349

THIS WILL PUT THOSE UTILITIES AT

THE SECOND SPOT FOR AN IDA WHICH

674

00:50:03,349 --> 00:50:08,510

IS ON NODE 2.

AND PMA 3 WILL MOVE OVER AND

675

00:50:08,510 --> 00:50:10,560

THESE UTILITIES WILL BE READY

FOR IT?

676

00:50:10,560 --> 00:50:14,549

>> THAT'S CORRECT.

THE PREVIOUS EVA IS ALREADY

677

00:50:14,549 --> 00:50:18,069

ROUTED FROM THE CABLES OUT THERE

AND WE'RE ROUTING THE SECOND SET

678

00:50:18,069 --> 00:50:21,549

OF CABLES FOR ROUND 3.

THEY ARE PRE STAGING THEM.

679

00:50:21,549 --> 00:50:26,410

WE ARE PLUGGING THEM IN.

AND WHEN THAT HAPPENS TO GO.

680

00:50:26,410 --> 00:50:31,750

TO PRETTY, THE CABLES WILL

ALREADY BE DIRECTED.

681  
00:50:31,750 --> 00:50:33,539  
>> OKAY.  
LOOKS LIKE WE DON'T HAVE ANYBODY

682  
00:50:33,539 --> 00:50:36,000  
ON THE PHONE BRIDGE YET.  
AGAIN IF YOU'RE ON THERE AND YOU

683  
00:50:36,000 --> 00:50:39,890  
HAVE A QUESTION, PRESS STAR 1.  
WE HAVE QUESTION WE COLLECTED

684  
00:50:39,890 --> 00:50:41,950  
FROM SOCIAL MEDIA.  
WE HAVE A FEW MINUTES.

685  
00:50:41,950 --> 00:50:45,390  
WHY DON'T WE TAKE A FEW.  
>> WE HAVE A QUESTION FROM

686  
00:50:45,390 --> 00:50:48,160  
TWITTER.  
IF INSULATION IS NOT COMING

687  
00:50:48,160 --> 00:50:51,000  
THROUGH.  
WHAT IS THE LIMIT OF THE SPACE

688  
00:50:51,000 --> 00:50:53,630  
WALK AS FAR AS DURATION.  
HOW LONG CAN THEY STAY OUT

689  
00:50:53,630 --> 00:50:58,619  
THERE?  
>> YEAH.

690  
00:50:58,619 --> 00:51:02,779  
SO, THERE ARE A LOT OF FACTORS  
THERE.

691

00:51:02,779 --> 00:51:07,130

USUALLY THE LIMITING NUMBER WE  
HAVE, CO 2 SCRUBBING CAPABILITY,

692

00:51:07,130 --> 00:51:11,230

AS IF THE CREW HAS A CANISTER IN  
THEIR SUIT.

693

00:51:11,230 --> 00:51:17,200

ONE IS METAL OXIDE, THE OTHER IS  
LITHIUM HYDROXIDE.

694

00:51:17,200 --> 00:51:21,410

THE LITHIUM HYDROXIDE USUALLY  
GIVES US A LITTLE MORE TIME BUT

695

00:51:21,410 --> 00:51:22,950

DEPENDS ON A CREW'S METABOLIC  
RATE.

696

00:51:22,950 --> 00:51:27,240

WE'VE PLANNED IT FOR 6½ HOURS  
BUT WE'VE SEEN THEM GO AS LONG

697

00:51:27,240 --> 00:51:38,010

AS EIGHT NINE, HOURS.

>> ANOTHER ONE FROM INSTAGRAM.

698

00:51:38,010 --> 00:51:40,710

WHAT PREPARATION NEEDS TO BE  
DONE IN ORDER FOR A SPACE WALK

699

00:51:40,710 --> 00:51:45,069

TO HAPPEN?

>> I GUESS I'LL TAKE THAT ONE.

700

00:51:45,069 --> 00:51:48,529

SO, THERE IS A LOT OF  
PREPARATION, I SUPPOSE IT

701

00:51:48,529 --> 00:51:51,609

DEPENDS.

I'LL START WITH THE BIG PICTURE.

702

00:51:51,609 --> 00:51:54,880

FIRST YOU GOT TO DECIDE WHAT

WE'RE GOING TO DO AND IN THIS

703

00:51:54,880 --> 00:51:58,460

CASE, WE PUT THESE TOGETHER OVER

THE PAST THREE MONTHS AND TURN

704

00:51:58,460 --> 00:52:03,089

IT OVER TO THE TEAMS LED BY

GRANT AND ART.

705

00:52:03,089 --> 00:52:07,970

THEY'LL WORK WITH A LOT OF

ASTRONAUTS HERE ON THE GROUND,

706

00:52:07,970 --> 00:52:13,579

DIVERS, SUIT ENGINEERS AND

SUPPORT PERSONNEL, TO DESIGN THE

707

00:52:13,579 --> 00:52:19,359

EVAs, GET THE DETAILS.

AND SORT OF GET THE CHOREOGRAPHY

708

00:52:19,359 --> 00:52:22,839

DOWN AND MAKE SURE WE CAN GET TO

THE POINT WHERE WE ACTUALLY HAVE

709

00:52:22,839 --> 00:52:28,099

A WORKABLE EVA THAT CAN FIT IN

THAT 6½ HOURS, OR FROM THE

710

00:52:28,099 --> 00:52:32,619

ENGINEERING COUNTERPART TO GET

INTO A LOT OF DETAILS ON, YOU

711

00:52:32,619 --> 00:52:40,359

KNOW, WHAT SETTING TO USE, HOW  
MANY TURNS, TO RUN THAT, LIKE

712

00:52:40,359 --> 00:52:42,670

FROM THE VALVES THAT I WAS  
TALKING ABOUT.

713

00:52:42,670 --> 00:52:44,180

WHETHER OR NOT WE'LL RELEASE  
PNEUMONIA.

714

00:52:44,180 --> 00:52:48,200

WE GO THROUGH ALL OF THOSE  
QUESTIONS ON THE GROUND AND THEN

715

00:52:48,200 --> 00:52:50,940

THESE GUYS START PUTTING  
TOGETHER PACKAGES OF TRAINING

716

00:52:50,940 --> 00:52:54,980

MATERIALS FOR THE CREW.  
IT'S REALLY KIND OF UNIQUE HOW

717

00:52:54,980 --> 00:52:58,970

WE TRAIN THE CREW ON ORBIT.  
WE START WITH POWER POINT

718

00:52:58,970 --> 00:53:02,150

PRESENTATIONS BUT WE GOT TO  
REALLY†-- BUT THEN WE GET INTO A

719

00:53:02,150 --> 00:53:05,019

REALLY REMARKABLE TOOL WE HAVE  
CALLED DOUG.

720

00:53:05,019 --> 00:53:10,130

I FORGET WHAT IT STANDS FOR BUT  
IT WAS THE GRAPHICS THAT YOU SEE

721

00:53:10,130 --> 00:53:13,500

HERE THAT WE ARE GOING THROUGH.  
THE CREW HAS THAT ON BOARD,

722

00:53:13,500 --> 00:53:17,829

WHICH IS PRETTY NEAT AND PUT A  
PROJECTOR SCREEN UP.

723

00:53:17,829 --> 00:53:21,839

SO THE CREW CAN SEE IT IN A  
FAIRLY LARGE FORMAT AND WORK

724

00:53:21,839 --> 00:53:26,109

THROUGH THE EVA.  
TALK TOGETHER HOW THEY DO THINGS

725

00:53:26,109 --> 00:53:30,559

AND COME UP WITH A STRATEGY.  
IT'S LIKE A COMBINATION OF DEEP

726

00:53:30,559 --> 00:53:35,059

SEA DIVING AND MOUNTAIN  
CLIMBING.

727

00:53:35,059 --> 00:53:40,430

IT'S A LOT OF MOVING PARTS.  
IT'S BETWEEN THE CRUCE AND THE

728

00:53:40,430 --> 00:53:42,150

SUITS AND MACHINES THAT THEY ARE  
IN.

729

00:53:42,150 --> 00:53:45,220

THAT SORT OF GETS THEM READY FOR  
THIS TASK AND THEN A COUPLE

730

00:53:45,220 --> 00:53:47,950

WEEKS OUT, WE START PREPPING THE  
SUITS.

731

00:53:47,950 --> 00:53:51,710

WE GOT THESE SUITS LOADED UP.  
WE HAVE LOOSE GRUB.

732

00:53:51,710 --> 00:53:57,950

GOT A SET OF WATER IN THEM.  
WE DID MAINTENANCE IN

733

00:53:57,950 --> 00:54:02,619

PARTICULAR, HAD TO CHANGE OUT†--  
THIS TIME AROUND HAD TO CHANGE

734

00:54:02,619 --> 00:54:05,140

SOME UMBILICAL LINES TO THAT GO  
FROM THE AIRLINE FROM THE SUIT

735

00:54:05,140 --> 00:54:09,869

TO PROVIDE THEM COOLING WATER,  
OXYGEN AND POWER WHILE THE CREW

736

00:54:09,869 --> 00:54:12,680

IS IN THE AIR LOCK.  
THEN MOVES UP TO WHAT WE DID

737

00:54:12,680 --> 00:54:18,099

TODAY CALL AN UNORBIT FIT  
VERIFICATION, WHEN WE GET INTO

738

00:54:18,099 --> 00:54:20,660

SPACE, THEIR SPINE SHOULD  
ELONGATE A LITTLE BIT AND WE

739

00:54:20,660 --> 00:54:24,109

HAVE A GOOD IDEA, WHAT THE SUIT  
CAN DO ON THE GROUND.

740

00:54:24,109 --> 00:54:26,609

WE HAVE MAKE SURE WHEN WE ADAPT  
IN ORBIT.

741

00:54:26,609 --> 00:54:35,230

WE HAVE SUITS THAT ARE NOT WELL  
ADJUSTED AND FITTING WELL, YOU

742

00:54:35,230 --> 00:54:37,839

CAN START DOING THINGS LIKE  
PUTTING PRESSURE ON THE WRONG

743

00:54:37,839 --> 00:54:41,910

POINTS OF THE SUIT WHICH TENDS  
TO BE FATIGUING ESPECIALLY WHEN

744

00:54:41,910 --> 00:54:44,119

YOU'RE GETTING TO THE FOUR, FIVE  
HOUR POINT.

745

00:54:44,119 --> 00:54:48,910

SO, THEY ARE DOING THAT AND ALSO  
WORKING THE PROCEDURE REVIEWS,

746

00:54:48,910 --> 00:54:50,500

WE HAD VIDEO CONFERENCES WITH  
THE CREW.

747

00:54:50,500 --> 00:54:55,940

WE DID ONE A COUPLE DAYS AGO.  
WE GOT ANOTHER ONE ON FRIDAY.

748

00:54:55,940 --> 00:54:57,609

FINAL THING WE DO, WE TRY TO  
GIVE THE CREW ABOUT A HALF DAY

749

00:54:57,609 --> 00:55:00,539

OFF BEFORE WE GO EVA.  
EVA IS A LONG DAY.

750

00:55:00,539 --> 00:55:04,650

WE GO AHEAD AND EXECUTE THE EVA  
AND HAVE A HALF DAY OFF

751

00:55:04,650 --> 00:55:09,440

AFTERWARDS.

SO, A LOT OF MOVING PARTS ON

752

00:55:09,440 --> 00:55:14,119

ORBIT AND ON THE GROUND.

A LOT OF BOOKS INVOLVED TO

753

00:55:14,119 --> 00:55:16,390

SUPPORT THESE TWO GUYS AND WHAT

THEY ARE GOING TO DO.

754

00:55:16,390 --> 00:55:19,980

>> THANK YOU.

>> WE HAVE ONE MORE FROM SOCIAL

755

00:55:19,980 --> 00:55:21,769

MEDIA.

THIS COMES FROM TWITTER.

756

00:55:21,769 --> 00:55:24,339

WHAT DO YOU ANTICIPATE WILL BE

THE MOST CHALLENGING ASPECTS OF

757

00:55:24,339 --> 00:55:28,069

THE SPACE WALK?

>> MAYBE EACH ONE OF YOU CAN

758

00:55:28,069 --> 00:55:31,609

HANDLE THAT?

>> I'M FIRST, HUH?

759

00:55:31,609 --> 00:55:33,910

>> THE MOST DIFFICULT PART IS

GETTING OUT THE DOOR.

760

00:55:33,910 --> 00:55:39,349

ONCE THE CREW GETS OUT THE DOOR

AND GETS SETTLED DOWN, EVAs GO

761

00:55:39,349 --> 00:55:41,529

FAIRLY TYPICAL.

LIKE MIKE WAS SAYING, THERE'S A

762

00:55:41,529 --> 00:55:45,440

LONG ROAD TO GET THERE.

GET IN THE SUITS AND GET OUT THE

763

00:55:45,440 --> 00:55:48,799

DOOR.

GETTING OUT THE DOOR THE CREW IS

764

00:55:48,799 --> 00:55:52,740

CONSTANTLY SETTling.

THE BUILD UP IS COMPLICATED.

765

00:55:52,740 --> 00:55:57,619

THE TASKS OUTSIDE, ALTHOUGH THEY

ARE CHALLENGING, IT'S THE FINAL

766

00:55:57,619 --> 00:55:59,869

PRODUCT.

TO ME GETTING OUT THE DOOR IS

767

00:55:59,869 --> 00:56:04,690

THE MOST CHALLENGING.

>> FOR US, WE HAVE A LOT OF

768

00:56:04,690 --> 00:56:08,589

TASKS THAT ARE JAM-PACKED INTO A

SINGLE EVA.

769

00:56:08,589 --> 00:56:11,359

WE HAVE HIGH CONFIDENCE IT WILL

FIT.

770

00:56:11,359 --> 00:56:13,769

THE BIGGEST THING IS KEEPING

THINGS MOVING AND IF WE RUN INTO

771

00:56:13,769 --> 00:56:17,329

ANY KIND OF UNEXPECTED ISSUE,  
WORKING THROUGH THAT QUICKLY AND

772

00:56:17,329 --> 00:56:20,160

FINDING A WAY TO RESOLVE THE  
PROBLEM.

773

00:56:20,160 --> 00:56:23,769

>>> ALL RIGHT.

THAT WILL WRAP IT UP FOR US

774

00:56:23,769 --> 00:56:25,289

TODAY.

I WANT TO THANK OUR BRIEFERS FOR

775

00:56:25,289 --> 00:56:28,150

JOINING ME TODAY AND FOR ALL OF  
THE QUESTION THAT CAME IN FROM

776

00:56:28,150 --> 00:56:31,539

REPORTERS AND FROM SOCIAL MEDIA.  
JUST A REMINDER TO CHECK OUT

777

00:56:31,539 --> 00:56:34,339

BOTH OF THESE SPACE WALKS LIVE  
ON NASA TV.

778

00:56:34,339 --> 00:56:37,730

YOU CAN SEE AWFUL THE LATEST  
UPDATES AND TIMES BY HEADING

779

00:56:37,730 --> 00:56:41,549

OVER TO OUR WEBSITE AT  
NASA.GOV/STATION.