
Chevron Nozzles

1
00:00:16,029 --> 00:00:12,740
this week at NASA sts-133 is now

2
00:00:19,609 --> 00:00:16,039
targeted to begin on februari 24th at

3
00:00:22,279 --> 00:00:19,619
450 p.m. shuttle program managers

4
00:00:24,380 --> 00:00:22,289
believe that by then modifications to

5
00:00:27,439 --> 00:00:24,390
support beings on discoveries external

6
00:00:29,689 --> 00:00:27,449
tank will have been completed cracks in

7
00:00:32,840 --> 00:00:29,699
these support beams call stringers were

8
00:00:35,299 --> 00:00:32,850
discovered after sts-133 launch attempt

9
00:00:37,490 --> 00:00:35,309
on November fifth a combination of

10
00:00:39,560 --> 00:00:37,500
material and assembly stresses have

11
00:00:42,440 --> 00:00:39,570
since been identified as their root

12
00:00:46,729 --> 00:00:42,450
cause the engineering teams at kennedy

13
00:00:48,619 --> 00:00:46,739

at marshall at JSC here of the prime

14
00:00:51,439 --> 00:00:48,629
contractor on the tank lockheed martin

15
00:00:54,110 --> 00:00:51,449
they're all in sync with our fix they

16
00:00:57,110 --> 00:00:54,120
agree that there were on the road to to

17
00:01:00,229 --> 00:00:57,120
bringing this tank to 100% the

18
00:01:01,910 --> 00:01:00,239
six-member crew of sts-133 the next to

19
00:01:04,579 --> 00:01:01,920
last scheduled space shuttle mission

20
00:01:06,620 --> 00:01:04,589
will deliver logistics and supplies to

21
00:01:08,870 --> 00:01:06,630
the International Space Station as well

22
00:01:10,760 --> 00:01:08,880
as perform maintenance and outfitting of

23
00:01:12,440 --> 00:01:10,770
the orbiting complex our primary

24
00:01:15,890 --> 00:01:12,450
objective the way I describe it for

25
00:01:18,109 --> 00:01:15,900
people in a nutshell is is to basically

26
00:01:20,539 --> 00:01:18,119
leave space station in the best possible

27
00:01:22,760 --> 00:01:20,549
shape for the next error which is the

28
00:01:25,130 --> 00:01:22,770
arrow Linea we're no longer flying space

29
00:01:28,390 --> 00:01:25,140
shuttles and have huge amounts of up

30
00:01:31,270 --> 00:01:28,400
mass we can take up the space station

31
00:01:34,810 --> 00:01:31,280
good day Vladimir Vladimirovich the crew

32
00:01:36,880 --> 00:01:34,820
of expedition 26 to the ISS the

33
00:01:38,980 --> 00:01:36,890
expedition 26 crew aboard the

34
00:01:40,600 --> 00:01:38,990
International Space Station received a

35
00:01:43,600 --> 00:01:40,610
call from Russian Prime Minister

36
00:01:47,830 --> 00:01:43,610
Vladimir Putin in Moscow I would like to

37
00:01:50,440 --> 00:01:47,840
greet everybody at the Mission Control

38
00:01:52,930 --> 00:01:50,450

Putin offered his condolences to ISS

39
00:01:55,750 --> 00:01:52,940
commander Scott Kelly for the tragedy in

40
00:01:57,670 --> 00:01:55,760
Tucson and assured Kelly all Russians

41
00:02:01,660 --> 00:01:57,680
were touched by the news we express our

42
00:02:04,480 --> 00:02:01,670
deepest condolences to your family and

43
00:02:07,719 --> 00:02:04,490
to all those who were touched by this

44
00:02:09,910 --> 00:02:07,729
terrible crime putin also passed along

45
00:02:12,070 --> 00:02:09,920
his best wishes and prayers to Kelly's

46
00:02:14,260 --> 00:02:12,080
brother mark and for the recovery of

47
00:02:18,630 --> 00:02:14,270
Mark's wife Congresswoman Gabrielle

48
00:02:22,210 --> 00:02:18,640
Giffords peep about my connector yeah

49
00:02:24,400 --> 00:02:22,220
headed on thank you very much of course

50
00:02:26,770 --> 00:02:24,410
I will pass on your horse to my brother

51
00:02:28,720 --> 00:02:26,780
Putin then invited the crew to Moscow in

52
00:02:30,850 --> 00:02:28,730
April for a series of events to

53
00:02:33,520 --> 00:02:30,860
commemorate the 50th anniversary of the

54
00:02:39,880 --> 00:02:33,530
first human in space Yuri Gagarin on

55
00:02:42,070 --> 00:02:39,890
April twelfth 1961 the Prime Minister

56
00:02:46,840 --> 00:02:42,080
chairs the National Commission helping

57
00:02:49,330 --> 00:02:46,850
organize the celebration on anywhere

58
00:02:52,150 --> 00:02:49,340
else where water is involved as in past

59
00:02:54,670 --> 00:02:52,160
years NASA research findings took front

60
00:02:57,550 --> 00:02:54,680
and center at the 2011 meeting of the

61
00:03:01,180 --> 00:02:57,560
american astronomical society held this

62
00:03:03,100 --> 00:03:01,190
year in seattle among them confirmation

63
00:03:06,340 --> 00:03:03,110

that NASA's Kepler spacecraft has

64
00:03:10,180 --> 00:03:06,350
discovered its first rocky planet named

65
00:03:12,520 --> 00:03:10,190
Kepler 10 B it's 1.4 times the size of

66
00:03:14,949 --> 00:03:12,530
Earth and is the smallest planet ever

67
00:03:16,960 --> 00:03:14,959
discovered outside our solar system

68
00:03:19,210 --> 00:03:16,970
after 10 B is orbiting a star very much

69
00:03:20,250 --> 00:03:19,220
like our own Sun but with an age larger

70
00:03:23,190 --> 00:03:20,260
than 28

71
00:03:27,979 --> 00:03:23,200
in a distance of 560 light-years and we

72
00:03:31,140 --> 00:03:27,989
know this is one of the best known stars

73
00:03:32,960 --> 00:03:31,150
harboring an exoplanet it exists to date

74
00:03:35,490 --> 00:03:32,970
the discovery of this so-called

75
00:03:38,039 --> 00:03:35,500
exoplanet is based on more than eight

76
00:03:42,660 --> 00:03:38,049
months of data collected by Kepler from

77
00:03:44,640 --> 00:03:42,670
may 2009 to early january 2010 using

78
00:03:47,099 --> 00:03:44,650
Kepler's detection of changes in a

79
00:03:49,349 --> 00:03:47,109
star's brightness as a planet orbits in

80
00:03:51,509 --> 00:03:49,359
front of it astronomers can measure the

81
00:03:54,360 --> 00:03:51,519
distance between the planet and the star

82
00:03:56,970 --> 00:03:54,370
since Kepler can be orbits its star in

83
00:04:00,899 --> 00:03:56,980
less than a day it's deemed too hot to

84
00:04:02,849 --> 00:04:00,909
support life as we know it there's been

85
00:04:04,860 --> 00:04:02,859
some very exciting results related to

86
00:04:08,369 --> 00:04:04,870
Mars research in the past 10 years or so

87
00:04:10,649 --> 00:04:08,379
a Mars exploration program event was

88
00:04:12,629 --> 00:04:10,659

held at the moving beyond Earth gallery

89
00:04:15,990 --> 00:04:12,639
at the Smithsonian's National Air and

90
00:04:18,180 --> 00:04:16,000
Space Museum in Washington entitled from

91
00:04:21,090 --> 00:04:18,190
follow the water to seeking signs of

92
00:04:24,180 --> 00:04:21,100
life prominent scientists from NASA the

93
00:04:25,950 --> 00:04:24,190
European Space Agency and academia took

94
00:04:28,529 --> 00:04:25,960
part in a discussion that highlighted

95
00:04:30,510 --> 00:04:28,539
milestones achieved in the exploration

96
00:04:31,800 --> 00:04:30,520
of the red planet following the water

97
00:04:34,260 --> 00:04:31,810
we've been trying to understand the

98
00:04:35,909 --> 00:04:34,270
history of water on this planet and why

99
00:04:38,490 --> 00:04:35,919
our sister planet looks so different

100
00:04:40,320 --> 00:04:38,500
today than the earth looks we've learned

101
00:04:42,719 --> 00:04:40,330
a lot about that but now we're ready to

102
00:04:45,060 --> 00:04:42,729
move to a new phase about whether life

103
00:04:47,189 --> 00:04:45,070
ever existed on that planet or doesn't

104
00:04:49,379 --> 00:04:47,199
exist today presenters also talked about

105
00:04:51,750 --> 00:04:49,389
upcoming missions such as the Mars

106
00:04:54,779 --> 00:04:51,760
Science Laboratory slated to launch this

107
00:05:00,890 --> 00:04:54,789
year and new discoveries anticipated in

108
00:05:05,719 --> 00:05:03,320
airplane passengers and people living

109
00:05:07,610 --> 00:05:05,729
near airports are all too familiar with

110
00:05:10,340 --> 00:05:07,620
the noise associated with air travel

111
00:05:13,189 --> 00:05:10,350
after years of work and research with

112
00:05:14,840 --> 00:05:13,199
partners in industry and academia nASA

113
00:05:18,409 --> 00:05:14,850

has developed a noise reduction

114
00:05:20,900 --> 00:05:18,419
technology called Chevron's Chevron's

115
00:05:23,540 --> 00:05:20,910
the sawtooth pattern on this jet engines

116
00:05:25,820 --> 00:05:23,550
trailing edges can significantly reduce

117
00:05:29,480 --> 00:05:25,830
the noise caused by commercial jet

118
00:05:31,730 --> 00:05:29,490
airplanes one commercial airliner with

119
00:05:34,340 --> 00:05:31,740
Chevron equipped jet engines is the new

120
00:05:36,260 --> 00:05:34,350
boeing 787 the Chevron's are the

121
00:05:37,580 --> 00:05:36,270
sawtooth pattern that you can see me if

122
00:05:39,020 --> 00:05:37,590
I hold it this angle a little bit better

123
00:05:42,170 --> 00:05:39,030
you can see the sawtooth pattern that's

124
00:05:44,390 --> 00:05:42,180
what it's called the Chevron and that is

125
00:05:48,200 --> 00:05:44,400
a change from just the regular smooth

126
00:05:51,920 --> 00:05:48,210
round lip that most nozzles have that

127
00:05:54,620 --> 00:05:51,930
change modifies how the flow downstream

128
00:05:56,089 --> 00:05:54,630
of the engine makes noise makes it so

129
00:05:57,860 --> 00:05:56,099
that it doesn't make as much noise which

130
00:06:01,189 --> 00:05:57,870
is obviously what we all want aircraft

131
00:06:03,230 --> 00:06:01,199
to be quieter NASA is also exploring

132
00:06:06,200 --> 00:06:03,240
noise reduction technologies for

133
00:06:08,089 --> 00:06:06,210
helicopters notoriously loud because of

134
00:06:11,029 --> 00:06:08,099
the air turbulence kicked up by their

135
00:06:13,159 --> 00:06:11,039
spinning blades like Chevron technology

136
00:06:15,620 --> 00:06:13,169
for jets finding a solution for

137
00:06:18,050 --> 00:06:15,630
helicopter noise will be one of trial

138
00:06:20,689 --> 00:06:18,060

and error the development of Chevron's

139
00:06:24,379 --> 00:06:20,699
is the one a good example of the kind of

140
00:06:27,080 --> 00:06:24,389
work it requires in this country and to

141
00:06:29,089 --> 00:06:27,090
bring ideas from fundamental research

142
00:06:31,610 --> 00:06:29,099
all the way to a product a display of

143
00:06:33,830 --> 00:06:31,620
Chevron's and how they work is on view

144
00:06:38,510 --> 00:06:33,840
in the lobby of NASA headquarters in

145
00:06:42,650 --> 00:06:40,670
with the construction of the langley

146
00:06:45,920 --> 00:06:42,660
research center's hydro impact basin

147
00:06:48,050 --> 00:06:45,930
complete 1 million gallons of water were

148
00:06:51,110 --> 00:06:48,060
pumped into the new a hundred fifteen

149
00:06:54,740 --> 00:06:51,120
foot long 20-foot deep and 90 foot wide

150
00:06:57,020 --> 00:06:54,750
facility this time lapse video documents

151
00:07:00,140 --> 00:06:57,030
the two-day process of filling the

152
00:07:02,180 --> 00:07:00,150
gantry the basin is located at the west

153
00:07:04,909 --> 00:07:02,190
end of Langley's historic landing and

154
00:07:07,399 --> 00:07:04,919
impact research facility nicknamed the

155
00:07:09,800 --> 00:07:07,409
gantry it's where Neil Armstrong once

156
00:07:12,499 --> 00:07:09,810
trained for the Apollo 11 lunar mission

157
00:07:14,659 --> 00:07:12,509
the gantry measures and controls the

158
00:07:17,240 --> 00:07:14,669
orientation of a test vehicle or

159
00:07:22,820 --> 00:07:17,250
equipment while obtaining information on

160
00:07:24,920 --> 00:07:22,830
it impact velocity data obtained here

161
00:07:27,559 --> 00:07:24,930
will be used to validate and certify

162
00:07:37,659 --> 00:07:27,569
space vehicles such as the Orion capsule

163
00:07:41,779 --> 00:07:39,890

teenagers around the world are ramping

164
00:07:44,240 --> 00:07:41,789
up their engineering skills with the

165
00:07:46,370 --> 00:07:44,250
start of the 2011 FIRST Robotics

166
00:07:48,320 --> 00:07:46,380
Competition high school students from

167
00:07:50,059 --> 00:07:48,330
Southeast Virginia filed into the

168
00:07:52,580 --> 00:07:50,069
Virginia Air and Space Center in Hampton

169
00:07:54,950 --> 00:07:52,590
January eighth to learn more about this

170
00:07:57,490 --> 00:07:54,960
year's challenge they watched as

171
00:07:59,990 --> 00:07:57,500
speakers and a live broadcast on nasa TV

172
00:08:03,620 --> 00:08:00,000
unveiled the requirements for logo

173
00:08:06,170 --> 00:08:03,630
motion build a robot and mini bot that

174
00:08:08,510 --> 00:08:06,180
can move and climb as the egg game

175
00:08:11,570 --> 00:08:08,520
starts minibus race to the top of the

176
00:08:13,399 --> 00:08:11,580
towers each team including team 122 the

177
00:08:15,800 --> 00:08:13,409
NASA Knights mentored by engineers at

178
00:08:19,219 --> 00:08:15,810
nearby langley research center receives

179
00:08:21,559 --> 00:08:19,229
the same kit of parts battery nuts bolts

180
00:08:24,589 --> 00:08:21,569
cables everything they would need to

181
00:08:30,709 --> 00:08:24,599
build their creations except imagination

182
00:08:32,600 --> 00:08:30,719
and skill the new lab 2073 teams in nine

183
00:08:35,389 --> 00:08:32,610
countries will design solutions for

184
00:08:38,360 --> 00:08:35,399
FIRST Robotics 20th game the first step

185
00:08:40,399 --> 00:08:38,370
for Team 122 transporting the kit to its

186
00:08:44,060 --> 00:08:40,409
home turf new horizons Regional

187
00:08:45,740 --> 00:08:44,070
Education Center more than 50 team

188
00:08:47,780 --> 00:08:45,750

members and mentors representing a

189
00:08:50,389 --> 00:08:47,790
number of local schools and home schools

190
00:08:53,600 --> 00:08:50,399
waited they're ready to get to work on

191
00:08:56,510 --> 00:08:53,610
the new game this one I think it's gonna

192
00:08:57,889 --> 00:08:56,520
be a little challenging I don't know if

193
00:08:58,850 --> 00:08:57,899
it's maybe more challenging some of the

194
00:09:00,470 --> 00:08:58,860
older ones some things are pretty

195
00:09:02,210 --> 00:09:00,480
complicated I think we should be able to

196
00:09:04,760 --> 00:09:02,220
make this and pretty well the ultimate

197
00:09:07,310 --> 00:09:04,770
goal to design robots that will get the

198
00:09:09,680 --> 00:09:07,320
team to the finals in st. Louis in April

199
00:09:11,990 --> 00:09:09,690
I really like the competition and

200
00:09:14,180 --> 00:09:12,000
everyone just working together and when

201
00:09:16,540 --> 00:09:14,190
you go to the regionals and the

202
00:09:18,949 --> 00:09:16,550
championship everyone's just so nice and

203
00:09:20,990 --> 00:09:18,959
they're easy to work with and it's a lot

204
00:09:23,269 --> 00:09:21,000
of fun team members will be spending a

205
00:09:25,730 --> 00:09:23,279
lot of time together they have only six

206
00:09:28,579 --> 00:09:25,740
weeks to complete their robots NASA

207
00:09:30,889 --> 00:09:28,589
sponsors more than 275 first robotics

208
00:09:35,810 --> 00:09:30,899
teams will follow the NASA Knights of

209
00:09:39,860 --> 00:09:35,820
Langley to update their progress five

210
00:09:41,810 --> 00:09:39,870
years ago on january fifteenth 2006 the

211
00:09:45,230 --> 00:09:41,820
return capsule from nasa's stardust

212
00:09:48,019 --> 00:09:45,240
spacecraft completed its 2.9 billion

213
00:09:50,210 --> 00:09:48,029

mile round-trip journey to collect dust

214
00:09:52,639 --> 00:09:50,220
samples from the tail of comet ville de

215
00:09:54,620 --> 00:09:52,649
to research done on these particles

216
00:09:57,079 --> 00:09:54,630
gathered in the capsules aerogel

217
00:09:59,329 --> 00:09:57,089
collector revealed some surprises

218
00:10:02,510 --> 00:09:59,339
including the samples closer resemblance

219
00:10:05,059 --> 00:10:02,520
to a meteorite from an asteroid and that

220
00:10:07,340 --> 00:10:05,069
of an ancient comet Stardust is the

221
00:10:09,860 --> 00:10:07,350
first spacecraft to safely make it back

222
00:10:14,120 --> 00:10:09,870
to earth with commentary dust particles

223
00:10:16,550 --> 00:10:14,130
in tow and that's this week @nasa for

224
00:10:21,210 --> 00:10:16,560
more on these and other stories log on